

**CITY-COUNTY OF BUTTE - SILVER BOW
Basin Creek Dam #1 Rehabilitation**

Proposed Action: Basin Creek Dam #1 is a 123-year old structure originally built to assist with water supply for the City of Butte. Subsequent uses involve flood prevention, irrigation, and fish and wildlife storage. The City-County of Butte-Silver Bow [BSB] proposes to repair/rehabilitate the primary structural deficiencies associated with the recent 5-year dam inspection report, recent yearly inspections and the 2020 dam structural analysis. The improvements will protect public health and safety, continue to ensure public water storage, allow downstream irrigation usage and continue to allow fish/wildlife storage.

UNIFORM ENVIRONMENTAL CHECKLIST

DRAFT

As the Engineer that prepared the Preliminary Engineering Report, I, Ryan Elliott, PE have reviewed the information presented in this checklist and believe that it accurately identifies the environmental resources in the area and the potential impacts that the project could have on those resources. In addition, the required state and federal agencies were provided with the required information about the project and requested to provide comments on the proposed public facility project. Their comments have been incorporated into and attached to the Preliminary Engineering Report.

Engineer's Signature: _____

Date: _____

UNIFORM ENVIRONMENTAL CHECKLIST
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NAME OF PROJECT:	Basin Creek Dam #I Rehabilitation
PROPOSED ACTION:	Dam Improvements
OWNER:	City-County of Butte – Silver Bow, Montana

Key Letter:

N: No Impact; **B:** Potentially Beneficial; **A:** Potentially Adverse; **P:** Approval/Permits Required; **M:** Mitigation Required

PHYSICAL ENVIRONMENT

KEY	I	<p>Soil Suitability, Topographic and/or Geologic Constraints (e.g., soil slump, steep slopes, subsidence, seismic activity)</p>
		<p><i>Response and source of information:</i></p>
		<p>NRCS Soil Maps indicate the native soil at the dam site is classified as Ambrant-Rochester families, complex, low relief mountain slopes and ridges. The soil is comprised of gravelly and sandy loams. There are no identified soil or topographical constraints.</p> <p>The dam is located in an outcropping of hard, massive granite. The dam abutments are keyed into granite and per the original drawings, a layer of granitic bedrock is located within close proximity to the bottom of the structure.</p>
N		<p>Basin Creek Dam #I is located within the northern section of the Intermountain Seismic Belt (ISB), a north trending zone of seismicity in the western United States. The seismic resistivity of the existing dam is already established with the geographic location of the dam and the materials and construction techniques utilized. Therefore, the proposed dam infrastructure improvements, consisting of structural and non-structural concrete repairs, are expected to have minimal impact to any future seismic related issues. During the design process, seismic analysis will be completed on any structural concrete repairs and post-tensioned anchor designs. No specific existing seismic analysis of the dam was available, nor were previous soil borings (logs) to determined suitability of adjacent soils and depth to rock. If post tension anchor designs are proposed for use in final design, soil/rock borings may be obtained to determine competency of the underlying materials.</p> <p>- Ryan Elliott, P.E. - USDA National Cooperative Soil Survey</p>

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KEY	2	Hazardous Facilities (e.g., power lines, EPA hazardous waste sites, acceptable distance from explosive and flammable hazards including chemical/petrochemical storage tanks, underground fuel storage tanks, and related facilities such as natural gas storage facilities & propane storage tanks)
N		<p><i>Response and source of information:</i></p> <p>A file search of the State Hazard Mapping (DEQ) and State Digital Atlas (NRIS) revealed <u>no</u> underground storage tanks, petroleum leak sites, hazardous substance release sites, or related facilities in the direct project vicinity.</p> <p>It is unknown if there are propane storage tanks in the proximity of the BSB owned dam related buildings and infrastructure. During the pre-design and survey process, identification of any hazardous items (including propane tanks) and overhead utilities will occur. Depending on the type of identified hazard, appropriate steps will be taken to mitigate these during the construction process.</p> <p>Prior to construction, a detailed inspection will be undertaken by contacting a utility location service. If underground utilities are located within the affected area, they will be relocated. Typically, such relocations are completed by the utility company at no cost to BSB.</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E. - Digital Mapping Index, Montana DEQ

