MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER QUALITY OF LIFE

Memo

To: MCWD Board of Managers

From: Brett Eidem, Cost Share Grant Administrator

CC: Lars Erdahl, Telly Mamayek

Date: September 8th, 2015

Re: City of Mound Cost Share Funding

At the September 10th Board Workshop, staff will be presenting the Board with a potential cost share partnership with the City of Mound. To stay consistent with prior Board Action (Resolution 13-023), there is a public hearing procedure for cost share projects involving capital construction. This project involves the construction elements of a project that requires a municipality to undertake long term maintenance responsibilities, which then triggers the public hearing requirement.

Staff will be presenting the project, which involves the integration of sump catch basins with their city reconstruction where stormwater management is not required by us or any other government agency. This water quality improvement exceeding regulatory requirements is proposed to create large water quality improvements for the construction cost. Staff has brought the project to the Citizen's Advisory Committee, where it received a unanimous recommendation for funding. Attached to this memo are some of the application materials.

After staff's presentation of the project, staff will intend to bring the project back to the Board at the next Board Meeting, to hold a public hearing and to have the Board consider funding the project. This public hearing would happen on September 24th, where staff will have a formal RBA.

If you have any questions on the content provided prior to the meeting, please contact me at beidem@minnehahacreek.org or 952-641-4523.

BOLTON & MENK, INC.
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June 22, 2015

Brett Eidem
Cost Share Grant Administrator
Minnehaha Creek Watershed District
15320 Minnetonka Boulevard
Minnetonka, MN 55345

RE: 2015 Street, Utility, and Retaining Wall Improvements
Storm Water Quality Improvements – Grant Funding Request
City of Mound Project No. PW-15-01 & PW-15-02
Bolton & Menk Project No. C1210887 & C12108886

Dear Mr. Eidem,

The City of Mound is requesting grant funding from the Minnehaha Creek Watershed District (MCWD) for the storm water quality improvements that are being proposed as part of the 2015 Street, Utility, and Retaining Wall Improvements Projects in Mound, MN. These improvements include:

- Installation of sump storm manholes
- Installation of storm water quality devices (preserver dissipators & skimmers)

PROJECT DESCRIPTION

The project consists of reconstructing streets and various underground utilities on Grandview and Tuxedo Boulevards in the Dutch Lake and Island Park areas, respectively (see attached Figure 1 – Project Area Map for site location). The project will include partial curb and gutter replacement and storm sewer improvements. The project will not increase impervious area, and thus, storm water quality improvements are not required under MCWD rules. However, the City of Mound has identified this project as an opportunity to improve water quality and is proposing to exceed MCWD requirements by installing nine storm water quality treatment devices and 5 new sump manholes. The runoff from the project area drains to Lake Minnetonka and ultimately to Minnehaha Creek. Therefore, these improvements will directly impact the water quality within the watershed and help to meet the Total Maximum Daily Load (TMDL) goals that will be established.

EXISTING CONDITIONS

The project is located in fully developed residential neighborhoods around Dutch Lake, Phelps Bay, and Cooks Bay on Lake Minnetonka. The runoff flows overland to catch basins located in the roadways and is conveyed directly to surface waters with no treatment.

STORM WATER QUALITY IMPROVEMENTS

Storm Water Quality Treatment

Seven Preserver™ energy dissipators are to be installed in conjunction with five new sump manholes. These devices are commonly referred to as storm water treatment manholes, and are a viable Best Management Practice (BMP) to aid in preventing suspended sediment and other pollutants from reaching surface waters. The dissipator controls flow dynamics and reduces sediment scour within sump manholes, thus enhancing removal of these particulates. This BMP can easily be maintained by vacuuming out accumulated debris as necessary. Due to limited available public space and the high cost of land in the project areas, these devices are the most cost effective approach to treat storm water runoff prior to discharge to surface waters.

Two Preserver™ skimmers are to be installed within two of the new sump manholes mentioned above. This BMP effectively traps floating pollutants such as trash and hydrocarbons within the sump manhole.

The following table shows the expected sediment Total Suspended Solids (TSS) removal amounts per year for each of the treatment BMPs. The calculations for the dissipators, skimmers, and sump MHs were modeled utilizing Storm & Sanitary Sewer Analysis and Momentum Environmental HDS Annualized Removal Models.

