

Record of Substantiation of Revised National Environmental Policy Act Categorical Exclusions

Substantiation Record, Natural Resources Conservation Service's Analysis of National
Environmental Policy Act Records for Revisions to Four Categorical Exclusions

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NRCS Substantiation Record for Revisions to Categorical Exclusions

1. Purpose and Background

Requirement: Section 111(1) of the National Environmental Policy Act (NEPA) defines “categorical exclusion” (CE) as a “category of actions that a Federal agency has determined normally does not significantly affect the quality of the human environment.” 42 U.S.C. 4336e(1). To demonstrate that a CE is appropriate for a particular category of actions, an agency prepares a document that explains how the agency determined that the category of actions covered by the proposed CE normally does not have a significant effect on the human environment consistent with section 111(1) of NEPA and the agency’s implementing procedures. We refer to this document as a “substantiation record.”

Purpose: This record substantiates revisions to Natural Resources Conservation Service (NRCS) categorical exclusions (CEs) under NEPA for clarity and consistent interpretation, focusing on impact-based constraints; documents the evidentiary basis showing actions covered by these CEs normally do not have significant environmental effects; and explains how the agency considers extraordinary circumstances and applicable technical standards.

Background: NEPA (42 U.S.C. §§4321-4347) requires federal agencies to assess environmental effects of their actions. NRCS historically codified its NEPA procedures at 7 CFR part 650. As part of USDA’s 2025-2026 consolidation effort, NRCS rescinded 7 CFR part 650 and consolidated relevant CE provisions into 7 CFR part 1b (specifically 7 CFR 650.6(a) and (d)(1)–(21)). Previously codified NRCS CEs are now located at 7 CFR 1b.4(d)(3)–(23).

NRCS’ categorical exclusions encompass actions that promote restoration and conservation activities related to past natural or human induced damage, or alteration of floodplains and watershed areas.

Historical Context: On July 13, 2009, NRCS published for public comment an interim final rule, [74 FR 33319](#), proposing new CEs.

NRCS prepared a substantiation record documenting its conservation planning framework, interdisciplinary review process, and public involvement requirements. It emphasized that

NRCS actions are guided by the Field Office Technical Guide (FOTG) and Conservation Practice Standards (CPS), which undergo rigorous scientific and technical review.

On February 10, 2010, NRCS published a final rule, including responses to comments received on the interim final rule and made final the provisions set forth in the interim final rule.

The following records can be found on the [NRCS NEPA website](#), NRCS NEPA Regulations, Guidance and Related Documents:

- Categorical Exclusion Substantiation Record (2009, June 8)
- CEQ Memorandum on NRCS NEPA Categorical Exclusions (2009, June 25)
- Final Rule Federal Register Publication (2010, February 10). Vol. 75, No. 27, p. 6556

2. Summary of Proposed Changes

To ensure consistent interpretation and efficient reviews based on NRCS's experience with these CEs, minor revisions to clarify scope and align terminology with standard maintenance practices were made to four NRCS categorical exclusions when they were moved over to 7 CFR 1b.

These CEs focus on routine actions for the repair or updating of existing structures constructed under the Watershed Protection and Flood Prevention Act, Public Law 83-566, or the Flood Control Act, Public Law 78-534. The purpose of rehabilitation projects is to comply with current State safety standards and Federal performance standards, as well as the protection of environmental values associated with the project's structures.

Summary of Revisions:

- 7 CFR 650.6(d)(14): Repairing or maintaining principal spillways and appurtenances associated with existing serviceable dams, originally constructed to NRCS standards, in order to meet current safety standards. Work will be confined to the construction footprint of the dam, and no major change in reservoir or downstream operations will result. (now 7 CFR 1b.4(d)(16))
- 7 CFR 650.6(d)(15): Repairing or improving (deepening/widening/armoring) existing auxiliary/emergency spillways associated with dams, originally constructed to NRCS standards, in order to meet current safety standards. Work will be confined to the construction footprint of the dam or abutment areas, and no major change in reservoir or downstream operation will result. (now 7 CFR 1b.4(d)(17))

- 7 CFR 650.6(d)(16): Repairing embankment slope failures on structures or reshaping the embankment, originally built to NRCS standards, where the work is confined to the embankment or abutment areas. (now 7 CFR 1b.4(d)(18))
- 7 CFR 650.6(d)(17): Increasing the freeboard (which is the height from the auxiliary (emergency) spillway crest to the top of embankment) of an existing dam or dike, originally built to NRCS standards, by raising the top elevation in order to meet current safety and performance standards. The purpose of the safety standard and associated work is to ensure that during extreme rainfall events, flows are confined to the auxiliary/emergency spillway so that the existing structure is not overtopped which may result in a catastrophic failure. Elevating the top of the dam will not result in an increase to lake or stream levels. Work will be confined to the construction footprint of the dam and abutment areas, and no major change in reservoir operations will result. Examples of work may include the addition of fill material such as earth or gravel or placement of parapet walls. (now 7 CFR 1b.4(d)(19))

CE under 7 CFR 650	Original Language	Revised Language
650.6(d)(14)	Work will be confined to the existing footprint of the dam	Work will be confined to the <u>construction footprint</u> of the dam
650.6(d)(15)	Work will be confined to the dam or abutment areas	Work will be confined to the <u>construction footprint</u> of the dam or abutment areas
650.6(d)(16)	Repairing embankment slope failures on structures	Repairing embankment slope failures on structures <u>or reshaping the embankment</u>
650.6(d)(17)	Work will be confined to the existing dam and abutment areas	Work will be confined to the <u>construction footprint</u> of the dam and abutment areas

3. Justification and Evidentiary Basis

Need for the CE modifications:

Inconsistent interpretations of current CEs have caused unclear expectations and varied applications by NRCS NEPA practitioners. This lack of clarity has increased costs and resources when NRCS prepares EAs instead of applying the current CEs.

NRCS determined it needed additional clarity to better define the appropriate scope of these CEs. The term “existing,” in reference to the dam structure, leads to an overly restrictive interpretation, at the local level that does not meet standard maintenance procedures associated with rehabilitation actions, thus unintentionally restricting the scope and application of the CEs. Specifically:

- CEs 650.6(d)(14), (15), and (17) the term “existing dam and abutment” excluded areas around the dam that had been previously disturbed during construction.
- CE 650.6(d)(16), the omission of embankment reshaping effectively excluded watershed projects from qualifying under this categorical exclusion.

The minor revisions reflect an effort by NRCS to provide further clarity and provide transparency regarding the activities, including the associated workspace, covered by the CEs.

For dam rehabilitation projects, it is often necessary to reference the original construction footprint, which includes the areas initially disturbed during the dam’s construction, such as staging, access routes, grading, and work zones. This requires clarifying the CE to include areas that were previously disturbed during the original construction of the dam and its appurtenant structures. These previously disturbed sites were reclaimed to approximate natural contours and vegetative conditions prior to project completion. Consequently, the existing footprint does not fully represent the historical extent of disturbance associated with the original dam construction.

Recognizing this distinction is critical to ensure that rehabilitation activities remain within areas of prior impact, thereby minimizing new environmental disturbance while maintaining compliance with applicable environmental requirements. Disturbed areas that have already been reclaimed typically do not result in significant effects; however, NRCS will follow its Environmental Evaluation process to review for Extraordinary Circumstances and ensure compliance with all applicable environmental laws. Concerns regarding the ecological value of resources that have developed since reclamation may constitute Extraordinary Circumstances, and NRCS would take these conditions into account—just as it does for all CEs—to identify situations where changed conditions could result in potential impacts. This approach focuses on areas of prior disturbance, such that these actions normally do not have the potential for significant environmental effects, supporting efficient project delivery within established regulatory frameworks.