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KEY	3	Effects of Project on Surrounding Air Quality or Any Kind of Effects of Existing Air Quality on Project (e.g., dust, odors, emissions)
N		<p><i>Response and source of information:</i></p> <p>The project is not located in an air quality Attainment area, as set by the U.S. Environmental Protection Agency's National Ambient Air Quality Standards. The only anticipated impacts on air quality are anticipated to be temporary dust during construction. The contractor will be responsible for necessary dust control. The project is not anticipated to impact surrounding air quality or pose concerns regarding the national standards.</p> <p>- Ryan Elliott, P.E. - EPA</p>
KEY	4	Groundwater Resources & Aquifers (e.g., quantity, quality, distribution, depth to groundwater, sole source aquifers)
N		<p><i>Response and source of information:</i></p> <p>Given the nature of the construction activities, the proposed project is not anticipated to have any impact on groundwater resources and aquifers.</p> <p>- Ryan Elliott, P.E.</p>
KEY	5	Surface Water/Water Quality, Quantity & Distribution (e.g., streams, lakes, storm runoff, irrigation systems, canals)
P		<p><i>Response and source of information:</i></p> <p>BSB intends to work with the Contractor to coordinate the proposed project so that as much of the work as possible can be implemented during periods of low reservoir levels. Some temporary reservoir lowering, depending on the selected alternative, may be required. Due to the type of anticipated rehabilitation, dewatering utilizing cofferdams or other means is not anticipated. Emphasis will be placed on completing any in-water work in the shortest amount of time possible. Limited temporary adverse effects to water quality are expected during construction of the repairs. Debris containment measures will be required to prevent construction debris/materials from entering the waterway.</p> <p>No refueling of equipment will take place within 100 feet of the ordinary high-water reservoir mark or any wetland boundary. The Contractor will be required to have spill kits (minimum of 5-gallon capacity) on board each piece of equipment at all times when working near water. The Contractor will be required to inspect all equipment for oil, gas, diesel, antifreeze, hydraulic fluid, or other petroleum leaks prior to entering the construction site. If a leak is detected, the leak will be repaired prior to the equipment being allowed to work on the project site. No construction equipment will operate within the lake unless it is specifically permitted to do so.</p> <p>All of the potential rehabilitation alternatives are anticipated to disturb less than one acre of existing ground. As a result, a Storm Water Permit is not anticipated to be required at this time. All additional necessary permits will be acquired prior to construction and the contractor will be required to abide by the conditions set forth by these permits.</p>

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		- Ryan Elliott, P.E.
KEY	6	Floodplains & Floodplain Management (Identify any floodplains within one mile of the boundary of the project.)
N		<i>Response and source of information:</i>
		The dam and surrounding lands upstream and downstream of the dam occur in FEMA floodplain map panel 30093C0456E (Effective January 2012). The dam and reservoir are located in designated Zone D (areas in which flood hazards are undetermined, but possible). Zone A (special flood hazard area) floodplain in Basin Creek starts approximately 1.4 riverine miles to the north (downstream) of the dam. No impacts to Basin Creek are anticipated as a result of this project and therefore no impact to floodplains are anticipated.
		- Ryan Elliott, P.E. - FEMA Community Panels

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KEY	7	Wetlands Protection (Identify any wetlands within one mile of the boundary of the project.)
P		<p><i>Response and source of information:</i></p> <p>Based on information from the USFWS Survey National Wetlands Inventory (excluding the adjacent Basin Creek Reservoir), there may be riverine wetlands present on Basin Creek, located just downstream of the spillway terminus. Wetland impacts on Basin Creek downstream of the dam are not anticipated due to the proximal location of the work on the dam face.</p> <p>Christina Schroeder of the Army Corps of Engineers indicates, “...it appears regulated activities may be proposed and jurisdictional waters of the U.S. are present within the project area. If your final design includes the placement of fill material in any jurisdictional area described above, or otherwise requires authorization by a DA permit, please submit a Montana Joint Permit Application to this office prior to starting any work. After a review of the materials submitted we will determine what type of permit, if any, will be required.” If deemed necessary by the Army Corps of Engineers, a wetland delineation will be performed to document any jurisdictional wetlands at the site vicinity during the design phase of the project. The entire footprint of the proposed construction disturbance will be evaluated for the presence of wetlands and those wetlands will be delineated and mapped in accordance with the Corps 1987 Delineation Manual (and applicable Regional Supplement). Wetlands boundaries will be flagged in the field and numbered. Flag numbers and locations will be surveyed using a sub-meter GPS and depicted on the delineation map.</p> <p>The Contractor will be required, to the extent feasible, to avoid wetlands in and around the project site that may be affected by construction activities. The Contract will require the Contractor to minimize wetland disturbance wherever possible and implement BMPs to avoid impacts such as material inputs and sedimentation to wetlands or to Basin Creek Reservoir. At this time, and based upon the preliminary information available, it is anticipated that less than one-tenth of an acre of wetlands will be disturbed as a result of the proposed project. All project work will require debris containment to prevent debris or concrete materials from entering live water in Basin Creek Reservoir or any adjacent wetlands (if present).</p> <p>Additionally, Jodi Bush from the USFWS adds, “If wetlands will be affected by the project, the Service recommends keeping wetland disturbances to the minimum extent and duration possible, with as much occurring ‘in the dry’ as possible. This would reduce impacts to aquatic species relative to disturbance and sediment inputs. We also recommend that appropriate erosion and sediment control efforts and measures be implemented during and following construction to avoid introducing sediments or other contaminants to adjacent waters.”</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E. - USFWS National Wetlands Inventory - Jodi Bush, USFWS - Christina Schroeder, Army Corps of Engineers