TSS REMOVAL

MH #	Drainage Area (acres)	Yearly Influent TSS (lbs)	Yearly TSS Removed (lbs)	Yearly Removal Efficiency
105	14.7	1142	787	68.8%
201	8.6	1123	632	56.3%
208	5.6	719	485	67.5%
214	2.9	396	329	83.1%
221	4.4	466	374	80.3%

HDS Annualized Removal Model parameters include:

a) Golden Valley 15 min. historic rainfall data from 1995 to 2007
b) Yearly efficiency calculated from 110 micron particle with SG of 2.65 and influent sediment concentration of 200mg/L

The City of Mound routinely inspects all of their existing storm water treatment units, maintains them as necessary, and will develop a schedule to include these new BMPs to keep them operating at optimum efficiency.

Education

Educational signs will be developed and installed at each location to inform the public about the storm water treatment provided. The signs will describe the purpose of the BMPs, include a diagram depicting how the BMPs remove pollutants from storm water runoff, and recognize the partnership between MCWD and the City of Mound in making these improvements. Also, brochures containing the same information may be developed and made available at City Hall.

Design, Materials, and Construction Costs

Following is a tabulation of the design, materials, and construction costs for the installation of the storm water treatment units. Based on prior experience with MCWD staff, we believe these items are eligible for grant funding, and the City of Mound Requests participation in these amounts. See attachments for a detailed summary of estimated costs.

Construction of Storm Water Quality BMPs	$54,800.74
Design, Administration, Survey, and Inspection	$9,400.00
Total	$64,200.74
MCWD 50% Share	$32,100.37

Schedule

It is the City's intent to complete this work through the City's contract for the 2015 Street, Utility, and Retaining Wall project, which has commenced this month and will be substantially completed by late October, including the installation of the storm water quality BMPs. It is our understanding that this cost share will be based on actual project costs. We would appreciate MCWD consideration and approval of this grant request at the next board meeting. If you have any questions, comments, or need additional information, please contact me at (952) 448-8838 to discuss. We thank you and the Minnehaha Creek Watershed District for your time and consideration of this improvement project.

Sincerely,
BOLTON & MENK, INC.

Daniel L. Faulkner

Daniel L. Faulkner, P.E.
Mound City Engineer

cc. Eric Hoversten, City of Mound Public Works Director

Attachments: Estimate for Storm Water Quality BMP Improvements
Figure 1 – Project Area Map
Figure 2 – Proposed Storm Water Quality Structure – Grandview Boulevard
Figure 3 – Proposed Storm Water Quality Structure – Tuxedo Boulevard
Figure 4 – Proposed Storm Water Quality Structure – Tuxedo Boulevard
Figure 5 – Proposed Storm Water Quality Structure – Tuxedo Boulevard
Figure 6 – Proposed Storm Water Quality Structure – Brighton Commons
Exhibit for Catch Basin Dissipator and Skimmer Demonstration Sign

