IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

UNITED STATES OF AMERICA, Plaintiffs, v. THE CITY OF PERTH AMBOY, NEW JERSEY A Municipal Corporation, and THE STATE OF NEW JERSEY Defendants.	)	Civil Action No. _____

CONSENT DECREE

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I. BACKGROUND

A. The United States of America, on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), (the "Plaintiff"), has filed a Complaint in this action concurrently with this Consent Decree, alleging that Defendant the City of Perth Amboy, New Jersey ("City"), violated Section 301(a) and the permit issued pursuant to Section 402(a) of the Clean Water Act ("Act"), 33 U.S.C. §§ 1311(a) and 1342(a);

B. The City owns and operates a combined sewer system ("CSS"), with small areas of separate sewers, that collects sewage and stormwater and pumps it to a wastewater treatment plant ("WWTP") owned and operated by the Middlesex County Utilities Authority ("MCUA"). The City's CSS encompasses approximately 311,000 linear feet of sewer lines, 4 pump stations, 1,250 stormwater catch basins, and 16 combined sewer overflow points ("CSOs"), eight of which discharge untreated sewage and stormwater to the Arthur Kill River and eight of which discharge untreated sewage and stormwater to the Raritan River. Both the Arthur Kill and Raritan Rivers flow into the Raritan Bay;

C. The Complaint seeks injunctive relief and civil penalties from the City, pursuant to Sections 309(b) and (d) of the Act, 33 U.S.C. §§1319(b) and (d), for violations of Section 301(a) of the Act, 33 U.S.C. § 1311(a), and of its New Jersey Pollutant Discharge Elimination System ("NJPDES") General Permit for Combined Sewer Systems, NJPDES Permit No. NJ0105023 ("CSS General Permit"), that was issued pursuant to Section 402(a) of the Act, 33 U.S.C. § 1342(a). The State of New Jersey ("New Jersey") is a defendant in this action solely for the purposes of Section 309(e) of the Act, 33 U.S.C. §1319(e);

D. The City does not admit liability to the United States arising out of the transactions or occurrences alleged in the Complaint;

E. Entry of this Consent Decree by the Court will resolve all claims in the Complaint; and

F. The United States and the City (collectively, the "Parties") recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation among the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without adjudication or admission of any issue of fact or law, except as otherwise provided herein, IT IS HEREBY ADJUDGED, ORDERED AND DECREED as follows:

II. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, and over the Parties, pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 309(b) and (d) of the Act, 33 U.S.C. § 1319(b) and (d). Venue lies in this judicial district pursuant to Section 309(b) of the Act, 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and (c) and 1395(a), because the City is located in this judicial district and because the violations alleged in the Complaint are alleged to have occurred in this judicial district. For purposes of this Decree, or any action to enforce this Decree, the City consents to the Court's jurisdiction over this Decree or such action, and over the City, and consents to venue in this judicial district.

2. For purposes of this Consent Decree, the City agrees that the Complaint states claims upon which relief may be granted pursuant to Sections 309(b) and (d) of the Act, 33 U.S.C. §§ 1319(b) and (d).

III. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States and upon the City and any successors, assigns, or other entities or persons otherwise bound by law.

4. The City shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Consent Decree. The City shall condition any such contract upon performance of the work in conformity with the terms of this Consent Decree.

5. In any action to enforce this Consent Decree, the City shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

6. No transfer of ownership or operation of the CSS, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve the City of its obligation to ensure that the terms of this Consent Decree are implemented: unless (1) the transferee agrees to undertake the obligations required by Sections VI (Compliance Requirements) and VIII (Stipulated Penalties) of this Decree and to be substituted for the City as a Party under the Decree and thus be bound by the terms thereof, and (2) the United States consents to relieve the City of its obligations. The decision of the United States to refuse to approve the substitution of the transferee for the City shall not be subject to judicial review. At least 30 Days prior to such transfer, the City shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to the United States Department of Justice and EPA Region 2, in accordance with Section XIV (Notices and Submissions). Any attempt to transfer ownership or operation of the CSS without complying with this Paragraph constitutes a violation of this Consent Decree.

IV. DEFINITIONS

7. Terms used in this Consent Decree that are defined in the Clean Water Act or in regulations promulgated pursuant to the Clean Water Act shall have the meanings assigned to them in the Clean Water Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

a. "Arthur Kill River" shall mean the navigable river flowing along the eastern coast of the City and into the Raritan Bay, to the south of the City.

b. "City" shall mean the City of Perth Amboy, New Jersey, the Defendant in the above-captioned action. Unless otherwise specified, references to locations in this Consent Decree are to locations within the City.

c. "Combined Sewer Overflow" or "CSO" shall mean any discharge from the City's Combined Sewer System at a permitted point.

d. "Combined Sewer System" or "CSS" shall mean the portion of the City's sewer system designed to convey municipal sewage (domestic, commercial or industrial wastewater) and stormwater through a single-pipe system to the Middlesex County Utilities Authority wastewater treatment plant or to a CSO structure.

e. "Complaint" shall mean the Complaint filed by the United States in this action.

f. "Consent Decree" or "Decree" shall mean this Consent Decree and all appendices hereto (listed in Section XXIII.).

g. "Day" shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business on the next business

day.

h. "Effective Date" shall have the definition provided in Section XV.

i. "EPA" shall mean the United States Environmental Protection Agency and any of its successor departments or agencies.

j. "Force Main" shall mean a pipe that receives wastewater from the discharge side of a pump and conveys the wastewater under pressure.

k. "Gravity Sewer Line" shall mean a pipe that receives and contains wastewater and conveys the wastewater normally not under pressure or with any assistance other than the influence of gravity.

l. "Inflow" shall mean water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross-connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm water, surface runoff, street wash waters, or drainage, as provided in 40 C.F.R. § 35.2005(b)(21).

m. "Major Gravity Line" shall mean any of the following:

i. A Gravity Sewer Line that is 12 inches in diameter or larger;

ii. Any eight-inch Gravity Sewer Line that is necessary to accurately represent flow attributable to a service area in a Sewershed;

iii. A Gravity Sewer Line that conveys wastewater from one Pumping Station service area to another Pumping Station service area; or

iv. A Gravity Sewer Line downstream of any capacity-related SSO or CSO.

n. "NJPDES Permit" shall mean New Jersey Pollutant Discharge Elimination System permit number NJ0105023 issued to the City pursuant to the New Jersey Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and Section 402 of the Act, 33 U.S.C. § 1342, for the City's CSS, and any future extended, modified, or reissued permit therefore.

o. "Paragraph" shall mean a portion of this Decree identified by an arabic numeral, unless specified otherwise.

p. "Parties" shall mean the United States and the City of Perth Amboy.

q. "Pumping Station" shall mean facilities comprised of pumps which lift wastewater to a higher hydraulic elevation, including all related electrical, mechanical, and structural systems necessary to the operation of that pumping station.

r. "Raritan River" shall mean the navigable river flowing along the southern coast of the City and into the Raritan Bay, to the south of the City.

s. "Sanitary Sewer Overflow" or "SSO" shall mean an overflow, spill, diversion, or release of wastewater from or caused by the Sanitary Sewer System ("SSS"). This term shall include:

i. Discharges to waters of the State or United States from the SSS; and

ii. Any release of wastewater from the SSS to public or private property (including building or private property backups) that does not reach waters of the United States or the State.

t. "Sanitary Sewer System" or "SSS" shall mean the system of sewers intended to carry liquid and water-carried waste to the MCUA WWTP, or to any Sanitary Sewer Overflow structure, from residences, commercial buildings, industrial plants and institutions, together with minor quantities of ground, storm and surface waters that are not admitted intentionally.

u. "Sewershed" shall mean a section of the City's system that is a distinct drainage or wastewater collection area, and which is designated as such by the City.

v. "Section" shall mean a portion of this Decree identified by a roman numeral.

w. "Sewer System" shall mean the City's wastewater collection and transmission system, including all pipes, interceptors, Force Mains, Gravity Sewer Lines, lift stations, Pumping Stations, manholes and appurtenances thereto, owned or operated by the City, and

which are located, or connected to system components located in the City.

x. "State" shall mean the State of New Jersey.

y. "United States" shall mean the United States of America, acting on behalf of EPA.

z. "WWTP" shall mean the Middlesex County Utilities Authority's wastewater treatment plant and all of its components, located at 2571 Main Street, Sayreville, New Jersey 08872.

aa. "Work" shall mean all activities the City is required to perform under this Decree.

V. CIVIL PENALTY

8. In satisfaction of the civil claims asserted by the United States in the Complaint filed in this matter, within thirty (30) Days after the Effective Date, the City shall pay a civil penalty of $ 17,000.00 to the United States, together with an additional amount as interest thereon, accruing from the date on which the Decree is lodged with the Court through the date of payment, at the rate specified in 28 U.S.C. § 1961 as of the date of lodging.

9. Payment to the United States shall be made by FedWire Electronic Funds Transfer ("EFT") to the U.S. Department of Justice in accordance with instructions to be provided to the City, following lodging of the Decree, by the Financial Litigation Unit of the U.S. Attorney's Office for the District of New Jersey. At the time of payment, the City shall send a copy of the EFT authorization form and the EFT transaction record, together with a transmittal letter, which shall state that the payment is for the civil penalty owed pursuant to the Consent Decree in United States of America v. the City of Perth Amboy, and shall reference the civil action number and DOJ case number 90-5-1-1-09500, to the United Stated in accordance

with Section XIV (Notices and Submissions); by email to acctsreceivable.CINWD@epa.gov; and by mail to:

EPA Cincinnati Finance Office
26 Martin Luther King Drive
Cincinnati, Ohio 45268.

VI. COMPLIANCE REQUIREMENTS

10. The City shall implement the projects and programs identified in this Section and in Appendices A and B in order to ensure that the City's CSS complies with the requirements of the Act, the regulations promulgated thereunder, the State water pollution control laws, the regulations promulgated under such laws, and the City's NJPDES Permit. The City shall implement all such measures in a timely manner, in accordance with all schedules required hereunder or otherwise approved by EPA, in order to control and minimize all CSOs.

11. Compliance with NJPDES Permit. The City shall at all times comply with all requirements of the City's NJPDES Permit including, but not limited to:

a. Maximizing the conveyance of wastewater to the WWTP in accordance with Permit Part IV § C.6;

b. Conducting annual inspections of all CSO control facilities, in accordance with Permit Part IV § D;

c. Maintaining, implementing, and annually updating, as necessary, its Combined Sewer Overflow Pollution Prevention Plan ("CSOPPP"), in accordance with Permit Part IV §§ D and E; and

d. Submitting annual permit compliance certifications in accordance with Permit Part IV § D.2.

Any failure to comply with all requirements of the City's NJPDES Permit shall constitute a violation of this Consent Decree.

12. System-wide Engineering Assessment and Corrective Action Plan.

a. Pursuant to Administrative Order CWA-02-2008-3033, issued to the City by EPA on July 25, 2008, the City was required to conduct an inspection and prepare an engineering assessment ("Inspection and Engineering Assessment") of the entire CSS, including, but not limited to, all regulators and tide gates, pump stations, interceptors, force mains, gravity sewer lines, manholes, sedimentation levels and composition, and debris accumulation. As part of the Inspection and Engineering Assessment, the City developed a plan for performing any cleaning, maintenance, rehabilitation measures, or corrective actions necessary to ensure that the CSS is operating properly ("Corrective Action Plan").

b. As part of the Corrective Action Plan, the City was required to develop a schedule to implement ("Implementation Schedule") the recommendations contained in the Inspection and Engineering Assessment. The Implementation Schedule is attached as Appendix A. The City shall perform the work identified in the Corrective Action Plan in accordance with the Implementation Schedule set forth in Appendix A. Failure to perform any work contained in the Corrective Action Plan shall constitute a violation of this Consent Decree.

13. Flow Monitoring Plan. The City shall conduct a 6 month pilot study using in-pipe flow monitoring near four (4) CSO outfall locations; two with flow meters and two with stage measurement meters.

a. Within 45 days of the Date of Entry, the City shall submit to EPA for approval, a protocol for the implementation of a 6 month pilot study ("Pilot Study") using in-pipe flow monitoring near 4 CSO outfall locations; 2 with flow meters and 2 with stage measurement

meters that provide information most representative of the flow for the entire system. The Pilot Study shall, at a minimum, require:

i. 2 flow monitors that monitor the volume of water discharged from each of 2 identified outfalls and 2 stage measurement meters that indicate when an overflow occurs at 2 additional identified outfalls including the start time and end time associated with each occurrence of a discharge;

ii. The flow monitors and stage measurement meters are to be located to measure overflow volume, frequency and duration; and

iii. Whenever a CSO overflow occurs at the 2 outfalls with the flow monitors, the City shall calculate the overflow volume and duration using the Storm Water Management Model method ("SWMM"). The City shall compare flow monitoring readings with SWMM generated results for each overflow event.

iv. Whenever a CSO overflow occurs at the 2 outfalls with the stage measurement meters, the City shall record the start and end times for each event.

b. Within three (3) months of completion of the Pilot Study, the City shall submit a report to EPA for review and approval. The report shall provide the results of the Pilot Study and make recommendations based on the analysis of the Pilot Study results. The City shall continue to operate flow monitoring devices and stage measurement meters that monitor, at a minimum, total flow volume, frequency and duration for each overflow event at the 4 CSO outfall locations, unless the City demonstrates that such monitoring is not necessary based on the results of the Pilot Study. The results of the continued monitoring shall be provided in the Quarterly Reports and include:

i. A table summarizing CSO activity at monitored outfall points;

ii. A comparison of flow monitoring readings with SWMM generated results for each overflow event; and

iii. Information about dry weather overflow events, in addition to the volume, frequency and duration of the dry weather overflow.

c. At the conclusion of the Pilot Study, if the City determines that sewer overflow volumes and duration measured by flow monitoring correlates to sewer overflow volumes and durations calculated using the SWMM, the City may request to terminate implementation of all or a portion of the flow monitoring. After review of the City's request, EPA shall in writing: a) approve the request; b) approve the request upon specified conditions; c) approve part of the request and disapprove the remainder; or d) disapprove the request. The determination of whether the City may terminate all or part of the flow monitoring program is in the sole discretion of EPA.

14. Operations and Maintenance Manual. Pursuant to Administrative Order CWA-02-2008-3033, issued to the City by EPA on July 25, 2008, the City has developed a revised operations and maintenance manual ("O&M Manual"). The O&M Manual is attached as Appendix B. The O&M Manual requires periodic inspections of the CSS, and the use of inspection reporting forms to ensure that the CSS is a) maximizing the conveyance of wastewater to the WWTP, and b) minimizing discharges of untreated wastewater into the Arthur Kill and the Raritan River. The City shall implement its O&M Manual, and submit inspection reports to EPA in accordance with the requirements of Section VII (Reporting Requirements), until Termination. Failure to implement the O&M Manual shall constitute a violation of this Consent Decree.

15. Approval of Deliverables. After review of any plan, report, or other item that is required to be submitted pursuant to this Consent Decree, EPA shall in writing: a) approve the submission; b) approve the submission upon specified conditions; c) approve part of the submission and disapprove the remainder; or d) disapprove the submission.

16. If the submission is approved pursuant to Paragraph 15.a), the City shall take all actions required by the plan, report, or other document, in accordance with the schedules and

requirements of the plan, report, or other document, as approved. If the submission is conditionally approved or approved only in part, pursuant to Paragraph 15.b) or c), the City shall, upon written direction from EPA, take all actions required by the approved plan, report, or other item that EPA determines are technically severable from any disapproved portions, subject to the City's right to dispute only the specified conditions or the disapproved portions, under Section X (Dispute Resolution).

17. If the submission is disapproved in whole or in part pursuant to Paragraph 15.c) or d), the city shall, within 45 Days or such other time as the Parties agree to in writing, correct all deficiencies and resubmit the plan, report, or other item, or disapproved portion thereof, for approval, in accordance with the proceeding Paragraphs. If the resubmission is approved in whole or in part, the City shall proceed in accordance with the preceding Paragraph.

18. Any stipulated penalties applicable to the original submission, as provided in Section VIII (Stipulated Penalties), shall accrue during the 45 Day period or other specified period, but shall not be payable unless the resubmission is untimely or is disapproved in whole or in part; provided that, if the original submission was so deficient as to constitute a material breach of the City's obligations under this Decree, the stipulated penalties applicable to the original submission shall be due and payable notwithstanding any subsequent resubmission.

19. If a resubmitted plan, report, or other item, or portion thereof, is disapproved in whole or in part, EPA may require the City to correct any deficiencies, in accordance with the preceding Paragraphs, subject to the City's right to invoke Dispute Resolution and the right of EPA to seek stipulated penalties as provided in the preceding Paragraphs.

VII. REPORTING REQUIREMENTS

20. Within thirty (30) Days after the end of each calendar-quarter (i.e. April 30, July

30, October 30, and January 30) after lodging of this Consent Decree, until termination of this Decree pursuant to Section XXI, the City shall submit a quarterly report.

a. The Quarterly Report shall include the following information:

i. A narrative description of all work performed in the previous quarter pursuant to the overall system engineering assessment and corrective action plan;

ii. A narrative description of all work planned for next quarter;

iii. Copies of all completed reporting sheets used to document assessment-related inspections of the City's:

1. diversion chambers;
2. tide gates;
3. CSOs;
4. force mains;
5. manholes;
6. pump stations; and
7. interceptors;

iv. Copies of completed reporting sheets used to document routine, periodic inspections of the City's:

1. diversion chambers;
2. tide gates;
3. CSOs;
4. force mains;
5. manholes;
6. pump stations; and
7. interceptors;

v. Copies of completed reporting sheets used to document the City's implementation of:

1. the weekly flushing program; and
2. the wet weather operating guidelines.

vi. System maintenance reports, which shall include:

1. A pump station summary (as provided in previous quarterly reports);
2. Scheduled Preventative and Responsive Collection System Maintenance (as provided in previous quarterly reports);

3. Tabulation of grit, sediment and floatable debris removed from the collection system and the manner in which it was disposed;
4. Flow data for flow pumped to the Middlesex County Utilities Authority. This data must include:
   a. daily total flow,
   b. daily peak flow, and
   c. daily rainfall amount;
5. Tabulation of repairs made during the previous quarter and scheduled repairs for upcoming quarter (as provided in previous quarterly reports);
6. Documentation that identifies and describes any residential complaints regarding sewer overflows, including basement backups, and how the City addressed the overflows and ultimately resolved the complaints.

b. The report shall also include a description of any non-compliance with the requirements of this Consent Decree and an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the City violates, or has reason to believe that it may violate, any requirement of this Consent Decree, the City shall notify EPA of such violation and its likely duration, in writing, within ten working Days of the Day the City first becomes aware of the violation, with an explanation of the violation's likely cause and of the remedial steps taken, or to be taken, to prevent or minimize such violation. If the cause of a violation cannot be fully explained at the time the report is due, the City shall so state in the report. The City shall investigate the cause of the violation and shall then submit an amendment to the report, including a full explanation of the cause of the violation. Nothing in this Paragraph or the following Paragraph relieves the City of its obligation to provide the notice required by Section IX (Force Majeure).

21. Whenever any violation of this Consent Decree or any other event affecting the City's performance under this Decree may pose an immediate threat to the public health or welfare or the environment, the City shall notify EPA and NJDEP orally or by electronic or facsimile transmission as soon as possible, but no later than 24 hours after the City first knew of

the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

22. All reports shall be submitted to the persons designated in Section XIV (Notices and Submissions).

23. Each report submitted by the City under this Section shall be signed by an official of the City and include the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

This certification requirement does not apply to emergency or similar notifications where compliance would be impracticable.

24. The reporting requirements of this Consent Decree do not relieve the City of any reporting obligations required by the Clean Water Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

25. Any information provided pursuant to this Consent Decree may be used by the United States in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

VIII. STIPULATED PENALTIES

26. The City shall be liable for stipulated penalties to the United States for violations of this Consent Decree as specified below, unless modified or affected by Section IX. (Force Majeure). A violation includes failing to perform any obligation required by the terms of this

Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

27. Late Payment of Civil Penalty. If the City fails to pay the civil penalty required to be paid under Section V when due, the City shall pay a stipulated penalty of $5,000 per Day for each Day that the payment is late.

28. NJPDES Permit Violations. The following stipulated penalties shall accrue per violation per Day for each violation of any requirement of the City's NJPDES Permit:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st through 30th Day
$1,500	31st through 60th Day
$2,000	61st Day and beyond

29. Compliance Milestones. The following stipulated penalties shall accrue per violation per Day for each violation of the other requirements identified in Section VI (Compliance Requirements) and incorporated therein by the relevant Appendices:

Penalty Per Violation Per Day	Period of Noncompliance
$1,000	1st through 30th Day
$2,000	31st through 60th Day
$3,000	61st Day and beyond

30. Reporting Requirements. The following stipulated penalties shall accrue per violation per Day for each violation of the reporting requirements in Section VII:

Penalty Per Violation Per Day	Period of Noncompliance
$250	1st through 30th Day
$500	31st through 60th Day
$1,000	61st Day and beyond

31. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue

to accrue until performance is satisfactorily completed or until the violation ceases. Separate stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

32. The City shall pay any stipulated penalties to the United States within thirty (30) Days of written demand by the United States. The City shall pay the total stipulated penalty amount due to the United States.

33. The United States may in the unreviewable exercise of its discretion, reduce or waive stipulated penalties otherwise due it under this Consent Decree.

