CITY COUNCIL REPORT

May 15, 2008

TO: Phillip L. Nelson, City Manager

FROM: Brian P. Murphy, Assistant City Manager/Economic Development Services

SUBJECT: Responses to City Council Questions on the DWSD Contract

In response to questions raised at the May 12, 2008 Council meeting staff has collected the following information.

DR. VARGAS FROM MICHIGAN STATE UNIVERSITY HAS WRITTEN THAT THE BEST TIME TO WATER IS IN THE AFTERNOON. THE REPORT ALSO SUGGESTS THAT NIGHTTIME WATERING HAS A CAUSAL EFFECT ON FUNGAL DISEASES (LEAF SPOT, PYTHIUM BLIGHT, AND FUSARIUM BLIGHT WERE REFERENCED AT THE COUNCIL MEETING).

- From Cornell University:

  The best time to water is early in the morning, between 4:00 am and 8:00 am. Evaporation is low at this time so more of the water makes it into the soil. Also, leaves will begin drying quickly in the morning sun, reducing the chances of diseases.

- From Watering Established Lawns: Cool-season Grasses (Kentucky Bluegrass, Turf-type Dwarf Tall fescue and Perennial Ryegrass), by Curtis E. Swift, Ph.D.:

  Vargas (1994) writes that the "best time to irrigate is in the afternoon, lightly and daily." Not all researchers, however, agree. Frequent irrigations increase the chances for pathogen infection and pathogen movement (Lewis, 1994, p. 389). Ascochyta leaf blight is reported to require the presence of a film of water or guttation fluids on the leaf surface. Frequent irrigation appears to favor this disease. In addition, watering too often, or too shallow is known to result in the death of the deeper roots of woody plants making these plants more susceptible to summer and winter drought problems. When irrigating turf grass enough water should be applied to adequately moisten the entire root system.

  What time of day is the best time to water?

  The most efficient and ideal time to irrigate turf grass is between midnight and 6:00 am. This takes into account the reduction in evaporative loss as well as disease considerations.

  Such timing is however, difficult for all but those gardeners with an automatic sprinkler system. Gardeners not wishing to spend their night hours watering should consider watering during the

day after the night moisture has been burned off by the morning sun, but not too late in the day. The turf must dry before nighttime dew again takes over.

From TruGreen Chemlawn's website, http://www.the-lawn-advisor.com/Lawn-Grass-Disease.html:

Controlling Lawn Grass Disease

Understanding the conditions that give rise to a lawn grass disease will help prevent it from getting started. Common causes include:

- Poor soil
- Lack of sunlight
- Grass seed not suited for climate and conditions
- Adverse weather conditions (Excessive rain, ice, or heat)
- Overuse of chemicals (Use slow release fertilizer. Fast release promotes quick lush grass, which is susceptible to disease.)
- Overwatering when the air is humid. Fungus thrives on wet roots.

HOW MUCH DOES AN AUTOMATIC SPRINKLER CONTROLLER COST?

An online search found that the prices range from $25 to $85 for a typical residential irrigation controller, with at least four watering stations/zones. However, as discussed at the City Council meeting, the likelihood that existing timers will need to be replaced is remote. The older timers will be able to accommodate the change in the ordinance as there are no date restrictions.

WHAT ARE THE CITY'S THRESHOLDS AND OBJECTIVES FOR WATERING THE PUBLIC SPACES?

The City Manager recently signed an Administrative Memo requiring all City of Troy automated irrigation systems to operate between 11:00 pm and 5:00 am. Starting this year, the City purchased computer software to measure evaporation rates, in an effort to reduce our water consumption for irrigation purposes. The ultimate goal is to use the software to establish parameters for irrigation. Lastly, the City has employed rain sensors for the past ten years.

CITY COUNCIL ACTION REPORT

Date: May 6, 2008

TO: Phillip L. Nelson, City Manager

FROM: Brian P. Murphy, Assistant City Manager/Economic Development Services
John Lamerato, Assistant City Manager/Finance
Steven J. Vandette, City Engineer
Timothy Richnak, Public Works Director

SUBJECT: Amendment to Chapter 18 and Proposed Contract with Detroit Water and Sewerage

Background:

- The original water contract with the Detroit Water and Sewerage Department (DWSD) was entered into in 1961. This contract was for a 35 year period of time, but was automatically renewed unless either of the parties provided a one year notice of termination.
- In 2004, the DWSD and the 126 metropolitan municipal customers, through the Technical Advisory Committee (TAC), began to develop a new model water contract. The TAC is comprised of many water professionals from some of the wholesale customers purchasing water from the Detroit water system. The City of Troy has had a staff member participate on the TAC committee since its inception.
- Under the terms of the previous contract, there was volatility in the annual market rate, since the previous methodology was based primarily on annual volumes, maximum day and peak hour usage, distance, elevation and capital improvement projects attributed to the distribution of water to individual communities.
- The new model contract has been developed to minimize volatility and create equity among wholesale water customers. Each of the customers are subject to the same model contract terms, with the one exception being that some communities will qualify for reduced fees on the schedules, based on limitations to the peak water usage.
- The control of consumption peaks and efficient operation of the City of Troy water system allows for favorable adjustments to rate factors. Pursuant to our negotiations with DWSD, the City and its customers would benefit if the City passed an ordinance that limits watering to non-peak hours or that restricts watering on an odd-even cycle. Since Troy has already invested in community education, extensive capital improvement programs, and an internal policy that restricts peak hour watering on City operated irrigation systems, the only remaining piece is Council's consideration of a proposed ordinance amendment limiting automatic sprinkling during the peak hour.
- The proposed DWSD model contract is attached, and is submitted for Council's review and consideration. Council's action on the proposed amendment to the Chapter 18 of the City ordinances will have a direct impact on the terms of the final contract. If Council decides not to amend Chapter 18, then City Administration will need to negotiate new terms with DWSD.

Financial Considerations:

- This new proposed contract with DWSD will be the mechanism to set wholesale water rates for the next 30 years. Obtaining realistic rates is essential for this long term commitment.
- Troy's adoption of an ordinance that limits outdoor peak hour water use, and particularly the regulation of underground sprinkler systems, will reduce Troy's annual estimated water cost by approximately $500,000, using the historical volume of water purchased.

Legal Considerations:

- The attached model contract has been approved by the TAC committee, as well as several of the metropolitan Detroit customers. For each municipal customer that can demonstrate efforts in reducing peak hour water usage, DWSD is willing to reduce the overall cost, which is reflected in the attached DWSD model contract and schedules. This contract contains several more safeguards than the previous contract, including the right of a re-opener of the DWSD commitment, as well as the water rates, after two years. The model contract requires DWSD to be accountable in producing the required volumes and water pressure, and also requires an equitable rate structure for the next 30 years. The municipalities also are afforded an opportunity to submit any disputes to a customer based technical committee that would then make recommendations to DWSD.

Policy Considerations:

- Water rates are affected by City of Troy policies. These include ordinances and internal city water use policies that provide for controls of water consumption at peak times. (Goal 9)
- The City's landscape analyst, Ron Hynd, has reviewed the proposed new ordinance, and recommends watering between midnight and 5 am.

Options:

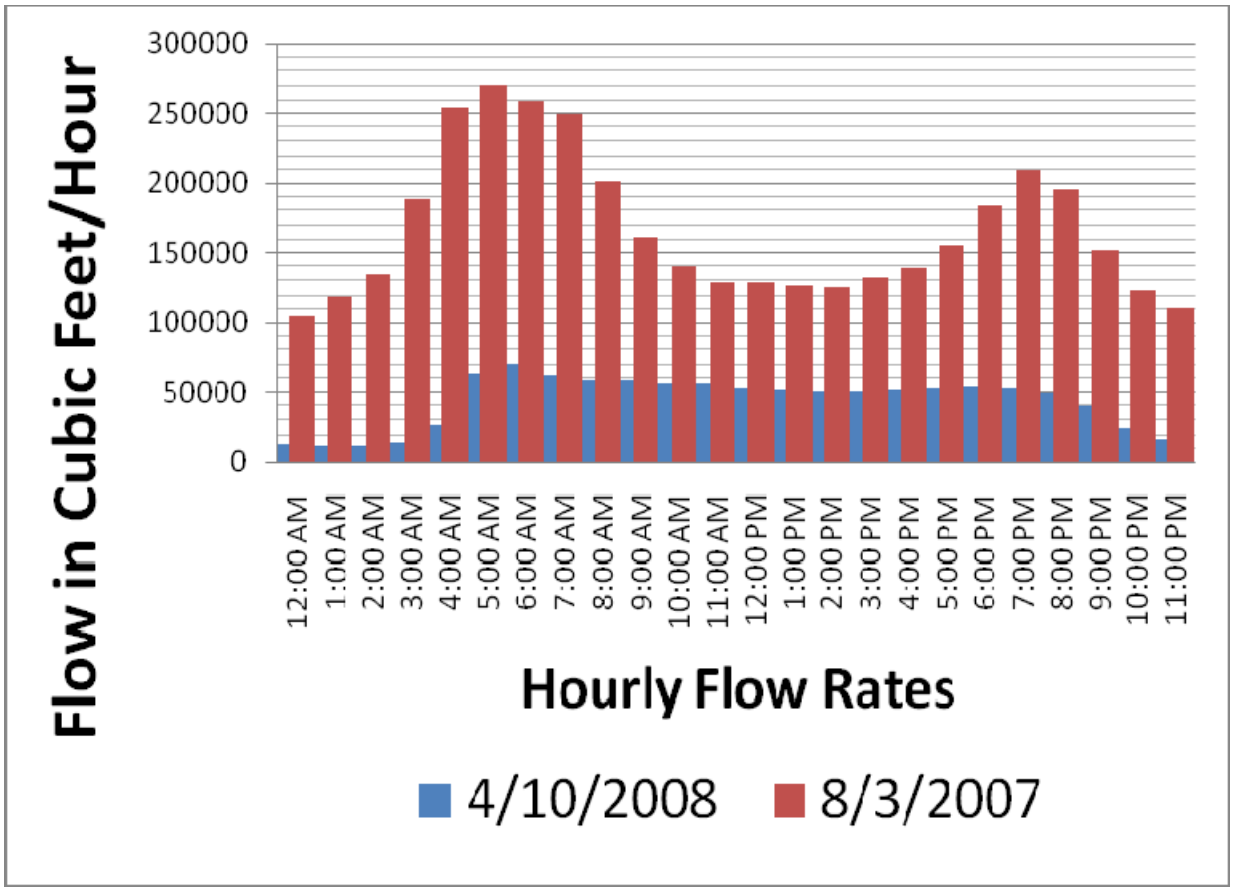
- City Management and the Public Works Department recommend that the City of Troy pass the proposed ordinance amendments.
- City Administration also recommends favorable consideration of the 30 year water contract with DWSD.

Reviewed and approved as to legality:

_____

Lori Grigg Bluhm, City Attorney

Attachment A



Blue Graph- typical water use before irrigation season

Red graph- typical water use during peak irrigation season

This chart illustrates the hourly peak difference of water flow between a typical non-irrigating day (blue) and the peak water use of a high irrigation day (red). The times charted are Eastern Standard Time therefore, 4:00am EST is 5:00am Daylight Savings Time. Looking at the past five years of graphs there is a definite pattern to daily peak water usage. These peaks are from 5:00am – 9:00am and 6:00pm – 10:00pm DST.

Under the newly anticipated contract with Detroit Water and Sewerage Department, wholesale customers such as Troy can negotiate reductions in water rates by making commitments to lower these peak hour levels. Some of these commitments include:

- Educating residents on water conservation and peak hour usage (we are currently providing an informational brochure included in our water bills this spring),
- Demonstration of a high level capital improvement program (we have provided DWSD with our historical and 5 year future capital improvement program which meets this requirement),
- Low water loss percentage resulting from a highly efficient maintenance program (Troy is currently achieving this and is well below the national average over the last ten years)
- Implementation and commitment to an outdoor irrigation restriction by City Ordinance.

The recommended ordinance change is attached, it limits underground irrigation systems to be used only from 11:00pm to 5:00am daily, it allows for manual irrigation at anytime and has a special

exception provision included. With this ordinance in place, the wholesale rate savings is approximately $500,000 per year. After two years the contract provides for an opener to adjust the rates dependent upon the controlling of water peaks.

Concerns have been brought to our attention about irrigating from 11:00pm- 5:00am and lawn diseases. Our landscape analyst for the City of Troy has provided a study from Michigan State University on the timing of irrigation for turf management. The report says "avoid irrigating in the early evening hours as this results in the turf remaining moist, damp and subject to disease activity over the entire night time". The study goes on to say that each landscape will vary dependant on the needs and conditions of the area. Therefore an understanding of the site is important along with recognizing limitations to include local water restriction regulations.

CHAPTER 18 - CITY WATER UTILITY

1. Definitions. The following definitions shall apply in the interpretation of this Chapter:

   (a) "Department" shall mean the Department of Water and Sewer of the City.

   (b) "Person" shall mean any individual, firm, partnership, business, corporation, and any other association of individuals of whatever nature.

   (c) "Public Water Supply System" shall mean the public water supply system of the City of Troy.

   (d) "Superintendent" shall mean the Superintendent of the Department of Water and Sewer.

   (e) "Water Connection" shall mean that part of the City water distribution system connecting the water main with the premises served.

   (f) "Water Main" shall mean that part of the City water distribution system located within easement lines or streets designed to supply more than one (1) water connection.

   (Rev. 09-25-78)

2. Service Connections. Application for water connections shall be made to the Department on forms prescribed and furnished by it. Water connections and water meters shall be installed in accordance with rules and regulations of the Department and upon payment of the required connection fee, meter installation fee and the water main benefit charge if applicable under the provisions of Chapter 20. All meters and water connections shall be the property of the City. Connection fees and meter installation charges shall not be less than the cost of the materials, installation and overhead attributable to such installations. Such fees and charges shall be established by resolution of the City Council from time to time, in accordance with the size of the connection furnished.

   (Rev. 09-25-78)

2.43 Water Meters. All premises using water shall be metered, except as otherwise provided in this Code. No person except an authorized City employee shall break or injure the seal or change the location of, alter or interfere in any way with any water meter.

   (Rev. 04-01-64)

2.44 Meter Location. Meters shall be set in an accessible location and in a manner satisfactory to the superintendent. Where the premises contain no basement or cellar or other suitable inside location the meter shall be installed outside in a meter pit, the location of which shall be approved by the superintendent. Where it is necessary to set the meter in a pit, such pit shall be built at the expense of the owner as directed by the superintendent.

   (Rev. 04-01-64)

2.45 Access to Meters. The superintendent shall have the right to shut off the supply of water to any premises where authorized employees are not able to obtain access to the meter. Any authorized City employee shall at all reasonable hours, have the right to enter the premises where such meters are installed for the purpose of reading, testing, removing, or inspecting the meter or for the purpose of inspecting any pipe or fixture connected to the City Water System, and no person shall

hinder, obstruct, or interfere with such employee in the lawful discharge of his duties in relation thereto.

(Rev. 04-01-64)

2.46 Responsibility for Meter. The owner of the premises upon which a meter is installed, is hereby made responsible for the same. If by any manner the meter is damaged or stolen such accident must be reported to the superintendent at once. It shall be the duty of the City to make all meter repairs and charge same to the party made responsible for the meter.

(Rev. 04-01-64)

2.47 Meter Failure. If any meter shall fail to register properly, the superintendent shall estimate the consumption on the basis of former consumption and bill accordingly.

(Rev. 04-01-64)

2.48 Meter Testing. A consumer may require that the meter be tested upon payment of the service fee in advance to cover the cost of the test. If the meter is found defective it shall be repaired or an accurate meter installed and the service fee payment refunded.

(Rev. 01-01-82)

2.49 Accuracy Required. A meter shall be considered accurate if when tested it registers not to exceed five (5%) percent more or five (5%) percent less than the actual quantity of water passing through it. If a meter registers in excess of five (5%) percent more than the actual quantity of water passing through it, it shall be considered "fast" to that extent. If a meter registers in excess of five (5%) percent less than the actual quantity of water passing through it, it shall be considered "slow" to that extent.

