

Boise Project Board of Control

New York Canal Lining

Application for:

WaterSmart: Water and Energy Efficiency Grants for FY2016

Funding Opportunity No. R16-FOA-DO-004

January 20, 2016

Submitted by:

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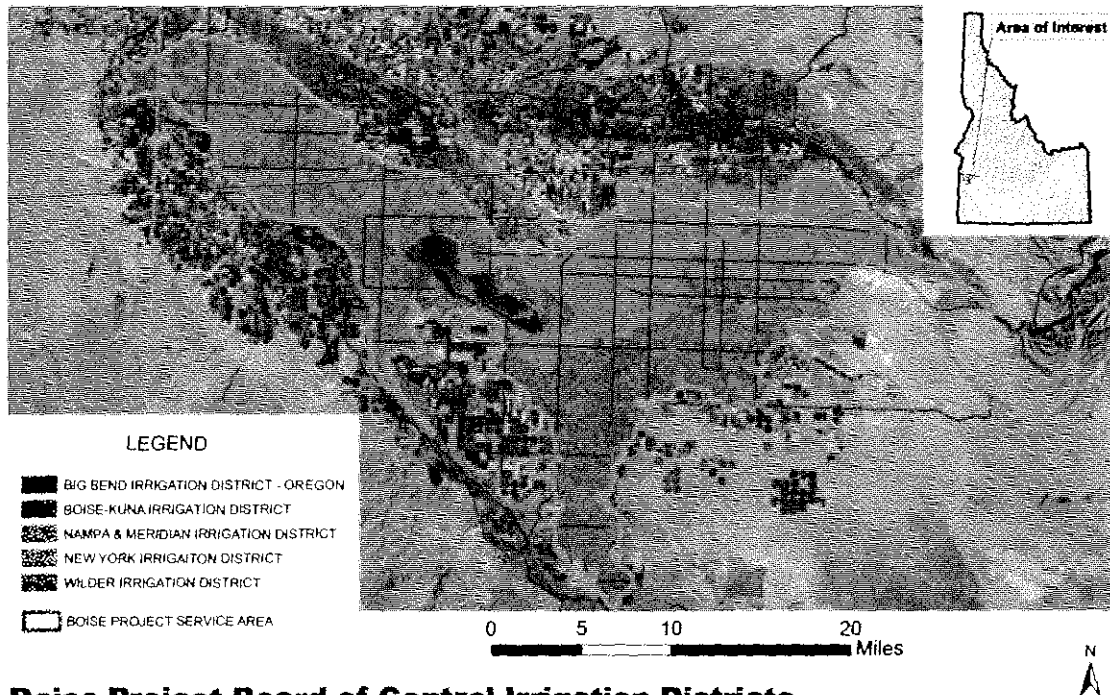
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EXECUTIVE SUMMARY

The Boise Project Board of Control (BPBC) submits this application for Funding Opportunity Announcement No.R16-FOA-DO-004 under Task A- Water Conservation through the 2016 WaterSMART: Water and Energy Efficiency Grant Program from the Bureau of Reclamation (USBR). Through this application, the Boise Project Board of Control is seeking \$108,488 in federal funding assistance for Federal Funding Group I. The funding will be used to replace 300 lineal feet of lining in the New York Canal (NYC) to increase water conservation and water-use efficiency by reducing seepage losses. The project is planned to begin in October 2016 and continue for 3 months through the end of December, 2016. The New York Canal is a USBR federal facility operated and maintained by the Boise Project Board of Control.

BACKGROUND



Boise Project Board of Control Irrigation Districts

Boise Project Board of Control

The New York Canal and the irrigation system it feeds is operated by the Boise Project Board of Control, on behalf of five (5) irrigation districts established in the early 20th Century to serve irrigators with waters made possible by the development of the Arrowrock Division of the Boise Project by the United States Department of Interior, Bureau of Reclamation (USBR). The five districts are:

- Big Bend Irrigation District (Malheur County, OR)
- Boise-Kuna Irrigation District (Ada and Canyon Counties, ID)
- Nampa-Meridian Irrigation District (Ada and Canyon Counties, ID)
- New York Irrigation District (Ada County, ID)
- Wilder Irrigation District (Canyon County, ID)

BPBC delivers irrigation water to approximately 167,000 acres from both Boise River rights and reservoir storage rights in Anderson and Arrowrock Reservoirs held by the USBR in trust for the Districts. The delivery system comprises of over 1,400 miles of canals, laterals and sub-laterals, more than 10,000 individual structures including headgates and check structures, and is operated by a full time staff of approximately 100 dedicated employees. Improvements on the canals and laterals are done on a yearly basis and including but not limited to piping, lining and recleaning.

Approximately 30,000 users are served by BPBC. The major crops irrigated by the NYC consists of alfalfa hay, wheat, sugar beets, hops, corn, onion, mint, lavender, apples, grapes and pasture. There are also many dairy farms and livestock facilities in the area that use the irrigated grains to feed their animals. Along with the agricultural use, residents in the urbanized areas use water for lawn and garden irrigation. Though the main canals and laterals are open channels, there is a diverse mix of ditches, gravity irrigation pipelines, pressurized pipelines and pressurized sprinkler systems throughout the project. As an Urban Canal of Concern, the New York Canal flows past thousands of homes and businesses and in many instances lies 30 or more feet above them.