KEY	8	Agricultural Lands, Production, & Farmland Protection (e.g., grazing, forestry, cropland, prime or unique agricultural lands) (Identify any prime or important farm ground or forest lands within one mile of the boundary of the project.)
B		<p><i>Response and source of information:</i></p> <p>Basin Creek Dam #1 is located in a forested area. Due to it being the source of Butte – Silver Bow’s water supply, BSB owns the property immediately surrounding the reservoir and dam. Outside of dam related infrastructure and buildings, there is no other infrastructure within the dam proximity. Preliminary investigations indicate that the land surrounding the dam is not prime farmland, as designated by the NRCS. There are some agricultural operations beginning 0.8 miles to the north of the dam, primarily consisting of small grass hay operations. As the proposed dam improvement project is not expected to impact adjacent soils (outside of minimal impact in the dam vicinity), no negative impact to agricultural lands or farmlands is anticipated. Retaining the functionality of the dam will provide a benefit to downstream irrigators.</p> <p>There is a considerable acreage of Beaverhead-Deerlodge National Forest lands located to the east, west and south of the dam. The nearest USFS boundary to the project site is approximately 400 feet northwest of the dam. There are no current active logging activities on public lands in the vicinity, however, logging has occurred in the past (most recently in 2008), which resulted in approximately 1000-1500 acres of logging activities near the headwaters of Basin Creek. Additionally, considerable beetle kill has occurred in the forest surrounding the reservoir, of which Russ Walker, USFS Forester, indicated that 50-80% of trees are likely dead in the drainage from pine beetle kill.</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E. - USDA, NRCS Soil Survey - Russ Walker, USFS Forester
KEY	9	Vegetation & Wildlife Species & Habitats, Including Fish and Sage Grouse (e.g., terrestrial, avian and aquatic life and habitats)
P		<p><i>Response and source of information:</i></p> <p>A database search conducted using the Montana Natural Heritage Program website and by the USFWS found fifteen possible species of special concern in the area: Wolverine, Canada Lynx, Grizzly Bear, Hoary Bat, Little Brown Myotis, Northern Goshawk, Cassin’s Finch, Clark’s Nutcracker, Brewer’s Sparrow, Westslope Cutthroat Trout, Bull Trout, Whitebark Pine, Sapphire Rockcress, Meadow Larkspur, and Idaho Sedge.</p> <p>Jodi Bush of the United States Fish and Wildlife Service [USFWS] stated, “We do not expect bull trout to be present in Basin Creek within the Project vicinity. Considering that the Project consists of rehabilitation of an existing structure with little to no new ground disturbance, we expect minimal effects to habitat for any listed species. Grizzly bears, Canada lynx, and wolverines are wide-ranging species and could occasionally move through the general Project area, but are not expected to occur commonly in the immediate Project vicinity. If any tree removal is necessary, we recommend that the area be surveyed for whitebark pine and that any whitebark pines be avoided, if possible.”</p> <p>Jodi Bush of the USFWS also stated, “The Service recommends implementation of the following (or similar) conservation measures to manage potential bear attractants and reduce the risk of human-grizzly bear conflicts related to this project:</p> <ul style="list-style-type: none"> • Promptly clean up any project related spills, litter, garbage, debris, etc. • No overnight camping within the project vicinity, except in designated campgrounds, by any crew member or other personnel associated with this project.

	<ul style="list-style-type: none"> • Store all food, food related items, petroleum products, antifreeze, garbage, personal hygiene items, and other attractants inside a closed, hard-sided vehicle or commercially manufactured bear resistant container. • Remove garbage from the project site daily and dispose of it in accordance with all applicable regulations. • Notify the Project Manager of any animal carcasses found in the area. • Notify the Project Manager of any bears observed in the vicinity of the project.” <p>The USFWS also recommended that the proposed project follow guidelines outlined in the Migratory Bird Treaty Act (MBTA). The Service was not explicitly aware of any eagle nests in the project vicinity.</p> <p>Based on a review of the Montana Sage Grouse Habitat Conservation Program Mapper (https://sagegrouse.mt.gov/projects), the proposed project is not mapped in an Executive Order (EO) Area for Sage Grouse Habitat. As such, Sage Grouse are not anticipated to be adversely affected by this work.</p> <p>The proposed project is not expected to have any significant permanent adverse effects on vegetation and wildlife. No significant migratory bird nesting areas are anticipated to be affected by the proposed project, as tree removal is anticipated to be limited and disturbance generally limited to pre-disturbed areas on the dam face. Any temporary construction effects on plant species will be re-seeded to promote revegetation and reduce erosion. All necessary permits will be acquired prior to construction, and the Contractor will be required to adhere to the permit documents, including guidance on protection or mitigation measures that the USACE feels are reasonable and prudent. In the pre-design and survey period, site investigation into Whitebark Pine will occur per direction from USFWS. Specific guidance on Grizzly Bears will be inserted in the project special provisions.</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E. - Jodi Bush, USFWS - Montana FWP, Region 3 - Montana Natural Heritage Program - Montana Sage Grouse Habitat Conservation Program
KEY	10 Unique, Endangered, Fragile, or Limited Environmental Resources, Including Endangered Species (e.g., plants, fish or wildlife)
P	<p><i>Response and source of information:</i></p> <p>A database search conducted using the Montana Natural Heritage Program website and by the USFWS found fifteen possible species of special concern in the area: Wolverine, Canada Lynx, Grizzly Bear, Hoary Bat, Little Brown Myotis, Northern Goshawk, Cassin’s Finch, Clark’s Nutcracker, Brewer’s Sparrow, Westslope Cutthroat Trout, Bull Trout, Whitebark Pine, Sapphire Rockcress, Meadow Larkspur and Idaho Sedge.</p> <p>Jodi Bush of the United States Fish and Wildlife Service [USFWS] stated, “We do not expect bull trout to be present in Basin Creek within the Project vicinity. Considering that the Project consists of rehabilitation of an existing structure with little to no new ground disturbance, we expect minimal effects to habitat for any listed species. Grizzly bears, Canada lynx, and wolverines are wide-ranging species and could occasionally move through the general Project area, but are not expected to occur commonly in the immediate Project vicinity. If any tree removal is necessary, we recommend that the area be surveyed for whitebark pine and that any whitebark pines be avoided, if possible.”</p>

