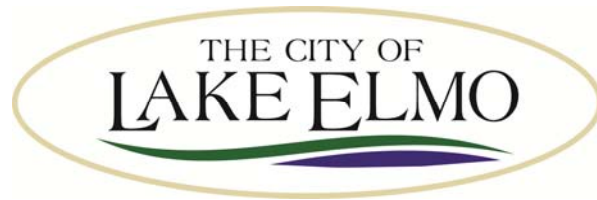


WELL NO. 4 CONNECTING WATERMAIN IMPROVEMENTS

FEASIBILITY REPORT



SEPTEMBER, 2013

CITY OF LAKE ELMO, MN.
Project No. 2013.131

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CERTIFICATION

FEASIBILITY REPORT WELL NO. 4 CONNECTING WATERMAIN IMPROVEMENTS

THE CITY OF LAKE ELMO, MINNESOTA

**SEPTEMBER 2013
Lake Elmo Project No: 2013.131**

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Chad J. Isakson | License No. **49028** | September 3, 2013
651.300.4283

WELL NO. 4 CONNECTING WATERMAIN IMPROVEMENTS

CITY OF LAKE ELMO PROJECT NO: 2013.131

TABLE OF CONTENTS

| | PAGE NO. |
|---|----------|
| EXECUTIVE SUMMARY | 3 |
| SECTION I. PROJECT INITIATION AND SCOPE..... | 4 |
| SECTION II. PROJECT AREA CHARACTERISTICS..... | 4 |
| SECTION III. PROPOSED WATER SYSTEM IMPROVEMENTS..... | 5 |
| SECTION IV. IMPACTS OF PROPOSED IMPROVEMENTS | 5 |
| SECTION V. RIGHT-OF-WAY AND EASEMENTS..... | 6 |
| SECTION VI. PERMITS AND APPROVALS..... | 6 |
| SECTION VII. SUMMARY OF ESTIMATED PROJECT COSTS | 6 |
| SECTION VIII. FINANCING OF IMPROVEMENTS | 7 |
| SECTION IX. PROJECT SCHEDULE | 9 |
| SECTION X. CONCLUSIONS AND RECOMMENDATIONS | 10 |

APPENDIX

| | PAGES |
|--|-------|
| FIGURE 1: LOCATION MAP | 1 |
| FIGURE 2: PROPOSED WATERMAIN IMPROVEMENTS..... | 1 |
| ENGINEER'S PRELIMINARY ESTIMATE OF COST | 1 |
| PRELIMINARY ASSESSMENT ROLL..... | 1 |
| ASSESSMENT PAYMENT SCHEDULE | 1 |

**WELL NO. 4 CONNECTING
WATERMAIN IMPROVEMENTS**

CITY OF LAKE ELMO PROJECT NO. 2013.131

EXECUTIVE SUMMARY

This feasibility report has been prepared in accordance with the City of Lake Elmo Capital Improvement Plan (CIP) to address trunk watermain improvements necessary to connect a new municipal water supply well, Well No. 4, to the existing water distribution system. The project is currently scheduled in the CIP for construction in 2014. This report was prepared at the direction of the City Council to be in accordance with Minnesota State Statutes 429 in order to consider the assessment of a portion of the improvements to properties adjacent to and benefitting from these improvements.

The proposed improvements include the extension of trunk watermain facilities along 50th Street North and Lake Elmo Avenue, from 50th Street N. to 43rd Street N., in order to connect Well No. 4 to the water distribution system. Individual service stubs will be installed to properties with existing homes that are located adjacent to the watermain improvements. Fire hydrants will be installed along the corridor, providing increased fire suppression capabilities in the area. Ten (10) properties have been identified that will benefit from these improvements by providing them the opportunity to connect to the municipal water system. Additional benefit will be realized through lower homeowner's insurance premiums due to the enhanced fire protection for the property.

