United States Department of Agriculture

Finding of No Significant Impact for Supplemental Watershed Plan No. 3 for the Rehabilitation of North Branch Forest River Dam No. 1 (Bylin Dam), Walsh County, North Dakota

I. Introduction

Rehabilitation of Walsh County Water Resource District North Branch Forest River Watershed Dam No. 1 (Bylin Dam) is a federally-assisted action authorized under Public Law 83-566, the Watershed Protection and Flood Prevention Act, as amended in 2000 under Public Law 106-472, Section 313. This act authorized the United State Department of Agriculture, Natural Resources Conservation Service (NRCS) to provide technical and financial assistance to local project sponsors for rehabilitation of dams previously constructed under P.L. 83-566. The local sponsor of the project is the owner of the dam, the Walsh County Water Resource District. After authorization of this Supplemental Watershed Plan, the Sponsor will be eligible to request funding for final engineering design and construction through the NRCS for implementation of the preferred alternative.

An Environmental Assessment under the National Environment Policy Act, attached and incorporated by reference into this finding, was undertaken in conjunction with the development of the Watershed Plan (Plan-EA). The assessment was conducted in cooperation and consultation with local, state, and tribal governments; federal agencies; and interested organizations and individuals. The Final Plan-EA is available for public review at the locations listed below:

https://www.nrcs.usda.gov/conservation-basics/conservation-by-state/north-dakota/bylin-dam-rehabiliation

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II. Recommended Action

The Proposed Action entails structural modifications to bring the dam into compliance with current state and federal dam safety standards for a high hazard structure. The top of dam (and associated road) will be raised by 3.9 feet to accommodate the probable maximum flood. The existing auxiliary spillway channel will be modified as follows: excavated to a bottom width of 300 feet, slope of 13%, 3:1 sideslopes, and lined with articulated concrete block to prevent erosion and failure of the spillway. A new reinforced concrete principal spillway riser tower will be constructed and a 36-inch principal spillway conduit will be installed by boring and jacking through the existing dam. A rock lined plunge pool will be constructed for energy dissipation at the new conduit outlet. The existing principal spillway riser tower will be removed, and the existing principal spillway conduit will be abandoned by grouting it closed. The downstream embankment slope will be flattened to address slope stability deficiencies, utilizing excavated material from the auxiliary spillway. A new chimney filter and foundation drain will be installed to address seepage concerns.

The purpose of this project is to rehabilitate North Branch Forest River Dam No. 1 (Bylin Dam) to eliminate the threat the dam, in its current condition, poses to human lives, infrastructure, cropland, and natural resources downstream. Bylin Dam delivers important flood prevention and recreation benefits to the watershed, which were the originally authorized purposes of the watershed dam. The need for the project is that Bylin Dam does not meet current NRCS and State of North Dakota dam safety standards in regard to embankment design, hydraulic spillway capacity, and earthen spillway stability requirements. As a result, 25 human lives, 19 residential structures, 39 agricultural properties, 37 grain storage bins, 3 bridges, 5.1 miles of roadway, 2 historical sites, and 3,168 acres of cropland are currently at risk. The normal pool also provides recreation opportunities, consisting primarily of boating, fishing, hiking, and waterfowl hunting which are at risk.

I must determine if the preferred alternative, will or will not be a major Federal action significantly affecting the quality of the human environment. The Plan-EA accompanying this finding has provided the analysis needed to assess the significance of the potential impacts from the selected alternative. The decision on which alternative is to be implemented and the significance of that alternative's impacts are under part VI of this finding.

