

OHIO ENVIRONMENTAL PROTECTION AGENCY
DRINKING WATER STATE REVOLVING FUND (DWSRF)
AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 (ARRA)
GREEN PROJECT INFORMATION

FFY 2009 ARRA GREEN PROJECT INFORMATION FORM

The Federal American Recovery and Reinvestment Act of 2009 (ARRA) requires a minimum amount of funding be used toward Green Infrastructure, Energy Efficiency, Water Efficiency, or other Environmentally Innovative activity. To ensure that this requirement is met, Ohio EPA is requiring ARRA recipients to provide additional information about potential green components of their project(s).

In many instances, a Business Case is required for justification to consider an item or activity "green". The US Environmental Protection Agency (EPA) has provided guidance for help in evaluating the green elements of a project. Please complete this cover sheet and appropriate page(s), as noted below for each project that will incorporate a "green" component(s). More guidance is provided on the back of each form.

PWS Name: Village of Powhatan Point PWSID: 0701412

Project Name: Distribution System Replacement PPL #: 23
(as assigned by OEPA-- refer to project list on web)

Total Estimated Project Cost: \$809,801 Total Est. Green Amount: \$809,801
ARRA maximum \$320,000.00

Type of "Green" Element(s) included in this project. For each box that is checked the corresponding page of this form must be completed and submitted with this cover page. Attach additional pages as necessary:

- Green Infrastructure** (porous pavement, bioretention, trees, green roofs, and other practices that mimic natural hydrology and reduce effective imperviousness)
- Energy Efficiency** (energy audit, water pump system improvements or replacements, variable frequency drives, SCADA, on-site clean power, solids treatment or handling, replacement or rehabilitation of distribution lines)
- Water Efficiency** (water meter installation or replacement, leak detection equipment, water line replacement, water audit, water efficient fixtures)
- Other Environmentally Innovative Activity**

Completed by:

Name: Sarah Wallace Title: Environmental Engineer
(please print)

Signature: *Sarah Wallace* Date: October 7, 2009

For OEPA use only:	
Project #: <u>FS390775-0003</u>	DWSRF #: <u>PPL # 23</u>

OHIO ENVIRONMENTAL PROTECTION AGENCY
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WATER EFFICIENCY: (W) (i.e. water main replacement, meter installation, leak detection equipment, water efficient features)

PWS Name: Village of Powhatan Point PWSID: 0701412

Project Name: Distribution System Replacement PPL #: 23

Total Est. Project Cost: \$809,801 Total Est. Green Reserve Amount: \$809,801

ARRA maximum \$ 320,000.00

Project Summary:

The project entails the replacement of over 2.5 miles of undersized and antiquated waterlines within the Village's distribution system.

Water Main Replacement

Water main material/length to be replaced?	13,447' of 2" and 4" Ductile Iron
Est. total system water lost due to breaks and leaks	41,062,500 gal per year
Est. water loss from pipe being replaced	32,850,000 gal per year (80% of total)
Total annual production	82,125,000
Number of breaks recorded in past 24 months for the area to be replaced?	20
Est. Annual water savings	32,850,000 gal per year
Est. annual costs savings	\$6,455
Other efficiencies to be gained by the replacement? (i.e. reduced head and therefore less energy loss in an upstream pump station, etc.)	NA

Meter Installation/Replacement

Original Installation Replacement

Reason for replacement?	
Est. annual water savings	
Est annual costs savings	

Business Case Narrative (Calculate water saving improvements and costs savings):

Powhatan Point maintains approximately 12.9 miles of waterline ranging from 2" – 8" in diameter¹. The ductile iron waterlines were installed in the 1950s and, especially the 2 & 4" pipes, frequently break. The Village reported 24 system breaks in 2008 with all but 4 of those being on the portions to be replaced (80%).

The Village has reported that they had 50% water loss within the distribution system in 2008². At an average usage of 225,000 gallons per day, this equates to over 41 million gallons of wasted water per year. Upon completion of this major waterline replacement project, the Village will reduce their production requirements by approximately 30.8 million gallons per year. Therefore, the entire cost of the project (\$809,801) is considered green eligible.

Attached Supporting Documentation

¹ May 18, 2009 Preliminary Engineering Report

² June 23, 2009 Sanitary Survey Report

STREET ENGINEERING & SURVEYING

67660 WARNOCK - ST. CLAIRSVILLE ROAD

ST. CLAIRSVILLE, OHIO 43950

(740) 695-6481

May 18, 2009

John Rauch
Field Agent Coordinator
RCAP
3308 SR 555
Little Hocking, OH 45742

Re: Project Information Pertaining to the
Village of Powhatan Point Waterline

Dear John:

I want to again thank you for all your help and guidance that you provided to the Village of Powhatan Point and myself last Tuesday. Please find the following information that you requested that I send you as soon as possible.