The total estimated project cost for this improvement is \$617,000. This project is being installed as a part of the overall water system and not as a project to specifically deliver municipal water to the adjacent properties. Therefore the adjacent properties are not required to pay 100% of the infrastructure extension costs as is seen in other utility extension projects. However, the properties will receive benefit from the improvements and it is therefore recommended that each benefiting property be assessed a \$5,800 lateral benefit for the improvements.

Project cost details are included in the Appendix. The recommended Project Improvements are necessary, cost-effective, and feasible and will result in a benefit to the properties proposed to be assessed. It is recommended that the City Council accept this Report, hold the public hearing, and order the improvements.

I. PROJECT INITIATION AND SCOPE

This project was initiated as a part of the City's Water Capital Improvement Plan (CIP) in order to connect Well No. 4 to the existing water distribution system. The City Council authorized the preparation of the feasibility report for the Well No. 4 Connecting Watermain Improvements on August 6, 2013. Staff was directed to identify properties along the project corridor that may benefit from the improvements and to recommend potential assessments accordingly.

Well No. 4 will be the second high capacity well (1,250 Gallons per Minute) supplying water to the City's municipal water system. The well is necessary to meet the growth demands of the City and to provide backup firm capacity to Well No. 2. The well is currently being drilled and developed by Keys Well Drilling Company and is anticipated to be complete in the fall of 2013. The extension of trunk watermain along 50th Street N. and Lake Elmo Avenue, from 50th Street N. to 43rd Street N. is necessary to connect Well No. 4 to the City's municipal water distribution system.

This Report is a desktop study, based on record drawings, aerial photography, aerial contours, Washington County plat records, and city utility maps. A visual observation and condition assessment was completed to review the preliminary routing. Topographic surveys were not completed as part of this report and will be required to confirm the viability of the watermain pipe route and to further detail project costs.

II. PROJECT AREA CHARACTERISTICS

In 2011 and 2012 City staff conducted a site acquisition study to identify properties that would be suitable and potentially available for acquisition, for a municipal water supply well. This study resulted in the purchase of approximately 1.4 acres of property along 50th Street North, just east of Lake Elmo Avenue. The well site was located further north than originally anticipated by the CIP to protect the well capture zone from groundwater contamination plumes generated from the Washington County landfill. However, by moving the well further away from the existing water distribution system, additional trunk watermain was needed to complete the necessary connection near the intersection of Lake Elmo Avenue and 43rd Street N.

The location of the Well No. 4 connecting trunk watermain will be placed along the shoulder of 50th Street N. and Lake Elmo Avenue. Lake Elmo Avenue is owned and maintained by Washington County with the topography along this corridor generally sloping away from the roadway. 50th Street N. is a city

owed street. Both roadway pavements are in good condition with neither roadway scheduled for reconstruction in the next 10 years.

III. PROPOSED WATER SYSTEM IMPROVEMENTS

The proposed water system improvements include the extension of a 12-inch trunk watermain line from the Well No. 4 site to the intersection of 43rd Street and Lake Elmo Avenue. The improvement includes approximately 4,500 feet of watermain, 10 residential service stubs, 9 hydrant assemblies, and 19 gate valves. The watermain will be installed using directional drilling to minimize disruption to the existing roadway pavements and minimize costs.

The specific trunk watermain alignment will be determined during the design phase resulting in a route that seeks to minimize impacts to utilities, roadway pavement impacts, and tree loss. Hydrants and valves will be located strategically to minimize the number required while providing a functional and efficient operating system. Public Works staff and the Lake Elmo Fire Chief will be consulted for the placement of these appurtenances. The project would extend a service connection pipe to the property line, or edge of right-of-way, of ten (10) properties with an existing home and abutting the proposed improvements. Properties on the opposite side of the road from the watermain will have service stubs installed by boring the pipe under the road. Properties that choose to connect to the system will be responsible for the private water service line from the right-of-way to their home.

IV. IMPACTS OF PROPOSED IMPROVEMENTS

The proposed watermain extension will complete a critical connection of Well No. 4 to the City's water supply system. A new well is critical for the City to be able to add new customers and support the protected growth and development in the Village and I94 corridor areas. Without this connection the City will continue to rely on Well No. 2 as the only supply well, without backup or redundancy.

