

Stantec Consulting Services Inc.

5209 Center Street Williamsburg VA 23188 Tel: (757) 220-6869 Fax: (757) 229-4507



Prospectus Windrow Farm Stream Mitigation Bank Nottoway County, Virginia

Prepared for:

Mr. John Shepherd 3949 Hungarytown Road Blackstone, Virginia 23824

Prepared by:

Williamsburg Environmental Group, Inc. now Stantec Consulting Ltd. 5209 Center Street Williamsburg, Virginia 23188 Phone: (757) 220-6869 Fax: (757) 229-4507

January 2014

#### I. INTRODUCTION

#### A. Summary

Mr. John Shepherd, (hereinafter, the "Sponsor") hereby proposes to establish and sponsor the Windrow Farm Stream Mitigation Bank (hereinafter, the "Bank") located in Nottoway County, Virginia. This proposal calls for the establishment of a 133-acre Bank situated on a 308-acre property.

The purpose of the Bank is to provide compensatory stream mitigation credits to offset the unavoidable loss of streams as a result of aquatic impacts from development projects in the Middle James River Watershed. Such impacts are authorized under Section 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbor Act and Section 62.1-44.15:20 of the Code of Virginia provided they have met all applicable requirements and are approved by the respective permitting agencies. The stream mitigation activities onsite will be accomplished by stream and buffer enhancement and restoration, livestock exclusion and wetland and stream buffer preservation.

#### **B.** Sponsor and Agent Qualifications

The Sponsor currently owns and manages the land included in the Bank. Williamsburg Environmental Group, Inc., now Stantec Consulting Ltd. (hereinafter, the Agent), has extensive experience in all stages of the mitigation banking process, from initial site assessment through design and construction oversight, with approximately 27 approved or pending mitigation bank sites throughout Virginia.

#### **C.** Contact Information

Sponsor/Owner:	Mr. John Shepherd 3949 Hungarytown Road Blackstone, VA 23824
Agent:	Williamsburg Environmental Group, Inc. now Stantec Consulting Ltd. 5209 Center Street Williamsburg, Virginia 23188 Phone: (757) 220-6869 Fax: (757) 229-4507 josh.running@stantec.com travis.crayosky@stantec.com

#### II. BANK SITE DESCRIPTION

#### A. Location and Current Use

The proposed Bank will consist of one property located in Nottoway County, Virginia (Figure 1: Vicinity Map). The total area of the Bank is approximately 133-acres within the approximate 308-acre property. The Site is bounded by State Route 606 (Cottage Road) to the east and is located west of State Route 609 (Yellowbird Road). The Bank encompasses several unnamed tributaries to Lees Creek (Figure 2: Location Map), which flows south from Lake Lee, a Department of Game and Inland Fisheries recreational facility. The Bank is located in the greater James River watershed.

The proposed Bank contains approximately 18,261 linear feet of non-tidal stream channel (Mitigation Master Plan, Appendix A). Several unnamed tributaries to Lees Creek generally flow west to east prior to reaching the main stem of Lees Creek, which forms the Eastern property limits of the Bank. The Bank consists of mature bottomland and riparian hardwood forests; late-succession regenerative growth; forested and emergent wetlands; and few areas of pine stands in the uplands. The Bank is currently being used as a pasture with cattle farming. A series of historical aerial photographs dating from 1963 show the land use pattern of the Bank over time and are included in the Historic Images Map located in Appendix B. The elevation within the Bank ranges from 400 feet in near the road to approximately 280 feet along northern Lee's Creek.

#### **B.** Zoning / Easements

The property is currently zoned Agricultural Forestry/Rural Residential. No utility easements occur within the bank, and utilities should not interfere with the viability or success of the mitigation performed at the Site.

The Comprehensive Plan for Nottoway County do not indicate any planned uses for the Site that could adversely affect it or the Bank. Several maps from the Nottoway County Comprehensive Plan are included in Appendix C. Historic aerial images of the Windrow Farm Stream Mitigation Bank are located in Appendix B.

