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### 1 PROJECT DESCRIPTION

As a companion study to the Milan Dam Condition Assessment report, the City of Milan hired Stantec to investigate the feasibility of constructing improvements along the eastern shore (adjacent to Wabash Street) to enhance pedestrian access and visual experience. The improvements would also address slope stability/erosion deficiencies that currently exist along this shoreline.

The proposed improvements are referred to as the "Promenade". The project consists of constructing a pathway along the eastern shore of Ford Lake to connect existing pedestrian walks situated between the shore and Wabash Street: the southerly connection point being approximately 80 feet north of the Ford Lake Dam; the northerly, across from the municipal fire station. Please refer to the drawing "**Proposed Promenade Concept and Details**" for a plan view and details of the walkway.

The concept includes two viewing areas (**Detail 1** on the concept drawing) to enhance the user's visual experience, each with benches and a raised bed planter box. The pathway itself will be a concrete surface similar to the connecting sidewalks. An 8-foot width is suggested to allow sufficient area for both walking and viewing. Pathway lighting is also proposed.

A cross section of the proposed walkway is shown in the concept drawing. To flatten the grade for the walkway it will be necessary to construct a retaining wall at or near the existing shoreline and then subsequently place earthen backfill behind this wall. The concept assumes that steel sheet-piling will be used for the retaining wall. Since an existing overhead electric line would obstruct efforts to construct the wall from Wabash Street, it will be necessary to locate the wall far enough from the shore to provide adequate width for equipment access.

The proposed walkway would be constructed at an elevation to allow for drainage to flow overland directly to Ford Lake. Since this section of the embankment/roadway is overtopped during design flow events (ref. **Condition Assessment and Hydraulic Study**, January 2012) the walkway elevation would have to be equal to or lower than Wabash Street.

This activity also will require a State of Michigan permit for construction within a regulated waterway (Inland Lakes and Streams Act). Work under the promenade project is similar to the dredging work proposed for Ford Lake (ref. **Ford Lake Dredging Feasibility Study**, January 2012), and thus could be included with the overall dredging project permit. The Ford Lake Dam spillway hydraulic capacity and floodplain impacts must also be considered in the final design. These items would be reviewed as part of the MDEQ permit process.

The total estimated cost is \$535,000. A detailed preliminary opinion of probable cost for this work is shown in **Section 1.2** below.



**2 OPINION OF PROBABLE COST**

Item Description	UNIT	QTY	Unit Price	Total Price
General Conditions (6%)	LS	1	\$	\$ 30,010
Mobilization	LS	1	\$ 10,000	\$ 10,000
Traffic Control	LS	1	\$ 5,000	\$ 5,000
Soil Erosion Control	LS	1	\$ 5,000	\$ 5,000
Steel Sheet-piling	SF	11,560	\$ 25	\$ 289,000
Miscellaneous Metal	LB	2,000	\$ 3	\$ 6,000
Earthwork				
Excavation	CY	350	\$ 20	\$ 7,000
Backfill (CIP)	CY	1,400	\$ 25	\$ 35,000
Storm Sewer				
18" CL IV RCP	LF	20	\$ 60	\$ 1,200
18" Conc. End Section	EA	1	\$ 500	\$ 500
Concrete Sidewalk (4")	SF	4,800	\$ 4	\$ 19,200
Concrete Sidewalk (8")	SF	580	\$ 7	\$ 4,060
Safety Railing	LF	580	\$ 125	\$ 72,500
Lighting				
Fixtures – Conc. LED Bollard	EA	10	\$ 3,000	\$ 30,000
Wiring & Conduit	LF	800	\$ 10	\$ 8,000
Landscaping				
Topsoil (4")	SY	600	\$ 4	\$ 2,400
Seed & Mulch	SY	600	\$ 2	\$ 1,200
Planter Boxes	EA	2	\$ 2,500	\$ 5,000
Benches (5' long)	EA	4	\$ 500	\$ 2,000
Benches (12' long)	EA	2	\$ 1,000	\$ 2,000
			<b>TOTAL</b>	<b>\$ 535,000</b>