(Rev. 04-01-64)

2.50 Bill Adjustment. If a meter has been tested at the request of a consumer and shall have been determined to register "fast" the City shall credit the consumer with a sum equal to the percent "fast" multiplied by the amount of all bills incurred by said consumer within the three (3) months prior to the test, and if a meter so tested is determined to register "slow", the City may collect from the consumer a sum equal to the percent "slow" multiplied by the amount of all the bills incurred by the consumer for the prior three (3) months. When the City on its own initiative makes a test of a water meter, it shall be done without cost to the consumer, other than his paying the amount due the City for water used by him as above provided, if the meter is found to be "slow".

(Rev. 04-01-64)

2.51 Hydrant Use. No person, except an employee of the City in the performance of his duties, shall open or use any fire hydrant except in case of emergency, without first securing permission from the superintendent and paying such charges as may be prescribed.

(Rev. 04-01-64)

12. Outdoor Water Use Restrictions

12.01 ~~From Memorial Day through Labor Day each year, watering restrictions shall be in effect for the purposes of evening out the City water pressures and the Peak water usage.~~
The City of Troy, through its contract with the Detroit Water and Sewerage Department, is obligated to take steps to insure that whenever possible, the use of the municipal water system shall be used during the non-peak hours of 11pm to 5am. To satisfy this contractual commitment, the following municipal water use regulations are in effect:

A. For those properties in the City of Troy that are serviced by an underground irrigation system, outdoor watering, including the sprinkling of lawns and landscaping, shall be only done during the non-peak hours of 11pm to 5am. ~~Outdoor watering, including the sprinkling of lawns and landscaping and filling swimming pools, washing cars and all outdoor watering tasks shall only be allowed for properties with even-numbered addresses on even-numbered calendar dates within a month and for properties with odd-numbered addresses on odd-numbered calendar dates.~~

B. A water user may manually irrigate landscaping, provided the irrigation is not connected to an underground system, and is attended and monitored by the water user. ~~Watering of new sod or landscaping, one year old or less, is exempt from the odd/even water restriction.~~

C. If the above provisions create a practical hardship for a municipal water user, the municipal water user can petition the Superintendent of the Department of Water and Sewer or his/her designee, asking for relief from one of the above referenced restrictions. The petition shall set forth the requested relief, and shall detail the extraordinary circumstances that would justify the requested relief, as well as the duration of the requested relief. The Director of Public Works or his/her designee can grant or deny or modify the petition, taking into consideration the contractual obligations of the City, as well as the articulated circumstances of the petitioner. The decision of the Director of Public Works or his/her designee shall be final.

D. Any person, firm, or corporation violating any of the provisions, as set forth in paragraphs A and B, without obtaining relief, as provided in paragraph C, shall be responsible for a municipal civil infraction, in accordance with the provisions of Chapter 100 of the City of Troy ordinances.

(Rev. ~~06-05-06~~ 04-14-08)

12.02 Whenever the Manager receives notification from the Detroit Water and Sewerage Department or the City Council or the Michigan Department of Environmental Quality that current conditions of the water system of the City are likely to endanger the general welfare of the City, then additional emergency regulations can be imposed on all properties connected to the City water system, including an absolute temporary ban on Sprinkling of lawns and landscaping and all outdoor water use.

(Rev. 06-05-06)

Within 24 hours of notification, as set forth above, any additional emergency regulations shall be posted at the City offices and publicly announced by means of broadcasts or telecasts by the stations with a normal operating range covering the City. The announcement may also be further declared in newspapers of general circulation when feasible. The regulations shall become effective immediately upon the posting and publication of the additional emergency regulations. Upon notification from the Detroit Water and Sewerage Department in connection with the Michigan Department of Environmental Quality or the City Council, that the emergency regulations

are no longer necessary, the City shall cause a public announcement lifting the water restrictions.

(Rev. 06-05-06)

~~12.03a Section 12.04 shall be temporarily suspended until such time that the Troy City Council has had opportunity to amend the ordinance.~~

(Rev. 06-19-06)

~~12.04 Any person, firm or corporation violating any provision of this ordinance shall be deemed responsible for a municipal civil infraction, in accordance with the provisions of Chapter 100 of the City of Troy ordinances, and will be responsible to pay a fine not to exceed five hundred dollars ($500) for each violation.~~

(Rev. 06-05-06)

13. Additional Regulations. The City Manager may make and issue additional rules and regulations concerning the water distribution system, connections thereto, meter installations and maintenance, connection and meter installation fees, hydrants and water mains and the appurtenances thereto, not inconsistent herewith. Such rules and regulations shall be effective upon approval by the City Council. The rules and regulations now in effect shall continue until changed in accordance with this section.

(Rev. 09-25-78)

14. Injury to or Obstruction of Facilities. No person, except an employee of the City in the performance of his duties, shall break, damage, destroy, uncover, deface, obscure, obstruct or tamper with any structure, appurtenance or equipment which is a part of the City water distribution system.

No person, firm or corporation shall place debris, landscaping, earth or other materials in a manner that will obstruct, obscure or prevent normal access to or operation of any hydrant, valve, metering facility, Fire Department water connection or any other water system appurtenances. Any person violating this section shall be guilty of a misdemeanor and shall be punishable as provided in Chapter 1 of this Code. The

Superintendent may order the removal of said materials. The expenses incurred in the removal shall be a debt to the City from the responsible person, firm or corporation, and shall be collected as any other debt to the City.

(Rev. 09-25-78)

Cross Connections

15. It shall be unlawful for any person to make or maintain, or allow to be made or to be maintained, upon property owned by such person, a cross-connection between the public water supply system and a secondary water supply system. The City adopts, by reference, the water supply cross-connection rules of the Michigan Department of Public Health, being R325.431 to R-325.440 and amendments, inclusive, of the Michigan Administrative Code.

(Rev. 2-25-74)

17. It shall be the duty of the Superintendent of Public Services of the City of Troy or his authorized agent, to cause inspections to be made of all properties served by the public water supply system,

where cross-connections with the public water supply are deemed possible. The frequency of inspections and re-inspections, based upon potential health hazards involved, shall be established by the Superintendent of Public Services, and as approved by the Michigan Department of Public Health.

(Rev. 02-25-74)

17A. Fees. The testing for cross-connections and backflow prevention devices shall be accomplished by the authorized personnel of the Public Services Department; a fee for such tests shall be charged to the owner and/or occupant based upon the average time and material costs as determined from time to time by the Public Services Department.

(Rev. 02-25-74)

17B. Notice of Violation; Compliance Period of Time. The Superintendent of Public Services, or his duly authorized agent, upon determining that a violation of the provisions herein exists, shall notify the owner and/or the occupant of the property so affected, in writing, of the nature of the violation, said notice to include a period of time for compliance which shall be commensurate with the degree of the hazard involved, but in no case shall that period of time exceed nine (9) months. Violations which pose an extreme hazard will be disconnected immediately. The failure to correct the violation within the period of time prescribed, and each day thereafter, shall constitute a separate violation of this Chapter.

(Rev. 09-25-78)

18. The Superintendent of Public Services, or his representatives, shall have the right to enter, at any reasonable time, any property served by a connection to the public water supply system of the City for the purpose of inspecting the piping system or systems thereof for the cross-connections. Upon request, the owner or occupants of any property so served shall furnish to the inspection agency any pertinent information regarding the piping system or systems on such property. The refusal of such information or refusal of access, when requested, shall be deemed (prima facie) evidence of the presence of cross-connections. If there is a refusal, the City is authorized to discontinue services upon (Sixty (60) days written notice by regular mail) given to (the last known address of) the owner (and/or) occupants.

(Rev. 02-25-74)

19. The Superintendent of Public Services, or his authorized agent, is hereby authorized, any may direct the discontinuance of water service after giving sixty (60) days written notice, to any property owner and/or occupant, at its last known address, wherein any connection is in violation of this Chapter, and to take such additional precautionary measures which may be deemed necessary to eliminate any danger of contamination of the public water supply system. Where it is determined that the public water supply system is being contaminated, such services may be terminated immediately. Water service to such property shall not be restored until any cross-connection has been eliminated in compliance with the provisions of this Chapter.

(Rev. 09-25-78)

20. The potable water supply made available on the properties served by the public water supply shall be protected from possible contamination, as specified by this Chapter, and by the State and City Plumbing Code. Any water outlet which could be used for potable or domestic purposes, and which is not supplied by the potable system, must be labeled in a conspicuous manner as "Water Unsafe For Drinking".

(Rev. 09-25-78)

21. This Chapter shall supplement the State Plumbing Code and City of Detroit Plumbing Ordinance No. 849E which has been adopted by the City of Troy Reference Article 17, Chapter 79, of the City Code. If a conflict should occur, the Code which is most restrictive shall govern.

(Rev. 09-25-78)

22. Any person who shall violate any of the provisions of this Chapter shall be deemed guilty of a misdemeanor and, upon conviction thereof, shall be fined, not exceeding Five Hundred and 00/100 ($500.00) Dollars, or by imprisonment, not to exceed ninety (90) days, or both such fine and imprisonment, in the discretion of the Court.

(Rev. 09-25-78)

CITY OF TROY
AN ORDINANCE TO AMEND
CHAPTER 18 OF THE CODE
OF THE CITY OF TROY

THE CITY OF TROY ORDAINS:

Section 1. Short Title

This Ordinance shall be known and may be cited as the 9th amendment to Chapter 18, City Water Utility, of the Code of the City of Troy.

Section 2. Amendment

Chapter 18 of the Code of the City of Troy is amended by the repeal of Sections 12.03a and 12.04, and the amendment to Section 12.01 to read as follows:

Outdoor Water Use Restrictions

12.01 The City of Troy, through its contract with the Detroit Water and Sewerage Department, is obligated to take steps to insure that whenever possible, the use of the municipal water system shall be used during the non-peak hours of 11pm to 5am. To satisfy this contractual commitment, the following municipal water use regulations are in effect:

A. For those properties in the City of Troy that are serviced by an underground irrigation system, outdoor watering, including the sprinkling of lawns and landscaping, shall only be done during the non-peak hours of 11pm to 5am.

B. A water user may manually irrigate landscaping, provided the irrigation is not connected to an underground system, and is attended and monitored by the water user.

C. If the above provisions create a practical hardship for a municipal water user, the municipal water user can petition the Superintendent of the Department of Water and Sewer or his/her designee, asking for relief from one of the above referenced restrictions. The petition shall set forth the requested relief, and shall detail the extraordinary circumstances that would justify the requested relief, as well as the duration of the requested relief. The Director of Public Works or his/her designee can grant or deny or modify the petition, taking into consideration the contractual obligations of the City, as well as the articulated circumstances of the petitioner. The decision of the Director of Public Works or his/her designee shall be final.

D. Any person, firm, or corporation violating any of the provisions, as set forth in paragraphs A and B, without obtaining relief, as provided in paragraph C, shall be responsible for a municipal civil infraction, in accordance with the provisions of Chapter 100 of the City of Troy ordinances.

12.03a Repealed

12.04 Repealed

Section 3. Repeal

All ordinances or parts of ordinances in conflict herewith are hereby repealed only to the extent necessary to give this ordinance full force and effect.

Section 4. Savings

All proceedings pending, and all rights and liabilities existing, acquired or incurred, at the time this Ordinance takes effect, are hereby saved. Such proceedings may be consummated under and according to the ordinance in force at the time such proceedings were commenced. This ordinance shall not be construed to alter, affect, or abate any pending prosecution, or prevent prosecution hereafter instituted under any ordinance specifically or impliedly repealed or amended by this ordinance adopting this penal regulation, for offenses committed prior to the effective date of this ordinance; and new prosecutions may be instituted and all prosecutions pending at the effective date of this ordinance may be continued, for offenses committed prior to the effective date of this ordinance, under and in accordance with the provisions of any ordinance in force at the time of the commission of such offense.

Section 5. Severability Clause

Should any word, phrase, sentence, paragraph or section of this Ordinance be held invalid or unconstitutional, the remaining provision of this ordinance shall remain in full force and effect.

Section 6. Effective Date

This Ordinance shall become effective ten (10) days from the date hereof or upon publication, whichever shall later occur.

This Ordinance is enacted by the Council of the City of Troy, Oakland County, Michigan, at a Regular Meeting of the City Council held at City Hall, 500 W. Big Beaver, Troy, MI, on the 19th day of June, 2006.

Louise E. Schilling, Mayor

Tonni L. Bartholomew, MMC
City Clerk

CITY OF DETROIT
LAW DEPARTMENT

FIRST NATIONAL BUILDING
660 WOODWARD AVE., STE. 1650
DETROIT, MICHIGAN 48226-3535
PHONE 313•224•4550
FAX 313•224•5505
WWW.CI.DETROIT.MI.US

April 17, 2008

Tonni L. Bartholomew
City Clerk
City of Troy
500 W. Big Beaver
Troy, Michigan 48084

RE: Water Service Contract

Dear Ms. Bartholomew:

Enclosed please find three copies of the Water Service Contract Between the City of Detroit and City of Troy for your approval. Please execute three original contracts, including witness signatures and the date on which your legislative body approved the contract. Please return all three sets to my attention and include a copy of your legislative body's resolution approving the contract. Once the Board of Water Commissioners and the Detroit City Council approve the contract, I will return one fully executed, original contract to your attention.

Should you have any questions regarding this matter, please contact me at your convenience at 313-237-5032.

Sincerely,

Laurie A. Koester

Laurie A. Koester
Assistant Corporation Counsel

Enclosures

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WATER SERVICE CONTRACT

BETWEEN

CITY OF DETROIT

AND

CITY OF TROY

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WATER SERVICE CONTRACT
BETWEEN
CITY OF DETROIT
AND
CITY OF TROY

This Water Service Contract ("Contract") is made between the City of Detroit, a municipal corporation, by its Water and Sewerage Department and Board of Water Commissioners (the "Board"), and the City of Troy, a municipal corporation ("Customer"). The Board and Customer may be referred to individually as "Party" or collectively as the "Parties."

Whereas, the City of Detroit owns a public water supply system ("System") operated by the Board; and

Whereas, the Board supplies water service to numerous governmental entities in the Board's water service area; and

Whereas, Customer desires to obtain water service from the Board; and

Whereas, the purpose of this Contract is to provide for the long-term service of potable water to Customer; and

Whereas, the Board implemented a voluntary partnering effort with its wholesale water customers, of which the Technical Advisory Committee is a central part, and which is intended to assist the Board in data gathering, alternative evaluations and recommendations, achieving full disclosure of rates, identifying true cost of service principles to guide revenue collection, and to provide assistance with a cohesive planning effort for the Board's water service area;

ACCORDINGLY, THE PARTIES AGREE AS FOLLOWS:

Article 1.
Definitions

1.01 The following words and expressions, or pronouns used in their stead, shall be construed as follows:

"**Adjusted Prevailing Water Rate**" shall have the meaning ascribed in Article 3 herein.

"**Annual Volume**" shall mean the actual volume of water used by Customer for the period of July 1st to June 30th as measured on bills issued from August 1st through July 31st.

"**Board**" shall mean the City of Detroit Board of Water Commissioners.

"**City**" shall mean the City of Detroit, a municipal corporation, acting through its Board of Water Commissioners.

"**Contract**" shall mean each of the various provisions and parts of this document, including all attached Exhibits and any amendments thereto, as may be executed and approved by Customer's governing body, the Board of Water Commissioners, and the Detroit City Council.

"**Contract Term**" shall have the meaning ascribed in Article 2 herein.

"**Customer**" shall mean the Party that enters into a contract with the City of Detroit by way of this Contract, whether an authority, city, township, village or other municipal corporation recognized by the State of Michigan.

"**Customer Maximum Day Demand**" shall mean the Customer's recorded water usage on the DWSD Maximum Day. Customer Maximum Day Demand shall, in conjunction with Customer Peak Hour Demand, be a component of its Maximum Flow Rate.

"**Customer Peak Hour Demand**" shall mean the Customer's recorded water usage during the DWSD Peak Hour. Customer Peak Hour Demand, in conjunction with Customer Maximum Day Demand, shall be a component of its Maximum Flow Rate.

"**DWSD**" shall mean the City of Detroit Water and Sewerage Department.

"**DWSD Maximum Day**" shall mean the maximum reported water production day for the System during any twenty-four hour period as measured from 12:00 a.m. Eastern Standard Time in any given calendar year, as determined by DWSD in reviewing water production and storage reports.