34. Stipulated penalties shall continue to accrue as provided in Paragraph 31 during any dispute resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to the Court, the City shall pay accrued penalties determined to be owed, together with interest, to the United States within thirty (30) Days of the effective date of the agreement or the receipt of EPA's decision or order.

b. If the dispute is appealed to the Court and the United States prevails in whole or in part, the City shall pay all accrued penalties determined by the Court to be owing, together with interest, within sixty (60) Days of receiving the Court's decision or order, except as provided in subparagraph c, below.

c. If any Party appeals the District Court's decision, the City shall pay all accrued penalties determined to be owed, together with interest, within fifteen (15) Days of receiving the final appellate court decision.

35. Obligations Prior to the Effective Date. Upon the Effective Date of this Consent Decree, the stipulated penalty provisions of this Decree shall be retroactively enforceable with regard to any and all violations of Paragraphs 10-14 that have occurred between the date of

lodging and the Effective Date of the Consent Decree, provided that stipulated penalties that may have accrued prior to the Effective Day may not be collected unless and until this Consent Decree is entered by the Court.

36. The City shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 9, and the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

37. If the City fails to pay stipulated penalties according to the terms of this Consent Decree, the City shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States from seeking any remedy otherwise provided by law for the City's failure to pay any stipulated penalties.

38. Subject to the provisions of Section XII (Effect of Settlement and Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any other rights, remedies, or sanctions available to the United States for the City's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the Act, the City shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

IX. FORCE MAJEURE

39. "Force Majeure," for purposes of this Decree, is defined as any event arising from causes beyond the control of the City, of any entity controlled by the City, or of the City's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite the City's best efforts to fulfill the obligation. The requirement that the City exercise

"best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force Majeure" does not include the City's financial inability to perform any obligation under this Consent Decree.

40. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, the City shall provide notice orally and by electronic or facsimile transmission to EPA, in accordance with Section XIV (Notices and Submissions) within 48 hours of when the City first knew that the event might cause a delay. Within ten (10) Days thereafter, the City shall provide in writing to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the City's rationale for attributing such delay to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of the City, such event may cause or contribute to an endangerment to public health, welfare or the environment. The City shall include with any notice all available documentation supporting the claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude the City from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. The City shall be deemed to know of any circumstance of which the City, any entity controlled by the City, or the City's contractors knew or should have known.

41. If EPA agrees that the delay or anticipated delay is attributable to a force majeure

event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify the City in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

42. If EPA does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify the City in writing of its decision.

43. If the City elects to invoke the dispute resolution procedures set forth in Section X (Dispute Resolution), it shall do so no later than fifteen (15) Days after receipt of EPA's notice. In any such proceeding, the City shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that the City complied with the requirements of Paragraphs 39, above. If the City carries this burden, the delay at issue shall be deemed not to be a violation by the City of the affected obligation of this Consent Decree identified to EPA and the Court.

X. DISPUTE RESOLUTION

44. Unless otherwise expressly provided for in this Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. The City's failure to seek resolution of a dispute under this Section shall preclude the City from raising any such issue as a defense to an action by the United States to enforce any obligation of the City arising under this Decree.

45. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when the City sends the United States a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed twenty (20) Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States shall be considered binding unless, within twenty (20) Days after the conclusion of the informal negotiation period, the City invokes formal dispute resolution procedures as set forth below.

46. Formal Dispute Resolution. The City shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting the City's position and any supporting documentation relied upon by the City.

47. The United States shall serve its Statement of Position within forty-five (45) Days of receipt of the City's Statement of Position. The United States' Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by the United States. The United States' Statement of Position shall be binding on the City, unless the City files a motion for judicial review of the dispute in accordance with the following Paragraph.

48. The City may seek judicial review of the dispute by filing with the Court and serving on the United States, in accordance with Section XIV (Notices and Submissions), a motion requesting judicial resolution of the dispute. The motion must be filed within twenty (20)

Days of receipt of the United States' Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of the City's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree, as well as such other requirements of the Local Rules of Court.

49. The United States shall respond to the City's motion within the time period allowed by the Local Rules of this Court. The City may file a reply memorandum, to the extent permitted by the Local Rules.

50. Standard of Review

a. Disputes Concerning Matters Accorded Record Review. Except as otherwise provided in this Consent Decree, in any dispute brought under Paragraph 46 (Formal Dispute Resolution) pertaining to the adequacy or appropriateness of plans, procedures to implement plans, schedules or any other items requiring approval by EPA under this Consent Decree, the adequacy of the performance of work undertaken pursuant to this Consent Decree, and all other disputes that are accorded review on the administrative record under applicable principles of administrative law, the City shall have the burden of demonstrating, based on the administrative record, that the position of the United States is arbitrary and capricious or otherwise not in accordance with law.

b. Other Disputes. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 46 (Formal Dispute Resolution), the City shall bear the burden of demonstrating that its position complies with this Consent Decree and furthers the objectives of the Consent Decree.

51. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of the City under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Section VIII (Stipulated Penalties). If the City does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section VIII (Stipulated Penalties).

XI. INFORMATION COLLECTION AND RETENTION

52. The United States and its representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

a. Monitor the progress of activities required under this Consent Decree;

b. Verify any data or information submitted to the United States in accordance with the terms of this Consent Decree;

c. Obtain samples and, upon request, splits of any samples taken by the City or its representatives, contractors, or consultants;

d. Obtain documentary evidence, including photographs and similar data; and

e. Assess the City's compliance with this Consent Decree.

53. Upon request, the City shall provide EPA or its authorized representatives, splits of any samples taken by the City. Upon request, EPA shall provide the City splits of any samples taken by EPA.

54. Until five years after termination of this Consent Decree, the City shall retain, and shall instruct its contractors and agents to preserve, all non-identical copies of all documents,

records, or other information (including documents, records, or other information in electronic form) in its or its contractors' or agents' possession or control, or that come into its or its contractors' or agents' possession or control, and that relate in any manner to the City's performance of its obligations under this Consent Decree. This information-retention requirement shall apply regardless of any contrary municipal, corporate, or institutional policies or procedures. At any time during this information-retention period, upon request by the United States, the City shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

55. At the conclusion of the information-retention period provided in the preceding Paragraph, the City shall notify the United States at least ninety (90) Days prior to the destruction of any documents, records, or other information subject to the requirements of the preceding Paragraph and, upon request by the United States, the City shall deliver any such documents, records, or other information to EPA. The City may assert that certain documents, records, or other information requested by the United States is privileged under the attorney-client privilege or any other privilege recognized by federal law. If the City asserts such a privilege, it shall provide the following:

a. The title of the document, record, or information;

b. The date of the document, record, or information;

c. The name and title of each author of the document, record, or information;

d. The name and title of each addressee and recipient;

e. A description of the subject of the document, record, or information; and

f. The privilege asserted by the City.

However, no documents, records, or other information created or generated pursuant to the requirements of this Consent Decree shall be withheld on grounds of privilege.

56. The City may also assert that information required to be provided under this Section is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that the City seeks to protect as CBI, the City shall follow the procedures set forth in 40 C.F.R. Part 2.

57. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of the City to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XII. EFFECT OF SETTLEMENT AND RESERVATION OF RIGHTS

58. This Consent Decree resolves the civil claims of the United States for the violations alleged in the Complaint filed in this action through the date of lodging.

59. The United States reserves all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 58. This Consent Decree shall not be construed to limit the rights of the United States to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or State laws, regulations, or permit conditions, except as expressly specified in Paragraph 58.

60. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, civil penalties, other appropriate relief relating to the City's Sewer System, the City shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-

splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 58 of this Section.

61. This Consent Decree is not a permit, or a modification of any permit, under any federal, State, or local laws or regulations. The City is responsible for achieving and maintaining complete compliance with all applicable federal, State, and local laws, regulations, and permits; and the City's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States does not, by its consent to entry of this Consent Decree, warrant or aver in any manner that the City's compliance with any aspect of this Consent Decree will result in compliance with provisions of the Act, 33 U.S.C. §§ 1251-1387, or with any other provisions of federal, State, or local laws, regulations, or permits.

62. This Consent Decree does not limit or affect the rights of the City or of the United States against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against the City, except as otherwise provided by law.

63. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XIII. COSTS

64. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States shall be entitled to collect the costs (including attorneys fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by the City.

XIV. NOTICES AND SUBMISSIONS

65. Unless otherwise specified herein, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing and addressed as follows:

To the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
Box 7611 Ben Franklin Station
Washington, D.C. 20044-7611
Re: DOJ No. 90-5-2-1-09500

and

Chief, Water Compliance Branch
Division of Enforcement and Compliance Assistance
U.S. Environmental Protection Agency, Region 2
290 Broadway – 20th Floor
New York, NY 10007

To EPA:

Chief, Water and General Law Branch
Office of Regional Counsel
U.S. Environmental Protection Agency, Region 2
290 Broadway – 16th Floor
New York, NY 10007

To the City:

Mayor and Business Administrator
City of Perth Amboy
260 High Street
Perth Amboy, New Jersey 08861

Middlesex Water USA-PA
Luis Perez-Jiminez
260 High Street
Perth Amboy, New Jersey 08861

66. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

67. Notices submitted pursuant to this Section shall be deemed submitted upon certified or overnight mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XV. EFFECTIVE DATE

68. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket; provided, however, that the City hereby agrees that it shall be bound to perform duties scheduled to occur prior to the Effective Date. In the event the United States withdraws or withholds consent to this Consent Decree before entry, or the Court declines to enter the Consent Decree, then the preceding requirement to perform duties scheduled to occur before the Effective Date shall terminate.

XVI. RETENTION OF JURISDICTION

69. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections X (Dispute Resolution) and XVII (Modification), or effectuating or enforcing compliance with the terms of this Decree.

XVII. MODIFICATION

70. Unless otherwise provided therein, the terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

71. Any disputes concerning modification of this Decree shall be resolved pursuant to Section X (Dispute Resolution); provided, however, that instead of the burden of proof provided by Section X (Dispute Resolution), Paragraph 50, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Fed. R. Civ. P. 60(b).

XVIII. PUBLIC PARTICIPATION

72. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. The City consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified the City in writing that it no longer supports entry of the Decree.

XIX. SIGNATORIES/SERVICE

73. Each undersigned representative of the City and the Assistant Attorney General for the Environment and Natural Resources Division of the U.S. Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

74. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. The City agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service

requirements set forth in Fed. R. Civ. P. 4 and 5 and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XX. INTEGRATION

75. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree, and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. Other than deliverables that are subsequently submitted and approved pursuant to this Decree, no other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXI. TERMINATION

76. After the City has completed the requirements of Section VI (Compliance Requirements) of this Decree, has thereafter maintained satisfactory compliance, as determined by EPA, with this Decree and its NJPDES Permit for a period of 12 consecutive months, has complied with all other requirements of this Decree, and has paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree, the City may serve upon the United States a Request for Termination, stating that the City has satisfied those requirements, together with all necessary supporting documentation.

77. Following receipt by the United States of the City's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether the City has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

78. If the United States does not agree that the Decree may be terminated, the City may invoke Dispute Resolution under Section X. However, the City shall not seek Dispute Resolution of any dispute regarding termination until sixty (60) Days after service of its Request for Termination.

XXII. FINAL JUDGMENT

79. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States and the City. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

XXIII. APPENDICES

80. The following appendices are attached to and part of this Consent Decree:

a. Appendix A: City of Perth Amboy Combined Sewer System Corrective Action Implementation Schedule; and

b. Appendix B: Perth Amboy Sewerage Department Operation and Maintenance Manual.

Dated and entered this _____ day of _____, 2012.

_____
UNITED STATES DISTRICT JUDGE

WE HEREBY CONSENT to the entry of the Consent Decree in United States v. The City of Perth Amboy,

FOR PLAINTIFF THE UNITED STATES OF AMERICA:

Date: 5/21/12

[redacted]

IGNACIA S. MORENO
Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice

Date: 6/5/12

[redacted]

MYLES E. FLINT, II
Trial Attorney
Environmental Enforcement Section
Environment and Natural Resources Division
United States Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044-7611
(202) 307-1859

WE HEREBY CONSENT to the entry of the Consent Decree in United States v. The City of Perth Amboy,

FOR PLAINTIFF THE UNITED STATES OF AMERICA:

PAUL J. FISHMAN
UNITED STATES ATTORNEY
DISTRICT OF NEW JERSEY

PETER O'MALLEY
Peter Rodino Federal Building
970 Broad Street Suite 700
Newark, New Jersey 07102
973-645-2921

WE HEREBY CONSENT to the entry of the Consent Decree in United States v. The City of Perth Amboy.

FOR PLAINTIFF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY:

Date: 5.11.12

[redacted]

MARK POLLINS
Division Director
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

Date: 5/3/12

[redacted]

LOREN DENTON
Chief, Municipal Enforcement Branch
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

Date: 5/3/2012

[redacted]

ROBERT D. FENTRESS
Attorney-Advisor
Water Enforcement Division
Office of Civil Enforcement
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency

WE HEREBY CONSENT to the entry of the Consent Decree in United States v. The City of Perth Amboy.

FOR PLAINTIFF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION 2:

Date: 4-6-12

[redacted]

JUDITH ENCK
Regional Administrator
United States Environmental Protection Agency
Region 2
290 Broadway
New York, New York 10007-1866

Date: 3-29-12

[redacted]

EDUARDO J. GONZALEZ
CHRISTOPHER SAPORITA
Assistant Regional Counsel
United States Environmental Protection Agency
Region 2
290 Broadway
New York, New York 10007-1866

WE HEREBY CONSENT to the entry of the Consent Decree in United States v. The City of Perth Amboy.

FOR THE CITY OF PERTH AMBOY

Date: 3/14/2012

[redacted]

WILDA DIAZ
Mayor
City of Perth Amboy
260 High Street
Perth Amboy, NJ 08861

Approved as to form:

Mark J. Blunda

Appendix A: City of Perth Amboy Combined Sewer System Corrective Action Implementation Schedule

Priority Level	Project Description	Project to be completed by	Estimated Project Cost (2010 Dollars)	Address	Cooordinates ddmmss.ss (NAD 83)		Comments
					From	To	
Highest	1. Separate Amboy Avenue Catch basins near Grove Street from combined sewer main to alleviate surcharging and backups into homes.	12/31/2012	$352,500.00	453-425 Grove Street	741630.422 403140.6		Point on affected area.
High	2. Conduct Engineering Flow Study and submit for approval. At a minimum, the Study will address a) assessment of the capacity of the State Street Pump Station wet well and related components, b) assessment of the capacity of the Front Street Pump Station wet well and related components, c) assessment of interceptor flow velocities to determine if self-cleaning velocities are attained, and d) assessment of the position of weir plates in diversion chambers. This Study shall make recommendations, as appropriate, and provide a schedule, to be approved by EPA.	6/30/2013	$56,000.00	a. 800 State Street b. 260 Front Street c. City Wide d. City Wide	City Wide		
High	3. Sewer Lining: Fayette Street (State Street to Front Street); Approx. 1,650LF of 60" x 42" brick elliptical main that need relining.	12/31/2013	$840,000.00	2-108 Fayette Street	741600.421 403036.725	741543.202 403031.624	
High	4. Sewer Lining: Brace Avenue (Amboy Avenue to Route 35); Approx. 2,250LF of 12" main that needs relining.	12/31/2013	$504,000.00	409-523 Brave Avenue	741651.799 403118.412	741634.576 403113.31	
High	5. Sewer Lining: Broad Street (State Street to High Street); Approx. 1,400LF of 15" main that needs relining.	12/31/2013	$280,000.00	52-109 Broad Street	741556.628 403044.959	741548.215 403042.749	
High	6. Sewer Lining: Commerce Street (State Street to High Street); Approx. 1,100LF of 35" main that needs relining.	12/31/2013	$269,000.00	64-112 Commerce Street	741558.522 403041.636	741549.911 403039.274	
Medium	7. Sewer Lining: Alpine Street (Amboy Avenue to West Side Avenue); Approx. 2,300LF of 12" main that needs relining.	12/31/2016	$515,200.00	277-444 Alpine Street	741630.494 403135.61	741603.971 403126.181	
Medium	8. Sewer Lining: Bruck Avenue (Amboy Avenue to West Side Avenue); Approx. 2,300LF of 10" main that needs relining.	12/31/2016	$486,400.00	298-457 Bruck Avenue	741625.807 403144.674	741601.954 403136.31	
Medium	9. Sewer Lining: First Street (Market Street to Sadowski Parkway); Approx .3,000LF of 36" x 24" main that needs relining.	12/31/2016	$1,344,000.00	52-237 First Street	741619.965 403027.84	741636.388 403004.888	
Medium	10. State Street Pump Station Dry Well: replace rotten beams with new beams coated with anti-corrosion epoxy.	12/31/2016	$40,000.00	800 State Street	741551.914 403129.636		
Medium	11. State Street Pump Station: Installation of new Variable Frequency Drives.	12/31/2012	$157,000.00	800 State Street	741551.914 403129.636		
Medium	12. Front Street Pump Station: Correct leaks from valves in force main piping.	12/31/2011	$20,000.00	260 Front Street	741546.214 403020.213		
Medium	13. Second Street Pump Station: Rebuild or replace #2 and #3 pumps .	12/31/2011	$30,000.00 ea. $160,000.00 ea.	2 Second Street	741634.805 403004.129		

Appendix A: City of Perth Amboy Combined Sewer System Corrective Action Implementation Schedule

Priority Level	Project Description	Project to be completed by	Estimated Project Cost (2010 Dollars)	Address	Cooordinates ddmmss.ss (NAD 83)		Comments
					From	To	
Medium	14. 2nd Street Force Main: Stock two (2) pre-stressed concrete cylinder pipe to ductile iron transitions and appurtenances to minimize downtime in case repair is needed.	6/30/2012	$25,000.00	2 Second Street	741634.805 403004.129		
Medium	15. Interceptor Sewers: Prepare and submit for approval a Study of the condition of the interceptor sewer bricks. This Study shall make recommendations, as appropriate, and provide a schedule, to be approved by EPA.	12/31/2014	$144,375.00	City Wide	City Wide		
Low	16. State Street Pump Station: Rebuild motor #1 with new bearings.	6/30/2012	$20,000.00	800 State Street	741551.914 403129.636		
Low	17. Front Street Pump Station: Move and replace Variable Frequency Drives.	12/31/2014	$157,000.00	260 Front Street	741546.214 403020.213		
Low	18. 2nd Street Pump Station: Paint pump, pump stand, motors, etc. that are exposed to wastewater with corrosion resistant paint that is maintenance free.	Painting of Equipment - 12/31/2012	$6,000.00	2 Second Street	741634.805 403004.129		

Appendix B

Perth Amboy Sewerage Department

Foot of Second Street
Perth Amboy, NJ

Operation and Maintenance Manual

Revised Feburary 2012

PERTH AMBOY SEWERAGE DEPARTMENT

Foot of 2nd Street
Perth Amboy, NJ 08861

Operation and Maintenance Manual

PERTH AMBOY SEWERAGE DEPARTMENT
Foot of 2nd Street
Perth Amboy, NJ 08861

Operation and Maintenance Manual

I. GENERAL

I.A. MISSION STATEMENT

The goals of this Operation and Maintenance Manual (O & M Manual) are to set forth the guidelines and requirements to operate and maintain the combined sewer system within the city limits of Perth Amboy in Middlesex County, New Jersey. This includes protection of public health, the environment, and the prevention of unnecessary property damage, while minimizing infiltration, inflow, and exfiltration and maximizing collection and conveyance of wastewater, while providing prompt response to service interruptions, while performing all duties in a safe manner and operating in a manner that complies with all laws, rules and regulations governing the operation of sanitary combined sewer collection systems in the State of New Jersey.

I.B. BACKROUND

The City of Perth Amboy, Sewerage Department operates the City's Combined Sewer Storm System which conveys the sewage and storm water within the City limits. This system is comprised of the following.

- 4 pump/lift stations
  - Ranging in size from 1 MGD to 13.7 MGD
- 311,682 linear feet of gravity main
  - Ranging in size from 8” to 84” inches in diameter
- 10,800 linear feet of force main
  - Ranging in size from 10” to 24” in diameter
- 10,500 service connections
- 17 diversion chambers
- 10 tide gates
- 17 CSO netting chambers
- No chemical feed sites
- No inverted siphons
- No inverted chambers

The sewerage department provides operation and maintenance of all the pump stations, force mains and gravity sewers within its service area. The sewerage department however does not maintain the laterals/service connections from the point of attachment to the main sewer. Any maintenance repairs along with their associated costs are the responsibility of the property owner connected to such lateral.

I.C. REFERENCES and UPDATING OF THE MANUAL

An O&M manual is a working document. As conditions change at the pump station and within the system, so, too, should these changes be incorporated into the O&M manual. This manual contains the names, addresses and phone numbers of the manufacturers and suppliers of the various equipment used in the wastewater pumping system. It contains emergency and maintenance procedures. As this information changes, this manual should be updated. It is suggested that, at a minimum. A yearly review of this manual is made to reflect existing conditions of the waste-water pumping system.

I.D. OPERATION AND MANAGERIAL RESPONSIBILITIES

The effectiveness of a wastewater pumping system is dependent upon the skill and performance of the station operators and maintenance personnel. A facility can be designed to provide the most efficient operation possible, but it is the individual operator who actually makes a station perform up to its capability. The importance of skilled operators cannot be overemphasized.

