



CITY of NOVI CITY COUNCIL

Agenda Item 9
January 21, 2014

SUBJECT: Approval to award an amendment to the engineering services agreement with Orchard, Hiltz & McCliment (OHM) for additional design engineering services for the Water Distribution Storage Facility project in the amount of \$104,700.

SUBMITTING DEPARTMENT: Department of Public Services, Water and Sewer Division ^{EA} TDK
Department of Public Services, Engineering Division BTG

CITY MANAGER APPROVAL: 

| | |
|-----------------------------------|--|
| EXPENDITURE REQUIRED | \$ 104,700 |
| AMOUNT INCLUDED IN C.I.P. | \$ 106,350 |
| ADDITIONAL AMOUNT REQUIRED | \$ 53,750 |
| LINE ITEM NUMBER | 592-592.00-158.290 (Water & Sewer Fund) |

BACKGROUND INFORMATION:

In November 2012, the design engineering for a water distribution storage facility was awarded to Orchard Hiltz & McCliment (OHM) in the amount of \$107,000. The design engineering scope of work included site investigation and conceptual planning for several potential sites for a proposed elevated storage tank (EST).

At the July 22, 2013 Council Meeting, City leadership made the decision to abandon the concept of an EST in favor of a ground storage tank (GST) concept at the corner of West Park and 12 Mile Road. A GST design will provide several advantages that include lower capital costs, operational benefits, and an expedited construction schedule. A more detailed discussion of the project rationale is provided in the attached January 9, 2014 off-week memorandum.

The City's engineering consultant, OHM, has submitted a proposal to complete design of the proposed GST in the amount of \$160,100. (This proposal is also included in the attached January 9, 2014 off-week memorandum.) OHM currently has \$55,400 in remaining balance from the \$107,000 awarded for the EST design. Therefore, an expenditure of \$104,700 will be required to complete the GST design. The GST design expenditure (\$104,700) plus the amount previously spent on the EST design (\$55,400) exceeds the approved CIP amount by \$53,750, which is the additional amount required to complete the project. The GST design services expenditure would be funded through the Water and Sewer Fund. A copy of the proposed amendment to the OHM design services agreement is also attached for reference.

The design of the GST facility was included in the Capital Improvement Program for FY2012-13. Based on the current schedule, it is anticipated that the project design can be completed by the end of spring with construction starting soon thereafter. We currently estimate that the project will be completed and the facility operational by late spring 2015.

RECOMMENDED ACTION: Approval to award an amendment to the engineering services agreement with Orchard, Hiltz & McCliment (OHM) for additional design engineering services for the Water Distribution Storage Facility project in the amount of \$104,700.

| | 1 | 2 | Y | N |
|-------------------------------|---|---|---|---|
| Mayor Gatt | | | | |
| Mayor Pro Tem Staudt | | | | |
| Council Member Casey | | | | |
| Council Member Fischer | | | | |

| | 1 | 2 | Y | N |
|-------------------------------|---|---|---|---|
| Council Member Markham | | | | |
| Council Member Mutch | | | | |
| Council Member Wrobel | | | | |

FIRST AMENDMENT TO THE
SUPPLEMENTAL PROFESSIONAL ENGINEERING SERVICES AGREEMENT
WATER SYSTEM MASTER PLAN, WATER DISTRIBUTION STORAGE FACILITY,
AND WATER SCADA ENGINEERING SERVICES

First Amended Agreement between the City of Novi, 45175 W. Ten Mile Road, Novi, MI 48375-3024, hereafter, "City," and Orchard, Hiltz & McCliment, Inc., whose address is 34000 Plymouth Road, Livonia, Michigan 48150, hereafter, "Consultant," relating to modifications of the fee basis for engineering services. The following sections of the Supplemental Professional Engineering Services Agreement, as made and entered into on December 10, 2012 shall be amended as follows:

Section 2. Payment for Professional Engineering Services. The following Paragraphs shall be amended as follows:

1. Basic Fee.
 - a. Design Phase Services:
 - i. Unchanged
 - ii. Unchanged
 - iii. Water Distribution Storage Facility: The Consultant shall complete the design and bidding phase services related to the construction of a water distribution storage facility as described in the scope of services as attached in Exhibit A for a lump sum fee of \$160,100.
 - b. *Unchanged*
2. *Unchanged*

Except as specifically set forth in this First Amendment, the Supplemental Professional Engineering Services Agreement remains in full force and effect.

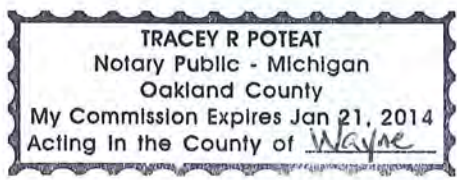
WITNESSES

Orchard, Hiltz & McCliment, Inc.

Tracey Potat

Vytautas P. Kaunelis
By: Vytautas P. Kaunelis, PE
Its: Principal

The foregoing Agreement was acknowledged before me this 10th day of January,
2014, by Vytautas P. Kaunelis on behalf of Orchard, Hiltz & McCliment, Inc.



Tracey R. Potat
Notary Public
Oakland County, Michigan
My Commission Expires: January 21, 2014

WITNESSES

CITY OF NOVI

By:
Its:

The foregoing _____ was acknowledged before me this ____ day of _____,
20____, by _____ on behalf of the City of Novi.

Notary Public
Oakland County, Michigan
My Commission Expires: _____

Authorization for Additional Services # 4

Project: **Engineering Services for** Water Storage Tank Design Date: 1-10-14
Purchase Order # 93819 Dept. 442.10

Description of Additional Services

Cost analyses have shown that a Ground Storage Tank (GST) is preferable to an Elevated Tank, since the existing West Park Booster Pumping Station (WPBPS) can be modified to provide the necessary pressure for this application. This amendment includes design of the ground storage tank and modifications to the WPBPS, including piping for the GST and SCADA improvements to implement the control scheme. Services are for the design and bidding phases of the project.

Original scope of work:

The original scope included design of an elevated storage tank. The Basis of Design, site selection investigations, and portions of the Preliminary Design were completed before the GST and WPBPS concept was developed and determined to be a better solution.

Amount authorized for original scope: \$110,800


Proposed scope of work:

- Task 1 Booster Pumping Station (BPS) and Ground Level Storage Tank (GST) Basis of Design
- Task 2 Preliminary Design of BPS and GST
- Task 3 Final Design of BPS and GST
- Task 4 Bidding Phase Services

Proposed budget amount for new scope: \$160,100

Based on the revised scope of services, we request authorization for an increase of \$104,700 (\$160,100-\$55,400 remaining budget) to the amount authorized under the previous scope of services.

Orchard, Hiltz & McCliment, Inc.

Requested by:  Date: 1-10-14
Vyta Kaunelis, Principal

CITY OF NOVI

Reviewed by: _____ Date: _____
Brian Coburn, Engineering Manager

Approved by: _____ Date: _____
Rob Hayes, Director of Public Services

Approved by: _____ Date: _____
Sue Morianti, Purchasing Manager

1/9/2014
To: Mayor and City Council members
The operational and capital advantages of moving forward on the Twelve Mile Road ground storage still outweigh other choices by financial and feasibility reasons.
Clay

MEMORANDUM

TO: CLAY PEARSON, CITY MANAGER
FROM: ~~TIM KUHN~~, WATER AND SEWER SENIOR ENGINEER TDK
SUBJECT: ENGINEERING SERVICES - GROUND WATER STORAGE TANK
DATE: JANUARY 9, 2014



Following the presentation I made at the July 22, 2013 Council Meeting, City leadership made the decision to abandon the concept of an elevated storage tank (EST) at Wildlife Woods Park in favor of a ground storage tank (GST) concept at the corner of West Park and 12 Mile Road. For reference, the basis for this decision is summarized in the attached memorandum dated June 5, 2013.