"**DWSD Peak Hour**" shall mean the hour during the DWSD Maximum Day in which the most water is delivered to the System, measured from top-of-the-hour to top-of-the-hour (e.g. 7:00 a.m. to 8:00 a.m.), and as determined by DWSD in reviewing water production and pumping reports. In calculating the DWSD Peak Hour, the time period from 11:00 PM to 5:00 AM Eastern Standard Time (EST) shall not be considered provided, however, that if Customer has an approved Filling Schedule, the time period specified in the Filling Schedule shall supersede the time period of 11:00 PM to 5:00 AM EST.

"**Early Termination Costs**" shall have the meaning ascribed in Article 3 herein.

"**Filling Schedule**" shall have the meaning ascribed in Article 22 herein.

"**Maximum Flow Rate**" shall mean the aggregate amount of water usage that Customer commits not to exceed, as determined by the Customer Maximum Day Demand and the Customer Peak Hour Demand, collectively.

"**Meter Facilities**" shall mean a location in which a water meter is housed including, without limitation, meter pits and meter vaults.

"**Minimum Annual Volume**" shall mean fifty percent of Customer's Projected Annual Volume.

"**Notices**" shall mean all notices, consents, approvals, requests and other communications required to be given under the terms of this Contract.

"**Pressure Problem**" shall have the meaning ascribed in Article 5 herein.

"**Pressure Range**" shall have the meaning ascribed in Article 5 herein.

"**Projected Annual Volume**" shall mean the projected annual water sales to Customer as set forth in Exhibit B.

"**Service Area**" shall mean the mutually agreed upon area where Customer is permitted to distribute water received from the Board under the terms of this Contract which (a) may be entirely within the corporate limits of Customer or may exceed the corporate limits of Customer and (b) which may or may not include the entire geographical area within the Customer's corporate limits.

"**System**" shall mean the public water works system owned and operated by the City of Detroit, acting through its Board of Water Commissioners and its Water and Sewerage Department.

"**Technical Advisory Committee**" shall mean the committee consisting of representatives of the Detroit Water and Sewerage Department, wholesale water customers of the Detroit Water and Sewerage Department and their respective representatives, and shall include its successor or replacement if altered or discontinued. The Technical Advisory Committee or its successor shall remain in existence for a minimum term of January 1, 2008 until December 31, 2038 unless the committee determines otherwise.

"**Water Distribution Points**" shall have the meaning ascribed in Article 4 herein.

Article 2.
Contract Term

2.01 Term. The Board shall sell and supply water to Customer from the System in accordance with the terms of this Contract for a period of thirty years from the effective date of this Contract and any ten-year renewal terms (collectively the "Contract Term"), subject to Article 3 herein. The effective date of this Contract shall be the date that this Contract is approved by the Detroit City Council or Customer's governing body whichever is later. This Contract replaces and supersedes any prior water service contracts between the Parties.

2.02 Renewal. This Contract shall automatically renew at the conclusion of the thirty-year term for an additional ten-year term, unless a Party provides written notification to the other Party in accordance with Article 16 on or before the conclusion of the twenty-fifth year of the thirty-year term stating its intent not to renew this Contract. Thereafter, this Contract shall automatically renew every ten years for an additional ten-year term, unless a Party provides written notification to the other Party in accordance with Article 16 on or before the conclusion of the fifth year of the then current ten-year term stating its intent not to renew this Contract. The automatic renewals of this Contract shall not preclude a review of its terms and the Parties are encouraged to reaffirm or amend its terms as necessary. The Parties may, in writing, mutually agree upon a longer renewal term.

2.03 Notification of Renewal. The Board shall notify Customer of its first Contract renewal option during the twenty-fifth year of the thirty-year term; provided, however, that the Board's failure to so notify Customer shall not obviate Customer's obligations as set forth in Section 2.02.

Article 3.
Early Termination Costs

3.01 Early Termination Costs. In addition to any other remedies provided for by law or by the terms of this Contract, Customer shall be liable to the Board for the payment of any costs incurred by the Board related to providing water to Customer in the event Customer terminates this Contract before the conclusion of a Contract Term ("Early Termination Costs"); provided, however, that payment of such Early Termination Costs by Customer shall not entitle Customer to receive water service from the Board.

3.02 Calculation of Costs. Payment of Early Termination Costs will be calculated by applying the Adjusted Prevailing Water Rate to the Minimum Annual Volume requirements for the remainder of the Contract Term. The Adjusted Prevailing Water Rate shall be the rate charged by the Board to Customer as of Customer's effective termination date, adjusted annually to reflect projected inflationary increases utilizing a locally based wholesale price index. The Parties may agree upon another standardized price index. The Board may seek a recommendation from the Technical Advisory Committee on the amount of the Early Termination Costs.

3.03 Specifically Constructed Facilities. If the Board has constructed facilities specifically for the benefit of Customer, additional costs may be included in the calculation of the Early Termination Costs, provided that any such facilities shall be identified in a written agreement between the Board and Customer at or near the time of construction.

3.04 Formation of Water Authority. Customer may join with another authority, city, township, village or other municipal corporation recognized by the State of Michigan to form a water authority for the sole purpose of collectively contracting for water service from the Board. The exercise of this right shall not be construed as an early termination of this Contract and this Contract shall be voided upon the approval of a new water service contract by Customer's governing body, the Board and the Detroit City Council.

Article 4.
Service Area

4.01 Delivery Location. Water shall be delivered by the Board to Customer at the location(s) identified in Exhibit A (collectively, the "Water Distribution Points"), and at other locations as may be mutually agreed upon in writing by the Board and Customer.

4.02 Limit of Responsibility. The Board shall have no responsibility for distributing, operating, repairing, replacing and maintaining any portions of the Customer's water supply system downstream of the Water Distribution Points shown in Exhibit A, provided, however, that this Section 4.02 does not prevent the application of the provisions of Section 11.02 herein.

4.03 Board Responsibility. The Board owns and is responsible for operating and maintaining all parts of its System upstream from Customer's Water Distribution Points. Should the Board fail to maintain its Meter Facilities and/or any Board owned and maintained equipment within the Meter Facilities, Customer shall provide written notice to the Board which describes the objectionable condition of the Meter Facility and/or the equipment within, and its intent to take reasonable steps to maintain the condition and charge the reasonable cost of doing so to the Board. Upon receipt of the notice and subject to Section 11.01, the Board shall have thirty calendar days to repair the condition specified in the notice, unless a force majeure event prevents the repair within the thirty-day period. If the Board has not repaired the condition at the conclusion of the thirty-day period and has not provided a written explanation to Customer explaining the reason for the delay (e.g. necessary parts are on order or occurrence of a force majeure event specified in Section 11.01), then Customer may take reasonable steps to maintain the specified condition and charge the reasonable cost of doing so to the Board.

4.04 Extension of Service Area. Customer's distribution of water supplied by the Board shall be limited to the Service Area stated in Exhibit A. The Parties agree that situations may arise in which Customer desires to extend its Service Area, either temporarily or permanently, beyond its corporate limits. Should such a situation arise, Customer shall provide written notice to the Board explaining the nature, duration and extent of the requested Service Area extension. The Board shall have the option, which it may exercise at any time, of requiring a written amendment to this Contract to accommodate the change in Service Area. Should the Board determine that an immediate amendment is required, the Parties shall, within thirty calendar days of Customer's request, meet to negotiate mutually agreeable terms for the extension of the Service Area. The Board shall not unreasonably deny a request to extend the Service Area.

4.05 Change or Addition of Water Distribution Points. Water Distribution Points may be added or changed only by the express written agreement of the Board and Customer and shall be embodied in a written amendment to this Contract.

4.06 Sole Supplier. Except as provided in Article 17 herein, the Board shall be the sole supplier of public potable water to Customer's Service Area.

Article 5.
Pressure; Maximum Flow Rate; Minimum Annual Volume

5.01 Pressure Range. The Board shall use its best efforts to deliver water at the Water Distribution Points at a pressure range ("Pressure Range") adequate to meet the reasonable requirements of Customer. For purposes of evaluating this effort, water pressure shall be determined by reviewing the average hourly pressure measured from top-of-the-hour to top-of-the-hour (e.g. 7:00 a.m. to 8:00 a.m.). The Pressure Range to be provided by the Board to Customer's Water Distribution Points is specified in Exhibit B. The location at which the water pressure will be measured shall be specified in Exhibit A and identified as point "P". A Pressure Range will not be established for water meters that are not located on a DWSD transmission main.

5.02 Remedy for Non-Compliance with Pressure Range. If the water pressure at Customer's Water Distribution Points is above or below the Pressure Range, the Parties shall meet to discuss the reasons for the non-compliance and, if agreed, develop and implement a mutually agreeable written corrective action plan within sixty calendar days of the pressure event, or as otherwise agreed. The corrective action plan shall include a timetable for resolution of the non-compliance issue(s).

A. If it is determined that another customer's exceedence of the rates of flow established by that customer's Maximum Flow Rate caused or contributed to the Board's inability to meet its Pressure Range agreement with Customer, then the corrective action plan shall provide for the resolution of the issue.

B. If Customer is exceeding the rates of flow established by its Maximum Flow Rate on a day other than the DWSD Maximum Day at the time Customer experiences a variation from the Pressure Range, then the Board shall be relieved from its obligation to provide water to Customer within the Pressure Range for that period of time during which Customer is exceeding the rates of flow established by its Maximum Flow Rate.

5.03 Maximum Flow Rate. Customer's Maximum Flow Rate is specified in Exhibit B. Customer shall not exceed the Maximum Flow Rate specified in Exhibit B, as measured in million gallons on the DWSD Maximum Day and during the DWSD Peak Hour.

5.04 Remedy for Non-Compliance with Maximum Flow Rate. The Board has no obligation to supply to Customer more than the Maximum Flow Rate. If Customer exceeds its Maximum Flow Rate on the DWSD Maximum Day or during the DWSD Peak Hour, the Board and Customer may, as needed, take one or more of the following steps:

A. The Board may require that Customer take all reasonable steps to reduce its consumption to the Maximum Flow Rate. Such steps may include water conservation measures, outdoor water use restrictions, water loss studies and remediation, and an internal system operation evaluation.

B. The Parties may meet to negotiate a new Maximum Flow Rate. If so negotiated, Customer shall pay the rate associated with the new Maximum Flow Rate in the subsequent rate year.

C. The Board may recalculate Customer's rate for the Board's current fiscal year utilizing a revised cost allocation formula as follows:

i. For cost allocation purposes only, a new Maximum Flow Rate will be established from the first exceedence date forward. The new Maximum Flow Rate will be at least equal to the flow rate demonstrated by Customer on the DWSD Maximum Day, and may be higher than the actual flow rate demonstrated by Customer. Pursuant to subsection (ii) below, the Board will seek a recommendation from the Technical Advisory Committee's Analytical Work Group (as defined in Section 6.07 herein) on the establishment of the new Maximum Flow Rate. If the Board receives a recommendation and the recommendation is higher than twice the amount by which the demonstrated flow rate exceeded the original Maximum Flow Rate, then the Board shall be limited to establishing a new Maximum Flow Rate that is at least equal to the flow rate demonstrated by Customer on the DWSD Maximum Day and no higher than the recommendation provided by the Analytical Work Group. If no recommendation is received by the Board, or if the Board receives a recommendation and the recommendation is less than twice the amount by which the demonstrated flow rate exceeded the original Maximum Flow Rate, then the Board shall be limited to establishing a new Maximum Flow Rate that is at least equal to the flow rate demonstrated by Customer on the DWSD Maximum Day and no higher than twice the amount by which the demonstrated flow rate exceeded the original Maximum Flow Rate. In any event, Customer's exceedence of its Maximum Flow Rate will continue to affect each subsequent year's rate calculation until renegotiated. If a rate has been approved for the next fiscal year (July 1st to June 30th) but the rate has not yet been applied, the Board may modify Customer's rate to account for an exceedence of its Maximum Flow Rate. If the Board has built capital facilities based upon Customer's negotiated Maximum Flow Rate and Customer consistently exceeds its Maximum Flow Rate, then the Board may re-calculate the amount of Customer's percentage of the capital cost of such facilities.

ii. The Board will seek a recommendation from the Technical Advisory Committee's Analytical Work Group, or its successor, whenever it intends to invoke subsection 5.04(C)(i). Any recommendation from the Analytical Work Group shall be received by the Board within sixty calendar days after the Board's request for a recommendation.

5.05 Procedure for Non-Compliance with Maximum Flow Rate. If Customer has failed in its obligations under Section 5.03, the Parties shall meet to discuss the reasons for the non-compliance and develop and implement a mutually agreeable written corrective action plan within sixty calendar days of the non-compliance event, or as otherwise agreed. If the Parties determine that a corrective action plan is not required and a subsequent incident of non-compliance occurs, the Parties shall meet to develop and implement a mutually agreeable written corrective action plan within sixty calendar days of the subsequent incident of non-compliance, or as otherwise agreed. Any corrective action plan required under this Section 5.05 shall include a timetable for resolution of the non-compliance issue(s). In the event the reason for Customer's non-compliance under Section 5.03 is due to a Customer water main break, fire or meter calibration performed by DWSD, these events will be taken into consideration in determining (1) whether a corrective action plan is warranted and (2) the extent to which, if any, the steps specified in Section 5.04 should apply.

5.06 Minimum Annual Volume. Customer shall purchase from the Board not less than the Minimum Annual Volume of water specified in Exhibit B. If Customer's Annual Volume is less than the Minimum Annual Volume, Customer shall pay to the Board an amount computed by applying the current rate to the Minimum Annual Volume less any amounts already billed to the Customer by the Board.

5.07 Periodic Review. For Customer and System planning purposes and, with regard to the Minimum Annual Volume, enforcement of the provisions of Article 3, a Maximum Flow Rate, Pressure Range, Projected Annual Volume and Minimum Annual Volume shall be established by mutual agreement for the Contract Term. A contractually binding Maximum Flow Rate, Pressure Range, Projected Annual Volume and Minimum Annual Volume shall be established by mutual agreement for first two years of the Contract Term. Not later than the second year of the Contract Term, the Board and Customer shall negotiate a contractually binding Maximum Flow Rate, Pressure Range, Projected Annual Volume and Minimum Annual Volume for the succeeding three years of the Contract Term. Not later than the fifth year of the Contract Term, and every five years thereafter, the Board and Customer shall negotiate a contractually binding Maximum Flow Rate, Pressure Range, Projected Annual Volume and Minimum Annual Volume for the succeeding five years of the Contract Term. If the Parties do not negotiate new or revised Maximum Flow Rates, Pressure Ranges, Projected Annual Volumes and Minimum Annual Volumes according to the aforementioned schedule, then the figures established for planning purposes (as shown in italicized type in Exhibit B) shall become contractually binding for the then-current three or five year term.

5.08 Remedy for Excessive Rate(s) of Flow Causing Pressure Problem(s). Customer acknowledges that Customer's rates of flow may cause and/or contribute to the Board's inability to meet its Pressure Range agreements with Customer and/or the Board's other customers (hereinafter, "Pressure Problem"). The Board may review or monitor Customer's daily rates of flow if a Pressure Problem occurs and the Board's Pressure Range agreement with Customer and/or another customer of the Board is alleged to have been breached. The approximate rate of flow by individual meter location used to establish the Pressure Range and Maximum Flow Rate is specified in Exhibit B. If a Pressure Problem occurs, the Parties shall meet to discuss the reasons for the Pressure

Problem and develop and implement a mutually agreeable written corrective action plan within sixty calendar days of the Pressure Problem, or as otherwise agreed. The corrective action plan may require one or both of the following steps:

A. The Board may require that Customer take all reasonable steps to reduce its consumption to the rate of flow established by the Maximum Flow Rate. Such steps may include water conservation measures, outdoor water use restrictions, water loss studies and remediation, and an internal system operation evaluation. In addition, the Board may require that Customer adjust its rate of flow at individual meters, including the establishment of a not-to-exceed flow rate for individual meters.

B. The Parties may meet to negotiate a new Maximum Flow Rate. If so negotiated, Customer shall pay the rate associated with the new Maximum Flow Rate in the subsequent rate year.

If the Parties determine that a corrective action plan is not required and a subsequent Pressure Problem occurs, the Parties shall meet to develop and implement a mutually agreeable written corrective action plan within sixty calendar days of the subsequent Pressure Problem, or as otherwise agreed. Any corrective action plan required under this Section 5.08 shall include a timetable for resolution of the Pressure Problem. In the event the reason for the Pressure Problem is due to a Customer water main break, fire or meter calibration performed by DWSD, these events will be taken into consideration in determining (1) whether a corrective action plan is warranted and (2) the extent to which, if any, the steps specified above in this Section 5.08 should apply.