ESTIMATE FOR STORM WATER TREATMENT IMPROVEMENTS

2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS
CITY OF MOUND, MINNESOTA
CITY PROJECT NO. PW-15-01 & PW-15-02
BMI PROJECT NO. C12.108886 & C12.108887
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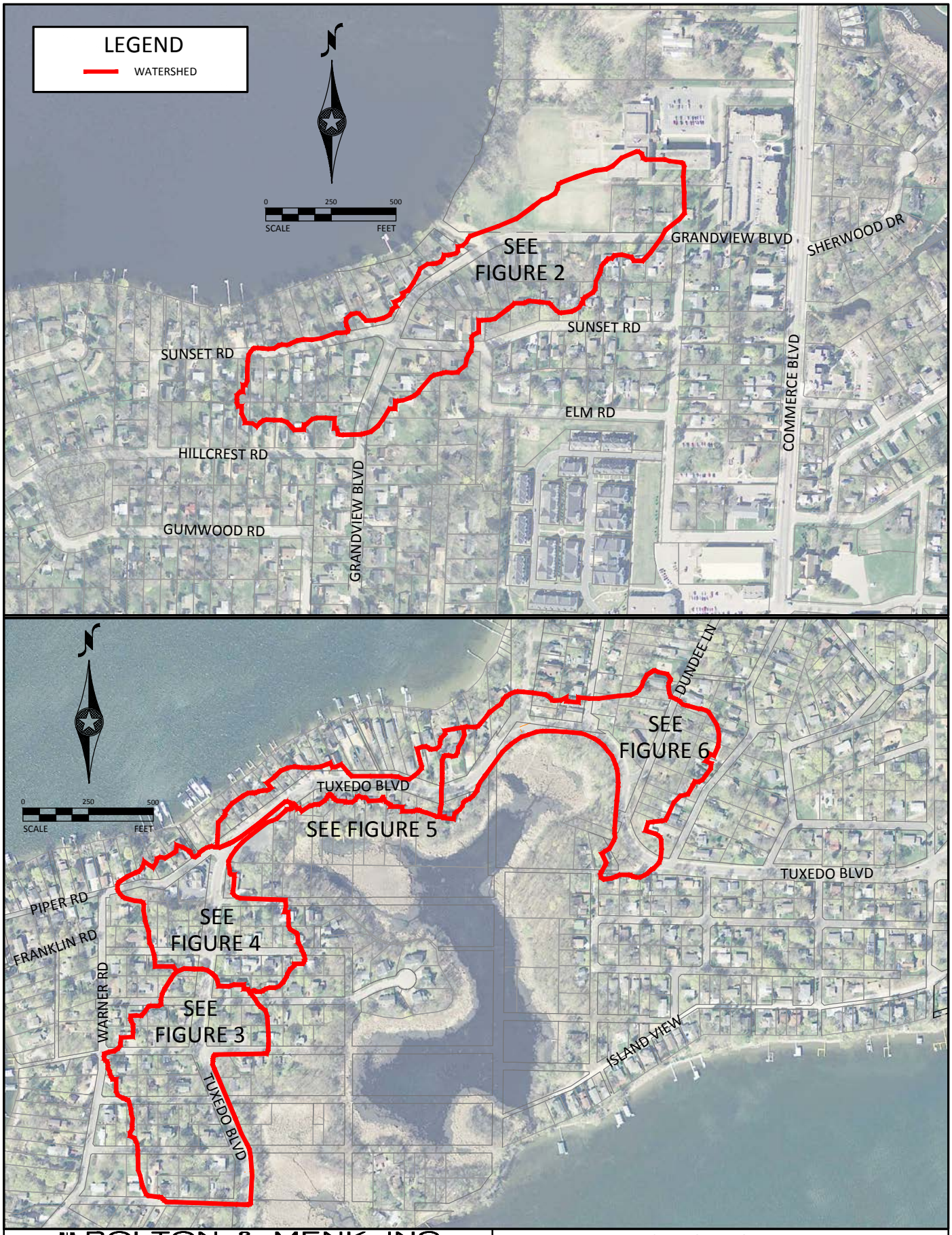
ITEM NO.	BID ITEM	EST. QUANTITY	UNIT	UNIT PRICE	AMOUNT
	GENERAL				
1	MOBILIZATION & TRAFFIC CONTROL	1.0	LUMP SUM	$6,000.00	$6,000.00
	REMOVALS				
2	REMOVE CONCRETE CURB & GUTTER	80	LIN FT	$5.00	$400.00
3	REMOVE CONCRETE SIDEWALK	270	SQ FT	$1.00	$270.00
4	REMOVE BITUMINOUS PAVEMENT	80	SQ YD	$3.00	$240.00
5	REMOVE DRAINAGE STRUCTURE	5	EACH	$200.00	$1,000.00
6	CLEARING & GRUBBING	1	LUMP SUM	$450.00	$450.00
	GENERAL CONSTRUCTION				
7	FURNISH & INSTALL WATERSHED MANAGEMENT DEMONSTRATION SIGN	5	EACH	$650.00	$3,250.00
8	AGGREGATE BASE (CV) (P) CLASS 5, 100% CRUSHED	38	CU YD	$30.00	$1,140.00
9	CONCRETE CURB & GUTTER DESIGN B618	80	LIN FT	$12.00	$960.00
10	4" CONCRETE WALK	80	SQ FT	$4.00	$320.00
11	TYPE SP 12.5 NON WEARING COURSE MIX (3,B)	10	TON	$67.00	$670.00
12	TYPE SP 9.5 WEARING COURSE MIX (4,B) 1.5" THICK	80	SQ YD	$8.00	$640.00
	STORM SEWER				
13	4" PERF HDPE UNDERDRAIN (INC. GEOFABRIC AND ROCK)	54	LIN FT	$7.00	$378.00
14	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48"-4022	7.0	LIN FT	$270.00	$1,898.10
15	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60"-4022	21.1	LIN FT	$300.00	$6,315.00
16	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60"-4020	7.8	LIN FT	$275.00	$2,147.75
17	12" PRESERVER DISSIPATOR	1	EACH	$1,500.00	$1,500.00
18	15" PRESERVER DISSIPATOR	3	EACH	$2,000.00	$6,000.00
19	21" PRESERVER DISSIPATOR	3	EACH	$2,700.00	$8,100.00
20	12" PRESERVER SKIMMER	1	EACH	$1,300.00	$1,300.00
21	21" PRESERVER SKIMMER	1	EACH	$2,000.00	$2,000.00
22	CASTING ASSEMBLY R-1642	1	EACH	$500.00	$500.00
23	CASTING ASSEMBLY R-3067-L	4	EACH	$750.00	$3,000.00
	RESTORATION, EROSION CONTROL				
24	SILT FENCE, PREASSEMBLED	100	LIN FT	$7.00	$700.00
25	SEED MIXTURE 25-131	256	SY	$2.50	$640.00
				SUB TOTAL - DRAINAGE IMPROVEMENTS	**$49,818.85**
				CONTINGENCIES (10%)	**$4,981.89**
				TOTAL - DRAINAGE IMPROVEMENTS	**$54,800.74**
	DESIGN, ADMINISTRATION, SURVEY, AND INSPECTION				
1	DESIGN AND ADMINISTRATION (5% OF CONSTRUCTION)	1	TOTAL	$5,700.00	$5,700.00
2	SURVEY	6	HOUR	$150.00	$900.00
3	INSPECTION	28	HOUR	$100.00	$2,800.00
				TOTAL - DESIGN, ADMINISTRATION, SURVEY, AND INSPECTION	**$9,400.00**
				TOTAL ESTIMATED AMOUNT:	**$64,200.74**