At the time of this decision, the selected engineering consultant, Orchard, Hiltz, and McCliment (OHM), had made significant progress with the design of the EST concept and had expended \$55,400 of the \$110,800 design budget. With a wholesale change in tank design concept (tank type and location) very little of the previous EST design work performed by OHM could be salvaged for use on the design of the proposed GST at West Park and 12 Mile Road.

For this reason, the City requested that OHM submit a new proposal to complete design of a GST at West Park and 12 Mile Road. A copy of the OHM proposal is included as an attachment to this memorandum. The OHM fee proposal to complete the GST design is \$160,100 (tasks 1-4 from the fee proposal). This fee proposal was compared to the fee curves for water main construction projects, which indicate an appropriate fee for a \$2.5M project (estimated construction cost of the GST) would be 6.1% of construction costs, or \$152,500. Given the relative complexity of design for a GST as compared to a water main design, the OHM fee proposal is reasonable in comparison to the fee curves.

We will be seeking authorization at the January 21, 2014 Council meeting to award an engineering services change order for OHM to complete the design of the proposed GST, which will be completely funded by the City's Water & Sewer Fund. The table below summarizes the proposed amount of the change order:

| | |
|---|------------|
| Fee Proposal for GST Design | \$160,100 |
| Less Remaining Budget for EST Design | (\$55,400) |
| Amount of Proposed Change Order to Fund Design of GST | \$104,700 |

Please let me know if you have any questions or comments regarding this memorandum.

Cc: Rob Hayes, Director of Public Services / City Engineer
Michael Andrews, Water & Sewer Financial Specialist
Brian Coburn, Engineering Manager

MEMORANDUM

6/6/2013

To: Mayor and City Council members

Please review carefully. Our new staff member, Tim Kuhns, has asked additional questions and added option for a ground storage around 12/West Park versus the elevated storage south of I-96. The existing pump station to the north makes ground storage very viable.
Clay

TO: CLAY PEARSON, CITY MANAGER
FROM: TIM KUHN, SENIOR WATER AND SEWER ENGINEER
CC: WATER AND SEWER UTILITIES TEAM
SUBJECT: → UPDATED COST EVALUATION OF STORAGE ALTERNATIVES
DATE: JUNE 5, 2013

At the May 28th, 2013 Utilities Meeting, the water and sewer utilities team reviewed the findings from the “Novi Ground Storage Tank (GST) Technical Memorandum” dated May 22, 2013 (Novi GST Evaluation), which compared an elevated storage tank (EST) at Wildlife Woods Park to a ground storage tank (GST) at the West Park Booster Station. The Novi GST Evaluation is provided in Appendix A. The team identified several items that should be incorporated into the analysis, which include the following:

1. **Loss of Taxable Value**

The GST alternative at the West Park Booster Station would require the purchase of private property to site the tank. If a GST alternative were selected, there would be an opportunity cost to the City in the form of lost tax revenues. The Novi GST Evaluation did not include the cost impacts associated with the loss of tax revenue for the GST alternative. The updated life cycle cost evaluation, which includes the impacts of lost tax revenue for the GST alternative, is contained in Appendix B.

2. **Loss of Cell Carrier Revenues**

The EST alternative at Wildlife Woods Park would produce revenues from cell carriers in exchange for leasing rights to mount cell antennae on the pedestal tower. If a GST alternative were selected, there would be an opportunity cost to the City in the form of lost cell carrier revenues. The Novi GST Evaluation did not include these cost impacts. The updated life cycle cost evaluation, which includes the impacts of lost cell carrier revenues, is contained in Appendix B and is based on a similar revenue stream generated at the Novi Ice Arena tower site.

3. **Salvage Value**

Including salvage value in the life cycle cost evaluation as part of the Novi GST Evaluation suggested that a given water storage structure (GST or EST), would have salvage value at the end of the 20-year planning horizon. Given that it would be difficult to cost effectively salvage materials of value from any given water storage structure, the life cycle cost evaluation was updated to omit salvage value. The updated life cycle cost evaluation is contained in Appendix B.

4. **Aesthetics**

Aesthetics is a key issue with the ground storage tank, especially given the prominent site location proposed along 12 Mile Road. The Novi GST Evaluation included a limited assessment of tank aesthetics. A gallery of architectural treatments for both GST and EST structures is contained in Appendix C.

5. **Additional Siting Options**

Given that opportunity costs (lost tax/cell revenues) and site aesthetics are both important considerations, the evaluation was also updated to include two additional site options (Alt. 1b: Novi Oaks Driving Range; Alt 1c: Novi Corporate Park; and Alt 1d: Keystone Property) which may have less of an impact on tax revenues. These sites were selected based on elevation and proximity to the West Park Booster Station. All four of the site options are presented in Figures 1-5.

Summary of Cost Analysis

A summary of the updated capital and life cycle costs is presented in Table 1. The detailed analysis of costs is contained as Attachment 1 of this document.

Table 1: Summary of Capital and Life Cycle Costs for Two Storage Alternatives

| Parcel ID | 50-22-09-451-003 | 50-22-09-300-032 | 50-22-09-451-022 | 50-22-16-226-016 | 50-22-17-300-016 |
|---|---|-----------------------------------|---|---|--|
| Alternative | Alt 1a | Alt 1b | Alt 1c | Alt 1d | Alt 2 |
| Costs | 1.5 MG Ground Storage @ West Park & 12 Mile | 1.5 MG Ground Storage @ Novi Golf | 1.5 MG Ground Storage @ West Park & 12 Mile | 1.5 MG Ground Storage @ Keystone Property | 1.25 MG Elevated Storage @ Wildlife Woods Park |
| Design and Construction Costs ¹ | \$3.2M | \$4.5M | \$3M | \$3.7M | \$6.3M |
| Life Cycle Costs with Salvage Value ^{1,2} | \$5.3M | \$10.4M | \$5.1M | \$6.3M | \$5.4M |
| Life Cycle Costs without Salvage Value ^{1,3} | \$6.2M | \$11.6M | \$5.9M | \$7.3M | \$7.2M |

Notes

1. Units in Millions of USD

2. Life Cycle Costs = Design/Construction Costs + Present Worth of Operations/Maintenance/Replacement Costs - Present Worth of Salvage Value after 20 years + Present Worth of Loss of Revenues (Tax/Cellular)

3. Life Cycle Costs = Design/Construction Costs + Present Worth of Operations/Maintenance/Replacement Costs + Present Worth of Loss of Revenues (Tax/Cellular)

Even with land acquisition costs and associated opportunity costs (lost tax/cellular revenues), the GST at this site appears to be cost advantageous. Based on a review of the capital and life cycle costs, the ground storage tank at the corner of West Park and 12 Mile on the Novi Corporate Park property (Alt. 1c) appears to be the most cost effective alternative with an associated payback period of 1.6 years as compared to the payback period of 3.8 years for the elevated storage tank.

The following key assumptions were made in the cost analysis:

- Land acquisition would be necessary to construct a GST at the Novi Corporate Park property (parcel ID 50-22-09-451-022). The City will have to investigate whether this parcel is available for sale. If not, the parcel adjacent to this site (parcel ID 50-22-09-451-003), which is the 2nd lowest cost alternative, is available with a list price of \$195,000. It should be noted that as part of due diligence, an environmental assessment would be needed for either property prior to purchase of either site.
- For the GST alternatives, it was assumed that \$450,000 in pump station upgrades would be needed to improve the discharge pressure at the West Park Pump Station. Preliminary analysis indicates that these upgrades may not be needed, but the costs of these improvements were included in the cost analysis. If these improvements are not needed, the cost of the GST alternatives could be reduced by \$450,000.
- If the EST alternative is implemented, additional control valves may be needed to create new pressure districts. This piece of the EST alternative has not yet been defined as the hydraulic model calibration has not yet been completed. If additional control valves are required as part of the EST alternative, this could increase the cost of this alternative. The cost analysis presented in this memo does not include any costs for the potential need for additional control valves.