Should a construction project be pursued as recommended, short-term traffic delays, construction dust and noise, minor tree loss, and erosion will occur during construction of the improvements. Efforts to minimize these impacts include proper construction traffic signage, restriction of work hours and implementation of dust and erosion control measures. Construction impacts can be mitigated through the use of proper construction specifications and best management practices. The project as proposed will be mostly installed with trenchless technology and will therefore result in minimal disturbance to existing surface conditions throughout the length of the project. Any disruptions that occur along the

existing corridor will be restored consistent with general construction practices, however it is not always possible to restore to pre-existing conditions.

V. RIGHT-OF-WAY AND EASEMENTS

All improvements are proposed within the existing City or County right-of-way or prescriptive easements. A County right-of-way permit will be required to facilitate the project as proposed. It appears that no additional easements will be required.

VI. PERMITS AND APPROVALS

The following permits will be required to implement the proposed improvements:

- Minnesota Department of Health (MDH) Watermain Extension Permit.
- Washington County Right-of-Way Permit.

VII. SUMMARY OF ESTIMATED PROJECT COSTS

Included in the Appendix is the detailed estimate of probable Project costs including construction, engineering, geotechnical investigations, and contingencies. No allowance has been provided for easement and right-of-way. A 4% allowance is included for legal, fiscal and administration costs; however these actual costs should be further estimated by the City finance staff.

These cost estimates are based on recent construction projects of similar character and assume that the proposed improvements would begin in 2014. The actual project costs will be determined through a competitive bidding process and will vary with market conditions at the time of the bid.

Total estimated project cost for the Well No. 4 Connecting Watermain Improvements Project:

- **12-INCH DIAMETER TRUNK WATERMAIN EXTENSION** **\$617,000**

VIII. FINANCING OF IMPROVEMENTS

This project will be funded through a combination of the City's Water Enterprise Fund, the \$1.0 million DEED Water System Grant, and special assessments. Because the proposed project serves the entire water supply system, and therefore all existing and future users of the City water supply, the project is considered CORE Water Infrastructure and is funded through the Water Enterprise Fund. The City collects Water Availability Charges and Water Connection Charges from each user connecting to the system to pay for CORE water infrastructure improvements, either directly or through bond repayments.

This project will also be partially funded through the City's \$1.0 million DEED Water System Grant. The City has received a \$1.0 million matching grant to spend on municipal water system infrastructure, with all expenditures to be made by December 31, 2014. The City must expend an additional \$1.0 million from the Water Enterprise Fund to match the grant contribution. This project, together with the Keats Trunk Watermain, Production Well No. 4 and Pumphouse No. 4 combine for over \$2.0 million in water system improvements.

In addition to the above funding sources, it is recommended that the City impose special assessments against the properties benefiting from the improvements. Special assessments are levied in accordance with Minnesota Statutes Chapter 429 and the City of Lake Elmo Special Assessment Policy. Following the assessment policy, the City Council should consider levying a lateral benefit charge of \$5,800 to each of the existing housing units that are provided a water service stub. The \$5,800 lateral benefit charge is the current charge on the 2013 City Fee Schedule. Consideration should be given to assessing a lateral benefit charge whether or not the property chooses to connect to City water. When a property connects to City water, they must also pay a \$3,000 Water Availability Charge (WAC), a \$1,000 Water Connection Charge, and a \$300 Meter Fee.

In the past year, the City ordered the Keats Trunk Watermain Improvements and following testimony from the property owners, the City Council chose to levy a \$2,900 assessment at the time of the project while deferring the remaining \$2,900 (from the \$5,800 lateral benefit charge) until the property choose to connect to the system. If a property never connects the City must fund the remaining \$2,900 amount.

