

Green Project Reserve Business Case

Village of Minong
Washburn County, WI

Wastewater Treatment Facility upgrades
CWFP No. 4465-02

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I. GENERAL INFORMATION

A. Introduction

This business case demonstrates that the Village of Minong WWTF Upgrade project achieves identifiable and substantial “green” benefits in the project component listed below. This business case was developed according to the “2010 Clean Water and Drinking Water State Revolving Fund 20% Green Project Reserve: Guidance for Determining Project Eligibility” publication, dated April 21, 2010.

B. Project Need & Scope

This project is intended to provide the Village of Minong with the necessary facilities to adequately treat the current and future design wastewater flows and loadings from the Village. The project includes the installation of new aeration equipment in lagoons 1 & 2 along with baffles and covers. New motors on two of the existing blowers will be installed to provide more air to the lagoons. A third new blower will be installed to provide additional air for proper treatment. This project will also include all necessary piping modifications, site grading, electrical service work, controls, power distribution, and restoration to provide a complete project to the Owner.

II. PROJECT JUSTIFICATION

A. Technical

According to CWSRF Technical Guidance project 3.5-1, the proposed project upgrades will result in an energy savings of less than 20%. The Village is proposing an aeration upgrade to the existing treatment lagoons. This upgrade will provide more efficient treatment of the existing and future BOD loading to the facility using more efficient blowers and motors along with more efficient aeration equipment. The aeration equipment will be fine bubble aeration which is more efficient at oxygen transfer than course bubble aeration which is currently in the lagoons. See attached energy calculations for BOD treatment per Hp.

B. Financial

See attached calculations.

Village of Minong
BOD Treatment / Hp Calculations
Summary for WDNR submittal

I. Existing HP per lb BOD Loading

Currently run one blower at ~ 27 HP and one Blower at 40 HP or total of 67 HP

Current sustained high load is about 1000 lbs/d

0.067 HP per lb BOD

II. After Diffuser Replacement

Design loading is 1580 lbs/d

Future HP is ~ 93 HP

0.059 HP per lb BOD

12.1% Percent increase in BOD removal efficiency

TABLE 1
Minong Phase 1 Aeration System Upgrade Costs

Estimated Capital Costs

Item	
New Fine Bubble Tube Diffusers (exst lagoons)	
New diffusers and PE internal air lateral piping	\$105,000
Concrete bottom anchors for diffuser headers	\$4,500
Floating Lateral Valve headers, 13 @ 3000 each	\$39,000
Install new diffusers	\$12,000
Blower/Piiping Modifications	
New belts and sheaves for existing blowers	\$7,500
Install modifications to existing blowers	\$3,000
New buried air piping, 400 LF DIP @ \$35/LF	\$14,000
Subtotal	\$185,000
Mob./Demob., Bonding/Ins, Contractor O&P (10%)	\$18,500
Subtotal	\$204,000
Capital Contingencies (25%)	\$51,000
Subtotal	\$255,000
Engr,Insp,Admin, Legal	\$51,000
Total Estimated Aeration Capital Cost	\$306,000