1. DESCRIPTION OF THE VILLAGE'S WATERLINES

The Village's waterlines consist of sizes ranging from 2" to 8" in size. Following is an approximate length for each of the listed sizes.

2" waterline = 13,500 feet
4" waterline = 3,600 feet
6" waterline = 48,500 feet
8" waterline = 2,500 feet

Most of the above described waterlines are ductile iron except for the 2" lines which are plastic. All the waterlines date back to the 1950's. At this time the Village is experiencing major problems with the existing waterlines decaying and cracking which is putting tremendous pressure on the Village's employees to adequately maintain their waterline system not to mention the costs incurred by the Village. Many of the existing valves and hydrants are also old and non operating which along with the waterlines can create a dangerous situation for fire protection.

Powhatan derives their water from wells located at the Easterly end of Witten Street. The treated water is then pumped throughout the Village's system and to a 350,000 gallon water storage tank located along the West side of the Village at the termination of Jean Street. (Refer to attached drawing for locations of Wells and Storage Tank)

6.	6" Ductile Iron Fittings	Lump	Lump	\$ 12,500
7.	12" Steel Casing (Bore & Jack)	60 Ft	\$200/Ft	\$ 12,000
8.	Asphalt Pavement Repair	4,250 Ft	\$ 15/Ft	\$ 63,750
9.	Concrete Pavement Repair	1,250 Ft	\$ 20/Ft	\$ 25,000
10.	Traffic Control	Lump	Lump	\$ 25,000
11.	Testing	13,447 Ft	\$ 1.50/Ft	\$ 20,170
12.	Seeding & Mulching	7,947 Ft	\$ 3.00/Ft	\$ 23,841
13.	Mobilization	Lump	Lump	\$ 10,000
14.	Engineering & Inspection	Lump	Lump	\$ 60,000
TOTAL PROJECT COST -----				\$879,618

4. PROJECT NAME AND GOALS

The project name is to be **Powhatan Point Waterline Replacement**. The purpose of the project as described above is to replace old decaying and cracking waterlines, which will provide for minimal maintenance of the system and also provide safe drinking water and much needed fire protection for many of the citizens of Powhatan Point.

5. ALTERNATIVE ANALYSIS

A. NO PROJECT ANALYSIS

This alternative would abandon the project and the above described goals which the project would accomplish. It will also eliminate the grant and loan funding that the Village will receive for this project.

B. ALTERNATIVE LOCATIONS

For this type of project the existing waterlines must stay in service during the installation of the new waterlines. Once the new waterlines are installed and tested the new service connections can be made to each residence involved and then the old waterlines can be abandoned. Following is a description of the possible locations for the proposed waterlines.

DISCUSSION FOR LOCATION 3

Factors which would favorably dictate placing the waterline as described for alternate location 3 above (on the opposite side of the road as the existing waterline) would be as follows:

1. The description would be the same as described in item 1 for Location 2 above.
2. The description would be the same as described in item 2 for Location 2 above.
3. The description would be the same as described in item 3 for Location 3 above except there would not be a need for separation from the existing waterline which would make this alternate less restrictive in locating the new waterline.

ALTERNATE DESIGNS

A. TYPE OF PIPE

We plan on using 6"DR14, CL200 PVC pipe for the project. The alternative pipe would be Ductile Iron CL 52 pipe. The reasons for using the PVC pipe are as follows:

