



Memo To File

A. Project Information

Park Name: Everglades National Park

PEPC Project Number: 56562

Project Title: Surveys to Inform the Raulerson Canal Plug Design

Project Location:

County, State: Monroe, Florida

Project Leader: Amy Renshaw

B. Description of the Current Action (Project Description)

Everglades National Park (EVER) completed an Environmental Assessment in 2016 to evaluate the impacts of replacing the Raulerson Canal Plug. As part of that continuing effort, EVER has contracted HDR to complete a design and associated permitting for a plug in the Raulerson Canal. A geotechnical survey will be conducted by Bhate Geosciences Corporation and an elevation survey will be conducted by M.G. Vera and Associates at the site of the planned plug and in the Raulerson Canal to inform the design of the plug. These surveys will be conducted within the footprint that was evaluated by the EA.

Both teams will access the site by motorboat from Flamingo. M.G. Vera will have 4 personnel on site to complete the survey in 5 days (Figure 2). The survey crew will use GPS equipment, conventional optical levels, and a total station to collect topographic information. Bathymetry will be collected using a Seafloor Hydrolite DFX dual frequency echosounder mounted on a motorboat.

Bhate Geosciences will collect a total of 6 soil borings using a hand auger to refusal and a seismic geophysical survey will be conducted. The survey is expected to take 3 days using a 4-person crew. The borings will be 3.5 inches in diameter. Very soft soil conditions are expected at the site, to maintain an open borehole the hole will be temporarily cased with a 4" PVC pipe as the boring is advanced. Soil cuttings will be deposited adjacent to the boring, and soil samples will be retained in resealable plastic containers and transported to the laboratory for analysis. The PVC casing will be removed upon completion of the boring and the hole will be backfilled with the cuttings. A total of 5 benthic samples will also be collected in the Raulerson Canal downstream and at the location of the proposed plug using a ponar grab sampler.

A geophysical survey using seismic methods will also be conducted. There will be three transects on each side of the canal. A series of 4 geophones will be laid out parallel to the canal. Each geophone stake will be pushed approximately 3 inches into the ground. A steel plate will be placed near the geophone alignment and struck with a hammer. The geophones receive and log the seismic signal.

C. Description of Previous Compliance Documentation

Decision Document Name: Cape Sable Plugs Restoration Phase II Environmental Assessment

Decision Document PEPC ID: 56562

Decision Document Approval Date: 2016-09-13

All applicable mitigation measures (see below) from the Cape Sable Plugs Restoration Phase II Environmental Assessment will be carried over to this current action.

In addition to the mitigation measures below, the following project-specific mitigations/stipulations will apply:

- Ensure project updates and newly available information is conveyed to Chief of Cultural Resources for continuing consultation with the Seminole Tribe of Florida as per Tribe's formal request.

Adherence to all project mitigation measures is assigned to Amy Renshaw, Project Leader.

D. Notes

After careful review of the 2016 Cape Sable Plugs Restoration Phase II Environmental Assessment, the interdisciplinary team concurs that the 2016 EA adequately describes and analyzes the benefits and impacts for the proposed surveys. The general conclusion from the 2022 Confirmation of Previous Analyses (CPA) is that the impacts that will result from the geotechnical, topographic, bathymetric, and benthic surveys are consistent with the 2016 EA. A total of nine of the impact topics were evaluated for consistency with the previous evaluation, and each topic had no additional impacts other than what had been described in the 2016 EA. Hydrology and park management operations were not evaluated as the proposed surveys are expected to have no impact on either of these. Based on the CPA, a Memorandum to File is appropriate to document the adequacy of the 2016 EA for the proposed surveys and additional NEPA analysis is not required.

E. Conclusion

I certify that the existing NPS NEPA document has been reviewed and there are no substantive differences between the current proposal and its associated environmental impacts and the proposal and impacts as described in the existing NEPA document and associated decision document.

Superintendent: _____ **Date:** _____
Pedro Ramos

Attachments:

Appendix A: Mitigation Measures from 2016 Cape Sable Plugs Restoration Phase II Finding of No Significant Impact

Confirmation of Previous Analysis of the Cape Sable Plugs Restoration Phase II Environmental Assessment for the Surveys to Inform the Raulerson Canal Plug Design

APPENDIX A: MITIGATION MEASURES

Mitigation measures will be used to prevent or minimize potential adverse impacts associated with the Selected Alternative, and these measures have been included in the evaluation of impacts of all action alternatives. Mitigation measures that will be undertaken during project implementation include, but are not limited to, those listed below.