The current and projected water demand does not meet the current water supply, especially following a low snowpack and precipitation year. With a high agricultural acreage, the supply did not meet the allotted amount. The following table shows the water allotment for the 2010 to 2015 irrigation seasons:

TABLE 1: Allotment

YEAR	ALLOTMENT (acre feet per acre)	DATE
2010	2.45	July 19
2011	1.80	August 15
2012	1.90	August 1
2013	1.00	April 22
	1.40	June 5
2014	2.25	June 18
2015	1.65	April 16
	2.35	June 3
	2.95	June 12

In 2015, approximately 65 accounts within the BPBC service area purchased approximately 9,000 acre feet of river water from the Water District #63 to help augment their irrigation water supply.

The project for which grant assistance is requested is to replace 300 feet of lining of the New York Canal located east of Roosevelt Street in south Boise, Idaho with a geocomposite membrane and concrete cap. This area under consideration is located in a high volume housing area. The New York Canal has been earmarked as a Canal in an Urban Area. The goal of the project is to prevent water loss by seepage as well as improve water flows and the efficiency of water use, lower the risk of possible flooding and provide consistent flows.

TECHNICAL PROJECT DESCRIPTION

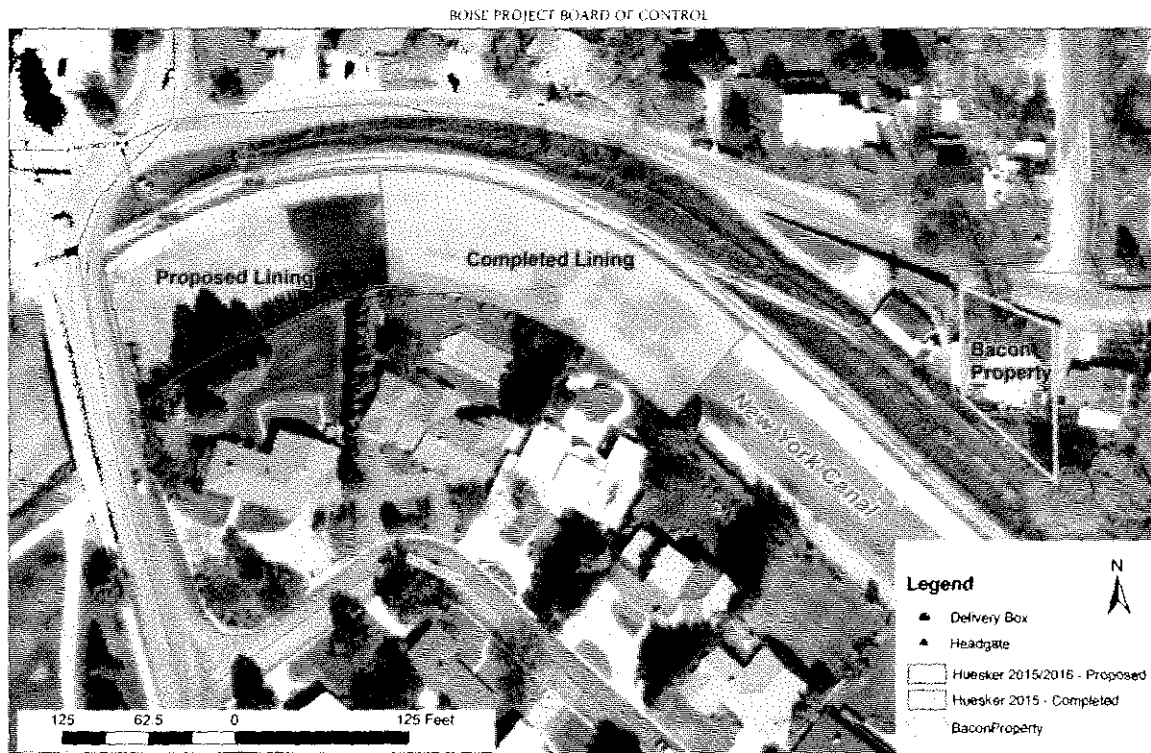


Figure 1

The project proposes to replace approximately 300 linear feet of the existing concrete and asphalt lining with a multi-layer geocomposite membrane and concrete cap. Huesker's Canal³ 12-30-12 is a geocomposite that consists of polyester nonwovens bonded to a polyethylene geomembrane. The liner is inert to biological degradation and naturally encountered chemicals, alkalis and acids. Huesker's Canal³ 12-30-12 has superior puncture resistance and increased interface friction properties that allow the liner to be deployed directly in contact with existing soils and steepened side slopes. This material has an expected lifespan of 50 years.

From Station 396+00 to Station 426+00 the cross sectional width of the New York Canal is approximately 52 feet wide. Therefore, nine 17-foot wide by 250-foot long sections of rolled geocomposite membrane canal liner will be installed and laterally seamed every 17 feet. Each section of the liner will be laid along the top of the canal secured with a concrete layer of six inches.

