Appendix A:
Best Management Practices Common to All Projects

Implementation of BMPs listed below is required for all projects, unless a qualified individual has determined that the species or habitat is not present within the project area, including materials and waste areas, OR project actions will have *no effect* to species or habitat.

All work will be performed in strict compliance with all applicable Federal, State and local laws, codes, rules and regulations and ITD's Standard Drawings and Standard and Supplemental Specifications. If inconsistencies are discovered in the contract's documents, the most restrictive requirement will be followed.

The BMPs are organized by the following categories:

- Stormwater Controls
- Species Specific BMPs (Including: Personnel Qualifications, and Survey Protocols)

Stormwater Controls

All projects require either a Pollution Prevention Plan (PPP) or Stormwater Pollution Prevention Plan (SWPPP) and will include the BMP's listed below. A designated environmental monitor will visit the site at least weekly to examine the application and efficacy of the effects-minimization measures.

Water quality BMPs for in-water work are included in Appendix D - Best Management Practices for Work Below the Ordinary High-Water Mark (OHWM).

Erosion and Sediment Controls

- All Stormwater BMPs will be installed and maintained in accordance with ITD's Stormwater Best Management Practices Manual and IDEQ Idaho Catalog of Stormwater Best Management Practices.

- All temporary BMPs installed on the project will be identified on ITD's Qualified Products List (QPL) as "Biodegradable" unless a biodegradable option is unavailable.

- Sandbags will be canvas or other approved non-synthetic material capable of decomposing under ambient soil conditions into carbon dioxide, water, and other naturally occurring materials within a period relevant to the product's expected service life.

- Perimeter control BMPs will be installed prior to any ground disturbing activities to prevent sediment from entering waterways.

- Stormwater Plan Sheets will include the following:
  - Temporary and permanent BMPs
  - Location of on-site staging areas, off-site material, waste, borrow or equipment storage or staging areas
  - Location of all hazardous materials storage areas
  - Location of spill kits
  - Identification of any industrial stormwater discharges other than from project construction
  - Waters of the United States, including wetlands
  - Storm sewer inlets

Pollution Prevention – Good Housekeeping Standards

- Identify Hazardous or Toxic Waste or other Pollutants of Concern and BMPs used to treat pollutants of concern. Examples includes: paints, solvents, petroleum-based products, wood preservatives, additives, curing compounds and acids.

- Provide spill response and cleanup kits on all projects and ensure all appropriate staff are aware of their locations.

- All ITD projects shall follow the Idaho Hazardous Materials/WMD Incident Command and Response Support Plan and ITD Incident Management Plan. In addition, a project specific Spill Plan shall be provided by the Contractor and should be included in the SWPPP.

- To the greatest extent possible, all staging, fueling and storage areas will be located away from and adequately buffered from aquatic areas.

- During CRABS operations, the Contractor will ensure that quick lime (CaO) or pulverized CRABS material does not enter any adjacent waterways or wetlands.

- When not in use, construction equipment will be stored away from concentrated flows of stormwater, drainage courses, inlets and bridge drains.

- Park equipment over plastic sheeting or equivalent where possible. Plastic is not a substitute for drip pans or absorbent pads.

- Equipment shall not have damaged hoses, fittings, lines, or tanks that have the potential to release pollutants into any waterway.

Species Specific BMPs, Personnel Qualifications, and Survey Protocols*

*Salmonid BMPs, Personnel Qualification and Protocols are in Appendix D - Work Below the OHWM.

General BMPs

- If adverse effects are unavoidable for those species with NLAA determinations, the action is not covered under the PBA and formal Section 7 consultation will be required.

- When activities take place in suitable habitat, species surveys will be conducted by a qualified biologist/botanist. Surveys will be conducted as described in the "Determination of Effects" section of the PBA for reach respective species or as otherwise described in this Appendix. For Monarch butterfly, surveys for milkweed and flowering nectar sources will be conducted. Surveys will include staging areas, material sources and waste sites.