Other Considerations

In addition to the monetary and aesthetic considerations discussed at the Utilities Meeting, other factors should be considered in selecting a tank alternative, as follows:

1. Operational Considerations

The operation of a ground storage tank is much less complicated than an elevated storage tank. Ground storage operation involves controlling one pump station flows from the tank based on the flow rates from DWSD. Elevated storage would require controlling as many as three system valves (or more) in series to control flow rates from DWSD. Furthermore, the City's O&M staff is already familiar with the operations and maintenance of the West Park Booster Station.

2. Detroit Water and Sewerage Department (DWSD) Considerations

The City of Farmington Hills, Commerce Township, and City of Novi all draw water off of the Franklin Branch (along 14 Mile Road) of the DWSD system. All three of these communities are in the planning and design phase for water storage construction. In the past, DWSD has had issues filling multiple storage units on the same system branch during the exclusionary period (11PM to 5AM). For this reason, the City of Novi may have issues filling an elevated storage tank without pumping operations. Furthermore, because DWSD does not want all communities to fill their tank at the same time, they may require that Novi fills the tank during the day, which would further complicate system operations and provide more widely varying pressures during this time period. If a ground storage

alternative were implemented, Novi could minimize the risk of not being able to fill their tank at night. A ground storage tank in Novi would have a lower hydraulic grade line as compared to the Farmington Hills and Commerce Township elevated tanks; thus filling operations could be more easily achieved.

3. Schedule Considerations

Implementation of an elevated storage tank alternative in time for summer 2015 will be a significant challenge. The lead time to construct an elevated storage tank is in the range of 12 months. This timeline doesn't include the time to plan, design, and construct control system improvements to control flows in and out of the elevated tank. The elevated storage tank and control system components would likely come online in early 2015. This schedule allows little, if any, time to work through operational issues. There is more of a risk that the elevated storage tank would not be operationally complete for summer 2015; thus more of a risk that the City would not receive the benefit of lower DWSD rates for 2016. A construction schedule for ground storage is in the range of 12-16 weeks. The shorter construction for ground storage allows the City to work out operational issues well in advance of the summer 2015 period. The expected cost savings from reduced DWSD rates is \$1.7 M per year; thus having the tank (GST or EST) operationally complete in time for summer 2015 is critically important.

Next Steps

Based on the above discussion, we offer the following recommendations as next steps to finalize the basis of design for the water storage project:

- Determine if the property at West Park and 12 Mile on the Novi Corporate Park property (Alt. 1c) is available for purchase.
- Solicit City Council feedback on preference of tank build and aesthetics (GST versus EST). The collaboration with Council should include a discussion of the cost and schedule implications for any given alternative.
- Update the schedule for completion based on the selected alternative.

Please let me know if you have any questions, comments or concerns in regard to this updated evaluation. We would like to finalize a design concept no later than July 15th, 2013.

Alternative 1a: Ground Storage Tank at Linger Property (50-22-09-451-003)

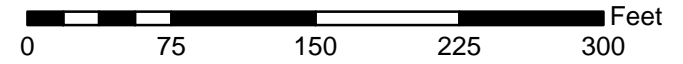


FIGURE 1

Alternative 1b: Ground Storage Tank at Novi Golf Site
(50-22-09-300-032)

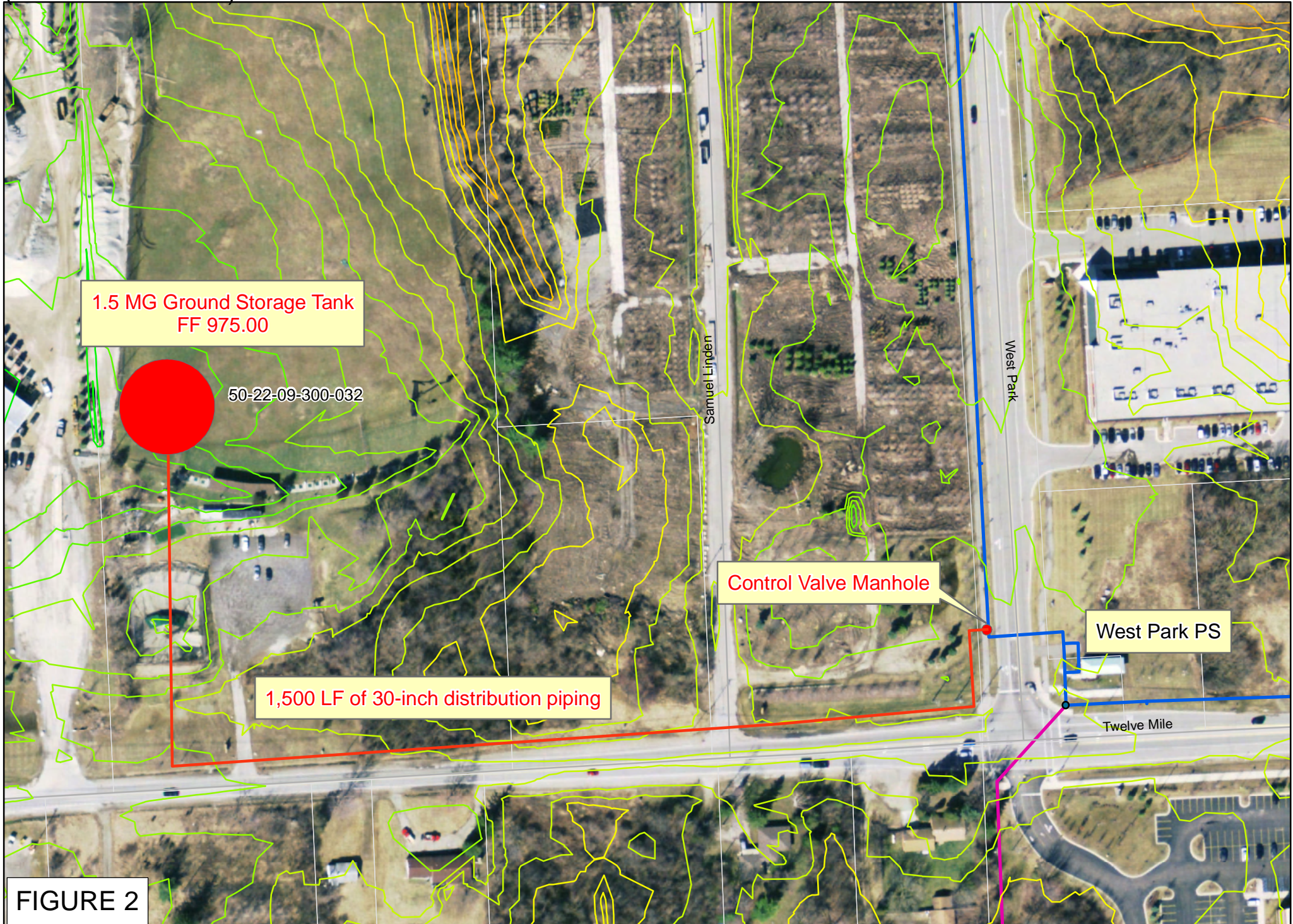
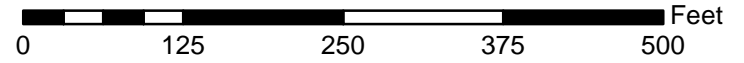


FIGURE 2

Alternative 1c: Ground Storage Tank at Novi Corporate Property (50-22-09-451-022)

