



---

# APPENDIX 2

---

Assessment and Evaluation of Soil Physical and Chemical Properties of Dredged  
Material in Constructed Wetland



MARCH 22, 2016  
FOURCHON MARITIME FOREST RIDGE AND MARSH RESTORATION  
BTNEP

## PREFACE

**BTNEP caveats with the following report: Assessment and Evaluation of Soil Physical and Chemical Properties of Dredged Material in Constructed Wetland by Manoch Kongchum, October 2015.**

BTNEP contracted with Manoch Kongchum, Louisiana State University Agricultural Center, School of Plant, Environmental and Soil Sciences, to analyze and interpret soil samples collected from the Fourchon Maritime Forest Ridge and Marsh Restoration project for soil samples collected and sent to LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories between October 2011 and October 2014. Manoch Kongchum also assessed and evaluated soil samples previously collected from the Fourchon Maritime Forest Ridge and Marsh Restoration project between May 2008 and February 2011 that were analyzed by A&L Analytical Laboratories, Inc.

For his report, Kongchum used a different Electrical Conductivity (EC) meter than the one used by the LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories as he stated he did not find the readings reliable. Kongchum's EC meter reading results were from 1.1 to 4.3 times (with an average of 2.7 times) less than the EC meter results reported by LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories. His EC meter results are used in his paper and are closer in alignment with the earlier readings from A&L Analytical Laboratories, Inc. in that A&L's results, even from 2008 and 2009, were lower than those produced by LSU in 2011. BTNEP, however, used LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories' results in our Vegetative Efforts report as we considered these easier for comparison to anyone wanting to compare our findings with their own if using LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories which are easily accessible.

Also, for his report, Kongchum's Sodium Adsorption Ratio (SAR) results averaged 3.167 times (low of 3.161 to high of 3.168) lower than the results from by LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories. Kongchum states that he uses the same formula found in "Methods of Soil Analysis" or in "Soil Survey Laboratory Manual". He also stated that "To convert ppm to meq: ppm Na/23, Ca/20, Mg/12.1, and K/39.1. This conversion is also used for CEC calculation." Although those element values are used in the CEC calculation, we could find no reference to their use in the SAR formula. In fact, they are 10 times higher than the values in every reference we found used in calculating the formula (e.g. Na/23, Ca/20, Mg/12.1, and K/39.1). BTNEP, therefore, used LSU Agricultural Center's Soil Testing and Wetland Soil Characterization Laboratories' results for SAR in our Vegetative Efforts report as we considered their results in line with the protocols we could find.