

Lynn Water and Sewer Commission  
Response to  
Office of Inspector General  
June 2001 Report

The following is the Lynn Water and Sewer Commission (the "Commission") response to the Massachusetts Office of the Inspector General ("OIG") June 2001 Report on Privatization of Wastewater Facilities in Lynn, Massachusetts (the "OIG Report") relating to the Commission's contracting for certain wastewater and combined sewer overflow abatement services (the "Commission Response"). Attachment 1 to the Commission Response includes a summary of the procurement processes undertaken by the Commission in connection with its contracting for such services. The Commission Response sets forth each of the findings of the OIG Report, and provides the Commission's response thereto. Various documentation supporting the Commission Response is attached.

Finding 1. The RFP for the East Lynn CSO Project did not promote meaningful competition.

*The RFP for the Lynn CSO project promoted meaningful competition to a greater degree than the standard design-bid-build approach.*

In the standard design-bid-build approach a single engineer develops the concept, design and contract documents. Those documents are released for competitive bids for construction only. Consequently, the only competition that is introduced is the pricing of a set concept and set design. In a tight construction market like the Boston area, it is not uncommon in a standard construction bid to only receive a limited number of competitive construction bids.

In the Lynn CSO procurement, the entire CSO abatement design was opened to the proposal of innovative ideas and approaches. Thus, **the project actually promoted the most meaningful type of competition possible, the competition of ideas** as well as the standard price competition of construction. This approach to solving water and wastewater problems provides the Commission with the benefit of true competition in both design and construction. The design/build approach is an integrated one that utilizes the unique talents of contractors and engineers to ensure that the best overall approach is proposed for each individual issue.

Finding 1a. The RFP for the CSO Project did not contain adequate information to allow proposers to accurately assess the nature and extent of the work necessary to alleviate combined sewer overflows and flooding.

*The East Lynn Combined Sewer Overflow Abatement System Request for Proposals ("CSO RFP") contained adequate information to allow proposers to submit a proposal to meet the performance guarantees identified in the CSO RFP.*

The Commission has generated or has had generated on its behalf numerous studies and reports relating to its wastewater collection system. The CSO RFP made such documentation available to all potential proposers.

Section 2.7 of the CSO RFP provided that the Commission would make all project-related reference documents available to potential proposers for review and photocopying. Moreover, the Commission made available two copy machines and staff in order that potential proposers could photocopy such project-related information.

The list of reference documents made available to potential proposers was as follows:

- Reports pertaining to collection system
- Discharge Monitoring Reports
- Toxicity Reports and Bio-Accumulation Assessments
- Water quality data
- Flow monitoring data
- Combined Sewer Overflow Facilities Plan: Phase I Report on Screening of Alternatives (April 1988)
- Combined Sewer Overflow Facilities Plan: Interim Report on the Evaluation of Alternatives (June 1989)
- Combined Sewer Overflow Facilities Plan (DRAFT) Appendices to Phase 2 Report (August 1989)
- Combined Sewer Overflow Facilities Plan: Phase 2 Report (March 1990)
- Commission Infiltration/Inflow Reduction and Sewer Separation Project Draft Report of the Limited Flow Gauging Program (November 1990)
- Commission Flow Reduction Program Inflow/Infiltration Investigation Summary and Sewer System Rehabilitation Recommendations (November 1990)
- Continuous Flow Monitoring of Sewers of Eastern Avenue Interceptor March - May 1994
- Commission Sewer Map of City of Lynn, County of Essex, Massachusetts

- City of Lynn, Massachusetts. Lynn Stormwater Drainage System
- Interim Report on Post Construction Flow Reduction Verifications May 12, 1992

In addition, the CSO RFP included a statement that "[t]he Commission will seek to provide additional information requested by potential proposers." Thus, by making available such project-related information to potential proposers, the Commission was providing the detailed information that a potential proposer would require to submit a competitive proposal.

Further, the CSO RFP required a proposer to develop certain design-related information in connection with the preparation of its proposal. Requiring a proposer to prepare design information as part of its proposal is not uncommon in a design/build procurement process.

For example, Section 4.4.3 of the CSO RFP required proposers to assess current collection system conditions as well as future collection system conditions, including summarizing infiltration and inflow studies and forecasting flows and wasteloads based on information included in the project-related reference documents. Section 4.4.3 of the CSO RFP is attached hereto as Exhibit A.

The proposers could develop such assessment by analyzing the CSO Facilities Plan which, along with the flow monitoring data gathered by the Commission, provided a hydraulic model of the collection system interceptor network within the East Lynn CSO Abatement System project-area and flow data that defined the quantity of infiltration and inflow which was entering the Commission's collection system. Such project-related information, combined with Lynn zoning information and current and projected City population trends, could be used by proposers to design the capacity that would be required for the East Lynn CSO Abatement System to meet the performance guarantees set forth in the CSO RFP. It should be noted that the Lynn zoning and population trend information is public information and, as such, was available through the Lynn Planning Department.

Finding 1b. Although the stated rationale for the DBO approach was to obtain a performance guarantee, the RFP did not specify any performance guarantee.

***The CSO RFP did contain stated performance guarantees.***

Section 4.2 of the CSO RFP included the following CSO abatement performance guarantees (the "Performance Guarantees"):

- **Tunnel/Pumpback CSO Proposal:** Proposers shall provide the necessary design, construction, and operation and maintenance services to allow for an underground tunnel constructed within bedrock for storage and an above ground pump station, and force main for conveyance to the Lynn WWTP. The System shall be required to demonstrate a maximum of 5 overflows from outfall 004 and/or 005 every 2 years by July 2001. Outfall 006 must be

secured by July 2004. The Proposal shall also include additional improvements in CSO Abatement Controls to minimize combined sewer overflows by year 10 after the Contract Date.

- **Total Sewer Separation Proposal:** Proposers shall provide the necessary design and construction services to allow for zero overflow and reduce and eventually eliminate street flooding. The Proposal shall focus on separating the combined sewer system tributary to outfalls 004, 005 and 006 and into separate stormwater and sanitary systems.
- **Alternate CSO Proposal:** Proposers may elect to provide a combined sewer overflow abatement program using a technical approach different than contained in the other service packages. They System shall provide a maximum of 5 overflows from outfall 004 and/or 005 every 2 years by July 2004. Outfall 006 must be secured by July 2004. The CSO Abatement System provided in the Alternate Proposal shall also include additional improvements in CSO Abatement Controls to minimize combined sewer overflows by year 10 after the Contract Date.

Each of these Performance Guarantees was approved by the United States Environmental Protection Agency (the "EPA") and the Massachusetts Department of Environmental Protection (the "MADEP") prior to inclusion in the CSO RFP.

Finding 1c. The two CSO proposals received by the Commission were submitted by companies owned and controlled by the same corporate entity: Vivendi.

*At the time of proposal submission, U.S. Filter and Aqua Alliance Inc. were separate and distinct companies.*

The Commission received two proposals in response to the CSO RFP. One proposal was submitted by U.S. Filter Operating Services Inc. ("U.S. Filter"), the other by Modern Continental Construction Co., Inc. ("Modern Continental") and Metcalf & Eddy. At the time of its proposal submission, Metcalf & Eddy was a subsidiary of Aqua Alliance Inc. ("Aqua Alliance").

U.S. Filter Corporation (the parent of U.S. Filter), which remained as the surviving corporation of a merger following a tender offer completed April 23, 1999, was a wholly owned subsidiary of Vivendi, S.A. Aqua Alliance was a separate, Delaware corporation, publicly traded on the American Stock Exchange. Vivendi, S.A. had an interest in Aqua Alliance as a beneficial holder of 83% of issued and outstanding shares of Aqua Alliance.

In further support of the distinctiveness of the two proposers, each proposer executed a statement of non-collusion in accordance with the terms of the CSO RFP. A copy of each of these statements is attached hereto as Exhibit B.

Neither Metcalf & Eddy, Aqua Alliance, nor U.S. Filter, nor indeed anyone, could have possibly known that there would be only two proposals received in response to the CSO RFP right up until the proposal due date. Further, the pre-proposal conference was attended by representatives from all major water companies. A copy of the pre-proposal conference attendance sheet and meeting transcript is attached hereto as Exhibit C. This participation undoubtedly created the real prospect of intense competition in the minds of the companies that did propose, and such competition would have been no more intense if the other potential proposers had, in the end, actually submitted proposals.

Finding 2. U.S. Filter's proposal posed a high level of risk to the Commission.

Finding 2a. The Commission's privatization consultants expressed strong reservations about risks posed by the U.S. Filter technical proposal.

***The reservations cited in the report were taken from transcripts of the clarification phase of the selection process; resolution of such concerns was addressed during the clarification and negotiation process.***

The risk issues referred to in the OIG Report were raised by the Commission's privatization consultants during the clarification process conducted with U.S. Filter on August 23, 1999. These issues were raised to obtain clarification on U.S. Filter's project approach and led to the final design requirements and risk allocation contained in the executed contract. Following the clarification period, negotiations between U.S. Filter and the Evaluation Committee took place. It was through this process that the Commission's privatization consultants were able to resolve the reservations concerning risk imposed by the U.S. Filter project approach discussed at the August 23, 1999 clarification session, and develop the appropriate design requirements and contract language to eliminate such risk.

The issues raised by the Commission's consultants were resolved prior to the execution of the East Lynn Combined Sewer Overflow Abatement System Design, Build and Warrant Contract (the "CSO Design/Build Contract") with U.S. Filter. The design criteria and design factors included in the CSO Design/Build Contract were selected to eliminate combined sewer overflows and provide the pipe carrying capacity required to convey full development sanitary flows and included the necessary allowances for infiltration and private inflow.

Appendix 1 of the CSO Design/Build Contract presents the Performance Guarantees that were established by the Commission for the CSO Abatement System and accepted by U.S. Filter. The

risks identified during the clarification phase of the procurement process were resolved by incorporating various design requirements into the CSO Design/Build Contract. U.S. Filter's overall sewer separation design concept is attached hereto as Exhibit D.

Finding 2b. The Commission's Evaluation Committee determined that U.S. Filter's technical approach to CSO abatement was not advantageous to the Commission.

***The Evaluation Committee's assessment of U.S. Filter's technical proposal referred to in Finding 2b was made on August 20, 1999 prior to the clarification and negotiation phase of the procurement process; any concerns raised by the Evaluation Committee were alleviated during the clarification and negotiation process.***

The Evaluation Committee's initial findings were made prior to the August 23, 1999 clarification sessions with U.S. Filter and Modern Continental, and prior to the cost proposal evaluations and the contract negotiations that were conducted between the Evaluation Committee and U.S. Filter. Therefore, such findings were preliminary and did not include information obtained during the clarification and negotiation sessions, or information regarding the cost of the two proposals. Information obtained during the clarification and negotiation phases led the Commission's Evaluation Committee to determine that U.S. Filter's proposal was more advantageous than the proposal submitted to the Commission by Modern Continental. It should also be noted that U.S. Filter's cost proposal was approximately \$30 million less than the proposal submitted by Modern Continental.

Finding 3. The two price proposals for the East Lynn CSO Project were not comparable.

***The two price proposals are comparable; the nature of a design, construction and operation procurement requires consideration of additional criteria in performing the overall cost benefit analysis to determine the best value.***

The two price proposals are comparable. The nature of the design, construction and operation procurement provided proposers an opportunity to develop unique approaches to the project. The Evaluation Committee, therefore, was required to consider additional criteria in the overall cost benefit analysis to determine the best value for the Commission.

The approaches taken by U.S. Filter and Modern Continental to achieve the required Performance Guarantees were very different. Determination of the best value for the Commission required consideration of the price and the technical merit of the differing approaches. The Evaluation Committee, in recommending to the Chief Procurement Officer the selection of U.S. Filter, evaluated both the technical approach and price proposal of each proposer. U.S. Filter's proposal was determined to satisfy all of the Performance Guarantees established in the CSO RFP utilizing an acceptable and proven technical approach. Cambridge, MA has successfully separated its combined

sewers by constructing new sanitary sewers using the same approach proposed by U.S. Filter. The Evaluation Committee considered the technical approach and guaranteed fixed construction cost, which was approximately \$30 million lower than Modern Continental's price proposal to accomplish the same Performance Guarantees, when making its recommendation to award the CSO Design/Build Contract to U.S. Filter.

Finding 4. U.S. Filter failed to include all of the required sewer separation work in its initial proposal and attempted to increase its design-build price by more than \$8 million to include the required work.

***The Commission did not require total sewer separation in its RFP.***

U.S. Filter proposed an Alternate Proposal in response to the CSO RFP. The Alternate Proposal was to eliminate combined sewer overflows through a program of partial sewer separation. Such an approach is similar to that which the Commission is currently undertaking for its West Lynn Combined Sewer Abatement Program. U.S. Filter's proposal did not require the separation of all combined sewers within the project area. It did include, however, all of the work required to meet the Performance Guarantees.

During contract negotiations, the Commission asked U.S. Filter to provide a cost proposal to assume full risk to eliminate sanitary sewer connections to the storm water system within the project area and to totally separate the combined sewer system within the project area. The \$8,348,000 proposed by U.S. Filter was, first and foremost, to take the full risk of illicit connection detection and elimination. This proposal by U.S. Filter was an enhancement to its initial proposal. Such enhanced proposal would have shifted the entire risk of illicit connection removal onto U.S. Filter (even within streets that were currently separated and not part of the project area). Such proposal also included the performance of additional sewer separation to achieve total sewer separation. A copy of U.S. Filter's proposal is attached hereto as Exhibit E.

Finding 5. The Commission's contract for the East Lynn CSO Project does not guarantee that U.S. Filter will eliminate sewer overflows or flooding.

***U.S. Filter's proposal guarantees that all of the Performance Guarantees, including elimination of combined sewer overflows and street flooding control, will be achieved.***

U.S. Filter's proposal guarantees that all of the Performance Guarantees, including elimination of combined sewer overflows, will be achieved. In regard to street flooding, the CSO Design/Build Contract requires that street flooding be eliminated or reduced at specific locations identified in the contract. The CSO Design/Build Contract does not require the complete elimination of street

flooding because by eliminating flooding at one existing location, flooding may be shifted to occur elsewhere. Modern Continental's street flooding abatement proposal was similar to U.S. Filter's.

Finding 6. The contract warranty terms and liability limitations absolve U.S. Filter from more responsibility than would a typical, conventional construction contract.

***The CSO Design/Build Contract requires U.S. Filter to take far more risk than a contractor takes in a conventional construction contract.***

The CSO Design/Build Contract requires U.S. Filter to design and construct the CSO Abatement System in accordance with the stated Contract Standards. "Contract Standards" is defined as:

the most stringent of the standards, terms, conditions, methods, techniques and practices imposed or required by (1) Applicable Law, (2) the Design Requirements, (3) the Acceptance Tests and Inspections, (4) Performance Guarantee (5) Environmental Guarantees, (6) Prudent Engineering and Construction Practices (7) Technical Plans, (8) the applicable equipment manufacturers Specifications, (9) applicable Insurance Requirements, and (10) any other standard, term, condition or requirement specifically provided in this Design/Build Contract to be observed by the Company.

Section 5.5 of the CSO Design/Build Contract provides that U.S. Filter bears the sole and exclusive responsibility and liability for the design and acceptance of the CSO Abatement System, as well as for meeting the Contract Standards. If U.S. Filter is unable to meet the Outfall Acceptance Standard, U.S. Filter shall be required to perform any additional Design/Build Work necessary to meet such standards. The Outfall Acceptance Standards and the definition of "Design/Build Work" are attached hereto as Exhibit F.

In a typical, conventional public works contract, the contractor is only required to construct the public work in accordance with the 100% design specifications provided by the contracting municipality. If, after construction, the public work does not perform as anticipated, the contractor's only responsibility to the municipality is to show that the public work was constructed in accordance with such design specifications.

In a design/build arrangement, the contractor is responsible for the design and construction of the public works. Accordingly, if the public works does not meet the stated performance requirements, the contractor is responsible for undertaking any additional work necessary to meet such requirements. U.S. Filter, in the CSO Design/Build Contract, has undertaken such responsibility.



Further, U.S. Filter is obligated to warranty that all Design/Build Work it performs conforms in all respects to the Contract Standards. Such a warranty covers far more than defects and deficiencies as erroneously indicated in the OIG Report. U.S. Filter is warranting that the CSO Abatement System will meet all the standards set forth in the Contract Standards definition, including Applicable Law, the Acceptance Tests and Inspections and the Performance Guarantees.

