

# **Dixie Environmental Services Co.'s (DESCO's) Proposed Scope of Work for Wetland Delineation of SAL's Drill Access Routes and Source Point Locations within the Turkey Creek, Big Sandy Creek Corridor, and Village Creek Corridor Units of the Big Thicket National Preserve**

**Prepared for:  
National Park Service**

## **Objective**

The objective of this scope of work is to identify wetland areas that could potentially be impacted as a result of SAL's proposed Knight Phase IV 3D seismic survey within the Turkey Creek, Big Sandy Creek Corridor, and Village Creek Corridor Units of the Big Thicket National Preserve. This information will assist in the preparation of a Wetland Statement of Findings in accordance with Director's Order #77-1. The wetland delineation will be conducted along drill access routes and surrounding source point locations within the portion of the Preserve encompassed by the project area, which is approximately 8,300 acres. Based on pre-plot locations of source points, drill access routes will cover approximately 39 linear miles within the Preserve.

## **Methodology**

### Research

DESCO will delineate the approximate locations and extent of wetlands on aerial digital orthogonal quarter quadrangle (DOQQ) color infrared photographs (CIR) using existing information (NWI maps, vegetation information, and soil survey maps) to assist with field delineation efforts.

### Field Delineation

Prior to the delineation, surveyors will mark source point locations, and a drilling supervisor, and someone qualified to identify wetland and non-wetland areas in the field, will flag access routes for the drills. Source points and access routes will be located in non-wetland areas to the greatest extent possible; however, it will not likely be possible to offset all points/access out of wetland areas due to the large amount of wetland acreage present within the project area.

DESCO will delineate wetlands along flagged access routes, within 30 feet of the access routes (60 foot wide corridor), and within a 30-foot radius of source point locations. The delineation will be conducted in accordance with the methodology contained in the 1987

US Army Corps of Engineers (USACE) Wetland Delineation Manual. Wetland/Upland boundaries along access routes will be marked with stakes or pin-flags, which will be labeled with the wetland corridor identification number and numbered in sequence from start to finish. DESCO will collect and record data on USACE wetland determination data sheets for each wetland corridor. A surveyor will follow behind the delineators, recording GPS locations of access routes and wetland/upland transitions (with sub-meter accuracy) along the access routes. The surveyors will record the access “trail” with the GPS unit, to enable it to be plotted onto final maps.

DESCO will also collect necessary field data for completing the function evaluation necessary for the Wetland Statement of Findings within each wetland identified along the alignment during the delineation.

Access by motorized vehicles will be restricted to access roads formally designated for motorized vehicle use.

### Mapping

Using the information collected by the surveyors, DESCO will generate a map indicating locations of all access routes and wetland/upland transitions along the access routes. Wetlands and uplands will be indicated on the map along the access routes utilizing different colors (ex. red-upland, blue-wetland). The area of potential impact to wetlands will be calculated from this map by multiplying the linear extent of wetlands along the access routes by a path width of 15 feet and by adding the wetland area within the 15 x 15-foot area around each of the source points.

### **Reporting**

DESCO will prepare a wetland delineation report detailing the methodology utilized during the delineation and the results of the fieldwork. The report will contain the above-mentioned map, as well as supporting data used in the generation of the map, including GPS locations of each wetland/upland boundary along the access routes. Any pertinent information, recommendations, and or concerns will be included in the report, as well.

DESCO will also prepare a Wetland Statement of Findings in accordance with Director’s Order #77-1, including information obtained from the delineation, a function evaluation, alternatives to the proposed action, mitigation measures that will be employed to reduce impacts to wetland areas, anticipated affects of the project on wetland functions and values, and a description of proposed compensation for impacts to wetland functions and values. The Wetland Statement of Findings, including the compensatory mitigation plan will be based on the worst-case impact scenario (15-foot wide path of impact along all access routes and the 15 x 15-foot area around the source points in wetland areas).

DESCO will work with the National Park Service to develop an acceptable “in-kind” compensatory mitigation project.

## **Post-Project Assessment and Compensatory Mitigation**

SAL will have a qualified team of wetland experts (who is approved by the National Park Service) assess project impacts to wetland areas following the completion of operations within the Lance Rosier Unit. This assessment will allow for the calculation of the actual wetland acreage impacted as a result of project operations, as well as an assessment of the project's actual effects on wetland functions and values. SAL's compensatory mitigation requirements will be based on the actual impacts, rather than the estimate contained in the Wetland Statement of Findings.

