

**Feasibility Report for  
Northwood East Sediment Pond**

**City Project No. 807**

**New Hope, Minnesota**

**August 2006**

**File No. 000034-06188-0**

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## **Introduction**

The proposed stormwater ponding improvement is located in Northwood Park, west of Winnetka Avenue, just south of the 37<sup>th</sup> Avenue cul-de-sac, in the City of New Hope (see Figure 1). This pond is identified in the 1996 City of New Hope Surface Water Management Plan (SWMP) as pond BC-P3.15C (see Figure 2). The pond will also be identified in the Bassett Creek Watershed Management Organization (BCWMO) 2<sup>nd</sup> Generation Plan CIP pending watershed review this summer/fall.

The proposed pond is specified as a sediment trap. Sediment traps provide water quality benefit by settling out sediments and removing phosphorus with between 35% and 55% efficiency. The pond would serve as a means of protection for the existing Northwood creek channel and wetland area.

The pond benefits the North Branch of Bassett Creek. As envisioned in the SWMP, the pond would provide water quality treatment for approximately 22 acres that currently receives no water quality treatment prior to entering existing wetlands. Land uses in the tributary area are primarily single family housing. The target phosphorus removal efficiency for the proposed pond is a minimum of 47%.

In addition to water quality benefits, construction of this sediment trap will facilitate future maintenance of the wetland area. The majority of the sediment collected from this drainage area will be deposited in the sediment trap, limiting the required maintenance associated with this drainage to a single location. An existing aggregate trail along the north side of Northwood Park, extending from Boone Avenue to Winnetka Avenue, may be used for maintenance vehicles to access the site.

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## **Background**

In 1998, significant improvements were completed in Northwood Park. These improvements included the reconstruction of the playfields along with channel and pond improvements within the park.

The 1996 City Surface Water Management Plan indicates a number of improvements in the Northwood Lake area that could be completed to improve water quality in and downstream of the lake. The work included in the 1998 project, as well as the work included in the project proposed in this report, is among the improvements suggested in the plan.

Another potential project involving channel cleaning in Northwood has been discussed and may likely be completed in the future. The project proposed in this report may be completed as a stand alone project or completed in conjunction with the channel cleaning. Completing the two improvements together may prove some cost reductions due to economy of scale.

## **Proposed Improvements**

The City of New Hope proposes to construct the Northwood East Sediment Pond to accommodate regional water quality needs. This project is in full compliance with the City's 1996 SWMP. The primary water quality design requirements are as follows:

- According to the 1996 SWMP, this proposed sediment trap should provide 0.8 acre-feet of wet volume to meet the regional water quality needs of the direct drainage area. This volume is based on pond phosphorus removal efficiency of 47%.

Both temporary and permanent erosion control measures will be provided to meet the watershed requirements for erosion and sediment control. A landscape and restoration plan will be prepared to identify the restoration measures that address slope stabilization and turf establishment issues.

To allow excavation requirements for the construction, a certain amount of tree clearing must be completed. The existing tree coverage of the area has been reviewed and the general location of the pond has been proposed in attempt to minimize tree removal. It has been noted that existing trees within the project area are predominately boxelder and buckthorn, a small percentage of trees that would be disturbed are of a preferred species.

All improvements will be constructed on City-owned properties. No permanent or temporary easements will be required.

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## **Feasibility, Necessity, and Cost Effectiveness**

This project is feasible from an engineering standpoint and is in accordance with the stormwater ponding requirements of the City of New Hope and the BCWMO

The proposed Northwood East Sediment Pond is necessary to accomplish the following.

- To provide the water quality treatment for the approximately 3,500 linear feet of street, or 22 acres of drainage area, located just north of the east end of Northwood Park
- To provide regional water quality treatment in compliance with the City's 1996 SWMP.
- To comply with the stormwater requirements in the 1998 BCWMO Water Quality Management Policy
- To eliminate current erosion and maintenance issues that exist between the discharge point of the existing storm sewer and the Northwood channel and wetland.