General Construction Mitigation Measures

- Pre- and post-construction erosion control BMPs will be implemented, including the installation and inspection of silt fences, straw bale barriers, sediment traps, or other equivalent measures, and revegetation of area to control erosion, preserve water quality, protect wildlife and habitat, protect marine resources and EFH, and prevent soil contamination. Erosion and sediment control BMPs will be inspected and maintained on a regular basis and after each measurable rainfall to ensure they are functioning properly.
- Steps will be taken to minimize the introduction of non-native species and will include washing equipment before entering the park; minimizing disturbances; and initiating revegetation of disturbed areas immediately after construction. The NPS will follow all of the guidelines outlined in the South Florida and Caribbean Parks Exotic Plant Management Plan and the EVER Hurricane Plan (see Section 1.5.5.1 of the EA).
- Environmental training will be implemented to help educate construction personnel with the intent of reducing impacts on water quality, wetland resources, wildlife, and marine resources and EFH.
- All construction areas will be protected to confine potentially adverse activities to the minimum area required for construction. All protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid conducting activities beyond the construction zone. The use of previously undisturbed areas will be minimized to the extent possible by selectively choosing staging areas and clearly defining and marking construction zones and perimeters.

Geology, Topography, and Soils

- Spill prevention, control, and countermeasure procedures, as well as storm water pollution prevention measures, will be implemented to protect soils from erosion and contamination.
- The use of tarps or similar cover materials will be used on stockpiled fill and other erosion prone areas during construction to minimize erosion because of storm and other high water events.

Water Resources

- A spill prevention, control, and counter-measures plan will be completed and implemented for any fuel storage tanks, which will meet all applicable standards for construction and leak detection. Areas used for refueling will be limited to areas where these activities currently occur.
- Equipment containing fuels will be checked frequently for leaks.
- Construction procedures will include the use of turbidity curtains to contain disturbed sediments and reduce water quality impacts.
- A turbidity monitoring plan will be implemented to ensure compliance with state water quality criteria.
- A temporary “no wake zone” will be established in and near the project area during construction to eliminate further dispersal of suspended sediments.

- Impacts to wetland resources will be avoided and minimized to the maximum extent feasible through the implementation of construction BMPs.

Wildlife and Habitat

- Revegetation efforts may include use of seeds or nursery grown plant species native to the Cape Sable area; monitoring reclamation; and implementing exotic species control as necessary. All revegetation efforts will be reviewed and approved by Everglades National Park, Biological Resources Branch prior to implementation.
- Pre- and post-survey construction surveys for selected species (e.g. crocodiles, Eastern indigo snakes, and smalltooth sawfish) will be implemented.
- Spill prevention, control, and countermeasure procedures, as well as storm water pollution prevention measures, will be implemented to reduce the potential for petroleum products from leaking equipment or vehicles to reach surface waters.
- Per NPS Management Policies (2006), artificial lighting will not be used in locations where its presence will disrupt wildlife dependent on the dark; minimal-impact lighting techniques will be used (e.g., consideration of yellow versus white lights, use of timers). Artificial lighting will be shielded and directed, where necessary, with regard for natural night sky conditions. The use of lighting is not anticipated; construction activities are expected to take place during daylight hours. However, construction crews may carry emergency/safety lights, as necessary.

Marine Resources and EFH

- Construction procedures will include the use of turbidity curtains to contain disturbed sediments and reduce water quality impacts.
- A turbidity monitoring plan will be implemented to ensure compliance with State water quality criteria.
- Impacts to marine resources will be avoided and minimized to the maximum extent feasible through the implementation of construction BMPs and standard USFWS, NOAA, and FWC protection measures.

Special Status Species

- To reduce potential impacts on wildlife, construction activities occurring near sensitive habitats will be scheduled to minimize potential impacts to breeding, nesting, and rearing of young (particularly the American crocodile-nesting season). Construction will occur only during daylight hours to reduce effects on nocturnal foraging or rest.
- Pre-construction surveys will be conducted to identify any federal- and state-listed species occurring in the project area. Should individuals or nests be identified, additional measures will be taken to avoid impacts (e.g., fencing nest sites, providing information to contractors about the species).
- Construction will include all applicable environmental regulatory agencies' standard protection measures (including, but not limited to manatee, sea turtle, and smalltooth sawfish), including no wake zones and monitoring during construction. Additional specific measures may be identified during Section 7 consultation with the agencies for the project permits.
- Measures listed under "Wildlife and Habitat" and other resource protection mitigation will serve to reduce impacts on special status species.