I.E. OPERATOR RESPONSIBILITY

The following is a suggested list of the operational personnel's responsibilities:

- Know proper normal and emergency operational procedures.
- Operate the Pump Station effectively and efficiently.
- Keep continuously informed of the best operating and maintenance practices.
- Participate in short courses and schools when available.
- Subscribe to and regularly read several of the periodicals related to municipal wastewater treatment and pump stations.
- Maintain accurate and neat system operational and maintenance records.
- Use sound judgment in the expenditure of operating funds.
- Keep management advised of potential major problems in operation and maintenance of the system.
- Assist supervisors in preparing an adequate budget
- Be aware of the safety hazards connected with pump station operation and interceptor system inspection and maintenance.
- Be familiar with personnel and public relations techniques, and be prepared to discuss pump station overall system operation with visitors.
- Know expected efficiencies of all equipment within the pump station and how to monitor these units.
- Be familiar with local, state, and federal laws which may apply to the overall system for conveying wastewater.
- Supervising, instructing, and training subordinate personnel in operating theory and practice, maintenance, safety, and record keeping.

I.F. ADMINISTRATIVE FUNCTIONS/MANAGEMENT RESPONSIBILITY

While the effectiveness and efficiency of the pumping system is dependent on the operator, management of the facilities is the responsibility of the City. It takes both the operator and the City working together to operate the system in the most efficient and cost-effective manner.

The following is a suggested list of management responsibilities:

- Maintain efficient pump station operation and maintenance.
- Maintain adequate pump station operational and management records.
- Establish staff requirements, prepare job descriptions, develop organizational charts and assign personnel.
- Provide operational personnel with; efficient funds to properly operate and maintain the pumping facility.
- Ensure operational personnel are paid salary commensurate with their level of responsibility.
- Provide good working conditions, safety equipment and proper tools for the operating and maintenance personnel.
- Establish a harmonious relationship with personnel.
- Provide personnel with job security and career ladder.
- Establish operations and maintenance training program.
- Provide incentives for employees.
- Motivate personnel to achieve maximum efficiency of pump station equipment through proper operation and maintenance procedures.
- Make employees aware of importance of proper pump station performance.
- Make periodic inspections of the pump station and transmission system to discuss mutual problems with the personnel and to observe operation and maintenance practices.
- Create an atmosphere that will make pump station personnel feel that they can bring all problems to management's attention.
- Maintain good public relations.
- Prepare budgets and reports.
- Plan for future facility needs.

II. PERMITS AND STANDARDS

II.A. LISTING OF PERMITS CONTRACT

Contract 85-5- Main Pump Station
Freehold Soil Conservation District Soil Erosion Permit #85-654
Tidelands Permit #85-0670
Construction Permit #88-1007-4
Waterfront Development Permit #85-0541-1

Contract 85-6 - Force Main
Freehold Soil Conservation District Soil Erosion Permit #85-655
Construction Permit #88-1007-4

II.B. PERMIT REQUIREMENTS

Pursuant to N.J.A.C. 7:14-12.17, Stage 3 Approval must be obtained for operation of said pump station, force main and gravity line. These requirements may be summarized as follows: No person shall operate-a transmission system without final approval by the New Jersey Department of Environmental Protection (NJDEP).

A licensed professional engineer certifies that the plans are in conformance with the plans previously approved by NJDEP. This requires submission of NJDEP Forms wqm-005 and WOM-008 (attached). Form WQM-005 must be completed and signed and sealed by a Professional Engineer registered in New Jersey. Form NQM-008 must be signed by the appropriate official of the 201 Sewerage Authority. (Executive Director of the Middlesex County Sewerage Authority) or Municipality (City of Perth Amboy Engineer).

II.C. SPECIFIC PERMIT REQUIREMENTS

1. 1. Construction Permit #88-1007-4 covers contracts 85-5 and 85-6. Upon completion of the pump Station and appurtenances, the following special condition must be met:

    a) An appropriate public wastewater collection system licensed operator will be required to run the system. Public wastewater collection systems (C) are classified in accordance with the population served. A collection system serving between 15,001 to 50,000 people is classified as a C3 system and as such requires a C3 licensed operator.

III. PERSONNEL

III.A GENERAL

The most important factor in any good operations and maintenance program is the People involved. It is essential to pay attention to the needs of these people. These needs include adequate training, proper tools, good working surroundings, competitive salaries and fringe benefits, and adequate opportunity for advancement in both salary and degree of responsibility.

The operation and maintenance of municipal wastewater pumping stations and pipelines is a demanding and exacting occupation. It requires that personnel have the technical know-how and competence to properly provide the services that are intended of the facilities. Principally, it is necessary for the operation and maintenance personnel to assure continuous service at the least cost to the City's residents. The equipment at the facilities should be operated so that they perform the functions for which they were intended.

The pumping station force main and appurtenances associated with this project will be operated and maintained by Perth Amboy Sewerage Department personnel. All facilities will be inspected and maintained regularly in accordance with the procedures in this Operation and Maintenance Manual.

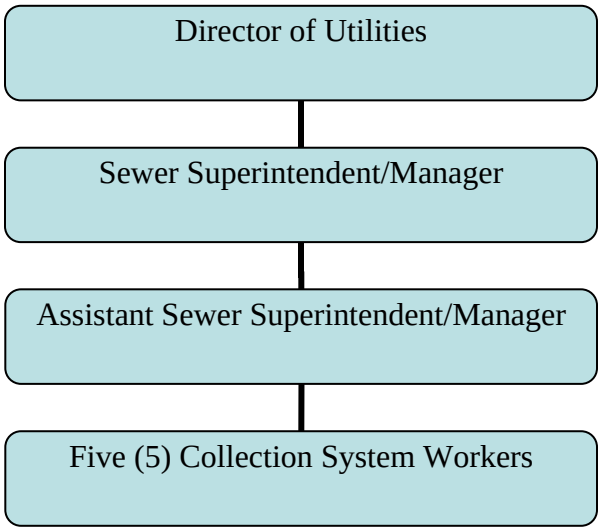
The ability of the facilities to meet the design objectives depends upon the competence of the people who administer, operate, and maintain them. The facilities' management should regularly investigate the performance standards of maintenance labor and use of maintenance manpower. Such investigation will improve the efficiency of their maintenance personnel. Performance usually improves when a minimum level of acceptable work is established and when the activities of the labor force are planned and scheduled for maximum efficiency.

The functions and performance of all personnel are subject to continuous review and appraisal. The organization chart provides the framework within which this review and appraisal can be made and within which the required functions can be organized and accomplished. Any organization, however, is in a constant state of change; new needs are met, increased competence of the staff is utilized, and continuously increasing efficiency is promoted.

Staffing requirements for the proper operation of the Perth Amboy Wastewater Facilities is an important consideration in administrative planning. Regardless of the care which goes into the selection of an equipment record system or work order system, it is the facilities operation & maintenance staff who are ultimately responsible for ensuring the operation & maintenance management system functions properly.

III.B. STAFFING

The sewer utility staff which is designated to the O & M Plan and Manual is the following:



The proposed staff for the Department of Sewers for the Fiscal Year 2010-2011 is as follows:

Position	Total Staff
Director of Utilities	One
Sewer Superintendent/Manager	One
Assistant Superintendent/Manager	One
Collection System Workers	Five

Vehicles/Equipment used to maintain the components of the sewer system are:

1. Superintendent vehicle
2. Sewer Utility pickup truck
3. (2) Vactor trucks
4. Jet truck
5. Maintenance truck
6. Utility Van
7. Large Crane truck
8. Small Crane truck
9. Small Dump Truck

III.C. ADMINISTRATIVE FUNCTIONS

Executive Management – Oversight for all operations related to the management of the system. This includes but not limited to compliance, direction of work, budgets, staffing, training, procedures, safety and other job related tasks and goals.

Human Resources – Administrative end of managing of the employees relevant to corporate responsibilities, such as wages, employee interactions, payroll, insurance, and other benefit

compensation if applicable. Also responsible for the performance reviews of each employee for career development

Customer Service – Put in place to mitigate outside customer concerns, issues, and discrepancies. This includes both service and billing related.

Accounting – Responsible for invoicing, accounts payable, and accounts receivable.

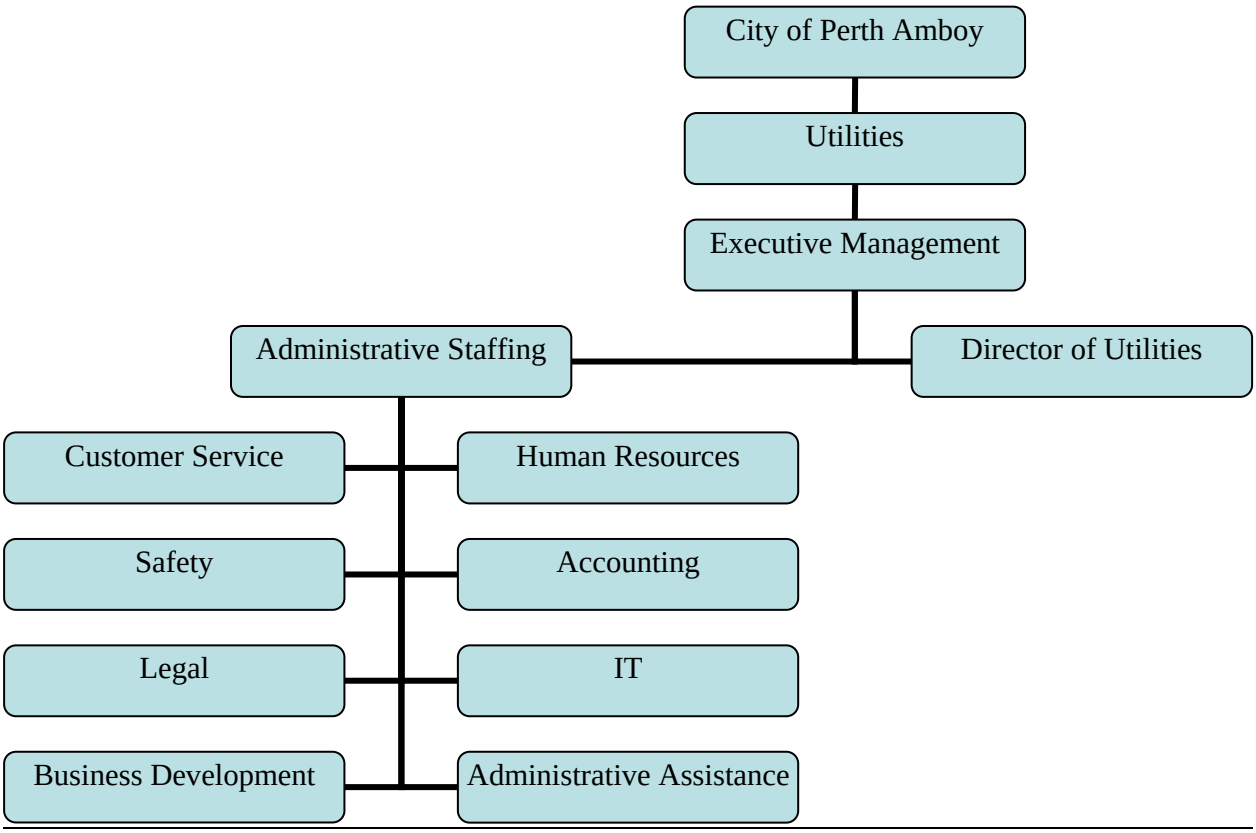
Safety – To ensure employee safety during work activities. This includes accident prevention, safety policy review, investigation and training.

IT – Responsible for the development and maintenance of computer infrastructure and software.

Legal – Responsible for review of all legal matters.

Administrative Assistance – Assist management with administrative functions

Business Development – Responsible for the procurement of future work and client relations.



III.D. TRAINING

Each of the employees directly involved in daily operations of the combined sewer system are required to meet training requirements to perform their job duties. Training requirements are set forth by the Occupational Health and Safety Administration (OSHA) and by Perth Amboy Sewerage Department. The following is a list of required training, but additional training may be required or completed.

- Ergonomics
- Respiratory Protection
- Confined Spaces
- Lockout/Tagout
- Personal Protective Equipment
- Traffic/Workzone Safety
- Electrical Safety
- Fall Hazards
- Bloodborne Pathogens
- Fire Protection/Prevention
- Defensive Driving
- Hazard Communication
- Sexual Harassment
- Workplace Violence

Additional Safety Information has been listed in the Appendix B.

IV. INVENTORY OF COMBINED SEWER OVERFLOWS

IV.A. GENERAL INFORMATION

The Operation and Maintenance (O & M) Plan and Operation and Maintenance (O & M) Manual is designed to ensure that discharges occur only in response to rainfall and/or snowfall events and then only when the combined sewer system's conveyance, storage and pumping capacities are at maximum. Backflow from the receiving waters into the combined sewer system has been eliminated with the installation of the tide gates on the downstream side of all diversion chambers which had weir plates lower than elevation + 3.08 (mean high water).

The O & M Manual is being prepared to provide the City of Perth Amboy, Sewerage Department, with the information and requirements to maintain the O & M Plan and to ensure that CSO discharges only occur in response to rainfall and/or snowmelt events and then, only when the combined sewer system's conveyance, storage are exhausted and the backflow from the receiving waters into the system is prevented.

On certain CSO's tide gates have been installed if the weir plate was below elevation + 3.08 - mean high water. If the weir plate was above this elevation a tide gate was not installed. The tidegates were installed on the outfall pipe of the diversion chambers which had the weir plates below elevation +3.08 - mean high water. This construction occurred on 10 of the 17 diversion chambers (see Table 1) which prevents tidal intrusion in the combined sewer system which will increase the carry capacity of the combined sewer system to convey more combined sewage flow during rainfall and/or snowmelt events.

TABLE I

NO.	LOCATION	OUTFALL DIAMETER	LOCATION	NETS PER CHAMBER	TIDE GATE
002	Rudyk Park	84"	Cartway	4	No
003	Buckingham Ave.	36"	Cartway	4	No
004	Washington St.	48"	Cartway	2	No
005	Commerce St.	36"	Cartway	1	Yes
006	Fayette St.	48"	Cartway	2	Yes
007	Smith St.	36"	Cartway	1	Yes
008	Gordon St.	36"	Cartway	2	No
009	Lewis St.	15"	Cartway	2	No
010	High St.	36"	Cartway	2	Yes
011	State St.	36"	Cartway	1	Yes
012	Catalpa Ave.	36"	Cartway	1	Yes

013	Brighton Ave.	24"	Cartway	1	Yes
014	Madison Ave.	36"	Cartway	1	Yes
015	First St.	36"	Cartway	1	Yes
016	Second St.	84"	Cartway	4	Yes
017	Sheridan St.	18"	Cartway	1	No
019	Outer Smith St.	72"	Vacant Land	4	No

Each tide gate is located in a separate chamber on the discharge side of the outfall from the diversion chamber. Access to the tide gate chamber can be made from the street via removing plates at street level.

IV.B. NETTING CHAMBERS

Each of the combined sewer overflows listed in the pervious section are designed with Fresh Creek Technologies Netting TrashTrap Systems. This system is designed to screen solids and floatables from wastewater that is discharging to the Raritan River or Arthur Kill Sound. These nets and netting chambers are maintained by the Diversion, Tide Gate, Combined Sewer Overflow Maintenance Procedure listed in Section VIII.A.

The Fresh Creek Technologies TrashTrap System Operation and Maintenance Manual is located in Appendix A. A hard copy of this manual is available in the office of the 2nd Street Pump Station.

V. INVENTORY OF PUMP STATIONS

The City of Perth Amboy has four (4) pumping stations. The following provides information regarding those pump stations.

V.A. 2ND STREET PUMPING STATION

The Perth Amboy Pump Station has been designed as the collecting point for municipal wastewater that previously flowed to the Perth Amboy Sewage Treatment Plant. The Station pumps screened wastewater via a 24" force main to a discharge manhole located parallel to Judy Drive in the Township of Woodbridge. A location map is provided in Appendix F.

From the discharge manhole, the raw sewage flows by gravity into the 48" Perth Amboy Interceptor Sewer. This interceptor sewer conveys the wastewater to the 66" Keasbey Interceptor Sewer, which conveys the wastewater to the MCUA's collection system. Both the Perth Amboy Interceptor and the Keasbey Interceptor are maintained by the Township of Woodbridge. All wastewater from the city and transmits it to the Middlesex County Utility Authority for treatment during dry weather events.

The 2nd Street Pumping Station contains three (3) Chicago Yeomans Series 6250 pumps, three (3) 300HP Continental Variable Frequency Drive (VFD) motors. This pumps wastewater through a 24” pre-stressed concrete cylinder pipe to a metering pit at the Woodbridge/Perth Amboy border. All manuals regarding these motors, VFD’s, and pumps are located in the office at the 2nd Street Station.

<u>Major Components</u>

A. Main Piping
- Three 16" ductile iron suction lines connecting wet wells to one of three sewage pumps
- 12" ductile iron discharge line from each of three sewage pumps
- 24" ductile iron discharge header
- 10" ductile iron surge relief piping

B. Main Valves and Gates
- Two (2) 96"x 54" self-contained surface mounted slide gates
- One (1) 36" influent gate valve
- One (1) 24" knife gate valve mounted between wet wells
- Three (3) 16" knife gate valves
- Three (3) 12" knife gate valves
- One (1) 24" knife gate valve

- One (1) 10" gate valve
- Three (3) 12" swing check valves

C. Flow Metering System

- One (1) non-invasive ultrasonic flowmeter utilizing the Doppler Effect. Polysonics Model UFM84.
- Totalizer and circular chart recorder.

D. Screening Equipment

- Two (2) 52" wide mechanical front cleaned bar screens
- Control of screen operation is by timer system

E. Pumps

- Three (3) raw sewage pumps, each rated for 4750 GPM at 175 TDH. Refer to
- Three variable speed vertical pump motors (300 HP)
- One Pump Room sump pump

No. of Pumps	3
Manufacturer	Yeomans Chicago Corporation
Model No.	6250-10522-6
Pump Size	12 x 10
Capacity, each pump	4750 GPM
TDH	175 FEET
Impeller No.	Y-4696
Motor Horsepower	300

F. Pump Motor Control System

Each variable speed drive is contained in a separate enclosure, with each enclosure encompassing:

- "Hand-Off-Auto" selector switch o Motor speed indicating dial
- Elapsed time meter
- Motor load indicating dial
- Manual speed adjustment dial
- Variable Frequency Drive bypass o Circuit Breaker
- Start Push button
- Stop Push button
- Emergency Stop Pushbutton
- "Power On" indicating light
- "Motor Fail" indicating light

- "Ready" indicating light
- "Inverter Bypass" indicating light
- "Inverter Fail" indicating light

G. Sequence Panel

- Contains the pump sequence selector switch, indicating lights, and enunciator panel.

Pump Sequence:

- Selector switch for Manual-Off-Automatic
- Selector switch for pump start sequence
  - 1-2 or 2-3 or 3-1
- Pump Running Indicator Lights
- Enunciator Panel
  - VFD #1 Fail
  - VFD #2 Fail
  - VFD #3 Fail
  - Motor #1 Overload
  - Motor #2 Overload
  - Motor #3 Overload
  - Wet Well High Water Level
  - Motor #1 High Winding Temperature
  - Motor #2 High Winding Temperature
  - Motor #3 High Winding Temperature
  - PLC Failure
  - Power Failure – Generator Run
  - Level Signal Failure
  - Wet Well Low Water Level

H. Surge Protection

- One (1) spring loaded elbow surcharge relief valve

I. Electrical System

- Circuit Breakers
- Safety Switches
- Distribution and Lighting Panels
- Dry Type Transformers

J. Diesel Generator Set

- One 600 KW generator set
- Fuel System
  - Aboveground Fuel Oil Storage tank (2000 Gallons)
  - Day Tank (50 gallons)
  - Day Tank Fuel Pump
  - Associate Fuel Oil Piping
- Generator Control Equipment and Accessories for Automatic Start/Stop and Transfer Control
- Automatic Transfer Switch
  - Line Delays

K. Ventilation System

  - One (1) 28 x 28 Centrifugal fan
  - One (1) 72 x 52 Propeller fan
  - Four (4) motor operated louvers
    - 120 x 120
    - 144 x 144
    - 72 x 59 ½
    - 72 x 82
  - One Fixed 72 x 58 ½ louver

V.B. 2ND STREET PUMPING STATION START-UP

A. See the Second Street Main Control Panel – Operations and Maintenance November 2001 for information on VFD start-up. This manual is located in the office of the 2nd Street Station.

B. See the Head Works Bar screen Operation and Maintenance Manual for information on Bar Screen start-up. This manual is located in the office of the 2nd Street Station.

Operation and Maintenance Manual

V.C. 2ND STREET PUMPING STATION FORCEMAIN AND GRAVITY SEWER

Wastewater is conveyed from the Main Pump Station to the Perth Amboy Interceptor located in the Township of Woodbridge via a 24" pre- stressed concrete cylinder pipe force main, and a 24" pre-stressed concrete cylinder pipe gravity sewer.

A. Pipeline Major Components

Force Main Piping

- 10,800 feet of 24" pre-stressed lined concrete cylinder pipe.
- One (1) 5' diameter precast discharge manhole.
- Three (3) railroad and one (1) roadway crossing; 24" pre-stressed lined concrete cylinder pipe in 42" and 48" steel casings.
- Six; 6) automatic air release chambers, each containing one 4" air release and one 4" air and vacuum valve. All valves manufactured by Crispin-Multiplex Manufacturing Company. Refer to Appendix C for a schematic of air release chambers.

Gravity Sewer Piping

- 256 feet of 24" pre-stressed lined concrete cylinder pipe. Sewer is size: for a peak flow of 13.3 MGD. Refer to Appendix C for gravity sewer route.
- One (1) 5' diameter precast manhole.
- Meter Station, containing a Parshall flume with 2' throat width and mechanical float type meter. Meter Station and all appurtenances will be maintained and operated by the Middlesex County Utilities Authority.