The total estimated project costs are listed below for the recommended improvements with staff recommendation to assess a \$5,800 lateral benefit charge:

ASSESSMENT OPTION 1:

| Proposed Improvement | Total Estimated Project Costs | Water Enterprise Fund | DEED Grant Funds | Special Assessments (10 at \$5,800 ea.) |
|-----------------------------|--------------------------------------|------------------------------|-------------------------|--|
| Watermain Improvements | \$617,000 | \$307,000 | \$252,000 | \$58,000 |

Alternatively, the total estimated project costs are listed below for the recommended improvements with a \$2,900 assessment at the time of the project, and deferring the remaining \$2,900 until the time of connection:

ASSESSMENT OPTION 2:

| Proposed Improvement | Total Estimated Project Costs | Water Enterprise Fund | DEED Grant Funds | Special Assessments (10 at \$2,900 ea.) |
|-----------------------------|--------------------------------------|------------------------------|-------------------------|--|
| Watermain Improvements | \$617,000 | \$336,000 | \$252,000 | \$29,000 |

The City may use fund reserves or bonds for the Project improvements to pay the up-front project costs and to cover City cost participation. Special assessments would be levied against the benefiting properties with payment terms structured so that the City receives funds to meet debt obligations. If bonds are sold to finance the improvements, the interest rate on the assessment would be charged at the coupon rate plus 2%. If no bonds are sold, the interest rate would be set at the rate allowed by State law.

It is recommended that the watermain improvements be levied over a 15-year period. Assuming an assessment is levied in the amount at 4.5% interest, the property owner, if they choose to finance the assessment, would be required to pay an estimated annual payment as shown in the Assessment Payment Schedule included in the Appendix.

IX. PROJECT SCHEDULE

The following schedule is proposed in order to construct these improvements in 2014.

| | |
|-----------------------|---|
| August 6, 2013 | Lake Elmo Council orders preparation of Feasibility Report |
| September 3, 2013 | Lake Elmo Council accepts report and calls for Hearing on Improvements to be held October 1, 2013 |
| September, 2013 | Resident Project Information Meeting – Preliminary Report Findings |
| October 1, 2013 | Lake Elmo Public Improvement Hearing. Council passes resolution ordering Improvement |
| January 21, 2014 | Presentation of Plans and Specifications. Council Approves Plans and Specifications and Orders Advertisement for Bids |
| February 20, 2014 | Receive Contractor Bids |
| March 4, 2014 | City Council accepts bids and awards Contract |
| March-September, 2014 | Construction of Improvements |

X. CONCLUSIONS AND RECOMMENDATIONS

The City is in need of a second Water Supply Well to meet current and projected demands on the City water system. Production Well No. 4 is currently under construction and will be completed in November 2013. A trunk watermain extension is needed to connect Well No. 4 to the existing distribution system. The trunk watermain extension project proposed within this report, along 50th Street N. and Lake Elmo Avenue, identifies the least cost alternative for making this improvement. Service stubs are recommended to be extended to property lines along the utility corridor as presented in this report. The trunk watermain extension project, as proposed, is technically and financially feasible, is necessary, cost-effective, and will result in a benefit to the properties proposed to be assessed. It is recommended that the City Council accept this Report, hold the public hearing, and order the improvements.