Wilderness

- Measures listed above, including those under "Water Resources" and "Wildlife and Habitat," will serve to protect wilderness values and the natural quality of wilderness character.

- Construction procedures will follow the minimum requirement analysis for construction and will include provisions to minimize impacts to natural resources that contribute to wilderness values and the natural quality of wilderness character. The Minimum Requirement analysis will determine the mitigation requirements for wilderness.
- If the NPS determines that the canal plugs no longer serve their intended purpose, the NPS will examine the feasibility, environmental impacts, and costs of removing the plugs in order to reduce impacts on wilderness character. This will apply to plugs at House and Slagle Ditches, the Raulerson, Homestead and East Cape Canals, and any additional plugs that may be constructed in the future.

Cultural Resources

- If any archaeological resources are encountered during construction activities, mitigation of project impacts (in consultation with SHPO and other agencies as appropriate) or adjustment of the project design will occur to avoid or limit the adverse effects on prehistoric and historic archaeological resources. Stop-work provisions will be included in the construction documents should archaeological or paleontological resources be uncovered. It should be noted there is a low probability that the project area contains undiscovered archeological resources.
- Monitoring will be done if any excavation exceeds the depth of existing ground disturbance. In the event that cultural resources are encountered during any necessary excavation work, project work will be halted and the discovery process will be initiated.
- If previously unknown archaeological resources are discovered, work will be stopped in the area of any discovery and the NPS will consult with affiliated tribes, pursuant to the NAGPRA and its implementing regulations (43 CFR § 10).

Visitor Use and Experience

- Construction information and general information about the project will be posted at the park, distributed to visitors, and made available on the park's web site. Signage and notices will be used to inform visitors about the purpose of the project and to protect visitor and staff safety during construction activities.
- Artificial lighting, including minimum illumination levels, light-emitting diodes (LED), limited color spectrum (e.g., yellow) lights, and timers and sensors will be used, where applicable, to ensure safety.
- The use of artificial lighting will be restricted to areas where security, human safety, and specific cultural resource requirements must be met.

Noise/Soundscapes

- Restoration activities will involve multiple pieces of heavy equipment for placement of sheet pile and/or fill material. Best management practices for noise, such as using mufflers on heavy equipment and noise muffling construction materials, will be implemented at Cape Sable, resulting in short term minor impacts to soundscapes. Typically, heavy equipment operates at 80 to 90 decibels (dB). Sound levels decrease approximately 6 dB with the doubling of distance (Harmon 2006). Therefore, it is estimated that natural attenuation will decrease the noise from these activities to no greater than 32 to 42 dB at a distance of about 1,500 feet from the work area; noise will continue to dissipate with increased distances from the area.

Air Quality

- EVER enjoys a Class I clean air status. If dust were generated during construction, best management practices for dust suppression will be initiated. Emissions from construction vehicles will be kept to a minimum by restricting idling time.

Confirmation of Previous Analysis of the Cape Sable Plugs Restoration Phase II Environmental Assessment for the Surveys to Inform the Raulerson Canal Plug Design

Brief Background and Project Description:

Everglades National Park (EVER) completed an Environmental Assessment in 2016 to evaluate the impacts of replacing the Raulerson Canal Plug. As part of that continuing effort, EVER has contracted HDR to complete a design and associated permitting for a plug in the Raulerson Canal. A geotechnical survey will be conducted by Bhate Geosciences Corporation and an elevation survey will be conducted by M.G. Vera and Associates at the site of the planned plug and in the Raulerson Canal to inform the design of the plug. These surveys will be conducted within the footprint that was evaluated by the EA (Figure 1).