Construction methods will be cost effective and conform to industry standards for stormwater ponding improvements.

## **Recommendations**

Recommendations include.

- The construction of the Northwood East Sediment Pond proceed as proposed by the City. The proposed pond has been sized to ultimately service the water quality needs of approximately 22 acres of drainage area in accordance with the 1996 SWMP
- The City of New Hope accept this report as a guide for the improvements and forward the report to the BCWMO for consideration.
- The City participate with the BCWMO in securing financing for the projects with methods identified in the BCWMO 2<sup>nd</sup> Generation Plan CIP
- The City identify interim funding until reimbursement for eligible costs is made by the BCWMO.
- The City coordinate the construction of the pond improvements with other potential channel improvements. This will minimize project costs and disturbances to the area.
- City staff communicate the scope of the project with adjacent residents.

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## **Cost Estimate**

The total estimated project cost is \$107,250. The estimated project cost includes 10% contingency and 25% indirect costs. A more detailed construction cost estimate can be found in Appendix A and a summary of this estimate is included below:

<b><u>Item</u></b>	<b><u>Amount</u></b>
Pond Excavation	\$49,500.00
Storm Sewer	\$18,500.00
Landscaping and Restoration	<u>\$10,000.00</u>
<b>Subtotal for construction</b>	<b>\$78,000.00</b>
+10% contingency	<u>\$7,800.00</u>
	<b>\$85,800.00</b>
+ 25% indirect costs	<u>\$21,450.00</u>
<b>Total</b>	<b>\$107,250.00</b>