APPENDIX

PROJECT LOCATION

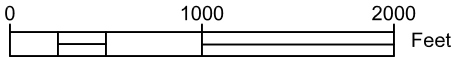
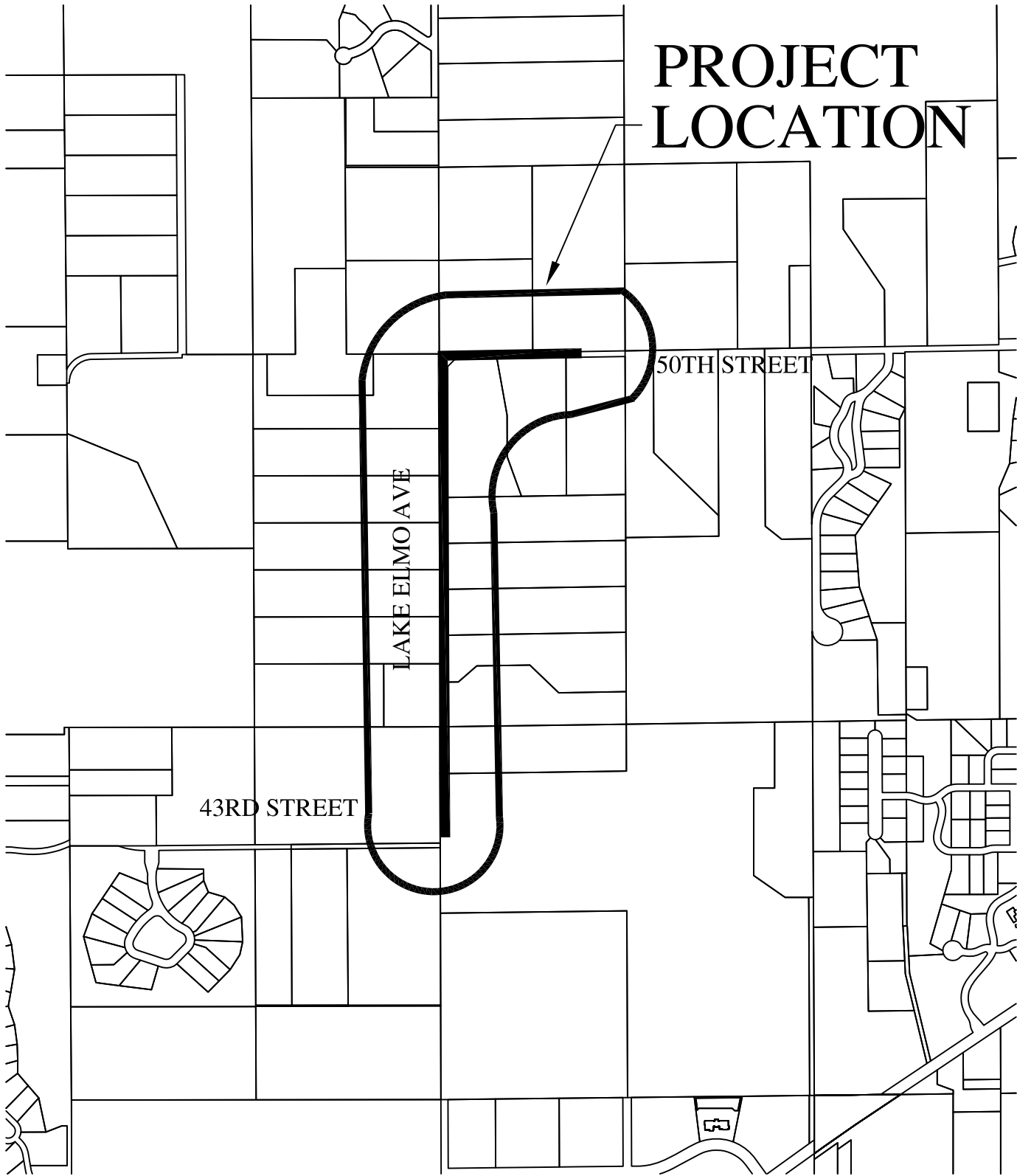


