

I. INTRODUCTION

The North Carolina Forest Service (NCFS) requested that Kee Mapping and Surveying, PA (Kee) develop a Water Resources Restoration Master Plan for DuPont State Recreational Forest (SRF).

This Master Plan identifies future water resources restoration efforts to improve the water quality and ecological function of waters within DuPont SRF, located in Henderson and Transylvania Counties, North Carolina. Location and property maps, developed by the NCFS, are included as Appendix A. The physical functions of some of the stream reaches included in this area of interest are currently degraded due to adjacent land use, historical channelization and realignment. Existing undersized and oversized stream crossings on state forest roads and trails have outlasted their intended design life and exhibit reduced function (including deposition and scour). Combined with less-than-ideal riparian forest buffer conditions, channel incision, and over-widening (bank erosion), these factors have reduced channel habitat and ecological functions. Some of these adverse stream impacts resulted from the former landowner's intent and subsequent road construction to create an exclusive residential mountaintop development. A number of water resource impacts have also been caused in recent years by heavy recreational pressure on the >80 miles of trails within DuPont SRF that are used for hiking, mountain biking, and horseback riding by approximately 350,000 visitors annually. Forest road travel by NCFS personnel has also dramatically increased to patrol trails for visitor safety and compliance with SRF rules and regulations. Some of the trails/roads are located within riparian buffers and cross perennial and intermittent streams. It is anticipated that the NCFS will utilize this master plan, which includes conceptual design information on prioritized stream reaches, to prioritize restoration efforts and to request grant funds and other support to complete selected restoration work.

Kee has performed the following scope of services:

TASK 1: Existing Conditions Data Collection

- Assemble any readily available existing data (aerial imagery, 2-5 foot contour topography, soils, land use/cover, and other relevant GIS files) related to watershed and stream conditions within the DuPont SRF and contributing watersheds.
- On-site assessments to ground-truth and determine priorities for restoration or improvement work.
- Assess and document existing riparian conditions including stream morphology, streambed substrate, streambank erodibility, floodplain land uses, vegetation composition, and equipment accessibility for treatment.

TASK 2: Stakeholder Engagement

- Meet with NCFS personnel to identify specific objectives and constraints for future stream and riparian corridor restoration efforts.
- Identify and analyze limiting factors for stream restoration project efforts based on stakeholder input.
- Present a summary of work completed, including the highest priority restoration projects.

TASK 3: Restoration Project Elements

- Using existing topographic data and supplemental detailed stream crossing data (from Task 1), develop and produce conceptual sketch plan figures for the highest prioritized and feasible restoration project elements, including stream plans, profiles, typical cross-sections, and planting zones.

TASK 4: Final Report

- Assemble an electronic Final Report consisting of all deliverables from Tasks 1, 2, and 3 to be delivered to NCFS and used to facilitate and support acquisition of additional funding to complete the priority restoration projects.
- Meet with NCFS staff to present findings included in Final Report.