PUEBLO OF NAMBE
OFFICE OF THE GOVERNOR
REQUEST FOR PROPOSAL (RFP) SCOPE OF WORK

Rio Nambé Restoration Assessment and Design Abbreviated Scope of Work (SOW)

RFP NO.: NP-26-SB-005

Introduction and Background

Nambé Reservoir is located on the Rio Nambé in northern New Mexico about 18 miles north of Santa Fe, New Mexico and 12 miles southeast of Espanola, New Mexico. Rio Nambé is in the Rio Pojoaque Watershed within the Upper Rio Grande Basin. The project area described in this SOW is located on Nambé Pueblo land within the Pueblo of Nambé.

The Rio Nambé headwaters are located in the Sangre de Cristo Mountains on lands managed primarily by the United States Forest Service within the Santa Fe National Forest. The river flows onto Nambé Pueblo land and is impounded in Nambé Reservoir by the Nambé Falls Dam. It is the only perennial stream on Nambé Pueblo. The Reservoir was built in 1976 and has a surface elevation of 6,825 feet. The lake is approximately 55 surface acres and the watershed is 35 square miles. The terrain upstream of the Nambé Reservoir is rugged with steep slopes above drainage channels. Vegetation is moderately dense pinyon-juniper woodland.

In 2011, the Pacheco Fire burned approximately 10,250 acres within the Santa Fe National Forest, covering 50% of the Nambé Reservoir watershed. This fire resulted in extreme soil damage and vegetation loss over the upper watershed and significantly impacted the hydrology of the area. The US Army Corps of Engineers (USACE) estimated that if no mitigation occurred, the Nambé Reservoir would receive approximately 240 acre-feet of sediment over the next 12 years (2014 to 2025) and considered the potential for landslides to be “high” within the watershed.

To mitigate damage from this wildfire, three debris flow barriers were installed along the Rio Nambé upstream of the reservoir in 2016. They were intended to protect a box culvert and access road crossing and also prevent sedimentation of Nambé Reservoir.

Objectives

The primary objective of this project is to restore the Rio Nambé to a natural condition while keeping excess sediment from accumulating in Nambé Reservoir. Determining how to best restore the stream channel while managing sediment should hinge on a thorough assessment of watershed conditions, including sources of sediment transport and strategies to address sediment issues.

The Rio Nambé upstream of Nambé Reservoir has experienced system-wide sediment accumulation in the river channel, side channels, and reservoir delta, reducing storage capacity and increasing maintenance demands. Existing debris barriers have completely filled with material, limiting their ability to capture sediment. An assessment is needed to determine if the barriers remain necessary to keep sediment from accumulating in the reservoir in high flow events, or if the barriers can be removed and the Rio Nambé can be restored to a naturally functioning stream channel. Strategies to address sediment movement may include clean-out, modification, or removal of existing barriers or installation of new barriers at locations more suitable for routine maintenance.

Channel incision and altered grade have increased sediment transport efficiency, reduced floodplain connectivity, impaired fish passage, and contributed to declining riparian conditions. A comprehensive restoration approach is needed to stabilize channel grade, improve sediment retention, enhance aquatic connectivity, strategically manage large dead vegetation, and implement a revegetation plan that supports long-term geomorphic and ecological resilience.

Coordination with and involvement of the Tribal Historic Preservation Office (THPO) as well as field site observation by Tribal Historic Preservation Monitors appointed by the Pueblo will be required at the expense of the Contractor. Their rate is $25/hour per monitor. The number of monitors is dependent on the project design and the number of teams working at a given time. The THPO and monitors must be involved and consulted in the planning and design of the Rio Nambé restoration.

Priority 1: Assess sediment transport in the Rio Nambé watershed upstream of Nambé Reservoir and develop a long-term plan for reducing sediment movement that negatively impacts reservoir storage capacity. This assessment must consider:

- Removal of debris flow barriers if possible given findings from watershed and sediment surveys and data collection. If debris flow barriers are found necessary for sediment or debris control, evaluate options for clean out and repair.

- Identification of options for additional sediment traps lower in system that are easier to maintain.

Priority 2: Restore the Rio Nambé to a natural stream channel. This assessment must consider:

- Restoration of the river channel to natural grades.
- Fish passage and habitat restoration.
- Restoration of the water table to pre-fire levels.
- Removal and repurposing of dead vegetation (large ponderosa pines).
- Development of a revegetation plan.

Phase 1:

Goal: The Contractor must develop a comprehensive, data-driven restoration strategy for the Rio Nambé that quantifies sediment sources, channel conditions, and hydrologic dynamics to identify priority reaches and sediment management needs. Using this foundation, the Contractor must evaluate and design practical alternatives — including debris barrier modifications and/or removal, sediment traps, grade recovery, habitat improvements, and revegetation — to reduce sediment delivery, improve river function, and support long-term ecosystem resilience.

A) Data Compilation and Characterization

The following elements are suggested but should not be limited to:

Compile and review existing information, including assessment of:

- Existing hydrology and flow records, precipitation, post-fire history, and any past studies.
- Aerial imagery time series; LiDAR.
- Available satellite derived data (i.e. land cover, soils, etc.)
- Prior reservoir sedimentation / bathymetry and delta mapping, as well as prior dredging actions, to provide context.
- Infrastructure inventory including crossings, utilities, road drainage.