Finally, the CSO Design/Build Contract provides for a limitation on U.S. Filter's contractual liability. Section 11.1 of the CSO Design/Build Contract states that:

Notwithstanding anything else in this Design/Build Contract, the aggregate liability of the Company with respect to (i) defect or deficiencies in the CSO Abatement System or the Infrastructure Rehabilitation Project Design/Build Work (including any liability with respect to unfulfilled warranty obligations relating thereto and liability related to liquidated or other damages or indemnification obligations arising from failure to achieve on a timely basis Construction Phase Substantial Completion, Construction Phase Final Completion or Outfall Acceptance of any portion of the CSO Abatement System or the Infrastructure Rehabilitation Project Design/Build Work which is included in any particular Construction Phase, including, but not limited to, fines and penalties related thereto) shall be limited in amount to the amount of the Construction Phase Performance Bond which guarantees performance of such Design/Build Work (ii) all other liability of the Company arising under or in connection with this Design/Build Contract (whether arising under breach of contract, tort, strict liability, or any other theory of law or equity) shall not exceed \$25,000,000.

Applying the terms of Section 11.1, U.S. Filter's limit on liability relating to defects and deficiencies discovered in the CSO Abatement System or Infrastructure Rehabilitation Project Design/Build Work is equal to 120% of the applicable fixed cost to perform the CSO Abatement System Design/Build Work related to a particular phase of construction and 100% of the applicable Infrastructure Rehabilitation Project Design/Build Work. Thus, in relation to the CSO Abatement System, U.S. Filter's limitation on liability relating to defects and deficiencies of the applicable Design/Build Work is equal to \$54 million.

Although the language of Section 11.1 of the CSO Design/Build Contract does limit the contractual liability of U.S. Filter, such section also specifically states that certain claims shall not be included in the calculation of such limitation amount. Subsection 11.1(B) provides that:

The following matters shall be excluded from the limitations of liability set forth herein: (i) amounts paid or incurred by or on behalf of the Company through insurance policies, performance bonds or payment bonds; (ii) other payments, costs or expenses for which the Company is reimbursed or compensated by the Commission or a third party (other than the Guarantor); (iii) amounts paid or incurred in connection with any claims which should have been covered by insurance or bonds required to be provided by the Company under the terms of this Design/Build Contract but which were not so covered due to the Company's negligent or willful failure to obtain or maintain such insurance bonds; (iv) amounts in connection with fraud or other intentional torts; (v) amounts arising from the gross negligence or willful misconduct of the Company, its employees or agents; (vi) amounts paid or obligated to indemnify the Commission under the provisions of this Design/Build Contract; and (vii) amounts paid or incurred with respect to any claims made directly by third parties against the Company; and (viii) all costs incurred by the Company in the performance of the Contract Services.

Under a conventional public works contract, the contractor generally takes no post-construction performance liability. Accordingly, even though U.S. Filter's contractual liability is limited, the Commission has far superior performance protection than that found in a conventional public works contract.

Finding 7. An analysis prepared by Malcolm Pirnie to show that the U.S. Filter design-build price for the CSO project was lower than competitively bid construction prices was based on an invalid and misleading cost comparison.

***The Commission's approach to comparing U.S. Filter's Price Proposal to the cost incurred previously on other East Lynn sewer separation contracts provides a more valid basis for the comparison given the fact that U.S. Filter's approach is vastly different from the approach utilized by the Commission previously.***

It is difficult to accurately compare U.S. Filter's Price Proposal to the cost incurred previously by the Commission to separate the combined sewers in portions of East Lynn. The difficulty lies in the fact that U.S. Filter's approach to sewer separation is vastly different than the approach undertaken by the Commission on previous contracts. Under its contract with the Commission, U.S. Filter will install new sewers rather than new storm drains. U.S. Filter's proposal is to construct small diameter sewers to achieve the elimination of combined sewer overflows rather than to install large storm drains. The large combined sewers that currently exist will be converted to storm drains and new sanitary sewers will be installed to provide for the sanitary conveyance requirements. For these

reasons, an accurate comparison can not be performed by comparing U.S. Filter's pipe installation costs to the cost of installing new pipelines under the previous Commission contracts. For this reason, the Commission elected to compare the cost to separate an acre of combined sewer area rather than the cost to install new pipelines. This approach provides a more valid basis for comparing U.S. Filter's Price Proposal to the work completed to date.

The Commission's cost comparison indicated that the Commission spent an average of \$60,874 per acre to perform sewer separation under contracts SS-1 through SS-6. U.S. Filter's price proposal represents a cost per acre of \$36,149 to eliminate combined sewer overflows. From this analysis, it was determined that U.S. Filter will eliminate combined sewer overflows for a cost of approximately 41% less than the average cost per acre incurred under contract SS-1 through SS-6.

Since the cost differential was significant and because it was expected that the cost to install small sanitary sewers would be less than the cost to install new large storm drains, the Commission accepted the results of the cost comparison. Using this cost comparison, the Commission determined that U.S. Filter's technical approach and price proposal was more advantageous than the proposal submitted by Modern Continental.

A copy of the analysis is attached hereto as Exhibit G.

Finding 8. The Office's cost estimate indicates that U.S. Filter's \$47 million design-build price is approximately \$22 million higher than the cost of similar work performed under competitively bid contracts.

***The OIG's \$22 million design-build cost differential is an overstatement because U.S. Filter's Price Proposal was not increased to \$47 million and the unit costs used in Table 7 understate the true cost of constructing U.S. Filter's project.***

U.S. Filter's price proposal for sewer separation was \$38,835,298. The proposal was submitted as an alternate proposal in accordance with the RFP. As an alternate proposal, U.S. Filter proposed to eliminate combined sewer overflows by constructing a partial sewer separation program.

Their sewer separation price also covered the cost to address street flooding problems identified in the CSO RFP and the identification and removal of all existing sanitary (illicit) connections to the storm drain system within the streets to be separated. U.S. Filter's price proposal was not increased to \$47 million. U.S. Filter is required to satisfy all of the performance guarantees listed in the CSO RFP for their original price of \$38.8 million.

The unit costs used in Table 7 of the OIG Report are significantly lower than the actual unit bid prices obtained from similar sewer separation projects. It is not appropriate to utilize the average unit bid prices calculated by the OIG. The unit bid prices, developed by the OIG from bids obtained by the Commission under projects SS-1 through SS-6, are not appropriate for such comparison because the construction work performed under these contracts is not similar to the work proposed

by U.S. Filter. The small diameter pipelines installed under SS-1 through SS-6 were constructed as ancillary work to the large drain installation. Therefore, using the unit prices developed by the OIG to estimate the construction cost of U.S. Filter's proposal would produce a low and inaccurate cost estimate.

A review of sewer separation projects recently bid in Roxbury/Jamaica Plain area of Boston and Chelsea confirm that using unit prices for sewer construction in urban areas similar to Lynn result in higher unit prices which would result in a sewer separation cost similar to U.S. Filter's cost proposal. The Commission believes that U.S. Filter's cost proposal for sewer separation is appropriate for pipeline installation in heavy urban areas with ledge, multiple buried utilities and congested commercial and residential streets.

A copy of the bid tab information taken from the Roxbury/Jamaica Plain and Chelsea projects is attached hereto is Exhibit H.

Finding 9. Claims made by the Chairman of the Commission and the Mayor that the U.S. Filter contract would save the Commission more than \$400 million were not supported by the cost estimates and analyses prepared by the Commission's consultants.

***The findings of the OIG and the Commission's CSO Facilities Planning Consultant under estimated the true savings that the Commission would achieve by eliminating combined sewer overflows with U.S. Filter's proposal.***

The Mayor's \$400 million cost savings is based on the total elimination of combined sewer overflows. The Commission's tunnel/pumpback plan would reduce combined overflows to an average of four times per year. During the development of the CSO RFP, the EPA informed the Mayor that the storage pump/back alternative would need to reduce the frequency of combined sewer overflows from an average of four overflows every year to five overflows every two years. As a result of the stricter controls, the Mayor required that the CSO RFP include the elimination of combined sewer overflows within 10 years of contract execution. Therefore, the Mayor's construction cost estimate for tunnel/pumpback included the construction of a larger tunnel and pump/back facility than proposed by the Commission's CSO Facilities Planning Consultant to accommodate the increased level of control (5 overflows every two years). Furthermore, the Mayor's construction cost estimate included additional work for the tunnel/pumpback alternative to eliminate combined sewer overflows by year 10. For these reasons, the Mayor's construction and operation and maintenance cost was much greater than the estimate provided in the CSO Facilities Plan. The Mayor compared U.S. Filter's price proposal to an estimate of the construction and operation and maintenance cost of a modified tunnel/pumpback plan that increased the level of control from four overflows per year to five overflows every two years and eliminated all combined sewer overflows within 10 years following the start of construction. The Mayor determined that by comparing the present worth cost

of the revised tunnel/pumpback alternative to the proposal prepared by U.S. Filter the Commission would save an estimated \$400 million.

Finding 10. The actual cost to the Commission for the East Lynn CSO Project will be far higher than U.S. Filter's \$48 million design-build price.

Finding 10a. U.S. Filter's \$48 million design-build price did not include all required sewer separation work and has already increased to compensate for this omission.

***There has been no increase in the fixed \$48 million design-build price for U.S. Filter to meet its contractually required Performance Guarantees. Sewer separation is not required by the regulatory authorities.***

Finding 10b. U.S. Filter's \$48 million design-build price does not include the estimated \$16.8 million cost of redirecting private inflow.

***The \$16.8 million estimate for redirecting private inflow is excessive; currently, the Commission is only required to remove roof leaders at an estimated total cost of [\$480,000].***

Field investigations conducted by U.S. Filter have determined that external roof leaders, the most significant contributor of private inflow, identified during the house-to-house inspections could be eliminated for \$80 per building. An allowance has been provided in the sewer design criteria to accommodate all other private inflow sources, such as sump pumps, that are currently connected to the sewer system within the project area. It is believed that the \$2,400 per residence estimate is the cost of redirecting sump pumps from the sewer system. The Commission believes that the U.S. Filter proposal addresses sump pump flows and does not warrant spending \$16.8 million to redirect private inflow. Currently, the Commission is only required to remove roof leaders at an estimated total cost of [\$480,000]. Further, the removal of private inflow, under either Modern Continental's proposal or U.S. Filter's proposal, was the responsibility of the Commission.

Finding 10c. U.S. Filter's \$48 million design-build price does not include sewer rehabilitation.

***Proposers were not requested to include sewer rehabilitation in their fixed CSO abatement price.***

The CSO RFP required the proposers to propose per unit cost for performing sewer rehabilitation work. The sewer rehabilitation project was distinct from the CSO Abatement System. The CSO Design/Build Contract does not obligate the Commission to have any sewer rehabilitation work performed by U.S. Filter. With U.S. Filter's approach, less sewer rehabilitation would be required than the rehabilitation that could have been necessary under the Modern Continental

proposal. U.S. Filter's Proposal is for the construction of new sewers; therefore, the amount of sewer rehabilitation that needs to be performed on the existing combined sewers will be less. Rehabilitation of the combined sewers will only need to be performed to address structural defects. There is no need to reduce infiltration into the combined sewers that will serve only as drains after project completion.

**Finding 10d.** U.S. Filter's \$48 million design-build price does not include the cost of support consultants.

***Project oversight is owner's expense; design/build approach reduces such expense.***

In any public works project, project oversight is the owner's expense. Such expense is always in addition to the contractor's cost for constructing the public works. Under a design/build approach, the contractor is responsible for the design as well as the construction of the public works to meet the stated Performance Guarantees. The municipality's role is solely to review design and construction for compliance with the design requirements. Under a conventional public works procurement the municipality is responsible for approving that the construction of the public works is in accordance with the municipality's 100% project design. Thus, the municipality's oversight expense under a design/build approach will be less than under a conventional approach.

**Finding 11.** U.S. Filter's unit prices for water main replacement were much higher than competitive bid prices for similar work.

***The Commission has negotiated lower, competitive rates for water main replacement by U.S. Filter; the Commission is not obligated to have U.S. Filter construct the water main improvements.***

Although the unit prices proposed by U.S. Filter for undertaking certain water main improvements may be higher than other competitively bid prices for similar work, US Filter offered to reduce such unit prices in consideration of actual known work requests which offer a lower per unit costs. The Commission has negotiated lower, competitive rates for water main replacement by U.S. Filter. Additionally it should be noted that the Commission is not obligated to have U.S. Filter construct the water main improvements.

**Finding 12.** The Commission's application for SRF funding for the first phase of the East Lynn CSO Project contains a construction price that is almost three times the cost of similar work under competitively bid contracts.

***The construction cost for the first phase of the East Lynn CSO Project is not almost three times the cost of similar work. See responses to Findings 7 and 8.***

## **The 20-year DBO Wastewater Treatment Plant Contract: Findings**

Finding 13. The two proposals for the DBO wastewater treatment plant contract were submitted by companies controlled by the same corporate entity: Vivendi.

*At the time of proposal submission, U.S. Filter and Aqua Alliance were separate and distinct companies.*

The Commission received two proposals in response to the Commission's Request for Proposals for Capital Improvements, Operations, Maintenance and Management of the Lynn Regional Wastewater Treatment Plant (the "Wastewater RFP"). One proposal was submitted by Aqua Alliance, the other proposal was submitted by U.S. Filter. Aqua Alliance was awarded the Wastewater Service Contract, and such contract was executed by Aqua Alliance.

U.S. Filter Corporation (the parent of U.S. Filter), which remained as the surviving corporation of a merger following a tender offer completed April 23, 1999, was a wholly owned subsidiary of Vivendi, S.A. Aqua Alliance was a separate, Delaware corporation, publicly traded on the American Stock Exchange. Vivendi, S.A. had an interest in Aqua Alliance as a beneficial holder of 83% of issued and outstanding shares of Aqua Alliance.

In further support of the distinctiveness of the two proposers, each proposer executed a statement of non-collusion in accordance with the terms of the Wastewater RFP. A copy of each of these statements is attached hereto as Exhibit I.

Neither Aqua Alliance, nor U.S. Filter, nor indeed anyone, could have possibly known that there would be only two proposals received in response to the Wastewater RFP right up until the proposal due date. Further, the pre-proposal conference was attended by representatives from all major water companies. A copy of the pre-proposal conference attendance sheet and meeting transcript is attached hereto as Exhibit C. This participation undoubtedly created the real prospect of intense competition in the minds of the companies that did propose, and such competition would have been no more intense if the other potential proposers had, in the end, actually submitted proposals.

Finding 14. Malcolm Pirnie prepared a flawed analysis purporting to show that the 20-year, DBO contract would cost less than a competitively procured five-year contract for the wastewater treatment plant contract.

Finding 14a. Malcolm Pirnie's analysis overstated the Commission's costs to show that the Commission's 1991 contract with U.S. Filter was more costly than the proposed 20-year contract.

***The cost analysis was only preliminary because given the nature of the assumptions underlying the analysis and the magnitude of the projected savings, the Evaluation Committee deemed it to be unnecessary to expend additional resources on refining the study through more detailed analysis.***

The cost analysis conducted by Malcolm Pirnie was intended to be preliminary in nature. If in fact that level of analysis had resulted in the identification of increased costs, no costs savings, or even marginal cost savings projections, then a more detailed analysis should have and would have been conducted. In fact, that was not the case. Utilizing a reasonable cost basis for both the proposed contract and the continuation of our past and current practices, the Malcolm Pirnie study projected a cost savings of over \$28 million to the Commission, its ratepayers and its membership communities through the award of the Aqua Alliance contract.

During the O.I.G.'s staff's review of the Malcolm Pirnie cost analysis, two key assumptions were modified to project a more conservative cost projection. One modification served to increase the projected cost savings of the 20-year wastewater design/build/operate contract; a second decreased the overall savings projection, resulting in a net reduction in the projected overall savings of \$4 million. Even after having incorporated the conservative assumptions raised by the O.I.G.'s staff, the projected present value cost savings of the 20-year contract exceeded \$24 million.

Given the nature of the assumptions underlying the analysis and the magnitude of the projected savings as projected both in the initial Malcolm Pirnie study and after incorporating conservative assumptions raised by the O.I.G.'s staff, the Evaluation Committee deemed it to be unnecessary to expend additional resources on refining the study through more detailed analysis.

Additionally, the analysis was not continued further as it was determined (as part of such analysis) that the 20-year wastewater design/build/operate contract and the competitively procured five-year contract were not comparable because of significant differences in their scope of work and underlying risks allocated to the respective firms. For an example of such risks, see response to Finding 14c.

***Finding 14b.*** The 20-year DBO Contract contains cost adjustment provisions that could increase the cost to the Commission ratepayers.