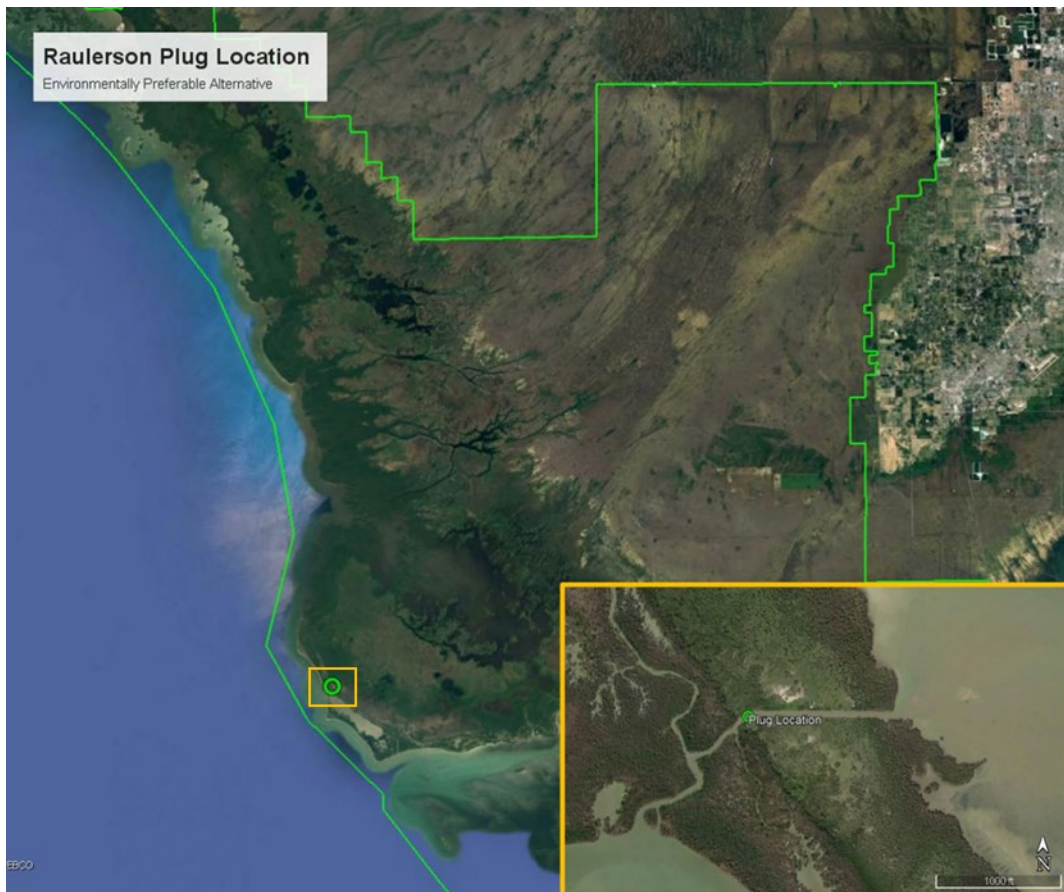


Figure 1. Location Map for the Raulerson Canal Plug. The location pictured was selected in the 2016 Environmental Assessment as the preferred location for placement of the plug. The studies proposed in this document are investigating this location to inform the design for a plug placed in the preferred location.

Both teams will access the site by motorboat from Flamingo. M.G. Vera will have 4 personnel on site to complete the survey in 5 days (Figure 2). The survey crew will use GPS equipment, conventional optical levels, and a total station to collect topographic information. Bathymetry will be collected using a Seafloor Hydrolite DFX dual frequency echosounder mounted on a motorboat (Figure 3).



Figure 2. Location of Topographic and Bathymetric Surveys. Topographic surveys will performed in the purple areas. Bathymetric surveys will be performed in the blue shaded areas.



Figure 3. Seafloor Hydrolite DFX dual frequency echosounder mounted on a motorboat

Bhate Geosciences will collect a total of 6 soil borings using a hand auger to refusal and a seismic geophysical survey will be conducted (Figure 4). The survey is expected to take 3 days using a 4-person crew. The borings will be 3.5 inches in diameter. Very soft soil conditions are expected at the site, to maintain an open borehole the hole will be temporarily cased with a 4" PVC pipe as the boring is advanced. Soil cuttings will be deposited adjacent to the boring, and soil samples will be retained in

resealable plastic containers and transported to the laboratory for analysis. The PVC casing will be removed upon completion of the boring and the hole will be backfilled with the cuttings. A total of 5 benthic samples will also be collected in the Raulerson Canal downstream and at the location of the proposed plug using a ponar grab sampler.