5.09 Board Costs for Corrective Action Plan. If at any time the Board is required under the terms of this Article 5 to develop and implement a corrective action plan and the plan involves incurring capital costs, the Board will determine whether the costs will be charged as a System cost or whether the cost will be borne by a specific customer or customers. If the Board determines that all or part of the costs should be borne by a specific customer or customers, the Board will seek a recommendation from the Technical Advisory Committee on the assessment of the costs.

5.10 Customer Costs for Corrective Action Plan. If at any time Customer is required under the terms of this Article 5 to develop and implement a corrective action plan, Customer will pay all costs related thereto.

Article 6.
Technical Advisory Committee

6.01 Establishment. The Technical Advisory Committee is formed to facilitate a cooperative working partnership between the Board and its wholesale water customers by facilitating the development of recommendations regarding System planning and supply to DWSD management and the Board. The Technical Advisory Committee shall maintain bylaws that govern the way it conducts its business. In the event of a conflict between the terms of the bylaws adopted by the Technical Advisory Committee and the terms of this Contract, the terms of this Contract shall control.

6.02 General Responsibilities. The Technical Advisory Committee shall periodically review and evaluate the rates, rate methodology, and performance of the System. The Technical Advisory Committee shall review and evaluate flow rates, pressures and Annual Volumes for the System at a minimum of every five years to assist the Board in its System planning effort. The Technical Advisory Committee shall have the opportunity each year to review the Capital Improvement Program as prepared by DWSD, prior to its adoption by the Board. The Technical Advisory Committee may consider Customer proposals for improving the operation of Customer's water system and/or the System. The Board will supply the Technical Advisory Committee with information the Board deems reasonably necessary to accomplish the general responsibilities defined in this Section 6.02.

6.03 Annual Report by Board. The Board will present an annual report to the Technical Advisory Committee which shall consist of (1) all instances of non-compliance with the Parties' obligations contained in Article 5 herein, including Customer and Board responses thereto; (2) a general report on System operation and maintenance; and (3) a report that lists those contracts, if any, that have been entered into by the Board and another customer(s) where the terms of the contract(s) invoke the application of Article 14 herein.

6.04 Notification of Rates. The Board shall provide Customer and the Technical Advisory Committee with notice of the proposed rates for each fiscal year as early as possible before the implementation of the rates.

6.05 Disclosure of Rate Information by Board. Each year, the Board will disclose to Customer and the Technical Advisory Committee information related to wholesale rates.

6.06 Disclosure of Rate Information by Customer. Each year, Customer will disclose to its customers information related to its retail rates and other charges, and information regarding what portion of those costs is related to charges from DWSD and/or other major service providers.

6.07 Work Groups. The Technical Advisory Committee may create work groups to address specific issues facing the System. The work groups in existence as of January 1, 2008 are the Analytical Work Group, the Best Practices Work Group, the Contract Work Group, the Customer Service Work Group, the Emergency Preparedness Work Group, and the Rates Work Group. Any reference to a particular work group in this Contract shall include its successor or replacement if altered or discontinued.

Article 7.
Rates

7.01 Rates. Customer agrees to pay for all water supplied by the Board at such rates as the Board may establish. Rates shall be reasonable in relation to the costs incurred by the Board for the supply of water and shall conform to Public Act 34 of 1917, Michigan Compiled Laws, Sec. 123.141, et seq., as amended. The Board shall give written notice of any changes in the rates. Notice shall be made in accordance with Section 5e of Public Act 279 of 1909, Michigan Compiled Laws, Sec. 117.5e, as amended, ("Act 279").

7.02 Notification of Rates. As soon as possible in the ratemaking process, the Board shall provide information on proposed rates and the draft data and information used in the calculation of proposed rates in a format that will enable Customer to assist in the ratemaking process. Not less than thirty calendar days prior to the hearing required by Act 279, the Board shall provide Customer with written notice of a proposed rate and the underlying data used to calculate the rate. The Board shall meet with Customer to review the rate and the data.

7.03 Estimate of Usage. In the event meters fail to correctly measure the quantity of water supplied to Customer for any period of time, the Board shall provide a reasonable estimate of the quantity of water supplied to Customer for such period provided that there is a reasonable basis for the estimate. Customer and the Board shall, either through their respective technical representatives and/or the Technical Advisory Committee, seek agreement upon a method to estimate such quantities. In the event the Parties are unable to agree upon a method to estimate such quantities, the Board's determination of a method shall be conclusive and the Customer agrees to accept the estimate established by the Board.

7.04 Rate Methodology. The Board agrees to provide to Customer a description of the current methodology for rate making in the form of the "Rates 101" document produced by the Technical Advisory Committee, as may be periodically updated. The "Rates 101" document, entitled *DWSD Rates: Understanding DWSD Wholesale Water Rates*, and any updates thereto shall be provided to Customer via posting on the DWSD website.

Article 8.
Meters and Meter Facilities

8.01 Metering Requirement. All water furnished by the Board to Customer shall be measured by water meters installed in Meter Facilities at Customer's Water Distribution Points unless, in the Board's determination, it is not feasible to install water meters due to the configuration of Customer's water system.

8.02 Existing Distribution Points. As of the effective date of this Contract, the Board shall own, operate and maintain all water meters and Meter Facilities for all existing Water Distribution Points, unless specifically indicated otherwise in Exhibit A.

8.03 Customer Maintenance Responsibilities. Customer shall be responsible for maintaining at its Water Distribution Points any and all appurtenances as may be designated as Customer's responsibility in Exhibit A. Should Customer fail to maintain the appurtenances shown in Exhibit A, the Board may take reasonable steps to maintain the appurtenances and charge the reasonable cost of doing so to Customer. Prior to the Board taking action to maintain the appurtenances, the Board shall give Customer thirty days written notice to complete the required maintenance. Notice to the Customer shall not be required if, in the Board's determination, there exists an emergency condition affecting the operation of the System or if the health, safety and welfare of the general public may be jeopardized.

8.04 New Distribution Points. For any new Water Distribution Points that may be constructed or installed after the effective date of this Contract, Customer shall furnish at Customer's expense, a water meter and Meter Facility that meets the Board's specifications. Thereafter, the Board shall furnish any replacement water meters for new Water Distribution Points and the expense shall be recovered through the Board's rates as a System cost. The Board shall own, operate and maintain all water meters and Meter Facilities after construction, installation or replacement, unless specifically indicated otherwise in Exhibit A.

8.05 Meter Repair and Replacement. If the Board initiates a meter repair or meter replacement, the cost shall be recovered through the Board's rates as a System cost. If Customer requests a meter replacement for reasons other than malfunction or disrepair, Customer shall pay the cost of the replacement.

8.06 Pressure Regulating Facilities. After the effective date of this Contract, all newly installed Customer-owned pressure regulating facilities shall be installed in a facility that is separate from the Board's Meter Facility.

Article 9.
Dispute Resolution

9.01 Any and all claims alleging a breach of this Contract may first be submitted to an alternative dispute resolution process. An alternative dispute resolution process may include, but is not limited to, facilitation, binding arbitration, or non-binding arbitration. Each Party shall be responsible for its own costs and fees (including expert witness fees and attorney fees), unless otherwise agreed to in writing. The Parties shall agree upon the form and procedures for the agreed upon alternative dispute resolution process. This Article 9 shall not prohibit a Party from seeking relief directly from a court of competent jurisdiction at any time.

Article 10.
Default Provisions

10.01 In the event either Party commits a material breach of this Contract, the Party alleging the breach shall give written notice of the breach to the other Party within a reasonable time of discovering the breach. The Party in breach shall be given a reasonable time to cure the breach. If the Party in breach fails to cure the breach, the non-breaching Party may declare this Contract in default and pursue all available legal remedies, including termination of this Contract for cause. In the event that the Party in breach is showing reasonable progress toward curing the breach, the Party alleging the breach may extend the time for curing the breach.

Article 11.
Force Majeure and Other Events

11.01 Force Majeure. No failure or delay in performance of this Contract, by either Party, shall be deemed to be a breach thereof when such failure or delay is caused by a force majeure event including, but not limited to, any Act of God, strikes, lockouts, wars, acts of terrorism, riots, epidemics, explosions, sabotage, breakage or accident to machinery or lines of pipe, the binding order of any court or governmental authority, or any other cause, whether of the kind herein enumerated or otherwise, not within the control of a Party, except that no cause or contingency shall relieve Customer of its obligation to make payment for water delivered by the Board.

11.02 Board Liability. Except to the extent that the Board is the proximate cause, the Board shall not be held liable or accountable for any bursting, leakage, breakage, damage or accident of any kind that may occur to Customer's water works system, or any damages of any kind or nature, including, but not limited to, injury to persons or damage to property, resulting from such bursting, leakage, breakage, damage or accident that may occur to water mains or pipes located downstream of the Water Distribution Points specified herein, or located within Customer's distribution system.

11.03 Discontinuance of Service. In the event the public health, safety and welfare requires the Board to discontinue temporarily all or part of the supply of water to Customer, no claims for damages of any kind or nature for such discontinuance shall be made by Customer against the Board. The Board will provide notice to Customer of any temporary discontinuance of the water supply.

Article 12.
Timely Payment

12.01 Bills for water service shall be rendered to Customer on a monthly basis. All such bills shall be due and payable within forty-five calendar days from the date shown on the bill. Any portion of the charges that are not paid by the due date shall be subject to a finance charge at a rate of 1.5% per month for each month that they remain unpaid. Any portion of the total bill, plus any finance charges applied to the bill which are not paid by the next billing date, shall be shown on the next bill as arrears. The Board may disconnect water service if bills are overdue ninety calendar days from the billing date. The Board shall not terminate water service if there is a good faith dispute concerning the accuracy of billings. If the accuracy of a bill is in dispute, Customer shall place the disputed amount in an escrow account pending resolution of the dispute. Accrued interest on the escrow account shall belong to the Party that prevails in the resolution of the dispute.

Article 13.
Assignment

13.01 This Contract shall not be assigned, in whole or in part, by either Party without the prior written consent of the other Party. Consent to an assignment by either Party shall not be unreasonably withheld.

Article 14.
Ensuring Equality of Contract Terms

14.01 If the Board enters into any contract, and any amendments thereto, with a water service customer other than Customer, and the material terms of such other contract are more favorable than the material terms of Customer's Contract, Customer may elect to adopt all of such other material terms. However, if Customer exercises the option provided for in this Article 14, Customer must accept all material terms of the other contract in their entirety and may not select among various terms contained in multiple other contracts by, for example, selecting the Contract Term from one contract and the Early Termination Costs provision of another contract. The terms and conditions of Exhibit B of this Contract are specifically excluded from the application of this Article 14.

Article 15.
Amendment

15.01 The Parties may periodically consider it in their best interests to change, modify or extend a term, condition or covenant of this Contract for reasons which may include, but are not limited to, the creation, expansion or closing of industry or other business. Any change, addition, deletion, extension or modification that is mutually agreed upon by the Board and Customer shall be incorporated in a written amendment to this Contract. Such amendments shall not invalidate this Contract nor relieve or release either Party of any of its respective obligations under this Contract unless so stated in the amendment.

15.02 No amendment to this Contract shall be effective and binding upon the Parties unless it expressly makes reference to this Contract, is in writing, is signed and acknowledged by duly authorized representatives of both Parties, is approved by Customer's governing body, and is approved by the Board and the Detroit City Council.

Article 16.
Notices

16.01 Except as otherwise specified herein, all notices, consents, approvals, requests and other communications (collectively, "Notices") required or permitted under this Contract shall be given in writing and mailed by first class mail to the Parties and at the addresses identified in Exhibit B.

16.02 All Notices shall be deemed given on the day of post-marked mailing. Any Notice given by a Party hereunder must be signed by an authorized representative of such Party.

16.03 Notwithstanding the requirement above as to the use of first-class mail, change of address notices, termination notices, and other Notices of a legal nature, shall be sent by certified first-class mail, postage prepaid, return receipt requested.

Article 17.
Water Quality

17.01 Contamination. For the protection of the health of all consumers supplied with water from the System, Customer agrees to guard carefully against all forms of contamination. Should contamination occur, the area or areas affected shall immediately be shut off and isolated, and shall remain so until such conditions shall have been abated, and the water declared safe and fit for human consumption by the properly constituted governmental health agencies having jurisdiction of the area affected. Customer shall immediately notify the Board, and the Board shall immediately notify Customer, of any emergency or condition that may affect the quality of water in either Party's system.

17.02 Co-mingling of Water Sources. Except in cases of emergency, Customer will not permit water from any other source of supply to be mixed or mingled with water from the System without prior written approval from the Board. In cases of emergency, only such water from sources other than the Board shall be used as shall meet the requirements of the Michigan Department of Environmental Quality, and then only in such quantities as shall be necessary to relieve the emergency.

17.03 Emergency Connections. During emergencies, Customer's water facilities may be used and connected, at the discretion of the Board, to water facilities serving other communities for flow in either direction to provide an adequate water supply from the System to Customer and to other areas and other units of government. Customer shall be permitted to immediately make an emergency connection when the connection point to be used has been previously approved for emergency use by the Board in writing, provided that Customer shall, after making the connection, promptly notify the Board of such event. When the emergency has been abated, the emergency connection must be severed as soon as practicable. The Board, or its designee, must approve, in writing, the continuation of any emergency connection that is required for longer than seven calendar days. If an approved emergency connection continues for more than seven calendar days, Customer must provide the Board with weekly updates on the emergency and a schedule for abatement of the emergency that must be approved by the Board in writing.

17.04 Water Quality. The Board shall endeavor to remain in compliance with all applicable Michigan and Federal laws, rules and regulations regarding drinking water quality.

Article 18.
Rights-of-Way

18.01 Use of Rights-of-Way. The Customer shall assist the Board to obtain permission to use streets, highways, alleys, and/or easements in the local governmental units within the Customer's jurisdiction for the purpose of constructing, maintaining, and operating water facilities to adequately service the Customer's jurisdiction and other areas. This assistance shall include obtaining the consent of the local governmental units, as provided in Article 7, Section 29, Michigan Constitution of 1963. In the event of such construction, the Board shall request the Customer and local governmental units within the Customer's jurisdiction to execute such separate instruments granting rights-of-way in its streets, highways, and alleys as may be reasonably required by the Board. The

Board shall give the Customer notice of any construction work in the Customer's jurisdiction. The Board shall comply with any of Customer's ordinances that apply to the construction. Customer shall inform the Board of the applicable ordinances. The Board and Customer shall meet to review the construction and its impact on their respective operations. The Board shall restore all existing structures and/or improvements laying in the right-of-way of construction to as good a condition as before the construction took place. Any such facilities constructed, maintained and operated under this section shall remain the property of the Board and shall not be operated or maintained by any entity other than the Board or its authorized representatives.

18.02 Relocation of Facilities. Should future construction by any federal, state or county agency require relocation of a water transmission main, Meter Facility or other Board facility, the cost incurred by the Board for such relocation, if not reimbursed by the agency requiring the relocation, will be charged in future rates as a common-to-all cost to all System users. Otherwise, the cost incurred by the Board for construction requiring the relocation of a water transmission main, Meter Facility or other Board facility that is proposed, required, undertaken, conducted or facilitated by Customer will be charged to Customer.

18.03 Easements. Subject to the provisions of Section 18.01 herein and to the extent that Customer has jurisdiction, the Board shall be granted temporary and permanent easements, and shall be permitted to use the streets, alleys and highways within Customer's legal jurisdiction for the purpose of constructing, operating and maintaining the System. This consent by Customer is given in compliance with Article 7, Sec. 29 of the Michigan Constitution of 1963, provided that the Board shall provide Customer with a written explanation of the type of easement required and the duration thereof.

Article 19.
Access to Towers and Antennas

19.01 Where possible, each Party shall give to the other Party access to towers and antennas under its respective jurisdiction for the purpose of transmitting information recorded in the Meter Facilities. Access shall not be unreasonably denied by either Party.

Article 20.
Relationship to Wastewater Services

20.01 Customer and the Board acknowledge that future growth in the System may place additional burdens on their respective wastewater systems. Customer, if it is also a wastewater disposal services customer of the Board, understands that any increase in the volume of water it receives from the System is not a guarantee of increased capacity in the Board's wastewater disposal system.