***Aqua Alliance may be paid an additional fee only for any increase in loadings delivered to the wastewater treatment plant beyond the contractual baseline amount and due to the occurrence of an uncontrollable circumstance.***

Under the Wastewater Service Contract, the fixed charge component of the base service fee is an amount to be paid to Aqua Alliance annually for treating influent in the amounts delivered to the Commission's wastewater treatment plant in accordance with the Influent Parameter Baseline. "Influent Parameter Baseline" is defined as "the total annual pounds of biological oxygen demand in



an amount equal to 40,000 pounds per day and total annuals pounds of total suspended solids in an amount equal to 30,000 pounds per day, plus twenty percent for each loadings category." If the loadings amounts set forth in the Influent Parameter Baseline are exceeded on an annual basis by more than 20%, Aqua Alliance is entitled to receive a variable charge for each pound in excess of such Influent Parameter Baseline. The cost relating to any increase in flow will be borne by Aqua Alliance, not the rate payers as stated in the OIG Report.

Thus, in order to prevent the Commission from paying for loadings which are not delivered to the wastewater treatment plant, the Baseline Influent Parameters were set as low as possible (based on historical data) taking into consideration that any variable charge paid to Aqua Alliance cannot exceed 20% of its annual compensation under the contract based on applicable tax law. This conservative setting of the Baseline Influent Parameters combined with the City of Lynn's being fully sewerred, with minimal fluctuations in its annual loadings, protects the Commission from paying for loadings which are not delivered to the wastewater treatment plant, and limits the risk of any increase in the annual service fee paid to Aqua Alliance relating thereto.

Finally, any such variable charge would be due to loadings primarily caused by industrial discharge. The Commission, through its industrial pre-treatment program, assesses a surcharge for increased loadings delivered to its collection system. Therefore, such surcharge would compensate the Commission for any variable charge paid to Aqua Alliance.

The Commission, pursuant to the Wastewater Service Contract, shall bear the risk associated with the occurrence of any uncontrollable circumstances including any Changes in Law; however, Aqua Alliance, pursuant to Section 16.2 of the Wastewater Service Contract, shall, when claiming relief due to the occurrence of an uncontrollable circumstance, provide notice of such uncontrollable circumstance to the Commission, mitigate the affects of such uncontrollable circumstance and bear the burden of proof thereof. In addition, Aqua Alliance shall be obligated to bear 5% of the cost of any uncontrollable circumstance, subject to an annual aggregate limit of \$25,000, in order to incentivize Aqua Alliance to minimize the affects of any uncontrollable circumstance on the Commission. Moreover, subsection 16.2(F) of the Wastewater Service Contract establishes an uncontrollable costs stabilization fund to provide additional mitigation of the impact of an uncontrollable circumstance. A copy of subsection 16.2(F) is attached hereto as Exhibit J.

The OIG Report correctly identifies Upset and Excessive Influent as uncontrollable circumstance events. Upset is defined by reference to the Clean Water Act. 40 CFR § 122.41(n) promulgated under the Clean Water Act defines Upset as "an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee." Excessive Influent is defined as "(1) Toxic Substances, (2) Regulated Substances, (3) System Influent in excess of the Actual Plant Performance Capability, (4) Unacceptable Septage, and (5) Unacceptable Grease." A copy of Appendix 2 which sets forth the definition of Actual Plant Performance Capability, is attached hereto as Exhibit K. Such

events do not commonly occur at the Wastewater Treatment Plant, and thus such relief would be remote.

Further, the OIG Report fails to identify the stringent requirements that must be met by Aqua Alliance in order to receive such uncontrollable circumstance relief.

Section 8.9 of the Wastewater Service Contract provides that:

The occurrence of an Upset or the receipt of Excessive Influent shall not be considered to be an Uncontrollable Circumstance, and the Company shall not be entitled to relief from a Performance Guarantee due to the occurrence of an Upset or receipt of Excessive Influent, unless the Company affirmatively demonstrates through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) an Upset actually occurred or Excessive Influent was actually received;
- (2) the Company submitted notice thereof as required in compliance with Applicable Law;
- (3) the Company complied with any remedial measures required under Applicable Law and appropriate mitigating measures required under Section 16.2;
- (4) any failure by the Company to properly operate the Managed Assets in accordance with the Contract Standards did not cause the Upset or receipt of Excessive Influent; and
- (5) the occurrence or receipt thereof could not have been prevented by the exercise of reasonable efforts consistent with Prudent Industry Practice on the part of the Company.

Thus, it does not appear likely that Aqua Alliance will be receiving future cost increases due to the occurrence of an Upset or the receipt of Excessive Influent. Any additional compensation paid due to the occurrence of an uncontrollable circumstance, however, is limited solely to the occurrence of the specific event.

***Finding 14c. A contract based on U.S. Filter's 1996 proposal would have resulted in lower costs to ratepayers than U.S. Filter's 20-year DBO contract. Aqua Alliance is taking far greater risks under the DBO contract than the short-term contract.***

It is not appropriate to make such cost comparison because of significant differences in risk allocation. The risk assumed by Aqua Alliance under the Wastewater Service Contract is far greater

than the risk assumed by U.S. Filter under its 1996 proposal. For example, under the Wastewater Service Contract, Aqua Alliance, for its fixed service fee, is responsible for performing all repairs and replacements to the Wastewater Treatment Plant and related assets for the term of the contract. The only improvements required to be undertaken by the Commission are those related to the occurrence of uncontrollable circumstances or voluntarily elected by the Commission. Thus, if there is never an uncontrollable circumstance event which causes the need for any improvements or if the Commission never elects to voluntarily have Aqua Alliance undertake any improvements, the Commission shall only be obligated to pay Aqua Alliance the annual service fee. For such fee, Aqua Alliance shall undertake all repairs and replacements for the term of the agreement.

In addition the Wastewater Service Contract also requires Aqua Alliance to:

- meet enhanced performance guarantees and pay liquidated damages for failure to meet such standards
- implement all operational modifications and undertake all capital improvements, at its cost, necessary to comply with applicable law
- implement all operational modifications and undertake all capital improvements, at its cost, necessary to meet such enhanced performance guarantees
- take the full risk of off-site disposal of ash residue generated at the sludge incinerator if the ash landfill does not receive a permit for expansion
- design, construct and guarantee the performance of all capital improvements for a fixed price
- share in the cost of uncontrollable circumstances
- take the employee attrition risk

Each of these provisions in the Wastewater Service Contract is a risk that is found in long-term design/build/operate contracts, and is not typically included in short-term contracts. Therefore, by entering into such contractual arrangement, the Commission shifted risk to Aqua Alliance that would generally be the Commission's responsibility under a short-term operating contract, as the owner of the wastewater treatment plant.

Finding 15. Although the 20-year DBO contract may produce cost savings for U.S. Filter from reduced flows to the plant, ratepayers will not benefit from those savings.

***The Wastewater Service Contract includes a provision for the renegotiation of the service fee based on a reduction in flows and loadings. The Commission's structuring of the annual service fee complies with applicable tax law.***

The extent to which the Commission may structure the Wastewater Service Contract to address flow and water quality changes is limited by Internal Revenue Service Revenue Procedure 97-13. The compensation to be paid a private vendor for management of a municipal asset which has been financed with tax-exempt municipal bonds is governed by IRS Revenue Procedure 97-13.

IRS Revenue Procedure 97-13 provides that a municipality may enter into a 20-year contractual relationship with a private vendor for the operation of its wastewater treatment plant which has been financed through the issuance of tax-exempt municipal bonds so long as 80% of the annual compensation to be paid the private vendor is fixed. The remaining 20% may be paid on a per unit basis.

Any credits from Aqua Alliance for loadings delivered to the Wastewater Treatment Plant in amounts less than the Baseline Influent Parameters would jeopardize such fixed fee arrangement, and the tax-exempt status of any Commission bonds. If the Commission did not structure the Wastewater Service Contract in accordance with the requirements of IRS Revenue Procedure 97-13, the Commission's outstanding bonds could be deemed taxable. Thus, to structure the Wastewater Service Contract as suggested by the OIG would subject the Commission's ratepayers to far greater costs, in particular paying a taxable interest rate on its outstanding and future wastewater system bonds. A copy of IRS Revenue Procedure 97-13 is attached hereto as Exhibit L.

The Wastewater Service Contract, however, does anticipate that it may be necessary to negotiate the service fee based on a reduction in flow. Section 14.15 of the Wastewater Service Contract, provides that if there is a material reduction in flows and loadings delivered to the wastewater treatment plant, the parties will renegotiate a corresponding reduction in the annual service fee. Section 14.15 of the Wastewater Service Contract is attached hereto as Exhibit M.

Finding 16. Although the 20-year DBO contract will likely produce cost savings for U.S. Filter resulting from staff reductions, ratepayers will not benefit from those savings.

***Aqua Alliance takes the full risk of the occurrence of any staff reductions. Aqua Alliance provided a competitive proposal price based on its staffing expectations.***

The Special Legislation which was enacted to authorize the Commission to undertake these procurements provides that the company awarded any contract thereunder shall provide job security to the employees operating the Commission's Wastewater Treatment Plant. Section 5 of the Special Act provides:

Notwithstanding any other provisions of this act, it shall be a mandatory term of any request for proposals issued by the commission and of any contract entered into by the commission with any party regarding the subject matter of this act that any party that has entered into a contract pursuant to said terms with the commission, shall require, in order to maintain stable and productive labor relations and to avoid interruption of the operation of the water and wastewater treatment plants and to preserve the health, safety and environmental conditions of residents of the city of Lynn and surrounding communities, that any and all employees, except the plant manager and assistant plant manager at the water and wastewater treatment plants, as applicable, hereinafter referred to as plant employees, working on the operation and maintenance of the water and wastewater treatment plants be offered employment by any party entering into a contract with the commission for the operation and maintenance of said water and wastewater plants, and further, that any party entering into said contract shall employ all plant employees employed at the water and wastewater treatment plants as of the date of execution of said contract and continue such employment throughout the term of said contract, unless any such employee voluntarily leaves the employ of said party or is terminated for just cause by said party. Furthermore, any party entering into said contract with the commission shall provide a salary and benefits package to all plant employees which is comparable to the salary and benefits package provided to such employees by their previous employer. Moreover, said party shall adopt all terms and conditions of employment provided by the last applicable collective bargaining agreement negotiated between the labor organization representing such plant employees, if any, and the applicable employer who has most recently employed such plant employees prior to entering into any contract pursuant to this act and shall continue to recognize such terms and conditions of employment until a collective bargaining agreement has been executed between the labor organization representing such plant employees and said party. Said party shall furthermore agree to meet its legal obligations, including bargaining in good faith, with regard to any labor organization representing plant employees engaged in the operation and maintenance of the water and wastewater treatment plants described herein. Notwithstanding any other provision of this act, any proposal or contract submitted to the commission regarding the subject matter of this act not complying with the above terms, shall be disqualified from further consideration by the commission.

A copy of the Special Act is attached as Exhibit N.

In support of this provision of the Special Act, the Wastewater RFP included, as a mandatory term, the requirement that the selected proposer meet the employment terms contained in the Special Act. Section 5.1 of the Wastewater Service Contract contractually binds Aqua Alliance to such provisions of the Special Act. Further, Section 6.7 of the Wastewater Service Contract provides that Aqua Alliance bears the risk that the MADEP will approve any reduction in plant staff.

In submitting its proposal, Aqua Alliance assumed a certain staffing level which was less than the then current level of plant staffing. Based on the provisions of the Special Act and the need to receive MADEP approval for any staff reductions, Aqua Alliance is not necessarily assured that it will be able to reduce staffing to the level upon which it based its proposal. Thus, Aqua Alliance bears the full risk that employees will voluntarily leave its employ as well as the risk that the MADEP will approve any staffing reductions. Accordingly, in that Aqua Alliance is performing its obligations under the Wastewater Service Contract for its proposed service fee, and such fee cannot be increased if employees do not voluntarily leave its employ or the MADEP does not approve any staff reduction, it is only fair that Aqua Alliance receive the benefit of any staff reductions.

**Finding 17.** The Commission failed to exercise control over its expenditures for privatization consultants, which mounted to more than \$3 million over three years.

**Finding 17a.** Malcolm Pirnie's \$56,168 general engineering services contract evolved into a lucrative, sole-source privatization consulting services contract worth more than \$1.6 million.

***Malcolm Pirnie, as the Commission's Engineer of Record, provided engineering services to the Commission in connection with the Commission's long-term wastewater privatization project and CSO design/build project.***

Malcolm Pirnie was retained by the Commission as its Engineer of Record in February of 1998. As the Commission's Engineer of Record, Malcolm Pirnie performed numerous general engineering assignments, including assisting the Commission with the development and negotiation of its long-term wastewater privatization project and its CSO design/build procurement. The Commission's agreement with Malcolm Pirnie was amended by the Commission to include the additional engineering services necessary to successfully complete the Commission's proposed long-term wastewater privatization and the CSO design/build transactions.

Malcolm Pirnie through the course of its providing engineering services to the Commission, provided the Commission with detailed monthly invoices. Such invoices included a description of the specific tasks performed, the hours associated with the performance of such tasks and any

disbursements incurred in connection therewith. All such engineering services were performed under the direction of the Commission's Executive Director and Chief Engineer.

Finding 17b. The hourly rates Malcolm Pirnie charged for privatization consulting services were substantially higher than the rates Malcolm Pirnie had proposed for the competitively procured general engineering services contract.

***Malcolm Pirnie's hourly rates are in accordance with the 1998 amendment to its agreement.***

Malcolm Pirnie's agreement for engineering services with the Commission was amended in November of 1998. Such amendment increased the hourly rates included in its original contract. Malcolm Pirnie has not received any subsequent increases in its hourly rates.

Finding 17c. The Commission's open-ended agreement with Hawkins, Delafield & Wood cost ratepayers more than \$1.5 million over the first three years.

***Legal fees paid to Hawkins, Delafield & Wood were incurred in connection with three Commission projects — water, wastewater and CSO.***

The Commission had originally planned to enter into long-term privatization arrangements for the operation of its wastewater treatment plant and water treatment plant as well as the design and construction of a CSO abatement system. Subsequently, the Commission determined not to pursue the water treatment plant transaction. Thus, the legal services performed by Hawkins, Delafield & Wood included representation of the Commission in three major projects: the long-term privatization of the Commission's water treatment plant, the long-term privatization of the Commission's wastewater treatment plant, and the design/build of a CSO abatement system.

The legal services performed by Hawkins, Delafield & Wood were undertaken under the direction of the Commission staff. Throughout its representation of the Commission, Hawkins, Delafield & Wood's estimated budgets for legal services were prepared and discussed with such Commission staff.

Hawkins, Delafield & Wood provided the Commission with detailed monthly invoices that set forth the hours billed, services performed and expenses incurred. The Commission staff reviewed such invoices and routinely requested further explanation for various costs and expenses as necessary.

Finally, it should be noted that under the applicable procurement law, Massachusetts General Law Chapter 30B, the Commission is not required to conduct a procurement to retain legal counsel. Thus, the selection of Hawkins, Delafield & Wood, on a sole source basis, was in accordance with the requirements of Chapter 30B.

Finding 17d. After the Office requested documentation, Hawkins, Delafield & Wood acknowledged that \$3,295 in travel expenses reimbursed by the Commission had been billed in error.

***The Commission has been credited for all inadvertent charges.***

In its response to the OIG's request for documentation relating to its legal representation of the Commission, Hawkins, Delafield & Wood acknowledged that certain travel expenses were inadvertently charged to the Commission. Hawkins, Delafield & Wood, however, informed the OIG that \$1,300 of such inadvertent charges were discovered in a 2000 fourth quarter review of Commission invoices. The Commission Executive Director and Director of Administration were informed of the results of such review. Hawkins, Delafield & Wood credited the Commission the \$1,300 of inadvertent charges on its following bill.

As a result of the discovery of inadvertent charges in its 2000 fourth quarter review, the Commission requested that Hawkins, Delafield & Wood provide supporting documentation for future billed travel expenses.

All inadvertent charges identified in the OIG Report have been credited to the Commission. It should be noted that the inadvertent charges credited to the Commission equal less than 0.20 percent of the total amount of the legal expenses billed.

Finding 17e. The Commission reimbursed Hawkins, Delafield & Wood for \$4,697 in undocumented travel and meal expenses that cannot be verified.

***Documentation was provided prior to reimbursement for Commission-related travel expenses.***

Hawkins, Delafield & Wood informed the OIG in response to its request for documentation relating to its legal retainer agreement with the Commission, that certain receipts for travel expenses incurred in connection with its representation of the Commission were "misfiled or misplaced", and therefore could not be provided. Such costs were incurred in connection with Commission-related business, and receipts were provided prior to reimbursement.

It should be noted that the amount of travel expenses for which Hawkins, Delafield & Wood could not locate actual receipts equals less than 0.29 percent of the total amount of legal expenses billed.

**Finding 18.** Costs incurred for privatization consultants produced pressure on the Commission to enter into the DBO contracts regardless of whether they represented good deals for the ratepayers.