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AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

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CITY OF MOUND
2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS
PROJECT AREA MAP

JUNE, 2015

FIGURE NO. 1

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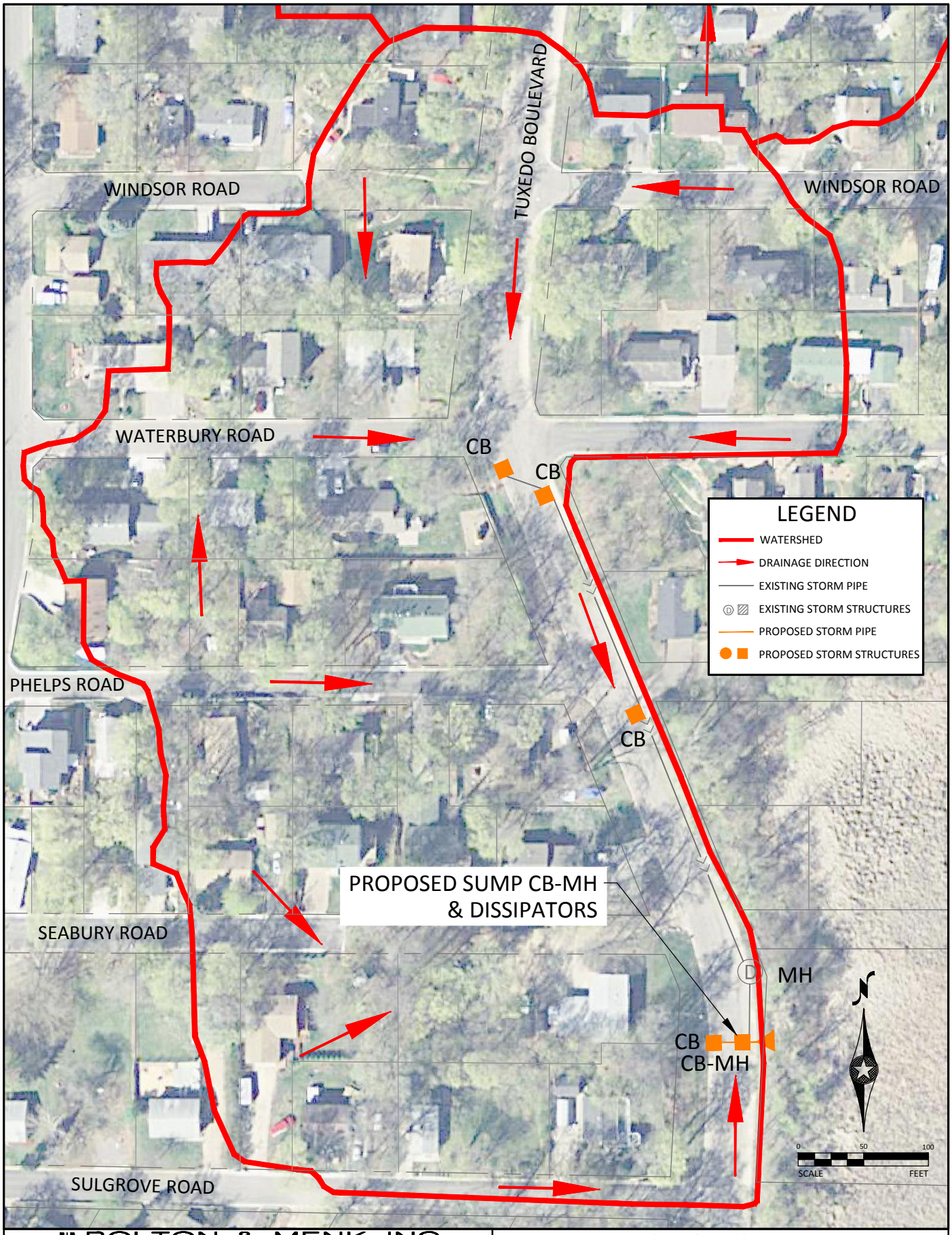
CITY OF MOUND
2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS
GRANDVIEW CB-MH #105