III. Alternatives Considered

During the planning process, 23 alternatives were initially considered: 15 structural rehabilitation alternatives for a high hazard dam, rehabilitation to a significant hazard structure with downstream floodproofing/home buyouts, 5 nonstructural alternatives involving decommissioning the dam and installing setback levees for protection at the 5, 10, 25, 50, or 100-year recurrence interval flood, a federal decommissioning alternative, a future without federal investment alternative, and a no action alternative. When formulating an alternative, it was analyzed for satisfaction of the purpose and need statement, and against four criteria: completeness, effectiveness, efficiency, and acceptability. Environmental, social, and economic impacts of the nonstructural, decommissioning, and rehabilitation to significant hazard structure alternatives were found to be negative as compared to structural rehabilitation; therefore, these alternatives were removed from further consideration in the planning effort. Three alternatives were selected for detailed analysis in the Plan-EA and are characterized as follows:

Alternative 1: Future Without Federal Investment If a structural rehabilitation were not undertaken on the dam with federal assistance, the Sponsor anticipates that they would remove their liability for public safety and property damages by taking a "least cost" approach to decommissioning the dam embankment to the point it no longer posed downstream risk. The minimally decommissioned dam would consist of a sheet pile weir and riprap installed near the upstream toe of the existing dam location to minimize sediment migration through the breach section. The structure would not be fish passable. The weir length for the opening at the breach section would be large enough to pass a 100-year flood event at the bank full channel elevation (the weir length required would be approximately 48 feet). Riprap would also be placed up the side slopes of the former dam embankment up to the 100-year water surface profile elevation. The side slopes of the breach section would be flat enough as to not create slope stability issues through the breach section (a minimum of two to one horizontal to vertical side slope would be necessary). Additionally, the principal spillway riser tower and conduit would be excavated and removed. The upstream sediment pool would not be addressed in any manner. The township gravel road, which

currently exists atop Bylin Dam, would be realigned to its original location (prior to the construction of Bylin Dam) west of the dam embankment, and a 90-inch diameter culvert would be installed to pass flows through the road crossing with the North Branch Forest River. Downstream flooding conditions would be similar to those that existed prior to the construction of the dam. The 100-year floodplain would be expanded from 3,029 acres to 3,810 acres.

Alternative 2: Structural Rehabilitation Of the 15 structural alternatives identified, none had distinguishing environmental or social impacts; therefore, the least cost alternative was the preference of both the NRCS and Walsh WRD. The dam embankment would be raised a total of 3.9 feet to pass the freeboard hydrograph. The proposed embankment top would also serve (as it does currently) as a county road and would have a top width of 26 feet. A three-cable guard rail is proposed on both sides of the road. The downstream embankment of the dam would be modified to address slope stability concerns; the downstream slope adjacent to the embankment top would be 3:1 (horizontal: vertical) down to 1498.2 feet elevation where a 20-foot bench would be implemented. Downstream of the bench a 4:1 (horizontal: vertical) slope on the embankment would be implemented. A chimney drain would be installed on the downstream side of the existing embankment to intercept any seepage concerns through the embankment during flood events. Seepage flows captured would be routed to a foundation drain near the existing embankment toe and would then be discharged into a plunge pool constructed at the principal spillway outlet. The auxiliary spillway profile would be excavated and armored with articulated concrete block (ACB). The auxiliary spillway alignment would match the existing alignment, but the profile would be modified to a uniform 0.13 feet/feet throughout the spillway channel to accommodate the appropriate ACB design guidance. The auxiliary spillway width would remain the same as the existing width, which is approximately 300 feet. The existing principal spillway riser tower would be removed, and the existing principal spillway conduit would be grouted. The proposed 36" principal spillway conduit would be installed via NRCS approved boring and jacking methods through the existing embankment. Open cut placement methods would be used outside of the existing embankment extents. A new plunge pool would be constructed at the outlet of the principal spillway conduit. Downstream of the plunge pool, a constructed channel would be implemented to carry flows from the plunge pool back to the North Branch Forest River channel (less than 150 feet of new channel construction). A new principal spillway riser tower would be installed that would pass the principal spillway design hydrograph without activation of the auxiliary spillway. The proposed riser tower would be a NRCS standard two-way covered riser tower with a low stage orifice opening and second stage overflow weir.