***The Commission did not seek any transaction cost reimbursement.***

The OIG Report correctly states that the Wastewater RFP and CSO RFP included provisions requiring the selected proposers to reimburse the Commission for transaction-related costs. Such report, however, fails to indicate that the Commission did not seek such reimbursement from either of the selected proposers.

Finally, the amount expended by the Commission on such transactions should be compared and the expenditures for engineering and legal services incurred by the Commission on projects authorized in recent years on both a total amount and a percentage of project costs basis, including the sludge dryer (\$1.2 million, 20%), Sewer Separation Contract-7 and Sewer Separation Contract-8 (\$2.3 million, 10%), and Sewer Separation Contract-4, Sewer Separation Contract-5 and Sewer Separation Contract-6 (\$2 million, 13%), and the total amount paid to individual consulting firms. These expenditures are all generally in line with industry standards for projected-related legal and engineering services of 12% to 15% and the MADEP's acceptable range of transaction costs.

It should be noted that the transaction-related project costs amounted to approximately 1.3 percent of the total value of these two transactions. The industry standard for such projects ranges from 1% to 3%.

## ATTACHMENT 1

The following is a summary of the procurement processes undertaken by the Lynn Water and Sewer Commission (the "Commission") in relation to the Commission's Request for Proposals for the East Lynn CSO Abatement System (the "CSO RFP") and Request for Proposals for Capital Improvements, Operations, Maintenance and Management of the Lynn Regional Wastewater Treatment Plant (the "Wastewater RFP").

### **CSO Facilities Plan and Consent Decree**

On November 2, 1987 the Commission entered into a multi-phased consent decree with the United States District Court to implement the recommendations contained in the Facilities Plan (the "Consent Decree"). The U.S. Department of Justice, the U.S. Environmental Protection Agency, and the Massachusetts Department of Environmental Protection are all parties to the Consent Decree. In March of 1990, the Commission developed a Combined Sewer Overflow Facilities Plan Phase 2 Report that presented recommendations that the Commission could implement to abate such combined sewer overflows (the "Facilities Plan"). The final phase of the Consent Decree is to construct a Combined Sewers overflow abatement system for Kings Beach (Combined Sewer overflow outfall 006) and the inner harbor (Combined Sewers overflow outfalls 004 and 005).

The Commission determined that it is in its best interest to implement such final phase of the Consent Decree through a contract with a private entity whereby such entity shall be responsible for designing, building and warranting a system to provide a combined sewers overflow abatement system for the Commission's collection system tributary to combined sewers overflow outfalls 004, 005, and 006 located in the eastern portion of the City (the "CSO Abatement System"). The Facilities Plan and the Consent Decree were modified to include the design and construction of the CSO Abatement System. The Commission also determined that it was in its best interest to have such private entity design, build and warrant improvements to the Commission's Collection System and water distribution system as part of this project (the "Infracstructural Rehabilitation Project").

### **Wastewater Treatment Plant Efficiency Report**

In late 1996, the Commission retained Camp, Dresser & McKee to prepare a study setting forth various alternatives relating to the operation of the Lynn Regional Wastewater Treatment Plant and related assets (the "Plant") (the "Efficiency Study"). Camp, Dresser & McKee is a nationally recognized consulting engineering firm which has had extensive experience preparing such reports, and was procured by the Commission to prepare such study. At such time, Camp, Dresser & McKee was also the Commission's Engineer of Record.

Such alternatives included:

- Public Operation
- Short-Term Contract Operation
- Long-Term Operation and Maintenance Contract
- Long-Term Lease
- Asset Sale

In the Efficiency Study, Camp, Dresser and McKee recommended that the Commission's wastewater treatment plant be operated pursuant to a long-term (20-year) operation and maintenance contract which includes the design and construction of capital improvements.

After due consideration, on September 22, 1997, the Commission elected to implement the recommendation for a long-term operating agreement (20 years), and the design and construction of certain capital improvements under a design/build/operate delivery method.

### **Procurement Team**

Subsequent to the Commission's decision to enter into a design/build arrangement for its East Lynn CSO Abatement Project and long-term contractual arrangement for operation of the Plant, the Commission selected its team of consultants to assist the Commission with the procurement process.

### *Legal*

The Commission retained Hawkins, Delafield & Wood as its special legal counsel for this procurement. Hawkins, Delafield & Wood is a nationally recognized firm that focuses, among other practice areas, on assisting municipal governments in entering into long-term design/build/operate agreements for water and wastewater services.

### *Technical*

Malcolm Pirnie Inc. was selected as the Commission's Engineer of Record on November 9, 1998, and, in such role, acted as the primary technical advisor to the Commission throughout the procurement process. Prior to the selection of Malcolm Pirnie Inc. as the Commission's Engineer of Record, Camp, Dresser & McKee acted as the primary technical advisor for this procurement.

### **Special Legislation**

In order for the Commission to enter into such agreements, the adoption of special legislation by the Massachusetts Legislature was required (the "Special Legislation"). This Special Legislation exempts the Commission from certain competitive bidding procurement laws and provides specific authorization for design/build/operate procurements to be taken by the Commission. In the fall of 1997, Hawkins, Delafield & Wood drafted the Special Legislation for the Commission. The Special Legislation was modeled after similar special acts adopted for the Cities of Taunton and Gardner, and

the Springfield Water and Sewer Commission. On November 17, 1997, the Commission approved the Special Legislation, and forwarded it to the Lynn City Council for its approval. On July 7, 1998, the City Council approved the Special Legislation, and forwarded it to the Massachusetts Legislature.

During Legislative Committee hearings, the Office of Inspector General raised certain concerns in regard to specific language included in the Special Legislation. The Commission discussed such concerns with Fran Brown and Janet Werkman of the Inspector General's Office, and, as a result of such discussions, it was agreed that certain modifications to the Special Legislation would be made by the Commission. On August 6, 1998, the Special Legislation became law.

### **Draft RFPs**

Simultaneously with the filing of the Special Legislation, the Commission, and its procurement team, developed draft CSO and Wastewater RFPs. It was decided by the Commission's staff that, while awaiting enactment of the Special Legislation, the Commission could release such draft RFPs for review and comment by potential proposers. The information gathered from such comments would be used in developing the final CSO and Wastewater RFPs.

The draft RFPs were advertised in the Central Registry and the Commission's official newspapers, as well as distributed to firms that provide such services to municipalities. The Commission sought comments on the draft CSO and Wastewater RFPs from potential proposers. Any potential proposers who were interested in discussing their comments with the Commission were invited to attend meetings with the Commission's staff and consultants. The potential proposers that participated in such meetings were U.S. Filter Operating Services Inc. ("U.S. Filter"), U.S. Water, Philips Utilities, United Water, and the team of Poseidon, Metcalf & Eddy and PSG. The information gathered by the Commission from such review of and comment on the draft CSO and Wastewater RFPs was used in developing the final RFPs.

### **Final RFPs**

The Commission and its consultants used the information gathered through the review of and comment on the draft CSO and Wastewater RFPs to develop the final CSO and Wastewater RFPs.

### ***CSO RFP***

The CSO RFP requested proposals for the design, construction and operation of the CSO Abatement System and the Infrastructure Rehabilitation Project.

The CSO RFP included the following: general CSO information, mandatory contract terms, a procurement process overview, the proposal requirements, the selection criteria, the contract principles, including schedules thereto, and the minimum technical requirements for the CSO Abatement System and Infrastructure Rehabilitation Project. The contract principles provided the general business arrangement to be entered into between the Commission and the selected proposer. The minimum technical requirements set forth the quality of the CSO Abatement System and Infrastructure Rehabilitation Project, and, coupled with the selected proposer's proposal, were used

to develop the design requirements for the CSO Abatement System and Infrastructure Rehabilitation Project, which are appended to the main body of the service contract.

### *Wastewater RFP*

The Wastewater RFP requested proposals for the on-site disposal of Plant sludge at a sludge incinerator to be designed and constructed by the selected proposer. In addition, the Wastewater RFP requested proposals for disposing of Plant sludge off-site.

The Wastewater RFP included the following: general Plant information, mandatory contract terms, a procurement process overview, the proposal requirements, the selection criteria, the contract principles, including schedules thereto, and the minimum technical requirements for the Plant capital improvements. The contract principles provided the general business arrangement to be entered into between the Commission and the selected proposer. The minimum technical requirements set forth the quality of the capital improvements, and, coupled with the selected proposer's proposal, are to be used to develop the design requirements for the Plant capital improvements which are appended to the main body of the service contract.

### *Evaluation Criteria*

The evaluation criteria contained in the CSO RFP and the Wastewater RFP were developed based on the evaluation criteria utilized by the Springfield Water and Sewer Commission in its design/build/operate procurement for similar wastewater services. The Springfield Water and Sewer Commission, prior to the release of its request for proposals for wastewater services, requested that the Office of the Inspector General review such criteria to determine whether it provided for a fair and competitive evaluation process. In his 1998 Annual Report, the Inspector General stated:

Springfield Water and Sewer Commission Request for Proposals. The Office worked closely with the Commission in developing a request for proposals (RFP) that would ensure genuine competition and protect the interests of its ratepayers in the long-term privatization of its wastewater system. In an October 1998 letter, the Office provided guidance on drafting evaluation criteria that would provide clear standards to proposers and evaluators as well as an accountable selection process. The Commission modified its RFP in response to the Office's comments. In October 1998, the District [sic] issued the RFP, with a proposal submission deadline of March 2, 1999.

### *Issuance of RFPs*

On February 2, 1999, the Commission issued the Wastewater RFP. On February 12, 1999, the Commission issued the CSO RFP.

## **Notice and Distribution of RFPs**

The CSO RFP and the Wastewater RFP were advertised in the Central Register, and in the Commission's official papers. In addition, fourteen companies who perform such services were directly notified by the Commission of the availability of such RFPs. 13 companies requested copies of the CSO RFP. Seventeen companies requested copies of the Wastewater RFP.

## **Pre-Proposal Meetings**

On February 9, 1999, the Commission held a pre-proposal meeting and Plant orientation, in connection with the Wastewater RFP and the CSO RFP. The meeting was attended by many of the wastewater industry leaders. The purpose of the pre-proposal meetings was for the Commission to provide a general overview of the services it was seeking and of the procurement process as well as to answer any questions a potential proposer might have relating thereto. Potential proposers were taken on a general orientation tour of the Plant.

## **Site Visits**

### *CSO*

In order for potential proposers to gain knowledge of CSO Abatement System and Infrastructure Rehabilitation Project, potential proposers were afforded the opportunity to inspect the sewer collection system.

### *Wastewater*

In order for potential proposers to gain knowledge of the operation of the Plant as well as the current condition of the Plant and its related components, potential proposers were afforded the opportunity to conduct individual Plant site visits where they could perform equipment testing as well as influent and effluent sampling. Three potential proposers scheduled and attended such site visits: U.S. Filter on February 8 - February 12, 1999, Aqua Alliance Inc. on February 15 - February 19, 1999 and February 22 - February 26, 1999 and United Water on February 22 - February 26, 1999. Each potential proposer was provided with the same opportunity to monitor the operations of the Plant, inspect and test the condition of Plant related equipment and perform influent and effluent sampling. Such visits are necessary for a potential proposer to effectively prepare its technical and cost proposals.

## **Reference Documents and Available Information**

The CSO RFP and the Wastewater RFP provided that the Commission would make certain documents available to potential proposers for review and photo-copying. In addition, each RFP included a statement that "[t]he Commission will seek to provide additional information requested by potential Proposers." Moreover, the Commission made available two copy machines and staff in order that potential proposers could photocopy such reference documents. In making available such

documents, and indicating it would provide additional information upon request, the Commission was attempting to ensure that the procurement processes it was conducting were fair and competitive.

## **Proposals**

### *CSO RFP*

On May 17, 1999 the Commission received two proposals in response to the CSO RFP. The Commission received two proposals in response to the CSO RFP. One proposal was submitted by U.S. Filter, the other by Modern Continental Construction Co., Inc. and Metcalf & Eddy. At the time of its proposal submission, Metcalf & Eddy was a subsidiary of Aqua Alliance Inc.

### *Wastewater RFP*

On May 17, 2000, the proposal due date, the Commission received two proposals in response to the Wastewater RFP. One proposal was submitted by Aqua Alliance Inc., the other proposal was submitted by U.S. Filter.

### *Corporate Status of CSO Proposers*

At the time of Proposal Submission U.S. Filter and Aqua Alliance Inc. were separate and distinct companies. U.S. Filter Corporation (the parent of U.S. Filter), which remained as the surviving corporation of a merger following a tender offer completed April 23, 1999, was a wholly owned subsidiary of Vivendi, S.A. Aqua Alliance Inc. was a separate, Delaware corporation, publicly traded on the American Stock Exchange. Vivendi, S.A. had an interest in Aqua Alliance Inc. as a beneficial holder of 83% of issued and outstanding shares of Aqua Alliance Inc.

In further support of the distinctiveness of the two proposers, each proposer executed a statement of non-collusion in accordance with the terms of the CSO RFP.

### *Corporate Status of Wastewater Proposers*

At the time of proposal submission, U.S. Filter and Aqua Alliance Inc. were separate and distinct companies. U.S. Filter Corporation (the parent of U.S. Filter), which remained as the surviving corporation of a merger following a tender offer completed April 23, 1999, was a wholly owned subsidiary of Vivendi, S.A. Aqua Alliance Inc. was a separate, Delaware corporation, publically traded on the American Stock Exchange. Vivendi, S.A. had an interest in Aqua Alliance Inc. as a beneficial holder of 83% of the issued and outstanding shares of Aqua Alliance Inc.

In further support of the distinctiveness of the two proposers, each proposer executed a statement of non-collusion in accordance with the terms of the Wastewater RFP.

## **Evaluation of CSO and Wastewater Proposals**

For the CSO Proposals and the Wastewater Proposals, the Chief Procurement Officer appointed an evaluating committee which consisted of the Commission's Executive Director, Chief Engineer and Accounting Manager (the "Evaluation Committee"). The Evaluation Committee was assisted by its legal consultant, Hawkins, Delafield & Wood, and its technical consultant, Malcolm Pirnie Inc. Subsequent to the receipt of such proposals, the Evaluation Committee determined whether such proposals were "responsive" to the terms of the respective RFPs, and whether the proposals and proposers were "responsible" proposals and proposers. Each proposal and proposer was deemed to be "responsive" and "responsible". Following such finding, the Evaluation Committee evaluated each proposal to determine compliance with the applicable minimum evaluation criteria.

#### *CSO Proposals Clarification Sessions*

Each proposer submitted responses to the clarification questions submitted by the Commission on July 26, 1999. In addition, a clarification meeting with the proposers and the Evaluation Committee was held on August 23, 1999 at which additional questions were submitted by the Commission to each proposer. All clarification questions and Proposer responses are on file at the Commission offices. In addition, a transcript of the August 23, 1999 clarification meeting is also on file at the Commission offices.

#### *Wastewater Proposals Clarification Sessions*

Each proposer submitted responses to the clarification questions submitted by the Commission on June 11, 1999. In addition, a clarification meeting with the proposers and the Evaluation Committee was held on June 16, 1999 at which additional questions were submitted by the Commission to each proposer. All clarification questions and Proposer responses are on file at the Commission offices. In addition, a transcript of the June 16, 1999 clarification meeting is also on file at the Commission offices.

#### *CSO Proposals Non-Cost Proposal Evaluations*

The Evaluation Committee evaluated the Non-Cost/Technical Proposals based on the comparative evaluation criteria set forth in Section 5 of the CSO RFP. Based on the evaluation of the Non-Cost/Technical Proposal the proposal submitted by Modern Continental Construction Co., Inc. and the proposal submitted by U.S. Filter were each ranked "Advantageous".

#### *Wastewater Proposals Non-Cost Proposal Evaluations*

The Evaluation Committee evaluated the Non-Cost/Technical Proposals based on the comparative evaluation criteria set forth in Section 5 of the Wastewater RFP. Based on the evaluation of the Non-Cost/Technical Proposal the proposal submitted by Aqua Alliance Inc. and the proposal submitted by U.S. Filter were each ranked "Advantageous".

#### *CSO Proposals Price Proposal Evaluation*



After conducting the evaluation of the Non-Cost/Technical Proposal, the Evaluation Committee evaluated the Price Proposals. Each Price Proposal was evaluated to determine the life cycle cost of the capital and operating costs for each proposal, and the total cost of service to the Commission.

#### *Wastewater Proposals Price Proposal Evaluation*

After conducting the evaluation of the Non-Cost/Technical Proposal, the Evaluation Committee evaluated the Price Proposals. Each Price Proposal was evaluated to determine the life cycle cost of the capital and operating costs for each proposal, and the total cost of service to the Commission.

