2. ALTERNATIVES

Two alternatives are analyzed in detail in this EA: the No Action Alternative and the Proposed Action. The Proposed Action is the re-excavation of a partially filled and abandoned river channel through the Pueblo of Sandia bosque in an abandoned floodplain that connects to the Rio Grande. The Proposed Action is intended to provide habitat for the silvery minnow and flycatcher. Projects of similar construction and scope have been constructed elsewhere along the Middle Rio Grande and have shown success in providing silvery minnow habitat and flycatcher.

2.1 ALTERNATIVES CONSIDERED

2.1.1 No Action Alternative

The No Action Alternative assumes that no human-caused changes would occur in the project area. No channel would be constructed and the bosque would be allowed to continue to develop without interference. Under this alternative, vegetation succession would be allowed to proceed untreated.

2.1.2 Preferred Alternative: The Proposed Action

The Preferred Alternative is the Proposed Action, which involves implementing various restoration treatments on Pueblo of Sandia lands. Restoration activities will occur in the bosque area within and adjacent to a historic side channel that is no longer connected hydrologically to the mainstem river. The proposed restoration treatments include constructing a meandering channel, placing LWD within the newly renovated channel, and planting approximately 5 acres (20,234 m^2) of native woody vegetation. The design of the proposed Project includes passive restoration to encourage the hydrology of the river to naturally create desired restoration effects (e.g., to continually shape the features of the ephemeral channel).

The Proposed Action will occur within the Rio Grande floodplain on the Pueblo of Sandia lands during periods of low flow between September 1 and April 15. The proposed restoration work will occur on the east side of the Rio Grande, approximately 1 mile (1.6 km) south of the Pueblo of Sandia village and adjacent to the village of Corrales.

2.2 ALTERNATIVES CONSIDERED BUT ELIMINATED

In 2003, the Pueblo of Sandia commissioned several conceptual designs for improvement of silvery minnow habitat (Table 2-1). These alternatives were based on conceptual drawings prepared for the Pueblo of Sandia in 2003 and included bankline modifications, such as coves and terraces. However, recent projects for silvery minnow habitat improvements have indicated that these modifications are short-lived and do not always provide all of the expected benefits. At sites that incorporated similar alterations, the modifications tended to last only two to three years before losing much of their habitat value. In addition, the permitting issues would have been considerably more cumbersome with these alternatives. Finally, these alternatives would have led to the loss of Pueblo of Sandia land, as bankline was removed for the alterations.

Another alternative that was considered was a different channel alignment at the same site. However, after several site visits and an examination of Light Detection and Ranging (LiDAR) photography, it was determined that the best use of resources would be to utilize an abandoned floodplain channel that was still visible on the site. This would also minimize ground disturbance and the need for disposal of fill.

Table 2-1. Summary of Tasks Considered for the Proposed Action

Technique	Description	Benefits
Surveying	Site survey to determine final engineering design of channel	Maximizes potential for water to enter channel at desired levels and during desired time frames for silvery minnow
Baseline Wildlife Surveys	Seasonal surveys for birds, reptiles, and other fauna	Minimizes disturbance to wildlife; maximizes habitat benefits for wildlife present
Removal of Weeds	Control of weeds prior to construction, most likely mechanically	Cleans site and makes construction easier and more precise
Channel Excavation	Excavation of channel with heavy equipment	Most cost-effective and precise method of channel development
Replanting Native Vegetation	Replant site with native vegetation	Provides habitat, stabilizes soil, and reduces erosion from rain impact
Monitoring	Continued monitoring of site for presence of silvery minnows, flycatchers, other wildlife, natural revegetation, and weeds	Enables accurate and quantitative depiction of success (or failure) of the Project

Table 2-2. Alternatives Eliminated from Consideration

Technique	Description	Benefits of Technique	Reason for Elimination
Bankline Alterations: Coves	"Scalloped" indentations in bank to allow slack water areas for silvery minnow development	Has been shown to provide short-term refugia for the silvery minnow	Elimination of terrestrial habitat; benefits very short term (often 2 to 3 years)
Bankline Alterations: Terraces	Layered "terraces" formed to allow for different depths of water for slackwater for the silvery minnow under different water levels	Allows water at different levels to provide silvery minnow habitat	Elimination of terrestrial habitat; benefit very short term (only 2 to 3 years); sloughing of banks
Alternative Alignment at Same Site	A different alignment for the channel was initially considered at the site	Convenience, ease of construction	Site was altered to allow incorporation of abandoned channel to minimize site disturbance and incorporate channel feature