Alternative 3: No Action The no action alternative represents a scenario where the existing dam remains in place with no measures taken to address the dam safety inadequacies associated with the dam. The dam would remain in place and would function as it currently does for the 2- through 500-year flood events. Flood reduction benefits would remain the same, until such time as the dam fails, as no changes would be made to the outlet works of the structure. Recreation activities would continue while the dam is intact and all wetlands on the perimeter of the reservoir and surrounding the dam would be unaffected by this alternative until dam failure. The no action alternative for Bylin Dam would result in a breach of Bylin Dam during a 625-year event. The breach would occur in the existing auxiliary spillway and would begin headcutting near the toe of the spillway. The headcut would progress rapidly upstream until it reached the reservoir of the dam. The volume of material eroded from auxiliary spillway would be approximately 323,400 cubic yards. The material eroded from the breach would be transported downstream where it would settle out in the floodplain or continue down through the North Branch Forest River until the confluence with the Middle Branch Forest River. The reservoir upstream of the dam would be drained completely during the breach and the dam would not be reconstructed for this scenario. The resulting flood wave would impact 19 residential structures, 39 agricultural properties, and 37 grain storage bins. An estimated 25 lives would be lost during the breach at 7 homes and 1 highway crossing.

The breach would cause overtopping damage on 0.35 miles of paved roadway, 3.76 miles of maintained gravel roadway, and 0.98 miles of minimally maintained roadway. The breach would also cause damage to three bridges downstream of the dam, one of which is on the National Register of Historic Places (NHRP), and an 1883 schoolhouse which has been converted to a museum (also on the NRHP).

The flood wave would stay within the North Branch Forest River valley through the river crossing at Walsh County Road 14. Approximately one mile east of Walsh County Road 14, the flood wave would break out of the North Branch Forest River and travel overland through agricultural fields. This overland flooding of cropland would result in additional floodplain erosion, totaling approximately 915,000 cubic yards of erosion, reducing or eliminating crop yields depending on the depth of topsoil loss. A portion of the combined 1.24 million cubic yards of erosion occurring from the initial breach and downstream would be deposited within the downstream breach zone, requiring a significant clean-up effort to remove the deposited sediments from roadway crossings, conveyance channels, and cropland. The flood wave from the breach would cause loss of mature trees on 338 acres of riparian forest downstream of the dam. An estimated 31.8 acres of wetlands would be lost to scour, and 61.9 acres of wetlands lost to sediment deposition downstream of the dam. Sediments deposited would not be removed in non-cropland areas, such as riparian floodplain and upland grasslands, resulting in reduced wildlife habitat quality, runoff nutrient filtration, and natural flood storage in an area where these functions are already limited. Crop impacts caused by erosion, flooding, and the resultant cleanup costs are estimated at approximately $15.9 million just in the year of the initial breach. In future years following the breach event, a significant headcut would migrate west through accumulated reservoir sediments, transporting an additional 340,200 cubic yards of sediment downstream. The 1.6 million cubic yards of newly mobilized sediment would result in a highly unstable river channel and negatively impact agricultural drainage systems downstream. Water quality standards would be exceeded for cadmium, chromium, copper, lead, nickel, zine, nitrogen, and phosphorus downstream for years after the breach with risks to human health and aquatic species. Deposition of sediment bound contaminants on cropland could impact production and/or food safety.

IV. NRCS Decision

Under the Principles, Requirements, and Guidelines for Water Resource Projects federal agencies are directed to consider tradeoffs between the economic, social, and environmental consequences of plan alternatives. Agencies are directed to select the federally preferred alternative based on no single one of these three objectives being higher priority than another. As summarized in the Plan-EA, Alternative 3 (No Action) is the National Economic Efficiency Alternative because there is no construction cost involved and probabilistic analysis indicates that the 8.53-inch runoff event (snowmelt and/or precipitation) that would cause dam failure has a statistically derived return interval of 625 years. Therefore, economic analysis credits flood protection and recreation benefits of the dam being present for 624 years prior to applying the $ 24.5 million in economic losses due to the dam breach and discounting those back to present value. Note that this is simply a probabilistic assessment; in reality it is possible runoff event(s) could trigger a dam failure at any point in time given its current condition. Of the remaining alternatives, Alternative 2 (Structural Rehabilitation) provides a significantly higher benefit cost ratio than Alternative 1 (FWOFI), at a comparative benefit-cost of 1.3:1.