B. Pipeline Common Operating/Maintenance Problems

The most common problems that are experienced in force mains and gravity sewers are blockages, breaks and possibly deposition of solids. Maintenance activities should be geared towards prevention of these problems. Two facets of the preventive maintenance programs are surveillance and cleaning.

C. Surveillance

While it would be possible for personnel to crawl through a 24" sewer, this inspection practice is strongly discouraged for safety reasons. Surveillance should consist of surface inspection and closed circuit television inspection. If manhole and internal pipe inspection is necessary, appropriate safety and testing equipment and safety practices are mandatory, such as but not limited to, sewer gas testing, personnel hoist, safety harness and air pack equipment, standby support

personnel, traffic barriers, etc.

1. Surface inspection

   See The Ground Level Forcemain Inspection located in Section VIII.A. of this manual.

2. Closed circuit television inspection

   Internal inspection of the pipelines by closed circuit television is by far the most effective method of determining the internal condition of a sewer. Usual equipment consists of a skid with a changeable spacer plate (to adapt camera to different pipe size; a TV camera; pulley and cable assembly; and above ground support equipment. The camera is pulled between manholes while a video tape of the sewer is made.

   Internal inspection by video is not a yearly maintenance item, unless the City elects to invest in its own equipment. It would be desirable to video tape the 24" sewer every few years. Names of firms which perform television inspection are easily found in such magazines as Public Works and WPCF Journal.

   See the TV Inspection Procedure and Report for more information.

3. Cleaning

   Cleaning of the Gravity Sewer should be scheduled to prevent the development of blockages. Blockages may be caused by an accumulation of solidified grease, detergents or any kind of solid debris in the wastewater, held in place by some physical defect such as a root mass, a large crack or break, and offset joint, or settled object too heavy to move with the flow of wastewater. The most common causes of blockages are grease and roots.

   Frequency of cleaning should be based upon the past history of sanitary sewer performance within the City's collection system. A good preventative maintenance schedule can only be achieved with a complete set of records, indicating cause and date of all stoppages, cleaning history, and type of equipment used to perform preventative maintenance.

   Cleaning of the Perth Amboy Force Main, when required, will probably be most effectively accomplished through pigging of the line. In this method,

the blind flange in the discharge header within the Pump Room would be removed and a flexible pig inserted under pressure. This cleaning procedure would be best handled by a specialty contractor.

Additional information including pipeline routes and schematics may be found in Appendix C.

V.D. AMBOY AVENUE PUMPING STATION:

The Amboy Avenue Pumping Station contains two (2) 25 HP ABS submersible pumps. The Amboy Avenue Pumping Station is located at 15 Amboy Avenue in Perth Amboy. Wastewater is pumped through a 12" ductile iron forcemain down Amboy Avenue, to the manhole at the interception of Thomas Street. All manuals regarding these VFD's, and pumps are located in the pump station and in office at the 2nd Street Station.

V.E. FRONT STREET PUMPING STATION:

The Front Street Pumping Station is a can station, that uses two (2) Smith Loveless 125HP monoshaft pump and motor assemblies. The Front Street Pumping Station is located at 275 Front Street in Perth Amboy. Wastewater is pumped through a 16" ductile iron forcemain up to the manhole on Water Street. All manuals regarding these motor/pump assemblies, and VFD's are located in the pump station and in the office at the 2nd Street Station.

IV.F. STATE STREET PUMPING STATION:

The State Street Pumping Station has two (2) Fairbanks Morse model E5415 pumps and (2) 75 HP U.S. Electric VFD drive motors, and (1) Little Giant ½ HP pump. The State Street Pumping Station is located at 795 State Street in Perth Amboy. Wastewater is pumped through an 18" reinforced concrete cylinder forcemain along State Street, to a manhole at the intersection of State Street and James Street. All manuals regarding these motors, VFD's, and pumps are located in the pump station and in the office at the 2nd Street Station.

VI. RECORD KEEPING

1. Importance of Records

   Keeping of adequate-performance records is an integral part of good system operation. It is only by making a clear and concise record of what has happened and what has been accomplished that the experiences will be of assistance in meeting future operation situations. Pertinent and complete records are a necessary aid to control procedures.

   Records also provide an excellent check on things done or to be done, especially as regards to maintenance problems. Equipment in pumping stations requires periodic service: sane daily, some weekly, and others monthly or yearly. Adequate records note when service was last performed, and when the time for service approaches; thus, a schedule can be maintained and nothing is overlooked or forgotten.

2. Information to be Included

   The extent to which record keeping should be practiced depends entirely upon its potential use. Items of importance include:

   - Number of pumps in operation and duration of pumping o Inoperative Pumps
   - Annunciator Alarms
   - Operative/Inoperative Bar Screens
   - Volume of screenings removed
   - Generator - when exercised
   - Volume of fuel in storage tank
   - Slap pump operation
   - Laboratory analyses

   When laboratory determinations are made, it is essential that not only the final results of each test be recorded, but also that all of the test data, frequently called the working data, such as burette readings and the necessary computations, be noted for future reference. Although such details may seem superfluous, should any questions arise as to the accuracy of final data obtained in the laboratory, the notes on technical procedures, if available, will prove the accuracy or inaccuracy of the final result reported. Thus, for his own potential protection in maintaining the integrity of his work, the operator should keep complete records in most cases. This actually means that full records of tests must be maintained in the laboratory, although the separate records will contain only the final result of such laboratory determinations.

3. How Records Should Be Kept

Record systems can be developed that are either simple or complex. However, they should be realistic and apply to the operating problems involved at the facility.

The most efficient way to keep records is to plan what data is essential and useful and then prepare forms on which the information may be quickly entered in the proper spaces. Forms not only indicate the data to be obtained but provide for entering it with a minimum possibility of error or omission. Prepared forms can be used both for station operations and for laboratory determinations. To keep records without the use of well designed forms increases the labor and time involved and promotes inaccuracies. It must be remembered that inaccurate or incomplete records are worse than no records at all.

Records should be permanent and, consequently, entries on the forms should be made with ink or with indelible pencil. Ordinary lead pencil notations smudge easily and can be too readily erased or altered; a lead pencil should never be used.

Once made, records of any type should be carefully preserved and filed where - they can be located rapidly. This requires the establishment of a filing system that will be used and understood by everyone concerned with making and using records. The key is that filing of completed record forms must be attended to promptly and with care. A record misfiled is a record lost, and a lost record is of no value.

A pertinent question which always arises is how long should records be kept. Obviously, they should be kept as long as they may be-useful, with due consideration given to the historical value of some types of data. Same information will be of little use after a short time, while other information may be found of great value even after the passage of many years.

Any data that might be used in the future as a basis of design for system expansion or for new construction should be kept indefinitely. For some types of records, official approval is required before they can be discarded or destroyed. The fact that old records are not consulted every day in no way lessens their potential value. It is the best practice to set up a disposal schedule for each type of record maintained in order to avoid the accumulation of useless files. A decision can be made at a time a record is set up limiting the period for which it must be available.

Records must be stored in a manner to insure their permanence and safety, as well as their accessibility.

Records should be made at the time the data are obtained by the personnel directly concerned with making the particular measurements. Responsibility for proper filing, care, and use of records will rest with the supervisor or the person in charge of the

system, or someone delegated by him.

4. Daily Operating Log

Proper operation and control of the pumping system facilities entails regular schedules in the form of shift duties to be followed by the operators; and 2) the maintenance of a daily log and data summary sheets for system operation. These logs and data sheets indicate what has happened, what has been accomplished, and the analytical results of operational tests.

5. Annual Report

The annual report follows the timeline of the Fiscal budget – July 1 to June 30 of the following year. The report can be prepared jointly by the Director of Utilities and the Sewer Superintendent, each being responsible for submitting certain data. Suggested information to be included, at a minimum in the annual report is as follows:

Operating Data

- Total Flow in million gallons
- Average Daily Flow in million gallons per day
- Screenings Volume per Month

6. Maintenance Records

Maintenance record keeping is an absolute must in the operation of the pumping system. An operator with a review of such records can determine which repair parts should be kept in stock. Such records may be kept on individual sheets for each piece of equipment. A record of regular periodic lubrication, inspections, cleaning and replacement of worn parts, and other data felt to be important to record should be kept on these sheets. The date when the next regular servicing of the equipment is scheduled should also appear on the card where it can easily be seen. A separate lubrication record for each piece of equipment should also be kept. On this record, the equipment is listed as well as instructions for lubricating, including the type of oil suggested and the frequency of lubrication. From this record the operator should be able to see when equipment should be lubricated again.

7. Operating Costs

The major categories of operating costs are labor, utilities, and supplies. Labor can be broken down into operation, administration, and maintenance. Utilities include electricity

and telephone. Supplies include lab chemicals, cleaning materials, 7aintenance supplies and other expendable items. Cost accounting for the above categories should include: intonation on unit costs, total costs, and amounts/quantities used.

The Water Pollution Control Federation Manual of Practice No. 10, "Uniform System of Accounts for Wastewater Utilities", gives the following breakdown for operating expenses:

- Collection System Expenses
- Wastewater Pumping Expenses
- User's Accounting and Collecting Expenses
- Administration and General Expenses

8. Personnel Records

Records should be kept that reflect such things as individual training, time lost due to employee sickness or accident, overtime required, and employee turnover. This information can be of great value to facility management.

9. Emergency Conditions Record

A record of emergency conditions affecting the wastewater transmission system should be maintained. These emergency conditions records might include bypass reports, and records of power failures and wastewater spills.

10. Complaints

All personnel must recognize that the Perth Amboy Main Pump Station, Forcemain and Gravity sewer are publicly owned, and that they are in the public service. Accordingly to earn public support and a positive image for the Perth Amboy Sewerage Department, all complaints must receive immediate investigation.

11. Laboratory Analysis

The City will be billed by the M.C.U.A. on the basis of total flow, MD, TSS and chlorine demand, all measured at the Perth Amboy Meter Station. It will be in the City's best interest to periodically have laboratory determinations made on the wastewater independently of the MCUA Program

.

The MUCA sampler will extract a pre-set amount of wastewater from the flowstream at a pre-set tire interval to generate a composite sample. The City could simulate this procedure by locating a portable composite sampler in the manhole just prior to the meter

station, and collecting a 24-hour composite sample. In lieu of an automatic composite sampler, grab samples could be taken by City personnel over the course of several hours to form a composite sample.

Initially, a sampling frequency of once every two weeks is suggested. If the results generated by the City's independent laboratory do not generally agree with the values generated by MCUA, more frequent sampling may be warranted. Expected results are:

- BOD: 200 to 400 mg/l
- TSS 200 to 400 mg/l

Samples which will be tested for BOD should be refrigerated or packed in ice prior to pick-up by the laboratory,

VII. MAINTENANCE

VII. A. GENERAL

Perhaps one of the simplest ways to avoid expensive and early replacement of equipment within the system is to maintain it correctly. Preventive maintenance is the art of doing all the little things necessary to keep equipment running smoothly. Frequent checks on the condition of equipment prevent surprises. Replacing a rough bearing early will prevent damage to the shaft and other parts which may occur if the replacement is delayed. A faithful lubrication schedule will keep parts running smoothly and free of the grit that grinds up shafts and bearings. These observations have been said many times before; however, they must be repeated and followed in order to obtain the best operating results and longest life out of the facilities provided.

Maintenance can be routine and easy to handle or it can be a frustrating series of emergencies that one can never seem to catch up to. Making maintenance routine requires planning, checking and daily attention to numerous small items which personnel might rather skip. Routine maintenance starts with a keen sense of awareness of all those things which tend to become a blur to most people because they are just part of the general surroundings. The sound of the motors and the vibration in the floor or the odor in the air are things to which personnel must remain sensitive if early signs of trouble are to be detected. For proper maintenance, system personnel should become familiar with these manuals.

The Maintenance Program should start with good housekeeping and should observe the following simple rules:

1. Keep a clean, neat, and orderly station.
2. Establish a systematic plan for execution of daily operations.
3. Establish a routine schedule for inspection and lubrication of the system.
4. Maintain data and records for each piece of equipment, with emphasis on unusual incidents and faulty operating conditions.
5. Observe safety measures.

VII.B. EQUIPMENT RECORD SYSTEM

A good preventive maintenance program will keep the equipment in the pumping facility in good operating condition and aid in detecting and correcting malfunctions before they develop into major problems. The method used in establishing the equipment record system will determine its usefulness. First, the method must define what preventive maintenance task must be performed, and second, the method must have a means of recording what has been done.

Each piece of equipment should have its own inspection and service card. This card should include the following if applicable:

- Original start-up data.
- Manufacturer's name, model, serial number, and special accessories.
- Manufacturer's representative name, address and phone for obtaining spare parts.
- Log for recording date of regular inspections and for recording date, cause and what was done or any emergency repairs.

Much of the above information is contained in Section 3A. It is suggested that one service card be kept in the immediate vicinity of the piece of equipment, with a copy of the sane kept in the O&M manual.

VII.C. PLANNING AND SCHEDULING

Gravity sewers and pump stations do not observe holidays and vacation shutdowns. The system, however, does experience variations in flows and maintenance work loads. Under these conditions maintenance must be planned and scheduled to avoid idle time or peak work load periods.

Maintenance planning and scheduling involves time, personnel, equipment, costs, work orders an, priorities. The size and capabilities of the staff influence the amount of work which may be accomplished. The schedule must be for preventive maintenance and minimize time required for corrective maintenance.

One scheme for planning preventive maintenance is to review the maintenance and lubrication sheets provided in Sections 3A and 6 and set up ahead of time lists of operations to be done on certain dates. Items can also be entered in advance on a memo calendar pad. For the maintenance program to be effective, it must be accepted by system personnel. The equipment inspection and service record should be kept simple and instructions regarding routine work to be done should be concise and clear.

Indoor and outdoor maintenance should be scheduled according to weather, flow rate and other variables. Preventive maintenance should be scheduled in relation to the equipment manual suggestions. The optimum preventive maintenance schedule may be developed by listing all maintenance frequencies for each piece of equipment and then schedule it from the installation time.

Adjustment must be made in the schedule to save time and effort. Similar maintenance should be scheduled at the same time.

A work order should be filled out for each job. This will provide a reference for the work done, the problem, the procedure, the results and the cost. These forms help supervisors to plan work and calculate budgets. A sample Repair Order form can be found at the end of this Section.

VII.D. STOREROOM AND INVENTORY SYSTEM

A review of the equipment and manufacturer's manuals will aid in determining what spare parts should be stored. These manuals should be studied from time to time to familiarize personnel with the equipment and its proper maintenance. Then when a failure occurs, maintenance personnel are prepared to pinpoint the trouble in the shortest possible time. All spare parts that are recommended by the manufacturer should be stocked and kept in a proper, clean, well-protected stock area so that, when needed, they are available. Immediately upon using any spare parts, replacement orders should be made so that the inventory is maintained at the proper level.

VII.E. MAINTENANCE PERSONNEL

Most preventive maintenance may be performed by City personnel, even if they have only self-taught mechanical knowledge. However, some preventive maintenance and most corrective maintenance will require special training. The equipment must be repaired quickly and properly. Many pieces of equipment have a warranty period and unqualified tampering will nullify this warranty. All warranty information should be filed until it expires. Untrained personnel should assist and learn from outside mechanical contractors and vendor personnel in order to be prepared for the next maintenance or breakdown task. Specialized mechanics may be found by calling the manufacturer or factory representative who normally has available maintenance personnel.

VII.F. COST AND BUDGETS FOR MAINTENANCE OPERATIONS

The cost of preventive and corrective maintenance and major station repairs and alterations are a major item in the yearly operating budget for the system. An adequate record of all maintenance costs, both in-house and hired work, plus the costs from the spare parts stockpile should be kept. This will assist in the preparation of the next year's budget.

A maintenance log book should be kept for the pump station and updated for each minor or major job. It should contain such items as work classification, number of hours worked, type of job, name and number of equipment, parts or supplies required, purchase order number, receipt,

and total cost. These records should also be kept as maintenance history records. By checking the number and type of maintenance performed on a piece of equipment, personnel may determine when it s time for replacement.

VII.G. HOUSE KEEPING

The general appearance of the pump station should be pleasing. The cleanliness of 3 building, is one of the first things noticed by any visitors. All equipment in buildings should be well painted, the grass cut, shrubbery trimmed, and unsightly containers removed. This not only implants pride in City personnel, but also will have a pleasing effect on local, state and federal authorities who will visit the pump station to assess system operation.

Building maintenance is desirable on a regular schedule. Painting of structures, inside and outside, should be done before paint begins to peel. If peeling occurs, the surface should be cleaned and sanded before painting to remove oily dust film. If sanding is not required, exterior surfaces should be brushed before painting. Plumbing and lighting fixtures need attention on some regular basis. Light bulbs should be replaced when they burn out, and leaky plumbing fixtures should be repaired whenever a leak develops.

Housekeeping is a normal operation function, but whenever maintenance is performed, particularly dismantling and overhaul, cleanup after the maintenance activity is necessary. All tools should be placed in their proper location.

Trash should not be allowed to accumulate in the pump station; floors should be swept or mopped as often as necessary; equipment should be wiped down to prevent the accumulation of dust; and windows should be kept clean. All tools should be kept in a proper and accessible place on a tool board, in tool racks, or in tool boxes. Safety and first-aid equipment and supplies should be stored in an easily accessible place and should be in usable condition.

Regular inspection and performance of maintenance activities are required for building structures and plumbing and electrical fixtures, as well as all equipment and appurtenances housed in the structures. In short, maintenance efforts are necessary on wet wells, pumps, controls (automatic and manual), piping and valves, sumps and sump pumps, standby equipment, and all other equipment and appurtenances housed in the pump station.

Wastewater pumping stations must have adequate ventilating systems, and these systems require maintenance at regular intervals. Exhaust fans and vents should be cleaned, lubricated, and repaired if necessary every six months.

The principal maintenance procedure required for piping is surface protection. At annual intervals, check for conditions of painted surface. Paint as necessary. Use a glossy paint that resists moisture condensation. The color of the piping should not be altered from the original.

All pumps and other equipment that serve on a standby basis should be operated at regular intervals, and should be maintained on the same schedule as operating equipment.

Sump pumps should be cleaned at weekly or monthly intervals depending on the accumulation of debris or dirt.

VIII. INSPECTION PROCEDURES

a. Diversion, Tide Gate, Combined Sewer Overflow Inspection Procedure and Report

b. Manhole Inspection Procedure and Report

c. Catch Basin Maintenance Procedure and Report

d. Ground Level Forcemain Inspection Procedure and Report

e. Pump Station Inspection Procedure and Report

f. TV Inspection Procedure and Report

g. Weekly Flushing Program and Report

h. Wet Weather Operating Guideline and Checklist

i. Interceptor Sewer Procedure

j. Sediment and Debris Testing Plan

VIII.A. DIVERSION, TIDE GATE, COMBINED SEWER OVERFLOW PROCEDURE AND INSPECTION REPORT

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for completing inspections on the tide gates, diversion chambers, and combined sewer outfalls (CSO) in the Combined Sewer System of Perth Amboy. The intent of this procedure is to visually inspect, and identify potential issues relating to the tide gates, diversion chambers, and combined sewer outfalls of the Perth Amboy sewer system.

This procedure will define the inspection of the tide gates, diversion chambers, and combined sewer outfalls. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of a Tide Gate, Combined Sewer Outfall and Diversion Chamber Inspection Report must be directed to a supervisor for clarification.

Part 2: Definitions

Diversion Chambers

The diversion chambers are a critical part of the Perth Amboy sewer system. During a rain/wet weather event, the flows of the system are increased due to storm water run off. This additional flow can quickly reach the capacity of the underground piping system. The diversion chambers take the amount of flow that is over the systems capacity and directs it to an outfall located on the coast of the Raritan Bay or Arthur Kill. Inside of the diversion chamber there is a weir plate, when the level reaches capacity, wastewater is directed over the weir plate.

This overflow of the system is not permitted in dry weather. Therefore, the diversion chambers need to be inspected before and after rain/wet weather events, and during periods of dry weather. There are 17 diversion chambers within the Perth Amboy sewer system.

Combined Sewer Outfall Chambers

After the flow leaves the diversion chamber it heads towards a Combined Sewer Outfall chamber (CSO) or netting chamber. This chamber contains a netting system which is designed to catch debris and trash before heading into the Raritan Bay or Arthur Kill. These nets fill with debris, trash, rags, leaves and other items that get collected inside the sewer system. These chambers must be inspected before and after rain/wet weather events, and during periods of dry weather. If bags are found to be missing, or filled, they must be replaced and the waste must be taken to the

yard for proper disposal. There are 17 CSO chambers in the Perth Amboy sewer system. The following diagrams represent the flow of the Combined Sewer Outfall.

Tide Gates

Due to the configuration of certain outfalls, tide gates may be before or after the CSO or netting chambers. Tide gates are an opening through which waste water will flow through the outfall, but which closes automatically and prevents the tidal water from flowing into the sewer system. When the sewer system is in an overflow condition the tide gate opens, allowing the flow to discharge. When the sewer system is in a dry weather non-overflow condition, the tide gate closes to prevent tidal waters from entering the piping leading to the tide gate.

The tide gates on the system are to be inspected before and after rain/wet weather events, and during periods of dry weather. Debris passing through the CSO's can potentially hold open tide gates, which will allow tidal waters to pass through the tide gate in the wrong direction.

Part 3: CSO Locations

There are 17 outfall locations in the Perth Amboy sewer system.