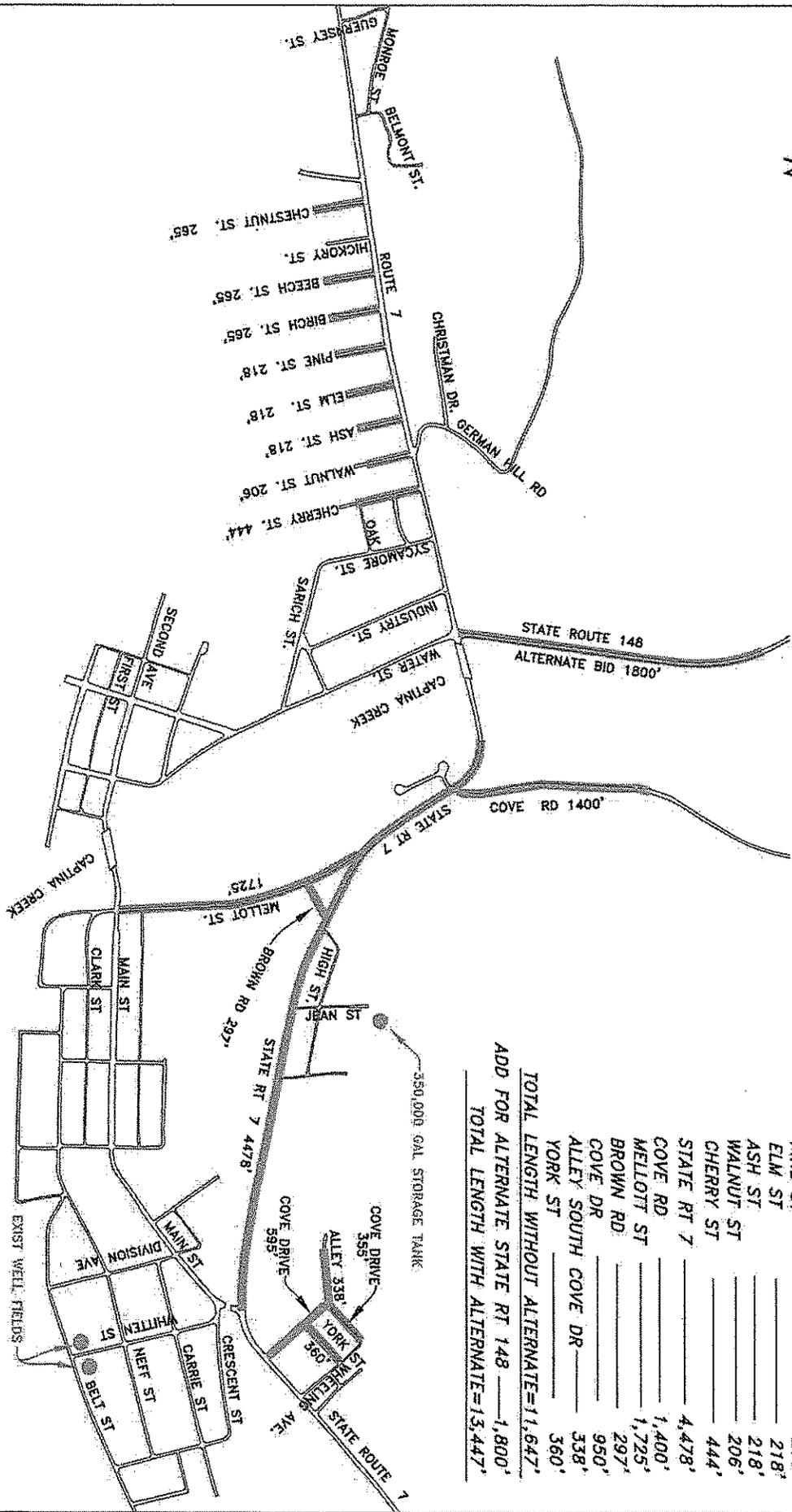
- a) Corrosion Resistance
- b) Chemical Resistance
- c) Installation/Strength to Weight Ratio/Light Weight
- d) Longer Lengths
- e) Flexibility providing for less fittings

All of the above items leads to a less cost per linear foot for the installation of PVC pipe versus Ductile Iron Pipe.

B. SIZE OF PIPE

Approximately 3500 feet of the total project pipe length is smaller than 6" pipe, (2" and 4" pipe). This project recommends that all of the existing pipes which are being replaced be 6" PVC pipe. The project could be completed at a cheaper cost by replacing pipe "in kind". By utilizing the smaller existing pipe sizes the problems regarding supply and fire protection would not be addressed. The Village does not want to install new waterlines and not provide proper protection for its citizens.

MAP OF POWHATAN POINT SHOWING PROPOSED WATERLINES



SUMMARY OF WATERLINES

CHESTNUT ST	265'
BEECH ST	265'
BIRCH ST	265'
PINE ST	218'
ELM ST	218'
ASH ST	218'
WALNUT ST	206'
CHERRY ST	444'
STATE RT 7	4,478'
COVE RD	1,400'
MELLOTT ST	1,725'
BROWN RD	297'
COVE DR	950'
ALLEY SOUTH COVE DR	338'
YORK ST	360'
TOTAL LENGTH WITHOUT ALTERNATE=11,647'	
ADD FOR ALTERNATE STATE RT 148 =1,800'	
TOTAL LENGTH WITH ALTERNATE=13,447'	



State of Ohio Environmental Protection Agency

Southeast District Office

2195 Front Street
Logan, Ohio 43138

TELE: (740) 385-6501 FAX: (740) 385-6490
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

March 24, 2009

Re: **BELMONT COUNTY
POWHATAN POINT, VILLAGE OF
COMMUNITY SYSTEM
PWS ID # 0701412**

Village of Powhatan Point
Mr. Ben Duvall, President of the Board of Public Affairs
104 Mellott Street
Powhatan Point, OH 43942

Dear Mr. Duvall:

On February 24, 2009, Janet Barth, OEPA Drinking Water Manager and I completed an evaluation survey of the Village of Powhatan Point's public water system. Mike Harrigan was interviewed and the water system was inspected in his presence.