A geophysical survey using seismic methods will also be conducted (Figure 5). There will be three transects on each side of the canal. A series of 4 geophones will be laid out parallel to the canal. Each geophone stake will be pushed approximately 3 inches into the ground. A steel plate will be placed near the geophone alignment and struck with a hammer. The geophones receive and log the seismic signal.



Figure 4. Location of the Geophysical and Benthic Surveys. Geophysical Survey will occur along the 3 transects where the soil borings and benthic samples will be collected in the footprint of the future Raulerson plug.



Figure 5. Geophysical Survey equipment

Changes in Environmental Impacts and Effects Determination, As Applicable

The table below includes the applicable impact topics from the 2016 Environmental Assessment. The second column includes the impacts that were determined in the EA for the construction activities, and the overall effect of the selected alternative for Raulerson Canal (4A). The final column is an analysis of the impacts of the design surveys. Only relevant impact topics were analyzed, the hydrology and park management and operations impact topics were not included. The studies are expected to have no impact to the hydrology in and around the plug area and no effect on park management and operations. Use of the described equipment and personnel will have no effect on the hydrology of the area surrounding the proposed plug on Raulerson Canal. Equipment used by the surveyor is small and will be mounted on a tripod or range poles which leaves little to no footprint when removed. Geotechnical and benthic samples will have no impact on hydrology, boreholes will be filled with cuttings once the sample has been taken, and any disturbance from benthic grab samples will fill immediately after taken due to the high velocity in the canal.

The surveys will have no effect on Park Management and Operations. The NPS is providing no services to the contractor to complete the surveys. The contractor was given the list of Commercial Use Authorized businesses who have experience operating in the Everglades National Park backcountry, drastically reducing concerns over inexperienced vessel operators and potential for Law Enforcement intervention. Maintenance, Interpretation, and Research staff are unlikely to be aware that the surveys are being performed. Law Enforcement staff may encounter the contractors if they patrol the area, similar to any visitor contacts they may have while out on the water.

Table 1. Summary of Impacts

<p>Impact Topic The 2016 Cape Sable Plugs Restoration – Phase II EA</p>	<p>2016 Analysis Alternative 4A from the EA, construct a new sheet pile and fill plug with erosion protection at Raulerson Canal</p>	<p>2022 Design Surveys</p>
<p>Geology, Topography, and Soils</p>	<p>As a result of construction, short-term minor to moderate adverse impacts to geology, topography, and soils would occur from turbidity/suspended soils and short-term moderate adverse impacts resulting from soil compaction would occur in the work zones. Short-term negligible to minor adverse impacts to geology, topography, and soils, from turbidity/suspended soils would occur beyond the direct impact footprint. Project implementation would result in long term beneficial effects.</p>	<p>No additional impacts from those evaluated in the 2016 EA alternative 4A. Geotechnical work and benthic samples will cause negligible short-term impacts to the soils. Negligible short-term impacts to the topography and soils as a result of personnel walking and standing in the area to perform surveys. Negligible short-term impacts to geology, topography, and soils from turbidity generated by benthic sampling.</p>
<p>Water Quality</p>	<p>Construction activities may cause negligible to minor adverse effects to water quality within the equipment staging areas. Vessel emissions, such as fuel or exhaust may cause short-term localized minor impacts on water quality. Anticipated surface water runoff within the work area would be expected to result in short-term minor to moderate adverse impacts to water quality within the canal work zone area with a potential for short-term negligible to minor adverse impacts to water quality outside the impact footprint. Project implementation would result in long term beneficial effects.</p>	<p>No additional impacts from those evaluated in the 2016 EA alternative 4A. Negligible short-term impacts to water quality due to turbidity generated by benthic sampling. Vessel emissions for transport from Flamingo to Raulerson canal will be negligible, short-term.</p>
<p>Vegetation and Wetlands</p>	<p>Construction activities, such as vegetation trimming and work zone clearing, would result in minor adverse, localized, direct effects on vegetation and short-term, minor, adverse, and localized impacts on wetlands. Project implementation would result in long term beneficial effects.</p>	<p>No additional impacts from those evaluated in the 2016 EA alternative 4A. Minor, localized, adverse impacts of vegetation due to trimming for survey sight lines. Negligible short-term impacts to the wetlands as a result of personnel walking and standing in the area to perform surveys, geotechnical and benthic sampling and</p>