The existing lining consists of asphalt with a concrete layer underneath on the north side; concrete covering on the south side, with a small portion as earthen and a concrete floor. The concrete on the flooring will be removed along with 2 feet of dirt. One foot of fill material will be compacted into the floor and sides. Six inches of concrete with ranch panels on the side and #4 rebar on the flooring is then layered on top of the membrane.

As the NYC is designated as an Urban Canal of Concern, the BPBC has been proactively working on upgrading the lining, and has used Canal³ 12-30-12 in two other projects in the NYC:

- Station 138+49 to Station 141+49, in winter of 2014, 400 linear feet
- Station 393+00 to Station 396+00, in winter of 2015, 300 linear feet

Evaluation Criterion A: Water Conservation

Subcriterion No. A.1: Quantifiable Water Savings

Describe the amount of water saved. For projects that conserve water, please state the estimated amount of water expected to be conserved (in acre-feet per year) as a direct result of this project. Please provide sufficient detail supporting how the estimate was determined, including all supporting calculations. Please be sure to consider the questions associated with your project type (listed below) when determining the estimated water savings, along with the necessary support needed for a full review of your proposal (please note, the following is **not** an exclusive list of eligible project types. If your proposed project does not align with any of the projects listed below, please be sure to provide support for the estimated project benefits, including all supporting calculations and assumptions made).

The Board of Control has not performed any specific testing; however, the proposed site has been historically known for seepage. A study was performed by Charles Berenbrock with the US Geological Survey in 1997 titled "Streamflow Gains and Losses in the Lower Boise River Basin, Idaho, 1996-1997" (see Attachment A). This study was held during flood control and before the irrigation season began, therefore no deliveries were being made at the time of the study. The study recorded a loss of 26.5 cubic foot per second per mile on March 20, 1997 and another loss of 31.6 ft³/s/mi on March 27, 1997. Based upon this study, approximately 1.5 cfs of water a day is lost to seepage within the proposed project site. With an average irrigation season of 183 days, 274.5 cfs or 544 acre feet of water is lost annually.

The proposed site is also contributing to seepage at a home residence on the northern side of the canal, known as the Bacon property. Refer to Figure 1. The home is 80 feet below the top of the canal, and 425 feet from the proposed project site. In 2008, the BPBC built a retaining wall between the Bacon property and the bottom of the canal to help prevent seepage. Three observation wells were also installed to aid in monitoring and draining. During the irrigation season, readings of the three wells are recorded daily. Once a month, the wells are pumped and the water is released into a nearby drain. Cost of the retaining wall and drainage project was \$28,495.90.

In addition, all applicants should be sure to address the following:

- What is the applicant's average annual acre-feet of water supply?

The water supply depends upon the snowpack and precipitation received the winter before and changes from year to year as noted in the table below. The following table represents BPBC's actual records over the past 5 irrigation seasons: (Source: BPBC Annual Reports)

TABLE 2: Water Supply

YEAR	TOTAL DIVERSIONS TO NYC (acre feet)
2010	701,192
2011	776,282
2012	899,617
2013	523,831
2014	793,699
Average	738,924

- Where is the water that will be conserved currently going (e.g., back to the stream, spilled at the end of the ditch, seeping into the ground, etc.)?

The water that will be conserved with this project currently seeps into the ground.

- Where will the conserved water go?

The conserved water will be used to extend the irrigation season and thus used by BPBC users.

Please address the following questions according to the type of project you propose for funding.

(1) Canal Lining/Piping: Canal lining/piping projects can provide water savings when irrigation delivery systems experience significant losses due to canal seepage. Applicants proposing lining/piping projects should address the following:

- (a) How has the estimated average annual water savings that will result from the project been determined? Please provide all relevant calculations, assumptions, and supporting data.

No formal testing has been performed. As previously mentioned, according to the study held in 1997, a loss of 26.5 cfs and 31.6 cfs per mile was recorded. Using the 26.5 ft³/s/m loss as a basis, .00501 cfs is lost per mile which equates to 1.5 cfs per 300 feet. The average irrigation season is 183 days. The annual water savings is 544 acre feet per year.

$$(26.5/5280)*300 = 1.5 \text{ cfs} * 183 \text{ days} = 274.5 \text{ csf} = 544 \text{ acre feet}$$

(b) How have average annual canal seepage losses been determined? Have ponding and/or inflow/outflow tests been conducted to determine seepage rates under varying conditions? If so, please provide detailed descriptions of testing methods and all results. If not, please provide an explanation of the method(s) used to calculate seepage losses. All estimates should be supported with multiple sets of data/measurements from representative sections of canals.

As previously mentioned, no recent testing has been performed. However, a study was held in March 1997 during flood control discharge. Seepage loss was measured at 26.5 ft³/s/mi and 31.6 ft³/s/mi on two separate days. (Attachment A)

This area has had a seepage issue at the home residence located below the canal. BPBC built a retaining wall and installed three observation wells to help remove the seepage water in 2008.

(c) What are the expected post-project seepage/leakage losses and how were these estimates determined (e.g., can data specific to the type of material being used in the project be provided)?