CSO#	Name	CSO#	Name
002	Rudyk Park	011	State Street
003	Buckingham Avenue	012	Catalpa Avenue
004	Washington Street	013	Brighton Avenue
005	Commerce Street	014	Madison Avenue
006	Fayette Street	015	First Street
007	Smith Street	016	Second Street
008	Gordon Street	017	Sheridan Street
009	Lewis Street	019	Outer Smith Street
010	High Street		

#002 Rudyk Park

The Rudyk Park outfall has an 84” Brick Elliptical main leading into the Arthur Kill. The Rudyk Park outfall has a diversion chamber and CSO chamber. The diversion chamber is in front of the State Street Pumping Station. The CSO is located inside the fence next to the State Street Pumping Station and contains 4 nets. There is no tide gate at the Rudyk Park CSO.

#003 Buckingham Avenue

The Buckingham Avenue outfall has 36" main leading into the Arthur Kill. The Buckingham Avenue outfall has a diversion chamber and a CSO chamber. The diversion chamber is located at the intersection of Hartford Street and Buckingham Avenue. The CSO chamber is located at the end of Buckingham Avenue and contains 4 nets. There is no tide gate at the Buckingham Avenue CSO.

#004 Washington Street

The Washington Street outfall has 36" main leading into the Arthur Kill. The Washington Street outfall has a diversion chamber and a CSO chamber. The diversion chamber is located at the intersection of Front Street and Washington Street. The CSO chamber is located at the end of Washington Street and contains 2 nets. There is no tide gate at the Washington Street CSO.

#005 Commerce Street

The Commerce Street outfall has 36" main leading into the Arthur Kill. The Commerce Street outfall has a diversion chamber and a CSO chamber. The diversion chamber is located at the intersection of Front Street and Commerce Street. The CSO chamber is located at the end of Commerce Street and contains 1 net. There is a tide gate at the Commerce Street CSO.

#006 Fayette Street

The Fayette Street outfall has 48" main leading into the Arthur Kill. The Fayette Street outfall has a diversion chamber, tide gate and a CSO chamber. The diversion chamber is located at the intersection of Front Street and Fayette Street. The CSO chamber is located at the end of Fayette Street and contains 2 nets. There is a tide gate at the Fayette Street CSO.

#007 Smith Street

The Smith Street outfall has 48" brick main leading into the Arthur Kill. The Smith Street outfall has a diversion chamber, tide gate and a CSO chamber. The diversion chamber is located at the intersection of Smith Street and Front Street. The CSO chamber is located at the end of Fayette Street and contains 1 net. There is a tide gate at the Smith Street CSO.

#008 Gordon Street

The Gordon Street outfall has 36" main leading into the Arthur Kill. The Gordon Street outfall has a diversion chamber, tide gate and a CSO chamber. The diversion chamber is located at the intersection of Front Street and Gordon Street. The CSO chamber is located at the end of Gordon Street and contains 2 nets. There is a tide gate at the Gordon Street CSO.

#009 Lewis Street

The Lewis Street outfall has 15" main leading into the Arthur Kill. The Lewis Street outfall has a diversion chamber, and a CSO chamber. The diversion chamber is located at the intersection of Front Street and Fayette Street. The CSO chamber is located at the end of Fayette Street and contains 2 nets. There is no tide gate at the Lewis Street CSO.

#010 High Street

The High Street outfall has 36" brick main leading into the Raritan Bay. The High Street outfall has a diversion chamber, tide gate and a CSO chamber. The diversion chamber is located at the intersection of Sadowsky Parkway and High Street. The CSO chamber is located at the intersection of High Street and Sadowsky Parkway and it and contains 2 nets. There is a tide gate at the High Street CSO.

#011 State Street

The State Street outfall has 36" main leading into the Raritan Bay. The State Street outfall has a diversion chamber, and a CSO chamber. The diversion chamber is located at the intersection of Sadowsky Parkway and State Street. The CSO chamber is located in the sidewalk at the intersection of State Street and Sadowsky Parkway and it and contains 1 net. There is no tide gate at the State Street CSO.

#012 Catalpa Avenue

The Catalpa Avenue outfall has 36" main leading into the Raritan Bay. The Catalpa Avenue outfall has a diversion chamber, and a CSO chamber. The diversion chamber is located at the intersection of Sadowsky Parkway and Catalpa Avenue. The CSO chamber is located in the sidewalk at the intersection of Catalpa Avenue and Sadowsky Parkway and it and contains 1 net. There is no tide gate at the Catalpa Avenue CSO.

#013 Brighton Avenue

The Brighton Avenue outfall has 24" main leading into the Raritan Bay. The Brighton Avenue outfall has a diversion chamber, tide gate, and a CSO chamber. The diversion chamber is located at the intersection of Sadowsky Parkway and Brighton Avenue. The CSO chamber is located in the sidewalk at the intersection of Brighton Avenue and Sadowsky Parkway and it and contains 1 net. There is a tide gate at the Brighton Avenue CSO.

#014 Madison Avenue

The Madison Avenue outfall has 36" main leading into the Raritan Bay. The Madison Avenue

outfall has a diversion chamber, tide gate, and a CSO chamber. The diversion chamber is located at the intersection of Sadowsky Parkway and Madison Avenue. The CSO chamber is located in the sidewalk at the intersection of Madison Avenue and Sadowsky Parkway and it and contains 1 net. There is a tide gate at the Madison Avenue CSO.

#015 First Street

The First Street outfall has 36" main leading into the Raritan Bay. The First Street outfall has a diversion chamber, tide gate, and a CSO chamber. The diversion chamber is located in the grass at the end of First Street. The CSO chamber is located in the Sadowsky Parkway Park Walkway and contains 1 net. There is a tide gate at the First Street CSO.

#016 Second Street

The Second Street outfall has 72" main leading into the Raritan Bay. The Second Street outfall has a diversion chamber, tide gate, and a CSO chamber. The diversion chamber is located at the entrance to the school, adjacent to the Second Street Pumping Station. The CSO chamber is located at the end of Second Street and contains 4 nets. There is a tide gate at the Second Street CSO and is located at the shoreline of the Raritan Bay. This is the only tide gate located at the shoreline.

#017 Sheridan Street

The Sheridan Street outfall has 24" main leading into the Raritan Bay. The Sheridan Street outfall has a diversion chamber and a CSO chamber. The diversion chamber is located at the intersection Sheridan Street and Patterson Street. The CSO chamber is located in grass behind the guardrail at the end of Sheridan Street and contains 1 net. There is no tide gate at the Sheridan Street CSO.

#019 Outer Smith Street

The Outer Smith Street outfall has 60" main leading into the Raritan Bay. The Outer Smith Street outfall has a diversion chamber and a CSO chamber. The diversion chamber is located inside the gated area next to the Perth Amboy Water Department. The CSO chamber is located adjacent to the diversion chamber and contains 4 nets. There is no tide gate at the Outer Smith Street CSO.

Part 4: Inspection

General Information

Tide Gate, Combined Sewer Outfall and Diversion Chamber Inspection Report has general information that is required. This information provides general details regarding the inspection. The following definitions are a part of the general information section.

- *Inspector* – Name of employee inspecting manhole.
- *Date* – Calendar date of manhole inspection.
- *Time* – Hour and Minute of manhole inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.

Diversion Chamber

- *Debris* – Examine the weir plate inside of the diversion chamber. Is debris present on and around the weir plate? Mark if debris is present.
- *Overflow* – There is an overflow condition present. Waste water is flowing over the weir plate. This must be reported to a Supervisor immediately.

Tide Gate

- *Closed* – Examine the tide gate. A closed condition is where there is no water running into or out of the gate.
- *Lodged Open* – Foreign Material has lodged the gate open. This may be rocks, debris, or other material. This must be reported to a supervisor immediately.
- *Other* – If another condition exists, report information to a supervisor and document on this form.

CSO Nets

- *Secure* – Nets are secure. Nets sit in frame correctly and are ready to accept flow.
- *Full* – Nets are found to be full and need to be replaced.
- *Missing* – Nets are missing from previous wet weather event. This is caused by overload of debris.
- *Replaced* – Nets needed to be replaced based on previous or current inspection.
- *# of Replaced Nets* – Number of nets replaced inside CSO chamber
- *Weight of Replaced Nets* – Weight of removed nets in pounds (lbs)

List any deficiencies to a Supervisor.

This concludes the Diversion, Tide Gate, and Combined Sewer Outfall Inspection. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The Diversion, Tide Gate and Combined Sewer Outfall Inspection Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

PERTH AMBOY SEWERAGE DEPARTMENT

Foot of 2nd Street
Perth Amboy, NJ 08861

Operation and Maintenance Manual

Perth Amboy Sewerage Department

Diversion, Tide Gate, and Combined Sewer Outfall Inspection Report

General Information

Inspector(s): _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear___ Rain___ Snow___ Ice___ Other _____ Temp_____

Diversion, Tide Gates, CSO Inspection

CSO#	Name	Weir Plate	Tide Gate	CSO Nets	# of Nets Replaced	Weight of Removed Nets
002	Rudyk Park		NA			
003	Buckingham Avenue		NA			
004	Washington Street		NA			
005	Commerce Street					
006	Fayette Street					
007	Smith Street					
008	Gordon Street		NA			
009	Lewis Street		NA			
010	High Street					
011	State Street					
012	Catalpa Avenue					
013	Brighton Avenue					
014	Madison Avenue					
015	First Street					
016	Second Street					
017	Sheridan Street		NA			
019	Outer Smith Street		NA			

Weir Plate: P: Debris Present
N: No Debris Present
OV: Overflow

Tide Gate: C: Closed
L: Lodged Open
O: Other (Please Note)

Nets: S: Secure
F: Full
M: Missing
R: Replaced

List any defeciencies and/or repairs below and report to Supervisor

VIII.B. MANHOLE INSPECTION PROCEDURE AND INSPECTION REPORT

Part 1: Introduction - Purpose

The purpose of this procedure is to set forth the guidelines for completing Manhole Inspections on the Combined Sewer System of Perth Amboy. The intent of this procedure is to locate, identify, and memorialize troublesome areas in the system. This allows for the proper scheduling of routine and required maintenance to correct issues with manholes and pipelines in the system. Properly performing preventative maintenance aids in the preservation of the system.

This procedure will define the inspection information that is required, as well as definition of terms related to the inspection. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of a Manhole Inspection Report must be directed to a supervisor for clarification.

Part 2: Manhole Inspection Report

2.1 General Information

The Manhole Inspection Report has general information that is required. This information provides general details regarding the manhole that is being inspected. The following definitions are a part of the general information section.

- *Manhole ID* – Provide Manhole ID from Sewer Map.
- *Inspector* – Name of employee inspecting manhole.
- *Date* – Calendar date of manhole inspection.
- *Time* – Hour and Minute of manhole inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.
- *Location* – Provide location of manhole in system. Locations include street, gutter (curb line), alley, heavy traffic area, sidewalk, easement, and other. List street name(s) and other information relevant to manhole location.
  (Example: Intersection of High Street and Smith Street; Manhole located in front of 275 High Street)

2.2 Initial Inspection

The Manhole Inspection Report includes an initial inspection section. This section is an overview of the manhole. It consists of the basic components of the manhole and the evaluation of these components. The following defines the areas of the initial inspection.

- *Ground Level* – This inspects the area around the manhole at the ground level. The inspector is to look at the condition of the roadway, sidewalk, and soil area surrounding the manhole lid.
- *Manhole Cover* – This inspects the manhole cover. Good condition is defined as solid, free of defects, and undamaged. Damaged condition consists of cracks, deformed, excessive wear. Note all damages or problems with cover and if adjustments are needed.
- *Ring and Frame* – This inspects the ring and frame of the manhole. Good condition is solid, free of defects and undamaged. Damaged condition consists of cracks, deformed, excessive wear. Displaced frames are misaligned with manhole cone, and can be missing grout. If frame and cover elevation needs adjustment, note if frame needs to be raised or lowered.
- *Manhole Material* – This defines the construction of the manhole. The manhole is either constructed of brick, block, or precast concrete.
- *Cover Size* – This defines the diameter/size of the manhole cover. 24", 30" or other. Note the dimensions in inches.
- *Manhole Size* – This defines the diameter/size of the manhole. 4ft, 5ft, or other. Note all dimensions in feet.
- *Smell* – This defines the smell of the manhole. This rates the smell of manhole as to normal, bad, or excessive.
- *Vermin* – This is to define the presence of vermin. Roaches, Rats, etc.

2.3 Structural Inspection

The Manhole Inspection Report includes a structural inspection section. This section reviews the structural components of the manhole and the evaluation of these components. The following defines the areas of the structural inspection.

- *Steps* – This inspects the steps located in the manhole. The steps are in good or an unsafe condition. Steps in good condition are sturdy and are usable for entrance and egress of the manhole. Steps in an unsafe condition are rusted, pulled apart, broken or defective. Steps are to be 12" apart and if any steps are missing, this should be noted.
- *Grade Ring* – The grade ring condition is inspected. Good condition consists of a solid structural appearance. Damaged or corroded condition may show evidence of

spalling, cracks, or separation. Misaligned sections will be off center from the riser section. Note if the joints are leaking or are in disrepair.

- *Riser Section* – The riser section is the section from the manhole cover to where the manhole maximizes diameter. Good condition consists of a solid structural appearance. Damaged or corroded condition may show evidence of spalling, cracks, or separation. Misaligned sections will be off center from the adjacent sections. Note if the joints are leaking or are in disrepair.
- *Shelf* – The shelf is the sloped concrete area above the channel. This may also be referred to as the bench. Good condition consists of a solid structural appearance. Damaged or corroded condition may show evidence of spalling, cracks, or separation. Note if the base joint is leaking or is in disrepair.
- *Channel* – The channel is the open flow section of the piping at the bottom of the manhole. Good condition consists of a solid, free flowing appearance. Obstructed channels may contain debris that is preventing free flow. Damaged or corroded condition may show evidence of spalling, cracks, or separation. Channel may also show signs of silt, rock, or grease build up. Note if the incoming and outgoing pipe joints are in poor or bad condition

2.4 Hydraulic Inspection

The Manhole Inspection Report includes a hydraulic inspection section. This section reviews the flow of the manhole and the evaluation of the flows. The following defines the areas of the hydraulic inspection.

- *Surcharge Indication* – This is to record any indication of a surcharge condition inside the manhole. A surcharge condition is shown by grease or debris on the shelf or sides of the manhole. Conditions shall be noted.
- *Flow Depth* – This inspects the depth of the flow. The flow is to be observed as full, ¾ full, ½ full, ¼ full, negligible and no flow. This flow is measured relevant to the pipe diameter.
- *Sheen* – This inspects if there is a sheen on the flow. The sheen represents oil in the flow.
- *Grease* – This inspects if there is grease in the flow. Grease is noticeable in the flow and sticks to the inside of the channel.
- *Flow* – This describes the characteristics of the flow. It is defined as clear, murky, soapy or full of heavy solids. Note if the flow contains any inconsistent flow patterns.
- *Flow Type* – This describes the flow type. Flow types are listed as steady, pulsing, turbulent, surcharging, or sluggish. Note if the flow is irregular or is inconsistent.
- *Sediment* – This describes the sediment inside of the channel. Sediment may contain, silt, shells, rock or other settled materials. Sediment is measured as none, negligible, light or heavy.

2.5 Manhole Data

This section gives component, graphical and pictorial information about the manhole. The basic manhole configuration has been presented. Indicate incoming and outgoing piping and label accordingly. This will include pipe size, piping material and invert depth of piping. Include flow direction and manhole location on map.

- *Pipe Sizes* – This notes the pipe sizes based on location. Pipe sizes are measured in inches. Sizes include, 6", 8", 12", 15", 18", 24", ect.
- *Pipe Material* – There are different piping materials used inside of the sewer system. Piping materials may be: PVC, Clay, Concrete, or Ductile Iron.
- *Invert Depth* – This is the depth to the invert of the pipe line. This is measured from Rim of the manhole in feet.
- *Feet Jetted* – This is the linear footage of main jetted from this manhole.
- *Map* – This is a map of where the manhole is in relevance to the system. Include street names, intersecting streets and adjacent upstream and downstream manholes.

Include all notes in the relevant section. If additional space is needed use additional forms. All notes are to be neat, concise, and informative.

This concludes the Manhole Inspection Report. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The Manhole Inspection Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

Perth Amboy Sewerage Department
Manhole Inspection Report
Manhole ID_____

Inspector: _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear___ Rain___ Snow___ Ice___ Other_____ Temp_____

Location: _____

Location: Street___ Gutter___ Alley___ Heavy Traffic___ Easement___ Other_____

Initial Inspection

Manhole Cover: Good___ Damaged___ Displaced___ Missing Grout___ Adjust. Needed___

Ring and Frame: Good___ Damaged___ Displaced___ Missing Grout___ Adjust. Needed___

Manhole Material: Brick___ Precast___ **Cover Size:** 24"___ 30"___ Other_____

Manhole Size: 4ft___ 5ft___ Other_____ Chamber Size_____

Smell: Normal___ Bad___ Excessive___ **Vermin:** _____

Notes:

Structural Inspection

Steps: Good___ Unsafe___ Missing (#)_____

Grade Ring: Good___ Damaged___ Corroded___ Misaligned___ Leaking or Bad Joints___

Riser: Good___ Damaged___ Corroded___ Misaligned___ Leaking or Bad Joints___

Shelf: Good___ Broken___ Corroded___ Dirty___ Bad Base Joint___

Channel: Good___ Obstructed___ Corroded___ Silt___ Rocks___ Grease___

Channel Structural Condition: Good___ Fair___ Poor___ Bad Pipe Joint___

Notes:

Continued on Back

Hydraulic Inspection

Surcharge Indication: Grease/Debris on Shelf/Sides ___

Flow Depth: Full ___ 3/4 Full ___ 1/2 Full ___ 1/4 Full ___ Negligible ___ None ___

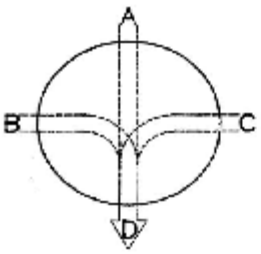
Sheen: Observed ___ None ___ **Grease:** Observed ___ None ___

Flow: Clear ___ Murky ___ Soapy ___ Heavy Solids ___

Flow Type: Steady ___ Pulsing ___ Turblent ___ Surcharging ___ Sluggish ___

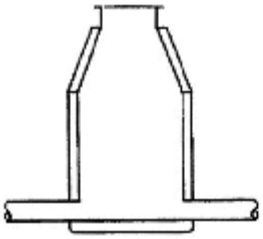
Sediment: None ___ Negligible ___ Light ___ Heavy ___

Notes:



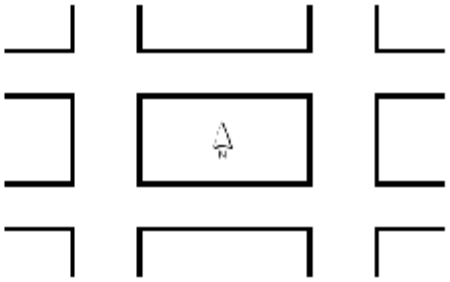
Indicate Flow Direction

	Pipe Sizes	Material	Invert Depth	Feet Jetted
A				
B				
C				
D				
Other				



Indicate Issues
Pipe Elevations

Map of Manhole Location and Flow Direction



Notes:

VIII.C. CATCH BASIN MAINTENANCE PROCEDURE AND REPORT

Part 1: Introduction - Purpose

The purpose of this procedure is to set forth the guidelines for completing maintenance on the Catch Basins that are a part of the sewer system of Perth Amboy. The intent of this procedure is to locate, identify, and memorialize troublesome areas in the system. This allows for the proper scheduling of routine and required maintenance of storm water collection. Properly performing preventative maintenance aids in the preservation of the system.

This procedure will define the inspection information that is required, as well as definition of terms related to the inspection. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of Catch Basin Maintenance Report must be directed to a supervisor for clarification.

Part 2: Catch Basin Maintenance Report

2.1 General Information

The Catch Basin Maintenance Report has general information that is required. This information provides general details regarding the manhole that is being inspected. The following definitions are a part of the general information section.

- *Inspector* – Name of employee inspecting manhole.
- *Date* – Calendar date of manhole inspection.
- *Time* – Hour and Minute of manhole inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.
- *Location* – Provide location of manhole in system. Locations include street, gutter (curb line), alley, heavy traffic area, sidewalk, easement, and other. List street name(s) and other information relevant to manhole location.
  (Example: Intersection of High Street and Smith Street; SW corner of High Street and Fayette Street)

2.2 Catch Basin Information

The Catch Basin Maintenance Report includes an initial inspection section. This section is an overview of the basin. It consists of the basic components of the basin and the evaluation of these components. The following defines the areas of the initial inspection.

- *Grate and Frame* – This inspects the grate and frame. Good condition is defined as solid, free of defects, and undamaged. Damaged condition consists of cracks, deformed, excessive wear and if adjustment is needed. Note all damages or problems with the grate and frame.
- *Surrounding Area* – Is the area surrounding the catch basin in good condition. Good condition is defined as on grade, no trip hazards, and no depressions around the basin. Is there asphalt missing, does it appear that the catch basin is below grade. Are there any other notable issues with the area surrounding the catch basin.
- *Floatables Bar* – Is a floatables bar present over the mouth of the inlet. This bar reduces the entrance of floatable items into the storm system.
- *Hood* – Is a hood present over the out flowing pipe, to prevent floatable material from entering.
- *Basin Type* – Block, Precast or other type of construction.
- *Basin Condition* – This defines the construction of the basin. Good condition means free of defects. Fair condition could be missing block, cracked, damaged. Poor condition means it is in need of complete overhaul. Note damages in notes section.
- *Floor of Basin* – Good condition is a solid floor. Damaged defines cracked or broken sections.
- *Lateral Jetted* – Was the lateral jetted? How many feet of piping was jetted at that time.
- *Material Removed* – This defines the type of material removed. Indicate if Grit, Leaves, Dirt or Mud were removed.
- *Direction of Flow* – Define the direction of out going flow. Basin to Basin, or basin to Manhole.
- *Marked Out* – Was the catch basins marked out before leaving the area?