	<p>Jodi Bush of the USFWS also stated, “The Service recommends implementation of the following (or similar) conservation measures to manage potential bear attractants and reduce the risk of human-grizzly bear conflicts related to this project:</p> <ul style="list-style-type: none"> • Promptly clean up any project related spills, litter, garbage, debris, etc. • No overnight camping within the project vicinity, except in designated campgrounds, by any crew member or other personnel associated with this project. • Store all food, food related items, petroleum products, antifreeze, garbage, personal hygiene items, and other attractants inside a closed, hard-sided vehicle or commercially manufactured bear resistant container. • Remove garbage from the project site daily and dispose of it in accordance with all applicable regulations. • Notify the Project Manager of any animal carcasses found in the area. • Notify the Project Manager of any bears observed in the vicinity of the project.” <p>The USFWS also recommended that the proposed project follow guidelines outlined in the Migratory Bird Treaty Act (MBTA). The Service was not explicitly aware of any eagle nests in the project vicinity.</p> <p>Based on a review of the Montana Sage Grouse Habitat Conservation Program Mapper (https://sagegrouse.mt.gov/projects), the proposed project is not mapped in an Executive Order (EO) Area for Sage Grouse Habitat. As such, Sage Grouse are not anticipated to be adversely affected by this work.</p> <p>The proposed project is not expected to have any significant permanent adverse effects on vegetation and wildlife. No significant migratory bird nesting areas are anticipated to be affected by the proposed project, as tree removal is anticipated to be limited and disturbance generally limited to pre-disturbed areas on the dam face. Any temporary construction effects on plant species will be re-seeded to promote revegetation and reduce erosion. All necessary permits will be acquired prior to construction, and the Contractor will be required to adhere to the permit documents, including guidance on protection or mitigation measures that the USACE feels are reasonable and prudent. In the pre-design and survey period, site investigation into Whitebark Pines will occur per direction from USFWS. Specific guidance on Grizzly Bears will be inserted in the project special provisions.</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E. - Jodi Bush, USFWS - Montana FWP, Region 3 - Montana Natural Heritage Program - Montana Sage Grouse Habitat Conservation Program
KEY	<p>II</p> <p>Unique Natural Features (e.g., geologic features)</p>
N	<p><i>Response and source of information:</i></p> <p>There are no unique natural features located in the vicinity of the proposed project.</p> <ul style="list-style-type: none"> - Ryan Elliott, P.E.

KEY	12	Access to, and Quality of, Recreational & Wilderness Activities, Public Lands and Waterways and Public Open Space
N		<p><i>Response and source of information:</i></p> <p>No impacts are anticipated.</p> <p>- Ryan Elliott, P.E.</p>
HUMAN POPULATION		
KEY	I	Visual Quality – Coherence, Diversity, Compatibility of Use and Scale, Aesthetics
B		<p><i>Response and source of information:</i></p> <p>As the primary project focus is on repairing/replacing poor condition concrete (visibly cracked and crumbling) throughout the dam face and dam parapet, the improved aesthetics of the repaired areas should be considered a benefit of the project, as the infrastructure was already in place.</p> <p>- Ryan Elliott, P.E.</p>
KEY	2	Nuisances (e.g., glare, fumes)
N		<p><i>Response and source of information:</i></p> <p>The proposed project may cause temporary nuisances such as noise, dust, and exhaust fumes from construction equipment while construction is occurring. However, no long-term impacts have been identified and efforts will be made to minimize nuisances and address specific problems as they occur.</p> <p>- Ryan Elliott, P.E.</p>

