



State Revolving Fund Loan Programs Drinking Water, Wastewater, Nonpoint Source

PRELIMINARY DECISION OF CATEGORICAL EXCLUSION

TO ALL INTERESTED CITIZENS, ORGANIZATIONS AND GOVERNMENT AGENCIES:

CITY OF MOUNT VERNON PHOSPHOROUS REMOVAL PROJECT SRF Project WW 16 18 65 05

Date: October 12, 2016

Pursuant to IC 4-4-11, the State Revolving Fund (SRF) Loan Program has determined that the project described here and in the City of Mount Vernon's Preliminary Engineering Report will have no substantial negative environmental impact. Therefore, the SRF is issuing a preliminary decision of Categorical Exclusion from the requirements of substantive environmental review.

How were environmental issues considered?

The National Environmental Policy Act requires agencies disbursing Federal funds to include environmental factors in the decision making process. A summary of the project is attached for your review. The SRF's preliminary review has found that the proposed project does not require the preparation of either an Environmental Assessment or an Environmental Impact Statement.

Why is additional environmental review not required?

Our environmental review has concluded that significant environmental impacts will not result from the proposed action.

How do I submit comments?

Comments can be submitted to:

April Douglas
Senior Environmental Manager
SRF Programs
317-234-7294
adouglas@ifa.in.gov

CATEGORICAL EXCLUSION

I. PROJECT IDENTIFICATION

Project Name and Address: **Phosphorous Removal Project**
City of Mount Vernon
520 Main Street
Mount Vernon, IN 47620

SRF Project Number: **WW 16 18 65 05**

Authorized Representative: Mayor Bill Curtis

II. PROJECT LOCATION

Mt. Vernon is located in south central Posey County, approximately 20 miles west of Evansville, Indiana. The project is located at the Mount Vernon wastewater treatment plant (WWTP) and will occur in the Mount Vernon USGS Quadrangle, in Black Township, Township 7S, Range 13W and section 7. See Exhibit 1.

III. PROJECT NEED AND PURPOSE

Mount Vernon operates an activated sludge WWTP rated at an average design flow of 4.1 million gallons per day (MGD) and a peak design flow of 9.2 MGD. The Indiana Department of Environmental Management (IDEM) issued a renewed National Pollutant Discharge Elimination System (NPDES) permit for Mount Vernon which includes a monthly average phosphorus concentration limit of 1.0 mg/l. The NPDES permit stipulates that the new phosphorus limit will become effective thirty-six months from the effective date of the permit or January 1, 2019. The WWTP is currently in compliance with its NPDES permit after improvements were completed in March of 2013. However, with the revised NPDES permit requirements, the city will need to implement additional treatment methods to the WWTP in order to meet the new phosphorus limit.

Four alternatives were evaluated for phosphorus removal including the No Action alternative.

- A. No Action alternative – This was rejected since this would result in the city violating its phosphorus limit.

- B. Tertiary Treatment using Chemically Enhanced High Rate Clarification - This alternative includes a rapid mix tank, flocculation tank and high rate settling tank in series. A coagulant (alum) will be injected in the rapid mixing tank to be mixed. The flocculation tank will use polymer injection and a ballasting material (i.e., silica sand and magnetite) in a slow mix mode to promote the formation of floc. The high dense floc will then settle in the clarifier section. The clarifiers will use lamella plates for a

higher solids removal rate. This technology removes phosphorus associated in all forms including soluble, colloidal and particulate forms. This alternative was rejected due to cost.

- C. Tertiary Treatment using Disc Filtration with Chemical Addition – This alternative includes discs filters using 10-micron filter with the addition of chemicals and chemical aid. The secondary effluent will pass through a series of rotating discs to produce a clear effluent. This system has an automatic filter cleaning system and no additional backwash pumps are required. Coagulant and coagulant aid will be added at the upstream and downstream end of the secondary clarifiers. This alternative was rejected due to cost.
- D. Chemical Addition to Secondary Clarifiers – This alternative includes the addition of a coagulant (i.e., aluminum sulfate) to the mixed liquor to form metal-phosphate and metal-hydroxide floc particles that will precipitate out and remove phosphorus from the process stream. This coagulant will be applied at the end of the aeration tanks for proper mixing and to improve the reduction in phosphate concentration. The combination of the biological and chemical floc will enhance the mixed liquor sludge settling characteristics in the clarifiers. **This was the selected alternative.**

The selected alternative includes: constructing a chemical building to house two alum storage tanks having a volume of 7,500 gallons each; installing a centrifuge in the sludge dewatering building that includes a polymer feed system, sludge conveyor, and converting the existing digesters to sludge holding tanks; installing an online phosphate analyzer in the Ultra-Violet disinfection structure; and performing electrical, instrumentation, and Supervisory Control and Data Acquisition work.

The capacity of the sludge processing units were evaluated since there will be an increase in sludge due to phosphorus removal. The existing aerobic sludge holding tank will continue to be used as a gravity thickener by drawing the supernatant to increase the waste sludge from 0.8% to 2.5%. Based on the projected sludge production calculations, the existing belt filter press will need to be a 2.0 meter press in lieu of a 1.5 meter press that is currently being used. It was determined that one additional dewatering unit will be required to meet the increased sludge production.