#### **Aqua Alliance Inc. Corporate Position**

On August 13, 1999, Vivendi completed a tender offer for the remaining shares of Aqua Alliance Inc. and took the company private. After the tender offer, Aqua Alliance Inc. became an indirect wholly owned subsidiary of Vivendi. As of September 1, 1999 the management of Aqua Alliance Inc.'s operations had been integrated with that of U.S. Filter Operating Services, a subsidiary of U.S. Filter.

#### **Preliminary Determined Most Advantageous Proposal**

##### *CSO Proposals*

In accordance with Section 4 of the Special Legislation, on December 6, 1999, the proposal submitted by U.S. Filter was preliminarily determined to be the most advantageous proposal by the Chief Procurement Officer.

##### *Wastewater Proposals*

In accordance with Section 4 of the Special Legislation, on September 9, 1999, the proposal submitted by Aqua Alliance Inc. was preliminarily determined to be the most advantageous proposal by the Chief Procurement Officer.

#### **Contract Negotiations**

##### *CSO Design/Build Contract*

After the proposal submitted by U.S. Filter was preliminarily determined to be the most advantageous proposal, the Commission commenced negotiations with the U.S. Filter negotiating team. Thorough negotiations were undertaken which took in excess of five months, and consisted of multiple negotiation sessions with redrafting of the CSO Contract being the product of such sessions.

## *Wastewater Service Contract*

After the proposal submitted by Aqua Alliance Inc. was preliminarily determined to be the most advantageous proposal, the Commission commenced negotiations with the Aqua Alliance Inc. negotiating team. Thorough negotiations were undertaken which took in excess of five months, and consisted of multiple negotiation sessions with redrafting of the Wastewater Service Contract being the product of such sessions.

The Aqua Alliance Inc. negotiating team consisted of those Aqua Alliance Inc. employees and Metcalf & Eddy employees that had prepared the Aqua Alliance Inc. proposal and participated in the post-submission clarification process. From the beginning of negotiations, it was made very clear by the Commission that, notwithstanding the acquisition of U.S. Filter Corporation by Vivendi, the Commission would only negotiate the terms of the Aqua Alliance Inc. proposal with the Aqua Alliance Inc. negotiating team. The Aqua Alliance Inc. negotiating team stated that it was selected on its proposal and it would be only negotiating its proposal. This position was further supported in an October 21, 1999 letter sent to the Commission wherein it was stated by a representative of Aqua Alliance Inc. that "[r]epresentatives from both Vivendi North America and Aqua Alliance Inc. have asked me to assure you that we all view honoring our contractual commitments to Lynn not only as a legal obligation, but also as an essential part of any organizational restructuring".

## **DEP Approval**

The Massachusetts Department of Environmental Protection, in accordance with its applicable regulations, reviewed and approved the Wastewater Service Contract. Such approval was granted on May 3, 2000.

## **Determination of Most Advantageous Proposal**

### *CSO Proposal*

The Commission's Chief Procurement Officer on August 31, 2000 determined, after extensive negotiations, that the proposal submitted by U.S. Filter was the most advantageous proposal.

### *Wastewater Proposal*

The Commission's Chief Procurement Officer on September 7, 2000 determined, after extensive negotiations, that the proposal submitted by Aqua Alliance Inc. was the most advantageous proposal.

## **Award of Service Contracts**

### *CSO Design/Build Contract*

The CSO Design/Build Contract was awarded to U.S. Filter on September 11, 2000, and was executed as of October 4, 2000.

*Wastewater Service Contract*

The Wastewater Service Contract was awarded to Aqua Alliance Inc. on March 23, 2001, and was executed as of such date.

## **EXHIBITS**

- A Section 4.4.3 of the CSO RFP**
- B CSO Statements of non-collusion**
- C CSO and Wastewater pre-proposal conference attendance sheet and meeting transcript**
- D U.S. Filter's overall sewer separation design concept**
- E U.S. Filter's cost proposal to assume full risk to eliminate sanitary sewer connections to the storm water system within the project area and to separate totally the combined sewer system within the project area**
- F Appendix 10 of the Wastewater Service Contract - "Outfall Acceptance Tests and Performance Test Procedures" and the definition of "Design/Build Work"**
- G Cost comparison analysis**
- H Bid tab information taken from the Roxbury/Jamaica Plain and Chelsea projects**
- I Wastewater Statements of non-collusion**
- J Subsection 16.2(F) of the Wastewater Service Contract - "Uncontrollable Circumstances Costs Stabilization Fund"**
- K Appendix 2 of the Wastewater Service Contract - "Performance Guarantees"**
- L IRS Revenue Procedure 97-13**
- M Section 14.15 of the Wastewater Service Contract - "Material Change in Flows and Loadings"**
- N Special Act**

**To:** Bill Di Tullio, (BOS) **Date:** October 26, 2001  
**Copy:** Steve Thayer, (BOS)  
**From:** Michael J. Lukas, (BOS)  
**Re:** Response to Findings 7 & 8, Inspector General Report  
LWSC CSO Abatement Project

The following are comments and observations on Findings 7 & 8 of the Office of Inspector General (the Office) Report on the CSO Abatement Project.

***Finding 7. An analysis prepared by Malcolm Pirnie to show that the USFilter design-build price for the CSO project was lower than competitively bid construction prices was based on an invalid and misleading cost comparison.***

The Office is referencing the letter sent to Stephen Smith, dated August 31, 2000, subject regarding Cost Comparisons of the East Lynn CSO Abatement Projects. The information was created as requested by the LWSC.

When evaluating bids received for the construction of CSO sewer separation projects, it is generally accepted practice to compare the proposed construction cost on a per linear foot and per acre basis. The August 31, 2000 letter, referred to in Finding 7, compared the per linear foot and per acre unit costs of the Commission's previous sewer separation projects (SS-1 through SS-6) to the per linear foot and per acre unit costs derived from USFilter's price proposal. Although the linear foot comparison represents a comparison of dissimilar sewer separation approaches, the per acre comparison is not dependent upon how the separation is accomplished. In either case, it was determined that USFilter's unit prices (average \$/lin. ft. and average \$/acre) were significantly less than the unit costs computed for SS-1 through SS-6. The Office focused only on the cost comparison of the price of pipe installed per linear foot, namely \$513 for the six LWSC pipeline projects (SS1 through SS6) versus \$381 for the USFilter proposed pipe installation. It is acknowledged that the cost per linear foot is not a comparison of similar work and for that reason the per acre cost comparison was made. The per linear foot analysis was established to supplement the cost per acre comparison shown in bold at the bottom of the East Lynn Construction Cost Comparison table that was included with Mr. Smith's letter.

It is more pertinent to note that LWSC has spent an average of \$60,874 per acre to perform sewer separation under Contracts SS1 through SS6. By comparison, the estimated cost per acre for sewer separation under USFilter's proposal is \$36,149. USFilter's approach achieves the same objective at approximately 41% less cost per acre of service area. It should also be noted that a similar East Lynn Construction Cost

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Comparison was performed (and submitted to the Office) for the Modern Continental sewer separation proposal. That cost comparison revealed a slight cost savings in pipe installed (1%), as well as in acres separated (2%). Ultimately, both cost comparisons showed that the design/build proposals offer a saving to LWSC. The Commission would experience the \$24,725/acre (\$60,874/acre versus \$36,149/acre) savings even taking into account the facts that (1) the Design/Build project is being constructed in heavily congested residential and commercial areas with hilly terrain, busy neighborhoods and in areas requiring significant rock excavation and blasting, and (2) the selected Design/Build firm (rather than the Commission) accepts the liability for successfully completing the project and eliminating combined sewer overflows.

It should also be pointed out that the Commission had several options for controlling the CSO's in East Lynn. The first option was the construction of a consolidation tunnel and storage/treatment facility in conjunction with sewer separation. This was the recommended plan developed under the Facility Plan. The cost (in 1990 dollars) was estimated to range from \$68 million to \$88.5 M. (It should be noted that this is equivalent to a range of about \$89 to \$116 million in year 2000 costs, considering the increase in the ENR construction cost index that took place during that decade). This first option would also allow four CSO events per year. The second option was continuing with the traditional design/bid/build method of sewer separation as discussed in the cost comparison report. Again, the estimated cost to continue with the traditional sewer separation approach was \$60, 874 per acre. The third option was the USFilter design/build proposal that offers a lower cost to the Commission, eliminates all CSO events, meets all requirements of the Clean Water Act, eliminates the ongoing costs of operative, and maintaining pumping and treatment equipment, and results in a lesser risk posture for the Commission.

***Finding 8. The Office's cost estimate indicates that USFilter's \$47 million design-build price is approximately \$22 million higher than the cost of similar work performed under competitively bid contracts.***

Malcolm Pirnie offers the following responses to Finding 8:

- Malcolm Pirnie was unable to duplicate the unit costs established by the Office in Table 7. However, it appears that the Office may have taken the lowest bid price from six LWSC conventional design/bid/build sewer separation projects (SS1 through SS6) and applied the Engineering News Record (ENR) Construction Cost Index to project the price to present day costs. As an example of the different cost estimating approaches, Malcolm Pirnie's most probable unit cost for 8" pipe (sewer PVC) resulted in \$51.00 per linear foot using the same SS1-SS6 data. By contrast, the Office derived a unit price of \$38.20 for this item.
- In performing an engineer's most probable cost estimate using actual bid tabulations, the three lowest bid unit prices are typically utilized. When reviewing the unit bid

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prices to establish an estimated cost, unbalanced unit prices must be discarded. For example, if the contractor lists gravel at the unreasonably low price of \$0.01 per cubic yard, those prices are discarded and the other reasonable unit prices are used.

- In reviewing the bid tabulations for SS1 through SS6, one can readily conclude that some contractors under bid the unit prices for certain items, (i.e. small diameter sewer pipe, gravel sub base, etc.). It is a common practice for general contractors to unbalance their bids in regards to where they allocate costs for profit and overhead. The Office's estimate apparently did not recognize instances of unbalancing in the SS1 through SS6 bid prices.
- Another reason for low bid prices for individual items is the conditions and the speed at which certain items can be installed. For example, in contracts SS1 through SS6, the small diameter sewer pipe was being installed in conjunction with the installation of large diameter drain pipe. In reviewing the project, the contractors projected that some of the sewer pipe could be installed more economically by using the same trench already excavated for the drain pipe, or that the roadway was so torn up that the installation of the sewer pipe could be performed easily and at lesser cost.
- Some of the unit prices listed by the Office in Table 7 can be experienced in today's market, but are generally not applicable to the USFilter project in East Lynn. The unit prices used by the Office are more representative of larger sewer projects in rural areas where the contractors have open spaces to move equipment and stockpile material. One would also expect higher production in the installation of new sewer pipeline when there are shallow excavations and minimal utilities for the contractor to contend with. Such comparatively lower prices were experienced in the bids for the Sewerage Works Improvements Project, Foster Pond Area, Andover, Massachusetts, earlier this year.
- Malcolm Pirnie used an engineer's most probable cost estimating approach to establish unit prices for the items in Table 7 by utilizing bid prices from two projects that are similar in condition to the East Lynn CSO Abatement Project. Both projects were bid earlier this year and are located in Roxbury/Jamaica Plain and in Chelsea. Both projects had sewer and drain pipeline installations in heavily urbanized areas with ledge, obstacles such as buried railroad tracks, and congested residential and commercial streets. Malcolm Pirnie found that some unit prices were higher, some approximately equal, and some a little less than those listed by the Office in Table 7. However, the net result of the engineer's most probable cost estimate was \$36.3 million, substantially more than that established by the Office, but quite comparable to the \$38.8 million proposed by USFilter.
- Malcolm Pirnie concluded that the cost for the items listed in Table 7 could be as low as \$20 million, but only if the project was constructed in a rural setting with little congestion, low traffic volume, little rock or ledge, and few utility conflicts. For situations more representative of East Lynn, such as Chelsea, Roxbury and Jamaica Plain however, \$36.3 million is a realistic mid-range estimate for costs which might be proposed by contractors. It should be noted that we have made no attempt to increase the \$36.3 million estimate to include the cost of other services for which the

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design/build general contractor is responsible, such as the liability of the contractor to eliminate all CSO's at the designated outfalls. Although no detailed attempt has been made to estimate the high end of the range of this scope of work, it is our opinion the cost might be as high as \$50 million if it were located in very congested traffic and utility areas such downtown Boston.

- Regardless of any assumptions, or comparisons with other projects, or interpretations of data, or other methodologies for cost estimating (all as summarized in the preceding bullets), the overriding fact remains that the primary sewer separation objective of the design/build project has been achieved at a significantly lesser cost per acre than was experienced on contracts SS-1 through SS-6. Finally, liability to satisfy the Clean Water Act, CSO policy and requirements of the Commission's Second Modified Consent Order belong to the Design/Build Firm where the risk would have resided with the Commission if it had not utilized design/build procurement.



# MALCOLM PIRNIE

SS1 = 1990  
SS2 = 1991  
SS3 = 1992  
SS4 = 1995  
SS5 = 1996  
SS6 = 1996

MALCOLM PIRNIE, INC.

BY.....MJK..... DATE 07/16/01 SHEET NO..... OF.....

CHKD. BY..... DATE..... JOB NO. 3486002-CSO

SUBJECT 8" P.I.C. SEWER PIPE

ENGINEER'S MOST PROBABLE COST

8" PIPE

SS1 = \$49.67

SS2 = NONE

SS3 = \$34.00

SS4 = \$35.00

SS5 = \$45.00

SS6 = \$55.00

ENR ADG

1.26 = \$62.58

1.22 = \$41.48

1.14 = \$39.90

1.12 = \$50.40

1.12 \$61.60

AVG. \$51.19

SPR/ \$51.00/LF

PRICE COST INDEX USING ENR →

SS1 - 1990 TO JULY 2001

1990 ANNUAL AVG = 4732 > 26%  
7/01 = 6404

SS2 - 1991 TO JULY 2001

1991 ANNUAL AVG = 4835 > 24%  
7/01 = 6404

SS3 - 1992 TO JULY 2001

1992 ANNUAL AVG = 4985 > 22%  
07/01 = 6404

SS4 - 1995 TO JULY 2001

1995 ANNUAL AVG = 5471 > 14%  
07/01 = 6404

SS5 - 1996 TO JULY 2001

\$ 1996 ANNUAL AVG = 5620 > 12%  
SS6 - 07/01 = 6404

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## ► Construction Cost Index History (1908-2001)

**HOW ENR BUILDS THE INDEX:** 200 hours of common labor at the 20-city average of con rates, plus 25 cwt of standard structural steel shapes at the mill price prior to 1996 and the fabri price from 1996, plus 1.128 tons of portland cement at the 20-city price, plus 1,088 board-ft of the 20-city price.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVG
1977	2494	2505	2513	2514	2515	2541	2579	2611	2644	2675	2659	2660	2576
1978	2672	2681	2693	2698	2733	2753	2821	2829	2851	2851	2861	2869	2776
1979	2872	2877	2886	2886	2889	2984	3052	3071	3120	3122	3131	3140	3003
1980	3132	3134	3159	3143	3139	3198	3260	3304	3319	3327	3355	3376	3237
1981	3372	3373	3384	3450	3471	3496	3548	3616	3657	3660	3697	3695	3535
1982	3704	3728	3721	3731	3734	3815	3899	3899	3902	3901	3917	3950	3825
1983	3960	4001	4006	4001	4003	4073	4108	4132	4142	4127	4133	4110	4066
1984	4109	4113	4118	4132	4142	4161	4166	4169	4176	4161	4158	4144	4146
1985	4145	4153	4151	4150	4171	4201	4220	4230	4229	4228	4231	4228	4195
1986	4218	4230	4231	4242	4275	4303	4332	4334	4335	4344	4342	4351	4295

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL AVG
1987	4354	4352	4359	4363	4369	4387	4404	4443	4456	4459	4453	4478	4406
1988	4470	4473	4484	4489	4493	4525	4532	4542	4535	4555	4567	4568	4519
1989	4580	4573	4574	4577	4578	4599	4608	4618	4658	4658	4668	4685	4615
1990	4680	4685	4691	4693	4707	4732	4734	4752	4774	4771	4787	4777	4732
1991	4777	4773	4772	4766	4801	4818	4854	4892	4891	4892	4896	4889	4835
1992	4888	4884	4927	4946	4965	4973	4992	5032	5042	5052	5058	5059	4985
1993	5071	5070	5106	5167	5262	5260	5252	5230	5255	5264	5278	5310	5210
1994	5336	5371	5381	5405	5405	5408	5409	5424	5437	5437	5439	5439	5408
1995	5443	5444	5435	5432	5433	5432	5484	5506	5491	5511	5519	5524	5471
1996	5523	5532	5537	5550	5572	5597	5617	5652	5683	5719	5740	5744	5620
1997	5765	5769	5759	5799	5837	5860	5863	5854	5851	5848	5838	5858	5825
1998	5852	5874	5875	5883	5881	5895	5921	5929	5963	5986	5995	5991	5920
1999	6000	5992	5986	6008	6006	6039	6076	6091	6128	6134	6127	6127	6060
2000	6130	6160	6202	6201	6233	6238	6225	6233	6224	6259	6266	6283	6222
2001	6281	6273	6280	6286	6288	6319	6404						

Base: 1913=100. Indexes revised for March, April and May 2000

#### ANNUAL AVERAGE

1908	97	1931	181	1954	628
1909	91	1932	157	1955	660
1910	96	1933	170	1956	692
1911	93	1934	198	1957	724
1912	91	1935	196	1958	759
1913	100	1936	206	1959	797

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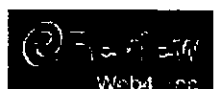
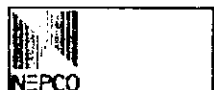
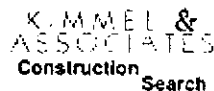
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1927	206	1950	510	1973	1895
1928	207	1951	543	1974	2020
1929	207	1952	569	1975	2212
1930	203	1953	600	1976	2401

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Abatement System or the Infrastructure Rehabilitation Project Design/Build Work which is included in any particular Construction Phase, including , but not limited to, fines and penalties related thereto) shall be limited in amount to the amount of the Construction Phase performance Bond which guarantees performance of such Design/Build Work.