Article 21.
Construction Standards

21.01 The Board shall have the right to review and approve Customer's construction plans for Meter Facilities at new Water Distribution Points, water mains sized twenty-four inches and larger, pump stations, reservoirs and water towers. The Board's approval of construction plans shall be timely and shall not be unreasonably withheld.

Article 22.
Operation of Storage

22.01 Prior to Customer's operation of any new or existing water storage facility, Customer shall seek the Board's written approval of the filling schedule ("Filling Schedule") of the storage facility. The Board may periodically require Customer to change or adjust a previously approved Filling Schedule. The Parties shall collaborate on devising a mutually beneficial Filling Schedule. If the Parties are unable to agree upon a Filling Schedule, the Board's determination of a Filling Schedule shall be final. All Filling Schedules shall be for a period of six consecutive hours. Customer shall at all times abide by the then-current Board approved Filling Schedule. The Board shall act promptly in approving Filling Schedule requests. Nothing in this Article 22 shall prevent Customer from operating its storage facility at any time, provided that any storage operation that falls outside of the approved Filling Schedule shall not be exempt from the terms of Sections 5.03 and 5.04 herein.

Article 23.
Miscellaneous

23.01 If any provision of this Contract or its application to any person or circumstance shall to any extent be invalid or unenforceable, the remainder of this Contract shall not be affected and shall remain valid and enforceable to the fullest extent permitted by law.

23.02 This Contract contains the entire agreement between the Parties and all prior negotiations and agreements are merged into this Contract. Neither Party has made any representations except those expressly set forth in this Contract, and no rights or remedies are, or shall be, acquired by either Party by implication or otherwise unless expressly set forth in this Contract.

23.03 Unless the context otherwise expressly requires, the words "herein," "hereof," and "hereunder," and other words of similar import, refer to this Contract as a whole and not to any particular section or subdivision.

23.04 The headings of the sections of this Contract are for convenience only and shall not be used to construe or interpret the scope or intent of this Contract or in any way affect the same.

23.05 The rights and remedies set forth in this Contract are not exclusive and are in addition to any of the rights or remedies provided by law or equity. This Contract and all actions arising under it shall be governed by, subject to, and construed according to the law of the State of Michigan. Each Party agrees, consents and submits to the exclusive personal jurisdiction of any state or federal court of competent jurisdiction in Wayne County, Michigan, for any action arising out of this Contract. Each Party also agrees that it shall not commence any action against the other Party because of any matter whatsoever arising out of or relating to the validity, construction, interpretation and enforcement of this Contract in any state or federal court of competent jurisdiction other than one in Wayne County, Michigan.

23.06 There are no third party beneficiaries to this Contract and this Contract shall not be construed to benefit any persons other than the Board and Customer.

23.07 This Contract may be executed in any number of originals, any one of which shall be deemed an accurate representation of this Contract. Promptly after the execution of this Contract, the Board shall provide a copy to the Customer.

23.08 The rights and benefits under this Contract shall inure to the benefit of and be binding upon the respective Parties hereto, their agents, successors, and assigns.

23.09 Any and all documents, memoranda, reports, exhibits or other written material referred to in this Contract are and shall be incorporated by reference herein.

23.10 This Contract shall be deemed to be mutually drafted.

(Signatures appear on next page)

In Witness Whereof, the City and Customer, by and through their duly authorized officers and representatives, have executed this Contract.

Witnesses:

1. _____
(signature)

2. _____
(signature)

1. _____
(signature)

2. _____
(signature)

City of Troy:

By: _____
Louise E. Schilling

Its: Mayor

By: _____
Tonni L. Bartholomew

Its: City Clerk

Witnesses:

1. _____
(signature)

2. _____
(signature)

City of Detroit:

By: _____
Kwame M. Kilpatrick

Its: Mayor

APPROVED BY
TROY CITY COUNCIL ON:

_____
Date

APPROVED BY
BOARD OF WATER COMMISSIONERS ON:

_____
Date

APPROVED BY
DETROIT CITY COUNCIL ON:

_____
Date

EXHIBIT A
Customer's Water Distribution Points

This Exhibit contains the following information:

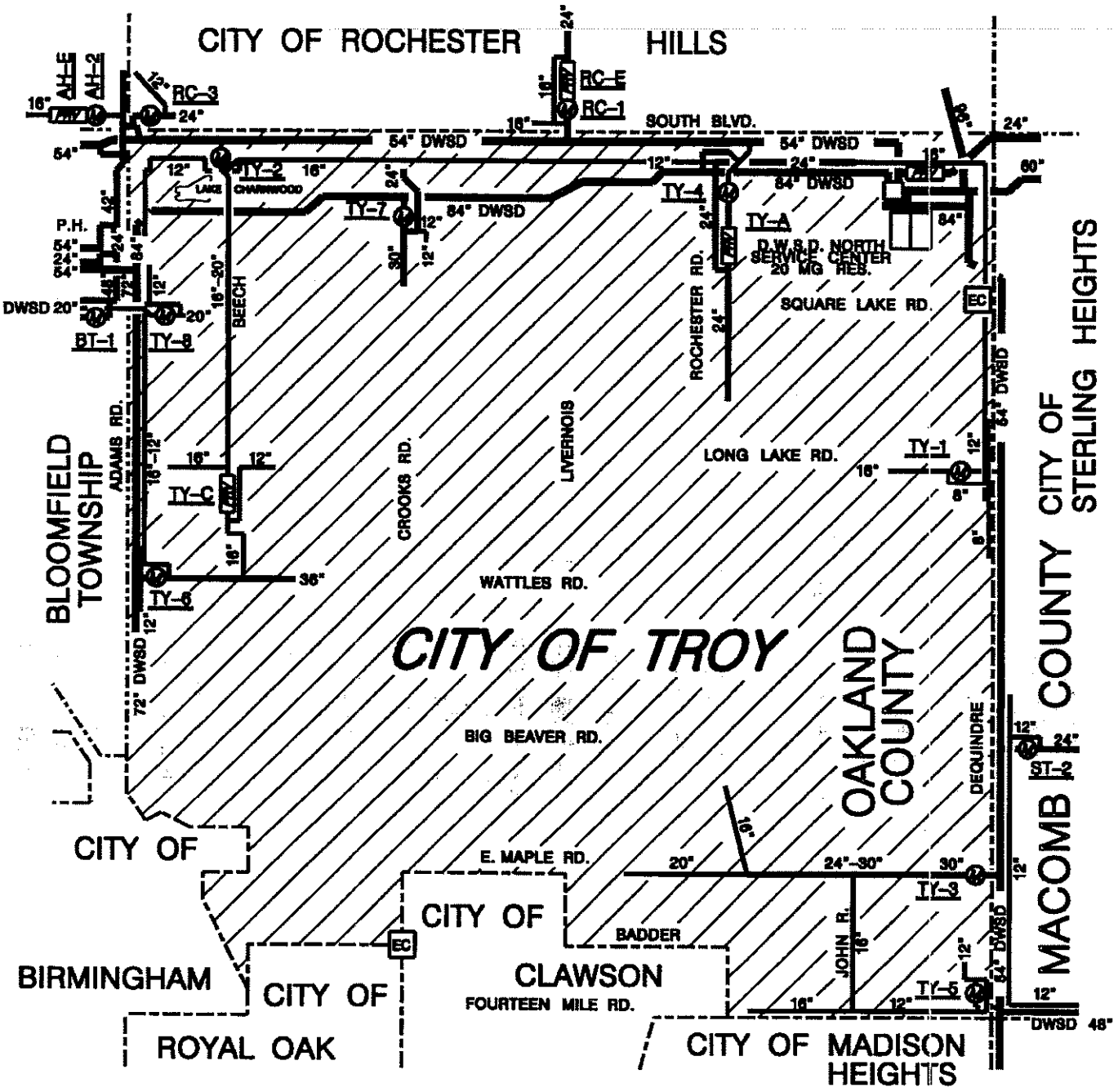
1. The corporate limits of Customer;

2. The agreed upon water Service Area of Customer which (a) may or may not be entirely within the corporate limits of Customer and (b) which may or may not include the entire area within the Customer's corporate limits;

3. The specific location of the Water Distribution Points, including any Board approved emergency connections;

4. The designation of appurtenances to be maintained by Customer and those to be maintained by the Board; and

5. A list of any closed meter locations.



LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
(M)	DWSD METER PIT		SERVICE AREA
[M]	COM METER PIT		CITY OR TWP LINE
PRV	PRV		CITY-TWP LINE
EC	EMERGENCY CONNECTION		

REVISED	DATE		
JT	04/07/08	EXHIBIT-A	SERVICE AREA LOCATION MAP CITY OF TROY
DLE	04/17/08		

Exhibit A

City of Troy Emergency Connections:

Connection to City of Clawson (SOCWA)
8" GV&W at the intersection of Main Street (Livernois) and Elmwood

Connection to Sterling Heights
8" GV&W across from Beaumont Hospital, 44201 Dequindre Road

City of Troy Water Customers Outside Corporate Limits:

3300 W. South Boulevard, Rochester Hills

3061 Adams Road, Bloomfield Township

6001 Adams Road, Bloomfield Township

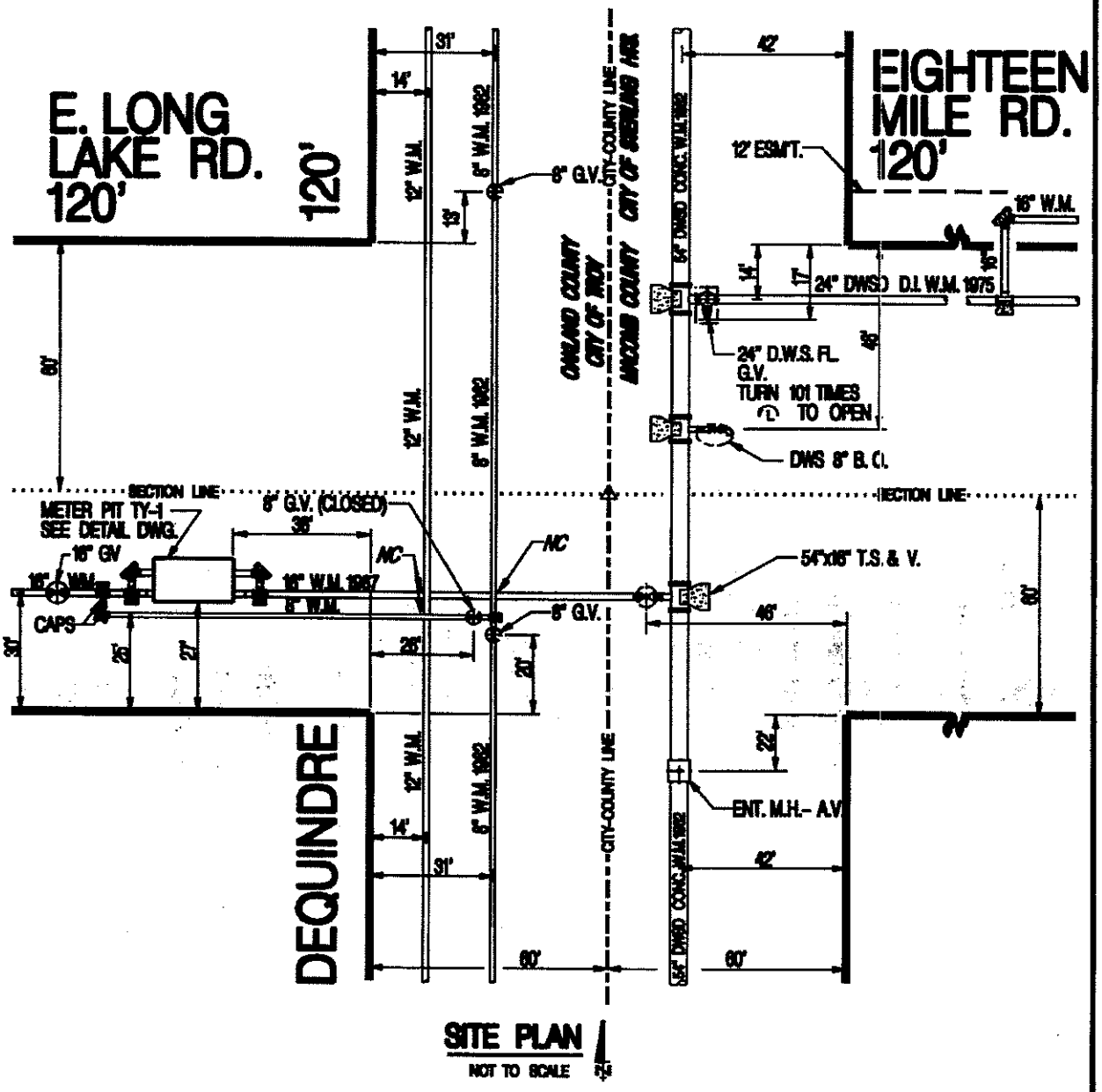
City of Troy Master Meter(s) Not In Service:

TY-02
TY-05

EXHIBIT A TY-01

DEQUINDRE & LONG LAKE RD.

CITY OF TROY



SITE PLAN

NOT TO SCALE

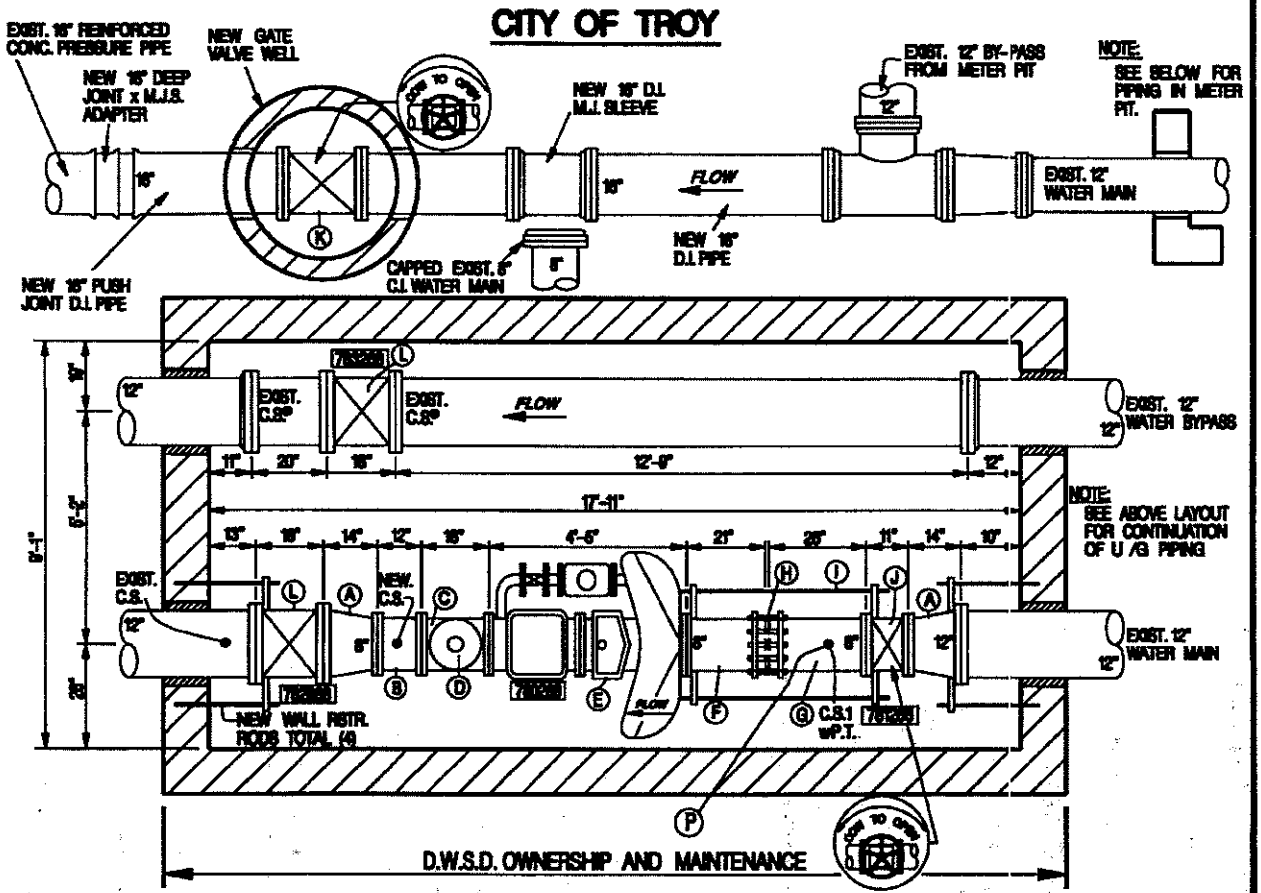
LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

TY 1

EXHIBIT A TY-01

DEQUINDRE & LONG LAKE RD.