#### C. Soil Data

According to the Natural Resources Conservation Service (NRCS) Soil Survey for Nottoway County, the most common soils underlying the site include Cecil fine sandy loam (undulating phase), Appling fine sandy loam (undulating phase), and Mixed alluvial land. A total of 19 soil types exist onsite. Cecil fine sandy loam is present in many upland areas and along Cottage Road, which forms the western boundary of the Bank and along the northern boundary. Mixed alluvial land constitutes the floodplain along Lees Creek, forming the eastern boundary of the Bank. The interior of the Bank consists of mixed soil types, and Appling fine sandy loam is common in upland areas. Soils surrounding the tributaries are mostly Seneca sandy loam and Worsham sandy loam. Mixed alluvial land and Worsham sandy loam are the only soils onsite that are classified by the U.S. Department of Agriculture (USDA) as hydric.

#### **D.** Threatened and Endangered Species

A search of the Virginia Department of Game and Inland Fisheries (VDGIF) Virginia Fish and Wildlife Information Service (VAFWIS) database was conducted to determine potential threatened and endangered species and habitat located within a two-mile search radius of the Site. The VDGIF search found no occurrences of federal or state-listed threatened or endangered species or Tier I, II, or III species predicted habitat within a two mile radius of the Project.

The United States Fish and Wildlife Information Service (FWIS) Information, Planning and Conservation (IPaC) system was used to determine the presence of federally endangered species that may be affected by the proposed project. Search results found that no listed species within the project area. As part of the IPAC review, a search of the Center for Conservation Biology (CCB) Bald Eagle Nest Locator was also conducted. No nests or associated management zones were located within the Site, according to the CCB Bald Eagle Nest Locator, and the closest nest is greater than 6.5 miles away.

#### E. Cultural Resources

The Virginia Department of Historic Resources (VDHR) maintains an extensive archive of architectural and archaeological resources that have been identified within the state through surveys and excavations conducted by private organizations, not-for-profit organizations, and other state agencies. The initial review of the database on the approved Bank limits documented two (2) architectural resource sites (#067-0122 and 067-0092) within 2,000 feet of the project limits. These areas are located outside of proposed work limits and the Bank should have no adverse effects to the existing resources.

#### F. Existing Stream Conditions

According to the Virginia Department of Environmental Quality (VDEQ) Impaired Waters List (*Draft 303(d) Water Quality Assessment Integrated Report, 2012*), Lees Creek is impaired for E.coli from its headwaters to Lake Lee. The section of Lees Creek that forms the eastern boundary of the project area is included in this impaired designation. Stream and Buffer restoration and enhancement activities will provide treatment functions to improve water quality through sediment/toxicant retention and nutrient removal. Where entire watersheds can be preserved, water quality will be protected in perpetuity.

Stream quality varies throughout the Bank. Upper reaches are typically surrounded by narrow forested buffers with adjacent maintained pasture fields for cattle grazing. These reaches frequently contain areas of erosion requiring restoration or enhancement with stable areas toward lower extents. Active head cuts are common at these upstream areas and many are filled with trash (tires, wood, metal, etc.). These headcuts result in excess sedimentation. A pond currently exists near the middle of the bank which will be removed to provide previously existing stream habitat and connectivity to the upstream and downstream portions of the reach. The majority of the streams onsite are small tributaries that discharge to Lees Creek along the eastern boundary of the Bank.

A detailed stream assessment was conducted using the Unified Stream Methodology (USM). A USM Form 4 (credit summary) is provided in Appendix F.