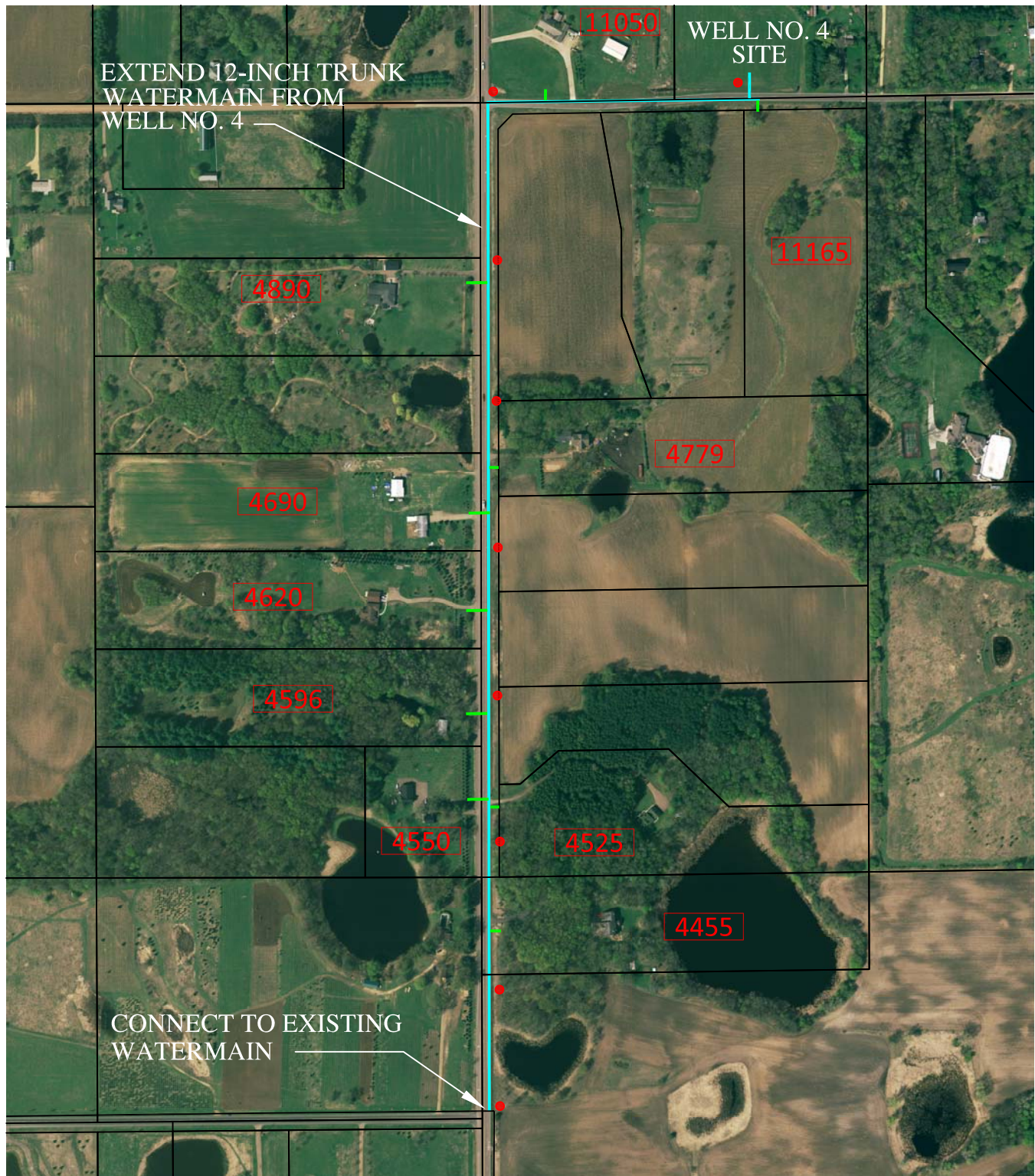
FIGURE NO. 1

LOCATION MAP

WELL NO. 4 CONNECTING
WATERMAIN IMPROVEMENTS

FOCUS
ENGINEERING

PROJ. NO. 2013.131
LAKE ELMO, MINNESOTA
SEPTEMBER, 2013



LEGEND

- PROPOSED WATERMAIN
- PROPOSED WATERMAIN SERVICE STUB
- PROPOSED HYDRANT
- XXXX ASSESSABLE PROPERTY

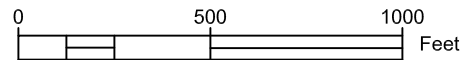


FIGURE NO. 2

PROPOSED WATERMAIN IMPROVEMENTS

WELL NO. 4 CONNECTING
WATERMAIN IMPROVEMENTS

FOCUS
ENGINEERING

PROJ. NO. 2013.131
LAKE ELMO, MINNESOTA
SEPTEMBER, 2013

**WELL NO. 4 CONNECTING WATERMAIN IMPROVEMENTS
CITY OF LAKE ELMO, MINNESOTA
PROJECT NO. 2013.131**



**ENGINEER'S OPINION OF PROBABLE COST
12-INCH TRUNK WATERMAIN EXTENSION**

DATE: SEPTEMBER 2013

| Item | Description | Quantity | Unit | Unit price | Total Cost |
|------|---|----------|------|-------------|------------|
| 1 | MOBILIZATION | 1.00 | LS | \$22,000.00 | \$22,000 |
| 2 | TRAFFIC CONTROL | 1.00 | LS | \$10,500.00 | \$10,500 |
| 3 | CONNECT TO EXISTING WATERMAIN | 2.00 | EA | \$3,500.00 | \$7,000 |
| 4 | 12" HDPE WATERMAIN, INSTALLED BY HDD | 4,400.00 | LF | \$60.00 | \$264,000 |
| 5 | 16" HDPE WATERMAIN, INSTALLED BY HDD | 50.00 | LF | \$110.00 | \$5,500 |
| 6 | 6" DIP, CL. 52 WATERMAIN | 180.00 | LF | \$31.00 | \$5,580 |
| 7 | 1" TYPE "K" COPPER WATER SERVICE | 500.00 | LF | \$21.00 | \$10,500 |
| 8 | 1" CORPORATION STOP W/ FUSABLE SADDLE | 10.00 | EA | \$220.00 | \$2,200 |