Alternative 2 (Structural Rehabilitation Alternative) is the preferred alternative from the standpoint of social impacts. The alternative would ensure flood protection benefits to homes, public roads, agricultural structures, cropland, and the local economy remain in place for the next 100 years. Alternative 2 also continues to provide public recreation benefits and maintains protection for two

downstream historic structures. Of the remaining alternatives, Alternative 1 (FWOFI) would provide the next highest social benefits as it also would prevent loss of life. Removal of flood retention, however, would negatively impact individuals and communities due to regular flood damages to homes, public roads, agricultural structures, and cropland, and would also put historic structures at risk. In addition to losses to the local economy, Alternative 1 would remove the public recreation opportunity. From a social standpoint, Alternative 3 (No Action) has significant negative social impacts including the projected loss of 25 lives and damages to 19 homes, 3 bridges, and 5.1 miles of roads, and destruction of 2 historic structures. The public recreation opportunity would be lost and societal results of reduced road access for emergency services, local residents, and agricultural producers hauling harvested crops would persist into the future. From the standpoint of the U.S. government's commitment to implementation of the Boundary Waters Treaty, through recent commitment to International Joint Commission objectives for nutrient reductions in the U.S. portion of the Red River, Alternative 2 is also strongly preferred.

From an environmental standpoint, Alternative 1 (FWOFI) and Alternative 2 (Structural Rehabilitation) both have merit from the standpoint of certain ecosystem services and resources. Alternative 2 (Structural Rehabilitation) was determined to be the environmentally preferred alternative due to the important benefits it provides for water quality; it is closer to the natural hydrologic regime the existing dam provides for the downstream river channel and floodplain, due to its function of replacing natural retention in this highly drained watershed. Alternative 2 is also preferred to Alternative 1 on the basis of undesirable (invasive) species, erosion, and prime farmland. The selection of Alternative 2 was done with recognition of the fact that Alternative 1 would provide a higher level of benefits in terms of natural sediment transport, climate, and habitat for grassland species. Alternative 3 (No Action) would have severe environmental consequences in terms of degraded surface and groundwater quality, loss of wetlands, degradation of the river channel, and loss of mature trees within riparian woodland habitat.

Based on the evaluation in the Plan-EA, decisions made by the Local Sponsor, and input from the public, Tribes, and federal, state, and local agencies I have chosen to select Alternative 2 as the agency's preferred alternative. I have taken into consideration all the potential impacts of the Proposed Action, incorporated herein by reference from the Plan-EA and balanced those impacts with considerations of the agency's purpose and need for action. In accordance with the Council on Environmental Quality's (CEQ) "40 Most Asked Questions" guidance on NEPA, Question 37(a), NRCS has considered "which factors were weighted most heavily in the determination". Based on the Plan-EA, potential impacts to soil, water, air, plants, fish and wildlife, cultural resources, and human life were heavily considered in the decision. As a result, the agency's preferred alternative (Alternative 2: Structural Rehabilitation) would result in overall short- and long-term beneficial impacts to the natural and human environment as compared with other alternatives.