Reach	DA	DA	Headwater	
	AC	Square Miles	Stream	
R1	13.5	0.02	Yes	
R2	43.1	0.07	Yes	
R3	32.1	0.05	Yes	
R4	23.0	0.04	Yes	
R5	60.9	0.10	Yes	
R6	36.0	0.06	Yes	
R7	15.3	0.02	Yes	
R8	3.4	0.005	Yes	
R9	20.4	0.03	Yes	
R10	40.6	0.06	Yes	
R11	5.2	0.008	Yes	
R12	2,624	4.10	No	

Drainage areas for onsite stream resources are listed below:

#### G. Virginia Off-Site Mitigation Location Guidelines

The location and landscape of the Windrow Farm Stream Mitigation Bank meets several of the suggested criteria for locating mitigation areas. The following briefly explains how these criteria are being met:

- The Bank contains stream restoration and enhancement opportunities in conjunction with preservation of high and low quality streams and riparian buffers. Restoring and stabilizing the degraded stream channels will improve the overall quality of the stream resources onsite and within the watershed.
- The Bank is contiguous with Lees Creek which eventually flows into the James River. Restoring, enhancing and preserving these streams will improve the chemical, biological, and physical integrity Lees Creek and the James River by reducing sediment inputs improving water quality through cattle removal and reforestation.
- The Bank is not located in an area with future foreseeable activities that would cause adverse effects to it. The surrounding area is zoned Agricultural Rural and the Nottoway County Comprehensive Plans have not identified the area for intense development.
- 100-300 foot buffers will be preserved on each side of the stream where appropriate.
- The sponsor is considering placing a conservation easement on the property after one year of ownership to include all 11 streams and preserve the entire watershed (307 AC).

#### III. GOAL

The goal of the proposed Bank is to establish a self-sustaining, functional aquatic system to replace the functional values of streams anticipated to be adversely affected within the authorized service area. In doing so, the Bank expects to satisfy a portion of the existing and prospective demand for mitigation compensation within the service area. Some of the targeted functions include improvements to wildlife habitat, water quality, flood conveyance and storage, and erosion control through the implementation of natural stream channel design, bank stabilization and bioengineering techniques, grade control and in-stream structures, the reestablishment and/or enhancement of riparian buffers, and the removal of detrimental land use activities (i.e., cattle grazing) in riparian corridors. These mitigation practices will increase the ecological value to the Bank, enabling it to more efficiently replace the functional values of streams anticipated to be adversely affected within the authorized geographic service area.

The specific need for preserving this mitigation Bank is to prevent future destabilization of streams and disturbance by cattle farming. Protecting and restoring the headwater systems onsite will help improve downstream water quality and ecological habitat.

The general need for the Bank comes from the demand for stream compensation within the proposed Geographic Service Area. There are several stream mitigation banks that serve this area, and this will provide an additional alternative.

#### IV. MEASURES TO BE TAKEN TO ESTABLISH BANK

#### A. Mitigation Banking Instrument (MBI)

A Mitigation Banking Instrument (MBI) will be developed by the Sponsor to establish the Bank. The MBI will contain a Bank Development Plan, which will outline how credits will be obtained, and include the specifications for construction, operation, and maintenance of the Bank.

The MBI and the development and operation of the Bank will be in accordance with the "Compensatory Mitigation for Losses of Aquatic Resources: Final Rule, 33 CFR 332" and follow the most current version of the Mitigation Banking Template provided by the Norfolk District, U.S. Army Corps of Engineers.

#### **B.** Permits

Development of the Bank, including all construction activities, will be performed in a manner that will avoid and minimize both temporary and permanent adverse effects on the environment to the greatest extent practicable. Impacts to small areas of existing, degraded stream channel or wetlands may be required for the implementation of natural stream channel design. The Sponsor will obtain all documentation, permits, and other authorizations required to implement the final design and maintain the Windrow Farm Stream Mitigation Bank.

#### **C.** Ownership Arrangements

The Sponsor is the owner of the Bank and will perform mitigation activities within the areas designated for mitigation. A landowner agreement will require that the landowner record restrictive covenants or conservation easements on those portions of land designated for mitigation. The agreement will also designate all the rights-of-way, access, and easements necessary to perform the required mitigation design, construction, and monitoring/maintenance activities within the mitigation areas of the property.