CITY OF TROY



LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	2	12"x8" FLGD. CONCENTRIC REDUCERS, 14" F-F	12"x8"
B	1	8"x1' F-F PIPE w/1" TAP, D.I.	8"
C	1	8"x3" FLGD. TEST TEE, D.I., 9" C-F	8"x3"
D	1	TEST TEE ASSEMBLY w/3" COMPANION FLANGE	--
E	1	8"x2" FLGD. FIRELINE COMPACT METER, WS600, 53" F-F	8"x2"
F	1	8"x1'-9" F-PE PIPE, GADR, D.I.	8"
G	1	8"x2'-2" F-PE PIPE, w/1" TAP, GADR., D.I.	8"
H	1	8" 'DRESSER STYLE' PIPE COUPLING	8"
I	LOT	COUPLING RESTRAINTS:(4) 60" LONG THRD. RODS, (8) EAR PLATES	.75" DIA.
J	1	8"FLDG. GATE VALVE, RESILIENT SEAT, 11.5" F-F, 'A.F.C.'	8"
K	1	16" M.J. GATE VALVE, 'E.J.I.W.'	16"
L	2	GATE VALVE	12"

Ⓟ-UPSTREAM PRESSURE TRANSMITTER

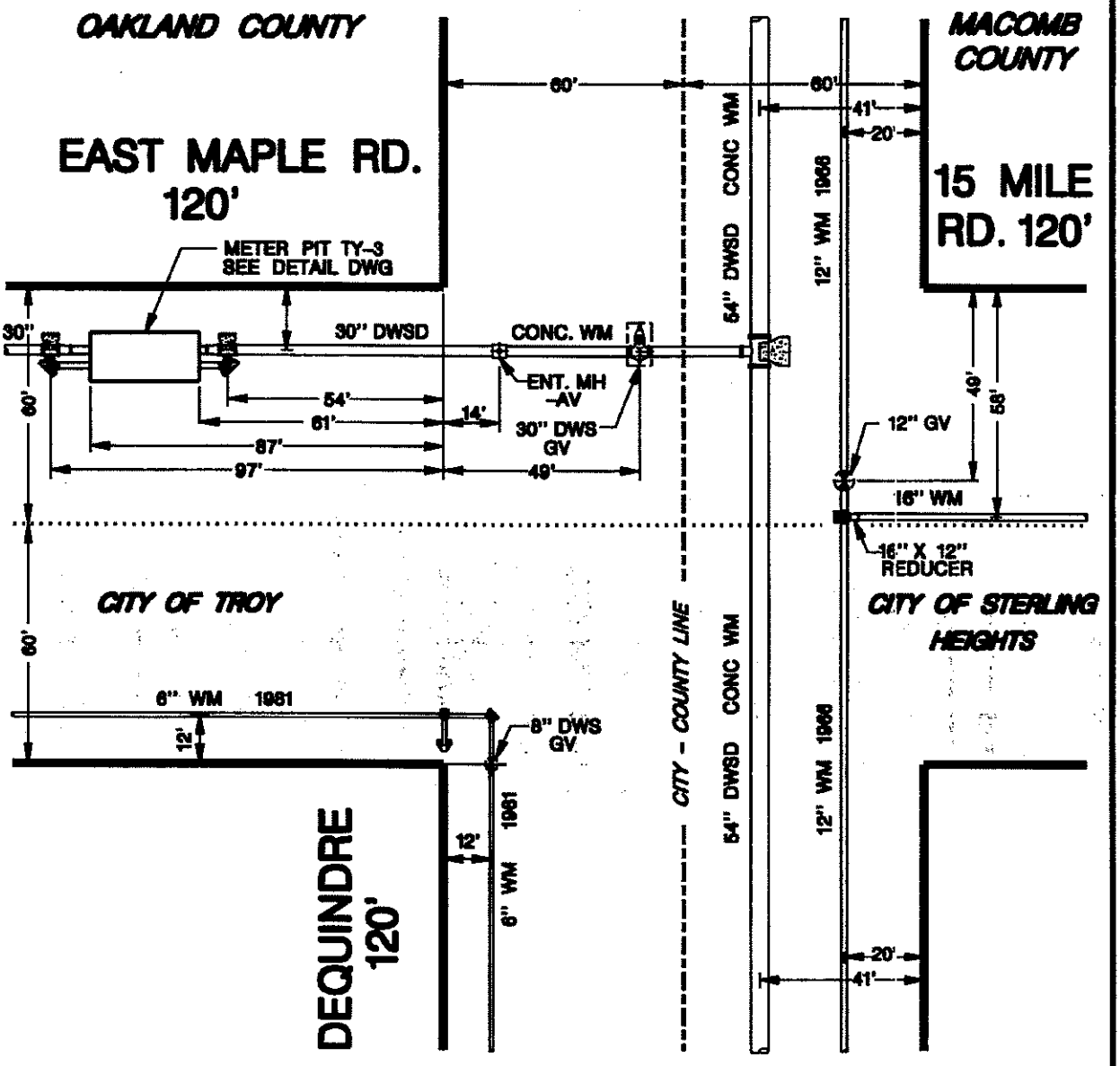
METER PIT DETAIL
NOT TO SCALE

TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 - 6

ADDRESS _____ 40999 DEQUINDRE
FEED TO _____ CITY OF TROY
FEED FROM _____ 54" D.W.S.D. TRANS. MAIN
TYPE OF METER _____ SENSUS TURBO
SIZE OF METER _____ 8"x2"
METER NUMBER _____ 8")1566198 & 2")1565827
DATE METER SET _____ 5 /4 /2001
METER PIT CONST & SIZE _____ 18'-0" x 9'-1" REINF. CONCRETE
SECTION MAP _____ 20-Y
REMARKS _____ NONE
GATE BOOK _____ N-1073
DRAWN BY _____ NICHOLS 2 /14 /08

TY 1

EXHIBIT A TY-03
EAST MAPLE ROAD AND DEQUINDRE
CITY OF TROY

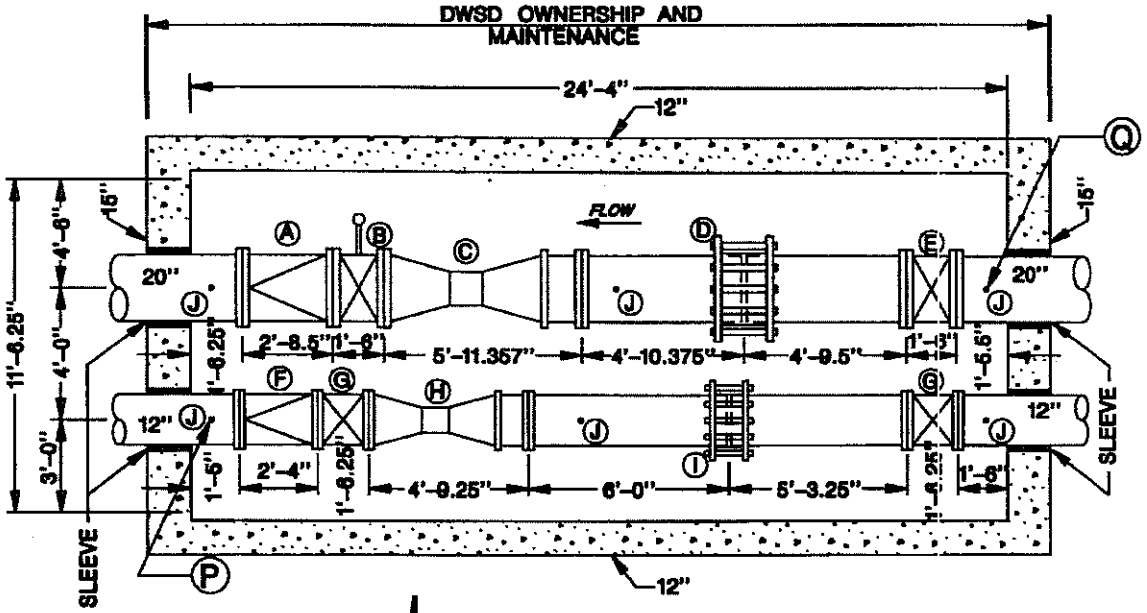


SITE PLAN
NOT TO SCALE

LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

TY 3

EXHIBIT A TY-03
EAST MAPLE ROAD AND DEQUINDRE
CITY OF TROY



METER PIT DETAIL
NOT TO SCALE

N

TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 - 6

(P)-UPSTREAM PRESSURE TRANSMITTER

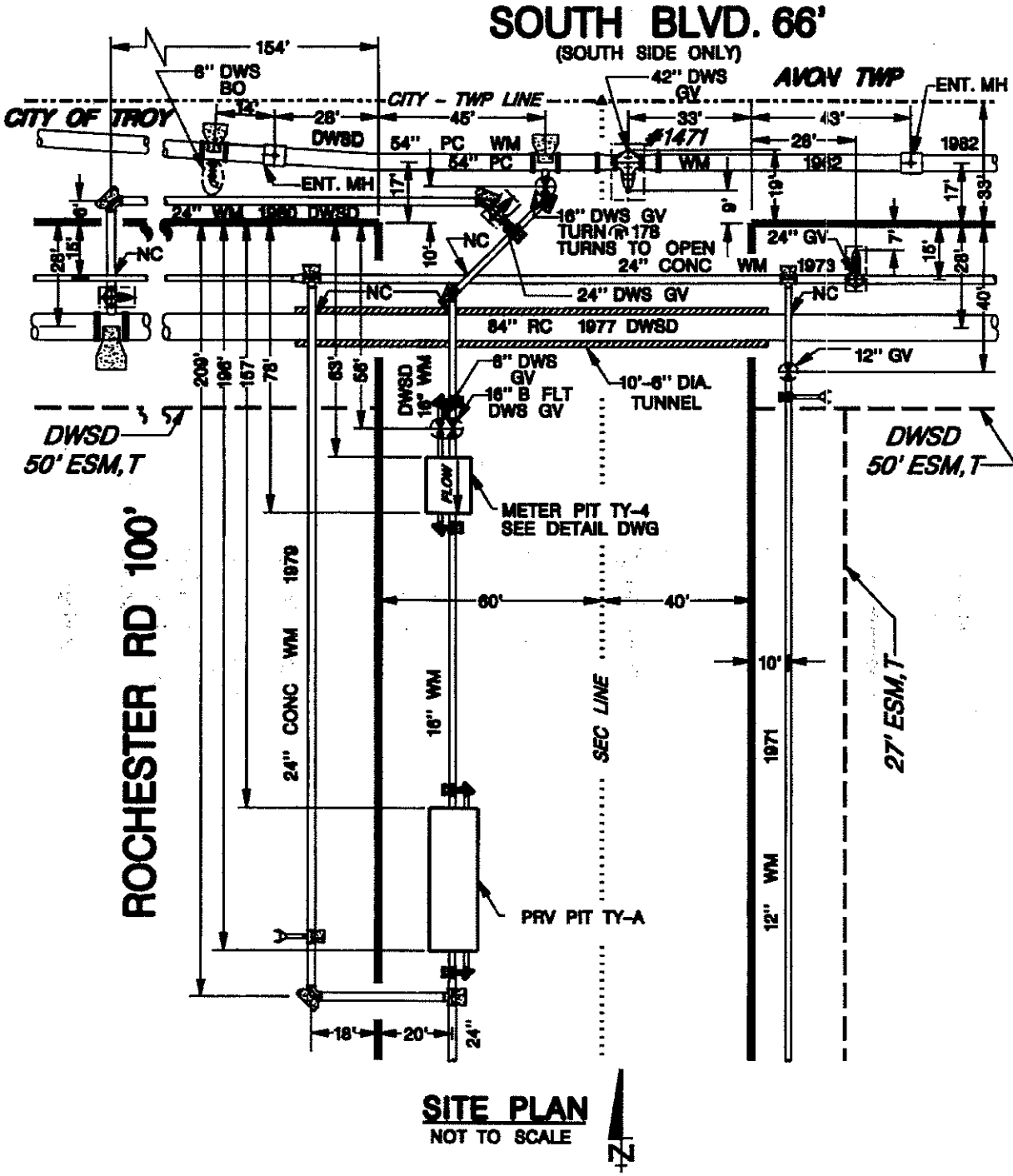
(Q)-DOWNSTREAM PRESSURE TRANSMITTER

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	1	CHECK VALVE	20"
B	1	BUTTERFLY VALVE /HYDRAULIC OPERATOR	20"
C	1	B.I.F VENTURI TUBE	20" X 14.046"
D	1	DRESSER COUPLING	20"
E	1	GATE VALVE (CCW)	20"
F	1	CHECK VALVE	12"
G	2	GATE VALVE	12"
H	1	B.I.F VENTURI TUBE	12" X 6.773"
I	1	DRESSER COUPLING	12"
J	6	CORP	1"

ADDRESS 2971 E. MAPLE
FEED TO CITY OF TROY
FEED FROM 54" DWSD TRANS. MAIN
TYPE OF METER B.I.F. VENTURI TUBES (2)
SIZE OF METER 20" X 14.046" 12" 6.773"
METER NUMBER 20"-55424-1 12"-55424-2
DATE METER SET 12/7/1966
METER PIT CONST & SIZE 24'-4" x 11'-6.25" ID REINF. CONC
SECTION MAP 20-Y
GATE BOOK E-1064
FIELD BOOK 1967-MP-32-35
DRAWN BY A.D. BOLTON 2/14/08
REMARKS

TY 3

EXHIBIT A TY–04
ROCHESTER AND SOUTH BLVD.
CITY OF TROY

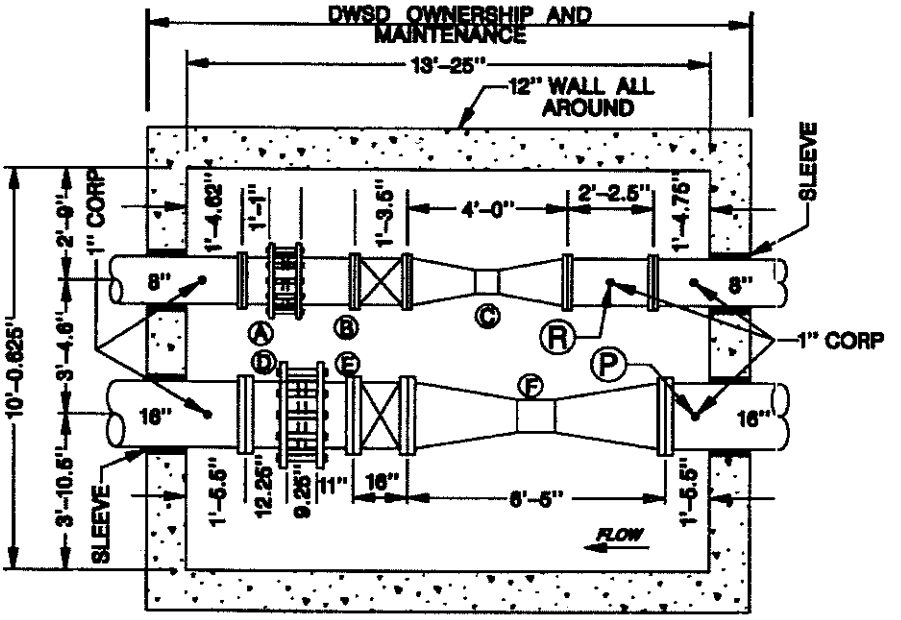


SITE PLAN
NOT TO SCALE

LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

TY 4

EXHIBIT A TY-04
ROCHESTER AND SOUTH BLVD.
CITY OF TROY



METER PIT DETAIL +Z
NOT TO SCALE

TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 – 6

(P) - UPSTREAM PRESSURE TRANSMITTER

(R) - DOWNSTREAM PRESSURE TRANSMITTER

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	1	DRESSER COUPLING	8"
B	1	GATE VALVE (CCW) 785271	8"
C	1	B.I.F. VENTURI TUBE 783271	8" X 3.494"
D	1	DRESSER COUPLING	16"
E	1	B.FLY VALVE HYD. OPER. 782271	16"
F	1	B.I.F. VENTURI TUBE 780271	16" X 9.142"