- To ensure BMPs are being implemented as described, a biologist/botanist will be present during project activities that have the potential to adversely affect listed species or their habitats. ITD/LHTAC and the Services will determine which activities will require monitoring. These activities will be documented on the project Pre-notification form.

- Occurrences or suitable habitat locations within the project's limits will be documented on the project Pre-notification form. If surveys are conducted after contract has been awarded, occurrences or suitable habitat will be documented on the Construction Monitoring form.

- Areas with known listed plants or suitable habitat will be marked on the ground with stakes and flagging to ensure these areas are avoided for equipment staging and project activities.

Grizzly Bear

- Where possible, identify and implement opportunities to accommodate grizzly bear connectivity on all projects, including when installing new culverts or constructing new bridges.

- Document known resident and transient grizzly bears on the project Pre-notification form.

- Communicate with USFWS/IDFG or adjacent landowners of grizzly bear activity in the area and notify USFWS and IDFG if a grizzly bear enters the project area.

- Food, garbage, carcasses, and other attractants must be stored in bear-resistant containers or removed from the project area daily.

- For all projects that occur within or adjacent to U.S. Forest Service administered lands, discuss with the Forest Service appropriate conservation measure to minimize impacts to grizzly bears during project construction activities.

- All work will be conducted during daylight hours only.

- Limit number of trips by vehicle in grizzly bear habitat to only what is necessary to complete work.

Canada Lynx

- Where possible, identify and implement opportunities to accommodate Canada lynx connectivity on all projects, including when installing new culverts or constructing new bridges.

- Document known resident and transient lynx on the project Pre-notification form.

- Road improvements that may increase traffic speed or volume in lynx habitat will be evaluated and documented on the project Pre-notification form.

- When activities take place in suitable Canada Lynx habitat, coordinate with USFWS to avoid or minimize reduction of snowshoe hare habitat. Avoidance/minimization measures will be documented on the project Pre-notification form.

Idaho Ground Squirrel

- At locations determined to be occupied, no ground disturbing activities will be allowed after pups have emerged and before adults retreat below ground to hibernate. This window occurs early June through first week of July at lower elevations and is adjusted accordingly for higher elevations.

- Conduct clearance surveys to designate parking and staging areas. At locations determined to be occupied by the Northern Idaho ground squirrel, restrict indiscriminate parking of vehicles and heavy machinery.

- Minimize the destruction of plant communities important for the conservation of the NIDGS. Coordinate with USFWS to determine if important plant communities are present in the project area.

- Where revegetation of areas disturbed by project actions is required, use native plants important for NIDGS forage. Coordinate with USFWS to determine desirable native plant species.

- Based on the results of pre-project surveys and monitoring, adjust project actions to avoid impacts to NIDGS. Examples of appropriate adjustments include stopping construction work if NIDGS are present during their above ground period (April through early August), restricting work to daylight hours only, or delineating NIDGS burrow systems to ensure that ground disturbing work does not occur in their vicinity.

  Personnel Qualifications

  Surveys shall be conducted by individuals with knowledge of the life history and ecology of the species.

  Survey Protocols

  - Prior to conducting surveys, coordinate with USFWS to ensure the most current protocols are followed.

  - Reviewing vegetation and soil maps should be used in assisting persons to focus their surveys efforts for the species. However, this should not be a means by which to disqualify an area without substantial field verification/surveys to locate squirrels.

  - Surveys shall be conducted at the time of year when the species is active and there is the greatest opportunity for positive identification. In some instances, a survey may incorporate a live-trapping component because the species may be present in very low densities over a large area. (captured individuals should have hair clipped from the dorsal portion of the rump and saved as a voucher specimen for future verification).

  - Surveys conducted before the species emergence in spring or after all above ground activities have ceased in late summer may not be considered sufficient. The exception would be where the individual conducting the survey has a demonstrated proficiency in burrow identification and other NIDGS sign identification.

  - Surveys shall be conducted by walking or otherwise closely scrutinizing potential habitat looking for diagnostic sign such as burrows, scat, tracks, feeding residue, and other signs.

  - Known populations range in size from 1-100 squirrels. Because of their low densities, squirrels may not be seen during a “quick” one-time only survey. Therefore, several visits may be necessary.