KEY	3	Noise - suitable separation between noise sensitive activities (such as residential areas) and major noise sources (aircraft, highways & railroads).
N		<p><i>Response and source of information:</i></p> <p>The nearest residence/structure not owned by Butte-Silver Bow is located 0.8 miles from the project. There will be construction noise related to the project, but as no residential areas are located in the direct vicinity of the dam, impacts are anticipated to be minimal. No additional permanent increase in noise will occur as a result of construction activities and these activities are anticipated to be short-term and will occur during daylight hours. All local ordinances will be followed by the contractor regarding construction equipment operation.</p> <p>- Ryan Elliott, P.E.</p>
KEY	4	Historic Properties, Cultural, and Archaeological Resources
M		<p><i>Response and source of information:</i></p> <p>Basin Creek Dam #1 was originally constructed in 1897 as a curved masonry dam. With the need for increased water storage due to water needs and adherence to regulations, subsequent improvements to the dam were made in 1913, 1930's, 1980's, and 2006. The 1913 improvements consisted of a mass concrete cap/buttress which raised the dam 13 feet. The 1930's improvements consisted of placement of earthen fill on the downstream dam slope. In the mid-1980's, due to poor concrete condition, shotcrete was installed on the upper 3 feet of dam face and parapet. The 2006 improvements entailed the construction of a new concrete spillway with crest gate, slip-lining the existing conduits, and rehabilitation of the outlet works.</p> <p>Damon Murdo, SHPO Cultural Records Manager states, <i>"It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. The dam has not been previously recorded. If the Basin Creek Dam is going to be rehabilitated we would recommend that it be recorded, and a determination of its eligibility be made prior to any disturbance or rehabilitation taking place."</i></p> <p>Christina Schroeder, USACE states, <i>"Due to the age of the Dam, the Dam and the proposed impacts will need to be evaluated in order for the Corps to consult with the Montana State Historic Preservation Office (MT SHPO) prior to permit issuance. Appropriate documentation for the consultation process should be submitted with the joint application and the Corps will use that documentation to consult with MT SHPO."</i></p> <p>Thus, during the pre-design process, investigation into the eligibility of recordation will occur with qualified subconsultants. If necessary, recordation and cultural resource investigations will occur.</p> <p>There are no other historic sites that are located in the same section as the Dam.</p> <p>- Ryan Elliott, P.E. - Damon Murdo, State Historical Preservation Office (SHPO) - Christina Schroeder, USACE</p>

KEY	5	Changes in Demographic (population) Characteristics (e.g., quantity, distribution, density)
N		<p><i>Response and source of information:</i></p> <p>The proposed project is not anticipated to affect any changes in demographics to the area. The project will ensure long term success of the recent construction of the Basin Creek Water Treatment Plant, which is a gravity water delivery system from the Dam.</p> <p>- Ryan Elliott, P.E</p>
KEY	6	Environmental Justice – (Does the project avoid placing lower income households in areas where environmental degradation has occurred, such as adjacent to brownfield sites?)
N		<p><i>Response and source of information:</i></p> <p>No residents will be relocated as part of this project.</p> <p>- Ryan Elliott, P.E.</p>
KEY	7	General Housing Conditions - Quality, Quantity, Affordability
B		<p><i>Response and source of information:</i></p> <p>The dam rehabilitation will ensure that the downstream Basin Creek Water Treatment Plant remains operational, which will ensure property and housing values. Additionally, ensuring long term stability of the dam will ensure that housing downstream of the dam in the inundation area remains a safe.</p> <p>- Ryan Elliott, P.E.</p>
KEY	8	Displacement or Relocation of Businesses or Residents
B		<p><i>Response and source of information:</i></p> <p>By ensuring the downstream Basin Creek Water Treatment Plant remains operational, the dam rehabilitation will provide for existing businesses to remain and for new businesses to open.</p> <p>- Ryan Elliott, P.E.</p>
KEY	9	Public Health and Safety
B		<p><i>Response and source of information:</i></p> <p>Based on recent inspections, the exposed concrete dam face is in poor condition. However, continuous maintenance is necessary for a dam with such a varied construction, rehabilitation and repair history as the Basin Creek Dam. The primary focus of the proposed project is on structural concrete rehabilitation and stability during the probable maximum flood (PMF). Ongoing projects such as these are necessary to ensure the safe operation and functionality of the dam. Therefore, completion of this rehabilitation ensures the ongoing public health and safety of the users of the Butte - Silver Bow public water supply and for the downstream residents who depend on the dam to provide safe, stable infrastructure and to prevent downstream flooding.</p> <p>- Ryan Elliott, P.E.</p>

KEY	10	Lead Based Paint and/or Asbestos
M		<p><i>Response and source of information:</i></p> <p>There is no known lead based paint or asbestos at this site. However, requirements from Montana DEQ require an inspection for asbestos (performed by an accredited inspector) prior to any demolition taking place. This inspection may be waived depending on the type of structure and components being removed.</p> <p>- Ryan Elliott, P.E.</p>
KEY	11	Local Employment & Income Patterns – Quantity and Distribution of Employment, Economic Impact
B		<p><i>Response and source of information:</i></p> <p>BSB may experience short term benefits if contractors choose to hire local residents. Local businesses may benefit from the presence of construction crews, who would patronize local businesses. Longer term benefits may be experienced by the community as a result of the presence of an improved and stable infrastructure.</p> <p>Additionally, as a source of water storage, the dam provides downstream irrigators a means of long-term stability for dependable flows from Basin Creek to utilize for hay operations and livestock watering. Ensuring the continued safe operation of the dam means continued irrigation opportunities for downstream agricultural operations.</p> <p>The water system operation downstream of the dam provides employment opportunities. Continued viability of the dam will continue to provide these jobs for the local economy.</p> <p>- Ryan Elliott, P.E.</p>
KEY	12	Local & State Tax Base & Revenues
B		<p><i>Response and source of information:</i></p> <p>The dam rehabilitation project will continue to allow the functional use of the Basin Creek Water Treatment Plant. This will continue to allow commercial and industrial growth to occur, therefore expanding the Local and State tax base and revenues.</p> <p>- Ryan Elliott, P.E.</p>
KEY	13	Educational Facilities - Schools, Colleges, Universities
B		<p><i>Response and source of information:</i></p> <p>The dam rehabilitation project will continue to allow the functional use of the Basin Creek Water Treatment Plant, which provides an on-demand water system that can service up to 60% of Butte’s water supply.</p> <p>- Ryan Elliott, P.E. - Jim Keenan, Butte - Silver Bow Water Operations</p>
KEY	14	Commercial and Industrial Facilities - Production & Activity, Growth or Decline
N		<p><i>Response and source of information:</i></p>