Three sludge dewatering units were evaluated: belt filter press, screw press, and centrifuge. Each of these alternatives will have a dedicated polymer system and a sludge conveyor. **Based on cost the centrifuge was the selected alternative.**

IV. ESTIMATED PROJECT COSTS, AFFORDABILITY AND FUNDING

Selected Plan Estimated Cost Summary

<u>Construction</u>	<u>Costs</u>
Chemical Feed Building	\$ 663,200
Sludge Dewatering Building Improvements	952,100
Site Work	180,500
Mobilization/Demobilization	90,000
Contingency (10%)	<u>188,600</u>
Construction Total	\$ 2,074,400

<u>Non-Construction</u>	<u>Costs</u>
Financial	\$ 9,600
Legal	57,600
Engineering Planning	63,500
Engineering Design	225,000
Other Engineering Services	<u>76,800</u>
Non-Construction Total	\$ 432,500
Total Project Costs	\$ 2,506,900

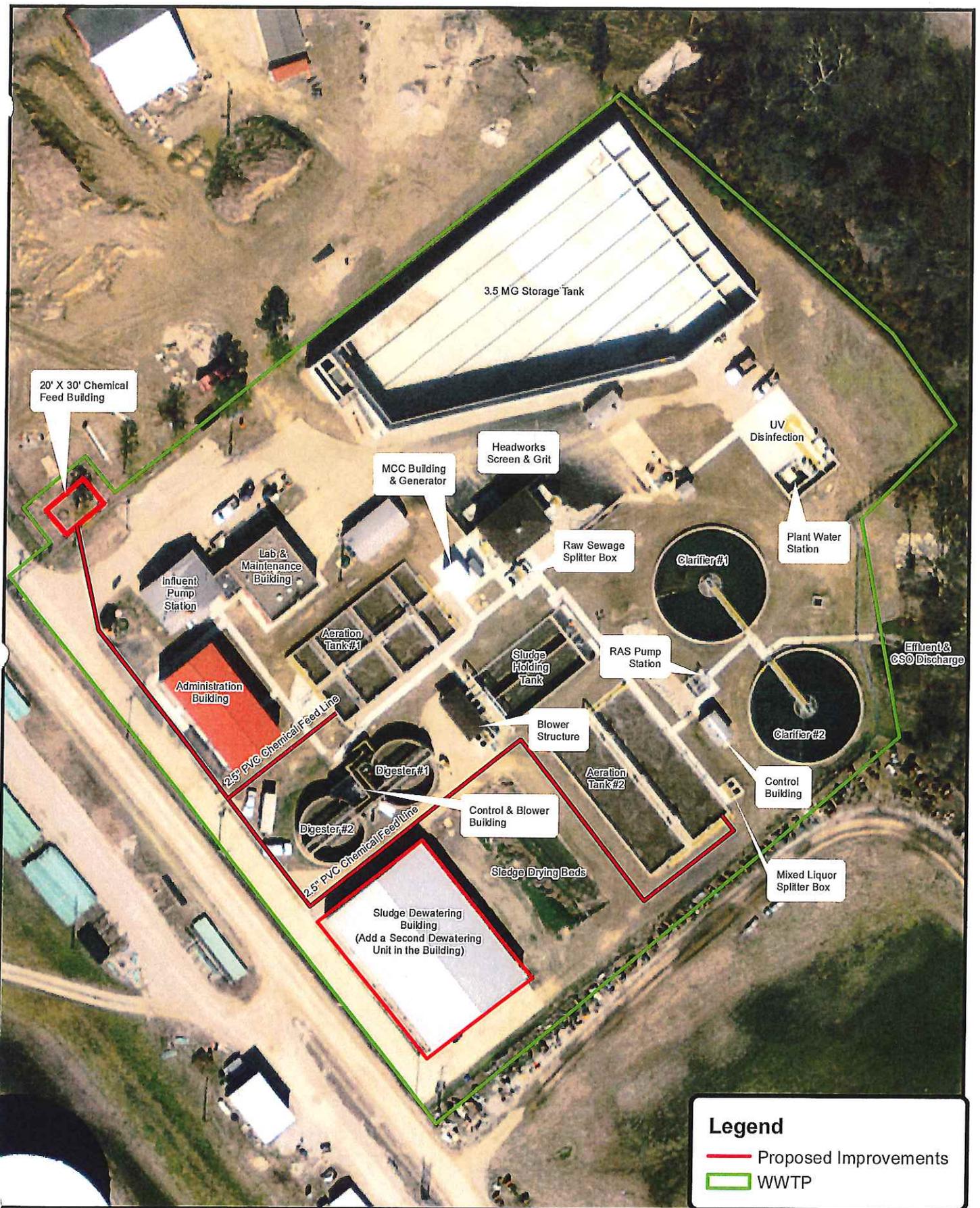
Total cost of this project is estimated to be approximately \$2,506,900. Mount Vernon will finance the project with a loan from the SRF Loan Program for a 20-year term at an annual fixed interest rate to be determined at loan closing. Monthly user rates and charges may need to be analyzed to determine if adjustments are required for loan repayment.

V. ENVIRONMENTAL IMPACTS OF THE FEASIBLE ALTERNATIVES

Construction and operation of the project will not alter, demolish or remove historic properties. If any visual or audible impacts to historic properties occur, they will be temporary and will not alter the characteristics that qualify such properties for inclusion in or eligibility for the National Register of Historic Places. The SRF's finding pursuant to Section 106 of the National Preservation Act is: "no historic properties affected." See Exhibit 2.

VI. PUBLIC PARTICIPATION

A properly noticed public hearing was held on May 26, 2016 at 4:00 pm at City Hall, 520 Main Street, Mount Vernon, IN 47620. There were no questions on this project during the hearing. No written comments were received in the 5-day period following the hearing for this project.



Legend

- Proposed Improvements
- WWTP

Preliminary Engineering Report
Mt. Vernon, Indiana

Exhibit 1
Recommended Alternative Site Layout
Mt. Vernon, Indiana



6200 Vogel Road
Evansville, Indiana 47715
Phone: (812) 479-6200

Revised 08/05/2016



