



FINDING OF NO SIGNIFICANT IMPACT

ROCK FALL MITIGATION

Oldtown, Maryland

The Chesapeake and Ohio Canal National Historical Park (the Park), an administrative unit of the National Park Service (NPS), prepared an Environmental Assessment (EA) to examine the environmental impacts associated with the proposed scaling actions (removal of loose rock from the face of a cliff) along a section of towpath (near mile post 155) in Oldtown, Maryland; just downstream from the Paw Paw Tunnel. The purpose of this proposal is to address immediate human health and safety concerns associated with an unstable rock face that lies adjacent to the towpath. The urgency of action was prompted by the submission of a geologic engineering report by Schnabel Engineering and presentation of the draft findings on May 31, 2017. Therein, the report indicated that *"Based on our site observations, analyses, and our understanding of historic accounts of previous slides, we believe there are significant risks of a similar rock slide/fall event in the future within the existing study area."* This area has been known to be prone to multiple landslides in the past, including 1968-69, 1977-79, 1982, 2007, 2012-13, and 2015. Various mitigation measures have been undertaken in the vicinity in the past including the installation of rock pins, catch nets, rock scaling, and material removal.

In response to the immediate threat of another rock fall, the Park closed this section of trail to all public uses, and created a bypass around the area. The 1.5 mile bypass trail is steep (elevation gain of over 400 feet) and generally not maintained for anything other than hikers. This isolated area also has no radio or cell phone reception in the event of an emergency.

To address this immediate problem, the Park is proposing to remove loose rock (known as scaling) from the face of the cliff, and then stabilize the remaining rock slope using a combination of pattern rock bolting, sub-surface drains, and concrete shear keys. During construction, rocks would be scaled using aerial man-lifts. Scaled material would fall into the canal prism, where it would be moved using an excavator. To reduce the risk of rocks falling onto the construction equipment, a temporary working platform would be constructed using the scaled material for the excavator to work from. This platform would allow for any falling rock to land in front of the equipment instead of on top of it. The working platform would be moved incrementally through the canal prism until project completion. Upon completion of the project, all of the scaled rock would be placed against the side of the canal prism. Removal of the scaled rock from the canal prism will be accomplished via a future NPS project. Line Item Construction funds have been requested to address excavation of scaled material, further slope stabilization, consideration of reduction of surface flow patterns (divert water from the rock slopes), alternate access routes, and full restoration of the impacted area.

The EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), the regulations of the Council on Environmental Quality (CEQ) for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and NPS Director's Order (DO) 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making*. The statements and conclusions reached in this finding of no significant impact (FONSI) are based on documentation and analysis provided in the EA and associated decision file. To the extent necessary, relevant sections of the EA are incorporated by reference below.

SELECTED ALTERNATIVE

Based on the analysis presented in the EA, NPS selected Alternative 2 – Emergency Slope Stabilization (p. 6) for implementation. The selected alternative will remove loose rock (known as scaling) from the face of the cliff, and then stabilize the remaining rock slope using a combination of pattern rock bolting,

sub-surface drains, and concrete shear keys. During construction, rocks would be scaled using aerial man-lifts. Scaled material would fall into the canal prism, where it would be moved using an excavator. To reduce the risk of rocks falling onto the construction equipment, a temporary working platform (approximately 16-feet by 22-feet by 3-feet high) would be constructed using the scaled material for the excavator to work from. This platform would allow for any falling rock to land in front of the equipment instead of on top of it. The working platform would be moved incrementally through the canal prism until project completion. Upon completion of the project, all of the scaled rock would be placed against the side of the canal prism. Removal of the scaled rock from the canal prism will be accomplished via a future NPS project. It is anticipated that during construction temporary impacts will be minimized to less than 5,000 square feet of the canal prism, with less than 400 square feet to the existing wetland fringe impacted. Water flow has already been impeded by a large rock slide in 2015 which encompassed the entire width of the canal prism just downstream of the current project. Since the scaled material is predominantly rock it is not anticipated that any blockages of water passing through the canal prism will be encountered. As a note, the final placement configuration for the scaled material will be up against the side of the canal prism, and will allow for water to drain past it until the line item construction project is funded. This pre-existing slide acts in the capacity of a natural filter berm. Suspected equipment used for this operation include (but not limited to); excavator, aerial lifts (x2), tracked dumper, and pick-up truck.

RATIONALE FOR DECISION

After considering other methods to respond to the immediate threat to visitor and park staff safety from a serious rock fall, the Park determined that scaling, as described above, was the best course of action. The overall condition of the cliff face was not conducive to the use of catch nets or for the exclusive installation of rock bolts.

