Impact Fee Report

For The
HERZIGER POND

Prepared For The
TOWN OF NEENAH
WINNEBAGO COUNTY, WISCONSIN

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Prepared By
McMAHON
NEENAH, WISCONSIN

December 26, 2012
McM. No. N0003-900379.00

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I.   INTRODUCTION

The Town of Neenah constructed the Herziger Pond in 2009-2010 to improve water quality and assist in complying with their MS4 Stormwater Permit. Typically, this type of project is funded through the fees collected by the Town's Stormwater Utility. However, the Town was successful in receiving a grant for the Herziger Pond through the American Recovery and Reinvestment Act (ARRA) of 2009. The ARRA grant paid for 50% of eligible costs associated with the project. For reference, the total cost of the Herziger Pond, including land acquisition, engineering and construction, was $516,682. The Town was reimbursed $285,341 (50% of total cost) through the ARRA grant.

The purpose of this report is to calculate an appropriate impact fee for the Herziger Pond based on several different methodologies. Impact fees are typically established as one-time charges assessed to developers or other customers as a way to recover a part or all of the cost of a project that was constructed for their use. For purposes of this report, the selected impact fee could be assessed to a developer (development or redevelopment site), property owner, or other MS4 permitted entity who desires to use the Herziger Pond to satisfy stormwater management requirements.

II.   STUDY AREA

The location of the Herziger Pond and its contributing 85 acre watershed are depicted on Figure 1 within Appendix A. The Herziger Pond watershed is mostly developed and

contains suburban residential, low density residential, medium density residential, high density residential, park, and school land uses. Stormwater runoff is conveyed to the Herziger pond through grass swales and storm sewer systems.

III.   METHODOLOGY

Four different methodologies were developed to calculate an impact fee for the Herziger Pond. Each methodology uses information such as the total project cost (including & excluding grant funding), hydrologic results or watershed characteristics to calculate an appropriate impact fee. The four methodologies developed for purposes of this report are listed below:

- 2-Year Runoff Volume Method
- 100-Year Runoff Volume Method
- Impervious Area Method
- Watershed Area Method

A. 2-Year Runoff Volume Method

The 2-year runoff volume method calculates the impact fee by dividing the total project cost by the total 2-year runoff volume produced by the 85 acre contributing watershed. The TR-55 hydrologic methodology is used to calculate the 2-year runoff volume. Watershed characteristics such as future land uses, soil types, percent imperviousness, etc are needed to perform the runoff volume calculations. The disadvantage of the 2-year runoff volume method is that it typically requires an engineer to perform the runoff volume calculations.

B.   100-Year Runoff Volume Method

The 100-year runoff volume method calculates the impact fee by dividing the total project cost by the total 100-year runoff volume produced by the 85 acre contributing watershed. The TR-55 hydrologic methodology is used to calculate the 100-year runoff volume. Watershed characteristics such as future land uses, soil types, percent imperviousness, etc are needed to perform the runoff volume calculations. The disadvantage of the 100-year runoff volume method is that it typically requires an engineer to perform the runoff volume calculations.

C. Impervious Area Method

The impervious area method calculates the impact fee by dividing the total project cost by the total impervious area within the 85 acres contributing watershed. The total impervious area is calculated by multiplying the 85 acres by the average

percent imperviousness for each land use within the contributing watershed. The average percent imperviousness is determined from the standard land use files prepared by the WDNR. Although fewer calculations are required as compared to the runoff volume methods, an engineer may still be required to perform the impervious area calculations.

D. Watershed Area Method

The watershed area method calculates the impact fee by dividing the total project cost by the contributing watershed (85 acres). This method does not require detailed watershed characteristic information and may be considered the least equitable. For example, this method does not consider the fact that a commercial site produces more runoff than a residential site. This method is, however, the easiest to calculate and use for Town staff.

IV. RESULTS

Impact fees were calculated for each of the four methodologies based on the total project cost and the Town's actual project cost (i.e: excludes ARRA grant funds). For reference, the total cost of the Herziger Pond, including land acquisition, engineering and construction, was $516,682. The Town was reimbursed $285,341 (50% of total cost) through the ARRA grant. Table 1 summarizes the impact fees that were calculated for each method based on the project cost.