2.3 Catch Basin Data

This section gives component, graphical and pictorial information about the basin. Indicate incoming and outgoing piping and label accordingly. Include flow direction and basin location on map.

Include all notes in the relevant section. If additional space is needed use additional forms. All notes are to be neat, concise, and informative.

This concludes the Catch Basin Maintenance Report. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The Catch Basin Maintenance Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

Perth Amboy Sewerage Department
Catch Basin Maintenance Report

General Information

Inspector(s): _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear ___ Rain ___ Snow ___ Ice ___ Other _____ Temp ____

Location: Street ___ Gutter ___ Alley ___ Heavy Traffic ___ Easement ___ Other ____

Location: _____

Catch Basin Information

Grate and Frame: Good ___ Damaged ___ Displaced ___

Surrounding Area: Good ___ Missing Asphalt ___ Below Grade ___

Hood: Yes ___ No ___ **Floatables Barrier** Yes ___ No ___

Basin Type: Precast ___ Block ___ Other _____

Basin Condition: Good ___ Fair ___ Poor ___ Missing Bricks ___

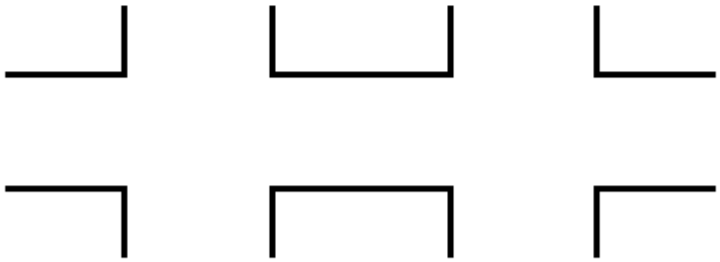
Floor of Basin: Good ___ Damaged ___

Lateral Jetted: Yes ___ No ___ Feet Jetted _____

Type of Material Removed: Grit ___ Leaves ___ Dirt/Mud ___ Garbage/Debris ___

Direction of Flow: Basin to Basin ___ Basin to Manhole ___

Marked Out: Yes ___ No ___



Mark on Map Catch Basin Location and Direction of Flow

Remarks:

VIII.D. GROUND LEVEL FORCEMAIN INSPECTION PROCEDURE AND INSPECTION REPORT

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for completing ground level visual inspections on the forcemains in the Combined Sewer System of Perth Amboy. The intent of this procedure is to visually inspect, and identify potential issues relating to the force mains of the Perth Amboy sewer system.

This procedure will define the above ground inspection of the forcemain pipelines along their route. This inspection also includes the six (6) air release valves on the Second Street Station forcemain. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of a Ground Level Forcemain Inspection Report must be directed to a supervisor for clarification.

Part 2: Forcemain Routes

In Perth Amboy there are four (4) forcemain pipelines. The list below will describe in detail the traveled route of the forcemains.

- Second Street Station
  - The Second Street Station is the main hub of the Perth Amboy Sewer System. All pipelines from the city terminate into this station to be transported to Middlesex County Utilities Authority for treatment. The pipeline is 24" Flanged Steel inside of the plant, then switching over to Pre-stressed Concrete Cylinder Pipe. The pipeline route is as follows:
    - Out of the plant the pipeline heads east into the park, until turning north up First Street. The pipeline is along the western curbline.
    - The pipeline continues north on First Street until Patterson Street. The pipeline turns west down Patterson Street. The first air release is located after turning onto Patterson Street. This manhole will be designated as AR #1. The pipeline is along the south curbline.
    - Continuing from Patterson Street it crosses underneath the railroad tracks to Elm Street. The pipeline turns north up Elm Street. The pipeline is along the east curbline.
    - The pipeline continues north on Elm Street until turning west into the easement area. Along this easement area, the second of six air releases manholes are present. The manhole is located approximately 175' from the western curbline. This manhole will be designated as AR #2.

- The pipeline continues until turning north on a 45° angle and following the easement behind the Amboy Lighting Company property. This is the third of the six air release manholes and it is located approximately 25 feet from Market Street. This manhole will be designated AR #3.
- The pipeline turns 45° west onto Market Street. The pipeline is located off of the north curbline.
- The pipeline continues down Market Street until turning north up Goodwin Street. The pipeline is located off of the east curbline. Approximately 200' from the intersection of Goodwin Street and Fayette Street there is an air release manhole. This is the fourth of six air release manholes. This manhole will be designated as AR #4.
- The pipeline continues across Fayette Street to behind the west curbline of the 440 Connector. The pipeline follows the shoulder of the 440 Connector. 50 feet before the Route 35 bridge crossing there is an air release manhole. This is the fifth of six air release manholes. This manhole will be designated as AR #5.
- The pipeline continues along the 440 Connector and crosses 440 right past the Florida Grove Rd intersection. The pipeline stays behind the south curbline. Approximately 150' from the intersection of 440 and Florida Grove Rd, the final, air release manholes is located. This manhole will be designated as AR #6.
- The pipeline continues along Florida Grove Rd until the pipeline feeds into the manhole where the flow transfers from forced flow to gravity flow. This manhole is located behind the 4th house from the Middlesex County Utilities Authority meter pit. The gravity line then continues into the meter pit.

- Amboy Avenue
  - The Amboy Avenue Pump Station accepts wastewater from the north west side of the City of Perth Amboy. The forcemain is 12" ductile iron piping.
    - The pipeline comes out of the Amboy Avenue Pump Station and heads south behind the west curbline.
    - The pipeline continues along until shifting over into Amboy Avenue. The pipeline remains along the west curbline.
    - The pipeline continues south along Amboy Avenue until making 2 45° bends at Maurer Road. This shifts the pipeline adjacent to the east curbline.
    - The pipeline continues south on Amboy Avenue to a manhole located at the top of Thomas Street. This is where the forcemain termination. From this point flow is gravity.

- Front Street

- The Front Street Pump Station accepts wastewater from the east side of the City of Perth Amboy. The forcemain is 16" ductile iron pipe.
  - The pipeline heads west out of the station and turns north up Front Street. The pipeline is located along the east curbline.
  - The pipeline then turns west and heads up the hill at the north end of Bayview Park. This is adjacent to the property line of 264 Water Street.
  - The pipeline then turns south on Water Street. Flow then transfers to gravity at the manhole in the sidewalk of Water Street.

- State Street
  - The State Street Pump Station accepts wastewater from the north west side of the City of Perth Amboy. The forcemain is 18" reinforced concrete pipe.
    - The pipeline comes out of the State Street Pump Station and turns south on State Street. The pipeline runs along the sidewalk of State Street.
    - The pipeline continues south on State Street until terminating in the manhole at the intersection of State Street and James Street transferring from forced flow to gravity.

Part 3: Ground Level Forcemain Inspection and Inspection Report

The purpose of this procedure is to perform a ground level inspection on the forcemains located in the Perth Amboy Sewerage System.

3.1 General Information

The Forcemain Inspection Report has general information that is required. This information provides general details regarding the forcemain that is being inspected. The following definitions are a part of the general information section.

- *Inspector* – Name of employee inspecting the forcemain.
- *Date* – Calendar date of forcemain inspection.
- *Time* – Hour and Minute of forcemain inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.
- *Location* – Provide which forcemain is under inspection.

3.2 Ground Level Pipeline Inspection

The purpose of the Forcemain Inspection Report is to document and memorialize ground level inspections completed on the forcemains in the sewer system.

- *What is the operating pressure at the station?* – Record the operating pressure of the system at the time of the inspection. Pressure is to be recorded in pounds per square inch (PSI). Document any out of the ordinary pressures.
- *Are the pumps operating at normal speed for the flows into the station?* – Based on previously collected historical data are the pumps operating at the speed for the incoming flow? Document any spikes or irregularities in operation.
- *Are there any noticeable depressions or sink holes along the pipeline route?* - While inspecting the pipeline route are there any noticeable depressions above the pipeline? Are there any sinkholes or voids along the route? Document any noticeable issues and immediately report to your supervisor.
- *Are there any saturated areas that are saturated, pumping water or smell like sewage?* - While inspecting the pipeline route are there areas that are uncommonly saturated, pumping water, or smell like sewage? Note any noticeable issues and immediately report to your supervisor.

3.3 Air Release Inspection

Along the forcemain route, there are four (4) air release manholes on the 2nd Street Pump Station forcemain, as described in Part 2. These manholes contain the air release valves on the forcemain.

- *Air Release Inspected* – Which air release is being inspected. The air releases coincide with the descriptions in Part 2.
- *Surrounding Area* – This inspects the condition of the area surrounding the air release manhole. Clear is defined as an area with no obstructions. Overgrown vegetation has weeds, brush, etc. that makes it difficult to gain access to the manhole. Note if there is debris surrounding the manhole. Note if access to the manhole is blocked for any reason, this should be described in detail and a supervisor should be notified.
- *Manhole Cover* – This inspects the manhole cover. Good condition is defined as solid, free of defects, and undamaged. Damaged condition consists of cracks, deformed, excessive wear. Note all damages or problems with cover and if adjustments are needed.
- *Manhole Condition* – This inspects the condition of the manhole. Good condition consists of a solid structural appearance. Damaged or corroded condition may show evidence of spalling, cracks, or separation. Note any damages to the manhole.
- *Air Release Valves* – This inspects the actual air release valves. This is a VISUAL inspection ONLY. Good condition shows no signs of leaks or failure. If the air release is leaking there should be sewage leaking at the joints. Note location of the leaks and the intensity of the leak. Immediately report any leaks to your supervisor.

Include all notes in the relevant sections. If additional space is needed use additional forms. All

notes are to be neat, concise, and informative.

Part 4: Emergency Forcemain Break Contingency Plan

This part of the Ground Level Forcemain Inspection covers the Emergency Forcemain Break Contingency Plan. This will explain the procedure on dealing with a forcemain break on the Second Street Pump Station forcemain. This forcemain, as described above, is 24" pre-stressed concrete cylinder pipe.

1. Notify Perth Amboy City Hall – Business Administrator's and Mayor's office at ***1-732-826-7121***

2. Notify the *Department of Environmental Protection Hotline* at ***1-877-927-6337***. Inform the operator that there has been an emergency forcemain break in the city of Perth Amboy.

3. Notify B&W Construction Co. to survey the force main break. B&W Construction Co. will handle all aspects of the repairs to be made on the 24" RCP. B&W Construction Co. will have two (2) line stops installed (18X24") on the 24" RCP. B&W Construction Co., USAPA and the City Engineer will choose the best locations to install the line stops. After the line stops are installed by-pass piping will be installed before closing any one of the line stops. This by-pass will able the 2nd Street Pumping Station to continue to pump wastewater to the Middlesex MUA for treatment.

   During this time B&W Construction Co. will plug off catch basins in the affected area and making the catch basins a sump pit. The two city Vac-Trucks will be used to vacuum out the catch basins and transport the wastewater to the manhole located after the MUA'S master meter on Florida Grove Rd. in Woodbridge. If the two Vac-Trucks are not able to keep up with the flow of wastewater, Russell Reid will be called for extra pump trucks to handle the wastewater flow.

   Police will be stationed at intersections such as Goodwin & Smith, Goodwin & Fayette and Smith & Highland Ave. Woodbridge to stop the flow of traffic to avoid tank trucks from getting tied up traffic and holding up the pumping procedure. This would have to be a 24hr operation until the by-pass is set up and placed in operation. Additional police and pump trucks may be required depending were the break occurs.

   If the force main failure is at such a magnitude manifolds will be installed at the 2nd Street Pumping Station to allow numerous tank trucks to be filled simultaneously. Pumping will also be required at the site of the pipe failure to

This concludes the Ground Level Forcemain Inspection. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The Ground Level Forcemain Inspection Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

Perth Amboy Sewerage Department
Forcemain Inspection Report

General Information

Inspector: _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear___ Rain___ Snow___ Ice___ Other_____ Temp_____

Location: 2nd Street___ Amboy Avenue___ Front Street___ State Street___

Ground Level Pipeline Inspection

What is the operating pressure at the station? _____

Are the pumps operating at a normal speed for the flows running into the station?
Yes___ No*___

Are there any noticeable depressions, sink holes, or voids along the pipeline route?
Yes*___ No___

Are there any areas that are saturated, pumping water or smell like sewage?
Yes*___ No___

*Describe any and all findings below:

2nd Street Forcemain Air Release Inspection

	AR #1	AR #2	AR #3	AR #4	AR #5	AR #6	F/G
Surrounding Area:							
Manhole Cover:							
Manhole Condition:							
Air Release Valves:							

Descriptions:

Surrounding Area	Manhole Cover	Manhole Condition	Air Release
C: Clear	G: Good	G: Good	G: Good
DE: Debris	DA: Damaged	DA: Damaged	DA: Damaged
B: Blocked Access	DI: Displaced	L: Leaking	L: Leaking
OV: Over Grown Vegitation	ADJ: Adjustment Needed	O: Other *Please Note	O: Other *Please Note

VIII.E. PUMP STATION INSPECTION PROCEDURE AND INSPECTION REPORT

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for completing inspections on the Pump Stations in the Combined Sewer System of Perth Amboy. The intent of this procedure is to visually inspect, and identify potential issues relating to the Pump Stations of the Perth Amboy sewer system.

This procedure will define the inspection of the Pump Stations. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of a Pump Station Inspection Report must be directed to a supervisor for clarification.

Part 2: Pump Station Inspection Report

2.1 General Information

The Pump Station Inspection Report has general information that is required. This information provides general details regarding the forcemain that is being inspected. The following definitions are a part of the general information section.

- *Inspector* – Name of employee inspecting the Pump Station.
- *Date* – Calendar date of Pump Station inspection.
- *Time* – Hour and Minute of Pump Station inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.
- *Location* – Provide which Pump Station is under inspection.

2.2 Exterior Inspection

The purpose of the Pump Station Inspection Report is to document and memorialize the inspections completed on the Pump Stations in the sewer system.

- *Exterior Condition* – This defines the condition of the exterior of the building. Good/Clean is defined as good exterior condition no trash or debris present. If trash or debris is present, dispose of in the proper fashion. Report all signs of vandalism. Vandalism can be, but not limited too, broken windows, spray paint a wall with graffiti, and other damage to the station property.
- *Access* – This defines the access into and out of the pump station. The gates should be locked at all times when there is no employee present. Keys provided to the

employee to gain access to the pump station should work. Note if the entrance is blocked and what it was blocked by. Access should be available at all times. This includes nights, weekends, and holidays.

- *Smell* – This defines the exterior smell of the pump station. The smell shall be defined as normal, bad, and excessive.
- *Repairs Needed* – This section is to define any repairs needed to the exterior of the pump station. i.e. Loose shingles on roof, fence post broken, Etc.

2.3 Interior Inspection

- *Lights* – Examine the interior lighting conditions. Are the lights working properly. Do bulbs need to be replaced? If so, replace the bulbs with the proper replacement.
- *Smell* - This defines the interior smell of the pump station. The smell shall be defined as normal, bad, and excessive.
- *Overall Appearance* – This shall define the overall interior appearance of the pump station. Good/Clean is defined as no trash or debris present. Everything has in a neat and orderly appearance.
- *Visible Leaks* – This reports any visible leaks inside of the pump station. These leaks can be on the pumps, piping, inside the drywell, etc.

2.4 Checklist

The next part of the form is a checklist designed to check the operability/maintenance of each item. Checking each item indicated that it appears to be in full working order, with no deficiencies. Any and all deficiencies shall be listed on the back of the form and reported to a supervisor.

This concludes the Pump Station Inspection. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The Pump Station Inspection Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

PERTH AMBOY SEWERAGE DEPARTMENT

Foot of 2nd Street
Perth Amboy, NJ 08861

Operation and Maintenance Manual

Perth Amboy Sewerage Department

Pump Station Inspection Report

General Information

Inspector: _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear ___ Rain ___ Snow ___ Ice ___ Other _____ Temp _____

Location: 2nd Street ___ Amboy Avenue ___ Front Street ___ State Street ___

Exterior Inspection

Exterior Condition: Good/Clean ___ Debris or Trash Present ___ Signs of Vandalism ___

Access: Entrance Accessible ___ Gates Locked ___ Keys Work ___

Entrance Blocked ___ Blocked by: _____

Smell: Normal ___ Bad ___ Excessive ___

Repairs Needed:

Interior Inspection

Lights: Working Correctly ___ Bulbs Out ___ # Replaced ___

Smell: Normal ___ Bad ___ Excessive ___

Overall Appearance: Good/Clean ___ Dirty ___

Visible Leaks: None ___ Yes ___ Where _____

_____ Complete Daily Log
_____ Check Main Pump
_____ Check Secondary Pump
_____ Check Pump Packing and Seals
_____ Check Trash Racks. Clean if necessary.
_____ Check Drywell
_____ Wipe excess grease and oil from surfaces
_____ Check Exhaust Fans
_____ Check Battery Charger
_____ Sweep and Mop floor

_____ Check Fire Extinguisher

Generators and Alarm Dialers are checked after the Weekly Test on Wednesdays

_____ Check High Level Alarm Dialer
_____ Check Emergency Generator
_____ Check Oil
_____ Check Coolant
_____ Check Hoisting Equipment
_____ Check Bathroom

_____ Turn off lights and lock door

List any defeciencies on back and report to Supervisor

VIII.F. TV INSPECTION PROCEDURE AND INSPECTION REPORT

Part 1: Introduction - Purpose

The purpose of this procedure is to set forth the guidelines for completing closed-circuit television inspections on pipelines that are a part of the sewer system of Perth Amboy. The intent of this procedure is to locate, identify, and memorialize troublesome areas in the system. This allows for the proper scheduling of routine and required maintenance of sewage and storm water collection.

This procedure will define the inspection information that is required, as well as definition of terms related to the inspection. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the inspection. Any questions regarding this document or the completion of TV Inspection Report must be directed to a supervisor for clarification.

Part 2: Catch Basin Maintenance Report

2.1 General Information

The TV Inspection Report has general information that is required. This information provides general details regarding the manhole that is being inspected. The following definitions are a part of the general information section.

- *Inspector* – Name of employee inspecting manhole.
- *Date* – Calendar date of TV inspection.
- *Time* – Hour and Minute of TV inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.
- *Location* – Provide location of area to be TV'd in system. Locations include street, gutter (curb line), alley, heavy traffic area, sidewalk, easement, and other. List street name(s) and other information relevant to manhole location. (Example: Intersection of High Street and Smith Street; SW corner of High Street and Fayette Street)
- *Vactor Present/Needed* – Is one of the jet/vac trucks needed to assist in TV operations?

2.2 TV Inspection Information

The TV Inspection Report includes an initial inspection section. This section is an overview of the TV work to be completed. It consists of the basic components of the inspection and the evaluation of these components. The following defines the areas of the initial inspection.

- *Reason for TV Inspection* – What is the reason for the TV inspection? Depression/Sink Hole in the roadway, Blockage, Inspection of work completed, etc.
- *Point of Entry* – What is the point of entry into the sewer system? Was access gained through a manhole, catch basin, or other? List the other form of entry.
- *Main/Pipe Size* – This notes the pipe sizes based on location. Pipe sizes are measured in inches. Sizes include 6", 8", 12", 15", 18", 24", ect.
- *Pipe Material* – There are different piping materials used inside of the sewer system. Piping materials may be: PVC, Clay, Concrete, or Ductile Iron.
- *Depth* – This is the depth to the invert of the pipe line. This is measured from Rim of the manhole in feet.
- *Televised From/Televised To:* - List the starting and ending point of the TV inspection. This is the point from which the TV camera starts and the TV camera ends.
- *Total feet of Main televised* – List the total amount of feet of main televised during this TV inspection.
- *Video Tape #* - List the video tape that contains this TV Inspection.

2.3 TV Inspection Data

Laterals - This section gives information about laterals located in the pipe line. Indicate the distances from the start of the inspection to the location of the lateral. All distances are to be measured in feet. Note if there is an issue with the lateral and/or entrance location of lateral as on the clock face. Indicate address if confirmed via dye testing.

Problems/Issues – This section gives information about issues located in the pipe line. Indicate the distances from the start of the inspection to the location of the problem or issue. All distances are to be measured in feet. Note the problem or issue. Examples of problems or issues are: Root Intrusion, Pipe Sag (list length and depth), Cracked, Broken, or Collapsed Pipe (list location in pipe i.e. Top, Side, Bottom), Offset or Separated Joints, Obstructions, Cleaning Required, Lateral Protruding, Inflow, Broken Lateral Connection, Inline Pipe Size Changes. Indicate if the problem is relevant to the homeowners lateral, and confirm the address. Pictures are to be taken of every piping issue using the video camera software.

Include all notes in the relevant section. If additional space is needed use additional forms. All

notes are to be neat, concise, and informative.

This concludes the TV Inspection Procedure. Upon completion, provide report to the supervisor. Any questions shall be directed to the supervisor.

