

provided. The FHWA and the WVDOH must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

REASONABLE AND PRUDENT MEASURES
and
TERMS AND CONDITIONS

The Service believes the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize incidental take of snuffbox, clubshell, northern riffleshell, pink mucket, and rayed bean mussels. In order to be exempt from the prohibitions of section 9 of the ESA, the FHWA and the WVDOH, any other action agency, applicant or agent, must comply with the following terms and conditions which implement the RPMs and outline reporting/monitoring requirements. These terms and conditions are non-discretionary. Each RPM is listed in italics, followed by numbered terms and conditions that implement each RPM.

RPM 1: Minimize direct impacts to mussel populations through mussel relocation and conduct monitoring to track incidental take.

- 1.1 Prior to any in-stream activities, the project impact area shall be searched for freshwater mussels and all native mussels found shall be relocated as outlined in Mussel Salvage and Monitoring Plan in Attachment E of the BA Errata. Personnel conducting the salvage and holding of endangered mussels shall obtain a State Collecting Permit from the WVDNR. The Service's West Virginia Field Office (WVFO) shall be notified two weeks prior to beginning salvage operations.
- 1.2 A report documenting the salvage effort shall be prepared and submitted to the Service's WVFO and the WVDNR within eight weeks of completion of the salvage. The report shall include an introduction, methods section, results section, conclusion and/or summary, and any relevant supplementary information (e.g., names and qualifications of surveyors). The methods section shall detail protocols used for surveying, handling, and transporting mussels. The results section shall include the total number of individuals of each mussel species collected, date collected, water and air temperatures, river stage, total number of live and dead of each endangered mussel species collected, condition, size and approximate age of live clubshell and snuffbox, data regarding non-endangered mussels, and maps or figures showing the salvage area relative to project features (work pads, old bridge, etc.).
- 1.3 The FHWA and WVDOH shall monitor and report the direct mortality of mussels resulting from the implementation of this project. They shall notify the Service's Office of Law Enforcement in Elkins, WV, within 24 hours should any endangered or threatened species be found dead or injured as a direct or indirect result of the implementation of this project. This notification shall include the date, time, and location of the carcass, and any other pertinent information. Snuffbox, clubshell, northern riffleshell, pink mucket, or rayed bean mussel that are accidentally killed, or that are moribund or freshly-dead and contain soft tissues, shall be preserved according to standard museum practices, properly identified or indexed (date of collection, complete

scientific and common name, latitude and longitude of collection site, and description of collection site), and submitted to WVDNR for deposition.

- 1.4 The FHWA and WVDOH shall monitor and report the survival of relocated mussels as stated in the Mussel Salvage and Monitoring Plan shown in Attachment E of the BA Errata. These monitoring efforts will take place one year, three years, and five years post-construction. Copies of yearly reports shall be provided to the Service's WVFO and WVDNR by December 31 of the year the monitoring is completed.

RPM 2: Minimize direct adverse impacts to mussel populations through reducing the project footprint and in-stream activities.

- 2.1 The project will be constructed as described in the BA and the BA errata and analyzed in this BO with direct in-stream adverse impacts not to exceed 11,140 square feet.
- 2.2 Any in-stream work conducted in association with this project shall take place outside of fish spawning period of April 1 – June 30.
- 2.3 The new bridge shall be demolished and dismantled through use of the new bridge structure to avoid additional in-stream adverse impacts.
- 2.4 The FHWA and the WVDOH or their contractors shall not place additional fill in the river and shall not allow equipment to enter the river beyond what has been described above.

RPM 3: Conduct habitat and depth monitoring to assess any adverse impacts to the riverbed.

- 3.1 At least 60 days prior to initiating any construction activities, the FHWA and the WVDOH shall develop a habitat monitoring plan to assess the adverse impacts of this project. The survey area of the monitoring plan shall be sufficient to assess the extent of upstream and downstream effects resulting from the project. The plan shall be submitted to the Service for review and concurrence.
- 3.2 The FHWA and the WVDOH or their contractors shall conduct habitat and depth monitoring in accordance with the Service approved plan within one year prior to construction.
- 3.3 The FHWA and the WVDOH shall provide the WVFO and the WVDNR with habitat monitoring reports one year, three years, and five years following construction. Copies of the reports shall be provided by December 31 of the year that the monitoring is completed.
- 3.4 At the end of the habitat monitoring, the FHWA and the WVDOH shall provide the WVFO and the WVDNR with a written final report describing the cumulative effects of

this project on the stream-bed habitat the Elk River, and the ability of the site to recover post-construction.

RPM 4: Minimize direct and indirect adverse impacts to mussels by using best management practices for erosion and sedimentation.