  - Any new sites shall be marked with GPS at the locations they were detected and immediately reported to the IDFG NIDGS Coordinator and USFWS (IFWO).

Yellow-billed cuckoo

Personnel Qualifications

Individuals conducting surveys for Yellow-billed cuckoo must have verifiable experience in the design and implementation of ornithological research, including conducting surveys at a minimum of 5 different sites for a minimum of 40 hours, identifying the species in the field under the supervision of a USFWS 10(a)1(A) permitted yellow-billed cuckoo biologist, during which time at least 5 yellow-billed cuckoo adults were positively identified. An individual site is defined as a distinct 1-2 mi segment of an individual river system. Different river systems may be counted towards the qualification. Experience conducting surveys of the Eastern DPS of the yellow-billed cuckoo or similar Cuculid species (e.g. mangrove cuckoo or black-billed cuckoo) under the supervision of a species expert may count towards partial fulfillment of this qualification, as described in: U.S. Fish and Wildlife Service (USFWS). 2015. Minimum Qualification Guidelines: Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*). U.S. Fish and Wildlife Service: Region 8, Sacramento, California. 2 pp. Yellow-billed Cuckoo Minimum Qualifications (fws.gov)

Survey Protocols

For conducting presence/absence surveys for the Yellow-billed cuckoo, follow the protocols as described in: Halterman, M., M.J. Johnson, J.A. Holmes and S.A. Laymon. 2015. A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo: U.S. Fish and Wildlife Techniques and Methods. 45 pp. Yellow-billed Cuckoo Survey Protocol Final Draft (fws.gov)

Spalding Catchfly, Macfarlane's four-o'clock, Ute Ladies' tresses, Slickspot peppergrass, Whitebark pine (Candidate)

Personnel Qualifications

Individuals conducting surveys for listed plants must have: (1) knowledge of plant taxonomy and natural community ecology, (2) familiarity with natural communities of Idaho, including sensitive natural communities, (3) experience conducting presence/absence surveys for the plant species covered in this document, (4) experience analyzing the impacts of projects on the plant species covered in the PBA, as described in: California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. March 20, 2018. 12 pp. Plant Survey and Monitoring Protocols and Guidelines (ca.gov)

Survey Protocols

For conducting presence/absence surveys for plants covered in this document, follow the protocols as described in: California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. March 20, 2018. 12 pp. Plant Survey and Monitoring Protocols and Guidelines (ca.gov)

Monarch butterfly

Personnel Qualifications

When ground disturbing activities take place in Monarch butterfly suitable habitat, milkweed and flowering nectar plant surveys will be conducted by a qualified botanist. Botanist qualifications are described above for all plant species.

Survey Protocols

See Survey Protocols for plant species.

Appendix B:
Best Management Practices for Ground Disturbing Activities

The BMPs are organized by the following categories:

- General Ground Disturbing BMPs
- Blasting

General BMPs for Ground Disturbing Activities

- Ground disturbing activities are prohibited during precipitation events or when precipitation events are imminent. Precipitation events include any rain or snow accumulations that have potential to discharge to waterways or wetlands.
- Preserve native vegetation and plant communities when practicable to serve as natural erosion controls.
- All erodible material (temporary or permanent stockpiles) will be located outside of the 100-year floodplain or greater than 300 feet from fish-bearing streams.
- Finished slopes must be stabilized as soon as practical to prevent sediment from entering waterways.
- If shrub removal is required, it will be done in such a way that the root mass is left in place for stabilization purposes.
- Disturbed areas within riparian zones will be reclaimed with riparian vegetation similar to existing native plant communities.
- Do not locate construction staging areas, waste areas, etc. where significant adverse impact on existing vegetation may occur.
- Clearly flag, or fence vegetation buffer zones to protect riparian corridors and natural drainage paths.
- To preserve riparian areas, minimize the number and width of stream crossings and cross at direct rather than oblique angles.