The TV Inspection Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

Perth Amboy Sewerage Department
TV Inspection Report

General Information

Inspector(s): _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear ___ Rain ___ Snow ___ Ice ___ Other _____ Temp _____

Location: Street ___ Gutter ___ Alley ___ Heavy Traffic ___ Easement ___ Other _____

Location: _____ **Vactor Present/Needed:** Yes ___ No ___

TV Inspection

Reason For TV Inspection: _____

Point of Entry: Manhole ___ Catch Basin ___ Other ___

Main Size: _____ **Material of Main:** _____ **Depth:** _____

Televised From: _____ **Televised To:** _____

Total Feet of Main Televised: _____ **Video Tape#** _____

Lateral	Distance	Remarks
1		
2		
3		
4		
5		

Issue*	Distance	Problem/Issue Description**
1		
2		
3		
4		
5		

Remarks:

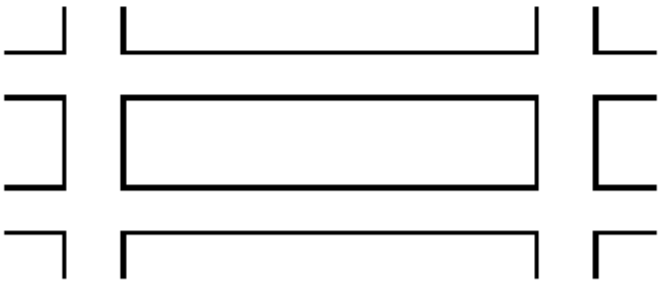
* Pictures are to be taken of all pipe issues using camera software.

** Problems/Issues: Root Intrusion, Pipe Sag (list length and depth), Cracked, Broken, or Collapsed Pipe (list location in pipe i.e. Top, Side, Bottom), Offset or Separated Joints, Obstructions, Cleaning Required, Lateral Protruding, Inflow, Broken Lateral Connection, Inline Pipe Size Changes

Continued on Back. Use additional TV Inspection Reports as needed to record lateral locations and pipe issues.

Lateral	Distance	Remarks
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Issue	Distance	Problem/Issue Description
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



Indicate Starting and Stopping Points, Direction of Flow, and Area of Concern

Problems/Issues: Root Intrusion, Pipe Sag (list length and depth), Cracked, Broken, or Collapsed Pipe (list location in pipe i.e. Top, Side, Bottom), Offset or Separated Joints, Obstructions, Cleaning Required, Lateral Protruding, Inflow, Broken Lateral Connection, Inline Pipe Size Changes

Use additional TV Inspection Reports as needed to record lateral locations and pipe issues.

VIII.G. WEEKLY FLUSHING PROGRAM AND REPORT

Part 1: Introduction - Purpose

The purpose of this procedure is to set forth the guidelines for completing the weekly flushing program Inspections on the Combined Sewer System of Perth Amboy. The intent of this procedure is to maintain troublesome areas in the system.

This procedure will define the information that is required. All inspection reports must be filled out in a neat, orderly, concise, and informative manner. Written notes that are a part of the report are to contain details relative to the flushing program. When jetting any line, the proper procedure is to jet from the downstream side manhole towards the upstream side manhole. This allows debris that is cleaned to be washed and pulled down with the flow to the manhole so it can be removed.

Any questions regarding this document or the completion of weekly flushing program must be directed to a supervisor for clarification.

Part 2: Weekly Flushing Program

2.1 General Information

The Weekly Flushing Program has general information that is required. The following definitions are a part of the general information section.

- *Operator* – Name of employee(s) operating the jet truck.
- *Date* – Calendar date of manhole inspection.
- *Time* – Hour and Minute of manhole inspection.
- *Weather* – List current weather condition. Include temperature in degrees Fahrenheit.

2.2 Locations

The current locations requiring weekly jetting are listed below. These locations are to be jetted on a weekly basis.

- *Florida Grove Road Easement* – The easement running along Florida Grove Road is located between the homes that are on the eastern side of Florida Grove Road and the western side of Barry Avenue. This easement runs between Shannon Avenue and Chamberlain Avenue.
- *221 State Street* – Manhole is located in front of 221 State Street. Both upstream and downstream lines are to be jetted.

- *909 State Street* – Manhole is located in front of 909 State Street. Both upstream and downstream lines are to be jetted.
- *740 Shannon Avenue* - Manhole is located in to the side of 740 Shannon Avenue at the intersection of Chamberlain Avenue. Both upstream and downstream lines are to be jetted.
- *564 South Park Drive* – Manhole is located adjacent to 564 South Park Drive. Both upstream and downstream lines are to be jetted.
- *312 Wilson Street* – Manhole is located in front of 312 Wilson Street. This is located between Market Street and Fayette Street. Both Upstream and downstream lines are to be jetted.
- *407 Odgen Place* – Manhole is located in front of 407 Odgen Place. This is located between New Brunswick Avenue and Seaman Street
- *Franklin Drive and Rudyard Drive* – The manhole located at the intersection of Franklin Drive and Rudyard Drive. Lines in all directions must be jetted.
- *398-426 Inslee Street* – Flush the lines through the three manholes. First manhole is located at 398 Inslee Street, and flush towards 426 Inslee Street.

This concludes the Weekly Flushing Program procedure. Upon completion, provide the report to the supervisor. Any questions shall be directed to the supervisor.

The Weekly Flushing Program Report can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

PERTH AMBOY SEWERAGE DEPARTMENT
Foot of 2nd Street
Perth Amboy, NJ 08861

Operation and Maintenance Manual

Perth Amboy Sewerage Department
Weekly Flushing Program

General Information

Operator: _____ Date _____ Time _____ AM/PM

Weather: Clear ___ Rain ___ Snow ___ Ice ___ Other _____ Temp _____

Locations

	Feet of Main Jetted	Manhole Cleaned
Florida Grove Road Easement		
221 State Street		
909 State Street		
740 Shannon Avenue		
564 South Park Drive		
312 Wilson Street		
407 Odgen Place		
Franklin Drive and Rudyard Drive		
398-426 Inslee Street		

Notes:

VIII.H. WET WEATHER OPERATING GUIDELINE AND CHECKLIST

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for preparing and operating during a rain or wet weather event. A wet weather event is defined as any precipitation that may enter into the Perth Amboy Sewer System. Any questions regarding this document or the operational procedures must be directed to a supervisor for clarification.

Part 2: Preparation for a Wet Weather Event

When a Wet Weather Event is predicted by the weather forecast/broadcast, the following must be completed.

- *Combined Sewer Outfalls* – Inspect and ensure that CSO nets are not full and secure. Follow the written procedure for the inspection of tide gates, diversion chambers, and CSO's to perform this check.
- *Catch Basins* – Insure that the storm inlets to catch basins are not blocked with debris or trash. Clean as necessary.
- *Pump Stations* – The following must be completed at the pump stations:
  - All bar screens are to be cleaned
  - Generator must be checked to ensure proper operation
  - Test Pumps
  - Check Alarm System

Part 3: Operating During a Wet Weather Event

During the course of a wet weather event the following needs to be checked.

- Check streets for localized flooding, clear debris from catch basins
- Check Pump Stations that they are correctly operating

Part 4: Following a Wet Weather Event

Following a wet weather event, the following must be completed.

- *Combined Sewer Outfalls* – Inspect that CSO nets are not full. Replace full nets as necessary. Check diversion chambers and tide gates as defined in the written procedure for the inspection of tide gates, diversion chambers, and CSO's. Remove debris from diversion and tide gates as necessary.
- *Catch Basins* – Check storm inlets and catch basins and remove debris that may have accumulated.

- *Pump Stations* – Check and clear bar screens.

Part 5: Pump Station Alarms

Each pump station is equipped with a remote dialing alarm system. This system is designed to provide unmanned details of the pump stations during the course of operation. This system responds to high wastewater levels, VFD failure, pump failure, and emergency generator activation. If an alarm or fault is triggered, the system is designed to place calls with pre-programmed messages to a set call list to update the status of the alarm.

The call list is as follows:

1) Perth Amboy 2nd Street Station
2) Stanley Garnes – Manager – Home Phone
3) John Williams – Manager – Home Phone
4) Stanley Garnes – Manager – Cell Phone
5) John Williams – Manager – Cell Phone
6) Repeat back to top if alarm is not acknowledged

This concludes the Wet Weather Operating Guidelines. Any questions shall be directed to the supervisor.

The Wet Weather Operating Guideline Checklist can be found on the next page. Copies of these reports are available in the office. Please contact the supervisor if needed.

Perth Amboy Sewerage Department
Wet Weather Procedure Checklist

General Information

Inspector: _____ **Date** _____ **Time** _____ AM/PM

Weather: Clear___ Rain___ Snow___ Ice___ Other_____ Temp_____

Total Rainfall: _____

Procedure Checklist

Pre-Wet Weather Event Date: _____

_____ Complete CSO/Tide Gate/Diversion Chamber Inspection

_____ Storm Inlet Grates have been cleared of debris

_____ # of Inlet Grates Cleaned

_____ Pump Stations checked

_____ Bar Screens Checked

Wet Weather Event Date: _____

_____ Pump Stations Operational

_____ Controlled Localized Flooding

Post-Wet Weather Event Date: _____

_____ Complete CSO/Tide Gate/Diversion Chamber Inspection

_____ # of Nets Changed

_____ Storm Inlet Grates have been cleared of debris

_____ # of Inlet Grates Cleaned, if needed

_____ Pump Stations checked

_____ Bar Screens Checked

Notes/Alarm Call Out Details:

VIII.I. INTERCEPTOR SEWER PROCEDURE

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for preventative maintenance and cleaning of the interceptor sewers in the Perth Amboy Sewerage System. Any questions regarding this document or the operational procedures must be directed to a supervisor for clarification.

Part 2: Interceptor Sewers

Interceptor sewers are large diameter sewers that collect wastewater and convey it to the 2nd Street Station, which then gets pumped for treatment. These sewers are designed to flow at a self cleaning rate of 2 feet per second. This flow velocity is increased during a wet weather event.

In the event that these interceptor sewers collect grit and debris, use of the jet truck with the largest jet head and jet hose weight is the first step to clearing the main. If a larger capacity jet truck is needed, then an outside subcontractor must be called in to perform the cleaning of the interceptor.

Part 3: Preventative Maintenance

Preventative maintenance is the first step to avoiding debris and grit accumulation inside of the interceptor sewers. This begins upstream at the main and truck lines running in the city. During the course of completing the manhole inspection report, and during preventative and routine maintenance, the mains are to be jetted. Removing the debris accumulated from this jetting process prevents it from accumulating in the interceptors. This debris is then removed and placed to the second street station.

This concludes the Interceptor Sewer Procedure. Any questions shall be directed to the supervisor.

VIII.J. SEDIMENT REMOVAL PROCEDURE

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines for minimizing debris and sediment from entering the combined sewer system of Perth Amboy. This debris and sediment may enter the system during periods of dry weather or during a wet weather event. This procedure will define the prevention and removal components in regards to sediment and debris. This procedure is to be supplemented by the Sediment and Debris Testing Procedures for disposal of such sediment.

Part 2: Debris Control

First Level of Debris Control

The first level of debris control within the system is controlling it at the entrance points leading into the system. The entrance points to the system include catch basins, inlet structures, laterals, and manholes. Controlling debris from entering these points is an example of source control.

First Level of Eliminating Debris from the System

- All catch basins shall have floatable prevention bars across the mouth of the inlet. These floatable prevention bars have been installed after the original installation of the catch basin. These bars help reducing the large items from washing in during a wet weather event. If open mouth catch basins are replaced within the system, they are replaced with flat castings with no mouth, or replaced with a casting that has a built in floatable prevention bar built into the mouth.
- Prior to wet weather events, as defined in the Wet Weather Operating Guidelines, catch basin inlets are to be cleaned of debris and leaves. This may include street sweeping and manually cleaning of grates. The Wet Weather Operating Guidelines can be found in the Operation and Maintenance Manual located at the Second Street Plant.
- All manholes are to be covered with lids. Manholes are to be inspected using the Manhole Inspection Procedure. If a manhole is found without a lid, one must be obtained to cover this manhole. The Manhole Inspection Procedure can be found in the Operation and Maintenance Manual located at the Second Street Plant.
- Laterals as access points combined sewerage system are homeowner, commercial, and industrial laterals. The best prevention from allowing debris from entering the system is to educate the owners of these laterals. Information relaying what can and cannot be flushed down the drain or toilet needs to be relayed. This information may be posted in the newspaper, on the City's website, or flyers sent through the postal service to name a few options of conveying this information.

- Effective erosion control practices for construction sites need to be followed as not to allow runoff into the system.

Second Level of Debris Control

The second level of debris control deals with debris already in the system. This debris can be found in catch basins, in flowing pipelines, at pump stations, and in netting chambers. Removing this debris is done in several ways.

Second Level of Eliminating Debris from the System

- Catch Basin Maintenance is a key factor in reducing the grit found within the system. This maintenance is defined in the Catch Basin Maintenance Procedure and can be found in the Operation and Maintenance Manual located at the Second Street Plant. Cleaning of these catch basins remove the debris from the sump section of the structure preventing it from entering the flow.
- The periodic and weekly flushing programs help eliminate grit and grease from the system by not allowing it to build up and cause a blockage. This is completed using high velocity hydraulic pipeline cleaning equipment. This debris may be removed using a vacuum operation or it may be flushed down the line to a grit chamber prior to the pumps in a pump station where it will be later removed. The Weekly Flushing Program can be found in the Operation and Maintenance Manual located at the Second Street Plant.
- In wet wells at the pump stations there are grit chambers and screens. Grit chambers allow the grit to settle before entering the suction side of the pumps. These grit chambers are periodically cleaned to ensure maximum conveyance of wastewater to the pumps. Screens can be mechanical traveling devices that continuously remove debris from the system or can be stationary screens that need to be manually cleaned.
- A netting chamber is component of the combined sewer overflows. These netting chambers are in line with the outfall piping. These allow wastewater to pass through the nets while containing the debris within the wastewater flow. These netting chambers are to be inspected and maintained using the CSO, Diversion Chamber, Netting Chamber, and Tide Gate procedures and can be found in the Operation and Maintenance Manual located at the Second Street Plant.

Instances Different than Normal Sediment

Sediment, debris, and grit discovered during normal maintenance operations that is visually different then normal ordinary sediment and debris, needs to be handled cautiously. This may include products labeled with such word as POISION, DANGER, WARNING, or CAUTION.

These products potentially contain hazardous chemicals, commonly referred to as "household hazardous wastes." These products need to be separated from other wastes prior to disposal. When cleaning up these products wear rubber gloves and avoid breathing any fumes or dust. Do not work around these products in confined or poorly ventilated areas. If these products exist in a fashion that can not be addressed by sewer department personnel then the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

Other dangers that exist are in sealed barrels, drums, or tanks with unknown contents. These need to be handled by trained personnel. If these products are found the sewer department personnel must STOP OPERATIONS IMMEDIATELY and the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

If sediment or debris discovered that does not fit either description above or contains oozing, off colored, glowing, or harmful smelling products then sewer department personnel must STOP OPERATIONS IMMEDIATELY and the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

If any of the above situations are discovered, the sediment and debris is not to be removed unless directed by the NJDEP. The sediment and debris must be tested based on NJDEP instruction before disposal. If the debris falls within acceptability to the MCUA, then it may be disposed of according to the above procedure. In the case that it is not, then a landfill that accepts these potentially hazardous materials will need to be contacted.

This concludes the Sediment Removing Procedures. Any questions shall be directed to the supervisor.

VIII.K. SEDIMENT AND DEBRIS TESTING PLAN

Part 1: Introduction – Purpose

The purpose of this procedure is to set forth the guidelines the testing of sediment and debris removed from the sewer system in the City of Perth Amboy. This sediment and grit has been removed as part of the Sediment Removing Procedures found in the Operation and Maintenance Manual.

Part 2: Instances of Normal Sediment

Sediment and debris can be removed from the sewer system by use of the Vac-Truck, removal of full nets from the CSO netting chambers, debris removed by the bar screens, or removal of debris from in and around storm inlets. This debris is then transferred to the staging pad at the 2nd Street Pumping Station, where it is tested in order to be removed to the Middlesex County Utilities Authority (MCUA).

Testing is performed by an independent outside testing laboratory; this testing is done approximately when storage on the pad is at 50%. This ensures a proper time frame to allow for removal of the debris. The steps for collecting the sample for the testing laboratory are listed below.

Collection of the Sample

The following are the procedure for taking a sample of sediment.

1. Contact the independent outside testing laboratory and inform them that you will be taking a grit sample. They will instruct you on the pick-up or delivery of that sample, including chain of custody paperwork, etc.
2. Obtain sampling equipment and appropriate containers.
    - Spades, shovels, trowels, plastic spoons, and scoops are tools to be used to collect the sample. Tools plated with chrome or other materials should not be used.
3. Ensure the safety of the surrounding area and of the team member taking the sample.
    - Ensure that no member of the team may be harmed during the course of grabbing the sample. Clear walkway, stable grab site, proper Personnel Protective Equipment, etc.
4. Randomly select the sampling site.
    - A random sample is taken from the stockpile in order to obtain a good estimate of the quality of the material.
5. Remove grit and place into appropriate labeled container, until the container is completely full.

- Completely filling the container ensures enough material is available for the testing laboratory to test.

6. Secure the cap tightly on the container and remove from direct sunlight.
    - Securing the cap prevents release of this material. Removal from sunlight will suppress any reactions within the sample.

Tests are performed in accordance with MCUA requirements for de-regulated municipal grit materials which are defined as, Toxicity Characteristic Leaching Procedure (TCLP) for metals, total petroleum hydrocarbons and percent of solids. Items tested for are arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, petroleum hydrocarbons.

Once the test results are obtained, they are forwarded to MCUA for approval. Once a letter approving the material is received, the sediment and debris may then be transported to the MCUA for disposal. If the debris falls outside of the acceptable MCUA levels, then the procedure below for Instances Different than Normal Sediment must be followed.

Part 3: Instances Different than Normal Sediment

Sediment, debris, and grit discovered during normal maintenance operations that is visually different then normal ordinary sediment and debris, needs to be handled cautiously. This may include products labeled with such word as POISION, DANGER, WARNING, or CAUTION. These products potentially contain hazardous chemicals, commonly referred to as "household hazardous wastes." These products need to be separated from other wastes prior to disposal. When cleaning up these products wear rubber gloves and avoid breathing any fumes or dust. Do not work around these products in confined or poorly ventilated areas. If these products exist in a fashion that can not be addressed by sewer department personnel then the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

Other dangers that exist are in sealed barrels, drums, or tanks with unknown contents. These need to be handled by trained personnel. If these products are found the sewer department personnel must STOP OPERATIONS IMMEDIATELY and the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

If sediment or debris discovered that does not fit either description above or contains oozing, off colored, glowing, or harmful smelling products then sewer department personnel must STOP OPERATIONS IMMEDIATELY and the department supervisor MUST be notified and the **NJDEP Hotline** MUST be contacted at **1-877-927-6337**.

If any of the above situations are discovered, the sediment and debris is not to be removed unless directed by the NJDEP. The sediment and debris must be tested based on NJDEP instruction before disposal. If the debris falls within acceptability to the MCUA, then it may be disposed of according to the above procedure. In the case that it is not, then a landfill that accepts these potentially hazardous materials will need to be contacted.

VIII.L. SEWER MAIN LINING PROGRAM

Part 1: Introduction - Purpose

The purpose of this program is to identify underground piping within the combined sewer system in the City of Perth Amboy which is in need of lining. Lining is a pro-active approach to rehabilitation of sewer mains within the streets.

Part 2: General Information

The evaluation of piping within the combined sewer system shall incorporate the TV Inspection Procedure and TV Inspection Report used in the City of Perth Amboy. The intention of lining is to prevent a potential piping collapse and avoiding costly excavation costs.

Highest Priority – This includes areas of piping with issues that could cause a collapse. Sections of piping may have cracks along the crown or even sections of pipe missing. Sections of piping may have had several repairs in the past. Lining should be evaluated as a repair before larger problems develop. Lining may not be the only solution as excavation and piping replacement may be required.

Medium Priority – This includes areas of piping that show signs of needing maintenance but is not in need of immediate repair. Lining work can be scheduled and evaluated as part of a larger scope.

Low Priority – This includes piping showing minimal to no signs of lining required. Piping is found in acceptable shape. During the course of routine maintenance work, sewer mains shall be monitored to identify future issues.

Capital project funding from the City of Perth Amboy shall be evaluated during the Capital Improvement Plan process to provide funding for the lining of sewer mains within the system.

VIII.M. MANHOLE REPLACEMENT/REHABILITATION PROGRAM

Part 1: Introduction - Purpose

The purpose of this program is to identify manholes within the combined sewer system in the City of Perth Amboy which are in need of rehabilitation or replacement. The program references the Manhole Inspection Procedure and Manhole Inspection Form used in the City of Perth Amboy.

Part 2: General Information

Manholes located within the combined sewer system in the City of Perth Amboy are inspected as a part of daily maintenance operations. During this inspection - data is collected and summarized in a report. Deficiencies, if any, are noted and reviewed. Based upon the review, a priority list shall be maintained for repair or rehabilitation.

Highest Priority – This includes manholes with structural damage that could possibly cause issue with the roadway, manhole structure, tie-in piping, or danger to life or property. Repair or Rehabilitation and budget options must be evaluated. This may require work to be performed on an emergency basis.

Medium Priority – This includes manholes that show signs of needing maintenance but are not a danger to life or property. Repair work can be scheduled and evaluated as part of a larger scope.

Low Priority – This includes manholes showing minimal to no signs of maintenance required. During the course of routine maintenance work, manholes shall be monitored to identify future issues.