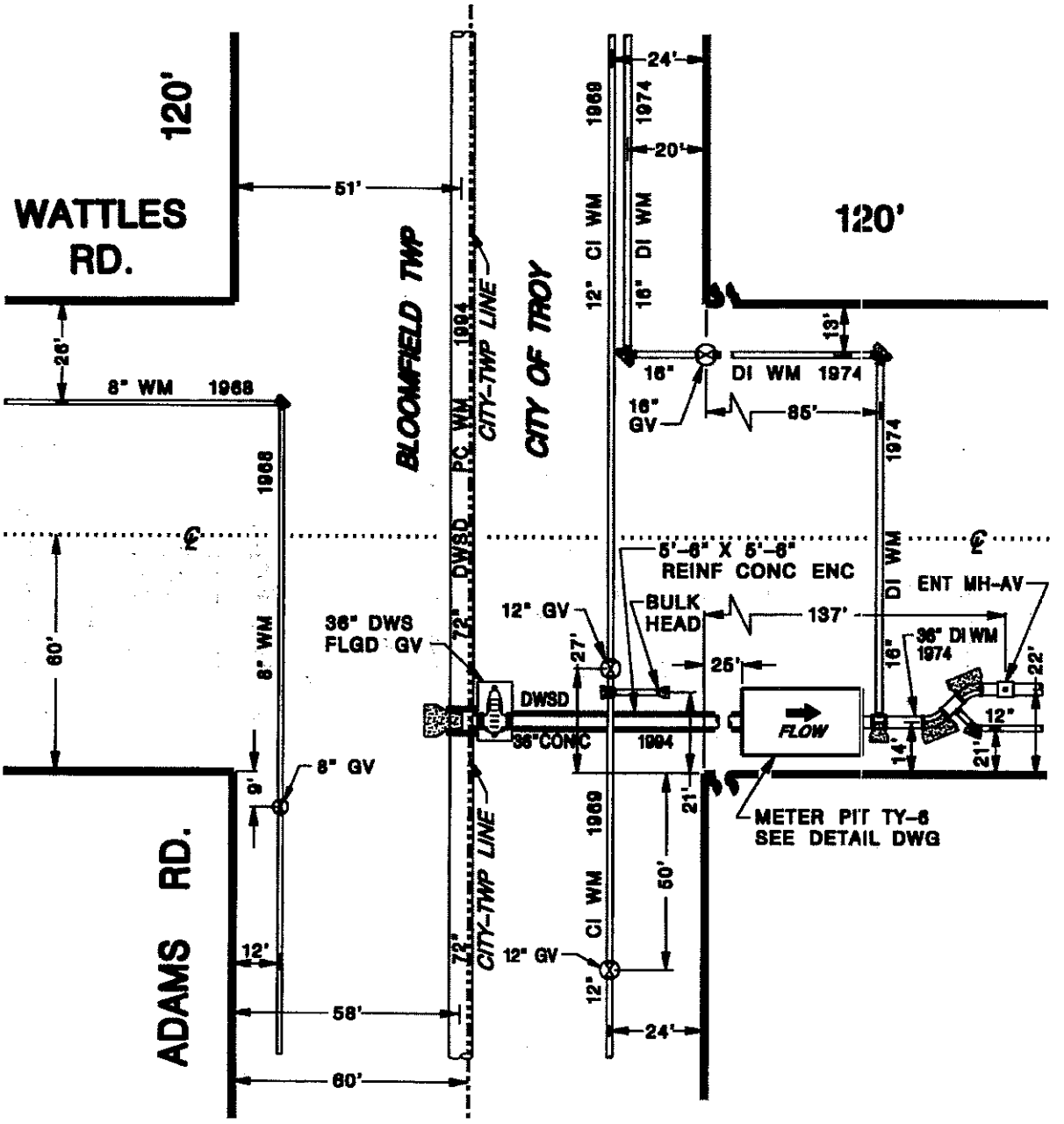
ADDRESS 6971 ROCHESTER
FEED TO CITY OF TROY
FEED FROM 54" DWSD TRANS MAIN
TYPE OF METER 2 - B.I.F. VENTURI TUBES
SIZE OF METER 16" X 9.142" 8" X 3.494"
METER NUMBER 83870-1 83869-1
DATE METER SET 02/02/1971
METER PIT CONST & SIZE 13'-0.25" X 10'-0.625" ID REINF CONC
SECTION MAP 18-4
GATE BOOK N-1087
FIELD BOOK
DRAWN BY A.D. BOLTON 02/19/2008
REMARKS

TY 4

EXHIBIT A TY-06

ADAMS AND WATTLES

CITY OF TROY



SITE PLAN

N.T.S.

N

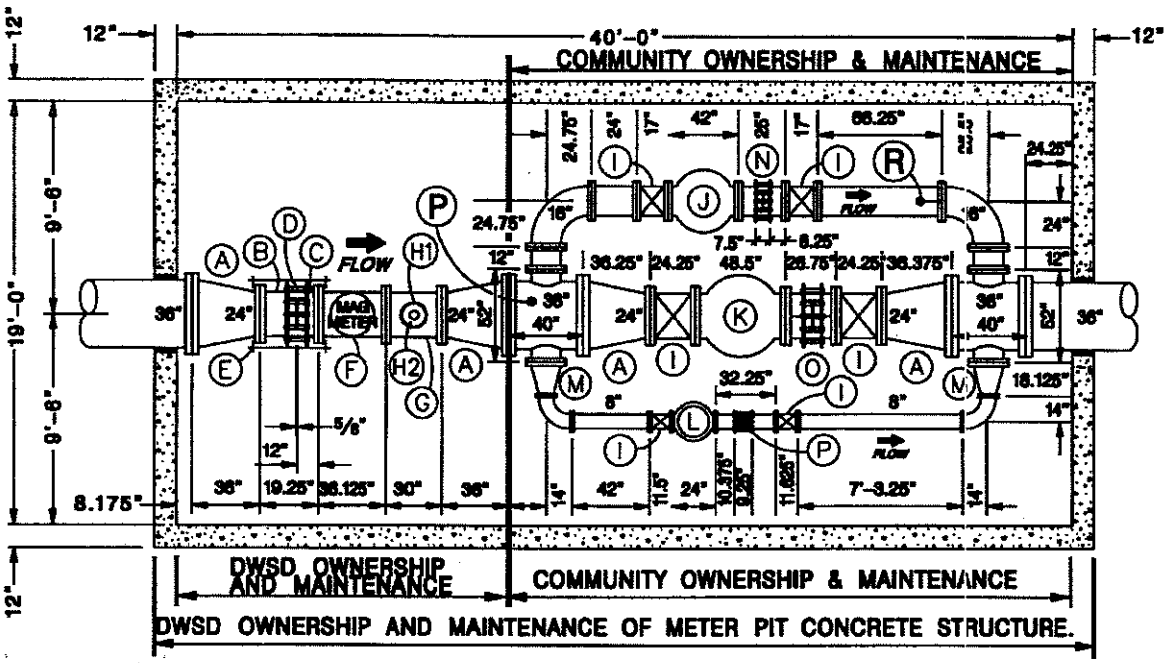
LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

TY 6

EXHIBIT A TY-06

ADAMS AND WATTLES

CITY OF TROY



TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 - 9

METER PIT DETAIL

N.T.S.

(P) UPSTREAM PRESSURE TRANSMITTER

(R) OTHER PRESSURE TRANS.

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	4	36" x 24" FLGD. CONCENTRIC REDUCERS, D.L. 16" F-F	36" x 24"
B	1	24" x 1'-7 1/4" F-PE PIPE, GADR. D.I.	24"
C	1	24" x 1'-0" F-PE PIPE, GADR. D.I.	24"
D	1	24" 'DRESSER STYLE' PIPE COUPLING	24"
E	LOT	COUPLING RESTR.: [8] 48" LONG THRD. RODS, [12] EAR PLATES	1"ø
F	1	24" FLGD. MAGNETIC FLOWMETER, 36.125" F-F	24"
G	1	24" x 6" FLGD. TEST TEE, D.L. 16" C-F	24" x 6"
H1	1	6" x 4" FLGD. CONC. REDUCER, D.L. 9" F-F	6" x 4"

TAG	QTY.	DESCRIPTION	SIZE
H2	1	TEST TEE ASSEMBLY w/ 3" x 6" O.D. COMPANION FLANGE	-
I	6	GATE VALVE	8", 16", 24"
J	1	16" ROSS P.R.V.	16"
K	1	24' ROSS P.R.V.	24"
L	1	8" ROSS P.R.V.	8"
M	1	8" x 16" REDUCER	8" x 16"
N	1	16" 'DRESSER STYLE' PIPE COUPLING	16"
O	1	24" 'DRESSER STYLE' PIPE COUPLING	24"
P	1	6" 'DRESSER STYLE' PIPE COUPLING	6"

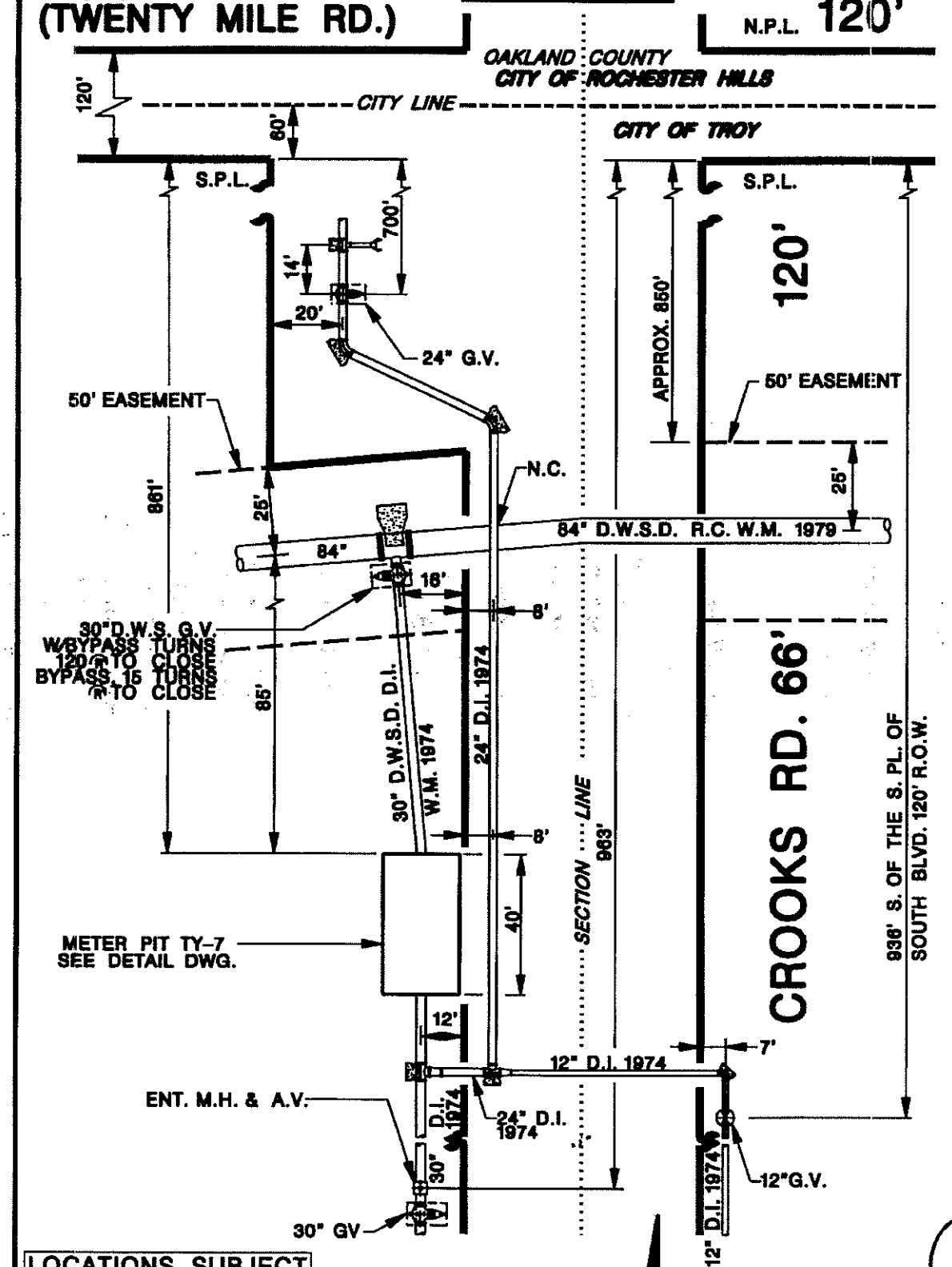
LOCATION ..... ADAMS AND WATTLES
FEED TO ..... CITY OF TROY
FEED FROM ..... 72" DWSD TRANSMISSION MAIN
TYPE OF METER ..... ABB MAG
SIZE OF METER ..... 24"
METER NUMBER V/34729/17/1
DATE OF METER SET 5/12/2000
METER PIT SIZE & CONST. ..... 19'-0" x 40'-0" REINF CONCRETE
TYPE & SIZE OF P.R.V. ..... ROSS PRV - 24", 16" & 8"
DATE VALVE SET .....
SECTION MAP NO. 13-1
GATE BOOK NO. ..... NONE
REMARKS ..... NONE
DRAWN BY: DWS-805 01/01/2003
DRAWN BY: ..... D.G. LLAMAS 03/08

TY 6

EXHIBIT A TY-07

CROOKS AND SOUTH BLVD.

CITY OF TROY



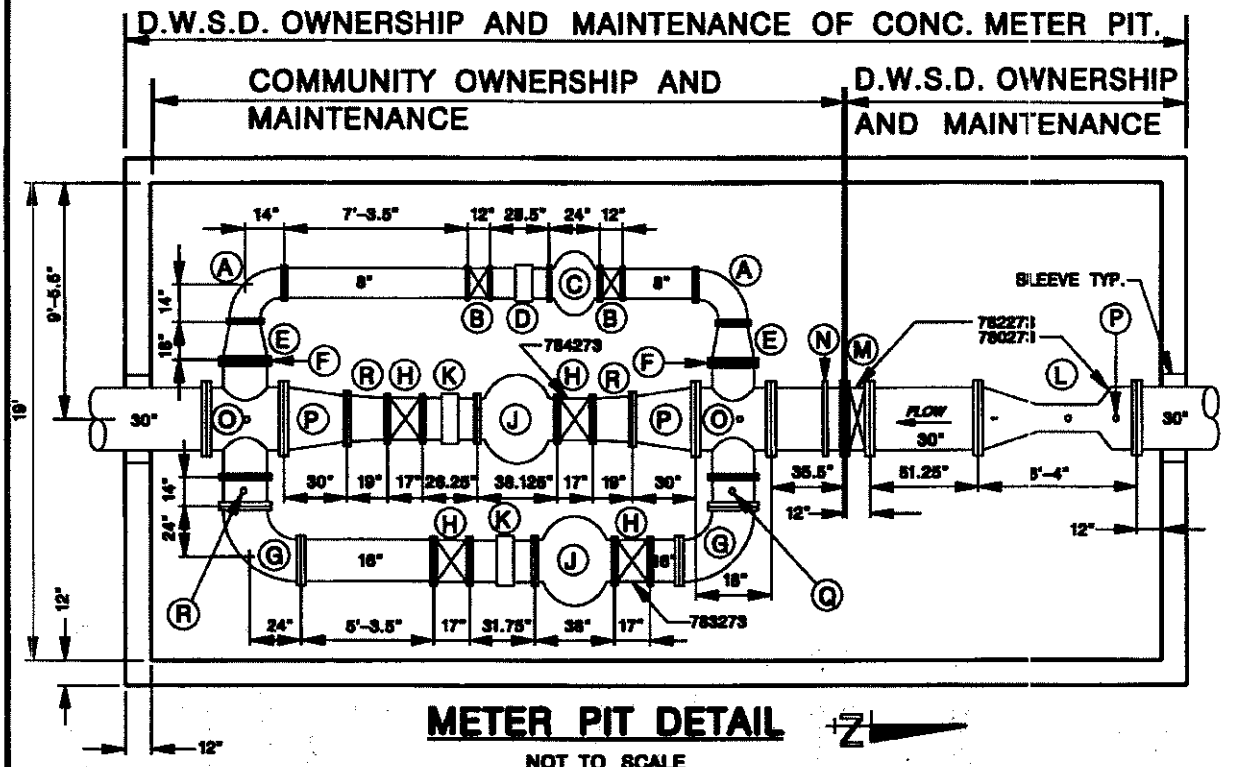
LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