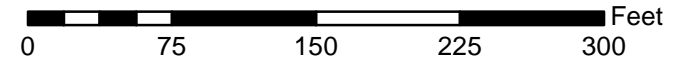


FIGURE 3

Alternative 1d: Ground Storage Tank at Keystone Property
(50-22-16-226-016)

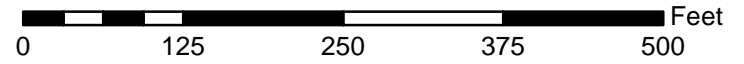
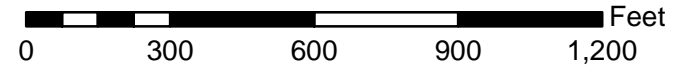


FIGURE 5

Alternative 2: Elevated Storage Tank at Wildlife Woods Park (50-22-17-300-016)



1.25 MG Elevated Storage Tank
FF 975.00

1,100 LF of 16-inch
distribution piping

1,750 LF of 16-inch
distribution piping

FIGURE 4

APPENDIX A

Novi Ground Storage Tank (GST) Technical Memorandum" dated May 22, 2013

Novi Ground Storage Tank (GST)

Technical Memorandum

May 22, 2013

INTRODUCTION – RECENT REPORTS

In October of 2011, OHM Advisors submitted a Storage Tank Feasibility Study to the City of Novi. The report evaluated the 2011 peak summertime water demand, the impact of the Demand Management Program and other system operating parameters. The goal of the Storage Tank Feasibility Study was to determine a cost effective solution which would allow the City to avoid drawing water from DWSD at flow rates in excess of the peak day demand. The recommendation of the Study was to construct an elevated storage tank with a volume of 1.0 million gallons (MG).

In January of 2013, a Technical Memo was presented to the City which described the storage volume, style of the elevated tank and its location. The Memo recommended a storage volume of 1.25 MG, a composite type construction and a location near Providence Parkway Drive. Refer to the Technical Memorandum dated January 17, 2013 for details. Supplemental data was also presented for a tank location in the Wildlife Park Woods.

The City is currently considering constructing a Ground Storage Tank (GST) near the West Park Booster Pumping Station. A GST at that location would be used to fulfill the same flow-limiting goals as the proposed elevated tank. The purpose of this Memo is to compare the costs and other features of the proposed elevated tank at Wildlife Park Woods with a new GST at the West Park Station.

STORAGE VOLUME

The elevated tank has a recommended volume of 1.25 MG. A ground storage tank located near the West Park Station should have a volume of 1.5 MG or slightly more. The full capacity of an elevated tank is available all the way down to the low water level of the bowl. However, if a pumping station and a GST are at approximately the same ground elevation, then the full depth of the water in the GST may not be available due to the elevation of the pumps and the net positive suction head requirements of the pumps. A detailed preliminary design would determine the cost-effective arrangement of tank elevation and tank volume. For the purpose of this Memo, we assume that a 1.5 MG GST will have 1.25 MG of available water for the booster pumps.

TANK TYPE

A ground storage tank of this size will be a pre-stressed concrete tank. For a volume of 1.5 MG, the approximate dimensions would be 100' in diameter and 25' in height. The floor and the shallow domed roof would be poured in-place concrete. The wall will consist of multiple concrete panels that are joined together and then wrapped with pre-stressing wires and covered with shotcrete. The wall panels are generally cast on-site.

The standard finished product is a concrete structure of uniform gray or beige appearance. Architectural treatments are available for additional cost.



GROUND STORAGE TANK LOCATION

The proposed location for the GST is the City property near the West Park Booster Pumping Station. The site is about 100' east of the station. Easements would be required for the 24" water mains going to and from the GST. Refer to the attached site map.

BOOSTER PUMPING STATION MODIFICATIONS

The existing pumps do not produce sufficient pressure to feed the distribution system from the ground storage tank. The target pumping condition is to develop 7,700 gpm with a pressure at the station discharge pipe of 62 psi. This condition would be with all four pumps operating and 100% of the flow being drawn from the elevated tank. To achieve this condition, the existing pumps must be replaced with higher pressure rated pumps. A preliminary review indicates that the pump motor size can remain at 125 HP, thus avoiding replacement of the VFDs and other power devices. There will also be modifications to the piping, valves and controls. Due to the tight working space within the station, some structural modification may be necessary to get the additional piping and valves installed.

PROJECT COST COMPARISON

The cost comparison between the Ground Storage Tank and the Elevated Tank is presented on the following pages. The Ground Storage Tank alternative is less costly as an initial capital project and is also less costly on a 50-year life cycle basis. The most compelling feature which favors the GST is that the associated pumping station is already there. The West Park station would require modifications to the existing equipment and piping, but at a cost which is far less than building a new booster pumping station.

PROS AND CON FOR THE ALTERNATIVES

| TANK TYPE | PROS | CONS |
|-----------------------|---|---|
| Ground Storage Tank | <ul style="list-style-type: none">• Lower Capital Cost• Lower Life Cycle Cost• More flexible for future changes | <ul style="list-style-type: none">• Mechanically complex• Higher Annual Operating Cost• More operator & maintenance time |
| Elevated Storage Tank | <ul style="list-style-type: none">• Mechanically simple• Reliability of stored water in the air | <ul style="list-style-type: none">• Higher Capital Cost• Higher Life Cycle Cost• Remote Site• Limited adjustment of operating pressure |

City of Novi, Michigan
Storage Tank Feasibility Cost Analysis

| | 1.5 MG Ground West Park Alt 1 | 1.25 MG Elevated Wildlife Park Alt 2 |
|--|--|---|
| Storage Tank (See Note 1) | \$900,000 | \$3,000,000 |
| Land Acquisition | \$190,000 | \$0 |
| Site Improvements for Storage Tank | \$100,000 | \$175,000 |
| Blasting and Painting Containment | | \$0 |
| System Controls | \$75,000 | \$75,000 |
| Altitude Valve | \$75,000 | \$75,000 |
| Cathodic Protection | | \$20,000 |
| | | |
| Booster Station/Booster Station Upgrades | \$450,000 | \$0 |
| | | |
| Distribution/Transmission Improvements | \$350,000 | \$565,000 |
| | | |
| Control Valves | | |
| NV-04 - New Vault and Control Valves | \$0 | \$0 |
| NV-05 - New Vault and Control Valves | \$0 | \$0 |
| PRV - 9 | \$0 | \$100,000 |
| PRV - 7 & 11 | \$0 | \$100,000 |
| PRV - 16 & 17 | \$0 | \$100,000 |
| | | |
| | | |
| Subtotal Construction Costs | \$2,140,000 | \$4,210,000 |
| | | |
| Contingency (20%) | \$428,000 | \$842,000 |
| | | |
| Total Construction Cost | \$2,568,000 | \$5,052,000 |
| | | |
| Engineering and Legal Costs (25%) | \$642,000 | \$1,263,000 |
| | | |
| Total Project Cost | \$3,210,000 | \$6,315,000 |
| Novi Project Share | \$3,210,000 | \$6,315,000 |

Notes:

- 1.) Assumes that suitable soil bearing pressure (5000-6000 psf) is available.