Capital project funding from the City of Perth Amboy shall be evaluated during the Capital Improvement Plan process to provide funding for the replacement or rehabilitation of manholes within the system.

VIII.N. CATCH BASIN REPLACEMENT/REHABILITATION PROGRAM

Part 1: Introduction - Purpose

The purpose of this program is to identify catch basins within the combined sewer system in the City of Perth Amboy which are in need of rehabilitation or replacement. The program references the Catch Basin Inspection Procedure and Catch Basin Inspection Form used in the City of Perth Amboy.

Part 2: General Information

Catch Basins located within the combined sewer system in the City of Perth Amboy are inspected as a part of daily maintenance operations. During this inspection – data is collected and summarized in a report. Deficiencies, if any, are noted and reviewed. Based upon the review, a priority list shall be maintained for repair or rehabilitation.

Highest Priority – This includes catch basins with structural damage that could possibly cause issue with the roadway, catch basin structure, tie-in piping, or danger to life or property. Repair or Rehabilitation and budget options must be evaluated. This may require work to be performed on an emergency basis.

Medium Priority – This includes catch basins that show signs of needing maintenance but are not a danger to life or property. Repair work can be scheduled and evaluated as part of a larger scope.

Low Priority – This includes catch basins showing minimal to no signs of maintenance required. During the course of routine maintenance work, catch basins shall be monitored to identify future issues.

Capital project funding from the City of Perth Amboy shall be evaluated during the Capital Improvement Plan process to provide funding for the replacement or rehabilitation of catch basins within the system.

IX. EMERGENCY OPERATIONS

IX.A. GENERAL

All wastewater handling systems should be-capable of continuing operation during periods of emergency. This section of the OSA/Manual will attempt to define the cause of such emergencies and recommend an Emergency Response Program to respond to them, thus minimizing adverse consequences and downtime. Effective emergency planning requires considerable coordination by the operating staff. This report should serve as a guide to identify the major considerations in each type of emergency. Detailed plans should be worked out by the operating staff who can best assess their own capabilities for dealing with emergencies, and who have full knowledge of emergency resources available in the area.

IX.B. OBJECTIVES

The objectives of an Emergency Operating and Response Program include:

1. Identify the major emergency situations arising in the operation of a wastewater conveyance system.

2. Eliminate or minimize adverse effects from emergency situations affecting the system.

3. Develop procedures for properly responding to emergencies.

4. Provide instruction for system personnel to ensure that they understand their responsibilities during emergency situations.

5. Provide inventories of available emergency equipment and outline existing mutual aid agreements and contracts with outside organizations for specialized assistance.

IX.C. VULNERABILITY ANALYSIS

A vulnerability analysis of the system is an estimate of the degree to which the system is adversely affected in relation to the function it must perform under an emergency condition.

Wastewater conveyance facilities in general are subject to six basic types of emergencies which are as shown below:

1. Natural Disasters
    1. Windstorm and Lightning
    2. Flooding, freezing, and sleet storms
2. Equipment Failure

3. Power Loss
4. Blockage in the conveyance lines
5. Explosion

The cause/effect relationship of these emergency conditions and corrective measures are illustrated in the Vulnerability Analysis tables, 7-1 through 7-6, Located in Appendix D.

IX.D. METHODS TO REDUCE SYSTEM VULNERABILITY

The following measures should be adopted to reduce system vulnerability:

D.1. Emergency Equipment Inventory

An inventory should be made of equipment and materials that are available within the collection system. A sample wastewater collection system emergency inventory worksheet follows this discussion. Using this inventory and the results of the system vulnerability analysis, additional emergency equipment and supplies may be purchased and stockpiled, or arrangements made to obtain these items through mutual aid agreements or outside contracts.

Stockpile emergence equipment/supplies might include:

- -Lightweight quick-coupling pipe
- -Portable pumps

D.2. Adequate Preventative Maintenance

All equipment regardless of design, construction, and use requires maintenance at some time during, its lifetime. To perform such maintenance in an orderly manner and in accordance with a pre-planned scheme for the purpose of obtaining the useful design life from a piece of equipment is called preventive maintenance.

Always maintain good records on all equipment purchased. Such things as date of purchase, equipment manufacturer, local service representative's name and phone number, instruction manuals, service instructions, etc., should be filed on each piece of equipment for handy reference.

D.3 Mental Preparedness

It is important that an action plan be made for responding to each type of foreseeable emergency. This plan may be either a formal outline of steps to be taken noting specific responsibilities of all parties participating in the action in the case of large-scale disasters, or, in the case of "routine" emergencies, may be a

mental note made by the operator in charge.

It is strongly recommended that the operator should devote time each month to mentally "walk through" steps he would take to correct various emergency situations. An occasional afternoon spent touring the facilities and thinking about what to do if this or that piece of equipment failed, or this or that disaster occurred, would serve as a good self-training program for the operator. During such exercises, questions will inevitably arise, and if the operator will immediately seek answers from the engineer, technical representatives, etc., a reasonable, effective action plan will develop in the operators mind.

D.4. Material Preparedness – Equipment and Spare Parts

From his day-to-day operation and maintenance routine, the operator should be aware of what materials would be critical during emergencies, and should either have these kerns on hand or know exactly where to get than on a moment's notice. Along with his stock of routine spare parts, the operator should also consider stocking critical parts which are not available locally and which require considerable lead time to order from the factory. Emergency first aid equipment should also be conveniently located.

A complete equipment and spare parts inventory should be maintained, and records kept as a part of an established preventive maintenance program.

Other materials to consider in preparing for emergencies include routine hand tools, special tools, equipment for lifting or moving heavy objects, etc. The operator should also consider which pieces of heavy mechanized equipment might be required for each emergency.

D.5. Responsibility of Operating Personnel

The (Director of Public Works for the City of Perth Amboy) will have overall responsibility for the emergency response program. This individual must be familiar with the provisions of the Disaster Relief Act of 1970 (Public Law 91-606). He should also be familiar with the "Manual for Applications," Federal Disaster Assistance Program, a publication of the Office of Emergency Preparedness. Familiarity with the procedure outlined in these documents will insure prompt Federal assistance, if required.

The sewer superintendent and operators, on the other hand, will probably be responsible for actually implementing the emergency response program. These individuals will be responsible for all emergency operations and shall report

directly to the Superintendent. All regular and auxiliary plant personnel should be issued response cards outlining specific tasks and responsibilities for each emergency.

There is a logical sequence of steps in responding to emergencies which should be followed by the operators on duty. This sequence includes identifying the emergency, investigating the extent of emergency, deciding on proper initial course of action, taking corrective action to rectify the situation, and following up with a post-emergency investigation.

D.6. Emergency Response Center

The Emergency Response Center is located in the Perth Amboy Main Pump Station building. The senior operator on duty shall be responsible for the center and all the individuals who perform this function must be adequately trained and thoroughly familiar with the Emergency Operating and Response program.

When emergency conditions notices are received by telephone at the Emergency Response Center, the operator on duty should ensure all pertinent information surrounding the emergency is accurately recorded.

D.7. Mutual Aid Agreements

There are many agencies and businesses within a.-community which can be very helpful during emergencies. Mutual aid agreements should be node with such agencies and businesses to help during emergencies. Some examples of groups with wham mutual aid agreements should be developed are as follows:

- Industrial firms
- Construction companies
- Electric, gas, and telephone utilities
- Fire and police departments
- Civil defense organizations
- Health departments
- Rescue squads

Mutual assistance programs with the aforementioned organizations provide the following:

- Emergency equipment and supplies
- Spare parts
- Specialized maintenance skills
- Auxiliary operation personnel

- Chemists and/or sanitary engineers

Local police officials should be asked to critique the pumping station's security measures. The police department's recommendations on locks, fencing, and lighting should be implemented. The police department should be asked by the pumping station owners to make routine checks at the pumping station. The police should be alerted in areas where vandals have attempted to obstruct manholes or where illegal dumping has occurred. In the event of street spills of toxic materials, the police should be instructed to immediately notify the maintenance superintendent and provide the following information:

- Type and quantity of material involved
- Location of spill
- Time of spill

The police officials should be briefed on the role their department may be asked to play during emergencies within the collection system.

Local fire department officials should visit the pump station and make recommendations on ways to minimize fire hazards. The fire department should also check the adequacy of existing firefighting equipment within all facilities and routinely check fire extinguishers, wiring, and combustible material storage areas. Pulping station personnel must receive first aid training from the fire department and a program should be adopted to upgrade training periodically. Provide fire department officials with plans of all pump stations to aid than in preparing responses to potential fires within the system.

Police Department Checklist

- Critique existing pumping station's security measures.
- Make routine checks of pumping stations.
- Notify Maintenance Superintendent in the event of a street spill of hazardous materials.
- Be prepared to assist during emergencies within the collection system.

Fire Department Checklist:

- Routinely check fire-fighting equipment within the facility and inspect facility for potential fire hazards.

- Provide first aid instructions to pooping station personnel.

- Coordinate with pumping station personnel on safety precautions to be used with sewer gases.

IX.E. EMERGENCY AND SPILL REPORTING PROCEDURES

The licensed operator or designee shall report any emergency or spill which may endanger health or the environment to the New Jersey Department of Environmental Protection. The following information must be relayed to the Department:

a. A description of the emergency or extent of the spill;
b. Steps being taken to determine the cause of the emergency;
c. Steps being taken to reduce or eliminate the cause of the emergency;
d. The period or duration of the emergency, including exact dates and times;
e. The case of the emergency;
f. Steps being taken to reduce, eliminate, and prevent reoccurrence of the spill or emergency.

The operator shall orally provide the information contained in items "a" to "c" to the NJDEP Hotline, 1-877-927-6337, within 2 hours from the time the operator first becomes aware of the circumstances. The operator shall orally provide information contained in items "d" through "f" to the Department within 24 hours.

A written submission addressing items "a" through "f" shall also be provided to the Department within 5 days of the time the operator becomes aware of the circumstances.

A copy of the N.J.D.E.P. regulations on spills can be found at in the Appendix E.

IX.F. EMERGENCY FORCEMAIN BREAK

As covered in part of the Ground Level Forcemain Inspection Procedure, the Emergency Forcemain Break Contingency Plan. This will explain the procedure on dealing with a forcemain break on the Second Street Pump Station forcemain. This forcemain, as described above, is 24” pre-stressed concrete cylinder pipe.

1. Notify Perth Amboy City Hall – Business Administrator’s and Mayor’s office at ***1-732-826-7121***

2. Notify the Department of Environmental Protection Hotline at ***1-877-927-6337***. Inform the operator that there has been an emergency forcemain break in the city of Perth Amboy.

3. Notify B&W Construction Co. to survey the forcemain break. B&W Construction Co. will handle all aspects of the repairs to be made on the 24" RCP. B&W Construction Co. will have two (2) line stops installed (18X24") on the 24" RCP. B&W Construction Co., USAPA and the City Engineer will choose the best locations to install the line stops. After the line stops are installed by-pass piping will be installed before closing any one of the line stops. This by-pass will able the 2nd Street Pumping Station to continue to pump wastewater to the Middlesex MUA for treatment.

   During this time B&W Construction Co. will plug off catch basins in the affected area and making the catch basins a sump pit. The two city Vac-Trucks will be used to vacuum out the catch basins and transport the wastewater to the manhole located after the MUA'S master meter on Florida Grove Rd. in Woodbridge. If the two Vac-Trucks are not able to keep up with the flow of wastewater, Russell Reid will be called for extra pump trucks to handle the wastewater flow.

   Police will be stationed at intersections such as Goodwin & Smith, Goodwin & Fayette and Smith & Highland Ave. Woodbridge to stop the flow of traffic to avoid tank trucks from getting tied up traffic and holding up the pumping procedure. This would have to be a 24hr operation until the by-pass is set up and placed in operation. Additional police and pump trucks may be required depending were the break occurs.

   If the force main failure is at such a magnitude manifolds will be installed at the 2nd Street Pumping Station to allow numerous tank trucks to be filled simultaneously. Pumping will also be required at the site of the pipe failure to prevent any flooding of intersection and preventing spillage in to the Raritan River.

IX.G. RESPONSES TO EMERGENCIES

IX.G.I GENERAL

A response plan to emergencies is necessary to ensure effective continued operation of a municipal wastewater conveyance system under emergency conditions.

There are four basic elements to any sound emergency response plan:

- Rapid and positive detection system.
- Response procedure with predetermined patterns of action
- Backup capability in the event of the local response capability proves insufficient
- Warning system to alert the next level of responsibility that an emergency condition exists.

An emergency condition affecting a municipal wastewater conveyance system generally results

in a spill of raw wastewater. These spills can be placed in two major categories:

- Pumping station problems.
- Conveyance line problems.

A good emergency response plan should consider both categories. The following observations are applicable to emergency response plans for municipal wastewater collection system:

- The most desirable condition is to have the emergency response performed at the lowest level. The plan must provide adequate tools to allow the personnel nearest the emergency to cope with all but the most severe incidents.
- The operator on duty should have a procedure to ensure all pertinent information surrounding the emergency is accurately recorded. The location of the maps and emergency equipment must also be known at all times.
- The "checklist" method is best for delineating procedures and responsibilities for reporting and responding to emergencies. Lengthy manuals are of questionable value during an emergency.
- There are key people involved in any successful plan execution. These key people crust be identified and their roles clearly defined.
- The importance of training and rehearsal as part of emergency plans cannot be overstated. An essential part of any rehearsal is the critique which follows. Garments and information from critiques will ensure that the plan remains viable.
- Since it would be impossible to predict the conditions surrounding all emergency situations, the system should be provided with adequate staffing and flexibility. This aspect of preventing failures should be an important design consideration.
- The review of the emergency response capabilities in a given municipality should include the feasibility of using private firms for services. Also “mutual assistance" agreements with nearby facilities should be considered.
- Power failures are of concern to all municipal wastewater systems. To determine the probability of power failure at a given facility, coordinate with the local power company. Based on this input, alternate power sources can be selected to ensure optimum electric service.
- In developing an emergency plan, it should be policy to make maximum use of all departments in a municipality. This might include using such items as radios in the police department and emergency equipment maintained by the public works department.
- Where there are pumping stations that are not staffed 24 hours per day, provisions should be made for a maintenance team to visit the facilities on a periodic basis. An alarm system should be provided at each location. As a minimum requirement, the alarm system should respond to power failure overload, no load, and high water. The alarms should be connected to a central alarm center where personnel have been instructed in proper emergency response procedures. Alarm system should be failsafe. If alarm system actuates standby equipment, provisions should also be made for monitoring the standby equipment.

- Where roving maintenance crews are used, their vehicles should be equipped with radios. Telephone communications should be provided along with the tools necessary to perform all anticipated maintenance functions. The crew should consist of two individuals trained in all safety and emergency aspects of their job.
- Bolt down or lock down manhole covers should be used in areas where collection lines have been intentionally obstructed. Emergency and repair crews should be provided with necessary tools and or keys for removing these covers.
- To ensure proper notification of problems at remote facilities, emergency phone numbers should be posted on all pump stations. A color coded exterior light alarm system could also be employed as backup.
- Standby equipment should be put into service periodically as part of the overall response program. In particular, diesel generators should be exercised.
- A suitable spare parts inventory should be maintained to avoid delivery or delays and provide compounded needed during an emergency. In addition to parts, sections of forcemain pipe and gravity pipe should be kept an repair crews rehearsed to provide quick response to collection line breaks.
- A study should be made of the municipal wastewater collection system for the purpose of selecting sampling points. With sampling points selected prior to an actual emergency, dispatching sampling teams with appropriate equipment can be accomplished efficiently and with a minimum of confusion.
- It is important, in any emergency plan for municipal wastewater collection and conveyance system, to provide for chlorination of spills of raw wastewater.
- Metering equipment maintenance can be contracted economically to the equipment manufacturer in some instances.
- Where wastewater facilities have only a single operator after normal working hours, these facility operators should be required to give a status report to a 24-hour central telephone switchboard on an hourly basis. If no report is received – the switchboard operator alerts a predetermined supervisor.
- To ensure proper operation of standby generators, they should be run on a scheduled basis. Battery chargers can also be provided to assist starting.
- Mobile gasoline powered pumps should be made available to respond to pumping station emergencies. All pump stations should be provided with an emergency connection so the mobile pumps can be connected quickly and efficiently.
- Ensure that as-build drawings of the facility are accurate. During emergencies these drawings may be invaluable in locating valves, electrical boxes, etc., that are needed to minimize the effects of an incident.
- Areas that are subject to flooding due to equipment or line failures, such as pump pits, should be studied. Cutoffs should be provided and any special tools required when these areas are flooded should be purchased.
- Construction photographs should be properly cataloged and cross referenced with engineering drawings. These photos can be of great value in estimating the severity of an emergency condition.

Response to Emergency Effects

- Analyze all emergencies to determine the proper course of action.
- Implement protection measures where applicable.
- Dispatch pre-trained crew where applicable.
- Check spare parts inventory before ordering parts.
- Keep down-time to a minimum.
- Critique the response plan.

Emergency Response Plans all have a cannon base. This common base consists of assessment of severity and response to the emergency so as to minimize environmental impact of the incident. This is due largely to the many different types of emergencies that create similar effects on the wastewater system. Each system has its own characteristics and problems. The specifics of an Emergency Response Plan must therefore be tailored to allow for the peculiarities of the specific system. The purpose of an ERP is to minimize damage and to provide the most efficient utilization of resources available to the system owner. The objectives of any ERP can be achieved only with trained personnel and sufficient emergency equipment and material.

Emergency Response Summary

Note that with the previous data some specific problems were also included which for sane pumping stations may not constitute an emergency condition. However, in roost instances, if these conditions were to go unattended, they would develop into an emergency. What is considered an emergency at one facility might not be classified as such at another because of the differences in personnel, equipment, training, and size.

X. MAINTENANCE SCHEDULES

The maintenance schedules shall be complied with and all maintenance activities shall be recorded in the log book. Maintenance may be routine, scheduled, or unplanned. Planned maintenance as listed below is a minimum schedule of maintenance. Depending on rain fall, flooding, prolonged snow melts, and other issues, additional maintenance may be required.

Daily Maintenance:

2nd Street Station
Record Flow Totals
Empty Debris Buckets onto grit storage pad
Check dry well and pumps, adjust pump packing as needed

Amboy Avenue, Front Street, and State Street Pump Station
Record Flow Totals
Check dry well and pumps adjust pump packing as needed

Weekly Maintenance

Weekly Flushing Program
Check of Diversion Chambers, Tide Gates and Combined Sewer Overflow (during dry weather)
Generator Testing
Empty Debris Basket (Amboy Avenue Station)

Bi-Weekly Maintenance

Grease pumps, shafts, and motors to recommended specifications

Monthly Maintenance

Forcemain Inspection Procedure
Pump Station Inspection Procedure
Clean Bar Screen (State Street Station)

Yearly Maintenance

Cleaning of Tier A Catch Basins
System Assessment

Wet Weather Events

Operation and Maintenance Manual

Before, during, and after wet weather events, the Wet Weather Operating Guidelines are to be performed.

Pump Station Maintenance

All pump station maintenance shall be recorded in the log book.

Any construction, repairs, or any other activities shall be recorded in the log book.

In the event the City is notified of a dry weather discharge at any time from a CSO, other than a wet weather event, the Sewerage Department shall dispatch the necessary personnel and equipment as follows:

Determine exact location.
Determine the cause of dry weather discharge.
Proceed to eliminate dry weather discharge.
Report dry weather discharge in the Maintenance Log Book and report the dry weather discharge.

XI. ADMINISTRATIVE FUNCTIONS

The Administrative functions on utilizing and complying with the Operation and Maintenance Manual for Combined Sewer Overflows is with the Sewerage Department. The chain of command and staffing are outlined in Section III – Personnel.

XII. FISCAL MANAGEMENT

The City of Perth Amboy has committed through the Fiscal Budget, the necessary funds to supply staff and equipment to implement the Operation and Maintenance Plan & Manual for the City's Combined Sewer Overflows. This Fiscal Budget and Financial Management System can be found in Appendix A and Appendix B of this manual.

XIII. CONTRACTOR-REPAIR WORK

The City of Perth Amboy Department Sewerage Department procures yearly rehabilitation work projects and emergency as-needed repair work proposals for sanitary sewer & storm sewer system.

This annual contract is used for any repairs to the piping and appurtenances associated with sewer system which includes the combined sanitary sewer system and storm water overflow system.

The current contractor for the year 2011/2012 is:

Montana Construction
80 Constant Avenue
Lodi, NJ 07644

Contact: Dominic Santaite 201-538-1269

The city reserves the right to extend the current contract as needed.

Additional Contractors used within the department.

Pumps and Motor Repair

A&D Industrial Pump Repair
1050 State Street
Perth Amboy, NJ 08861

Contact: Doug Alexander 732-826-5551

Variable Frequency Drives and Electrical Issues

Optimum Controls Corporation
1301 Rosemont Boulvard
Reading, PA 19604

Contact: Mark Galiyano 610-375-0990

XIV. MARKOUTS

The City of Perth Amboy collection system has registered all its forcemains with the "one call system" – 1-800-272-1000 - as required by the New Jersey Underground mark-out law (One Call Law). As allowed by law, the City of Perth Amboy collection system has elected to register its gravity sewer mains. Sewer line mark-outs must be completed within three working days after the receipt of such request, unless an emergency markout is requested. Emergency markout should be done as soon as possible. All mark-outs should be handled in accordance with the New Jersey underground mark-out law. Perth Amboy Sewerage Department will mark forcemains and gravity mains. Perth Amboy Sewerage Department does not mark out homeowner laterals.