Table 1

	2-Year Runoff Volume (per acre-foot)	100-Year Runoff Volume (per acre-foot)	Impervious Area (per acre of imperv.)	Watershed Area (per acre of watershed
[1]Impact Fee (with ARRA funds)	$54,879	$15,207	$13,802	$3,361
[2]Impact Fee (without ARRA funds)	$99,372	$27,537	$24,992	$6,086

[1]Based on total project cost of $285,341

[2]Based on total project cost of $516,682

Please refer to Appendix B for the impact fee calculations. Also included with the impact fee calculations is an example of a 5 acre school site and what the fee would be based on each of the methodologies. The example may help illustrate how "equitable" each of the methodologies are.

VI. SUMMARY

In summary, the impact fees calculated in this report could be used by the Town to recover some of the initial capital cost for the Herziger Pond. McMAHON recommends

that the Town have its legal counsel review the methodology and determination of impact fees presented in this report to ensure compliance with current Wisconsin law. In addition, a resolution or ordinance identifying the methodology of choice to establish the impact fee should be adopted by the Town.

APPENDIX A

FIGURES

TOWN OF NEENAH

Mapped Features

- Existing BMP
- Stormwater Pond
- WDNR Wetlands (1986)
- Right-of-Way
- Municipal Boundary

Sources: Winnebago County, 2009-2012; WROC (Aerial), 2010; WDNR Wetlands (1986), 2012.

Disclaimer: The property lines, right-of-way lines, and other property information on this drawing were developed or obtained as part of the County Geographic Information System or through the County property tax mapping function. McMAHON does not guarantee this information to be correct, current, or complete. The property and right-of-way information are only intended for use as a general reference and are not intended or suitable for site-specific uses. Any use to the contrary of the above stated uses is the responsibility of the user and such use is at the user's own risk.

McMAHON
ENGINEERS ARCHITECTS

0   600   1,200
Feet

FIGURE 1
HERZIGER POND WATERSHED
HERZIGER POND
IMPACT FEE
TOWN OF NEENAH
WINNEBAGO COUNTY, WISCONSIN

w:\PROJECTS\N0003\900379 2010 UNPS & Stormwater Planning Grant\00\GIS\Herziger_Fig1_B.mxd   December 21, 2012   slh

APPENDIX B

IMPACT FEE CALCULATIONS

MCMAHON
ENGINEERS ARCHITECTS

Herziger Pond "Impact Fee"

A. Project Cost Includes AARA Grant Funds (Future Land Use)

Approximate Herziger Pond Project Cost: $285,341

Impact Fee:

2-Year Runoff Volume Method:	$54,879	per acre-foot
100-Year Runoff Volume Method:	$15,207	per acre-foot
Impervious Area Method:	$13,802	per acre of imperviousness
Watershed Area Method:	$3,361	per acre of watershed

Example Site: 5 acre school (57.9% imperviousness and clay soil - HSG C):

Impact Fee:

2-Year Runoff Volume Method:	$25,086
100-Year Runoff Volume Method:	$21,481
Impervious Area Method:	$39,957
Watershed Area Method:	$16,805

B. Project Cost Excludes AARA Grant Funds (Future Land Use)

Approximate Herziger Pond Project Cost: $516,682

Impact Fee:

2-Year Runoff Volume Method:	$99,372	per acre-foot
100-Year Runoff Volume Method:	$27,537	per acre-foot
Impervious Area Method:	$24,992	per acre of imperviousness
Watershed Area Method:	$6,086	per acre of watershed

Example Site: 5 acre school (57.9% imperviousness and clay soil - HSG C):

Impact Fee:

2-Year Runoff Volume Method:	$45,425
100-Year Runoff Volume Method:	$38,896
Impervious Area Method:	$72,351
Watershed Area Method:	$30,431

C. Cost Method Considerations

2-Year Runoff Volume Method
  * 2-year design storm is typically a stormwater quality and stream erosion indicator
  * Method takes into consideration land use, imperviousness, runoff volume, soil types, and poorly drained soils
  * Concept takes into consideration the ERU method that is used for the Town's Stormwater Utility
  * Engineering calculations are required to determine the 2-year runoff volume

100-Year Runoff Volume Method
  * 100-year design storm is typically a flood control and peak discharge indicator
  * Method takes into consideration land use, imperviousness, runoff volume, soil types, and poorly drained soils
  * Concept takes into consideration the ERU method that is used for the Town's Stormwater Utility
  * Engineering calculations are required to determine the 100-year runoff volume