| | 1.5 MG Ground West Park | 1.25 MG Elevated Wildlife Park |
|---|----------------------------|-----------------------------------|
| INPUTS | Alt 1 | Alt 2 |
| Design and Construction Costs | \$3,210,000 | \$6,315,000 |
| EPA Discount Rate (i) - less than 4% use 4% | 4.000% | 4.000% |
| Life Expectancy (lexp) | 50 | 50 |
| Cost Recovery Period - Years (n): | 20 | 20 |
| SALVAGE VALUE (Straight Line Depreciation) | | |
| Constant Yearly Depreciation (Dx) (Design & Const Costs/lexp): | \$64,200.00 | \$126,300.00 |
| Value Remaining After 20 years (Vn = Dx*(lexp-n)) | \$1,926,000.00 | \$3,789,000.00 |
| Present Worth Factor of Remaining Value: $PWf = (1+i)^{-n}$ | 0.4564 | 0.4564 |
| Present Worth of Salvage Value (PWSalv=$PWf * Vn$): | \$879,001.26 | \$1,729,250.14 |
| OPERATION, MAINTENANCE and REPLACEMENT (OM&R) | | |
| Present Worth Factor for uniform series of payments $PWf = ((1+i)^n - 1) / (i * (1+i)^n)$ | 13.59 | 13.59 |
| Annual OM&R Costs | | |
| Annual Operations Cost | \$79,500.00 | \$24,000.00 |
| Pump Station Replacement Cost (\$/year) | \$16,000.00 | |
| Storage Tank Maintenance Cost (\$/year) | \$14,666.67 | \$22,000.00 |
| Valve Maintenance Cost (\$/year) | \$0.00 | \$4,500.00 |
| Annual Power Consumption | \$30,000.00 | \$12,000.00 |
| Projected Annual OM&R Costs (Aomr) - Total | \$140,000.00 | \$63,000.00 |
| Projected Annual OM&R Costs (Aomr) - Novi Share | \$140,000.00 | \$63,000.00 |
| Present Worth for OM&R: $Pwomr = Aomr * PWf$ | \$1,902,645.69 | \$856,190.56 |
| TOTAL PRESENT WORTH | | |
| Total Present Worth (Pwtot) = Design & Construction Cost + Pwomr - Pwsalv | \$4,233,644 | \$5,441,940 |
| Total Present Worth (Pwtot) - NOVI Share | \$4,233,644 | \$5,441,940 |



Toyota
Boshoku

28000

W Park Dr

24"

PRV Vault

1.5 MG Ground
Storage Tank

24"

W Twelve Mile Rd

W Twelve Mile Rd

APPENDIX B

UPDATED LIFE CYCLE COST EVALUATION

City of Novi, Michigan
Storage Tank Feasibility Cost Analysis

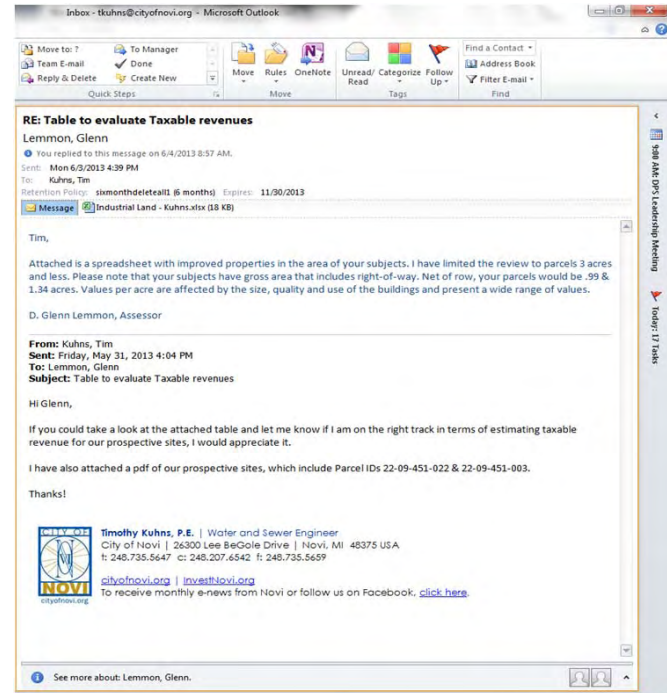
| | | | | |
|------------------|------------------|------------------|------------------|------------------|
| 50-22-09-451-003 | 50-22-09-300-032 | 50-22-09-451-022 | 50-22-16-226-016 | 50-22-17-300-016 |
| 1.5 MG ground | 1.5 MG ground | 1.5 MG ground | 1.5 MG Ground | 1.25 MG Elevated |
| West Park | Novi Golf | Corner Site | Keystone Site | Wildlife Park |
| Alt 1a | Alt 1b | Alt 1c | Alt 1d | Alt 2 |

| | | | | | |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| Storage Tank (See Note 1) | \$900,000 | \$900,000 | \$900,000 | \$900,000 | \$3,000,000 |
| Land Acquisition | \$190,000 | \$800,000 | \$150,000 | \$300,000 | \$0 |
| Site Improvements for Storage Tank | \$100,000 | \$100,000 | \$100,000 | \$100,000 | \$175,000 |
| Blasting and Painting Containment | | | | | \$0 |
| System Controls | \$75,000 | \$75,000 | \$75,000 | \$75,000 | \$75,000 |
| Altitude Valve | \$75,000 | \$75,000 | \$75,000 | \$75,000 | \$75,000 |
| Cathodic Protection | | | | | \$20,000 |
| Booster Station/Booster Station Upgrades | \$450,000 | \$450,000 | \$450,000 | \$450,000 | \$0 |
| Distribution/Transmission Improvements | \$350,000 | \$589,050 | \$250,000 | \$562,500 | \$565,000 |
| Control Valves | | | | | |
| NV-04 - New Vault and Control Valves | \$0 | \$0 | \$0 | \$0 | \$0 |
| NV-05 - New Vault and Control Valves | \$0 | \$0 | \$0 | \$0 | \$0 |
| PRV - 9 | \$0 | \$0 | \$0 | \$0 | \$100,000 |
| PRV - 7 & 11 | \$0 | \$0 | \$0 | \$0 | \$100,000 |
| PRV - 16 & 17 | \$0 | \$0 | \$0 | \$0 | \$100,000 |
| Subtotal Construction Costs | \$2,140,000 | \$2,989,050 | \$2,000,000 | \$2,462,500 | \$4,210,000 |
| Contingency (20%) | \$428,000 | \$597,810 | \$400,000 | \$492,500 | \$842,000 |
| Total Construction Cost | \$2,568,000 | \$3,586,860 | \$2,400,000 | \$2,955,000 | \$5,052,000 |
| Engineering and Legal Costs (25%) | \$642,000 | \$896,715 | \$600,000 | \$738,750 | \$1,263,000 |
| Total Project Cost | \$3,210,000 | \$4,483,575 | \$3,000,000 | \$3,693,750 | \$6,315,000 |
| Novi Project Share | \$3,210,000 | \$4,483,575 | \$3,000,000 | \$3,693,750 | \$6,315,000 |

Notes:

1.) Assumes that suitable soil bearing pressure (5000-6000 psf) is available.