Geomorphic and Sediment Source Assessment, including:

- Watershed Reconnaissance and Mapping.
    - Map and field verify sediment sources (bank erosion, headcuts, tributary fans, mass wasting and road delivery points).
    - Map sediment connectivity and storage areas.

- Channel Geometry and Condition Surveys (identify priority reaches).
    - Longitudinal profiles, grade breaks, headcuts and knick points.
    - Cross sections of channel and floodplain.
    - Topographic surveys of key design locations.
    - Substrate characterization.
    - Bank Erosion Hazard Index (BEHI) metrics.
- Sediment Budget, which must:
    - Estimate relative contributions by source type and area.
    - Identify treatable versus background sources.
    - Define sediment retention opportunities and risks.
    - Assess storage capacity of the river delta.
        - There are plans to dredge the delta in the future; designs of downstream sediment traps should incorporate this possibility.
- Hydrology, which must identify and assess:
    - Hydrogeologic characterization (bank full estimate, monsoon peak modeling, sediment yield, etc.).
    - Design recurrence interval and flow rate recommendations for restoration features.

Deliverables: The Contractor shall provide a complete digital and hard-copy record of all data collected and developed as part of this project, including field survey data, GIS datasets, mapping products, hydraulic analyses, sediment calculations, photographs, and modeling outputs in standard, accessible formats. Furthermore, a baseline data summary report should be generated and provided, summarizing all data collected and generated, including methods, assumptions, results, and key findings from geomorphic, sediment, and hydrologic assessments. A GIS-based map set identifying erosion areas, sediment sources and priority reaches should be part of this report.

B) Alternatives Development

Using the findings from Part A, develop and evaluate a minimum of two feasible stream restoration and sediment management concepts for the Rio Nambé that reduce sediment delivery, improve channel stability, and enhance long-term watershed function. The Pueblo maintains the right to choose components of the proposed concepts and make recommendations to the concepts that align with our needs, standards, and THPO requirements.

The alternatives development must include the following:

- Grade recovery strategies.
- Low-tech process-based restoration (LTPBR) features where suitable.
- Revegetation measures.
- Fish passage analysis.
- Sediment source control.
    - Trap / store / connect
- Construction and maintenance needs and access.
- Cultural resource preservation.

Deliverables: A short technical report for each proposed alternative describing:

- How the alternative addressed each identified priority (sedimentation reduction, debris barrier management, grade recovery, fish passage, vegetation management, etc.).
- Conceptual design approach and treatment locations.
- Anticipated sediment reduction and functional benefits.
- Construction considerations and management needs.
- Planning-level cost estimate and projected total project budget.

All deliverables shall be suitable for use in permitting, funding applications and future design advancement.

Phase 2: Design Phase 30%

Upon discussion and agreement with Nambé Pueblo, including coordination with the THPO, advance the selected recommended alternative (or combination of alternatives) to the 30% design level. The design package shall address upland, riverine, and delta components in an integrated and comprehensive manner. Submittals must include sufficient technical detail, drawings, and supporting documentation to support Clean Water Act section 404 and section 401 permit application requirements. A cost estimate should also be included and should cover all aspects of finalizing design and permitting as well as opinion of probable construction cost. The Nambé Pueblo gross receipts tax of 6.875% of total receipts from doing business on the Pueblo will apply.

Deliverables: The Contractor shall submit a 30% design package including but not limited to:

- Basis of Design Memorandum.
- Supporting hydrologic and geomorphic analyses.

- 30% design drawings.
- Preliminary permitting support documentation.
- Engineer's opinion of probable construction cost.
- Summary of next steps required to advance to final design and permitting.

Phase 3: Final Design, Permitting and Construction Documents

Following review and approval of the 30% design package by Nambé Pueblo, the project design should be advanced to final design and construction ready documents. Contingent on funding availability, the Contractor must advance the project through the following design phases:

A. Design advancement (60%, 90% and Final). Tasks may include:
    a. Refinement of hydrologic and geomorphic analyses as necessary.
    b. Detailed grading and earthwork design.
    c. Final channel alignment, profiles and cross-sections.
    d. Structural design of grade control features and sediment management structures.
    e. Floodplain and habitat restoration design elements.
    f. Detailed revegetation plan.
    g. Construction access, staging and site restoration planning.
    h. Preparation of technical specifications.
B. Permitting and Regulatory Compliance. Tasks may include:
    a. Preparation of an Environmental Assessment (EA) according to National Environmental Policy Act (NEPA) requirements.
    b. Endangered Species Act (ESA) consultation and compliance.
    c. Clean Water Act section 404 permit application materials.
    d. Clean Water Act section 401 water quality certification, if necessary.
    e. Assistance to the Pueblo in responding to agency comments and requests for additional information.
    f. Coordination with Pueblo of Nambe's THPO to ensure cultural compliance.
C. Final Construction Documents. The Contractor must prepare a complete set of construction documents suitable for bidding and construction.
D. Final Engineer's Opinion of Probable Construction Cost.

Deliverables: A final design package should be produced to include:

- Final design drawings and technical specifications.
- Final engineer's opinion of probable construction cost.

- Final permit application materials and supporting documentation.

Summary memorandum documenting design decisions, permitting outcomes, and recommended next steps for construction.