MITIGATION MEASURES

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of cultural and natural resources, and the quality of the visitor experience, the following protective measures would be implemented as part of the selected alternative:

- The Park will fully document the sets of rope grooves within the project area. NPS documentation will include photography, scaled drawings, and GPS locations.
- The park will coordinate with the National Capital Regional office to update the status of the rope grooves in the List of Classified Structures and to move the file to an inactive database where it will remain archived.
- Park staff will brief construction scaling crews on the historic resources in the vicinity of the project area to ensure that crews avoid unnecessary impacts to resources, including the Paw Paw Tunnel, Canal Towpath, and Canal Prism.
- Scaled material temporarily stored in the canal will be distributed along the edge of the canal prism and will not be mounded above the height of the towpath in order to minimize impacts to the canal.
- Populations of sensitive species will be marked and flagged so vehicles and equipment traversing through the tunnel can avoid trampling them

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As documented in the EA, the selected alternative will have adverse impacts on visitor use and experience, historic resources, and vegetation and wildlife; however, the NPS has determined that the selected alternative can be implemented without significant adverse effects as defined in 40 CFR §1508.27.

Impacts to visitor use and experience will continue as current closure of the project area will continue until the safety concerns have been addressed, at which point in time the project area will reopen for visitors pending final safety/stability assessment by the geotechnical engineer. Scaled rock material will

be placed on the berm side of the canal prism, which may impact visitor experience by affecting the overall aesthetics of the area. As the wood planked boardwalk includes handrails, it is not likely that scaled material placed in the canal prism will present any safety concern for visitors. This Alternative may also present visual impacts to the visitor experience through the installation of rock pins and shear keys. These visual impacts may be minimal, as pins will be placed so the top of the pin will be level with the rock material and hidden from visitor view and shear keys will consist of concrete dyed to match the surrounding rock material. This action may also affect the experience of those visitors who come to this area of the park to enjoy natural history, particularly rare plant species. This area of the park provides easy access to view rare plant species along the cliff face, and as such, has been used for interpretive walks on the area's natural history. The scaling actions will likely affect these individual plants, and subsequently affect the experience of visitors coming to the park to view those individuals.

The selected action will also adversely impact historic properties by removing two sets of rope grooves associated with the historic use of the canal. An additional set of rope grooves (MM 155.15) sit directly outside the immediate area to be scaled and will also likely be impacted by the scaling operation. These rope grooves are listed on the List of Classified Structures (ID# 045634, structure ID# 155.15). To help mitigate these losses, the park will fully document the sets of rope grooves within the project area through photography, scaled drawings, and GPS locations. NPS will coordinate with the National Capital Regional office to remove the set of rope grooves listed on the List of Classified Structures. Park staff will brief construction scaling crews on the historic resources in the vicinity of the project area to ensure that crews avoid unnecessary impacts to resources, including the Paw Paw Tunnel, Canal Towpath, and Canal Prism. Scaled material temporarily stored in the canal will be distributed in the canal prism and will not be mounded above the height of the towpath in order to minimize impacts to the canal. The removal of the 1960s boardwalk in the project area (listed on the LCS) impacts a non-contributing resource to the C&O Canal NHP Historic District. The boardwalk has been repaired and modified extensively since its construction. The cultural landscape (not yet evaluated for National Register eligibility) would be modified minimally through rock scaling, but would be impacted by the removal of the towpath boardwalk and temporary storage of the scaled material in the canal prism.

Lastly, extant individuals of the two cliff face species may be lost during mechanical rock scaling. Impacts to these populations will be avoided as best as possible through marking and notification of the contractor, but a small portion of their current population may be destroyed during scaling. Despite likely impacts to these species, both are locally abundant and commonly found in similar habitats and are listed as vulnerable due to the paucity of these shale habitats throughout the state. Individuals of both species can be found on the opposing slope and north of the project area and may recolonize the project area over time. The population of the arrowhead species will be marked and flagged so vehicles and equipment traversing through the tunnel can avoid trampling it. Impacts will be minimized through the proper identification and demarcation of the population. Impacts to amphibian habitat will occur through the construction of the 16'x22' concrete pad from which scaling work will take place, and from the placement of scaled material against the berm side of the canal. Scaled material may extend up to 10 feet from the berm side into the canal prism. Scaled rock will eventually be removed and all habitat will be restored. Effects would be considered negative but temporary. Populations of extant amphibian species exist throughout the park and in adjacent habitats north of the project area.

Impacts of the NPS selected alternative on visitor use and experience; historic properties; and wildlife, vegetation, and special status species were identified. As described in the EA, cumulative impacts were determined by combining the impacts of the NPS selected alternative with other present and reasonably foreseeable future actions. Cumulative actions include past and future rock fall mitigation projects (scaling, pinning, and installation of catch nets) and the future removal of rock slide material from a previous rock slide in 2015. The impacts of the other present and reasonably foreseeable future actions on resources, in conjunction with the NPS selected alternative, will result in both beneficial and adverse cumulative impacts. The selected alternative will add to the impacts to visitor use and experience over the short-term, when the trails are closed during rock fall mitigation projects. However, over the long-term, these sections of trails will be safer, and less prone to closures due to rock falls. Cumulative adverse

impacts would also occur to both historic properties and wildlife, vegetation, and sensitive species, from both the loss of resources and habitat. Overall, due to the small project area, and relatively limited impacted resources, the NPS's selected alternative will not contribute to or result in significant cumulative impacts.