#### **D.** Mitigation Methods

Stream mitigation credits will be calculated using the most current version of the Unified Stream Methodology (USM). A copy of USM Form 4 is provided in Appendix F. This form is used to summarize crediting estimates. In accordance with USM, the total number of stream credits will be determined by a combination of stream preservation, enhancement, and restoration activities. Degraded channels will be restored to an appropriate dimension, pattern, and profile, based upon natural stream channel design principles. All jurisdictional waters on which work is not proposed will be preserved in perpetuity along with their associated riparian buffers. The proposed stream preservation, enhancement, and restoration activities are shown on the Mitigation Feasibility Map provided in Appendix A.

#### Stream and Riparian Buffer Preservation

Preservation of existing stream channels and riparian buffer will include approximately 11,283 LF and approximately 70.1 acres, respectively, throughout the site. In order to protect these resources, easements will be established, encompassing the stable stream channel and its associated buffer. Approximately 1,591 compensation credits are anticipated through preservation.

#### Stream Enhancement

Stream enhancement activities are proposed on approximately 4,665 LF on several reaches throughout the Bank. Stream enhancement activities may include bank stabilization (stream bank planting, bank grading, bankfull bench creation, and instream structures). It is anticipated that approximately 399 compensation credits will result from proposed stream enhancement activities.

#### Stream Restoration

Stream restoration activities are proposed on approximately 2,313 LF of severely degraded stream channel. In addition to restoration of existing unstable stream reaches, an impoundment will be removed and will be replaced with natural channel designed streams. Other areas of stream restoration are anticipated on streams that exhibit unstable pattern and profile with steep, eroding banks, downcutting, and disconnection from the floodplain. Incised streams and headcut areas will also be restored. Restoration activities will involve creating a more stable dimension and profile to ensure longterm bed and bank stabilization. Installation of instream structures will provide grade control where necessary. Approximately 2,313 compensation credits are anticipated through stream restoration activities.

#### Riparian Buffer Restoration

Riparian buffer restoration activities, including heavy planting, are proposed on approximately 63 acres. Heavy planting employs a variety of native plants to re-establish a canopy, understory, and shrub layer at a density of approximately 400 stems per acre. Riparian buffer mitigation includes invasive plant species removal and buffer reestablishment, where applicable. Approximately 4,298 compensation credits are anticipated through riparian buffer enhancement.

#### Adjustment Factors

Livestock exclusion credit will be applied to all of the tributaries onsite. By applying this adjustment factor, it is anticipated that approximately 3,260 compensation credits will be added. Upon placement of a conservation easement watershed protection credit can be applied to all of the tributaries adding a total of 2,415 credits.

#### V. GEOGRAPHIC SERVICE AREA

The proposed geographic service area for this Bank shall be consistent with Section 62.1-44.15:23 of the Code of Virginia, and in accordance with the Federal Mitigation Banking Guidance. The National Watershed Boundary Dataset (NWBD) was used in determining the updated HUC boundaries.

The proposed Geographic Service Area is shown in Appendix G, and includes the primary Hydrologic Units 2080203, 2080205, 02080206, 2080207 within the Middle James River Watershed in the State of Virginia. This area includes all or portions of Amelia, Prince Edward, Powhatan, Goochland, Cumberland, Amherst, Nelson, Buckingham, Appomattox, Albemarle, Fluvanna, Nottoway, Lynchburg, Richmond, Henrico, Hanover, Campbell, Dinwiddie, Petersburg, Colonial Heights, Hopewell, Prince George and Chesterfield Counties (Appendix G).

#### VI. ESTABLISHMENT AND USE OF CREDITS

A. Decisions concerning project applicability, relationship to mitigation requirements, use of a mitigation bank vs. onsite mitigation, in-kind vs. out-of-kind mitigation, and compensation ratio determinations will be made as part of permit decisions.

B. Decisions concerning credit withdrawal from the Bank will be made in accordance with the Mitigation Regulations. In addition, the following general guidelines apply to the Bank. Availability of credit will be based on the level of achievement of those Goals and Objectives contained in the MBI and the Amendment approved by the IRT.

1. Stream credits will be based upon calculations using the USM, and will be released pending the accomplishment of the success criteria as outlined in the MBI.