		placement of survey equipment.
Wildlife and Habitat	Construction activities will result in minor short-term adverse impacts to wildlife and habitat. Project implementation would result in long term beneficial effects.	No additional impacts from those evaluated in the 2016 EA alternative 4A. Negligible to minor short-term impacts because of presence of vessel and personnel in the area. Negligible to minor short-term impacts due to vegetation trimming for survey sight lines.
Marine Resources and Essential Fish Habitat	Activities will result in a temporary disturbance to a small area of non-vegetated bottom and temporary degradation of the estuarine/marine water column due to an increase in suspended sediment concentrations resulting in short-term minor adverse effects . Project implementation would result in long term beneficial effects.	No additional impacts from those evaluated in the 2016 EA alternative 4A. Short-term negligible impacts due to benthic sampling.
Special Status Species	Direct adverse effect from construction would be temporary in nature. Alternative 4A may affect but is not likely to adversely affect the American Crocodile, Florida Panther, West Indian Manatee, Wood Stork, Red Knot, Bald Eagle, Snail Kite, Eastern Indigo Snake, Loggerhead Sea Turtle, Leatherback Sea Turtle, Hawksbill Sea Turtle, Kemp’s Ridley Sea Turtle, Green Sea Turtle, Smalltooth Sawfish. Species with no effect are the Roseate Tern and the Florida Bonneted Bat. Project implementation would result in long term beneficial effects.	No additional impacts from those evaluated in the 2016 EA alternative 4A. Negligible short-term impact from personnel and vessel in area. Negligible short-term impact from geotechnical and benthic sampling. No effect on the newly-listed black rail.
Wilderness	Construction activities will have a temporary minor impact to the untrammled quality, a localized short-term adverse impact to the undeveloped quality, an adverse impact on the quality of solitude or primitive and unconfined recreation, and short-term negligible impacts to the natural quality of wilderness. Project implementation would cause minor adverse impacts to the untrammled quality, localized moderate adverse impacts on the undeveloped quality, and minor adverse	No additional impacts from those evaluated in the 2016 EA alternative 4A. The vessel used to access the site will result in temporary minor impact to the undeveloped and the solitude or primitive and unconfined recreation qualities of wilderness. Equipment used for the surveys, will result in a temporary minor impact to the undeveloped quality. Trimming vegetation and suspended

	to the solitude or primitive and unconfined recreation quality. The alternative would be beneficial to the natural quality.	sediments released by benthic sampling will have a negligible to minor temporary impact to the natural quality. The presence of surveyors will have a minor short-term impact to the wilderness quality of solitude or primitive and unconfined recreation. There will be no installations during these studies.
Cultural Resources	Under NEPA, construction would have minor adverse impact on the NRHP-eligible Raulerson Canal. The canal is a historic property determined eligible under Criterion A for the NRHP. As such, under NHPA this project will have No Adverse Effects to the aspects of integrity that qualify this property for listing in the NRHP. Additionally, this alternative would result in long-term beneficial impacts to historic structures and a potential historic district. The assessment of effect for Section 106 is no adverse effect with SHPO and Tribal concurrence.	No additional impacts from those evaluated in the 2016 EA alternative 4A. Negligible short term impacts to the bottom of the canal from benthic sampling.
Visitor Use and Experience/Public Safety	Impacts to visitor use and experience would occur during construction and would consist of temporarily blocked access to Raulerson Canal and construction-related noise. These impacts would be short-term and temporary . The long-term effect of the alternative would be long term and beneficial.	No additional impacts from those evaluated in the 2016 EA alternative 4A. Visitors to the Raulerson Canal area of Cape Sable will view personnel performing geotechnical work and surveying. The impacts will be short-term and negligible to visitor use and safety.

Conclusions

The general conclusion from this 2022 Confirmation of Previous Analyses (CPA) is that the impacts that will result from the geotechnical, topographic, bathymetric, and benthic surveys are consistent with the 2016 Environmental Assessment (Alt. 4A). A total of nine of the impact topics were evaluated for consistency with the previous evaluation, and each topic had no additional impacts other than what had been described in the 2016 EA. Two of the impact topics were not evaluated, hydrology and park management and operations. The surveys are expected to have no impact on these topics.