The purpose of this evaluation was to determine the ability of the facility to provide adequate, safe and potable water that meets the requirements of the Ohio Administrative Code 3745. The eight major elements that were reviewed in detail during the survey include: source, treatment, distribution system, finished water storage, pumps/pump facilities and controls, monitoring/reporting/data verification, water system management/operation, and operator compliance with State requirements. General supervision of the operation and maintenance of public water systems is a function of this Agency as set forth in Chapter 6109 of the Ohio Revised Code.

Identified below are regulatory requirements for which action must be taken to return to compliance, and recommendations to address deficiencies that have the potential to cause future violations or contamination. Each of the following sections is a result of findings documented in the Sanitary Survey Evaluation Report, a copy of which is being sent to your operator.

REQUIREMENTS

Per OAC 3745-81-60(D), a responsible official of the public water system must respond, in writing, within 45 days, indicating how and on what schedule the system will address the following requirements.

- OAC 3745-95-03 Surveys and investigations states: "(A) The supplier of water shall conduct or cause to be conducted periodic surveys and investigations, of frequency acceptable to the director, of water use practices within a consumer's premises to determine whether there are actual or potential cross-connections to the consumer's water system through which contaminants or pollutants could backflow into the public water system. (B) The supplier of water, or his authorized representative, shall have the right to enter premises served by the public water system at all reasonable times for the purpose of making surveys and investigations of water use

practices within the premises. (C) On request by the supplier of water, or his authorized representative, the consumer shall furnish the supplier, or his authorized representative, information on water use practices within the consumer's premises. (D) Paragraph (A) of this rule does not relieve the consumer of the responsibility for conducting, or causing to be conducted, periodic surveys of water use practices on his premises to determine whether there are actual or potential cross-connections in the consumer's water system through which contaminants or pollutants could backflow into a public water system or a potable consumer's water system." Currently, the public water system is not aware that they have right-of-entry for inspection. Installed backflow devices are not inspected annually, and the system does not periodically resurvey all customers to ensure that cross-connections have been identified and eliminated.

During this survey, we observed an older style yard hydrant near the wellfield. This could cause backflow problems and should be inspected immediately and removed if necessary.

RECOMMENDATIONS

The following deficiencies are not regulatory violations, but are actions that are recommended by this Agency for optimum operation and to reduce the potential for future violations or contamination:

- Water loss within the distribution system is nearly 50%. This amount is excessive and the Village should address this serious issue immediately. Loss of water is loss of revenue needed by the system for necessary distribution system upgrades. Additionally, the system has reported that there is inadequate budget for implementation of a preventive maintenance plan and normal operation and maintenance of system components. This may be taken care of if the system were to substantially reduce the amount of water loss.
- All service connections should be metered including all Village buildings. The current situation hinders the accurate calculation of water loss within the distribution system.
- The Village should develop and implement a service meter replacement and calibration program.
- The Village of Powhatan Point should develop a Source Water Protection Plan.
- The Village should implement a valve exercising program. Valves found to be inoperable should be replaced. The distribution map should be updated periodically as additional information is collected or as changes are made. All dead end mains should have flush hydrants installed to allow flushing of the lines at least every six months.
- The system should continue to pursue establishing an emergency connection with another water supply.

Powhatan Point
March 24, 2009
Page 3

- The smallest water main consists of a 1½ inch line. Additionally, some fire hydrants are located on lines that are less than 6 inch in diameter. Ten States Recommended Standards for Water Works states that, "The minimum size of water main in the distribution system where fire protection is not to be provided should be a minimum of three-inch diameter. The minimum size of water main which provides for fire protection and serving fire hydrants shall be six-inch diameter."
- The chlorine feed pumps should be calibrated periodically to assure accuracy of chlorine dose.
- Water levels in each well should be measured periodically to identify potential water quantity issues.
- Lighting should be installed at the finished water storage tank for security purposes.
- The system should install a quick connect fitting at the backup well (Well #1). This would prevent an interruption of service during a power outage.
- All finished water storage tanks should be inspected every five years and cleaned or repaired as needed.

Please note that additional information concerning existing and upcoming drinking water regulations and requirements can be obtained from our Web site at <http://www.epa.state.oh.us/ddagw/>. If you have any questions regarding this letter, or any other matter involving your water system, please feel free to contact me at this office (740) 380-5421.

Sincerely,



Debra Prim
Environmental Specialist
Division of Drinking and Ground Waters

DP/cb

cc: CENTRAL OFFICE/DDAGW - Dave Evans
cc: Belmont County Health Department
cc: Mr. Mike Harrigan, Superintendent
115 Front Street
Powhatan Point, OH 43942