Seepage is expected to be minimal based on the materials and installation techniques. The proposed project will be closely monitored and documented.

(d) What are the anticipated annual transit loss reductions in terms of acre-feet per mile for the overall project and for each section of canal included in the project?

The 300 feet of the proposed project is losing 2.97 acre feet of water per day. This equates to 52.5 acre feet per mile.

(e) How will actual canal loss seepage reductions be verified?

During the irrigation season, measurements of the three wells at the home residence located below canal will be taken on a daily basis and compared to the readings of the previous years.

(f) Include a detailed description of the materials being used.

The materials needed to complete the proposed project include the geocomposite liner, the adhesive to seal the seams, fill material and concrete. Huesker's Canal³ 12-30-12 is a geocomposite that consists of polyester nonwovens bonded to a polyethylene geomembrane. The liner is inert to biological degradation and naturally encountered chemicals, alkalis and acids. Huesker's Canal³ 12-30-12 has superior puncture resistance and increased interface friction properties that allow the liner to be deployed directly in contact with existing soils and steepened side slopes. The life expectancy of the liner is 50 years. Table 3 below provides the properties on the Canal³ lining.

TABLE 3: Huesker's Canal³

PROPERTY	TEST METHOD	VALUES
Mass per Unit Area	ASTM D-5261	44 oz/yd ²
Membrane Thickness	ASTM D-5199	30 mils
Grab Tensile Strength (MD)	ASTM D-4632	400 lbs
Grab Elongation (MD)	ASTM D-4632	>50%
Trapezoid Tear Strength (MD)	ASTM D-4533	150 lbs
Puncture Strength, (5/16)	ASTM D-4833	250 lbs
Permeability	ASTM D-4491	Non-measureable

A detailed description of all materials is included in the Proposed Budget.

Subcriterion No. A.2: Percentage of Total Supply

Provide the percentage of total water supply conserved: State the applicant's total average annual water supply in acre-feet. Please use the following formula:

$$\frac{544 \text{ Estimated Amount of Water Conserved}}{738,924 \text{ Average Annual Water Supply}} = .07\%$$

Subcriterion E.3: Other Water Supply Sustainability Benefits

Projects may receive up to 14 points under this sub-criterion by thoroughly explaining additional project benefits, *not already described above*. Please provide sufficient explanation of the additional expected project benefits and their significance. Additional project benefits may include, but are not limited to, the following:

- Will the project make water available to alleviate water supply shortages resulting from drought?

The proposed project will make water available to help alleviate water shortages resulting from a low snowpack and by conserving water loss due to seepage. Water would remain in the system, which could extend the length of the irrigation season. Any amount of water conserved and remains in the system is beneficial to all BPBC users.

- Explain in detail the existing or recent drought conditions in the project area. Describe the impacts that are occurring now or are expected to occur as a result of drought conditions.

BPBC water users have experienced several years of low snowpack and a low water allocation. Refer to Table 1. The average high temperature in the Boise area for 2015 (through December 23, 2015) was 66.8°, which is the third warmest on record and almost 4 degrees above normal. The average low was 44.6°, which is 5 degrees above normal. The higher temperatures cause the snowpack to melt faster and the runoff is discharged through flood control before the beginning of the irrigation season.

- Describe the severity and duration of drought conditions in the project area.

Drought conditions in the BPBC service area continue to impact its water users. According to the National Drought Mitigation Center, the Boise River Basin and surrounding area is experiencing an Abnormally Dry to Severe Drought in western Idaho to Extreme Drought in eastern Oregon. The drought has impacted the local farmers in determining the type of crops to plant based on the amount of water required to grow and harvest their crops.

- Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by drought.

As Table 4 below indicates, the runoff has been below normal for the past 6 of the 8 years listed. The table below indicates the results of snow surveys compared on a percentage base with an 84 year normal runoff in acre feet. (Source: BPBC 2014 Annual Report).

TABLE 4

Year	Average in Acre Feet	Runoff Oct. to Oct. Acre Feet	Percent of Normal
2007	1,816,169	1,227,943	67.6
2008	1,941,750	1,761,110	90.7
2009	1,938,537	1,684,719	86.9
2010	1,914,789	1,502,883	78.5
2011	1,909,584	2,375,397	124.4
2012	1,940,574	2,106,400	108.5
2013	1,930,166	1,066,299	55.2
2014	1,929,154	1,695,179	87.8

○ Provide a detailed explanation of how the proposed WaterSMART Grant project will improve the reliability of water supplies during times of drought.

The proposed project will conserve and improve water availability. By having more water available for irrigation, this will assist irrigators in planning what to grow, when to plant and harvest and therefore minimize their economic losses.

- Will the project make water available to address a specific concern? For example:
 - Will the project directly address a heightened competition for finite water supplies and over-allocation (e.g. population growth)?

No, the proposed project will not address a heightened competition for finite water and over-allocation. The allocation is based on the water supply available for that year.

- Describe how the water source that is the focus of this project (river, aquifer, or other source of supply) is impacted by climate variation.