V. Effects of the Recommended Action-Finding of No Significant Impact

To determine the significance of the action analyzed in the Plan--EA, the agency is required by NEPA regulations at 40 CFR Section 1508.27 and NRCS regulations at 7 CFR Part 650 to consider the context and intensity of the Proposed Action. Upon review of the NEPA criteria for significant effects and based on the analysis in the Plan-EA, I have determined that the action to be selected, Alternative 2- Structural Rehabilitation (agency preferred alternative), would not significantly affect the quality of the human environment. Therefore, preparation of an environmental impact statement (EIS) on the final action is

not required under section 102(2)(c) of the NEPA, CEQ implementing regulations (40 CFR Part 1500-1508, Section 1508.13), or NRCS environmental review procedures (7 CFR Part 650). This finding is based on the following factors from CEQ's implementing regulations at 40 CFR Section 1508.27 and from NRCS regulations at 7 CFR Part 650. The Walsh County Water Resource District selects Alternative 2- Structural Rehabilitation as the locally preferred alternative as well. The environmental impacts of constructing Alternative 2 are not significant for the following reasons:

1) The Plan-EA evaluated both beneficial and adverse impacts of the Proposed Action. It is anticipated the Proposed Action will result in long-term beneficial impacts to the human environment including natural resources such as flood damage reduction, soil erosion, cropland productivity, water quality, invasive species, property values, cultural resources, and protection of human lives and infrastructure in the watershed. As a result of the analysis (discussed in detail in Chapter 6 of the Plan-EA and incorporated by reference), the Proposed Action does not result in significant impacts to the human environment, particularly when focusing on the significant adverse impacts which NEPA is intended to help decisionmakers avoid, minimize, and mitigate.

2) The Proposed Action reduces the overall risks to health and human safety by reducing risk of lives lost in the event of a dam breach, as well as reducing risk of contamination to the Fordville Aquifer (including 9 public drinking water wells in a well head protection area).

3) As analyzed in Section 6.0 of the Plan-EA, there are no anticipated significant effects to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas from selection of the Proposed Action. NRCS regulations (7 CFR Part 650) and policy (Title 420, General Manual, Part 401), require that NRCS identify, assess, and minimize or mitigate effects to avoid effects to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. In accordance with these requirements, it is not anticipated that implementing the Proposed Action would have adverse effects on these resources.

4) The effects on the human environment are not considered controversial for the Proposed Action. There are no impacts associated with the proposed action that would be considered controversial.

5) The Proposed Action is not considered highly uncertain and does not involve unique or unknown risks.

6) The Proposed Action will not establish a precedent for future actions with significant effects, nor does it represent a decision in principle about future considerations. The Proposed Action will be carried out for the North Branch Forest River Dam No. 1 (Bylin Dam) only. Other projects not discussed in the Final Plan-EA will be required to undergo NEPA analysis individually.

7) Particularly when focusing on the significant adverse impacts which NEPA is intended to help decision-makers avoid, minimize, or mitigate, the Proposed Action does not result in significant adverse cumulative impacts to the human environment as discussed in section 6.3 of the Plan-EA.

8) The Proposed Action will not cause the loss or destruction of significant scientific, cultural, or historical resources as addressed in section 6.2.6 and Appendix D-11 of the Plan-EA. NRCS has concluded that the Proposed Action would have no effect on cultural and historic resources in the Project Area. The North Dakota State Historic Preservation Office (SHPO), which has jurisdiction over Section 106 of the National Historic Preservation Act (NHPA) compliance requirements, has concurred

with our findings (see Appendix A). Additionally, 32 Tribes were consulted on the project under both NEPA and the NHPA. Two tribal responses were received. The Crow Creek tribe indicated they would defer to local tribes. The Spirit Lake Nation Tribe responded that they concurred with the determination of No Effect to Historic Properties, however they stressed that the area was heavily utilized in prehistoric times, stressed the necessity to keep the project within the conceptual design boundary, and requested NRCS notify them of any discoveries during construction.

9) NRCS has concluded, based on a May 2024 consultation decision from the USFWS, that the Proposed Action may affect, but is not likely to adversely affect the endangered Northern Long-Eared Bat (NLEB) species. The Proposed Action is also not likely to adversely impact the Monarch Butterfly (an official candidate for listing). The Proposed Action will not involve the removal of trees of suitable size for NLEB and will only temporarily impact grassland that may be suitable for Monarch Butterflies as discussed in Sections 4.2.5 and 6.2.5 of the Plan-EA.