In addition to restricting express warranties, the U.S. Filter contract included a broad disclaimer of implied warranties:

There are no warranties which extend beyond those expressed in this Design/Build Contract. The Company disclaims, and the Commission waives, any implied warranties or warranties imposed by law, including warranties of merchantability, fitness for a particular purpose, custom and usage, as to any of the Design/Build Work.

Finally, a broad waiver provision protects U.S. Filter from incidental, consequential or punitive damages, even if the Commission can prove that the damages resulted from material, false representations made by the company:

In no event shall either party be liable to the other or obligated in any manner to pay to the other any special, incidental, consequential, punitive or similar damages based upon claims arising out of or in connection with the performance or non-performance of its obligations under this Design/Build Contract, or the material falseness or inaccuracy of any representation made in this Design/Build Contract, whether such claims are based upon contract, tort, negligence, warranty or other legal theory.

Thus, far from providing the Commission a broad guarantee for U.S. Filter's approach, the contract limits U.S. Filter's liability for defective work and for false representations.

**Finding 7. An analysis prepared by Malcolm Pirnie to show that the U.S. Filter design-build price for the CSO project was lower than competitively bid construction prices was based on an invalid and misleading cost comparison.**

As discussed earlier in this report, the Commission awarded contracts for eight sewer separation projects undertaken from 1991 through 2001, referred to as SS-1 through SS-8. For these projects, the Commission completed field investigations, prepared plans and specifications, and solicited bids from construction contractors. This method

of contract procurement produced an average of seven competitive bids for each of the eight contracts.

As contract negotiations proceeded with U.S. Filter for the East Lynn CSO Project, Malcolm Pimie prepared an analysis for the Commission dated August 31, 2000, entitled "Cost Comparisons of the East Lynn CSO Abatement Projects." Malcolm Pimie's comparison showed that projects SS-1 through SS-6 had a higher average cost per linear foot of pipe than the U.S. Filter proposal, as illustrated in Table 5.

**Table 5.**

**Malcolm Pimie's Comparison of CSO Project Costs**

<b>Project</b>	<b>Total Project Costs</b>	<b>Pipe Length (linear feet)</b>	<b>Cost Per Linear Foot</b>
SS-1 through SS-6 (modified)	\$16,040,946	31,296	\$513
U.S. Filter proposal	\$48,078,143	126,156	\$381

(Source: "Cost Comparisons of the East Lynn CSO Abatement Projects" by Malcolm Pimie, August 31, 2000.)

In its analysis, Malcolm Pimie compared the \$381 per linear foot cost for the U.S. Filter proposal with the \$513 per linear foot cost of projects SS-1 through SS-6 and concluded that the design-build approach used for the East Lynn CSO Project had produced cost savings.

This analysis compared the cost of the U.S. Filter proposal with the cost of similar work carried out under the first six conventional sewer separation contracts, SS-1 through SS-6, based on the cost per linear foot of pipe installed. However, the work was not similar. Malcolm Pimie's cost comparison did not adjust costs for the fundamental difference between the work performed under contracts SS-1 through SS-6 and the work proposed by U.S. Filter. As noted in Finding 3, the Commission's approach to sewer separation under SS-1 through SS-6 involved installing a large diameter, stormwater system to increase the capacity to handle flows during heavy rainstorms. The new stormwater system consisted primarily of 30-inch diameter and larger drain

pipe, and included sections of 60-inch and 84-inch diameter pipe, as well as seven-foot by eight-foot box culverts. U.S. Filter proposed the riskier but less expensive approach of constructing a small diameter, sanitary-only sewer system for the East Lynn CSO Project. More than 90 percent of U.S. Filter's proposed piping was smaller than 30-inch diameter pipe, and more than half consisted of 10-inch or smaller plastic pipe. The largest piping in the U.S. Filter proposal was 42-inch diameter pipe.

Despite the fundamental difference in the type of construction work, Malcolm Pimie compared the cost of construction for SS-1 through SS-6 with the East Lynn CSO Project based on the average cost per linear foot of pipe, without regard to diameter. For example, Malcolm Pimie compared 2,600 linear feet of 84-inch diameter reinforced concrete pipe installed at 12- to 24-foot depths in SS-1 through SS-6, with 2,600 linear feet of 8-inch diameter plastic pipe in the U.S. Filter proposal.

Figure 2 below illustrates the difference between the type of construction work involved in SS-1 through SS-6 and the work proposed by U.S. Filter for the East Lynn CSO Project. In Figure 2, pipe footage used under each of the two approaches is categorized as either large (30-inch or larger diameter) or small (smaller than 30-inch diameter).

*Please note that they do not address the cost per acre for sewer separation.*

*Cost per inch-foot*

Filter proposal broke the \$48 million price into the following three major categories as shown in Table 6.

**Table 6.**

**Major Categories of U.S. Filter's Proposed Design-Build Work**

Project development costs (including field investigations)	\$7,716,080
Total sewer separation	38,835,298
Acceptance testing, performance bonds, and other costs	1,526,765
<b>Total</b>	<b>\$48,078,143</b>

(Source: U.S. Filter CSO price proposal, Form 1B.)

In October 1999, U.S. Filter increased its proposed \$38,835,298 price for total sewer separation by \$8.4 million, bringing the total to \$47,235,298.

Although the construction costs were not itemized in U.S. Filter's proposal, it is possible to develop an estimate, as Malcolm Pirnie did in its August 31, 2000 cost comparison, of the total amount of piping U.S. Filter has proposed to install. It is also possible to develop an approximation of the amount of other construction work included in the design-build price, including manholes, service connections, and paving. Using the average price obtained by the Commission for similar work under projects SS-1 through SS-6, adjusted using the CCI to 2000 prices, the Office developed a cost estimate of approximately \$19 million for the construction work proposed by U.S. Filter, as shown in Table 7 below:

Table 7.

## OIG's Cost Estimate of Construction Work Proposed by U.S. Filter

Item	Quantity	Unit	Unit Cost	Total	
8-inch Pipe	42,581	Linear Foot	<del>\$33</del> \$38.20	\$ 1,626,594.20	3,619,385
10-inch Pipe	17,185	Linear Foot	<del>\$96</del> 39.00	670,215.00	1,649,76
12-inch Pipe	29,210	Linear Foot	<del>\$99</del> 39.49	1,153,502.90	2,391,7
15-inch Pipe	13,590	Linear Foot	<del>\$116</del> 47.48	645,253.20	1,576,44
18-inch Pipe	5,960	Linear Foot	<del>\$117</del> 47.48	282,980.80	697,32
24-inch Pipe	7,025	Linear Foot	<del>\$130</del> 90.44	635,341.00	913,25
30-inch Pipe	6,275	Linear Foot	<del>\$140</del> 96.21	603,717.75	1,506,00
36-inch Pipe	2,700	Linear Foot	<del>\$140</del> 136.60	368,820.00	648,00
42-inch Pipe	1,630	Linear Foot	<del>\$300</del> 155.57	253,579.10	489,000
<b>Pipe Sub-total</b>				<b>\$ 6,240,003.95</b>	<b>13,990,94</b>
Manholes	625		<del>2245</del> 2,000.00	1,250,000.00	1,403,125
Catch Basins	200		<del>2750</del> 2,000.00	400,000.00	550,000
Service Connections	3,100		<del>640</del> 750.00	2,325,000.00	1,984,0
Pave Initial Trench	85,000	Square Yard	<del>10</del> 17.00	1,275,000.00	850,00
Final Pavement	725,000	Square Yard	<del>9.50</del> 4.00	3,000,000.00	6,887,50
Gravel Base Coarse	775,000	Cubic Yard	<del>8.00</del> .01	7,750.00	6,200,00
Dewatering		Lump Sum	775,000.00	775,000.00	17,874,62
Other/Contingency (20%)		Lump Sum	3,068,550.79	3,068,550.79	3,574,92
Mobilization (5%)		Lump Sum	767,137.70	767,137.70	393,730
<b>Non-pipe Sub-total</b>				<b>\$12,938,438.49</b>	<b>22,343,22</b>
<b>Total</b>				<b>\$19,178,442.44</b>	<b>36,334,22</b>

(Source: OIG analysis of SS-1 – SS-6 contract prices adjusted by the CCI to June 2000 prices; the October 2000 "Preliminary Design Report Lower 006-1 Area" the March 2001 "DRAFT Preliminary Design Report Service Area 006," prepared by the U.S. Filter design consultant, and Malcolm Pirnie documents related to "Cost Comparisons of the East Lynn CSO Abatement Projects." Note 1: The unit prices for 10" pipe and 15" pipe are estimated. Note 2: All quantities are estimates.)

In addition to the approximately \$19 million in construction work, U.S. Filter will provide design services for sewer separation. Design services for a standard public works project such as this should cost no more than 30 percent of the construction cost, or about \$5.7 million, bringing the estimated design and construction cost to just under \$25 million. U.S. Filter initially proposed a design-build sewer separation price, not including



costs for field investigations and other work, of \$38.8 million. U.S. Filter subsequently increased its design-build price by \$8.4 million, bringing the total to approximately \$47 million. The Office's preliminary cost estimate suggests that U.S. Filter's design-build price is approximately \$22 million higher than the cost of similar work the Commission procured through competitive bidding.

**Finding 9. Claims made by the Chairman of the Commission and the Mayor that the U.S. Filter contract would save the Commission more than \$400 million were not supported by the cost estimates and analyses prepared by the Commission's consultants.**

The Commission held a public hearing on September 11, 2000 to provide an opportunity for public comment on the proposed CSO contract. Records show that representatives from HDW, Malcolm Pimie, and U.S. Filter were all present at the hearing. A transcript of the hearing shows that the Commission Chairman described the proposed contract with U.S. Filter in general terms, and alluded to the \$48 million design-build price of the U.S. Filter proposal as the cost of the project. In the Chairman's words:

That \$48 million dollar cost is the cost of constructing this project.

The Chairman then compared the \$48 million project cost with the cost for building the tunnel/pumpback plan CDM had recommended in 1990, claiming that the tunnel/pumpback plan would have cost \$450 million:

The numbers we're looking at are in the vicinity of \$450 million dollars for the full price of the tunnel pump back system that we presently have in our consent decree.

After the Chairman described the proposed contract, the Mayor spoke, urging the Commissioners to vote for the contract. The Mayor repeated the Chairman's assertion that the cost for the tunnel/pumpback plan recommended by CDM would cost the Commission \$400 million more than the proposed U.S. Filter contract:

I'm the Mayor of the city, and I want to make this simple for you. Anybody who votes against this ought to be run out of town on a rake. . . . If we don't adopt this approach, if we go back to what we had scheduled under

8" PIPE MWRA \$75/FT  
BWSC CH/SEA \$95/FT AVG = 85/LF

10" PIPE MWRA \$95/FT  
BWSC \$97/FT AVG = 96/LF

12" PIPE MWRA DRAIN ONLY  
BWSC \$99/FT

15" PIPE MWRA DRAIN ONLY  
BWSC \$116/LF

18" MWRA 105/LF  
BWSC \$129/LF \$117/LF

24" PIPE = MWRA \$150  
BWSC \$110 > \$130/LF

30" PIPE MWRA 250  
BWSC 230 > \$240/LF

36" PIPE MWRA NONE  
BWSC \$240 LF

42" MWRA NONE  
BWSC 300/LF

MANHOLES → MWRA \$2290/EA  
BWSC

↳ BASE \$800

WALLS - \$100/LF @ 10' = \$1000

F&C - \$400

EST. 2245 EA.

\$2200 EA.

CATCH BASIN MWRA \$2000  
BWSC \$3500 > \$2750 EA

SERVICE CONNECTION

MWHP. \$31/LF EST 25' = \$775

↳

BWSC \$500/EA.

↳ \$240/EA.

TEMP. PAVING - MWHP \$9 SY > \$9.50 SY → SALT \$10.00  
BOX 1 \$10 SY

PERMANENT PAVING - MWHP \$18 SY > \$19 SY  
BWSC. \$20 SY ↳ HUGE QUANTITY REDUCE PRICE  
↳ 2900 SY \$1500 SY TOTAL \$9.50/SY

GRAVEL BASE COURSE

SS1 = \$7.25

SS2 = 5.00

SS3 = 0.01

SS4 = 8.25

SS5 = 9.00

SS6 = 10.00

\$7.90 NO INFL → LEAVE @ 8.00

**BID FORM**  
**BOSTON WATER & SEWER COMMISSION**  
**ROXBURY & JAMAICA PLAIN**  
**CONTRACT NO.99-309-017**  
**STORM DRAINS, SEWERS, WATER MAINS**

Date:1/24/0 A.M.  
Days:700  
L.D.:\$1500/Day  
MBE/WBE:8.25%/2.09%  
Est.\$11,500,000.00