| Parcels.pnum | parcels.ecfttcels.schoollelMaster.zoMaster.lanrls.land_netAcres | CommercialBuildings.occ_String | Master.cib_ficCommercialaster.cib_yearbuilt | | | | | | | | |
|------------------|---|--------------------------------|---|--------|------|----------|----------|-------------------------|--------|---------|------|
| 50-22-04-151-029 | 20120 | 270 | I-1 | 196940 | 2.11 | \$31,993 | \$15,191 | Industrial, Engineering | 19,669 | Average | 2011 |
| 50-22-04-376-001 | 20121 | 270 | I-1 | 159586 | 1.70 | \$23,814 | \$13,975 | Warehouse, Storage | 22,763 | Good | 2003 |
| 50-22-04-376-002 | 20120 | 270 | I-1 | 168951 | 1.80 | \$14,036 | \$7,781 | Industrial, Engineering | 9,881 | Average | 2002 |
| 50-22-04-376-007 | 20121 | 270 | I-1 | 263169 | 2.81 | \$30,933 | \$11,008 | Warehouse, Storage | 29,760 | Average | 2002 |
| 50-22-04-376-014 | 20130 | 270 | I-1 | 215110 | 2.30 | \$8,742 | \$3,806 | Warehouse, Storage | 0 | Average | 2008 |
| 50-22-04-377-001 | 20130 | 270 | I-1 | 92998 | 0.99 | \$16,026 | \$16,139 | Industrial, Engineering | 8,054 | Average | 2004 |
| 50-22-04-377-002 | 20130 | 270 | I-1 | 97120 | 1.04 | \$16,644 | \$16,050 | Warehouse, Storage | 11,944 | Good | 2004 |
| 50-22-04-377-003 | 20130 | 270 | I-1 | 171106 | 1.83 | \$36,713 | \$20,095 | Industrial, Engineering | 27,175 | Average | 2003 |
| 50-22-04-377-004 | 20120 | 270 | I-1 | 199296 | 2.13 | \$36,071 | \$16,951 | Warehouse, Storage | 23,906 | Good | 2005 |
| 50-22-04-378-005 | 20120 | 270 | I-1 | 209410 | 2.24 | \$30,597 | \$13,684 | Industrial, Engineering | 20,874 | Average | 2002 |
| 50-22-04-378-014 | 20120 | 270 | I-1 | 148909 | 1.59 | \$25,416 | \$15,985 | Industrial, Engineering | 15,798 | Average | 2002 |
| 50-22-04-378-017 | 20130 | 270 | I-1 | 95153 | 1.02 | \$13,936 | \$13,717 | Industrial, Engineering | 8,580 | Average | 2005 |
| 50-22-04-378-019 | 20130 | 270 | I-1 | 123997 | 1.32 | \$23,595 | \$17,821 | Industrial, Engineering | 12,654 | Good | 2007 |
| 50-22-04-378-021 | 20130 | 270 | I-1 | 212594 | 2.27 | \$35,044 | \$15,438 | Industrial, Engineering | 21,443 | Good | 2003 |
| 50-22-04-378-032 | 20120 | 270 | I-1 | 285645 | 3.05 | \$26,126 | \$8,566 | Warehouse, Storage | 39,166 | Average | 2008 |
| 50-22-04-379-001 | 20130 | 270 | I-1 | 116756 | 1.25 | \$22,980 | \$18,433 | Industrial, Engineering | 18,956 | Average | 2006 |
| 50-22-04-379-002 | 20130 | 270 | I-1 | 107076 | 1.14 | \$16,877 | \$14,761 | Warehouse, Distribution | 15,550 | Average | 2006 |
| 50-22-09-176-006 | 20131 | 270 | I-2 | 260282 | 3.06 | \$45,759 | \$14,933 | Industrial, Engineering | 37,634 | Average | 2003 |
| 50-22-09-176-011 | 20121 | 270 | I-2 | 140481 | 1.50 | \$32,500 | \$21,667 | Warehouse, Storage | 37,543 | Average | 2003 |
| 50-22-09-176-015 | 20131 | 270 | I-2 | 166705 | 1.78 | \$74,536 | \$41,874 | Industrial, Engineering | 55,708 | Average | 2001 |
| 50-22-09-177-005 | 20120 | 270 | I-1 | 112477 | 1.20 | \$18,305 | \$15,242 | Industrial, Engineering | 16,058 | Average | 2000 |
| 50-22-09-177-006 | 20120 | 270 | I-1 | 112477 | 1.20 | \$18,118 | \$15,086 | Industrial, Engineering | 15,909 | Average | 2000 |
| 50-22-09-177-007 | 20120 | 270 | I-1 | 112477 | 1.20 | \$22,473 | \$18,712 | Industrial, Engineering | 16,959 | Average | 2002 |
| 50-22-09-177-008 | 20120 | 270 | I-1 | 112477 | 1.20 | \$19,712 | \$16,413 | Warehouse, Storage | 17,893 | Average | 2000 |
| 50-22-09-177-010 | 20121 | 270 | I-1 | 123945 | 1.32 | \$23,157 | \$17,498 | Office Building | 18,218 | Average | 0 |
| 50-22-09-177-011 | 20120 | 270 | I-1 | 103959 | 1.11 | \$21,800 | \$19,639 | Industrial, Engineering | 13,586 | Good | 0 |
| 50-22-09-177-012 | 20120 | 270 | I-1 | 109454 | 1.17 | \$17,416 | \$14,902 | Industrial, Engineering | 14,317 | Average | 2001 |
| 50-22-09-326-018 | 20130 | 180 | I-2 | 187308 | 2.00 | \$45,315 | \$22,658 | Warehouse, Storage | 31,600 | Average | 2003 |
| 50-22-09-326-021 | 20130 | 180 | I-2 | 189181 | 2.02 | \$34,202 | \$16,932 | Industrial, Engineering | 24,326 | Average | 2003 |
| | | | | | | | \$16,378 | | | | |



Cellular Revenues for Water Tower Antennae

| Community | Number of Cell Carriers | Annual Revenue | Revenue Per Carrier |
|------------------|-------------------------|----------------|---------------------|
| Montague, MI | 2 | \$51,400 | \$25,700 |
| Oxford, MI | 1 | \$34,140 | \$34,140 |
| Eagan, MN | 4 | \$147,000 | \$36,750 |
| Bristol, CT | 2 | \$65,000 | \$32,500 |
| Haverhill, NH | 1 | \$24,050 | \$24,050 |
| Crystal Lake, IL | 1 | \$19,000 | \$19,000 |
| | | Average | \$28,690 |