10) The Proposed Action does not violate Federal, State, or local law requirements imposed for protection of the environment as noted in Section 8.4 of the Plan-EA. The major federal laws identified with the selection of the Proposed Action include the Clean Water Act, Endangered Species Act, National Historic Preservation Act, the Executive order on Environmental Justice, and Migratory Bird Treaty Act. Levee Alternative 1 is consistent with the requirements of these laws.

VI. Consultation – Public Participation

Systematic scoping was used to identify problems within the watershed and to rate their significance. Stakeholders, including the general public, were invited to participate in the process and the project was described during public meetings. The means of notification were notice of public meetings submitted to local newspapers (the Walsh County Record and the Grand Forks Herald). Scoping details including invitation letters, meeting materials, and comments received through the public participation process are provided in Appendix A.

The first public meeting was held at the Minto Community Center on March 6, 2020. The meeting was advertised in the Walsh County Record Newspaper and meeting invitations were sent to 20 federal, state, and local agencies. Zach Herrmann and Mike Opat of Houston Engineering Inc. (HEI) along with Christi Fisher, State Conservation Engineer for the NRCS, presented an introduction to the project for an audience of 16 stakeholders. The public notice, invitation letters, responses and presentation materials are included in Appendix A. A second public meeting was held as a virtual meeting through Microsoft Teams and with some of the public in attendance at the Walsh County Courthouse in Grafton, ND, on February 8, 2022. The meeting was advertised in the Walsh County Record and letter/email invitations were sent to the cooperating agencies, SHPO, Tribes and 20 Federal, State and Local agencies. The public notice, invitation letters, responses and presentation materials are included in Appendix A. Paul LeClaire of HEI presented the alternative development process and consequences of the alternatives identified for the audience.

The general public was informed by the placement of an advertisement in the local Walsh County Record and the Walsh County Press. The ad ran in 3 editions August 7, 14, and 21, 2024. The advertisement included a link to a virtual meeting, plus links and contact information for online access or the availability of hard copies of the Draft Plan/EA. Invitations with the invitation/link to the public meeting were mailed to adjacent landowners and landowners downstream that may be affected by a breach. Information on where to access the Plan/EA, and how to provide comments were sent to all landowners within and adjacent to the project. The public comment period on the Draft Plan EA was from August 1, 2024 to

September 24, 2024. A total of 8 comments were received at the public meeting on August 27, 2024. An additional 8 comments were provided by the ND Department of Water Resources and ND Game and Fish. Comments and responses are included in Appendix A.

VII. Conclusion

Alternative 2: Structural Rehabilitation has been selected as the Preferred Alternative for implementation based upon overall short- and long-term beneficial impacts to the natural and human environment as compared with other alternatives. Alternative 2 is also the Preferred Alternative of the Local Sponsor. The Plan-EA accompanying this finding has provided the analysis needed to assess the significance of the potential impacts from Alternative 2. The decision on which alternative is to be implemented, and the significance of the alternative's impacts, are summarized in Section 8 of the Plan-EA.

Based on information presented in the attached Plan-EA and supporting documents, Alternative 2 is not a major Federal action significantly affecting the quality of the human environment. I have determined that implementing Alternative 2 will not significantly affect the quality of the human and/or natural environment, individually or cumulatively with other actions in the area. No environmental effects meet the definition of significant in context or intensity, as defined at 40 CFR 1508.27. Therefore, an environmental impact statement is not required for the project. This finding is based on the consideration of the context and intensity of impacts as summarized in the Walsh County Water Resource District North Branch Forest River Dam No. 1 (Bylin Dam) Supplemental Plan-EA. With these findings, NRCS therefore has decided to implement the Preferred Alternative – Alternative 2, Structural Rehabilitation.

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