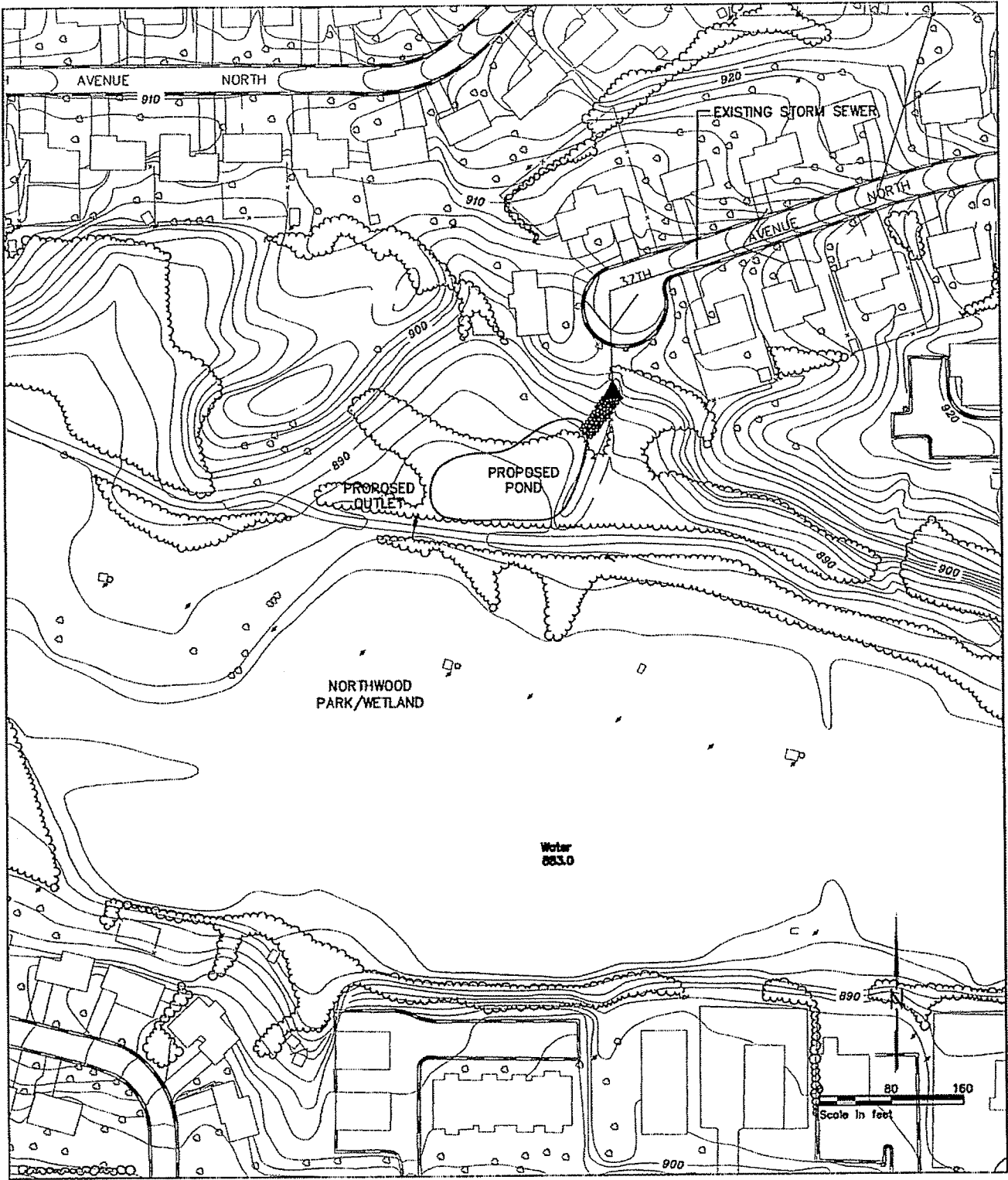
## **Revenue Sources**

It is expected that the immediate costs to construct and finance this project will be funded via the storm water utility fund.

It is further anticipated that the City will be reimbursed for project costs from the BCWMO in 2008. The Northwood East Sediment Pond will be considered as part of the 2<sup>nd</sup> Generation Plan CIP. The estimated costs included in this report will need to be compared to current estimates in the CIP and adjustments discussed if necessary. Long-term pond and structure maintenance and associated costs will be the responsibility of the City of New Hope.

ESTIMATED COST

Item	Units	Qty	Unit Price	Total Price
<b>PART 1 - POND EXCAVATION</b>				
MOBILIZATION	LS	1	\$3,000 00	\$3,000 00
EROSION CONTROL	LS	1	\$2,500 00	\$2,500 00
CLEAR AND GRUB	AC	0.75	\$6,400 00	\$4,800 00
POND EXCAVATION (EV)	CY	2800	\$14 00	\$39,200 00
<b>TOTAL PART 1 - POND EXCAVATION</b>				<b>\$49,500.00</b>
<b>PART 2 - STORM SEWER</b>				
FIELDSTONE RIPRAP	CY	150	\$120 00	\$18,000 00
24" CMP FES	EA	1	\$500 00	\$500 00
<b>TOTAL PART 2 - STORM SEWER</b>				<b>\$18,500.00</b>
<b>PART 3 - RESTORATION</b>				
SEEDING	LS	1	\$2,000 00	\$2,000 00
PLANTINGS	LS	1	8,000 00	\$8,000 00
<b>TOTAL PART 3 - RESTORATION</b>				<b>\$10,000.00</b>
<b>SUMMARY</b>				
TOTAL PART 1 - POND EXCAVATION				\$49,500 00
TOTAL PART 2- STORM SEWER				\$18,500 00
TOTAL PART 3 - RESTORATION				\$10,000.00
			CONSTRUCTION SUBTOTAL	\$78,000 00
			10% CONTINGENCY	\$7,800.00
			<b>TOTAL CONSTRUCTION COSTS</b>	<b>\$85,800.00</b>
			25% INDIRECT COSTS	\$21,450.00
			<b>TOTAL PROJECT COSTS</b>	<b>\$107,250.00</b>