		<p>The dam rehabilitation project will continue to allow the functional use of the Basin Creek Water Treatment Plant. This will continue to allow commercial and industrial growth to occur.</p> <p>- Ryan Elliott, P.E.</p>
KEY	15	Health Care – Medical Services
N		<p><i>Response and source of information:</i></p> <p>No impacts are anticipated.</p> <p>- Ryan Elliott, P.E.</p>
KEY	16	Social Services – Governmental Services (e.g., demand on)
N		<p><i>Response and source of information:</i></p> <p>No impacts are anticipated.</p> <p>- Ryan Elliott, P.E.</p>
KEY	17	Social Structures & Mores (Standards of Social Conduct/Social Conventions)
N		<p><i>Response and source of information:</i></p> <p>The proposed project should not have any impact on social structures and mores.</p> <p>- Ryan Elliott, P.E.</p>

KEY	18	Land Use Compatibility (e.g., growth, land use change, development activity, adjacent land uses and potential conflicts)
B		<p><i>Response and source of information:</i></p> <p>Maintaining the structural integrity of the dam will ensure downstream land use can remain as currently utilized. Over the years, there have been considerable growth in areas downstream of the dam. However, the proposed rehabilitation is not anticipated to contribute to or impact growth or future planning activities in the area.</p> <p>- Ryan Elliott, P.E.</p>
KEY	19	Energy Resources - Consumption and Conservation
B		<p><i>Response and source of information:</i></p> <p>Maintaining the structural integrity of the dam and allowing reservoir water surface elevations to remain relatively high will ensure that the downstream Basin Creek Water Treatment Plant can continue to operate as a gravity system. If rehabilitation is not completed and DNRC requires lowered reservoir levels due to concern about the concrete condition, the downstream water treatment plant could become impacted due to water levels that are too low and additional pumping costs would occur, or water would have to be sourced from the Big Hole Water Treatment Plant. Jim Keenan states, “This would not only result in more pumping from the Basin Creek WTP, but also a large increase in pumping from the Big Hole River. Water from the river is treated at the Big Hole WTP and is pumped over the Continental Divide a distance of 26 miles to get [to] the distribution system. Since construction, the Basin Creek WTP has been able to meet about 60% of Butte's water requirement—most of it supplied by gravity.”</p> <p>- Ryan Elliott, P.E. - Jim Keenan, Butte - Silver Bow Water Operations</p>
KEY	20	Solid Waste Management
N		<p><i>Response and source of information:</i></p> <p>Not applicable to this project.</p> <p>- Ryan Elliott, P.E.</p>
KEY	21	Wastewater Treatment - Sewage System
N		<p><i>Response and source of information:</i></p> <p>Not applicable to this project.</p> <p>- Ryan Elliott, P.E.</p>
KEY	22	Storm Water – Surface Drainage
N		<p><i>Response and source of information:</i></p> <p>The proposed repairs will take BMP's into account.</p> <p>- Ryan Elliott, P.E.</p>

KEY	23	Community Water Supply
B		<p><i>Response and source of information:</i></p> <p>As the Basin Creek Reservoir serves as an important water source for the City of Butte, keeping the reservoir in operable condition is critical to ensure reliability of the water source. The dam rehabilitation project will continue to ensure that the Basin Creek Water Treatment Plant remains functional.</p> <p>- Ryan Elliott, P.E.</p>
KEY	24	Public Safety – Police
B		<p><i>Response and source of information:</i></p> <p>By maintaining the structural stability of the dam by rehabilitating the concrete and addressing anchorage for resistance the Probable Maximum Flood (PMF), the risk is lessened for high flows downstream as a result of damage. This provides a benefit to public safety.</p> <p>- Ryan Elliott, P.E.</p>
KEY	25	Fire Protection – Hazards
B		<p><i>Response and source of information:</i></p> <p>The dam rehabilitation project will continue to allow the functional use of the Basin Creek Water Treatment Plant. This will continue to allow this water source to be utilized as an on-demand water source for fire flows in the event of fire fighting activities.</p> <p>- Ryan Elliott, P.E.</p>
KEY	26	Emergency Medical Services
B		<p><i>Response and source of information:</i></p> <p>By maintaining the structural stability of the dam by rehabilitating the concrete and addressing anchorage for resistance the Probable Maximum Flood (PMF), the risk is lessened for high flows downstream as a result of damage. This provides a benefit to public safety.</p> <p>- Ryan Elliott, P.E.</p>