## **Qualifications of Potential Contributors to this Scope of Work**

**Tanya Matherne** is DESCO's President and Principal Scientist. She has a B.S. in Marine Biology from Nicholls State University. Ms. Matherne has over ten years of experience in the environmental industry, including environmental/ecological monitoring, consulting, mitigation and remediation services; wetland determinations, jurisdictional delineations, impact assessments, remediation, and mitigation bank design; environmental assessments (i.e., Phase I ESAs, NEPA, habitat, impact, wildlife, etc.); threatened and endangered species surveys and monitoring; finfish monitoring; and other services. Ms. Matherne will be preparing the Wetland Statement of Findings in accordance with Director's Order #77-1. She has a multitude of experience with wetland issues, as well as a great understanding of impacts of 3D seismic operations in sensitive wetland areas. Ms. Matherne has been involved in planning, monitoring, and assessment of impacts of seismic operations in sensitive habitats since 1997.

**Arthur Perkins** is one of DESCO's Project Managers and Senior Ecologists/Environmental Scientists. He has a B.S. in Biology from McMurry University and completed graduate studies in wetland ecology and environmental science at Texas A&M University in Corpus Christi, Texas. Mr. Perkins has over ten years of experience conducting ecological and environmental studies, as well as providing environmental consulting services. He has managed several wetland projects including determinations, jurisdictional wetland delineations, characterizations, evaluations, and assessments of a variety of wetland types. His project experience includes WRAP assessments, hydro-geomorphic assessments, hydro-period assessments and impact assessments. Mr. Perkins has overseen and conducted various wetland delineations for both the private and public sectors. He has also handled wetlands permitting through jurisdictional agencies. Mr. Perkins has managed projects involving the design of wetland mitigation areas and developed and conducted successful monitoring programs in accordance with permit criteria.

**Jacqueline Smith** is one of DESCO's ecologists, as well our GIS specialist. She has a B.S. in Geography, with a minor in earth science from Texas A&M University and a Master of Arts in Geography and Regional Development from the University of Arizona. Ms. Smith has over three years of experience in the environmental consulting industry, including ecological and compliance monitoring services, threatened and endangered species surveys, vegetative assessments and mapping, wetland delineations, wetland

determinations, impact assessments, GIS analysis, and other environmental services. Ms. Smith completed a 40 hour Wetland Delineation Training Course in October of 2003. This course was given by the Whittenton Group, Inc in Harris County, Texas, and was based on the 1987 US Army Corps of Engineers (USACE) Wetland Delineation Manual. Ms. Smith conducted jurisdictional wetland delineations in Trinity County for water supply and distribution system improvement projects. She was also involved with several preliminary wetland determinations in San Jacinto and Polk Counties for residential development projects covering nearly 2,400 acres.

**Justin Rowland** is one of DESCO biologists/ecologists. He has a Bachelor of Science in Biology and a Bachelor of Arts in Psychology from Texas Tech University in Lubbock, Texas, and has over three years of experience in the environmental consulting industry, and an additional two years of experience dealing with wildlife restoration and habitat management initiatives. Mr. Rowland completed a 40 hour Wetland Delineation Training Course in October of 2003. This course was given by the Whittenton Group, Inc in Harris County, Texas, and was based on the 1987 US Army Corps of Engineers (USACE) Wetland Delineation Manual. Mr. Rowland's project experience includes wetland delineations, determinations, and impact assessments; environmental/ecological monitoring and consulting services; threatened and endangered species surveys and monitoring; vegetation mapping and other environmental services. He conducted jurisdictional wetland delineations in Trinity County for water supply and distribution system improvement projects, and was involved with several preliminary wetland determinations in San Jacinto and Polk Counties for residential development projects covering nearly 2,400 acres.

**Christie Taylor** is one of DESCO's contract biologists/ecologists. She has a Bachelor of Science in Marine Biology and is currently working on a Master of Science in Rangeland Ecology at Texas A&M University. Ms. Taylor completed a 40 hour Wetland Delineation Training Course in May of 2003, and she has two years of experience conducting wetland assessments and jurisdictional delineations in Galveston, Matagorda, Fort Bend, Harris, and Brazoria Counties, TX. In addition to her wetland experience, Ms. Taylor is proficient in the identification of vegetation, and has conducted vegetation inventories for Galveston Island State Park.