| | 50-22-09-451-003 1.5 MG ground West Park | 50-22-09-300-032 1.5 MG ground Novi Golf | 50-22-09-451-022 1.5 MG ground Corner Site | 50-22-16-226-016 1.5 MG Ground Keystone Site | 50-22-17-300-016 1.25 MG elev Wildlife Park |
|---|--|--|--|--|---|
| INPUTS | Alt 1A | Alt 1B | Alt 1c | Alt 1d | Alt 2 |
| Design and Construction Costs | \$3,210,000 | \$4,483,575 | \$3,000,000 | \$3,693,750 | \$6,315,000 |
| EPA Discount Rate (i) - less than 4% use 4% | 4.000% | 4.000% | 4.000% | 4.000% | 4.000% |
| Life Expectancy (lexp) | 50 | 50 | 50 | 50 | 50 |
| Cost Recovery Period - Years (n): | 20 | 20 | 20 | 20 | 20 |
| | | | | | |
| | | | | | |
| SALVAGE VALUE (Straight Line Depreciation) | | | | | |
| Constant Yearly Depreciation (Dx) (Design & Const Costs/lexp): | \$64,200.00 | \$89,671.50 | \$60,000.00 | \$73,875.00 | \$126,300.00 |
| Value Remaining After 20 years (Vn = Dx*(lexp-n)) | \$1,926,000.00 | \$2,690,145.00 | \$1,800,000.00 | \$2,216,250.00 | \$3,789,000.00 |
| Present Worth Factor of Remaining Value: PWf = (1+i) ⁻ⁿ | 0.4564 | 0.4564 | 0.4564 | 0.4564 | 0.4564 |
| Present Worth of Salvage Value (PWSalv=PWf * Vn): | \$879,001.26 | \$1,227,747.06 | \$821,496.50 | \$1,011,467.57 | \$1,729,250.14 |
| | | | | | |
| | | | | | |
| OPERATION, MAINTENANCE and REPLACEMENT (OM&R) | | | | | |
| Present Worth Factor for uniform series of payments PWf = ((1+i) ⁿ -1) / (i * (1+i) ⁿ) | 13.59 | 13.59 | 13.59 | 13.59 | 13.59 |
| Annual OM&R Costs | | | | | |
| Annual Operations Cost | \$79,500.00 | \$79,500.00 | \$79,500.00 | \$79,500.00 | \$24,000.00 |
| Pump Station Replacement Cost (\$/year) | \$16,000.00 | \$16,000.00 | \$16,000.00 | \$16,000.00 | \$0.00 |
| Storage Tank Maintenance Cost (\$/year) | \$14,666.67 | \$14,666.67 | \$14,666.67 | \$14,666.67 | \$22,000.00 |
| Valve Maintenance Cost (\$/year) | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$4,500.00 |
| Annual Power Consumption | \$30,000.00 | \$30,000.00 | \$30,000.00 | \$30,000.00 | \$12,000.00 |
| Projected Annual OM&R Costs (Aomr) - Total | \$140,000.00 | \$140,000.00 | \$140,000.00 | \$140,000.00 | \$63,000.00 |
| Projected Annual OM&R Costs (Aomr) - Novi Share | \$140,000.00 | \$140,000.00 | \$140,000.00 | \$140,000.00 | \$63,000.00 |
| Present Worth for OM&R: Pwomr = Aomr * PWf | \$1,902,645.69 | \$1,902,645.69 | \$1,902,645.69 | \$1,902,645.69 | \$856,190.56 |
| | | | | | |
| POTENTIAL LOSS OF REVENUE | | | | | |
| Loss of Taxable Value Revenue | -\$21,946.21 | -\$327,555.36 | -\$16,213.99 | -\$65,511.07 | \$0.00 |
| Loss of Cell Tower Leasing Revenue (assumes 2 cell carriers) | -\$57,380.00 | -\$57,380.00 | -\$57,380.00 | -\$57,380.00 | \$0.00 |
| Projected Annual Revenues resulting from each Alternative | -\$79,326.21 | -\$384,935.36 | -\$73,593.99 | -\$122,891.07 | \$0.00 |
| Present Worth For Annual Revenue | -\$1,078,069.07 | -\$5,231,397.14 | -\$1,000,166.34 | -\$1,670,129.77 | \$0.00 |
| | | | | | |
| TOTAL PRESENT WORTH | | | | | |
| Total Present Worth (Pwtot) = Design & Construction Cost + Pwomr - Pwsalv - Pwrevenues | \$5,311,713 | \$10,389,871 | \$5,081,316 | \$6,255,058 | \$5,441,940 |
| Total Present Worth (Pwtot) | \$5,311,713 | \$10,389,871 | \$5,081,316 | \$6,255,058 | \$5,441,940 |
| | | | | | |
| TOTAL PRESENT WORTH W/O SALVAGE | | | | | |
| Total Present Worth w/o salvage value (Pwtot) = Design & Construction Cost + Pwomr - Pwrevenues | \$6,190,715 | \$11,617,618 | \$5,902,812 | \$7,266,525 | \$7,171,191 |
| Total Present Worth w/o salvage value (Pwtot) | \$6,190,715 | \$11,617,618 | \$5,902,812 | \$7,266,525 | \$7,171,191 |

| Parcel ID | 50-22-09-451-003 | 50-22-09-300-032 | 50-22-09-451-022 | 50-22-16-226-016 | 50-22-17-300-016 |
|---|---|-----------------------------------|---|---|--|
| Alternative | Alt 1a | Alt 1b | Alt 1c | Alt 1d | Alt 2 |
| Costs | 1.5 MG Ground Storage @ West Park & 12 Mile | 1.5 MG Ground Storage @ Novi Golf | 1.5 MG Ground Storage @ West Park & 12 Mile | 1.5 MG Ground Storage @ Keystone Property | 1.25 MG Elevated Storage @ Wildlife Woods Park |
| Design and Construction Costs ¹ | \$3.2M | \$4.5M | \$3M | \$3.7M | \$6.3M |
| Life Cycle Costs with Salvage Value ^{1,2} | \$5.3M | \$10.4M | \$5.1M | \$6.3M | \$5.4M |
| Life Cycle Costs without Salvage Value ^{1,3} | \$6.2M | \$11.6M | \$5.9M | \$7.3M | \$7.2M |

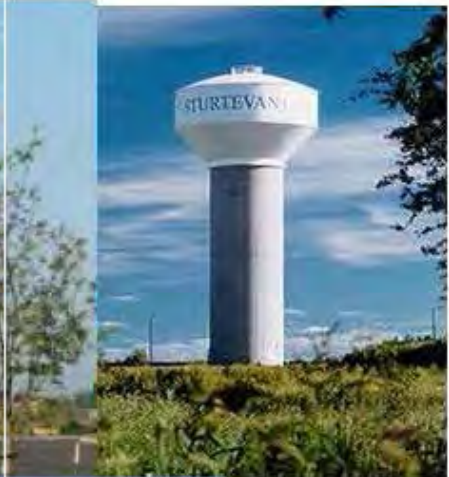
Notes

1. Units in Millions of USD

2. Life Cycle Costs = Design/Construction Costs + Present Worth of Operations/Maintenance/Replacement Costs - Present Worth of Salvage Value after 20 years
+ Present Worth of Loss of Revenues (Tax/Cellular)

3. Life Cycle Costs = Design/Construction Costs + Present Worth of Operations/Maintenance/Replacement Costs + Present Worth of Loss of Revenues (Tax/Cellular)

APPENDIX C
GALLERY OF ARCHITECTURAL TREATMENTS
FOR GROUND AND ELEVATED STORAGE TANKS









Project Understanding

The City of Novi desires to reduce their peak water draw from the Detroit Water and Sewerage Department (DWSD) in order to reduce their overall cost for purchasing water. Previous work has indicated substantial savings if the City constructs a water storage facility and then uses this stored water during peak water demand periods such as summer irrigation. The City has investigated the option of building ground level water storage and elevated storage. Ground level storage utilizing the existing water booster station at West Park was determined to be the cost-effective option. The City is currently in negotiations to acquire the necessary land to build the ground storage tank. Current sizing is 1.5 million gallons. A control valve will be required to allow water from the distribution system to fill the ground storage tank. Filling of the ground storage tank will need to be scheduled during periods of low system demand or during the exclusionary period (11 pm to 5 am EST).

An initial evaluation of the West Park booster station indicates the existing pump station can be utilized; however, modifications will be necessary. These modifications will likely include pump alterations, internal piping upgrades and SCADA controls.

The City desires to complete the design and construction of the ground storage tank and pump station modifications in order to have the system operational by December, 2014. The full benefit in water rate reduction is anticipated in 2016 after the City has successfully managed a peak summer season.

In addition to the ground storage tank and pumping station modifications, additional water system improvements might be needed and will be identified through the on-going Water System Master Plan. Such improvements could include new pressure reducing valves (PRVs) for optimizing pressure districts and/or water main improvements to address system reliability, operating pressure and available fire protection. This work scope does not include the design of these other system improvements.

Work Plan

The following tasks are proposed as part of the work plan.

Task 1: Booster Pump Station and Ground Level Storage Tank Basis of Design

A Basis of Design for the pump station modification and ground level storage tank will need to be developed. The water model will be used to determine pump station flow and pressure requirements to meet required operating pressure under average day, maximum day and peak hour demand conditions as well as desirable available fire protection rates. The design criteria will then be compared to the current capacity of the booster pumps. Different suction pressure conditions based on drawing water from the ground storage tank and from in-line pressure from DWSD will be considered in the ability of the pumps to satisfy the design criteria. Pump upgrades will be identified along with any internal piping modifications to ensure the pumps deliver the desired flow and pressure and operate within acceptable ranges on the pump curves.

The Basis of Design will also identify the operational criteria or control scheme for filling and draining the ground level storage tank. The ground level storage tank will need to fill during periods of low demand or during DWSD's exclusionary period. The tank will also need to cycle to prevent water from becoming stagnant especially during extended periods of low flow.