ITEM NO.	DESCRIPTION	UNIT	DESC.	ELIGIBLE		INELIGIBLE		TOTAL QTY.	TOTAL PRICE
				UNIT PRICE	TOTAL PRICE	UNIT PRICE	TOTAL PRICE		
A1-1	Trench Excavation	900	CY	30.00	27,000.00	100	30.00	1,000	30,000.00
A1-2	Below Grade	700	CY	25.00	17,500.00	100	25.00	800	20,000.00
A1-3	Rock	2,400	CY	40.00	96,000.00	200	40.00	2,800	104,000.00
A1-4	Rails & Wood Ties	1,150	LF	12.00	13,800.00	0	12.00	1,150	13,800.00
A2-1	Gravel	34,200	CY	0.01	342.00	1,800	0.01	36,000	360.00
A3-1	Screened Gravel	6,550	CY	0.01	65.50	250	0.01	6,800	68.00
A5-1	Concrete Sand	4,530	CY	0.01	45.30	240	0.01	4,770	47.70
A7-1	Sheathing LIP	60,470	SF	0.01	604.70	0	0.01	60,470	604.70
A7-2	Trench Support	1	LS	110,000.00	110,000.00	0	0.00	1	110,000.00
A10-1	CDF Flowable Fill	20	CY	60.00	1,200.00	0	60.00	20	1,200.00
A10-2	CDF Very Flowable Fill	100	CY	60.00	6,000.00	0	60.00	100	6,000.00
B1-1	Temp. Paving	22,150	SY	10.00	221,500.00	4,700	10.00	26,850	268,500.00
B1-2	Perm. Paving-Boston	1,500	SY	20.00	30,000.00	0	20.00	1,500	30,000.00
B1-5	Overlay Paving	5,800	SY	4.00	23,200.00	0	4.00	5,800	23,200.00
B1-8	Remove/Reset Curbing	2,500	LF	16.00	40,000.00	360	16.00	2,860	45,760.00
C1-04	4" DI Water	100	LF	60.00	6,000.00	0	60.00	100	6,000.00
C1-08	8" DI Water	260	LF	62.00	16,120.00	400	62.00	660	40,920.00
C1-08	8" DI Water	2,550	LF	70.00	178,500.00	5,900	70.00	8,450	591,500.00
C1-12	12" DI Water	2,840	LF	76.00	215,840.00	2,440	76.00	5,280	401,280.00
C1-16	16" DI Water	30	LF	100.00	3,000.00	20	100.00	50	5,000.00
C1-09	Fittings	10,000	LBS	0.01	100.00	12,000	0.01	22,000	220.00
C2-04	4" Gate Valve	4	EA	600.00	2,400.00	0	600.00	4	2,400.00
C2-08	6" Gate Valve	20	EA	800.00	16,000.00	40	800.00	60	48,000.00
C2-08	8" Gate Valve	10	EA	1,000.00	10,000.00	30	1,000.00	40	40,000.00
C2-12	12" Gate Valve	6	EA	1,250.00	7,500.00	16	1,250.00	22	27,500.00
C2-16	16" Gate Valve	0	EA	4,000.00	0.00	1	4,000.00	1	4,000.00
C3-1	Set/Reset Hydrants	20	EA	500.00	10,000.00	36	500.00	56	28,000.00
C4-1	3/4" Corp.	120	EA	130.00	15,600.00	200	130.00	320	41,600.00
C4-2	1" Corp.	5	EA	140.00	700.00	5	140.00	10	1,400.00
C4-3	1 1/2" Corp.	1	EA	250.00	250.00	0	250.00	1	250.00
C4-4	1 1/2"x2" Corp.	3	EA	280.00	840.00	2	280.00	5	1,400.00
C4-5	3/4" Copper	900	LF	30.00	27,000.00	300	30.00	1,200	36,000.00
C4-6	1" Copper	80	LF	32.00	2,560.00	60	32.00	140	4,480.00
C4-7	1 1/2" Copper	30	LF	33.00	990.00	0	33.00	30	990.00
C4-8	2" Copper	140	LF	34.00	4,760.00	40	34.00	180	6,120.00
C5-1	Set Pitometer Tap	0	EA	1,000.00	0.00	1	1,000.00	1	1,000.00
C8-1	Temporary By-Pass	30%	LS	115,000.00	34,500.00	70%	115,000.00	1	115,000.00
C9-1	Raise W.G.	8	EA	100.00	800.00	7	100.00	13	1,300.00
C10-8	Clean/Line 8" Pipe	0	LF	25.00	0.00	2,200	25.00	2,200	55,000.00
C10-12	Clean/Line 12" Pipe	0	LF	26.00	0.00	3,600	26.00	3,600	93,600.00
C10-16	Clean/Line 16" Pipe	0	LF	27.00	0.00	1,000	27.00	1,000	27,000.00
C10-50	Obstructions	0	EA	1,000.00	0.00	8	1,000.00	8	8,000.00
C10-100	TV Inspection	0	LF	3.00	0.00	6,800	3.00	6,800	20,400.00
C11-1	Chamber Pitometer Tap	0	EA	1,000.00	0.00	1	1,000.00	1	1,000.00
CS1-18L	Clean Sewer<18"	720	FT	8.00	5,760.00	2,890	8.00	3,410	27,280.00
CS1-18G	Clean Sewer>18"<24"	0	FT	25.00	0.00	335	25.00	335	8,375.00
CS1-24G	Clean Sewer>24"<36"	0	FT	30.00	0.00	175	30.00	175	5,250.00
CS1-36	Clean Sewer>36"	180	FT	40.00	7,200.00	0	40.00	180	7,200.00
D1-08P	8"PVC Sewer	100	LF	95.00	9,500.00	0	95.00	100	9,500.00
D1-10P	10"PVC Sewer/Drain	570	LF	97.00	55,290.00	130	97.00	700	67,900.00

JUL. 17. 2001

2:33PM

P. GIOIOSO&SONS, INC.

NO.025

P.2/26

**BID FORM**  
**BOSTON WATER & SEWER COMMISSION**  
**ROXBURY & JAMAICA PLAIN**  
**CONTRACT NO.99-309-017**  
**STORM DRAINS, SEWERS, WATER MAINS**

Date:1/24/00 A.M.  
Days:700  
L.D.:\$1500/Day  
MBE/WBE:8.25%/2.09%  
Est.\$11,500,000.00

ELIGIBLE					INELIGIBLE						
ITEM NO.	DESCRIPTION	UNIT	DESC.	UNIT PRICE	TOTAL PRICE	UNIT	DESC.	UNIT PRICE	TOTAL PRICE	TOTAL QTY.	TOTAL PRICE
D1-12P	12" PVC Sewer/Drain	11,600	LF	99.00	1,148,400.00	1,050	LF	99.00	103,950.00	12,650	1,252,350.00
D1-15P	15" PVC Sewer/Drain	4,530	LF	116.00	525,480.00	270	LF	116.00	31,320.00	4,800	556,800.00
D1-18P	18" PVC Sewer/Drain	3,100	LF	129.00	399,900.00	0	LF	129.00	0.00	3,100	399,900.00
D1-24P	24" PVC Sewer/Drain	5,360	LF	185.00	1,045,200.00	0	LF	185.00	0.00	5,360	1,045,200.00
D1-30P	30" PVC Sewer/Drain	530	LF	220.00	116,600.00	0	LF	220.00	0.00	530	116,600.00
D1-12R	12" RCP Sewer/Drain	25	LF	86.00	2,150.00	0	LF	86.00	0.00	25	2,150.00
D1-24R	24" RCP Sewer/Drain	10	LF	150.00	1,500.00	0	LF	150.00	0.00	10	1,500.00
D1-30R	30" RCP Sewer/Drain	780	LF	230.00	179,400.00	0	LF	230.00	0.00	780	179,400.00
D1-36R	36" RCP Sewer/Drain	2,350	LF	240.00	564,000.00	0	LF	240.00	0.00	2,350	564,000.00
D1-42R	42" RCP Sewer/Drain	120	LF	300.00	36,000.00	0	LF	300.00	0.00	120	36,000.00
D1-48R	48" RCP Sewer/Drain	1,700	LF	325.00	552,500.00	0	LF	325.00	0.00	1,700	552,500.00
D1-54R	54" RCP Sewer/Drain	400	LF	400.00	160,000.00	0	LF	400.00	0.00	400	160,000.00
D1-10D	10" DI CL Sewer/Drain	100	LF	90.00	9,000.00	0	LF	90.00	0.00	100	9,000.00
D1-12D	12" DI CL Sewer/Drain	340	LF	100.00	34,000.00	0	LF	100.00	0.00	340	34,000.00
D1-16D	16" DI CL Sewer/Drain	190	LF	150.00	28,500.00	0	LF	150.00	0.00	190	28,500.00
D1-18D	18" DI CL Sewer/Drain	240	LF	176.00	42,240.00	0	LF	176.00	0.00	240	42,240.00
D1-48D	48" DI CL Sewer/Drain	40	LF	825.00	33,000.00	0	LF	825.00	0.00	40	33,000.00
D1-06	Minor Drain	4,300	LF	52.00	223,600.00	0	LF	52.00	0.00	4,300	223,600.00
D1-06A	Minor Drain(DIP)	1,700	LF	65.00	110,500.00	0	LF	65.00	0.00	1,700	110,500.00
D2-01	Manhole Base	200	EA	800.00	160,000.00	12	EA	800.00	9,600.00	212	169,600.00
D2-01A	Manhole Base-6Ft	11	EA	1,000.00	11,000.00	2	EA	1,000.00	2,000.00	13	13,000.00
D201-B	Manhole Base-5Ft	29	EA	900.00	26,100.00	1	EA	900.00	900.00	30	27,000.00
D2-02	Manhole Walls	1,780	VF	100.00	176,000.00	110	VF	100.00	11,000.00	1,870	187,000.00
D2-02A	Manhole Walls-6Ft	90	VF	140.00	12,600.00	20	VF	140.00	2,800.00	110	15,400.00
D2-02B	Manhole Walls-5Ft	290	VF	125.00	36,250.00	10	VF	125.00	1,250.00	300	37,500.00
D2-03	MH Frame & Cover	263	EA	400.00	105,200.00	15	EA	400.00	6,000.00	278	111,200.00
D2-04	Catch Basin	32	EA	3,500.00	112,000.00	0	EA	3,500.00	0.00	32	112,000.00
D2-04A	CB Type 13 Modification	12	EA	300.00	3,600.00	0	EA	300.00	0.00	12	3,600.00
D2-05	CB Hood Exist.CB	200	EA	300.00	60,000.00	0	EA	300.00	0.00	200	60,000.00
D2-07	Brickwork at Structures	370	VF	110.00	40,700.00	0	VF	110.00	0.00	370	40,700.00
D2-08	Drop Inlet	2	EA	1,700.00	3,400.00	0	EA	1,700.00	0.00	2	3,400.00
D2-40	Sp. Str. 194+85 Heath St.	1	LS	75,000.00	75,000.00	0	LS	75,000.00	0.00	1	75,000.00
D2-41	Mod. Drain Str. No.1	1	LS	12,000.00	12,000.00	0	LS	12,000.00	0.00	1	12,000.00
D2-42	Mod. Drain Str. No.2	1	LS	4,000.00	4,000.00	0	LS	4,000.00	0.00	1	4,000.00
D2-43	Mod. Drain Str. 100+00	1	LS	6,000.00	6,000.00	0	LS	6,000.00	0.00	1	6,000.00
D2-44	Mod. Regulator Structures	1	LS	10,000.00	10,000.00	0	LS	10,000.00	0.00	1	10,000.00
D2-45	Special Ext. Drop@SWCI	1	LS	25,000.00	25,000.00	0	LS	25,000.00	0.00	1	25,000.00
D2-53	CB w/Grate	20	EA	350.00	7,000.00	0	EA	350.00	0.00	20	7,000.00
D3-1	Adj. Sewer/Drain Castings	10	EA	100.00	1,000.00	0	EA	100.00	0.00	10	1,000.00
D4-01	Concrete	55	CY	100.00	5,500.00	35	CY	100.00	3,500.00	90	9,000.00
D4-02	Concrete Sidewalks	2200	SF	4.00	8,800.00	40	SF	4.00	160.00	2,240	8,960.00
D6-01	MH Rehabilitation	0	EA	3,500.00	0.00	14	EA	3,500.00	49,000.00	14	49,000.00
D11-01	Repairs 0-12'	170	LF	115.00	19,550.00	80	LF	115.00	9,200.00	250	28,750.00
D16-01	Bldg. Lateral Connections	100	EA	500.00	50,000.00	0	EA	500.00	0.00	100	50,000.00
F1-02	Rec Serv. Con.(W/O Exc.)	20	EA	116.00	2,300.00	90	EA	115.00	10,350.00	110	12,650.00
F1-03	Protruding Lateral Remove	0	EA	505.00	0.00	22	EA	505.00	11,110.00	22	11,110.00
F1-10ST	Structural Lining 10"	180	LF	55.00	9,900.00	200	LF	55.00	11,000.00	380	20,900.00
F1-12ST	Structural Lining 12"	390	LF	65.00	25,350.00	2325	LF	65.00	151,125.00	2,715	176,475.00
F1-15ST	Structural Lining 15"	0	LF	90.00	0.00	165	LF	90.00	14,850.00	165	14,850.00
F1-18ST	Structural Lining 18"	150	LF	95.00	14,250.00	310	LF	95.00	29,450.00	460	43,700.00

**BID FORM**  
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**ROXBURY & JAMAICA PLAIN**  
**CONTRACT NO.99-309-017**  
**STORM DRAINS, SEWERS, WATER MAINS**

Date:1/24/01 A.M.  
Days:700  
L.D.:\$1500/Day  
MBE/WBE:8.25%/2.09%  
Est.:\$11,500,000.00

ITEM NO.	DESCRIPTION	UNIT	DESC.	ELIGIBLE		UNIT	DESC.	INELIGIBLE		TOTAL QTY.	TOTAL PRICE
				UNIT PRICE	TOTAL PRICE			UNIT PRICE	TOTAL PRICE		
F1-26ST	Structural Lining 22x28"	0	LF	135.00	0.00	175	LF	135.00	23,625.00	175	23,625.00
F1-24ST	Structural Lining 24"	0	LF	125.00	0.00	250	LF	125.00	31,250.00	250	31,250.00
F1-44ST	Structural Lining 44x33"	180	LF	225.00	40,500.00	0	LF	225.00	0.00	180	40,500.00
H1-12B	Pt. Repair Trenchless<12"	0	EA	2,400.00	0.00	12	EA	2,400.00	28,800.00	12	28,800.00
H1-18B	Pt. Repair Trenchless, 12>18"	0	EA	4,000.00	0.00	3	EA	4,000.00	12,000.00	3	12,000.00
H1-01	Handling Exist. Flows	80.00%	LS	60,000.00	48,000.00	20.00%	LS	60,000.00	12,000.00	1	60,000.00
L1-1	Landscaping	1	LS	30,000.00	30,000.00	0	LS	30,000.00	0.00	1	30,000.00
L1-3	Chain Link Fence	500	LF	20.00	10,000.00	0	LF	20.00	0.00	500	10,000.00
R1-1	Rodent Control	1	LS	10,000.00	10,000.00	0	LS	10,000.00	0.00	1	10,000.00
R3-1	Comb. Sewer Conn. Abdn.	180	EA	190.00	34,200.00	3	EA	180.00	570.00	183	34,770.00
SR-1	Sediment Disposal	16	TONS	250.00	4,000.00	20	TONS	250.00	5,000.00	36	9,000.00
TM-1	Traffic Maintenance	83.00%	LS	125,000.00	103,750.00	17.00%	LS	125,000.00	21,250.00	1	125,000.00
T1-2	3" PVC Conduit	870	LF	25.00	21,750.00	0	LF	25.00	0.00	870	21,750.00
T1-3	Traffic Signal Cable	1045	LF	24.00	25,080.00	0	LF	24.00	0.00	1,045	25,080.00
T1-4	Loop Del. Lead in Cable	605	LF	14.00	8,470.00	0	LF	14.00	0.00	605	8,470.00
T1-6	Wire Loop Roadway	1850	LF	23.00	37,950.00	0	LF	23.00	0.00	1,850	37,950.00
T1-8A	12" Reel. Tape	740	SF	1.50	1,110.00	0	SF	1.50	0.00	740	1,110.00
T1-11	4" Reel. Tape	15860	LF	0.50	7,930.00	0	LF	0.50	0.00	15,860	7,930.00
T1-11A	4" Thermo. Reel. Tape	7330	LF	0.50	3,665.00	0	LF	0.50	0.00	7,330	3,665.00
T1-20	BTD Conduit in BWSC Trench	0	LF	23.00	0.00	3300	LF	23.00	75,900.00	3,300	75,900.00
T1-21	BTD Conduit out BWSC Trench	0	LF	24.00	0.00	450	LF	24.00	10,800.00	450	10,800.00
T1-22	BTD Handhole	0	EA	900.00	0.00	30	EA	900.00	27,000.00	30	27,000.00
T1-30	BPWD in BWSC Trench	1640	LF	9.00	14,760.00	460	LF	9.00	4,140.00	2,100	18,900.00
T1-31	BPWD out BWSC Trench	80	LF	25.00	2,000.00	20	LF	25.00	500.00	100	2,500.00
T1-32	BPWD Handhole	30	EA	930.00	27,900.00	2	EA	930.00	1,860.00	32	29,760.00
T1-33	R/R Street Light Pole Base	35	EA	700.00	24,500.00	1	EA	700.00	700.00	36	25,200.00
T1-34	R/R Street BPWD Light	35	EA	2,000.00	70,000.00	1	EA	2,000.00	2,000.00	36	72,000.00
T1-35	R/R Sign Post	80	EA	150.00	12,500.00	10	EA	150.00	1,500.00	100	15,000.00
TG-1	Tide Gate	1	LS	10,000.00	10,000.00	0	LS	10,000.00	0.00	1	10,000.00
TV1-18L	TV Sewer/Drain<18"	720	FT	3.00	2,160.00	3000	FT	3.00	9,000.00	3,720	11,160.00
TV1-36	TV Sewer/Drain 18<36"	0	FT	3.00	0.00	200	FT	3.00	600.00	200	600.00
TV1-36G	TV Sewer/Drain>36"	180	FT	3.00	540.00	0	FT	3.00	0.00	180	540.00
WM-1	Exc. Mat.-Unlined Landfill	13000	TON	26.00	338,000.00	0	TON	26.00	0.00	13,000	338,000.00
WM-2	Exc. Mat.-Lined Landfill	10	TON	45.00	450.00	0	TON	45.00	0.00	10	450.00
WM-3	Exc. Mat.-Asphalt Batch	800	TON	50.00	25,000.00	0	TON	50.00	0.00	500	25,000.00
WM-4	Exc. Mat.-RCRA Out Site	600	TON	210.00	126,000.00	0	TON	210.00	0.00	600	126,000.00
WM-5	Exc. Mat.-Special Waste	10	TON	100.00	1,000.00	0	TON	100.00	0.00	10	1,000.00
WM-6	Disposal Contamin. GW	500	GAL	5.00	2,500.00	0	GAL	5.00	0.00	500	2,500.00
WM-7	Treat. Contamin. GW	25	DAY	1,250.00	31,250.00	0	DAY	1,250.00	0.00	25	31,250.00

**TOTALS= 8,528,602.50**

**1,897,197.90**

**10,425,800.40**

**Total Eligible/Ineligible=**

**10,425,800.40**

ALBANESE Bros 3,944,430

ATTACHMENT A

A.3.1

① ZEMOVE 3,348,406.50 out

④ FIORE 3,773,990

R. ZOPPO Corp 3,884,075

③ MODERN 3,757,440

Name of Bidder:

P. GIOIOSO & Sons, INC.

L MAC 4,224,400

② PGS. 3,524,385

MASSACHUSETTS WATER RESOURCES AUTHORITY

BID FORM

This bid must be accompanied by a bid deposit in the form of cash, or a bid bond, or a certified check, treasurer's check or cashier's check, payable to the Massachusetts Water Resources Authority (hereinafter referred to as the "Authority") in the amount of 5% of the value of the bid. The bid deposit shall be sealed in a separate envelope from this bid and then attached to the envelope containing this bid. No other form of bid security will be accepted.