**Eric Keith** is an Ecologist from Raven Environmental Services Inc. He has a B.S. in Environmental Science from Stephen F. Austin State University. Mr. Keith has ten years experience in management of endangered species and sensitive plant communities, specializing in plant identification, rare plant surveys, plant community delineation and management, and wetlands delineation. He is recognized in Texas and the southeastern U.S. for his expertise in botany, with extensive knowledge of North American flora including taxonomic and ecological classification. He is frequently consulted by government agencies and private landowners on plant identification, distributional data, and taxonomic clarification. He has conducted plant inventories, vegetation monitoring, and ecological classification on over 20,000 acres for Texas Parks and Wildlife, U.S. Department of Defense, and over a dozen large and small private landowners in Texas and the southeast. Eric worked for three years in the Environmental Division of Fort

Polk Military Installation in Louisiana as a wildlife biologist and botanist where he acquired hands-on experience managing endangered species, wetland delineation, prescribed burning, and regulatory compliance. Eric is a Project Manager at Raven and specializes in services that include inventory and assessment, plant taxonomy and ecological classification, vegetation monitoring, and regulatory compliance.

**Kevin Mundorff** specializes in environmental compliance for Raven Environmental Services Inc. He has a B.S. in Environmental Science and M.S. in Biology from Stephen F. Austin State University. He has worked for more than nine years managing natural resources acquiring expertise in the areas of ecological classification, endangered species, wetland delineation, regulatory compliance, and the use of prescribed burning to maintain and restore natural systems. Kevin worked one year in the Environmental Division of Fort Polk Military Reservation in Louisiana as an ecologist where he performed ecological classifications, TES species monitoring, vegetation monitoring, and wetland delineations. Since 1998 at Raven, Kevin has performed dozens of wetland delineations and wetland avoidance consultations to numerous clients including the Department of Defense, Alabama-Coushatta Indian Reservation, state and municipal government, and hydrocarbon exploration companies. Kevin is a Project Manager at Raven and specializes in land management services that include prescribed burning and ecological planning, mechanical vegetation management, wetlands delineation and regulatory compliance.

**Matthew G. Stahman**, PWS, is a Senior Project Manager for SWCA. He has both a B.S. in Wildlife and Fisheries Sciences and a M.S. in Rangeland Ecology/Management from Texas A&M University. Mr. Stahman has 10 years of experience in wetland delineation, permitting, mitigation, and related subjects. Mr. Stahman received his wetland delineation training from Dr. James Webb, Texas A&M University, Galveston, Texas. He has conducted wetland delineations throughout the Midwest and southeast states, including Texas, Arkansas, Illinois, Kansas, Louisiana, Missouri, Ohio, Oklahoma, Mississippi, and Tennessee. Mr. Stahman is a registered Professional Wetland Scientist and has worked on the design implementation and monitoring of over 5000 acres of wetland mitigation banks in Texas and Arkansas. Mr. Stahman supervises a group of wetland delineators in SWCA's Houston office.

**James R. Melcher** is a Staff Biologist for SWCA. He has a B.S. in Rangeland Ecology/Management from Texas A&M University and over four years of experience conducting wetland delineations with large-scale projects throughout the Midwest and southeast. Mr. Melcher received his wetland delineation training from Wetland Training Institute. Mr. Melcher has completed wetland delineations for large-scale linear and land development projects in Texas, Louisiana, Ohio, and Florida. Recently Mr. Melcher has completed wetland delineations for over 25 oil and gas well projects and over 100 miles of large diameter natural gas pipeline projects in Texas and Louisiana. Mr. Melcher acted as field coordinator with a team of six wetland delineators. Mr. Melcher has also served as a biological monitor on large-scale seismic projects and off shore along the Texas Gulf Coast.