Blasting

- The Contractor must submit a blasting plan to the Engineer for approval and will include: type and height of rock fall barriers, drilling and blasting patterns, timing and duration and anticipated noise effects.
- Rock and debris will be prevented from reaching adjacent waterways.
- Blasting is prohibited underwater.

Appendix C:
Best Management Practices for Work Adjacent to Aquatic Systems *Above* the Ordinary High-Water Mark (OHWM)

The following BMPs are required when working adjacent to waterways where ESA species or habitat is present.

General BMPs for Work Above the OHWM

- Bridge rehabilitation activities are prohibited during precipitation events or when precipitation events are imminent.

- During deck work all bridge drains and joints will be sealed to minimize the potential for introducing residual materials to the aquatic system.

- In order to minimize the potential for introducing bridge debris (e.g., dirt, concrete, etc.) to the aquatic system, measures will be taken to minimize the potential for debris to fall into the river channel while repairing the tops of piers. Measures may include the construction of a platform below the top of the pier or the use of a temporary work bridge (barge) anchored under the pier site.

- Use potable water for hydro-demolition activities, when feasible. However, when necessary, water may be pumped from other sources if the following conditions are met: (1) The source does not exceed IDEQ water quality thresholds for turbidity, pH or other chemicals that are toxic to aquatic organisms; (2) The Contractor obtains required permits from IDWR; and (3) Minimum stream flows recommended by IDFG are not exceeded.

- When pumping water from local sources for project actions, ensure that (1) NMFS screening criteria are met (NMFS 2011, or the most recent version); (2) redds of listed species and staging or spawning adults will not be disturbed; and (3) pumping maintains 80% or more of average streamflow in affected streams. NMFS approval is required for pumping that exceeds 3 cfs. NMFS. 2011. Anadromous Salmonid Passage Facility Design. National Marine Fisheries Service, Northwest Region, Portland, Oregon. Anadromous Salmonid Passage Facility Design (noaa.gov)

- Runoff water and residual material from hydro-demolition or any other bridge maintenance activities that have the potential to generate waste water or residual material will be collected using a vacuum and disposed of off-site in an approved location.

- In order to minimize the potential for direct impacts to listed fish, all work will be completed from the existing bridge; no equipment or heavy machinery will enter the river channel.

Appendix D:
Best Management Practices for Work Below the Ordinary High-Water Mark (OHWM)

The following BMPs are required when working *within* waterways where ESA-listed species or their habitat is present.

The BMPs are organized by the following categories:

- General BMPs for Work Below the OHWM
- Bridge Demolition
- Pile Installation
- Barges and Boats
- Water Quality/Quantity Treatment
- Personnel Qualifications and Protocols for Fish Handling

General BMPs for Work Below the OHWM

- Work below ordinary high water of a stream or in a wetland will require consultation with the COE, IDWR, and IDEQ at a minimum. Work below the ordinary high-water mark of a stream or within wetlands will require coordination with COE, EPA, IDWR, IDEQ, and respective Tribes when work is within Reservation lands or affects ESA-related tribal trust resources.

- Where possible, identify and implement opportunities to accommodate wildlife (aquatic and terrestrial) when installing new culverts or constructing new bridges.

- When extending or replacing a culvert in a perennial stream, fish passage will be constructed into the project, if regulatory agencies (USFWS, NMFS and IDFG) deem it appropriate. Fish passage will be designed as described in: National Marine Fisheries Service (NMFS). 2011 (or the most recent version). Anadromous Salmonid Passage Facility Design. National Marine Fisheries Service, Northwest Region, Portland, Oregon. Anadromous Salmonid Passage Facility Design (noaa.gov)

- Culvert liners shall not be used in streams with ESA-listed fish species.

- All work below the OHWM will take place during low flow conditions, unless otherwise infeasible.

- To minimize in-water noise (e.g. pile cleaning) the Contractor will be required to use the smallest size and lowest impact, hand-held equipment necessary to perform the work.