**SITE PLAN**

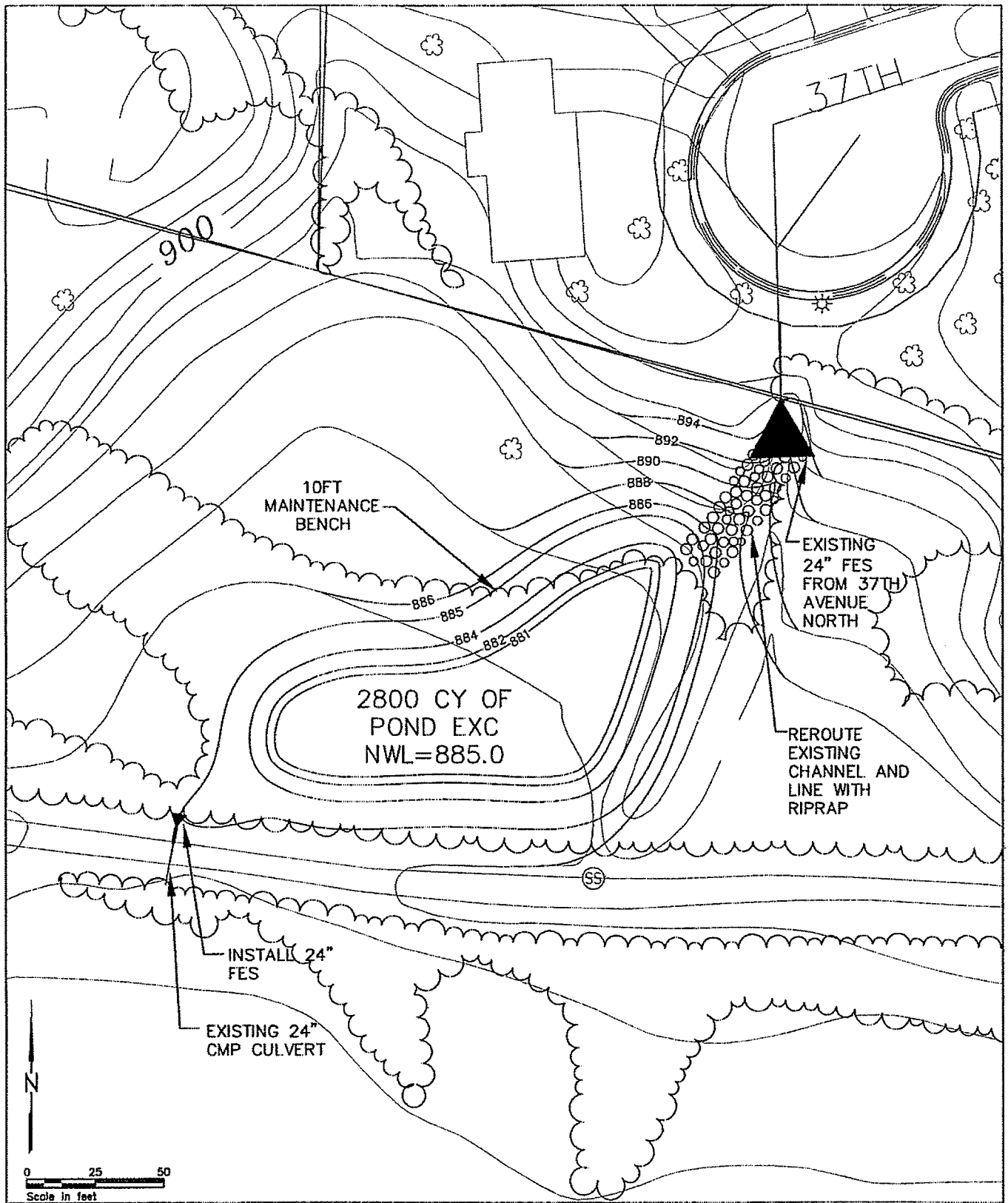
NEW HOPE, MINNESOTA

FIGURE 1

NORTHWOOD PARK SEDIMENT TRAP BC-P3.15C

**Bonestroo  
Rosene  
Anderlik &  
Associates**  
Engineers & Architects





# POND GRADING PLAN

NEW HOPE, MINNESOTA  
 NORTHWATER PARK SEDIMENT TRAP BC-P3.15C

FIGURE 3