KEY	27	Parks, Playgrounds, & Open Space
N		<i>Response and source of information:</i>
		No impacts anticipated. - Ryan Elliott, P.E.
KEY	28	Cultural Facilities, Cultural Uniqueness & Diversity
M		<i>Response and source of information:</i>
		Basin Creek Dam #1 was originally constructed in 1897 as a curved masonry dam. With the need for increased water storage due to water needs and adherence to regulations, subsequent improvements to the dam were made in 1913, 1930's, 1980's, and 2006. The 1913 improvements consisted of a mass concrete cap/buttress which raised the dam 13 feet. The 1930's improvements consisted of placement of earthen fill on the downstream dam slope. In the mid-1980's, due to poor concrete condition, shotcrete was installed on the upper 3 feet of dam face and parapet. The 2006 improvements entailed the construction of a new concrete spillway with crest gate, slip-lining the existing conduits, and rehabilitation of the outlet works.
		Damon Murdo, SHPO Cultural Records Manager states, <i>"It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. The dam has not been previously recorded. If the Basin Creek Dam is going to be rehabilitated we would recommend that it be recorded, and a determination of its eligibility be made prior to any disturbance or rehabilitation taking place."</i>
		Christina Schroeder, USACE states, <i>"Due to the age of the Dam, the Dam and the proposed impacts will need to be evaluated in order for the Corps to consult with the Montana State Historic Preservation Office (MT SHPO) prior to permit issuance. Appropriate documentation for the consultation process should be submitted with the joint application and the Corps will use that documentation to consult with MT SHPO."</i>
		Thus, during the pre-design process, investigation into the eligibility of recordation will occur with qualified subconsultants. If necessary, recordation and cultural resource investigations will occur. There are no other historic sites that are located in the same section as the Dam. - Ryan Elliott, P.E. - Damon Murdo, State Historical Preservation Office (SHPO) - Christina Schroeder, USACE

KEY	29	Transportation Networks and Traffic Flow Conflicts (e.g., rail; auto including local traffic; airport runway clear zones - avoidance of incompatible land use in airport runway clear zones)
N		<p><i>Response and source of information:</i></p> <p>The proposed project is not anticipated to adversely affect current transportation networks and traffic flow conflicts.</p> <p>- Ryan Elliott, P.E.</p>
KEY	30	Consistency with Local Ordinances, Resolutions, or Plans (e.g., conformance with local comprehensive plans, zoning, or capital improvement plans)
B		<p><i>Response and source of information:</i></p> <p>The proposed project will comply with local ordinances, resolutions and/or plans in design and during construction.</p> <p>- Ryan Elliott, P.E.</p>
KEY	31	Is there a Regulatory Action on Private Property Rights as a Result of this Project? (Consider options that reduce, minimize, or eliminate the regulation of private property rights.)
N		<p><i>Response and source of information:</i></p> <p>The proposed project should not have any impact on private property rights. All project work is anticipated to occur on property currently owned by BSB.</p> <p>- Ryan Elliott, P.E.</p>

I. Environmental Report (ER) with Categorical Exclusion (CE)

Depending on the sources of funding, once the Preliminary Engineering Report (PER) has been completed and the potential environmental impacts have been determined, projects may have no additional environmental requirements other than obtaining appropriate permits. However, if the project is being funded by the USDA Rural Development Community Facility Programs, an Environmental Report must be completed. Depending on the outcome of the Environmental Report, either a Categorical Exclusion (CE) will need to be completed or an Environmental Assessment (EA) or Environmental Impact Statement (EIS) will be required. Projects funded through the State Revolving Fund Loan Program, the Treasure State Endowment Program, or the Community Development Block Grant Program also require a Categorical Exclusion or an Environmental Assessment before construction can be authorized. Contact the funding agencies involved for details.

The USDA RD program has a guide available to assist you in preparing the Environmental Report. See Guide to Applicants for Preparing Environmental Reports for Categorical Exclusions under § 1970.54 RD Instruction 1970-B, Exhibit C, FINAL RULE 81 FR 11000 Published March 2, 2016 with an Effective Date April 1, 2016. The Guide can be obtained by contacting the RD program staff, or at the following Internet address:

<https://www.rd.usda.gov/files/1970b.pdf>

RD Instruction 1970-B, Exhibit C provides specific guidance for preparing the ER including the format and information required; the environmental issues that must be considered during the proposed project's planning and design activities; the sources for locating the required information; and the documentation required to determine that there are no extraordinary circumstances that require a higher level of review including an EA or an EIS.

II. Environmental Assessment with FONSI

Depending on the sources of funding, once the Preliminary Engineering Report (PER) has been completed and potential environmental impacts associated with the project have been identified, proposed projects may require an Environmental Assessment (EA). For projects that anticipate funding through the USDA Rural Development Community Facility Programs, the State Revolving Fund Loan Programs, the Treasure State Endowment Program, or the Community Development Block Grant Program, an EA must be completed if the environmental review identifies potential environmental impacts beyond those qualifying for a Categorical Exclusion. Depending on the findings of the EA, either a Finding of No Significant Impact (FONSI) must be published or an Environmental Impact Statement (EIS) prepared. Assuming the EA determines there are no significant environmental impacts, the funding agency will prepare the FONSI and direct the applicant to publish it. The following chart provides specific program requirements for publishing the FONSI.