SITE PLAN

NOT TO SCALE

TY 7

EXHIBIT A TY-07
CROOKS AND SOUTH BLVD.
CITY OF TROY



METER PIT DETAIL

NOT TO SCALE

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	2	8" 90° BEND	8"
B	2	8" G.V. & W.	8"
C	1	8" ROSS P.R.V.	8"
D	1	8" DRESSER COUPLING	8"
E	2	16"x8" REDUCER	16"x8"
F	2	16" FILLER RINGS @ 7" EACH	16"
G	2	16" 90° BEND	16"
H	2	16" G.V. & W.	16"
J	1	16" ROSS P.R.V.	16"
K	1	16" DRESSER COUPLING	16"

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
L	1	30" B.I.F. VENTURI METER	30"
M	1	30" BUTTERFLY VALVE	30"
N	1	30" DRESSER COUPLING	30"
O	2	30" X 16" TEE	30"X16"
P	2	30" X 16" REDUCER	30"X16"
R	2	16" X 16" REDUCER	16"X16"

TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 – 8
B.I.F. VENTURI & ORIFICE	10 – 16

(P) UPSTREAM PRESSURE TRANSMITTER

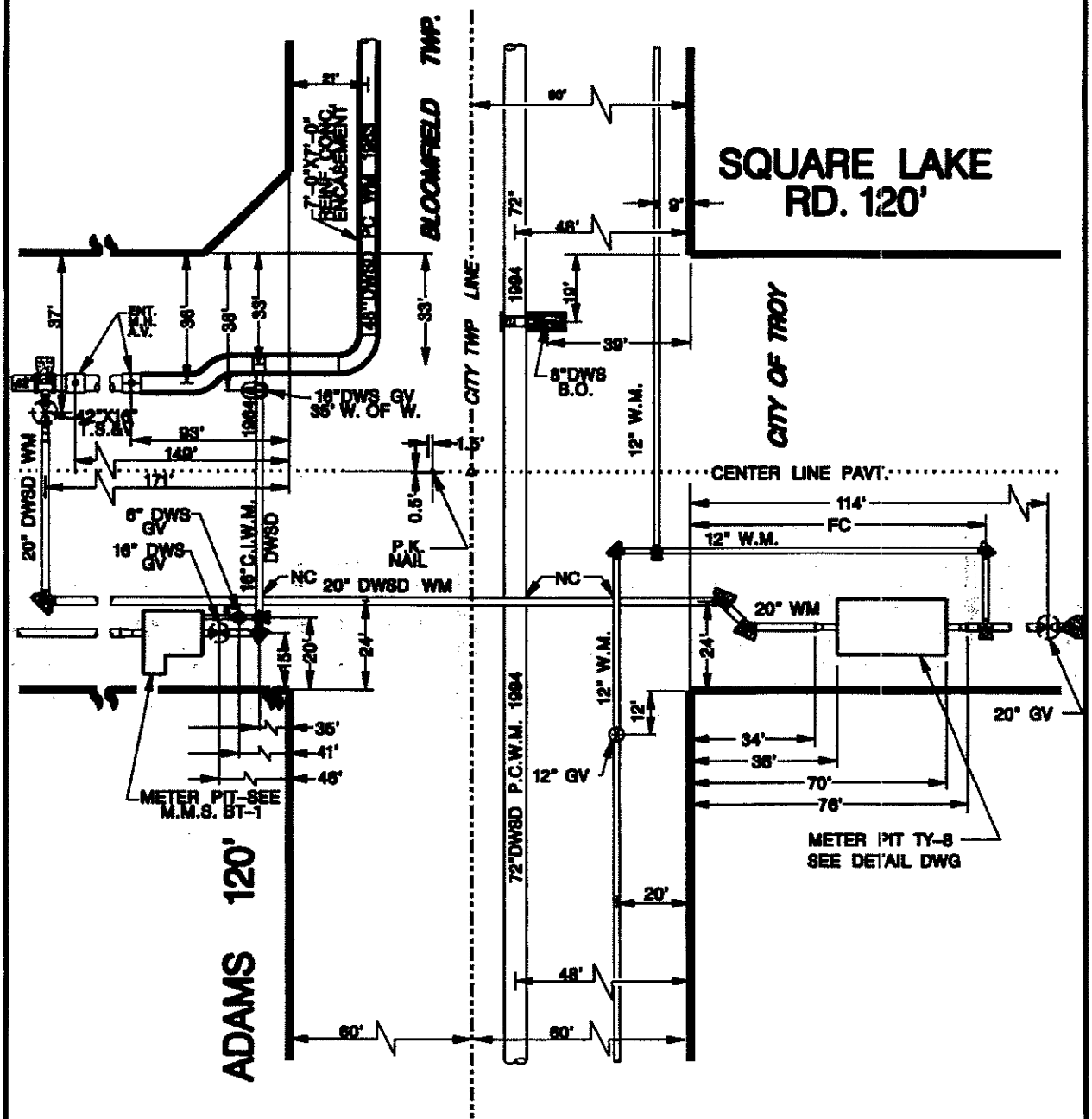
(Q) DOWNSTREAM PRESSURE TRANSMITTER

(R) OTHER PRESSURE TRANSMITTER

FEED TO ..... CITY OF TROY
FEED FROM ..... 84" D.W.S.D. TRANS. MAIN
TYPE OF METER ..... B.I.F. VENTURI & ORIFICE
SIZE OF METER ..... 30" X 17.4" 30"X 5.994"
TYPE OF P.R.V. ..... 8") ROSS 16") ROSS
SIZE OF P.R.V. ..... 8" 16" X 2
METER NUMBER 37194-1 37200-1
DATE METER SET 01/06/1981
METER PIT CONST & SIZE ..... 40'-.0" X 19'-0" I.D., REINF. CONC.
SECTION MAP ..... 14-4 & 16-4
REMARKS .....
GATE BOOK ..... N-1095 & N-1145
DRAWN BY ..... M. SCOTT 03/28/08

TY 7

EXHIBIT–A TY–08
SQUARE LAKE RD. AND ADAMS
CITY OF TROY

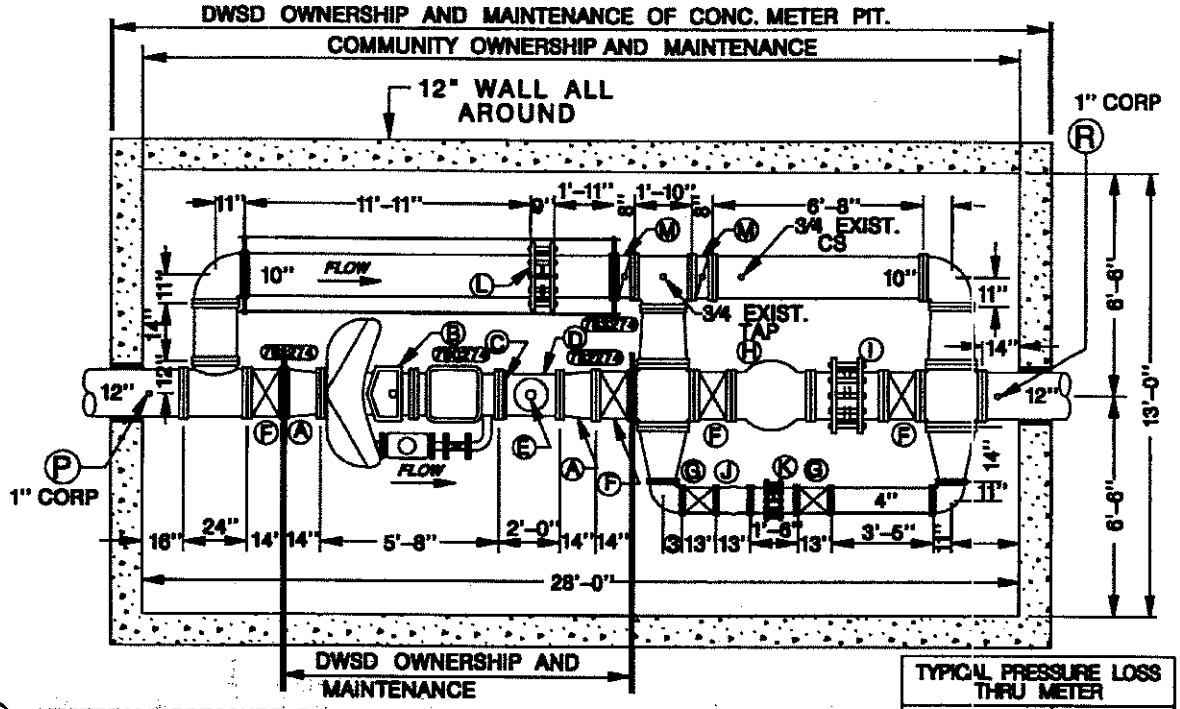


SITE PLAN
NOT TO SCALE

LOCATIONS SUBJECT TO VERIFICATION IN THE FIELD.

TY 8

EXHIBIT-A TY-08
SQUARE LAKE RD. AND ADAMS
CITY OF TROY



Ⓟ - UPSTREAM PRESSURE TRANSMITTER

Ⓡ - OTHER PRESSURE TRANSMITTER

METER PIT DETAIL

NOT TO SCALE

TYPICAL PRESSURE LOSS THRU METER	
METER TYPE	P.S.I. LOSS
VENTURI	1 TO 2
MAG	0
TURBINE	4 – 6

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
A	2	FLGD CONC REDUC DIF-F	12" X 10"
B	1	FIRELINE COMPACT METER W5500	10" X 2"
C	1	MEGALUG FLANGE ADAPTER	10"
D	1	10" X 1'-11.5" F-PE PIPE w/3" TOL DI	10"
E	1	TEST TEE ASSEMBLY w/3" COMP FLANGE	–
F	4	GATE VALVE	12"
G	1	GATE VALVE	4"

LEGEND			
TAG	QTY.	DESCRIPTION	SIZE
H	1	ROSS PRV	12"
I	1	DRESSER CPLG.	12"
J	1	GOLDEN ANDERSON PRV	4"
K	1	DRESSER CPLG.	4"
L	1	DRESSER CPLG.	10"
M	2	BFLY. V. BIF TYPE H	10"

ADDRESS ..... 2985 E. SQUARE LAKE ROAD
FEED TO ..... CITY OF TROY
FEED FROM ..... 42" DWSD TRANS MAIN
TYPE OF METER ..... FIRELINE COMPACT METER W5500
SIZE OF METER ..... 10" X 2"
METER NUMBER ..... 10") 1565968 & 2") 1566097
DATE METER SET 8/18/1999
TYPE OF PRV ..... ROSS & GOLDEN ANDERSON
SIZE OF PRV ..... 12" 4"
METER PIT CONST & SIZE ..... 28'-0" X 13'-0" ID REINF CONC
SECTION MAP 13-3
GATE BOOK N-1127
FIELD BOOK .....
DRAWN BY ..... A.D. BOLTON 03/28/2008
REMARKS .....

TY 8

EXHIBIT B

Projected Annual Volume and Minimum Annual Volume (Table 1)
Pressure Range and Maximum Flow Rate (Table 2)
Flow Split Assumptions (Table 3)
Addresses for Notice (Table 4)

Table 1 and Table 2 set forth the agreed upon Projected Annual Volumes, Minimum Annual Volumes, Pressure Ranges and Maximum Flow Rates for the term of this Contract provided that figures in bold type face are immediately enforceable pursuant to the terms of Section 5.07 and italicized figures are contained for planning purposes only but will become effective absent the negotiated replacements anticipated in Section 5.07.

The approximate rate of flow by individual meter set forth in Table 3 is the assumption upon which the Pressure Range commitments established in Table 2 have been devised. Should Customer deviate from these assumptions at any meter(s), the Board may be unable to meet the stated Pressure Range commitments in this Contract or in the contract of another customer of the Board and Section 5.08 of this Contract may be invoked.

EXHIBIT B

Table 1
Projected Annual Volume and Minimum Annual Volume

Fiscal Year Ending June 30	Projected Annual Volume (mcf)	Minimum Annual Volume (mcf)
2009	**630,000**	**315,000**
2010	**630,000**	**315,000**
2011	*630,000*	*315,000*
2012	*630,000*	*315,000*
2013	*630,000*	*315,000*
2014	*630,000*	*315,000*
2015	*630,000*	*315,000*
2016	*630,000*	*315,000*
2017	*630,000*	*315,000*
2018	*630,000*	*315,000*
2019	*630,000*	*315,000*
2020	*630,000*	*315,000*
2021	*630,000*	*315,000*
2022	*630,000*	*315,000*
2023	*630,000*	*315,000*
2024	*630,000*	*315,000*
2025	*630,000*	*315,000*
2026	*630,000*	*315,000*
2027	*630,000*	*315,000*
2028	*630,000*	*315,000*
2029	*630,000*	*315,000*
2030	*630,000*	*315,000*
2031	*630,000*	*315,000*
2032	*630,000*	*315,000*
2033	*630,000*	*315,000*
2034	*630,000*	*315,000*
2035	*630,000*	*315,000*
2036	*630,000*	*315,000*
2037	*630,000*	*315,000*
2038	*630,000*	*315,000*

EXHIBIT B

Table 2
Pressure Range and Maximum Flow Rate

Calendar Year	Pressure Range (psi) Meter TY-01		Pressure Range (psi) Meter TY-03		Pressure Range (psi) Meter TY-04		Pressure Range (psi) Meter TY-06		Pressure Range (psi) Meter TY-07		Pressure Range (psi) Meter TY-08	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2008	**35**	**74**	**51**	**77**	**114**	**149**	**87**	**111**	**72**	**96**	**104**	**134**
2009	**35**	**74**	**51**	**77**	**114**	**149**	**87**	**111**	**72**	**96**	**104**	**134**
2010	*35*	*74*	*51*	*77*	*114*	*149*	*87*	*111*	*72*	*96*	*104*	*134*
2011	*35*	*74*	*51*	*77*	*114*	*149*	*87*	*111*	*72*	*96*	*104*	*134*
2012	*35*	*74*	*51*	*77*	*114*	*149*	*87*	*111*	*72*	*96*	*104*	*134*
2013	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2014	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2015	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2016	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2017	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2018	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2019	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2020	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2021	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2022	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2023	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2024	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2025	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2026	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2027	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2028	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2029	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2030	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2031	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2032	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2033	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2034	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2035	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2036	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*
2037	*50*	*75*	*65*	*82*	*114*	*149*	*87*	*111*	*80*	*96*	*104*	*134*

EXHIBIT B

Table 2 (continued)
Pressure Range and Maximum Flow Rate

Calendar Year	Maximum Flow Rate (mgd)	
	Max Day	Peak Hour
2008	**35.0**	**55.0**
2009	**35.0**	**55.0**
2010	*35.0*	*55.0*
2011	*35.0*	*55.0*
2012	*35.0*	*55.0*
2013	*35.0*	*55.0*
2014	*35.0*	*55.0*
2015	*35.0*	*55.0*
2016	*35.0*	*55.0*
2017	*35.0*	*55.0*
2018	*35.0*	*55.0*
2019	*35.0*	*55.0*
2020	*35.0*	*55.0*
2021	*35.0*	*55.0*
2022	*35.0*	*55.0*
2023	*35.0*	*55.0*
2024	*35.0*	*55.0*
2025	*35.0*	*55.0*
2026	*35.0*	*55.0*
2027	*35.0*	*55.0*
2028	*35.0*	*55.0*
2029	*35.0*	*55.0*
2030	*35.0*	*55.0*
2031	*35.0*	*55.0*
2032	*35.0*	*55.0*
2033	*35.0*	*55.0*
2034	*35.0*	*55.0*
2035	*35.0*	*55.0*
2036	*35.0*	*55.0*
2037	*35.0*	*55.0*

Table 3
Flow Split Assumptions

Meter	Assumed Flow Split (2008-2009)
TY-01	1%
TY-03	11%
TY-04	45%
TY-06	5%
TY-07	31%
TY-08	7%

Table 4
Addresses for Notice

If to the Board:	**If to Customer:**
Director Detroit Water and Sewerage Department 735 Randolph Detroit, Michigan 48226	City Clerk City of Troy 500 West Big Beaver Troy, Michigan 48084