As mentioned above, BPBC receives its water from the snowpack runoff and storage in the reservoirs. The warmer temperatures converts potential snowfall into rain and will melt the current snowpack early in the season. To prevent a risk of flooding, flood control water is released out of the reservoirs before irrigation season.

- Will the project help to address an issue that could potentially result in an interruption to the water supply if unresolved?

As the New York Canal has been designated a Canal of Urban Concern, and is in a high volume residential area, this project will help to address a safety concern by securing the canal lining with the geocomposite

membrane and a six inch concrete layer. If any section of the NYC is breached, the entire system will need to shut down.

- Will the project make water available for the Indian Tribes?
No.
- Will the project make water available for rural or economically disadvantaged communities?

The proposed project will benefit the entire BPBC service area in Ada, and Canyon Counties in Idaho and a portion of Malheur County, Oregon. According to the Census Bureau and the 2010-2014 American Community Survey 5-Year Estimates, 12.8% individuals live below the poverty line in Ada County, 20.5% in Canyon and 28.4% in Malheur County.

- Does the project promote and encourage collaboration among parties?
 - Is there widespread support for the project?

The BPBC delivers water on behalf of five (5) irrigation districts, and each district has at least one member on the Board of Directors. The support by all districts is evident in the Official Resolution which was approved by the Board of Directors.

- What is the significance of the collaboration/support?

By preventing seepage and conserving water, there will be more water available for use by all users, from those who use the water for landscaping purposes to those who irrigate their crops.

- Will the project help to prevent a water-related crisis or conflict?

Yes, as there is always a concern in the lack of water available for crops and the potential of a breach in the canal lining.

- Is there frequently tension or litigation over water in the basin?

There is always tension when it comes to water especially when living in the dry climate of southwest Idaho and southeastern Oregon. The BPBC has been involved in several litigations regarding water availability.

- Is the possibility of future water conservation improvements by other water users enhanced by completion of this project?

As BPBC has used this product in two other areas of the NYC, several other irrigation companies in the Pacific Northwest has inquired regarding the durability, ease of installation and water conservation of the geocomposite liner.

- Will the project increase awareness of water and/or energy conservation and efficiency efforts?

As the deliverer of water for five irrigation districts, the BPBC works diligently to promote water conservation and efficiency.

- Will the project serve as an example of water and/or energy conservation and efficiency efforts within a community?

If awarded the grant, this will be the third application of this liner in the New York Canal. With BPBC being one of the largest irrigation delivery systems in Idaho, many irrigation districts look to BPBC as an example of water conservation and efficiency.

Subcriterion No. F.1: Project Planning

Does the project have a Water Conservation Plan, System Optimization Review (SOR), and/or district or geographic area drought contingency plans in place? Does the project relate/have a nexus to an adaptation strategy developed as part of a WaterSMART Basin Study)? Please self-certify, or provide copies of these plans where appropriate to verify that such a plan is in place.

Provide the following information regarding project planning:

- (1) Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Basin Study, drought contingency plan, or other planning efforts done to determine the priority of this project in relation to other potential projects.

The BPBC has a Water Conservation Plan adopted in 2010. This plan addresses the maintenance on canals and laterals to conserve water and prevent sediment deposits. The project implements a portion of the Project's Water Conservation Plan. In addition, the NYC has been designated as an Urban Canal of Concern by the USBR.

The irrigation districts served by the BPBC are parties to repayment agreements pursuant to the Water Supply Act of 1958 and thus are obligated under Section 210 to the Reclamation Reform Act of 1982 to plan and implement water conservation measures.

- (2) Describe how the project conforms to and meets the goals of any applicable planning efforts, and identify any aspect of the project that implements a feature of an existing water plan(s).

The project relates to Objective #1 of the Water Conservation Plan on maintenance of the New York Canal by replacing the lining.

Subcriterion No. F.2: Readiness to Proceed

Describe the implementation plan of the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates. ***(Please note, under no circumstances may an applicant begin any ground-disturbing activities— including grading, clearing, and other preliminary activities—***

on a project before environmental compliance is complete and Reclamation explicitly authorizes work to proceed).

Work on the project will begin immediately on the project upon entering into a financial assistance agreement with the Bureau of Reclamation, and the canal is dry after the end of the 2016 irrigation season. The current concrete and asphalt lining will be removed and hauled away. Two feet of the canal flooring will be excavated. Approximately 520 yards of fill material will be brought in and compacted into the flooring to the desired grade. The liner will be installed according to manufacturer's instructions. A six inch concrete cap will be poured on top of the liner.

Planning and Surveys	May-June 2016
Procurement of materials	July-September 2016
End of Irrigation Season	October 2016
Construction	October – December 2016

Please explain any permits that will be required, along with the process for obtaining such permits. Identify and describe any engineering or design work performed specifically in support of the proposed project.

With the project site entirely within BPBC and USBR facilities and easements, no permits are required. As the proposed project is adjacent to the lining installed in 2015, no design or engineering work is anticipated. A survey will be performed in the summer of 2016.

Subcriterion No. F.3: Performance Measures

Provide a brief summary describing the performance measure that will be used to quantify actual benefits upon completion of the project (e.g., water saved, marketed, or better managed, or energy saved). For more information calculating performance measure, see Section VIII.A.1. FY2016 WaterSMART Water and Energy Efficiency Grants: Performance Measures.