	CDBG	DNRC	RD	SRF	TSEP
Notice of Availability of EA	Contact CDBG staff	Not Required	Publish once; 30-day comment period required*	Not Required	Contact TSEP Staff
Notice of FONSI	Contact CDBG staff	Provide copy of FONSI.	Publish once; no comment period required	Publish once; 30-day comment period required	Contact TSEP Staff

*RD requires a Notice of Availability of the Environmental Assessment to be published once, which allows for a 30-day comment period prior to publishing the FONSI.

If two or more agencies provide funding for a project, a combined publication notice may possibly be used to satisfy the requirements of all agencies. Check with the applicable agencies to determine if a combined publication notice is possible.

ENVIRONMENTAL NARRATIVE

- I. Provide a narrative evaluation of the potential adverse environmental impacts for all project alternatives, including the preferred alternative. Environmental analysis of each alternative does not have to be as detailed as the analysis for the preferred alternative. Use the checklist on the following pages as a guide in your consideration of environmental impacts.**

There were two primary focus areas investigated for the project, condition of the dam face concrete and stability of the dam during the probable maximum flood (PMF).

Three alternatives were initially explored to address the condition of the concrete and stability of the dam during the PMF Event:

1. Concrete parapet replacement and installation of post tensioned anchors.
2. Concrete parapet replacement, full structural concrete overlay over the concrete face and installation of post tensioned anchors.
3. Fully removing the 13' deep mass concrete cap to the masonry interface and installation of structural anchorage to the masonry dam.

To ensure long-term stability and operation of the dam within the allowable budget it is in the best interest of BSB to complete Alternative 2 above.

The environmental review found no adverse impacts for any of the project alternatives, including the preferred alternatives. Several benefits to resources were summarized in the review. Failure (or damage) to the dam would not only impact the public water supply but could also damage homes, public roads, and pose a threat to life. The proposed project will provide a long-term positive benefit to public health and safety for the area.

2. Describe and document the environmental resources of the area affected. Include any environmental assessments or analyses previously completed in addition to the completed environmental checklist.

The dam was originally completed as water storage for the City of Butte in the late 1800's. Incidentally, it provides flood prevention, downstream irrigation water, and fish and wildlife resources. Residential housing and developmental growth have substantially increased in areas downstream of the project area (within the dam failure inundation area), increasing the potential for loss of life or property if the dam were to fail.

Contract documents will require contractors to follow the requirements of any necessary permits issued to perform the work. Contract documents for construction will require contractors to follow the requirements of the permits, any specified construction window, necessary utility location, and adhere to Best Management Practices (BMP's) during construction to protect natural aquatic resources.

The Montana DEQ requires an asbestos inspection be performed by an accredited inspector prior to component demolition/removal. The MDEQ may exercise its right to waive the asbestos inspection requirement depending on the type of structure and its components.

During the design phase, if deemed necessary by the Corps of Engineers, a wetland delineation may be performed in order to map potential wetland impacts.

During the design phase, it may be necessary to complete an inventory for Whitebark Pine at the project site.

During the design phase, if deemed necessary by the lead federal agency, an independent consultant will perform a historic recordation of the Basin Creek Dam.

3. Identify the sources consulted for the completion of the environmental evaluation. Sources may include studies, plans, documents, or the persons, organizations, or agencies contacted for assistance.

Agencies Contacted for Consultation Included:

- City-County of Butte - Silver Bow Floodplain Administrator
- City-County of Butte - Silver Bow Planner
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Montana Department of Environmental Quality
- Montana Department of Natural Resources and Conservation
- Montana Fish, Wildlife & Parks
- Montana Natural Habitat Program
- Montana Sage Grouse Habitat Conservation Program
- State Historic Preservation Office (SHPO)
- U.S. Forest Service

Additional sources included:

Montana Department of Environmental Quality, 2020-a. Air Quality Nonattainment Information. <http://deq.mt.gov/Air/2017Air/Standards/airnonattainment>

Montana Department of Environmental Quality, 2020-b. Interactive web mapping application. <http://svc.mt.gov/deq/wmadst/default.aspx?type=SWP>

Montana State Library, 2020. Montana Cadastral. <http://svc.mt.gov/msl/mtcadastral/>

State of Montana, 2020. Montana Sage Grouse Habitat Conservation Map. <https://sagegrouse.mt.gov/ProgramMap>

US Department of Agriculture, Natural Resources Conservation Service, 2020. Soil Resource Report. <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

US Department of Homeland Security, Federal Emergency Management Agency, 2020. FEMA Flood Map Service Center. <https://msc.fema.gov/portal/search>

US Fish and Wildlife Service, 2020. National Wetlands Inventory, Wetlands Mapper. <https://www.fws.gov/wetlands/data/mapper.html>

Appendices (Refer to PER Appendices)

- Copies of Mailed Comment Letters
- Received Comments
- Other Environmental Information