Additionally, these categorical exclusions are confined to previously developed and previously disturbed areas; therefore, this clarification does not authorize any new development outside the footprint originally impacted during original dam construction.

Because the proposed activities occur within areas of prior disturbance, they do not introduce initial developmental impacts, substantially alter resource conditions, or involve unique or uncertain risks.

Evidentiary basis:

Consistent with CEQ's 2010 Guidance¹ and the 7 CFR 1.b as revised on July 3, 2025, NRCS may use various methods to gather and evaluate information to substantiate proposed revised CEs. The amount of information required to substantiate a CE depends on the circumstances. Categories of actions that the agency reasonably expects to have few or no environmental effects do not require extensive supporting information. For actions that do not obviously lack significant environmental effects, NRCS must gather sufficient information to support its determination that the category of actions normally does not have a significant effect on the human environment. Here NRCS relied on its previous NEPA review experience as well as a review of the Bureau of Reclamations (BOR) categorical exclusions, which were relied on in 2009 for the original promulgation of the CEs.

1. Previously Implemented Actions: NRCS identified a set of previously implemented actions that have consistently resulted in findings of no significant impact (FONSI). NRCS analyzed 47 recent project-specific dam rehabilitation EAs, in addition to the 97 projects evaluated in 2009. All of these EAs resulted in a FONSI. See Appendix A.

Each EA often combined several NRCS individual actions into a single project. NRCS reviewed each individual action within each EA to determine which would be covered under the revised CEs. The analysis found:

- 38 of 47 EAs included one or more actions (NRCS practices) that could qualify for a proposed revised CE.
 - 21 of those 38 EAs would now be completely covered by the CEs as revised. These projects were limited to the original dam construction footprint.
 - 17 of those 38 EAs included some actions that could fit the revised CEs. Thus, NRCS used the EA analysis to support the conclusion that as individual actions, these actions would not lead to significant impacts.
- 9 of the 47 EAs did not meet CE criteria because the rehabilitation footprint exceeded the original dam footprint or involved components outside the scope of the proposed revised CEs.

¹ Memorandum for Heads of Federal Departments and Agencies, November 23, 2010, at https://ceq.doe.gov/docs/ceq-regulations-and-guidance/NEPA_CE_Guidance_Nov232010.pdf.

2. *Benchmarking (BOR CEs)*: When promulgating its CEs in 2009, NRCS developed a supporting statement. This statement, accompanying the NRCS interim final rule, 74 FR 33319, served as the “substantiation record.” It identified comparable CEs in other federal agencies’ NEPA procedures and evaluated those agencies’ interpretation and application of those comparable CEs. NRCS relied on the following BOR CEs:

- BOR- 516 DM 14.5 (D) Operation and Maintenance (17) - Minor safety of dams construction activities where the work is confined to the dam, abutment areas, or appurtenant features, and where no major change in reservoir or downstream operation is anticipated as a result of the construction activities.
- BOR- 516 DM 14.5 (E) Grant and Loan Activities (1) - Rehabilitation and Betterment Act loans and contracts which involve repair, replacement, or modification of equipment in existing structures or minor repairs to existing dams, canals, laterals, drains, pipelines, and similar facilities.
- BOR- 516 DM 14.5 (E) Grant and Loan Activities (2) - Small Reclamation Projects Act grants and loans where the work to be done is confined to areas already impacted by farming or development activities, work is considered minor, and where the impacts are expected to be localized.
- BOR- 516 DM 14.5 (E) Grant and Loan Activities (3) - Distribution System Loans Act loans where the work to be done is confined to areas impacted by farming or developing activities, work is considered minor, and where the impacts are expected to be localized.

These BOR CEs limited work to defined developed footprints, ensuring activities remain minor in scope, and confining impacts to previously disturbed areas.

BOR 516 DM 14.5(D)(17): Minor safety of dams construction activities:

- States that work is confined to the dam, abutment areas, or appurtenant features, and does not alter reservoir or downstream operations.
- Aligns with NRCS's text clarification, emphasizing the construction footprint and limiting work to dam and abutment areas, reinforcing that these activities are localized and non-expansive.

BOR 516 DM 14.5(E)(1): Rehabilitation and Betterment Act loans:

- Covers repair, replacement, or modification of equipment in existing structures and minor repairs to dams and related facilities.
- Supports NRCS's inclusion of “reshaping the embankment” in CE #16 in existing structures and minor repairs, as BOR recognizes minor modifications as categorically excluded when confined to existing structures. (Appendix A: listed as

regrade dam slope, dam embankment improvements, embankment stability berm, armor auxiliary spillway, raise top of dam, slope repair)

BOR 516 DM 14.5(E)(2) & (3): Small Reclamation Projects and Distribution System Loans:

- Both emphasize that work is confined to areas already impacted by farming or development, is minor, and impacts are localized.
- Aligns with NRCS's clarification that work occurs within the construction footprint, ensuring no new disturbance beyond previously impacted areas.

Recent BOR revisions to its NEPA Implementing Procedures (89 FR 48674, June 7, 2024) further strengthen this alignment. BOR consolidated and clarified CEs E1, E2, and E3, combining them into a single, streamlined CE (E1), to emphasize environmental sideboards and scope limitations:

- CE E1 (Combined): Now encompasses actions previously covered under E1, E2, and E3, including issuance, renewal, and transfer of contracts and permits, financial assistance activities (planning, data collection, minor facility repairs or restoration), and minor rehabilitation or betterment of existing facilities. The revised CE explicitly requires that work remain within existing or previously impacted areas and that impacts are localized and minor.

These revisions mirror NRCS's proposed clarifications by:

- Anchoring work to construction footprints and previously disturbed areas.
- Limiting actions to minor, routine, or rehabilitative work without expanding scope.
- Ensuring localized impacts consistent with categorical exclusion principles under NEPA.

NRCS CE Sideboards and Conservation Practice Standards:

For the final rule NRCS reconsidered whether it needed to require the sideboards previously in 7 CFR 650.6(c)(3) for CEs. The previous sideboards stated that prior to determining that a proposed action is categorically excluded, the proposed action must:

- (i) Be designed to mitigate soil erosion, sedimentation, and downstream flooding;
- (ii) Require disturbed areas to be vegetated with adapted species that are neither invasive nor noxious;
- (iii) Be based on current Federal principals of natural stream dynamics and processes, such as those presented in the Federal Interagency Stream Corridor Restoration Working Group document, "Stream Corridor Restoration, Principles, Processes, and Practices;"

- (iv) Incorporate the applicable NRCS conservation practice standards as found in the Field Office Technical Guide;
- (v) Not require substantial dredging, excavation, or placement of fill; and
- (vi) Not involve a significant risk of exposure to toxic or hazardous substances.

Rationale was provided in the interim final rule as to why NRCS did not find it necessary to include this language from an agency perspective; however, after discussions with other USDA subcomponents that may use the NRCS CEs and other Federal agencies interested in adopting some of the NRCS CEs, NRCS has determined it is appropriate to include revised language in 7 CFR 1b.4(d), as modified by the final rule, that clarifies the need to consider application of the sideboards described under § 650.6(c)(3)(iv) (“incorporate the applicable NRCS Conservation Practice Standard as found in the Field Office Technical Guide”) or “an agency-equivalent technical guidelines” when using the CEs. NRCS Conservation Practice Standards are regularly updated through a rigorous interdisciplinary national review process and requires scientific validity, technical feasibility, and alignment with agency conservation objectives and statutory authorities. Accordingly, although USDA subcomponents or other federal agencies may apply NRCS CEs listed in § 1b.4 (d)(3)-(24), the subcomponent's or federal agency's responsible official must determine that either an applicable NRCS Conservation Practice Standard(s), a comparable subcomponent technical guideline(s), or similar agency-specific conservation or best management practice(s), sufficiently supports its use. This is expected to provide sideboards to users, keeping application below significant levels.

