

September 17, 2015

Cameron La Follette
Executive Director
Oregon Coast Alliance
P.O. Box 857
Astoria, OR 97103

Subject: Bandon State Natural Area and Bandon Biota Work

Dear Cameron,

I have reviewed various public documents regarding work done on the Bandon State Natural Area (BSNA) lands by Bandon Biota in support of a proposed land exchange. The goal is to develop a golf course after the land exchange is completed. The current work site is located south of Bandon within T29S R15W, SE1/4 of section 26. Bandon Biota and the Oregon Parks and Recreation Department (OPRD) signed an agreement in November 2013 allowing Bandon Biota to perform “non-intrusive testings,” specifying “golf course layout, environmental testings, soil suitability testings, water well testings and wildlife habitat testings, necessary for land use and other regulatory permitting...” This letter provides my impressions of the project development steps Biota should have taken instead of the intrusive construction work that they actually performed.

I am a registered agricultural engineer (PE 15898) and certified water right examiner (CWRE 341) in Oregon. I retired from the US Department of the Interior in 2007 after 31 years of service as an agricultural engineer and natural resource specialist. In those capacities I worked on project development and land management regarding irrigation, drainage, soils, water requirements, crop production, wells, and land classification issues.

A logical development process for a golf course project would be to start with a literature review in order to characterize the land resources on a reconnaissance level. A literature review should be completed prior to planning and conducting any field investigations such as soil sampling work. Fieldwork would need to be based on existing information. Any necessary soil fieldwork would begin with sampling using hand tools such as augers. Heavy equipment and machinery would not be needed during reconnaissance level investigations. The use of machinery and heavy equipment for soil sampling would not be appropriate until after the land exchange is finalized and in support of actual construction as needed.

Exhibit C

Hand augers are simple tools used to drill holes about three inches in diameter in one-foot increments into soil profiles to remove samples from shallow depths. Extension rods are added in four-foot lengths as needed. If the soil is not rocky (as in BSNA where soils are sandy) hand augers can be used to sample soils down to about 20-feet deep. Hand auguring techniques do not disturb the land surface because the workers walk to the sample sites from a pickup truck.

Pictures of hand auger heads, a T handle, and extension rods:
(Photos courtesy of AMS Inc., American Falls, Idaho - web pages)



Small powered drilling equipment mounted on pickup trucks or tractors can be used to drill holes and sample soils to medium depths, such as down to about 50 feet, and have only a moderate impact on the land surface.

Pictures of truck mounted and tractor mounted power core samplers:
(Photos courtesy of AMS Inc., American Falls, Idaho - web pages)



Exhibit C

Well and borehole drilling machines are mounted on heavy trucks and can drill large diameter holes (6 to 16 inches) hundreds of feet deep. A drill rig is accompanied by a large support vehicle. Heavy trucks have a significant impact on the land.

Picture of typical drill rig and support vehicle used to drill wells and boreholes:
(Photo courtesy of Clouser Drilling, Grants Pass, Oregon – web pages)



For the BSNA there is a wealth of information available such as soil surveys, aerial photos, well logs, and geological reports. For example the Water Resources Department well log database contains information for scores of wells drilled within one mile of the project site. It appears that water tables are generally shallow in the area and can be reached with hand augers. The water table levels in nearby wells could also be directly measured. A 1989 Soil Conservation Service soil survey of Coos County exists and can be found online. The US Geological Survey and the Oregon Department of Geology and Mineral Industries (DOGAMI) have produced numerous maps and reports covering the area. These maps and reports

Exhibit C

provide information such as land elevations and stratigraphy. A new DOGAMI report is "Open-File Report O-14-01, Geologic map of the southern Oregon coast between Port Orford and Bandon, Curry and Coos Counties".

These reports and information should be thoroughly reviewed before any fieldwork is planned or conducted. Additional reports and information may be discovered during the literature review. The next step after a literature review is to identify any additional information that may be needed. A systematic sampling program can then be developed with sampling points located on a map.

It does not appear that Bandon Biota followed a logical and economical sampling program. For example water well COOS 332 was drilled in section 26 in 1990. The water table depth and log of COOS 332 is very similar to the two boreholes, COOS 55928 (234 foot deep uncased abandoned hole) and COOS 55929 (169 foot deep cased partially filled hole), drilled for Bandon Biota in June 2014 less than half a mile away. The static water tables range from 12 feet to 15 feet and the clay layer ranges from 47 feet to 52 feet below ground for all three holes. Why would Bandon Biota drill one borehole close to an existing well, and why would they drill another borehole nearby to get essentially the same information? Why would Bandon Biota cut trees down and bulldoze a 12-foot wide road more than half a mile long as shown on an August 25, 2015 land survey? I do not understand why Bandon Biota would do such intrusive work so soon after receiving approval from OPRD allowing the land exchange to proceed to the next step of application to BLM and before the land exchange is finalized.

It does not appear to me that Bandon Biota determined what soil or geological information was needed or why. Thus Bandon Biota caused unnecessary disturbances on the BSNA public lands. Since this is sensitive public land there is an obligation to do tests that are non-intrusive as outlined in the 2013 agreement between Bandon Biota and the OPRD.

Please contact me should you have any questions regarding this information.

Sincerely,



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