Impervious Area Method
  * Method does not consider runoff volume, soil types, or poorly drained soils
  * Concept is identical to the ERU method that is used for the Town's Stormwater Utility
  * Fewer calculations are needed, easier for Town Staff to manage

Watershed Area Method
  * Method does not consider land use, imperviousness, runoff volume, soil types, or poorly drained soils
  * Residential will pay more and commercial will pay less than the amount of runoff generated by the site.
  * Least accurate of the four methods used to develop an "impact fee" for the Herziger Pond.
  * Fewest calculations are needed, easiest for Town Staff to manage

2-year, 24-hour design storm: 2.6 inches

Future Land Use Condition	Area (acres)	HSG	Imperv. (%)	Runoff Curve Number	Table 2-1 Runoff Depth (in)	Runoff Volume (ac-ft)
High Density Residential	0.24	B	53.0%	81	0.99	0.020
High Density Residential	9.98	C	53.0%	87	1.38	1.144
Low Density Residential	3.91	B	20.4%	69	0.45	0.147
Low Density Residential	10.39	C	20.4%	79	0.90	0.779
Medium Density Residential	0.93	B	37.7%	75	0.71	0.055
Medium Density Residential	17.11	C	37.7%	83	1.13	1.618
Park	0.42	B	14.1%	66	0.37	0.013
Park	1.20	C	14.1%	77	0.82	0.082
School	2.90	C	57.9%	82	1.10	0.265
Suburban Residential	1.60	B	9.6%	76	0.77	0.102
Suburban Residential	36.21	C	9.6%	65	0.32	0.973
Total:	**84.90**		**24.4%**	**74**		**5.199**

Approximate cost of Herziger Pond:	**$285,341**
"Impact Fee" based on Future Land Use Runoff Volume:	**$54,879** per ac-ft of runoff volume during 2-year rainfall event
Example-5 acre development, School (Type C Soils):	**$25,086.19**
Approximate cost of Herziger Pond (No Funding):	**$516,682**
"Impact Fee" based on Future Land Use Runoff Volume:	**$99,372** per ac-ft of runoff volume during 2-year rainfall event
Example-5 acre development, School (Type C Soils):	**$45,424.89**

Based on Impervious Area

Approximate cost of Herziger Pond:	**$285,341**
Estimated Impervious Area within watershed (FLU):	**20.7**
"Impact Fee" based on "per Acre of Impervious Area":	**$13,802** per acre
5 Acre School Impervious Surface (acres):	**2.9**
Estimated "Impact Fee":	**$39,957**
Approximate cost of Herziger Pond (No Funding):	**$516,682**
Estimated Impervious Area within watershed (FLU):	**20.7**
"Impact Fee" based on "per Acre of Impervious Area":	**$24,992** per acre
5 Acre School Impervious Surface (acres):	**2.9**
Estimated "Impact Fee":	**$72,351**

100-year, 24-hour design storm: 5.3 inches

Future Land Use Condition	Area (acres)	HSG	Imperv. (%)	Runoff Curve Number	Runoff Depth (in)	Runoff Volume (ac-ft)
High Density Residential	0.24	B	53.0%	81	3.21	0.064
High Density Residential	9.98	C	53.0%	87	3.82	3.180
Low Density Residential	3.91	B	20.4%	69	2.14	0.697
Low Density Residential	10.39	C	20.4%	79	3.05	2.642
Medium Density Residential	0.93	B	37.7%	75	2.69	0.208
Medium Density Residential	17.11	C	37.7%	83	3.45	4.922
Park	0.42	B	14.1%	66	1.95	0.069
Park	1.20	C	14.1%	77	2.91	0.292
School	2.90	C	57.9%	82	3.39	0.819
Suburban Residential	1.60	B	9.6%	76	2.81	0.374
Suburban Residential	36.21	C	9.6%	65	1.82	5.496
Total:	**84.90**		**24.4%**	**74**		**18.763**

Approximate cost of Herziger Pond:	**$285,341**	
"Impact Fee" based on Future Land Use Runoff Volume:	**$15,207**	per ac-ft of runoff volume during 100-year rainfall event
Example-5 acre development, School (Type C Soils):	**$21,480.75**	
Approximate cost of Herziger Pond (No Funding):	**$516,682**	
"Impact Fee" based on Future Land Use Runoff Volume:	**$27,537**	per ac-ft of runoff volume during 100-year rainfall event
Example-5 acre development, School (Type C Soils):	**$38,896.32**	