Sideboards described under § 650.6(c)(3)(v) (“Not require substantial dredging, excavation, or placement of fill”); and (vi) (“Not involve a significant risk of exposure to toxic or hazardous substances”) are already evaluated as part of the agency's Determination of Significance or Extraordinary Circumstances, which must be considered by the agency's Responsible Federal Official as part of the environmental evaluation analysis.

Lastly, NRCS has found that including the remaining conditions as sideboards to applying the CEs is redundant and could create unnecessary regulatory overlap, as the NRCS Field Office Technical Guide and national standards (which are publicly available, [FOTG](#)) already require adherence to these criteria as a prerequisite for all conservation planning, design, and implementation efforts. Recent coordination with another Federal agency adopting some of NRCS' CEs reached the same conclusion as other Federal agencies have similar agency-specific conservation or best management practices as those outlined by NRCS.

4. Extraordinary Circumstances & Compliance Sideboards

NRCS considered the resources described in extraordinary circumstances under § 650.6(c)(2), described in its NEPA procedures when developing this proposal for the revised CEs. Based on NRCS's analysis, current procedures for identifying extraordinary circumstances (7 CFR 1b.3(f)) adequately ensure that actions taken under the proposed revised CEs would not result in significant effects, and those actions do not raise the possibility of extraordinary circumstances beyond those already addressed in the current procedures.

When these CEs are implemented, NRCS personnel will conduct case-by-case environmental evaluations for potential impacts and extraordinary circumstances, including responsibilities under the National Historic Preservation Act (NHPA) and the Endangered Species Act (ESA). NRCS Conservation Practice Standards (CPS) or agency-equivalent standards must support CE application. NRCS will assess the proposed revised CEs through its environmental evaluation process, documenting their use in the Finding of Applicability and No Extraordinary Circumstance (FANEC). The applicability of these CEs will be impact-based and restricted to the original construction footprint and previously disturbed areas.

5. Public Notification

As a subcomponent of USDA, NRCS relied on Department-led consultation with CEQ in developing its proposal and preparing this substantiation document. USDA provided public notice of the proposal and an opportunity for comment through its interim final rule, which amended USDA's NEPA implementing regulations.

6. Supporting Evidence & Analysis

Attachment A provides an Analysis Summary of 47 project-specific EAs.

Attachment B provides the correlation of NRCS Conservation Practice Standards and the Analysis of Predicted Effects for Typical Activities Involving NRCS Categorical Exclusions at 7 CFR 1b.4(d)(16)–(19)

Additionally, to assist in the analysis of environmental impacts of its conservation practices, NRCS develops and maintains Network Effects Diagrams (NEDs). These diagrams illustrate the chain of natural resource effects resulting from the application of each conservation practice. NED development includes:

- *Typical Setting and Resource Concerns:* Each diagram first identifies the typical setting to which the practice is applied, including the predominant land use and the environmental resource concerns that trigger the use of the conservation practice.
- *Conservation Practices and Effects:* The diagrams then identify conservation practices typically used to mitigate or address these resource concerns. NEDs illustrate the chain of expected direct, indirect, and cumulative effects when applying each conservation practice according to the standard for the intended land use. They also consider other practices to be used in conjunction.
- *Review and Comment Period:* When a conservation practice standard is developed or revised, NRCS publishes a notice in the Federal Register of the availability of the standard. The notice allows for a review and comment period of not less than 30 days from the date of publication.
- *Public Availability:* As part of this process, NEDs are made publicly available and can be viewed on the NRCS website (<https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standards>).

7. Findings

Upon review of the substantiation records associated with the development of these CEs and the NRCS staff's professional knowledge and experience, NRCS finds that clarifying the parameters for dam rehabilitation projects to include previously disturbed areas surrounding the completed dam, abutment, or dam slope, does not typically cause significant impacts on the human environment.

This change ensures that the scope of work is clearly understood as limited to the land area originally affected by construction activities, including staging areas, access routes, grading zones, and workspaces necessary for the initial build. By clarifying the footprint in this manner, NRCS reinforces that 1) no expansion of disturbance beyond previously impacted areas will occur and 2) activities remain localized and minor, consistent with NEPA's intent for categorical exclusions.

8. Appendices

- Appendix A — Analysis Summary, Table of EAs
- Appendix B — NRCS Conservation Practice Standard Correlation Table and Analysis of Predicted Effects for Typical Activities Involving NRCS Categorical Exclusions at 7 CFR 1b.4(d)(16)–(19)

Appendix A

Appendix A — Analysis Summary, Table of EAs						
The projects listed in this Appendix have consistently resulted in Findings of No Significant Impact (FONSIs), demonstrating that they do not cause significant adverse effects on the human environment. To substantiate this conclusion, NRCS reviewed 47 recent dam rehabilitation Environmental Assessments (EAs), in addition to 97 projects evaluated in 2009. All of these EAs resulted in a FONSI.						
	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
1	AR	Spybuck Creek-L'Anguille River and Caney Creek	Clearing existing drainage channel along L'Anguille Road, and replacement of existing storm sewer system in downtown Forrest City, to reduce flood risk and improve water quality.			
				Clearing and Grubbing		
				Storm sewer replacement		
2	AR	Candy Creek-L'Anguille River	Replacing 3 culverts with bridges of 60-foot width, 60-foot width and 45-foot width respectively, increasing a culvert sizes under Highway 131, improving drainage capacity of 3 ditches, and cleaning a 4th ditch.			
				Culvert replacement		
				Ditch improvements		

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
3	AR	Lick Creek-Big Creek	Removing and replacing (improving) existing storm water system by widening of existing ditches, adding new v-ditches, replacing and improving existing culverts/cross-culverts, clearing and grubbing existing ditches, constructing a regional detention basin, and connecting existing outfall to a proposed pipe to connect to another existing ditch.			
				Storm sewer replacement		
				Ditch improvements		
				Culvert replacement		
				Detention Basin		
				Clearing and Grubbing		
				Outfall reconstruction		

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
4	AL	Choctawhatchee & Pea Rivers Sustainable Irrigation Expansion Project	Installation of irrigation practices/systems on agricultural land relying on surface streams and/or groundwater as available at each site (variable infrastructure and practice requirements).			
				Irrigation systems improvement		
				Power systems for irrigation		
				Wells		
				Pipeline		
				Pumps		
5	AR	Bayou Bartholomew Watershed near Pine Bluff	Draingage improvements including upgrading of stormwater pipes, cleaning and clearing drainage channels, and the construction of new ditches.			
				Drainage improvements		
				Clearing and Grubbing		
				Ditches		

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
6	AR	Long Lake-Little Bee Bayou Watershed	Drainage improvements including ditch improvements, installation of subsurface pipes, installation of box culverts, and the elevation of existing structures in flood-prone areas.			
				Ditch improvements		
				Pipeline		
				Box culverts	9	
				Floodproofing structures	6	
7	AR	City of Camden	Construction or improvement of 14 channels, 15 ditches, 4 swales and 2 detention ponds.			
				Channel improvement		
				Ditch improvements		
				Detention Basin		

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
8	AR	Caney Creek-Caney Bayou	Construction and improvement of subsurface drains and floodproofing 7 homes with storm drain replacements and upgrades, and installation of new storm drains.			
				Floodproofing structures	6	
				Storm drains		

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
9	CO	Fisher Creek Carbon Arroyo FDC 2	Replace low-level drawdown pipe and install new multi-level intake structure on it; replace existing toe and foundation drain outlet pipes and supplement with new seepage diaphragm; armor downstream faces with riprap; install monitoring wells; install fencing around the dam; restore auxilliary spillway dimensions and incorporate soil amendments into spillway surface material; install water gap fence; install concrete stilling basin and headwall; install Gabion baskets along west side of channel; grade outlet channel.			
				Intake structure	14	
				Drainage improvements	16	
				Auxillary spillway replacement	15	
				Outlet channel upgrade		Did not specify if this was old or new channel to be graded and updated. New channel would have to be analyzed for significance.