JUNE, 2015

FIGURE NO. 2



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CITY OF MOUND

2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS

TUXEDO BOULEVARD CB-MH #200

JUNE, 2015

FIGURE NO. 3

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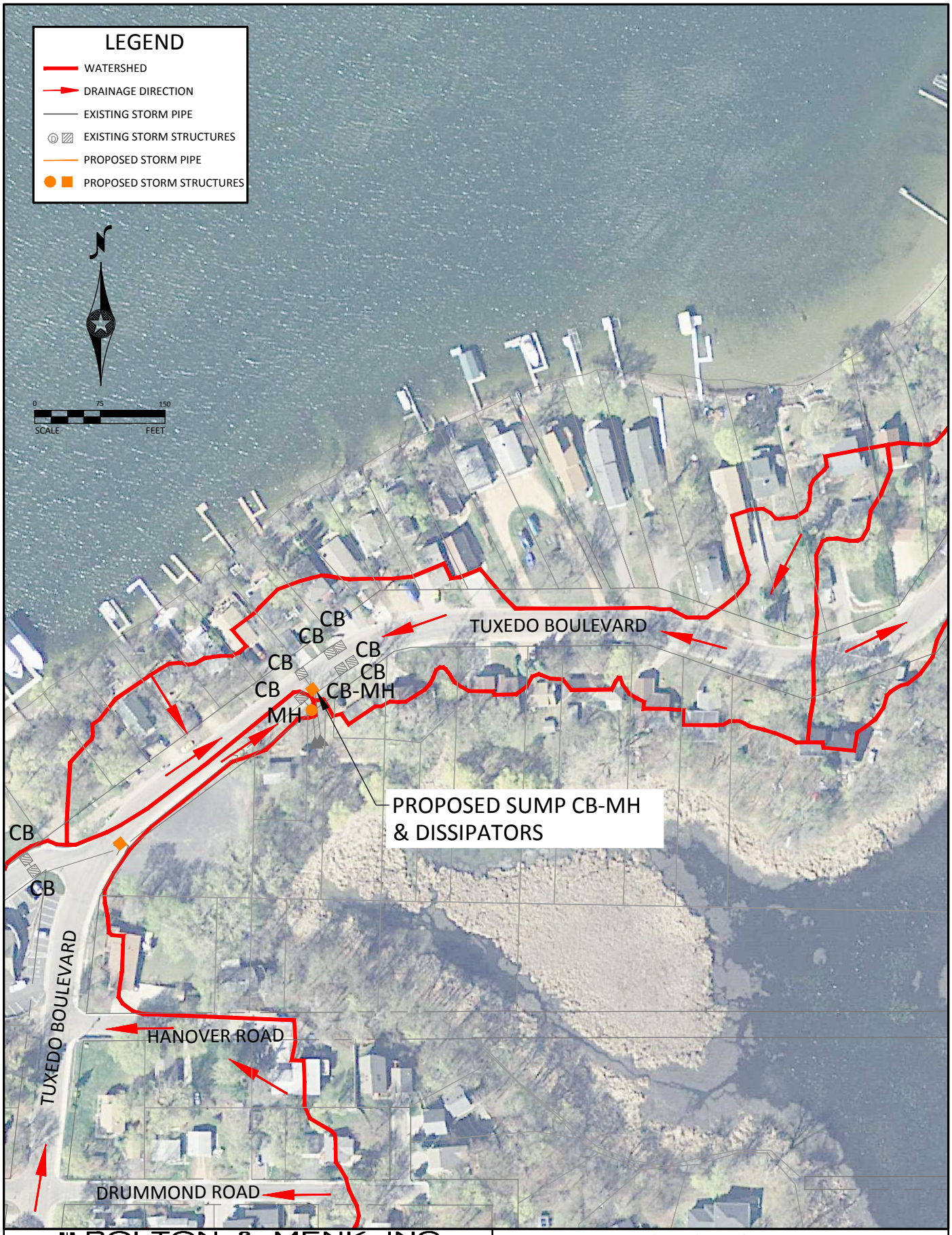
CITY OF MOUND
2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS
TUXEDO BOULEVARD MH #208