As the NYC is an Urban Canal of Concern and in a high volume residential area, the New York Canal is closely monitored in various areas along the canal. To determine the performance of the lining, visual observation and monitoring of the three observation wells on the Bacon Property will be recorded daily. These readings will be compared to the previous years' logs. It is anticipated that there be minimal seepage in the area after the installation of the geocomposite membrane and concrete cap.

Subcriterion No. F.4: Reasonableness of Costs

Please include information related to the total project cost, annual acre-feet conserved, energy capacity, or other project benefits and the expected life of the improvement(s).

For all projects involving physical improvements, specify the expected life of the improvement in number of years and provide support for the expectation (e.g., manufacturer's guarantee, industry accepted life-expectancy, description of corrosion mitigation for ferrous pipe and fittings, etc.). Failure to provide this information may result in a reduced score for this section.

$$\frac{\$216,976 \text{ Total Project Cost}}{27,200}$$

(544 acre feet conserved x 50 year life expectancy)

$$=\$7.98/\text{acre feet}$$

The estimated project cost total is \$216,976, with BPBC funding \$108,488 and requesting \$108,488 of Federal funding in this grant application. The typical life-expectancy of the Canal³ lining is 50 years. According to studies by the Bureau of Reclamation and the manufacturer, seepage rates are less than 5%.

Evaluation Criterion G: Additional Non-Federal Funding

The non-federal funding portion of the total project cost is 50 percent, assuming a WaterSMART grant in the amount of \$108,488.

$$\frac{\text{Non-Federal Funding} = \$108,488}{\text{Total Project Cost} = \$216,976}$$
$$= 50\%$$

Evaluation Criterion H: Connection to Reclamation Project Activities

- (1) How is the proposed project connected to Reclamation project activities?

BPBC was formed to operate and maintain federally financed and owned facilities built under the Reclamation Act of August 30, 1890 and would not exist apart from the efforts of the Federal Government. Its entire history is closely intertwined with the USBR. It was created by the forerunner of the USBR to operate and maintain the federal facilities constructed as part of the Boise Project on behalf of the five irrigation districts established as part of the Project. Irrigation of the lands that BPBC serves would not be possible without the reservoir storage made possible by the Arrowrock and Anderson Ranch reclamation projects.

- (2) Does the applicant receive Reclamation project water?

Yes, BPBC receives the majority of its water from the reservoir storages in Arrowrock and Anderson Ranch reservoirs and Boise River water rights.

- (3) Is the project on Reclamation project lands or involving Reclamation facilities?

Yes, the NYC is a Reclamation facility.

- (4) Is the project in the same basin as a Reclamation project or activity?

Yes, the NYC is located in the Boise River Basin, a Reclamation project.

- (5) Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes, the conserved water will remain in the Boise River Basin.

- (6) Will the project help Reclamation meet trust responsibilities to Tribes?
No, the project does not serve tribal lands.

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- (1) Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

During the project, no environmental impacts or costs are anticipated. The project will take place after the completion of the 2016 irrigation season when temperatures are lower and increased precipitation levels reduce the potential of dust associated with the type of construction activities needed to replace the lining. Should dust become an issue, BPBC will apply water applications to ensure dust abatement.

- (2) Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

There are no known endangered or threatened species in the project site.

- (3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "waters of the United States?" If so, please describe and estimate any impacts the project may have.

The project site is within a high volume residential area with no impact to any wetlands.

- (4) When was the water delivery system constructed?

The original canal was constructed in the 1880's. Construction to enlarge the canal began in 1906 with completion in 1909.

- (5) Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

The proposed project will modify the lining which is currently laid with concrete on the flooring and concrete and/or asphalt on the sides. There will be no alterations to any headgates, flumes or deliveries points within the proposed site.

- (6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are no buildings, structures or features listed or eligible for listing on the National Register of Historic Place in the project site.

- (7) Are there any known archeological sites in the proposed project area?

There are no archeological sites within the project area.

- (8) Will the project have a disproportionately high and adverse effect on low income or minority populations?

No, the project will not have any effect on any population.

- (9) Will the project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

The project site is not within tribal lands.

- (10) Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

Removing current vegetation has the potential to introduce or spread of noxious weeds or non-native invasive species. Industry standards practices will be employed to prevent the spread of noxious weeds.

REQUIRED PERMITS OR APPROVAL

Because all of the construction work for the project are on USBR owned facilities, (Transferred Works to BPBC as the operating agency for the five Irrigation Districts) and the nature of the work involved, no construction, planning or environmental permits will be required for the project.

OFFICIAL RESOLUTION

The Board of Directors of the Boise Project Board of Control met on January 6, 2016 at which the Official Resolution was approved and signed by the Chairman of the Board. See Attachment B.

FUNDING PLAN AND LETTERS OF COMMITMENT

- (1) How you will make your contribution to the cost share requirement, such as monetary, and/or in-kind contributions and source funds contributed by the applicant (e.g. reserve account, tax revenue and/or assessments).