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
10	CO	Windy Gap	Construct a new connectivity channel by constructing a new dam embankment and decreasing the surface area of Windy Gap Reservoir; raise dam's low-stage principle spillway 1 foot; install new diversion structure and modify the Fraser River weir; install grade control structures and riffle-and-pool complexes			
				New connectivity channel		New channels have to be planned and analyzed
				Dam embankment	16	
				Stream habitat improvement		Needs to be analyzed for significance
				Grade control structure		Needs to be analyzed for significance
11	WV	Upper Guyandotte Floodplain Buyout	Voluntary buyout of homes within the floodplain with demolition and removal of homes and sewage conveyance, and reseeded of impacted sites.			
				Floodplain buyout	6	
				Reseeding	1	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
12	GA	Mill-Canton Creeks 6	Dam rehabilitation: installation of ogee weir, stepped chute spillway, and type-III stilling basin at the valley floor.			
				Raise top of dam	17	
				Principal spillway replacement	14	
				Stilling basin	14	
13	GA	Mill-Canton Creeks 7	Dam rehabilitation: Installation of concrete overflow spillway over the embankment, abandonment of existing auxiliary spillway, replacement of principal spillway riser, and installation of new toe drains and outlet pipe.			
				Auxillary spillway replacement	15	
				Principal spillway replacement	17	
				Toe drain replacement	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
14	GA	Mill-Canton Creeks 10	Dam rehabilitation: Replacement of two-stage principal spillway inlet with one-stage riser, construction of labyrinth weir spillway over embankment, with low-flow orifices, construction of chute spillway through the embankment, installation of Low Froude Number stilling basin, and installation of earthen berm through the existing auxiliary spillway.			
				Principal spillway replacement	14	
				Auxillary spillway replacement	15	
				Stilling basin	14	
				Earthen berm through existing auxillary spillway	17	

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15	GA	Mill-Canton Creeks 12	Dam rehabilitation: Replacement of two-stage principal spillway inlet structure with a one-stage riser, construction of a stepped chute spillway through the embankment, construction of an ogee weir, installation of a Type III stilling basin, installation of earthen berm through the existing auxiliary spillwa, and raising remaining crest of the embankment 4 feet.			
				Principal spillway replacement	14	
				Auxillary spillway replacement	15	
				Raise top of dam	17	
				Stilling basin	14	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
16	GA	Settingdown Creek 54	Dam rehabilitation: Removal of existing flood control riser, installation of principal spillway conduit extensions, installation of reinforced concrete riser outlet, construction of ogee-crested concrete auxiliary spillway, regrade of upstream and downstream slope, raising of embankment crest, construction of bern across existing auxiliary spillway, reseeding vegetation as needed, installation of internal drainage system under the proposed ogee-crested spillway, and rehabilitation of foundation trench.			
				Principal spillway replacement	14	
				Auxillary spillway replacement	15	
				Regrade dam slopes	16	
				Raise top of dam	17	
				Earthen berm through existing auxillary spillway	17	
				Internal drainage system	16	
				Foundation trench drain	16	

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Appendix A — Analysis Summary, Table of EAs						
The projects listed in this Appendix have consistently resulted in Findings of No Significant Impact (FONSIs), demonstrating that they do not cause significant adverse effects on the human environment. To substantiate this conclusion, NRCS reviewed 47 recent dam rehabilitation Environmental Assessments (EAs), in addition to 97 projects evaluated in 2009. All of these EAs resulted in a FONSI.						
	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
17	GA	Settingdown Creek 56	Dam rehabilitation: Removal of existing flood control riser, installation of principal spillway conduit extensions, installation of reinforced concrete riser outlet, construction of labyrinth-crested spillway, regrade of upstream and downstream slope, raising of embankment crest, construction of bern across existing auxiliary spillway, reseeding vegetation as needed, installation of internal drainage system under the proposed labyrinth-crested spillway, and rehabilitation of foundation trench.			
				Principal spillway replacement	14	
				Auxillary spillway replacement	15	
				Regrade dam slopes	16	
				Earthen berm through existing auxillary spillway	17	
				Internal drainage system	16	
				Foundation trench drain	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
18	GA	Settingdown Creek 59	Dam rehabilitation: Removal of existing flood control riser, installation of principal spillway conduit extensions, installation of reinforced concrete riser outlet, construction of labyrinth-crested spillway, regrade of upstream and downstream slope, raising of embankment crest, fill existing auxiliary spillway, reseeding vegetation as needed.			
				Principal spillway replacement	14	
				Regrade dam slopes	16	
				Earthen berm through existing auxillary spillway	17	
				Auxillary spillway replacement	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
19	GA	Sallacoa Creek 77	Dam rehabilitation: Removal of existing flood control riser, installation of principal spillway conduit extensions, installation of reinforced concrete riser outlet, construction of labyrinth-crested spillway, regrade of upstream and downstream slope, raising of embankment crest, fill existing auxiliary spillway, reseeding vegetation as needed.			
				Principal spillway replacement	14	
				Auxillary spillway replacement	15	
				Regrade dam slopes	16	
				Earthen berm through existing auxillary spillway	17	
				Reseeding	1	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
20	KS	Muddy Creek Structure No.4-6	Dam rehabilitation: Raise and widen auxiliary spillway, raise and widen top of dam, extend principal spillway, replace spillway riser inlet, retrofit filter diaphragm, replace 2 single-stage foundation drains with 1 two-stage drain, and floodproof or relocate 5 upstream residences.			
				Modify auxillary spillway	15	
				Raise top of dam	17	
				Principal spillway replacement	14	
				Replace foundation drain	16	
				Floodproofing structures	6	
21	KS	North Sector Upper Walnut Watershed	Dam rehabilitation: Raise earthen embankment 4.4 feet, replace end-section of principal spillway conduit, extend outlet to new stilling basin, retrofit drainage diaphragm, raise and widen auxiliary spillway, install stilling basin.			
				Raise top of dam	17	
				Stilling basin	14	
				Principal spillway drainage diaphragm	14	
				Modify auxillary spillway	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
22	KY	East Fork Clarks River FRS 32	Dam rehabilitation: Replace primary spillway with RCP conduit, replace concrete riser with weir crest, construct concrete overtopping section, raise earthen dam, armor auxiliary spillway with concrete block, fill existing auxiliary spillway, lower normal pool elevation and raise an upstream road.			
				Principal spillway replacement	14	
				Armor auxillary spillway	15	
				Raise top of dam	17	
				Raise road		Needs to be analyzed for significance. Does it disturb new ground?

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
23	MA	Powdermill Dam	Dam rehabilitation: Raise top of dam, armor auxiliary spillway with labyrinth wier, construct labyrinth chute, construct silling basin, regrout principal spillway conduit, install filter diaphragm, install new pipe toe drains and filter trench, fill existing toe drains with grout, and remove existing pond drain gate.			
				Raise top of dam	17	
				Armor auxillary spillway	15	
				Labyrinth weir	17	
				Stilling basin	14	
				Principal spillway drainage diaphragm	14	
				Toe drain replacement	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
24	MA	Allen Multipurpose Dam	Dam rehabilitation: Raise the auxiliary spillway, excavate downstream slope along the entire length of the dam and install new drainage filter material, raise top of embankment, armor auxiliary spillway, excavate and remove accumulated sediment from existing low-level intake, repair concrete surfaces as identified, replace timber top-logs with trash rack, replace existing trash rack, install new walkway to intake, repair concrete surfaces of riser and headwall.			
				Raise top of dam	17	
				Armor auxillary spillway	15	
				Repair principal spillway	14	
				Modify internal drainage sytem	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
25	NC	Deep Creek Watershed Dam 19A & 21	Dam rehabilitation: Raise crest of dam, construct labyrinth wier spillway with chute and stilling basin, construct earthen berm across existing auxiliary spillways, abandon existing RCP in place, demolish and construct new principal spillway riser, install new filter diaphragm, abandon existing trench drains in place, install new filtered toe drain system, and dredge sediment.			
				Raise top of dam	17	
				Raise reservoir pool		Needs to be analyze ground which will be newly inundated.
				Labyrinth weir spillway over dam	15	
				Earthen berm through existing auxillary spillway	15	
				Principal spillway replacement	14	
				Toe drain replacement	16	
				Dredge sediment		Needs to be analyz the site where the sediment will be spoiled..