JUNE, 2015

FIGURE NO. 4



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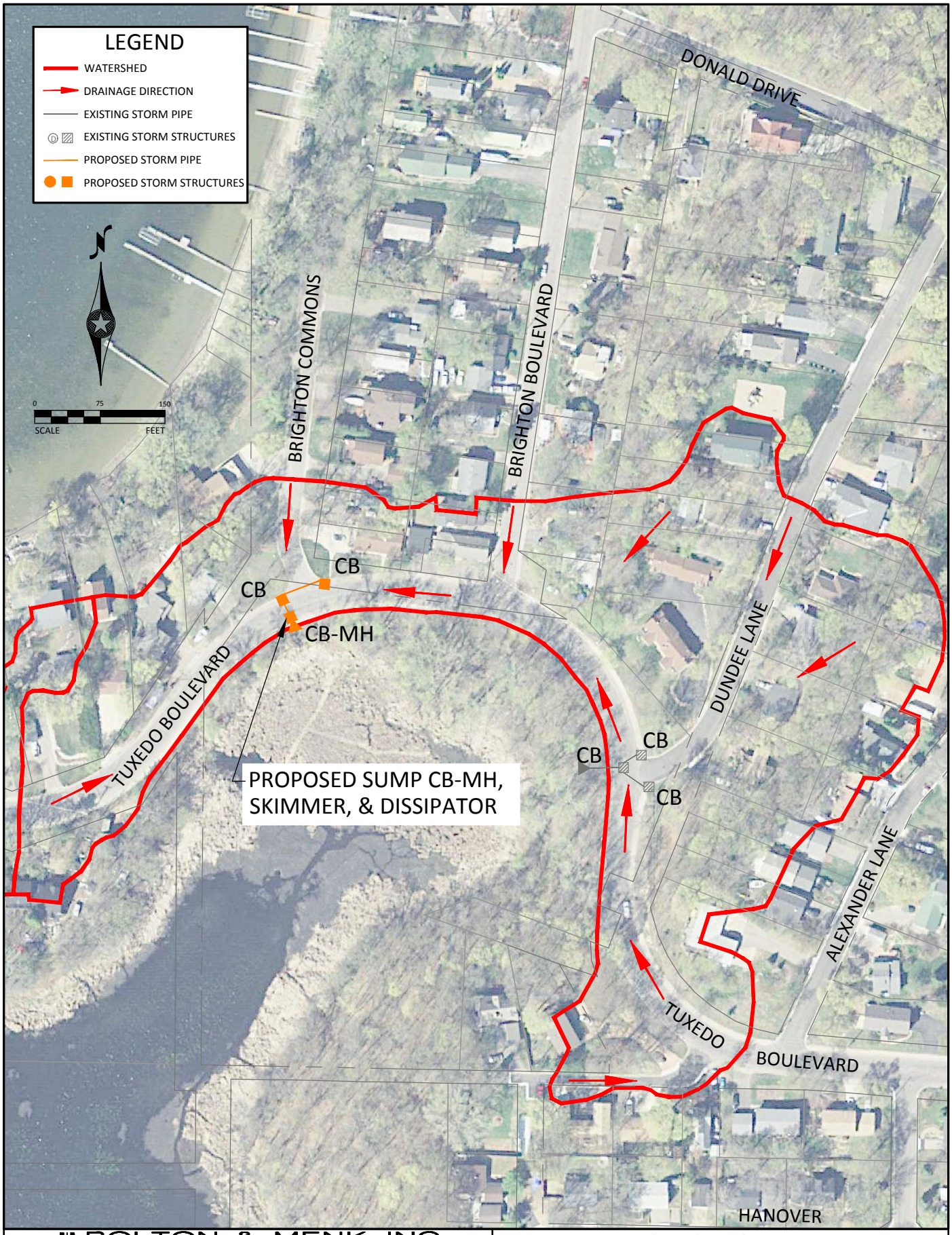
CITY OF MOUND