**Jody Schaap** is a Staff Biologist for SWCA. He has both a B.S. and M.S. in Wildlife and Fisheries Sciences from Texas A&M University and over two years of experience conducting wetland delineations and habitat assessments throughout the southeast states including Texas, Louisiana, Mississippi, and, Oklahoma. Mr. Schaap has worked on multiple large-scale (1000 acre+) wetland delineations and over 100 miles large-scale diameter pipeline projects. Mr. Schaap received his wetland delineation training from Wetland Training Institute. Recently Mr. Schaap has led field crews on cross-country wetland delineations in Louisiana and Oklahoma.

**Jody Stephens** is a Staff Biologist for SWCA. She has a B.S. in Ocean and Coastal Resources from Texas A&M University, and she completed M.S. coursework in Marine Resources Management. Ms. Stephens has over two years of experience in private consulting and with over two years of experience with the Galveston District Army Corp of Engineers. She received her wetland delineation training from Wetland Training Institute. Ms. Stephens specializes in wetland delineation, restoration, and monitoring along the Texas and Louisiana Gulf Coast. Recently participated in large-scale (10 acre plus) coastal wetland restoration effort for Freeport LNG requiring planting of over 40,000 sprigs of gulf cord grass.

**Theresa Swihart** is a Staff Biologist for SWCA. She has both a B.S. and M.S. in Rangeland Ecology/Management from Texas A&M University and over two years of experience conducting wetland delineations and endangered species surveys throughout Texas, Louisiana, and Mississippi. Ms. Swihart is a botanist formerly employed by the S.M. Tracy Herbarium at Texas A&M University. She received her wetland delineation training from Texas A&M University, College Station. Ms. Swihart served as primary author for an ordinary high water mark delineation manual specifically for Harris County Flood Control District in Houston, Texas. Ms. Swihart has conducted multiple large-scale (500 acre+) wetland delineations throughout Texas and Louisiana.

**Wade Abbott** is a Staff Biologist for SWCA with almost one year of wetland delineation experience in Texas and Louisiana. Mr. Abbott received his wetland delineation training from Wetland Training Institute. Prior to working with SWCA he served as a wildlife biologist for Kansas Department of Wildlife and Parks. In the past six months Mr. Abbott has served on multiple delineation teams covering over 100 miles of large diameter natural gas pipeline projects in Texas and Louisiana. He also field leader for large-scale (10 acre plus) coastal wetland restoration effort for Freeport LNG requiring planting of over 40,000 sprigs of gulf cord grass.

**Scott Burleigh** is a Staff Biologist for SWCA with almost one year of wetland delineation experience in Texas, Louisiana, and Oklahoma. Mr. Burleigh received his wetland delineation training from Texas A&M University. In the past six months Mr. Burleigh has participated in delineations of multiple large-scale tracts (300 Acres +), oil and gas well sites and pipelines in Louisiana and Texas. In addition Mr. Burleigh participated in large-scale (10 acre plus) coastal wetland restoration effort for Freeport LNG requiring planting of over 40,000 sprigs of gulf cord grass.

**Lori Pfaff-Wildermuth** is a Staff Biologist for SWCA with almost one year of wetland delineation experience in Texas and Louisiana. Ms. Wildermuth received her wetland delineation training from Wetland Training Institute. In the past six months Ms. Wildermuth has participated in delineations of multiple large-scale tracts (300 Acres +), oil and gas well sites and pipelines in Louisiana and Texas. In addition Ms. Wildermuth participated in large-scale (10 acre plus) coastal wetland restoration effort for Freeport LNG requiring planting of over 40,000 sprigs of gulf cord grass. She is an environmental ecologist with a strong background of research relative to mosquitoes as pathenogenic vectors and has published multiple professional articles relating to that topic.

**Michael Souliere** is a Project Manager for SWCA. He has a B.S. in Rangeland Ecology/Management from Texas A&M University and over nine years of experience in wetland delineation, threatened and endangered species surveys, wetland plant identification, permitting, mitigation, and related subjects. Mr. Souliere has completed multiple wetland delineations for large-scale linear and land development (1600 acre +) projects throughout the Gulf Coast states. Mr. Souliere received his wetland delineation certification from Wetland Technical Institute. Mr. Souliere has also served as an environmental inspector on multiple FERC 7c projects in Alabama, Oklahoma, and Arkansas. Mr. Souliere has taught wetland plant identification courses for The Wildlife Conservation camp and the Society of Wetland Scientists.