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
26	ND	North Branch Forest River 1 (Bylin Dam)	Dam rehabilitation: Raise existing embankment, install cable guard rail on both sides of road, regrade dame slopes, install chimney drain, armor auxiliary spillway, replace principal spillway, install new plunge pool, construct new channel to convey water from dam to existing river, install two-way riser tower with low stage orifice and second-stage overflow wier.			
				Raise top of dam	17	
				Regrade dam slopes	16	
				Chimney drain installed	16	
				Armor auxillary spillway	15	
				Principal spillway replacement	14	
				New plunge pool	14	
				Channel from dam to river		New channel needs to analyzed for significance.
				Foundation drain	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
27	NH	Baker River Watershed FRS 8	Dam rehabilitation: Lower crest of auxiliary spillway, install concrete chute, extent principal spillway conduit, install new stilling basin, construct stability berms, excavate and replace material at toe of dam, install new toe drain with graded filter, abandon existing toe drain pipe in place, use shear walls on upstream toe of dam.			
				Lower auxillary spillway crest	15	
				Armor auxillary spillway	15	
				Stilling basin	14	
				Extended principal spillway conduit	14	
				Upstream and downstream stability berms	16	
				Toe drain replacement	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
28	NM	Santa Cruz River Watershed Site 1	Dam rehabilitation: raise and widen dam crest, regrade dam slope and install gravel blanket over entire dam, raise auxiliary spillway crest, construct new concrete auxiliary spillway within the existing auxiliary spillway footprint and install riprap, reconstruct existing retaining dike and cover with gravel blanket, remove and replace principal spillway riser, and install steel trash rack, reconstruct plunge pool, decommission existing access road and revegetate, install new access road for permanent access to basin, and dispose of any excavated soil material in an upstream location in a manner to mimic existing natural landscape, including stabilization and revegetation.			
				Raise top of dam	17	
				Armor auxillary spillway	14	
				Retaining dike	17	
				Principal spillway replacement	14	
				Plunge pool reconstruction	14	

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
				Pipeline		Pipeline route needs to be analyzed for significance
				Access road		Road needs to be analyzed for significance
				Staging area		Area needs to be analyzed for significance
				Spoil material disposal and seeding		Spoil area needs to be analyzed for significance

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
29	PA	FRS Garrett Dam, Varcoe Dam, Martin Dam, Finkleday Dam	Dam rehabilitation for 4 dams: armor auxiliary spillways, raise top of embankments, regrade dam slopes, replace principal spillways, repair and replace principal spillway conduit, reconstruct plunge pools, extend principal spillway conduit into reconstructed plunge pools, replace existing toe drains, install footbridge to principal spillway, replace auxiliary spillway drains, install filter diaphragms, abandon existing toe drains with grout in place.			
				Armor auxillary spillway	15	
				Raise top of dam	17	
				Regrade dam slopes	16	
				Principal spillway replacement	14	
				Repair principal spillway conduit	14	
				Plunge pool reconstruction	14*	
				Extended principal spillway conduit	14	
				Toe drain replacement	16	

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
				Footbridge to principal spillway		This is not a significant action as the bridge is from the upstream side of the dam face to the principal spillway. All mandade structures
				Auxillary spillway drains replacement	15	
				End sill and cutoff walls at the end of the auxillary spillway	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
30	TN	Pine Creek No. 4	Dam rehabilitation: Raise top of dam, install new overtopping auxiliary spillway, extend dam embankment across existing auxiliary spillway, install stilling basin, install sand diaphragm, relocate water intake, replace principal spillway riser and conduit, and increase riser inlet elevation.			
				Raise top of dam	17	
				Armor auxiliary spillway	15	
				Earthen berm through existing auxiliary spillway	17	
				Plunge pool reconstruction	14	
				Principal spillway replacement	14	
				Increase pool for water supply storage		Need to analyze the ground which will be newly inundated.
				Principal spillway drainage diaphragm	14	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
31	TX	Clear Fork (Trinity River) FRS 33	Dam rehabilitation: Raise dam elevation and lengthen, install concrete chute at auxiliary spillway crest, raise existing auxiliary spillway to serve as a secondary auxiliary spillway, install new inlet tower and conduit, flatten upstream slope and install riprap, remove existing principal inlet tower and install filter diaphragm around conduit, and remove and replace the drainage system.			
				Raise top of dam	17	
				Lengthen right abutment	16	
				Armor auxillary spillway	15	
				Raise existing ASW to serve as secondary ASW	15	
				Principal spillway replacement	14	
				New drainage system	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
32	TX	Chambers Creek FRS 4 and 6	Dam rehabilitation: Replace existing principal spillway pipe using intake riser and impact basin, raise auxiliary spillway, raise and lengthen existing dam, and regrade (flatten) downstream embankment slope.			
				Principal spillway replacement	14	
				Raise ASW	15	
				Regrade dam slopes	16	
				Raise top of dam	17	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
33	TX	Williams Creek Watershed FRS 2	Dam rehabilitation: replace existing principal spillway pipe, install new intake riser and impact basin, raise auxiliary spillway, install auxiliary spillway concrete chute, raise top of dam, and flatten downstream embankment.			
				Regrade dam slopes	16	
				Principal spillway replacement	14	
				Plunge pool reconstruction	14	
				Raise ASW	15	
				Raise top of dam	17	
				Concrete auxillary spillway in dam embankment	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
34	TX	Kickapoo Creek FRS 4 & 5	Decommission of FRS 4 and Rehabilitation of FRS 5: Breach FRS 4, remove spillway components, vegetate exposed areas, reconnect stream channel through sediment pool, install grade stabilization structure and install flood warning systems with barricades. Raise top of dam of FRS 5 including principal spillway crest, replace riser with new crest, regrade auxiliary spillway crest and widen, armor auxiliary spillway.			
				Decommission dam	11	
				Reseeding and re-vegetation	1	
				Removal of principal spillway	14	
				Reconnecting channel	11	
				Grade control structure	10	
				Flooding warning system		This is not a conservation practice. Unless the warning system goes on previously undisturbed ground there wouldn't be significance.