| 9 | 1" CURB STOP WITH BOX | 10.00 | EA | \$280.00 | \$2,800 |
| 10 | 6" HYDRANT ASSEMBLY (8'-6" BURY) | 9.00 | EA | \$3,750.00 | \$33,750 |
| 11 | 6" RES. SEAT GATE VALVE & BOX | 9.00 | EA | \$1,200.00 | \$10,800 |
| 12 | 12" RES. SEAT GATE VALVE & BOX | 9.00 | EA | \$2,900.00 | \$26,100 |
| 13 | 16" BUTTERFLY VALVE & BOX | 1.00 | EA | \$3,200.00 | \$3,200 |
| 14 | MJ DIP COMPACT FITTINGS | 2,615.00 | LB | \$5.80 | \$15,167 |
| 15 | BORING PIT RESTORATION TO EXISTING CONDITIONS | 1.00 | LS | \$39,350.00 | \$39,350 |
| 16 | TOPSOIL | 72.00 | CY | \$14.00 | \$1,008 |
| 17 | SOD | 550.00 | SY | \$2.75 | \$1,513 |
| 18 | OFF ROAD STRUCTURE MARKER | 26.00 | EA | \$100.00 | \$2,600 |

Subtotal Estimated Construction Cost: \$464,000

| | |
|--|----------|
| Contingencies: | \$46,000 |
| Easement and Right-of-way Acquisition: | \$0 |
| Engineering Services (Report, Design and Construction Administration): | \$58,000 |
| Full-Time Construction Observation: | \$23,000 |
| Geotechnical Engineering: | \$7,000 |
| Legal, Fiscal and Administration: | \$19,000 |

Total Estimated Project Cost: \$617,000

*The estimated costs are according to average prices received on similar projects in other areas. The actual costs for this project will be determined through a bidding process and can vary with market conditions at the time of the bid.