- When pumping water from local sources for project actions, ensure that (1) NMFS screening criteria are met (NMFS 2011, or the most recent version); (2) redds of listed species and staging or spawning adults will not be disturbed; and (3) pumping maintains 80% or more of average streamflow in affected streams. NMFS approval is required for pumping that exceeds 3 cfs. NMFS. 2011. Anadromous Salmonid Passage Facility Design. National Marine Fisheries Service, Northwest Region, Portland, Oregon. Anadromous Salmonid Passage Facility Design (noaa.gov)

- If riprap is required, bio-methods should be considered before hard armoring methods (riprap, gabion or MSE wall).

- Riprap will be placed in a manner that will not further constrict the stream channel.

Bridge Demolition

- No machinery or implements will enter the live stream. Temporary cofferdams will be constructed, if necessary, to dewater existing pier sites during pier removal.

- If a stinger is chosen to remove pier, a sandbag barrier, or similar barrier, would be placed between the pier and live water to catch any debris before it would potentially fall into live water.

- If a wet-blade concrete saw is chosen, a catch basin would be constructed at the site to collect cutting water/slurry. A shop vacuum would be used to collect the slurry for off-site disposal.

- If a dry-blade concrete saw is chosen, an enclosed containment structure would be constructed around the site to trap airborne dust particles, and a shop vacuum or other device would be used to collect the dust for off-site disposal.

Pile Installation

- Impact hammer pile driving will only be allowed within a cofferdam area and not in free-flowing water.

- Pneumatic vibratory pile drivers will be required when sheet pile is used to isolate the work area.

- To minimize sound pressure effects from pile driving, pile locations will be predrilled, unless infeasible.

- Pneumatic vibratory hammers will be used to install piles, unless impact hammer pile drivers are necessary due to substrate or load bearing determinations.

- Water will be pumped from the cofferdam to allow pile driving to occur only in dry conditions. Pumped water will be filtered through settling basins or otherwise treated for sediment and pollutants before returning to the river.

- Impact hammer pile driving will only occur during daylight hours. No impact hammer pile driving activities will occur for at least 12-hours within each 24-hour period giving migratory fish the opportunity to move through the project area without being subjected to impact pile driving noise. The 12-hour period will correspond to the early evening, night-time, and early morning hours when anadromous fish and bull trout generally move through the project area.

- Pile installation proposed in live streams outside of temporary cofferdams is not covered by this PBA and will require a full Biological Assessment.

Barges and Boats

- Barges will be lined or have a lip to contain spills. They will be outfitted with spill containment kits to contain 125 percent of the volume of materials aboard.

- Barges/boats shall be completely fueled upon arrival. If it is necessary to refuel the boats/barges in the water, absorbent pads, socks, floatation booms, or similar BMPs will be available to contain spills in the water.

- Hazardous materials will not be stored on the barge overnight but will be transported and stored at off site or in areas where adequate buffer spaces exist to prevent impacts to ESA listed species or their habitats.

- Both the barge and any boats shall have invasive species permits and will have been inspected by Idaho Department of Agriculture before use.

Water Quality/Quantity Treatment and Monitoring:

- Turbidity monitoring will be required for all in-water work that has potential to discharge harmful levels of sediment or pollutants. Water quality samples will be collected and NTU measurements will be included on the Project Construction Monitoring form.

- Identify all contributing and non-contributing impervious areas that are within and contiguous with the project area and explain how runoff from contributing impervious areas will be managed.

- Use permanent stormwater flow control and treatment BMPs to infiltrate, retain, or detain runoff to the maximum extent practicable. Permanent stormwater controls must be sufficient to retain the runoff volume produced from a 24-hour, 95th percentile storm event, or can attain an equal or greater level of water quality benefits as onsite retention from a 24-hour, 95th percentile storm event. Additionally, when it is necessary to discharge ***treated*** stormwater directly into surface water or a wetland, the following requirements apply:

    - Apply one or more primary treatment practices found in the ITD BMP Manual, Chapter 5.

    - Maintain natural drainage patterns to the maximum extent practicable.

    - To the maximum extent practicable, ensure that water quality treatment for contributing impervious area runoff is completed before commingling with offsite runoff for conveyance.