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
				Raise top of dam	17	
				Principal spillway replacement	14	
				Auxillary spillway raised and widened	15	
				Armor auxillary spillway	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
35	UT	Millsite Dam 3	Dam rehabilitation: excavate loose material around downstream foundation and replace with compacted material, flatten downstream slope and install berm at toe, construct chimney drain on the slope, install new pipe drains, extend existing principal spillway outlet, remove existing auxiliary spillway and replace with labyrinth weir spillway.			
				Regrade dam slopes	16	
				Raise top of dam	17	
				Construction restoration of site	1	
				Drainage improvements	16	
				Armor auxillary spillway	15	
				Principal spillway conduit extension	14	

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
36	UT	Glenwood Debris Basin 2	Dam rehabilitation: raise auxiliary spillway and install stepped concrete spillway and apron, cutoff wall and riprap, widen and grade existing auxiliary spillway levee, replace principal spillway riser, raise high stage crest, and install trash rack around the riser. Construct plunge pool at principal spillway outlet and replace existing pipe, and extend pipe to new plunge pool. Regrade embankment.			
				Auxiliary spillway replacement	15	
				Armor auxiliary spillway	15	
				Principal spillway replacement	14	
				Regrade dam slopes	16	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
37	UT	Warner Draw Debris Basin	Dam rehabilitation: regrade existing embankment, improve principal spillway riser velocity and footing, excavate sediment, install erosion protection measures, armor auxiliary spillway, and extend principal spillway discharge pipe.			
				Regrade dam slopes	16	
				Principal spillway modifications	14	
				Sediment excavation		Where the spoil is disposed needs to be analyzed for significance.
				Erosion protection	16	
				Armor auxiliary spillway	15	
				Principal spillway discharge pipe extension	14	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
38	UT	Stucki Debris Basin	Dam rehabilitation: raise and regrade dam, install orifice plate on outlet riser, enlarge spillway riser footing, excavate sediment as needed related to spillway modifications, and replace dysfunctional portion of disposal pipeline.			
				Raise top of dam	17	
				Principal spillway modifications	14	
				Disposal pipe replacement	15	
				Sediment disposal		Where the spoil is disposed needs to be analyzed for significance.
39	UT	Frog Hallow Debris Basin	Dam rehabilitation: improve existing chimney drain system, and raise and regrade dam.			
				Chimney drain installed	16	
				Raise top of dam	17	
				Dam embankment improvements	16	
				Sediment disposal		Where the spoil is disposed needs to be analyzed for significance.

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
40	UT	Ivins Debris Basin	Rehabilitate 6 debris basins: regrade existing dams and place rock /gravel for erosion control, excavate sediment in the debris basin, and excavate around principal spillway riser outlets, replace trash racks, install desert tortoise fencing, and decommission existing auxiliary spillway and install and armor new auxiliary spillway.			
				Rock placement for erosion control	16	
				Sediment excavation		Where the spoil is disposed needs to be analyzed for significance.
				Slipine principal spillway pipe	14	
				Desert tortoise fencing	10	
				Armor auxillary spillway	15	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
41	VA	Beaver Creek Watershed MPS 1	Dam rehabilitation: construct labyrinth and chute spillway over existing embankment, construct new raw water intake, install new graded filter drain at toe of existing dam and abandon existing drain system in place, abandon existing auxiliary spillway, construct 2-lane bridge over new spillway structure, modify existing principal spillway and downstream release.			
				Labyrinth and chute spillway	15	
				New raw water intake and pipeline		Intake location and pipeline route need to be analyzed for significance.
				Toe drain replacement	16	
				Earthen berm through existing auxillary spillway	15	

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
				Two lane bridge over labyrinth		A bridge on the dam, manmade structure, should not be an environmentally significant practice.
				Principal spillway modifications	14	
				Minimum instream flow control	14	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
42	VT	Jewell Brook Watershed Nos. 1, 2, 3 and 5	Dam rehabilitation on 4 dams: fill in low areas and level top of dams, regrade auxiliary spillways control sections and armor with concrete blocks, raise top of 2 dams, modify principal spillway riser low level orifice, install slope bench and new internal filter and drainage system, extend principal spillway outlet to new plunge pool and impact basins, and dredge accumulated sediment.			
				Raise top of dam	17	
				Armor auxillary spillway	15	
				Principal spillway modifications	14	
				Regrade dam slopes	16	
				New plunge pool	14	
				Extended principal spillway conduit	14	
				Dredge sediment		Where the spoil is disposed needs to be analyzed for significance.

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
43	WV	Brush Creek 9	Dam rehabilitation: replace toe drain system and add blanket drain, abandon existing toe drain in place, reinforce embankment toe, extend principal spillway conduit and reconstruct impact basin, widen embankment crest, place grout curtain downstream of dam, construct trench drain and blanket drain along left side of embankment, construct new filter diaphragm, add mass to existing riser foundation at principal spillway and increase size of principal spillway orifice.			
				Toe drain replacement	16	
				Armor toe embankment	16	
				Regrade dam slopes	16	
				Extended principal spillway conduit	14	
				Grout curtain through embankment and AWS	16	
				Trench drain and blanket drain	16	
				Principal spillway conduit filter diaphragm	14	
				Increase principal spillway orifice	14	

Appendix A

Appendix A — Analysis Summary, Table of EAs						
The projects listed in this Appendix have consistently resulted in Findings of No Significant Impact (FONSIs), demonstrating that they do not cause significant adverse effects on the human environment. To substantiate this conclusion, NRCS reviewed 47 recent dam rehabilitation Environmental Assessments (EAs), in addition to 97 projects evaluated in 2009. All of these EAs resulted in a FONSI.						
	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
44	WV	Wheelng Creek 25	Dam rehilitation: drain the pool and remove and replace riser, abandon existing and install new embankment drainage and filter system, grade top of dam, extend principal spillway pipe and install new outlet impact basin, install upstream slope embankment wave erosion protection, increase auxiliary spillway capacity and install floating debris boom in resevoir.			
				Principal spillway replacement	14	
				New embankment drainage	16	
				Extended principal spillway conduit	14	
				New plunge pool	14	
				Armor auxillary spillway	15	
				Wave ersionion protection	16	
				Debris boom		A debris boom is not a conservation practice nor a resource concern. If the anchor points are constructed in an undistrubed area then their significance needs to be analyzed.

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
45	WV	Brush Creek 15	Dam rehabilitation: Construct cut-off wall within auxiliary spillway with battered side slopes, construct downstream stability berm and drain collection system, extend principal spillway outlet and reconstruct impact basin, construct upstream embankment stability berm, place concrete foundation support around principal spillway riser.			
				Armor auxillary spillway	15	
				Replace foudation drain	16	
				Embankment stability berm - upstream and downstream	16	
				Principal spillway modifications	14	

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	State	Project	Summary of Preferred Alternative	Activities/Actions	CE	Notes
46	WV	New Creek 1	Dam rehabilitation: Construct a blanket and toe drain system near downstream embankment toe, flatten downstream embankment slope, replace principal spillway riser, relocate auxiliary spillway, and reconstruct downstream end of principal spillway outlet conduit.			
				Toe drain system and blanket	16	
				Regrade dam slopes	16	
				Principal spillway replacement	16	
				Auxillary spillway relocation		The place for the relocated spillway needs to be analyzed for significance if not in the previously disturbed construction area for the dam
				Principal spillway outlet conduit reconstruction	14	

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	<u>State</u>	<u>Project</u>	<u>Summary of Preferred Alternative</u>	<u>Activities/Actions</u>	<u>CE</u>	<u>Notes</u>
47	WV	New Creek 17	Dam rehabilitation: construct blanket and toe drain system near downstream toe, flatten downstream embankment slope, extend principal spillway conduit and construct filter diaphragm, install cutoff wall within auxiliary spillway and floodproof two existing residential structures through the construction of earthen berms.			
				Toe drain system and blanket	16	
				Regrade dam slopes	16	
				Principal spillway conduit filter diaphragm	14	
				Armor auxillary spillway	15	
				Floodproofing structures	6	