2. Debits of available credit from the Bank will be based on the permit requirements of projects duly authorized. The permit requirement will normally reflect consideration of the value of the streams impacted along with the value of the compensation streams in the Bank. Compensation requirements consistent with those used by the permitting agencies will be applied at the time of application.

3. Limited use of the Bank for projects outside the service area will be considered by the IRT on a case-by-case basis.

C. The Bank Sponsor will establish and maintain an accounting system (i.e., ledger) which documents credits and debits to the Bank account. Each time an approved debit/credit transaction occurs, the Bank Sponsor will submit a statement to the

permitting agencies. The Bank will also generate an annual ledger report to be submitted to all members of the IRT. The ledger will be available for inspection upon request by any participating agency.

#### VII. LONG-TERM MONITORING AND MAINTENANCE

Decisions concerning the operational life of the Bank, long-term monitoring/ management, remedial actions, and financial assurances will be made in accordance with Federal Mitigation Banking Guidance and approval by the IRT.

Streams and buffer areas which are part of the Bank, and which are ultimately used as compensation, will provide long-term protection in the form of a restrictive covenant, or other equivalent instrument, that is agreeable to the IRT. An alternative is to have a non-profit land conservancy organization hold a conservation easement on the Bank. The legal easement will be recorded on the Bank site in County land records prior to the sale of any credits from the Bank site, to assure preservation of these lands in perpetuity.

At the end of the active monitoring period, the Sponsor may offer all interest in the Bank to the current owners of the site(s) or their heirs. The Sponsor may also transfer interest to a public resource agency, a non-profit organization engaged in conservation activities, or an academic institution engaged in research activities subject to written approval of the receiving entity by the IRT.

#### VIII. ANTICIPATED SCHEDULE FOR COMPLETION

The Sponsor plans to move forward upon approval by the IRT. All necessary signatures are anticipated to be obtained in Spring 2015.



W:\WMBGcad\5000s\5047 - Windrow Farm\Loc & Vic Maps\5047 loc&vic.dwg



W:\WMBGcad\5000s\5047 - Windrow Farm\Loc & Vic Maps\5047 loc&vic.dwg

#### APPENDIX A

MASTER PLAN

Windrow Farm Stream Mitigation Bank



#### **APPENDIX B**

HISTORIC AERIALS



W:\WMBGcad;5000\$;5047 - Windrow Farm\Stream Restoration\Conceptual;5047-HISTORIC AERIALS 8.5x11.dwg



W:\WMBGcad\5000s\5047 - Windrow Farm\Stream Restoration\Conceptual\5047-HISTORIC AERIALS 8.5x11.dwg



#### **APPENDIX C**

#### NOTTOWAY COUNTY COMPREHENSIVE PLAN MAPS

## **NOTTOWAY COUNTY LAND USE ZONING MAP**



2000-2010

## **Nottoway County Historical Sites Map**





# Nottoway County RECREATION MAP



2000-2010

#### **APPENDIX E**

VDEQ IMPAIRED WATERS INFORMATION

## 2012 impaired waters

### Category 4 & 5 by Location\*

#### **James River Basin**

#### Fact sheet prepared for Nottoway Co.

#### Cause Group Code: J11R-06-BAC - Lees Creek

Location:	from its headwaters to Lake Nottoway (Lee Lake)
City/County	Nottoway Co.
Use(s):	Recreation
Cause(s) / VA Category:	Escherichia coli / 4A

During the 2010 cycle the segment was impaired for E.coli with a violation rate of 2/11.

During the 2012 cycle the segment was impaired for E.coli with a violation rate of 8/32.

Lees Creek		Estuary	Reservoir	River
Size within: Nottoway Co.		(sq. miles)	(acres)	(miles)
Recreation	Escherichia coli / 4A Total impaired size by water type:			3.26

#### Sources:

- Agriculture
- Non-Point Source

\* Narrative descriptions, location and city/county describe the entire extent of the impairment. Sizes may not represent the total size of the impairment.

#### APPENDIX G

GEOGRAPHIC SERVICE AREA MAP