- 4.1 The FHWA and the WVDOH or their contractors shall locate all staging areas for construction vehicles and equipment on appropriate work areas located away from any receiving waters of the Elk River and shall avoid adverse impacts to riparian vegetation.
- 4.2 No more than 590 feet of streambank on the left descending bank and 175 feet of streambank on the right descending bank shall be disturbed during construction.
- 4.3 The FHWA and the WVDOH or their contractors shall mulch and re-seed any disturbed areas within this project site with native vegetation to prevent erosion of these areas into the Elk River. In particular, they shall recontour riverbanks and stabilize the soils using native vegetation including live stakes to prevent erosion of these areas that includes native species at a density of 450 woody stems per acre upon initial planting.
- 4.4 An erosion and sedimentation control and maintenance plan shall be provided to the Service for review and concurrence prior to any ground disturbing activities take place. This plan shall include information on the types of controls to be used throughout the various phases of the project, a maintenance and monitoring schedule for the controls, and information on restoration measures for the site post-construction. At a minimum this plan shall include the following measures to ensure that streambank disturbance will be minimal, that erosion and sedimentation from streambank disturbances will be controlled and minimized, and that riparian habitat will be restored using native woody and herbaceous vegetation: installation of super silt fence and compost filter sock, use of sediment sumps, seeding and mulching of exposed soils within 24 hours, daily inspection and immediate repair of any control features found to be nonfunctioning or in disrepair, reinstallation of any devices that were removed in order to perform work during the day, development of an emergency plan that defines procedures and contacts for unexpected events such as a containment spill, and post-construction restoration/stabilization of stream banks with a permanent erosion control matting filled with a fiber bonded hydro mulch. Design drawings delineating areas to be seeded and areas where permanent erosion control matting shall be installed will be submitted to the Service for final approval prior to installation.

RPM 5: Minimize indirect adverse impacts to mussels by using best management practices for the control of invasive species.

- 5.1 The FHWA and the WVDOH or their contractors shall only use clean rock for the construction of the crane pads and shall remove these materials from the river following project completion.

- 5.2 The FHWA and the WVDOH or their contractors shall inspect all construction vehicles and equipment for the presence of invasive species and shall wash/clean this equipment using best management practices before use at the site

RPM 6: Minimize direct and indirect adverse impacts to mussels by using best management practices for protection of water quality at the site.

- 6.1 The FHWA and the WVDOH or their contractors shall only fuel and maintain vehicles or equipment within a containment site with adequate buffering (berms, vegetation, etc.) from any receiving waters of the Elk River.
- 6.2 The FHWA and the WVDOH or their contractors shall inspect construction vehicles and equipment used at the site on a daily basis for leaks of potentially toxic materials including fuels, lubricants, oils, etc. Any fluids found during these inspections shall be immediately contained in accordance with applicable regulations, and the equipment shall be repaired prior to further use on the site.
- 6.3 The FHWA and the WVDOH or their contractors shall store all potentially toxic substances (fuels, paints, solvents, lubricants, etc.) within a containment area with adequate buffering (berms, vegetation, distance, etc.) from any receiving waters of the Elk River.
- 6.4 The FHWA and the WVDOH or their contractors shall immediately report any unpermitted discharge of any potentially toxic substance to the Service and the WVDEP upon discovery.
- 6.5 While this project is in progress, the FHWA and the WVDOH or their contractors shall store construction debris and waste in a stockpile with adequate buffering capacity from any receiving waters of the Elk River. At the completion of this project, they shall permanently remove all bridge material and construction debris from the site.
- 6.6 While this project is in progress, the FHWA and the WVDOH or their contractors shall have an adequate spill containment kit present on site to meet all possibilities.

RPM 7: Minimize direct and indirect adverse impacts to mussels by informing potential construction companies of the presence of federally endangered species and the site and the requirements of this BO.

- 7.1 During the bidding process, FHWA and WVDOH shall notify all prospective project contractors of the presence of federally endangered species in the project area and the special provisions necessary to protect them, including the reasonable and prudent measures listed in this document. The successful contractor(s) shall be instructed on the importance of the natural resources in the project area and the need to ensure proper

implementation of the required erosion and sedimentation controls, invasive species prevention measures, and spill avoidance/remediation practices.

7.2 The FHWA and WVDOH shall include the following conditions (language) in all construction and demolition contracts awarded for project implementation:

- i. Federally endangered species are present in the action area and there is a risk of unauthorized take (ESA section 9 violation) if the attached Terms and Conditions of the Service's biological opinion are not closely followed.
- ii. Best Management Practices for erosion and sedimentation control shall be in place before, during, and after any work is conducted.
- iii. Contractors shall monitor the action area daily when the site is active and not stabilized, and within 48 hours following severe storms or ice flows when the site is inactive and/or otherwise stabilized, to ensure the erosion and sedimentation control and spill avoidance practices are implemented and effective. Immediate action shall be taken as soon possible to correct malfunctioning erosion and sedimentation control practices.

7.3 The FHWA and the WVDOH shall include a payment incentive/disincentive special provision within the contract documents to encourage contractors to limit the number of days of in-stream work.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

The Service has identified the following actions which, if undertaken by WVDOH and/or FHWA, would further the conservation and assist in the recovery of the snuffbox, clubshell, northern riffleshell, pink mucket and rayed bean mussels:

1. The Elk River is currently being targeted for population augmentation efforts using mussels salvaged from FHWA and Pennsylvania Division of Transportation bridge construction projects on the Allegheny River in Pennsylvania. This includes relocation of clubshell and northern riffleshell. The FHWA in conjunction with the WVDOH could provide additional staff to assist in these efforts.
2. Summarize results of post-construction habitat monitoring completed for previous projects. These results may be useful in future consultation documents to help describe anticipated effects to mussel habitat.