Appendix B

Appendix B — NRCS Conservation Practice Standard Correlation Table and Summary of Predicted Effects for Typical Activities Involving NRCS Categorical Exclusions at 7 CFR 1b.4(d)(16)–(19)				
Network Effects Diagrams: To assist in the analysis of environmental impacts of its conservation practices, NRCS develops and maintains Network Effects Diagrams (NEDs) depicting the chain of natural resource effects resulting from the application of each conservation practice. Each of the diagrams first identifies the typical setting to which the practice is applied. This includes identification of the predominating land use and the environmental resource concerns that trigger use of the conservation practice. The diagrams then identify conservation practices typically used to mitigate or address the resource concerns. NEDs illustrate the chain of expected direct, indirect, and cumulative effects of applying each conservation practice according to the standard for the land use on which it is intended to be applied and the other practices to be considered in conjunction. When a conservation practice standard is developed or revised, NRCS publishes a notice in the Federal Register of the availability of the standard for review and comment for a period of not less than 30 days from the date of publication. As part of this process, NEDs are also made publicly available and can be viewed on the NRCS website (https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standards). The following table summarizes the Direct, Indirect and Cumulative Effects for twelve (12) Conservation Practices typically associated (not an exhaustive list) with projects involving NRCS CE's now located at 7 CFR 1b.4(d)(16)–(19).				
Activities/Actions	Practice Name	Practice Code	Effect Type	Summary of Predicted Effects
Re seeding	Conservation Cover (327)	327	Direct Effects:	There is a direct decrease in Wind erosion; There is a direct decrease in Energy inputs; There is a direct increase in Soil organic matter; There is a direct decrease in Water erosion; There is a direct decrease in Volume of water runoff; There is a direct decrease in Acres of cropland production; There is a direct increase in Cost of establishment and maintenance; There is a direct increase in Wildlife food and cover
			Indirect Effects:	There is an indirect decrease in Particulate matter; There is an indirect decrease in Greenhouse gases; There is an indirect increase in Carbon Storage; There is an indirect increase in Quality of runoff water; There is an indirect decrease in Sedimentation; There is an indirect increase in Aquatic habitats; There is an indirect increase in Uptake of residual nutrients (by permanent vegetation); There is an indirect decrease in Contaminates, animal waste, commercial fertilizer; There is an indirect decrease in Potential income; There is an indirect increase/decrease in Net returns; There is an indirect increase in Wildlife habitat
			Cumulative Effects:	There is a cumulative increase in Air quality; There is a cumulative increase in Soil quality; There is a cumulative increase in Fishable, swimmable, and drinkable waters; There is a cumulative increase/decrease in Quality of receiving waters; There is a cumulative increase/decrease in Income and income stability (individual and community); There is a cumulative increase in Recreational opportunities; There is a cumulative increase in Biodiversity
	Critical Area Planting (342)	342	Direct Effects:	There is a direct increase in Wildlife food and cover; There is a direct increase in Plant productivity, structure and composition; There is a direct increase in Soil quality; There is a direct increase/decrease in (+) Air quality, (-) Particulate materials, (+) Visibility, (-) Greenhouse gas
			Indirect Effects:	There is an indirect decrease in Sediment in surface waters; There is an indirect decrease in Airborne particles; There is an indirect increase in Air quality of the airshed
			Cumulative Effects:	There is a cumulative increase in Aquatic health for humans, domestic and wild animals; There is a cumulative increase in Health of humans, domestic and wild animals
	Mulching (484)	484	Direct Effects:	There is a direct decrease in Soil splash erosion; There is a direct increase in Infiltration; There is a direct increase in Cost of installation and maintenance; There is a direct decrease in Weeds; There is a direct decrease in Evaporation; There is a direct increase/decrease in Soil temperature; There is a direct increase in Soil organic matter; There is a direct decrease in Wind erosion
			Indirect Effects:	There is an indirect decrease in Downslope sediment deposition; There is an indirect decrease in Maintenance costs for sediment removal; There is an indirect increase/decrease in (+) Preservation of infrastructure; (-) community costs; There is an indirect decrease in Runoff; There is an indirect decrease in Sheet and rill erosion; There is an indirect decrease in Labor; There is an indirect decrease in Herbicide use; There is an indirect decrease in Potential for herbicide movement offsite; There is an indirect increase in Soil moisture; There is an indirect decrease in Irrigation water; There is an indirect decrease in Input/energy consumption; There is an indirect increase/decrease in Net returns; There is an indirect increase in Length of growing season; There is an indirect increase in Plant growth, establishment, or crop production (quantity, quality, harvest timing); There is an indirect increase in Potential income; There is an indirect increase in Soil quality; There is an indirect increase in Carbon sequestration; There is an indirect decrease in Particulate matter
			Cumulative Effects:	There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase in Water quality and aquatic habitats; There is a cumulative increase in Water quantity available for other uses; There is a cumulative increase in Air quality in the airshed

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Activities/Actions	Practice Name	Practice Code	Effect Type	Summary of Predicted Effects
Detention Basin Stilling basin	Sediment Basin (350)	350	Direct Effects:	There is a direct increase in Water impoundment; There is a direct increase in Trapped sediment; There is a direct increase in Cost of installation and maintenance; There is a direct increase in Disturbed areas (construction), soil erosion
			Indirect Effects:	There is an indirect decrease in Peak discharge; There is an indirect decrease in Flooding; There is an indirect decrease in Gully and streambank erosion; There is an indirect decrease in Down-slope deposition; There is an indirect decrease in Delivery of sediment and contaminants to surface waters and down-slope areas; There is an indirect increase in Water quality; There is an indirect decrease in Sediment- and water-borne contaminants; There is an indirect decrease in Cost of off-site sediment removal; There is an indirect increase in Downstream reservoir capacity; There is an indirect increase/decrease in Net return; There is an indirect decrease in Cost of future regulatory compliance; There is an indirect increase in Growth of desirable vegetation; There is an indirect increase in Soil Stabilized
			Cumulative Effects:	There is a cumulative increase in Aquatic habitat; There is a cumulative increase/decrease in Public/private health and safety, public/private property protection; There is a cumulative increase/decrease in Income and income stability (individuals and communities)
Auxiliary spillway replacement Dam embankment Decommission dam Principal spillway replacement Raise top of dam	Dam (402)	402	Direct Effects:	There is a direct increase in Cost for installation and maintenance; There is a direct decrease in Peak flows and downstream flooding; There is a direct decrease in Gully erosion gullies; There is a direct increase in Permanent water storage; There is a direct decrease in Floodplain habitat; There is a direct increase in Aquatic habitat fragmentation; There is a direct decrease in Upland wildlife habitat
			Indirect Effects:	There is an indirect increase/decrease in Net return to producer; There is an indirect decrease in Sediments and sediment-borne contaminants; There is an indirect increase in Lacustrine habitat; There is an indirect increase in Shoreline/streambank erosion
			Cumulative Effects:	There is a cumulative increase/decrease in Income and income stability (individuals & community); There is a cumulative increase/decrease in Water quality; There is a cumulative increase/decrease in Public health and safety; There is a cumulative decrease in Aquatic and terrestrial species; There is a cumulative increase in Aquatic and terrestrial wildlife and livestock water
Auxiliary spillway replacement Grade control structure Outfall reconstruction Plunge pool reconstruction	Grade Stabilization Structure (410)	410	Direct Effects:	There is a direct decrease in Water velocity
			Indirect Effects:	There is an indirect increase in Channel stability; There is an indirect decrease in Head cutting and channel erosion; There is an indirect increase in Upstream sediment deposition; There is an indirect increase in Crop production; There is an indirect increase in Aquatic and animal habitat; There is an indirect decrease in Overland and gully erosion; There is an indirect increase in Ponding behind structure; There is an indirect decrease in Downstream deposition; There is an indirect increase in Surface water quality; There is an indirect decrease in Tillage; There is an indirect decrease in Fossil fuel use
			Cumulative Effects:	There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase in Fishable and swimmable waters; reduced health and safety issues for humans, domestic, and wild animals.; There is a cumulative increase in Air quality of the airshed