2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS

TUXEDO BOULEVARD CB-MH #214

JUNE, 2015

FIGURE NO. 5



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CITY OF MOUND
2015 STREET, UTILITY, & RETAINING WALL IMPROVEMENTS
TUXEDO BOULEVARD CB-MH #221

JUNE, 2015

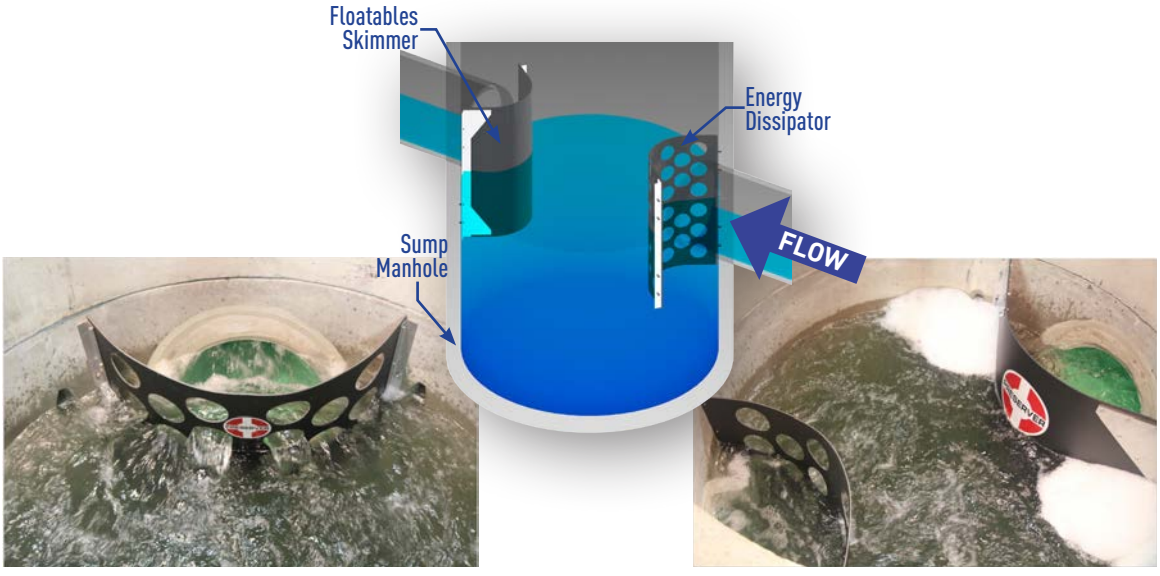
FIGURE NO. 6

STORMWATER QUALITY IMPROVEMENT STRUCTURE

How This Works:

This structure is a stormwater treatment manhole that implements a Best Management Practice (BMP) which aids in preventing sediment, oil, trash, and other pollutants from reaching our area lakes and streams.

- The Preserver™ Energy Dissipator utilizes a baffled surface to control flow dynamics in the manhole. The Dissipator improves pollutant removals during small frequent storms, and prevents the washout of previously captured pollutants during large infrequent storms.
- The Preserver™ Skimmer forces water to exit the manhole below the water surface, effectively trapping floating pollutants such as trash and hydrocarbons.
- The compact design of the Skimmer and Dissipator allow easy access for annual cleaning of the captured pollutants. The products can be used individually or together as a BMP on a sump manhole.
- Additional information, including videos, can be found at www.MomentumEnv.com.



Funding Provided By:

MINNEHAHA CREEK WATERSHED DISTRICT
QUALITY OF WATER QUALITY OF LIFE

CITY OF MOUND