Non-Reclamation funding for the proposed project comes from the five Irrigation Districts served by BPBC. Authorization for this funding is made by the Board of Directors of BPBC, which endorses and supports this grant proposal as evidenced by the Official Resolution included in this application. As taxing authorities, the Irrigation Districts are legally enabled to assess the users in their districts for the costs of operations, maintenance and improvements. Idaho State Code grants, in

Attachment A

“Streamflow Gains and Losses in the Lower Boise River Basin,
Idaho, 1996-1997” Excerpt

Streamflow Gains and Losses in the Lower Boise River Basin, Idaho, 1996–97

By Charles Berenbrock

Water-Resources Investigations Report 99–4105

In cooperation with the
Idaho Department of Water Resources

Boise, Idaho
1999

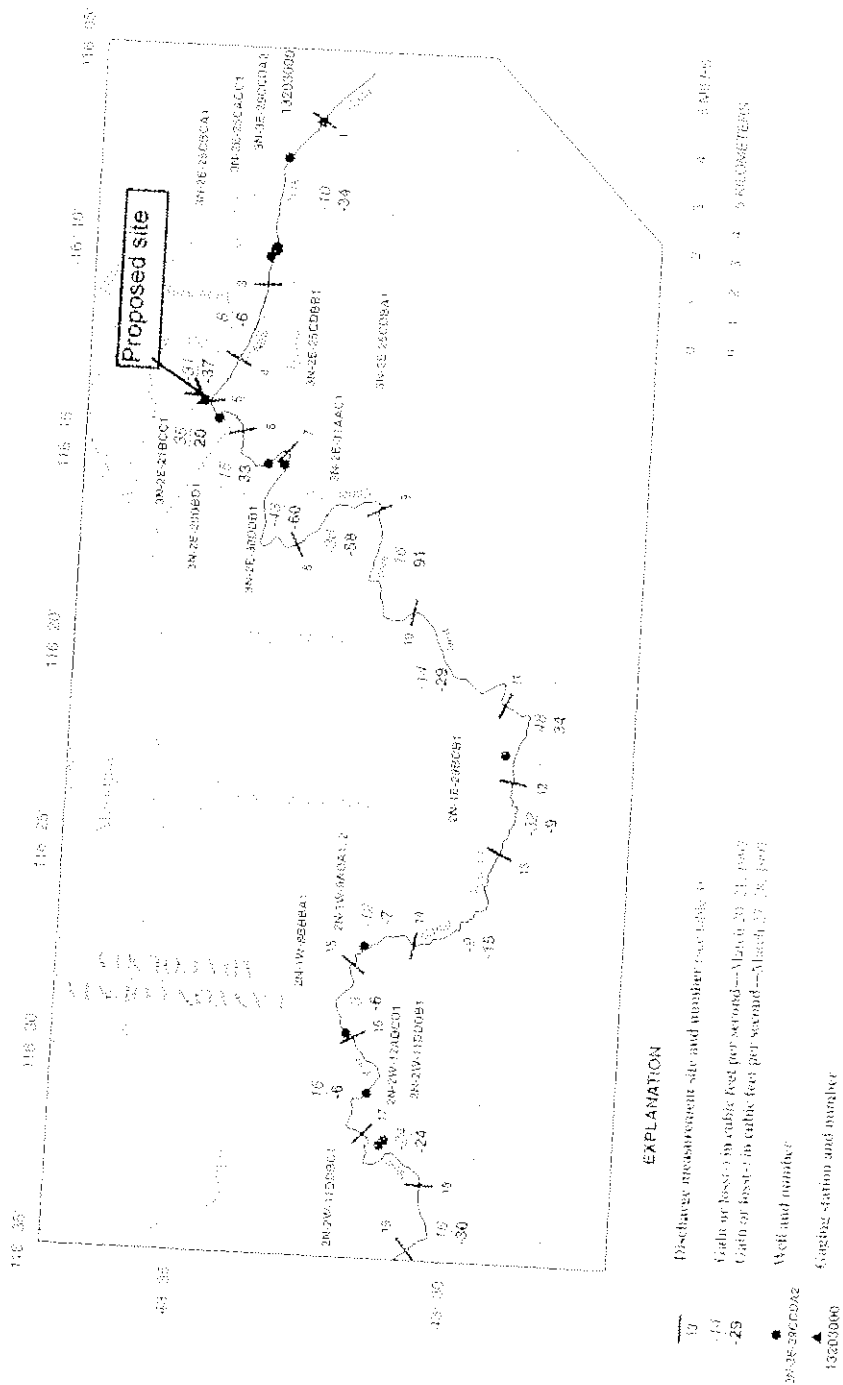


Figure 9. Location of measurement sites and gains and losses along the New York Canal in the lower Boise River Basin, Idaho, March 1997.