By submitting this bid the undersigned represents to the Authority that it has examined and understands the Contract Documents and has examined the site, as defined therein, and that this bid is made with distinct reference and relation to all said Contract Documents and to the site; but the undersigned declares that in regard to the conditions affecting the work to be done and the labor and materials needed, this bid is based solely on its own investigation and research and not in reliance upon any drawings, surveys, measurements, dimensions, calculations, estimates, borings, pile tests or other tests or representations of any employee, officer, agent or consultant of the Authority. By submitting this bid, the undersigned agrees that it shall be subject to the jurisdiction of the courts of the Commonwealth of Massachusetts with respect to any actions arising out of or related to this bid or any contract that may be entered into based upon this bid, and that any such actions commenced by the undersigned shall be commenced in the courts of the Commonwealth of Massachusetts.

A bidder wishing to amend this bid after transmittal to the Authority may do so only by withdrawing this bid and resubmitting another bid prior to the time for opening bids.

TO: MASSACHUSETTS WATER RESOURCES AUTHORITY:

A. The undersigned proposes to furnish all labor and materials required for Chelsea Trunk Sewer Relief Project MWRA Contract No. 6262 in Chelsea, Massachusetts, in accordance with the accompanying plans and specifications prepared by Bryant Associates Inc. for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

- B. This bid includes addenda numbered 1, 2, 3.
- C. The proposed Contract Price is Three million five hundred twenty-four thousand three hundred eighty-five Dollars (\$ 3,524,385.00).

The Proposed Contract Price is the total of Bid Item 1 through 53. The subdivision of the Proposed Contract Price is as follows:

Bid Item No.	Description of Work and Unit Price Bid in Words & Figures	Estimated Quantity	Total Price Bid (In Figures)
1.	All work except for Bid Item 2 through 53 below; per lump sum, <u>Three hundred fourteen thousand</u> <u>Thousand</u> — 00/100 (\$ <u>314,000.00</u> )	lump sum  760,000	\$ <u>314,000.00</u>
2.	30-inch RCP or CCFP combined sewer pipe by cut and cover, per linear foot, <u>Three hundred fifty-two</u> <u>—</u> 00/100 (\$ <u>352.00</u> )	x 1725 linear feet  300	\$ <u>607,200.00</u>
3.	30-inch RCP or PVC-closed-profile combined sewer pipe by pipe jacking, per linear foot, <u>Two thousand one hundred</u> <u>Twenty-three</u> — 00/100 (\$ <u>2,123.00</u> )	x 450 linear feet  1,000	\$ <u>955,350.00</u>
4.	8-inch PVC sewer pipe, per linear foot, <u>Seventy-nine</u> <u>—</u> 00/100 (\$ <u>79.00</u> )	x 50 linear feet  75	\$ <u>5,950.00</u>



5.	10-inch PVC sewer pipe, per linear foot, <u>ninety-five — 95/100</u> ( <u>\$ 95.00</u> )	x 20 linear feet <u>85</u>	<u>\$ 1,900.00</u>
6.	18-inch PVC sewer pipe, per linear foot, <u>One hundred ten — 110/100</u> ( <u>\$ 110.00</u> )	x 50 linear feet <u>100</u>	<u>\$ 5,500.00</u>
7.	30-inch RCP or CCFP outfall pipe by cut and cover for Outfall CHE 002, per linear foot, <u>Three hundred twelve — 312/100</u> ( <u>\$ 312.00</u> )	x 300 linear feet <u>185</u>	<u>\$ 93,600.00</u>
8.	Rehabilitate existing Outfall CHE 002 outfall pipe, per linear foot, <u>Three hundred thirty-four — 334/100</u> ( <u>\$ 334.00</u> )	x 270 linear feet <u>310</u>	<u>\$ 90,180.00</u>
9.	Replace existing Outfall CHE 003 outfall pipe with 30-inch RCP or CCFP pipe, per linear foot, <u>Three hundred sixteen — 316/100</u> ( <u>\$ 316.00</u> )	x 125 linear feet <u>185</u>	<u>\$ 39,500.00</u>
10.	Rehabilitate existing 8-inch combined sewer pipe, per linear foot, <u>Three hundred ten — 310/100</u> ( <u>\$ 310.00</u> )	x 25 linear feet <u>50</u>	<u>\$ 7,750.00</u>

11.	Rehabilitate existing 10-inch combined sewer pipe, per linear foot, <u>Three hundred twenty <sup>00</sup>/<sub>100</sub></u> (\$ <u>320.00</u> )	x 40 linear feet  85	\$ <u>12,800.00</u>
12.	24-inch RCP or PVC-closed-profile storm drain pipe, per linear foot, <u>One hundred twenty <sup>00</sup>/<sub>100</sub></u> (\$ <u>120.00</u> )	x 140 linear feet  100	\$ <u>16,800.00</u>
13.	18-inch RCP or PVC storm drain pipe, per linear foot, <u>One hundred ten <sup>00</sup>/<sub>100</sub></u> (\$ <u>110.00</u> )	x 725 linear feet  75	\$ <u>79,750.00</u>
14.	15-inch PVC storm drain pipe, per linear foot, <u>Seventy-nine <sup>00</sup>/<sub>100</sub></u> (\$ <u>79.00</u> )	x 15 linear feet  55	\$ <u>1,185.00</u>
15.	12-inch PVC storm drain pipe, per linear foot, <u>Fifty-three <sup>00</sup>/<sub>100</sub></u> (\$ <u>53.00</u> )	x 300 linear feet  35	\$ <u>15,900.00</u>
16.	8-inch CLDIP water pipe, per linear foot, <u>Forty-two <sup>00</sup>/<sub>100</sub></u> (\$ <u>42.00</u> )	x 300 linear feet  40	\$ <u>12,600.00</u>
17.	Ductile iron water fittings, per pound <u>One <sup>00</sup>/<sub>100</sub></u> (\$ <u>1.00</u> )	x 6500 pounds  .01	\$ <u>6,500.00</u>

18. (F)	4 foot diameter SMH; per each <u>Two thousand seven hundred</u> <u>20/100</u> (\$ <u>2,700.00</u> )	x 2 each  1875	\$ <u>5,400.00</u>
19. (F)	5 foot diameter SMH; per each, <u>Three thousand five hundred</u> <u>20/100</u> (\$ <u>3,500.00</u> )	x 8 each  2,500	\$ <u>28,000.00</u>
20. (F)	6 foot Diameter SMH; per each, <u>Six thousand</u> <u>20/100</u> (\$ <u>6,000.00</u> )	x 17 each  4,500	\$ <u>102,000.00</u>
21. (F)	8 foot Diameter SMH; per each, <u>Seven thousand five hundred</u> <u>20/100</u> (\$ <u>7,500.00</u> )	x 1 each  8000	\$ <u>7,500.00</u>
22.	4 foot Diameter DMH; per each, <u>One thousand five hundred</u> <u>20/100</u> (\$ <u>1,500.00</u> )	x 8 each  1,875	\$ <u>12,000.00</u>
23.	6 foot Diameter DMH; per each, <u>Five thousand</u> <u>20/100</u> (\$ <u>5,000.00</u> )	x 1 each  4,500	\$ <u>5,000.00</u>
24.	Special DMH at Eldridge Place, per each, <u>Seven thousand</u> <u>20/100</u> (\$ <u>7,000.00</u> )	x 1 each  8,500	\$ <u>7,000.00</u>

25.	Rehabilitation of existing MH, per each, <u>Two thousand five hundred <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 2500.00</u> )	x 9 each  800	\$ <u>22,500.00</u>
26.	Removal and disposal of existing MH or CB, per each <u>Five hundred <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 500.00</u> )	x 20 each  450	\$ <u>10,000.00</u>
27.	Abandon existing MH, per each, <u>Two hundred fifty <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 250.00</u> )	x 14 each  150	\$ <u>3,500.00</u>
28.	Catch Basin; per each, <u>Two thousand <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 2,000.00</u> )	x 22 each  2000	\$ <u>44,000.00</u>
29.	Regulator RE-002 underflow baffle and tide gate, per each, <u>Forty thousand <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 40,000.00</u> )	x 1 each  35k	\$ <u>40,000.00</u>
30.	Regulator RE-003 underflow baffle and tide gate, per each <u>Twenty-three thousand <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 23,000.00</u> )	x 1 each  15k	\$ <u>23,000.00</u>
31.	Modifications to regulator RE- 004, per each, <u>Forty-five thousand <sup>00</sup>/<sub>100</sub></u> ( <u>\$ 45,000.00</u> )	x 1 each  35k	\$ <u>45,000.00</u>

32.	Fill, plug and abandonment of existing pipes (15-inch and greater), per cubic yard, <u>One hundred fifty</u> $\frac{00}{100}$ (\$ <u>150.00</u> )	x 75 cubic yards  75	\$ <u>11,250.00</u>
33.	Water service disconnection and reconnection, per linear foot <u>Twenty-four</u> $\frac{00}{100}$ (\$ <u>24.00</u> )	x 620 linear feet  25	\$ <u>2,080.00</u>
34.	Sanitary sewer service disconnection and reconnection, complete, per linear foot <u>Forty</u> $\frac{00}{100}$ (\$ <u>40.00</u> )	x 1750 linear feet  22	\$ <u>70,000.00</u>
35.	Storm drain service disconnection and reconnection, per linear foot <u>Sixty</u> $\frac{00}{100}$ (\$ <u>60.00</u> )	x 100 linear feet  28	\$ <u>6,000.00</u>
36.	Sanitary service chimney connection in Marginal St., per each <u>Five thousand</u> $\frac{00}{100}$ (\$ <u>5,000.00</u> )	x 1 each  11,500	\$ <u>5,000.00</u>
37.	Connection to existing North Metropolitan Sewer, per each, <u>Sixty-two thousand</u> $\frac{00}{100}$ (\$ <u>62,000.00</u> )	x 1 each  14,500	\$ <u>62,000.00</u>
38.	Excavation and backfill for test pits, per cubic yard, <u>Ten</u> $\frac{00}{100}$ (\$ <u>10.00</u> )	x 1500 cubic yards  10 -	\$ <u>15,000.00</u>

39.	Controlled density fill, per linear foot, <u>thirty-five</u> $\frac{80}{100}$ (\$ <u>35.00</u> )	x 650 linear feet  55	\$ <u>22,750.00</u>
40.	Rock excavation and disposal, per cubic yard, <u>thirty-five</u> $\frac{80}{100}$ (\$ <u>65.00</u> )	x 50 cubic yards  101	\$ <u>3,950.00</u>
41.	Disposal of pipe sediment material at lined landfill, per ton, <u>Forty</u> $\frac{80}{100}$ (\$ <u>40.00</u> )	x 25 tons  33	\$ <u>1,000.00</u>
42.	Disposal of pipe sediment material at RCRA disposal site, per ton, <u>Two hundred ninety</u> $\frac{80}{100}$ (\$ <u>290.00</u> )	x 10 tons  285	\$ <u>2,900.00</u>
43a.	Off-Site Disposal Group I - Non-Reportable Soil to Unlined In-State Landfill, per ton, <u>Ten</u> $\frac{80}{100}$ (\$ <u>10.00</u> )	x 15000 tons  16-	\$ <u>150,000.00</u>
43b.	Off-Site Disposal Group II-1 - Remediation Waste to Unlined In-State Landfill, per ton, <u>Twenty-one</u> $\frac{80}{100}$ (\$ <u>21.00</u> )	x 1300 tons  17-	\$ <u>27,300.00</u>
43c.	Off-Site Disposal - Group II-2 - Remediation Waste to Lined In-State Landfill, per ton, <u>Thirty-five</u> $\frac{80}{100}$ (\$ <u>35.00</u> )	x 30 tons  30-	\$ <u>1,050.00</u>

43d.	Off-Site Disposal Group II-3 - Remediation Waste to Hot-Mix Asphalt or Cold-Mix Emulsion Recycling Facilities, per ton, <u>Forty</u> <u>00/100</u> (\$ <u>40.00</u> )	x 30 tons  36-	\$ <u>1,200.00</u>
43e.	Off-Site Disposal Group II-4 - Remediation Waste to Thermal Treatment Facilities, per ton, <u>Forty-five</u> <u>00/100</u> (\$ <u>45.00</u> )	x 30 tons  38	\$ <u>1,350.00</u>
43f.	Off-Site Disposal Group III - Hazardous Waste to an Approved Facility, per ton, <u>One hundred eighty-five</u> <u>00/100</u> (\$ <u>185.00</u> )	x 30 tons  195	\$ <u>5,550.00</u>
43g.	Off-Site Disposal of Asphalt Pavement, Demolition and Construction Debris, and Other Solid Waste to an Approval Facility, per ton <u>Fifteen</u> <u>00/100</u> (\$ <u>15.00</u> )	x 1300 tons  12	\$ <u>19,500.00</u>
43h. —	Additional Characterization Testing per 500 cu. yd., per round of testing <u>Eight hundred fifty</u> <u>00/100</u> (\$ <u>850.00</u> )	x 25 rounds  850	\$ <u>24,250.00</u>
44.	Disposal of Contaminated Liquid, per gallon <u>Five</u> <u>00/100</u> (\$ <u>5.00</u> )	x 2000 gallons  3-	\$ <u>10,000.00</u>

45.	Mobile Treatment Unit Operation, per day <u>One thousand</u> <u>00/100</u> ( <u>\$ 1,000.00</u> )	x 60 days  <u>300</u>	<u>\$ 60,000.00</u>
46.	Removal and disposal of rails and ties, per linear foot, <u>Ten</u> <u>00/10</u> ( <u>\$ 10.00</u> )	x 1200 linear feet  <u>2-</u>	<u>\$ 12,000.00</u>
47.	Obstructions encountered during pipe jacking, per hour <u>One thousand</u> <u>00/10</u> ( <u>\$ 1,000.00</u> )	x 12 hours  <u>278-</u>	<u>\$ 12,000.00</u>
48.	Removal and relocation of existing fire hydrant, per each, <u>One thousand two hundred</u> <u>00/100</u> ( <u>\$ 1,200.00</u> )	x 2 each  <u>1,500</u>	<u>\$ 2,400.00</u>
49.	Pavement markings, per linear foot, <u>Three</u> <u>00</u> ( <u>\$ 3.00</u> )	x 330 linear feet  <u>2-</u>	<u>\$ 990.00</u>
50.	Temporary Pavement; per square yard, <u>Eight</u> <u>00/10</u> ( <u>\$ 8.00</u> )	x 2900 square yards  <u>10-</u>	<u>\$ 23,200.00</u>
51.	Permanent Pavement; per square yard, <u>Eighteen</u> <u>00/10</u> ( <u>\$ 18.00</u> )	x 3000 square yards  <u>18-</u>	<u>\$ 54,000.00</u>



52.	Surface Restoration, per sq. yard, <u>Forty — 00/100</u> (\$ <u>40.00</u> )	x 4800 square yards <u>\$410,000</u>	<u>\$192,000.00</u>
53.	City of Chelsea Police; per hour, <u>Twenty-Six Dollars per hour</u> (\$ <u>26.00/hr.</u> )	x 3,500 hours	<u>\$91,000.00</u>

NOTE: The award will be based upon the Proposed Contract Price and will be made in accordance with the provisions of MGL Chapter 30, Section 39M. The quantities designated throughout the Bid Schedule, however, are estimates only, and the Unit Price provided for a category of Work shall be the basis for the entire term of the Contract, for additions to or deletions from the Total Contract Price for Work of the category, so long as the number of units of Work remains within fifteen percent (15%) of the estimated quantity. Thereafter, the Unit Price will be subject to review and determination of applicability, by the Authority.