    - Prevent erosion of the flow path from the project to the receiving water and, if necessary, provide a discharge facility made entirely of manufactured elements (e.g., pipes, ditches, discharge facility protection) that extends at least to the OHWM.

Monitoring:

Both turbidity and pH monitoring will be required for all in-water work where there is potential to discharge harmful levels of sediment or pH elevating pollutants and ESA listed species are present. Both monitors will be placed at the same locations. Turbidity and pH measurements will be taken simultaneously. Measurements will be taken 100 feet above and below discharge points, or as

directed by appropriate resource agency or ITD personnel. For quality control purposes, spare turbidity and pH monitoring equipment will be stored onsite.

Turbidity:

Monitors will be placed upstream of the project area, and downstream of the project area at distances specified by the appropriate resource agency or ITD. Idaho surface water quality criteria for aquatic life use designations require that below an applicable mixing zone, turbidity shall not exceed background turbidity by more than 50 NTU instantaneously or more than 25 NTU for more than 10 consecutive days. If turbidity exceeds these thresholds, construction shall cease until levels return to below 25 NTU.

pH:

Monitors will be placed upstream of the project area, within the turbidity curtain and downstream of the project area at distances specified by the appropriate resource agency or ITD. As per IDAPA Idaho Code 58.01.02.250.01.a - Surface Water Quality Criteria for Aquatic Life Use Designations, the pH values for surface waters must remain between 6.5 and 9.0. For any pH values over 9.0, construction shall be ceased until pH levels return to values less than 9.0.

Daily reports will be compiled and included with the project Construction Monitoring form. Reports will include the following minimum information:

- Current construction activity
- Brief weather conditions (precipitation if any)
- Sampling location
- Date
- Time
- Turbidity results in NTUs
- pH values

Personnel Qualifications and Protocols for Work Area Isolation and Fish Handling

Personnel Qualifications

All individuals participating in fish capture and removal operations will have the training, knowledge, skills, and ability to ensure safe handling of fish, and to ensure the safety of staff conducting the operations. If electrofishing is proposed as a means of fish capture, the directing biologist will have a minimum of 100 hours electrofishing experience in the field using similar equipment, and any individuals operating electrofishing equipment will have a minimum of 40 hours electrofishing experience under direct supervision, as described in: U.S. Fish and Wildlife Service (USFWS). 2012. Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, Washington. June 19, 2012. Fish Exclusion, Capture, Handling and Electroshocking Protocols (fws.gov).

A Scientific Collecting Permit issued by IDFG is required to handle captured fish.

Protocols for Work Area Isolation and Fish Handling

- When appropriate, ITD will contact the NMFS and USFWS to determine if fish removal is necessary.

- Instream work windows established by NMFS and USFWS will be used during project construction (see PBA Appendix F for work windows). The work window will be documented under the construction timeframe identified on the project Pre-notification form. For specific questions on work windows, contact NMFS (salmon and steelhead) or USFWS (bull trout and Kootenai River white sturgeon).

- Isolate any work area within the wetted channel from the active stream whenever listed fish are reasonably certain to be present, or if the work area is less than 300 feet upstream from known spawning habitats. Work area isolation may not always be necessary or practical in certain settings (e.g., dry seasonal streambeds).

- Methods to isolate work may include: aqua-barriers, sandbags, concrete barriers or culverts placed within the active channel. These structures will either divert water to a portion of the channel away from active construction or dam the channel and completely dewater the work area in order to pass all the water through the work site in a culvert or by pump. All in-stream structures will be temporary and shall be removed once construction is complete.

- Remove fish from an exclusion area as it is dewatered with methods such as hand or dip-nets, seining, trapping with minnow traps (or gee-minnow traps) or electro-fishing. When electro-fishing follow guidelines as described in National Marine Fisheries Service (NMFS). 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. Portland, OR. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act (noaa.gov)

- Methods to isolate, capture, and move/relocate fish will follow protocols described in: U.S. Fish and Wildlife Service (USFWS). 2012. Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards. U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, Washington. June 19, 2012. Fish Exclusion, Capture, Handling and Electroshocking Protocols (fws.gov).