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Activities/Actions	Practice Name	Practice Code	Effect Type	Summary of Predicted Effects
Rock placement for erosion control	Lined Waterway or Outlet (468)	468	Direct Effects:	There is a direct increase in Carbon sequestration; There is a direct increase in Wildlife food and cover; There is a direct decrease in Land available for crop production; There is a direct increase in Cost of installation and maintenance; There is a direct decrease in Runoff velocity; There is a direct increase/decrease in Infiltration (cover dependent); There is a direct decrease in Soil erosion (ephemeral gully and gully in channel); There is a direct increase in Conveyance of runoff water
			Indirect Effects:	There is an indirect decrease in Greenhouse gases; There is an indirect increase in Soil quality; There is an indirect increase in Upland wildlife populations and diversity; There is an indirect decrease in Potential income; There is an indirect decrease in Net return; There is an indirect increase/decrease in Soluble contaminants to receiving waters; There is an indirect decrease in Sediments and sediment-borne contaminants to receiving waters; There is an indirect decrease in Maintenance of drainage ditches and other structures; There is an indirect decrease in Localized flooding and ponding; There is an indirect increase in Plant productivity
			Cumulative Effects:	There is a cumulative increase in Air quality of the air shed; There is a cumulative increase in Health for humans, domestic and wild animals; There is a cumulative increase in Recreational opportunities; There is a cumulative increase/decrease in Quality of receiving waters and aquatic habitats ; There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase in (+) Preservation of infrastructure; (-) community maintenance costs
Wave erosion protection	Streambank and Shoreline Protection (580)	580	Direct Effects:	There is a direct increase in Cost of installation and maintenance; There is a direct decrease in Loss of land or damage to adjacent facilities or land uses; There is a direct decrease in Streambank/ shoreline erosion; There is a direct increase in Flow capacity of streams and channels; There is a direct increase in Streambank vegetation and root matrix (where vegetative treatment is used or bank armoring does not restrict plant growth)
			Indirect Effects:	There is an indirect increase/decrease in Net returns to landowner; There is an indirect decrease in Annual costs or losses to landowner; There is an indirect increase in Land values; There is an indirect decrease in Nutrients and organics in surface water; There is an indirect decrease in Sedimentation; There is an indirect increase/decrease in Channel/floodplain dynamics; There is an indirect increase/decrease in Riparian condition; There is an indirect increase/decrease in Shade; There is an indirect increase/decrease in Water quantity; There is an indirect increase/decrease in Water temperature; There is an indirect increase in Native plant seed recruitment; There is an indirect decrease in Invasive/noxious species (with vegetation management); There is an indirect increase in Storage of organic matter/soil carbon; There is an indirect increase in Soil quality; There is an indirect decrease in Greenhouse gases
			Cumulative Effects:	There is a cumulative increase in Water quality; There is a cumulative increase/decrease in Aquatic and terrestrial habitat (streambank, shoreline, instream, riparian, etc.); There is a cumulative increase/decrease in Aquatic and terrestrial populations and diversity; There is a cumulative increase/decrease in Recreational opportunities; There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase/decrease in Biodiversity; There is a cumulative increase in Air quality

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Activities/Actions	Practice Name	Practice Code	Effect Type	Summary of Predicted Effects
New connectivity channel	Open Channel (582)	582	Direct Effects:	There is a direct increase in Potential to create a closed agricultural system; There is a direct decrease in Streambank erosion; There is a direct decrease in Flooding and ponding; There is a direct increase/decrease in Stream flow fluctuations (dependent on management); There is a direct increase/decrease in Fish and wildlife habitat fragmentation; There is a direct increase/decrease in Acres of cropland/ wetland; There is a direct increase in Cost of installation, operation, and maintenance
			Indirect Effects:	There is an indirect increase in Retention of agrichemicals onsite; There is an indirect decrease in Offsite transport of agrichemicals; There is an indirect decrease in Sedimentation; There is an indirect decrease in Downstream maintenance costs; There is an indirect increase in Water delivery downstream; There is an indirect increase/decrease in Aquatic habitats; There is an indirect increase/decrease in Fish passage; There is an indirect increase/decrease in Cropland/wetland benefits; There is an indirect increase/decrease in Net return
			Cumulative Effects:	There is a cumulative increase in Water quality (long-term); There is a cumulative increase/decrease in Fish and wildlife habitat; There is a cumulative increase/decrease in Recreational opportunities; There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase/decrease in Environmental quality
Channel improvement Erosion protection Rock placement for erosion control	Channel Bed Stabilization (584)	584	Direct Effects:	There is a direct decrease in Streambank and/or bed erosion; There is a direct decrease in Tributary gully erosion; There is a direct decrease in On-site sediment deposition; There is a direct increase in Stream water surface profile; There is a direct increase in Streambank vegetation
			Indirect Effects:	There is an indirect increase in Damages from suspended sediment leaving site; There is an indirect increase in Structural wildlife habitat elements; There is an indirect increase in Floodplain floodwater storage; There is an indirect increase in Groundwater storage; There is an indirect increase in Plant suitability for wildlife habitat; There is an indirect decrease in Water temperature; There is an indirect increase in Wildlife cover; There is an indirect increase in Wildlife food
			Cumulative Effects:	There is a cumulative increase in Water Quality; There is a cumulative increase/decrease in Land use efficiency and area for flood-tolerant agricultural usage or other usage consistent with intermittent flooding; There is a cumulative increase in On-site flood frequency and duration; There is a cumulative decrease in Off-site flood frequency and duration; There is a cumulative increase in Water Quantity; There is a cumulative increase in Fish and Wildlife habitat

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Activities/Actions	Practice Name	Practice Code	Effect Type	Summary of Predicted Effects
Intake structure	Structure for Water Control (587)	587	Direct Effects:	There is a direct increase in Cost of installation, operation and maintenance; There is a direct increase in Water use efficiency; There is a direct increase in Impounded water; ability to control release of water; There is a direct decrease in Fish passage
			Indirect Effects:	There is an indirect increase/decrease in Net return; There is an indirect increase in Water conservation; There is an indirect increase in Water available for other uses; There is an indirect increase in Crop vigor and production; There is an indirect increase in Potential income; There is an indirect decrease in Sediments and contaminants to surface waters; There is an indirect increase in Infiltration; There is an indirect increase in Ground water recharge; There is an indirect increase in Potential for transport of dissolved contaminants to ground water; There is an indirect increase in Hydroperiod; There is an indirect increase in Wetland/aquatic habitats; There is an indirect increase/decrease in Wildlife habitat (species specific); There is an indirect increase/decrease in Fisheries
			Cumulative Effects:	There is a cumulative increase/decrease in Income and income stability (individuals and community); There is a cumulative increase/decrease in Quality of receiving waters; There is a cumulative increase/decrease in Recreational opportunities
Box culverts Culvert replacement Drainage improvements Toe drain replacement	Underground Outlet (620)	620	Direct Effects:	There is a direct increase in Water volume at outlet; There is a direct decrease in Surplus water at inlet; There is a direct increase in Cost for installation and maintenance
			Indirect Effects:	There is an indirect increase in Erosion potential downstream; There is an indirect increase in Transport waterborne contaminants; There is an indirect increase/decrease in Water quality; There is an indirect decrease in Runoff (inlet site); There is an indirect increase/decrease in Soil erosion (inlet site); There is an indirect increase/decrease in Sediment deposited offsite; There is an indirect decrease in Maintenance of drainage ditches and other structures; There is an indirect increase in Growing conditions for desired crop; There is an indirect increase in Plant productivity; There is an indirect increase in Potential income; There is an indirect increase/decrease in Net return to producer
			Cumulative Effects:	There is a cumulative increase/decrease in Health of aquatic habitats; There is a cumulative increase/decrease in Recreation, Swimmable, fishable waters; There is a cumulative increase/decrease in Income and income stability (individuals and community)

Network Effects Diagrams: NRCS has developed network effects diagrams to illustrate the chain of expected direct, indirect, and cumulative effects of applying each conservation practice according to the standard for the land use on which it is intended to be applied and the other practices to be considered in conjunction. Copies of the network effects diagrams are available on the NRCS website(<https://www.nrcs.usda.gov/resources/guides-and-instructions/conservation-practice-standards>)