During the high peak demand times, water will be pumped from the ground storage tank and withdrawals from the DWSD feeds will be limited. The control scheme will be developed to include a summer non-exclusionary period in addition to the winter and exclusionary fill conditions. It is anticipated that WAMR demand data will be gathered through a new SCADA system. The City also desires to independently measure the flows at two feed points from DWSD. These independent flow meter sites will provide continuity of information during the times that the WAMR data are unavailable. The demand data will be summed and an internal SCADA controls program will automatically turn the pumps on and draw water from the ground storage tank as the overall City demand reaches a predetermined maximum desired rate. This will ensure that the storage water is used to offset the peak hour demand.

The controls scheme presented in the Basis of Design will be suitable to form the basis for a SCADA integrator to program the system during construction. We anticipate that the City would meet with a system integrator to select the desired hardware and software platforms for the SCADA system. After the City confirms the basic SCADA system platforms, the integrator would incorporate the Basis of Design operational goals with the selected hardware and software to design a functioning process control system.

Once the Basis of Design is completed, OHM will submit the document to the City for review and comments. A meeting will be held to review the Basis of Design. Comments will be addressed and a final version will be issued. The Basis of Design will accompany the DWSD and MDEQ permit application.

It may be desirable to schedule a meeting with DWSD after the Basis of Design is completed to discuss the project objectives with them. Previous work has revealed DWSD is concerned about filling storage tanks along the route of their Franklin Pump Station. Meeting with them early in the process will aid in obtaining their approval.

Task 2: Preliminary Design - Booster Pump Station Modifications and Ground Level Storage Tank

The following work items are expected to be performed as part of the preliminary design phase.

- a. Coordinate geotechnical investigation in accordance with the requirements of the ground level storage tank manufacturer.
- b. Perform topographical investigation related to the geotechnical work and obtain site topography at the tank location for site design and routing for water main installation between the tank and the West Park Booster Pump Station.
- c. Contact the local utility companies to identify the location of private utilities.
- d. Prepare preliminary drawings and specifications for the City's review and comment. OHM will attend a design review meeting with the City and prepare a meeting summary of the preliminary engineering review meeting. Plan drawings are expected to include pumping station modifications, ground storage tank site plan, overflow routing, fill valve location, water main plan drawings and two remote metering sites.
- e. Prepare an estimate of the probable construction cost based on the preliminary engineering design.

Task 3: Final Design - Booster Pump Station Modifications and Ground Level Storage Tank

The following work items are expected to be performed as part of the final design phase.

- a. Prepare final drawings and specifications for the City's review and comment. OHM will attend a design review meeting with the City and prepare a meeting summary of the final engineering review meeting. Plan drawings are expected to include pump station details, storage tank details, water main profile and details and electrical and SCADA components. The final drawings will also include any revisions from the preliminary documents. A contract book will also be prepared as part of the final documents. We will utilize the City's front end documents and incorporate the necessary technical specifications.
- b. Prepare and submit for project required permits including Act 399 permit application for DWSD and the MDEQ and soil erosion and sedimentation control plan for the project.
- c. Prepare and submit the permit application and supporting documents for an RCOC permit.
- a. OHM will coordinate permitting meetings with the DWSD and the MDEQ. We anticipate up to one meeting with the MDEQ and up to two meetings with the DWSD.
- b. Finalize bidding documents based on City, DWSD and MDEQ comments. Prepare probable construction cost based on final engineering design.
- c. Assist the City in securing bids and analyzing bids received, prepare a tabulation of bids received, provide letter of recommendation of the construction contract.

Task 4: Bidding Phase

The following work items are part of the bidding phase:

- a. OHM will hold a pre-bid meeting to be located at the City. This will include a site visit of the existing station pump station and the property selected for the ground storage tank. All interested parties will be invited to attend the pre-bid meeting.
- b. Address contractor's requests for information during bidding phase.
- c. Prepare clarifications to bidding documents by Addenda preparation.
- d. Attend Bid Opening and prepare a bid tabulation form.
- e. Evaluation of bids.
- f. Preparation the letter of recommendation and attend board meeting (if requested) when the contract is awarded.

FURTHER CLARIFICATIONS AND ASSUMPTIONS

The above fee is based on the following assumptions:

1. We assume that there is no contaminated soil on-site.
2. We assume no wetland or floodplain permits will be required.
3. We have assumed that detailed record documents for the existing West Park Booster Pump Station can be provided by the City.
4. Boundary survey, title work/research, obtaining title documents, easement document preparation, or easement acquisitions are not required for this project.

5. We assume that the project construction can be accomplished without traffic detours or signal modifications. Preparation of traffic detour and signal modification plans is not part of this proposal.
6. The project will be funded by City funds and no grants, loans or other outside sources of funding will be utilized that would require administrative work by OHM.
7. OHM's project scope does not include SCADA programming or associated hardware selections. This can be included as a contract bid allowance within the overall construction contract.
8. In developing the proposed project schedule, we assume that DWSD and DEQ will perform concurrent reviews. The review time is aggressive but achievable based on past experience.
9. At this time, we assume that the operation of the ground storage tank and the pumping station will be sufficient to limit peak demands from DWSD from exceeding the allowable peak hour rate.
10. The proposed schedule assumes that the Contractor will purchase the materials and equipment for the project. If it becomes apparent during the design phase that equipment must be ordered before the Notice to Proceed, then we will discuss the arrangements for the City to purchase specific components of the project equipment.
11. The project includes an industry standard ground storage tank of pre-stressed concrete construction. Services related to special architectural treatments of the structure are not included.

SERVICES NOT INCLUDED

The following are services that are not included with this proposal:

1. Location of private utilities, other than requesting as-built information from private utility owners.
2. Environmental impact statement/report or drainage study.
3. Wetland mitigation.
4. Coordination with utility companies for relocation of their facilities should it be deemed necessary to construct the project.
5. Fees associated with the agency permit application and review process.
6. Advertisement fees.
7. Attendance at public meetings other than those noted within the above scope of services.
8. Geotechnical soil investigation, foundation recommendations and materials testing during construction.

DELIVERABLES

OHM will provide the final Basis of Design Report, a complete set of bidding documents (project manual and drawings) and a final engineer's opinion of probable cost.

SCHEDULE

OHM intends to start immediately upon approval of this proposal. Final plans are anticipated to be complete and delivered within 4 and ½ months. If this proposal is approved promptly, advertisement can start in late April, 2014. It is recognized that DWSD approval and MDEQ permits will likely not be secured by this time. The City will need to determine if advertising prior to permit approval is acceptable.

FEE SCHEDULE

OHM proposes to provide the above outlined professional services in accordance with the following fee



schedule. Services for engineering design will be performed on a LUMP SUM basis. The following budgets are presented for your consideration:

| | |
|--|------------------|
| Task 1: Booster Pump Station and Ground Level Storage Tank Basis of Design | \$ 27,100 |
| Task 2: Preliminary Design - Booster Pump Station Modifications and Ground Level Storage Tank | \$ 41,300 |
| Task 3: Final Design - Booster Pump Station Modifications and Ground Level Storage Tank | \$ 80,200 |
| Task 4: Bidding Phase | \$ 11,500 |
| Total | \$160,100 |

ADDITIONAL SERVICES

OHM will be pleased to provide any additional services for this project not specifically described in the scope of work on a time and material basis.


ACCEPTANCE

This document, including any attached Exhibits constitutes the entire Agreement between the Owner and OHM Advisors and shall not be amended, altered or changed, except by written authorization executed by both parties.

Should you find our proposal acceptable, please execute both copies of the attached agreement and return one copy to us for our files.

We thank you for this opportunity to provide professional engineering services. Should there be any questions, please contact us at 734-522-6711.

Sincerely,
OHM Advisors


Vyto Kaunelis, P.E.