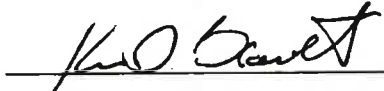
Overall, there will be no significant impacts on public health, public safety, or unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the NPS selected alternative will not violate any federal, state, or local environmental protection law.

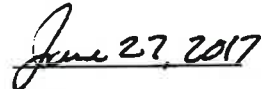
CONCLUSION

As described above, the selected alternative does not constitute an action meeting the criteria that normally requires preparation of an environmental impact statement (EIS). The selected alternative will not have a significant effect on the human environment in accordance with Section 102(2)(c) of NEPA.

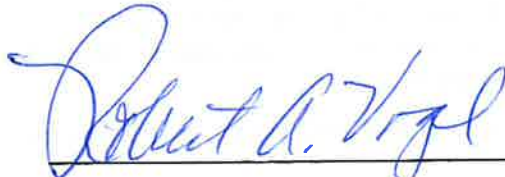
Based on the foregoing, it has been determined that an EIS is not required for this project and, thus, will not be prepared.

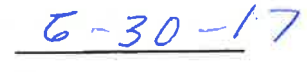
Recommended:


Kevin D. Brandt - Park Superintendent
Chesapeake and Ohio Canal National Historical Park
National Capital Region


Date

Approved:


Robert A. Vogel
Regional Director
National Capital Region


Date

ATTACHMENT 1: NON – IMPAIRMENT DETERMINATION

The NPS has determined that implementation of the selected alternative will not result in impairment of park resources and values of those National Park Units within the National Capital Region. Pursuant to the NPS Guidance for Non-Impairment Determinations and the NPS NEPA Process (October 31, 2011), a non-impairment determination for the selected alternative is included here as an appendix to the Finding of No Significant Impact.

The prohibition against impairment originates in the NPS Organic Act, which directs that the NPS shall:

promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

According to NPS *Management Policies 2006*, an action constitutes an impairment when its impact “will harm the integrity of park resources or values, including the opportunities that otherwise will be present for the enjoyment of those resources or values” (sec. 1.4.5). To determine impairment, the NPS must evaluate “the particular resources and values that will be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts” (sec. 1.4.5).

National Park System units vary based on their enabling legislation, natural and cultural resources present, and park missions. Likewise, the activities appropriate for each unit and for areas in each unit also vary. For example, an action appropriate in one unit could impair resources in another unit. As stated in the NPS *Management Policies 2006* (sec. 1.4.5), an impact on any park resource or value may constitute an impairment, but an impact will be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified in the park’s general management plan or other relevant NPS planning documents as being of significance

The resource impact topic carried forward and analyzed for the NPS selected alternative in the EA, and for which an impairment determination is contained in this appendix include historic properties and vegetation, wildlife, and special status species. The following describes these resources or values for which impairment is assessed and the reasons why impairment will not occur.

Historic Properties: There will be some unavoidable loss of historic bedrock rope grooves associated with canal operations along the towpath as a result of these scaling operations. This loss, however, will only affect a small percentage of the rope grooves found along the length of the Park. Also, before the scaling operations, Park staff will fully document these areas through photography and mapping. These rope grooves are situated on geological strata experiencing ongoing natural exfoliation, and thus are at an elevated potential of being lost due to these natural processes irrespective of the proposed scaling operations. The intent of these actions is to ensure the continued safety of park staff and visitors. The selected alternative does not run counter to the Park’s establishing legislation, nor would it inhibit opportunities to see and interpret rope grooves along different portion of the tow path.

Vegetation, Wildlife, and Special Status Species: There will be adverse impacts to vegetation, wildlife, and special status species as a result of the scaling operation. The scaling operation will result in disturbed habitat along the cliff face and within the canal prism, which may result in the loss of individual plant and animal species found within the project area. The impacts to the disturbed habitats will be short-

term and the loss of these individual species will not impact the overall viability of the populations of these species. As a result there will be no impairment to vegetation, wildlife, and special status species.

Summary

The NPS has determined that the implementation of the NPS selected alternative will not constitute an impairment of the resources or values of the National Park Units of the National Capital Region. As described above, adverse impacts anticipated as a result of implementing the selected alternative on a resource or value whose conservation is necessary to fulfill specific purposes identified in the establishing legislation or proclamation of these parks, key to their natural or cultural integrity or to opportunities for enjoyment, or identified as significant in relevant NPS planning documents, will not constitute impairment. This conclusion is based on consideration of the park's purpose and significance, a thorough analysis of the environmental impacts described in the EA, the comments provided by the public and others, and the professional judgment of the decision-maker guided by the direction of the NPS *Management Policies 2006*.