WELL NO. 4 CONNECTING WATERMAIN IMPROVEMENTS
 PRELIMINARY ASSESSMENT ROLL

| NO. | NAME | ADDRESS | PID | UNITS |
|-------|--|--------------------------------|---------------------|-------|
| 1 | ROBERTS SAXE G & B CHRISTINA | 11165 50TH ST N LAKE ELMO | 55042 1202921220002 | 1 |
| 2 | GLCJ PROPERTIES LLC | 11050 50TH ST N LAKE ELMO | 55042 102921330003 | 1 |
| 3 | BREADY MARY B & KATHRYN M FLICEK | 4890 LAKE ELMO AVE N LAKE ELMO | 55042 1102921110005 | 1 |
| 4 | DAY JACQUELYN L & KEVIN K | 4779 LAKE ELMO AVE N LAKE ELMO | 55042 1202921220005 | 1 |
| 5 | REINHARDT MICHAEL C & AMY L | 4690 LAKE ELMO AVE N LAKE ELMO | 55042 1102921140005 | 1 |
| 6 | SLINGER DONALD L & JERELYN J | 4620 LAKE ELMO AVE N LAKE ELMO | 55042 1102921140004 | 1 |
| 7 | WILLIAMS DOUGLAS C & MARY F & MARY F COUNTRYMAN-WI | 4596 LAKE ELMO AVE N LAKE ELMO | 55042 1102921140001 | 1 |
| 8 | HOFFMAN RICHARD J & NANCY L | 4550 LAKE ELMO AVE N LAKE ELMO | 55042 1102921140006 | 1 |
| 9 | SCHMIDT MARGARET ANN TRS & ANTHONY & MARGARET SC | 4525 LAKE ELMO AVE N LAKE ELMO | 55042 1202921230005 | 1 |
| 10 | ABBOTT ROY E & LAURA A | 4455 LAKE ELMO AVE N LAKE ELMO | 55042 1202921320002 | 1 |
| TOTAL | | | | 10 |

ASSESSMENT PAYMENT SCHEDULE

Interest Rate 4.50%
 Original Years 15
 Remaining Years 15
 Year Started 2014
 Beginning Balance 5,800.00

| YEAR | BEGINNING PRINCIPAL | ANNUAL PRINCIPAL | ANNUAL INTEREST | ANNUAL TOTAL | ENDING PRINCIPAL |
|------|---------------------|------------------|-----------------|--------------|------------------|
| 2014 | \$ 5,800.00 | \$ 386.67 | \$ 316.06 | \$ 702.73 | \$ 5,413.33 |
| 2015 | \$ 5,413.33 | \$ 386.67 | \$ 243.60 | \$ 630.27 | \$ 5,026.67 |
| 2016 | \$ 5,026.67 | \$ 386.67 | \$ 226.20 | \$ 612.87 | \$ 4,640.00 |
| 2017 | \$ 4,640.00 | \$ 386.67 | \$ 208.80 | \$ 595.47 | \$ 4,253.33 |
| 2018 | \$ 4,253.33 | \$ 386.67 | \$ 191.40 | \$ 578.07 | \$ 3,866.67 |
| 2019 | \$ 3,866.67 | \$ 386.67 | \$ 174.00 | \$ 560.67 | \$ 3,480.00 |
| 2020 | \$ 3,480.00 | \$ 386.67 | \$ 156.60 | \$ 543.27 | \$ 3,093.33 |
| 2021 | \$ 3,093.33 | \$ 386.67 | \$ 139.20 | \$ 525.87 | \$ 2,706.67 |
| 2022 | \$ 2,706.67 | \$ 386.67 | \$ 121.80 | \$ 508.47 | \$ 2,320.00 |
| 2023 | \$ 2,320.00 | \$ 386.67 | \$ 104.40 | \$ 491.07 | \$ 1,933.33 |
| 2024 | \$ 1,933.33 | \$ 386.67 | \$ 87.00 | \$ 473.67 | \$ 1,546.67 |
| 2025 | \$ 1,546.67 | \$ 386.67 | \$ 69.60 | \$ 456.27 | \$ 1,160.00 |
| 2026 | \$ 1,160.00 | \$ 386.67 | \$ 52.20 | \$ 438.87 | \$ 773.33 |
| 2027 | \$ 773.33 | \$ 386.67 | \$ 34.80 | \$ 421.47 | \$ 386.67 |
| 2028 | \$ 386.67 | \$ 386.67 | \$ 17.40 | \$ 404.07 | \$ (0.00) |
| | | \$ 5,800.00 | \$ 2,143.06 | \$ 7,943.06 | |

First year interest calculated from October 15, 2014 through December 31, 2015