18 Streamflow Gains and Losses, Lower Boise River Basin, Idaho, 1996-97

Table 3. Flow gains and losses (-) along the New York Canal in the lower Boise River Basin, Idaho, March 1997

[Site locations shown in figure 9; No., number; mi, miles; ft³/s, cubic feet per second; ft³/mi, cubic feet per second per mile]

Site No.	Distance from Lake Lowell (mi)	Bridge site name	County	Latitude	Longitude	Measurement date	Discharge (ft ³ /s)	Measured gain or loss (-) along subreaches		Measurement date	Discharge (ft ³ /s)	Measured gain or loss (-) along subreaches	
								(ft ³ /s)	(ft ³ /mi)			(ft ³ /s)	(ft ³ /mi)
1	39.5	13203000 New York Canal downstream from Diversion Dam near Boise	Ada	43°33'08"	116°06'44"	20	439			27	862		
3	35.7	Gekeler Road	Ada	43°34'01"	116°10'55"	20	429	-10	-2.6	27	828	-34	-8.9
4	34.0	Vista Avenue	Ada	43°34'27"	116°12'48"	20	437	8	4.8	27	822	-6	-3.6
5	32.9	Roosevelt Street	Ada	43°34'58"	116°13'38"	20	406	-31	-26.5	27	785	-37	-31.6
6	31.8	Orchard Street	Ada	43°34'21"	116°14'35"	21	441	35	31.8	28	805	20	18.2
7	30.1	Gowen Road	Ada	43°33'29"	116°15'03"	21	456	15	9.1	28	838	33	19.9
8	27.0	Desert Street	Ada	43°33'15"	116°17'20"	21	413	-43	-13.7	28	778	-60	-19.2
9	24.6	Cole Road	Ada	43°31'47"	116°16'25"	21	377	-36	-15.5	28	720	-58	-24.9
10	21.4	Hubbard Road	Ada	43°31'03"	116°18'55"	21	393	16	4.9	28	811	91	27.8
11	17.9	Kuna Road	Ada	43°29'18"	116°21'08"	20	379	-14	-4.1	28	782	-29	-8.4
12	15.8	Strobel Road	Ada	43°29'05"	116°23'00"	20	427	48	22.8	28	816	34	16.1
13	14.0	Swan Falls Road	Ada	43°29'15"	116°24'47"	20	395	-32	-17.6	28	807	-9	-5.0
14	10.7	Black Cat Road	Ada	43°30'46"	116°27'11"	20	386	-9	-2.7	28	792	-15	-4.5
15	8.8	Ridgewood Road	Ada	43°31'51"	116°27'42"	21	374	-12	-6.5	28	785	-7	-3.8
16	6.9	Robinson Road	Ada	43°31'48"	116°29'32"	21	377	3	1.5	28	779	-6	-3.1
17	4.0	South Side Boulevard	Canyon	43°31'32"	116°31'56"	20	393	16	5.6	28	773	-6	-2.1
18	1.6	Power Line Road	Canyon	43°30'28"	116°33'07"	20	369	-24	-10.1	28	749	-24	-10.1
19	0.0	Lake Shore Drive	Canyon	43°30'37"	116°34'45"	20	385	16	9.8	28	719	-30	-18.4
Total gain or loss (-) =								-54				-143	

Changes in Ground-Water Levels 19

Attachment B

Official Resolution

RON PLATT
CHAIRMAN OF THE BOARD

RICHARD MURGOITIO
VICE CHAIRMAN OF THE BOARD

TIMOTHY M. PAGE
PROJECT MANAGER

ROBERT D. CARTER
ASSISTANT PROJECT MANAGER

APRYL GARDNER
SECRETARY-TREASURER

JERRI FLOYD
ASSISTANT SECRETARY-
TREASURER

BOISE PROJECT BOARD OF CONTROL

(FORMERLY BOISE U.S. RECLAMATION PROJECT)

2465 OVERLAND ROAD
BOISE, IDAHO 83705-3155

OPERATING AGENCY FOR 167,000
ACRES FOR THE FOLLOWING
IRRIGATION DISTRICTS

NAMPA-MERIDIAN DISTRICT
BOISE-KUNA DISTRICT
WILDER DISTRICT
NEW YORK DISTRICT
BIG BEND DISTRICT

TEL: (208) 344-1141
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OFFICIAL RESOLUTION FOR WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS FOR FY2016

WHEREAS, The U. S. Bureau of Reclamation is seeking proposals from irrigation districts who want to leverage their money and resources in partnership with Reclamation to improve efficient use of water and energy supplies through the WaterSMART: Water and Energy Efficiency Grants for FY 2016 Program, whereby Reclamation will provide funding on a 50/50 cost share basis for projects focused on water conservation;

WHEREAS, the Boise Project Board of Control desires to apply for funding through Reclamation's WaterSMART Grant Program;

NOW THEREFORE BE IT RESOLVED that the Board of Directors of the Boise Project Board of Control agree and authorize the following:

1. The Board has reviewed and supports this proposal for lining 300 feet of the New York Canal with a geocomposite membrane, including a concrete cap.
2. The Boise Project Board of Control is capable of providing the amount of funding and/or in-kind contributions as specified in the funding plan; and
3. If selected for the WaterSMART Grant, the Boise Project Board of Control will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

Passed and adopted by the Board of Directors of the Boise Project Board of Control during its regular meeting on the 6th day of January, 2016.



Ron Platt
Chairman of the Board

Attachment C

Budget Supporting Documents