Charleston District, Corps of Engineers
69A Hagood Avenue
Charleston, SC 29403-5107

The S.C. Department of Health and Environmental Control
Office of Environmental Quality Control
Water Quality Certification and Wetlands Programs Section
2600 Bull Street
Columbia, SC 29201

Re: P/N #2007-1402-61J; Permit Application of Centennial American Properties to Place Fill in a Tributary of Langston Creek

Dear Sir or Madam:

Thank you for the opportunity to comment on this permit application. I am writing as President of the South Carolina Native Plant Society, a nonprofit organization with members throughout the State. We ask that the Corps and the Department deny the application and also that you hold a public hearing. As we understand it, the proposed permit and the proposed development threaten an important population of a highly endangered plant, the Bunched Arrowhead. This species exists almost entirely in South Carolina, and a public hearing should be held before any steps are taken that threaten this population of the species. We feel strongly that this permit and this development require the most careful consideration.

As you know, Bunched Arrowhead (*Sagittaria fasciculata*) is a federally endangered species. Its global ranking is G1, indicating a critically imperiled species. It normally exists in rare Piedmont seepage forests. Its existence is closely tied to the hydrology of the sites on which it is found. It normally requires a steady flow of cool, clean water. The principal threats to the continued survival of this critically imperiled endangered species are habitat degradation, clearing and draining of habitat, water withdrawal, and change in water-flow rates. The plant is sensitive to change in flow rates and silt deposition. For all these reasons, its habitat is severely threatened. (See Center for Plant Conservation Species Profile; Newberry, G. 1991. Factors Affecting the Survival of the Rare Plant, *Sagittaria fasciculata* E.O. Beal (Alismataceae). Castanea. 56, 1: 59-64.)

The Natural Sciences and Engineering Department of the University of South Carolina Upstate on its *Rare Plants of South Carolina* website summarizes the rare status and particular hydrological needs of this plant as follows:

> *Sagittaria fasciculata* is one of the rarest plants in the Piedmont. It occurs naturally only within five square miles of Travelers Rest, South Carolina and in a very disturbed site near East Flat Rock, North Carolina. *It grows nowhere else in the world*. Bunched Arrowhead inhabits seepage areas in the headwaters of the Enoree and Tyger rivers. These wetlands help to maintain a constant flow of water in the drainage system. During droughts water drains from these organic sponges increasing the river's flow. (emphasis added)

According to the Species Account of the U.S. Fish and Wildlife Service, "*The recovery plan for the bunched arrowhead recommends that top priority be given to protecting the plant within its essential habitat*." (emphasis added)

In at least one instance when this plant was located on a site where development was planned, the development undertook extensive efforts to avoid impact on the plant and the hydrology of the site on which it depends. According to "*Smart Growth, Smart Choices*," a 2002 publication of the National Association of Homebuilders (p. 17), the Highland Lake Inn in Flat Rock, North Carolina, not too far from Travelers Rest, S.C., undertook the following:

> After the project was well underway, advisors informed Lindsey that a plant on North Carolina's list of endangered plant species—the Bunched Arrowhead *Sagittaria fasciculata* (a water plantain)—was found growing within a one square yard section of the Highland Lake property. *The location of the rare plant forced the design team to rethink the Market Center to ensure the facility would not threaten the endangered plant.* "We had to put everything on pilings so that the underlying hydrology wouldn't change," Lindsey said. "We redesigned the entire center into a deep 'U' rather than in a more traditional 'strip' that would have been lined up with the road. The new design created more visual interest and actually looks better than the original design." The reward for creativity and attention to detail has been strong sales. "Highland Lake has enjoyed tremendous success in the marketplace," Lindsey said. (emphasis added)

A recent study has confirmed the very specific hydrological needs of this plant. A paper prepared by a Furman University student was presented in March 2007 to the Southeastern Regional Meeting of the Geological Society of America. The paper notes: "The plant requires a very specific set of hydro-geologic conditions in order to survive. Increased development across the Piedmont region has already begun to encroach on the plant's native habitat and has the potential to alter local hydrology, thereby threatening the plant's distribution." The study compared and analyzed fourteen Bunched Arrowhead sites across Greenville County. After studying those sites, the paper concluded:

> "[T]he Bunched Arrowhead appears to require a very specific habitat, growing only in well shaded, hydrated soils fed by a constant flow of freshwater (from a stream or seep). Although saturation is a requirement,

the plant appears to grow *only in environments free from substantial hydrologic disturbances and fluctuations* (e.g., flooding, drought). The plants like to grow in organic rich, sandy mucks in shallow (<5 cm deep), acidic (pH 4 – 5), mixed cation - bicarbonate waters with moderate levels of dissolved oxygen (4 – 7 mg/L) and relatively low conductivities (25 – 50 µS). *The plant's distinct and sensitive habitat requirements will make it particularly vulnerable to changes in the hydrogeology and/or land cover from encroaching development*." (emphasis added)

From Paper No. 30-5, *Hydrogeologic Characterization of the Bunched Arrowhead, Sagittaria Fasciculata*, Rachel Baxter, Earth and Environmental Sciences, Furman University, 3300 Poinsett Hwy, Greenville, SC 29613, rachel.baxter@furman.edu and Weston R. Dripps, Earth and Environmental Sciences, Furman University, 3300 Poinsett Highway, Greenville, SC 29613.

The notice for this permit points out that the Bunched Arrowhead is present in the vicinity of the proposed development. We understand that this site contains a large number of the endangered plants, and that this site contains a significant number of the remaining Reedy River population of this critically imperiled species. The site plans attached to the notice indicate extensive development of the site, and the permit seeks permission to fill a stream on the site. It seems clear that this development will severely alter the hydrology of the site, occupy a good portion of it, and thereby extirpate many (and perhaps substantially all) of the plants and drastically alter the habitat that has been supporting a significant population of this very endangered species.

This species exists almost entirely in South Carolina. Our regulatory agencies have a special responsibility to protect the few remaining populations of the species. This is a rare species that is particularly dependent upon hydrology, water quality, and water flow. Therefore, we believe it is appropriate and necessary for the Corps and the Department to deny any permit that would destroy plants on the site, alter the flow of water on this site, cause change in siltation, or affect water quality or the hydrology of the site taken as a whole.

Given the rarity of this species, the many threats to its continued existence, and the State's particular responsibility for it, we respectfully ask that you grant a public hearing so that the public can get a full explanation of what is planned on this site and how this development and permit would affect this rare species. Also, the public should be granted a full and complete opportunity to comment at a public hearing before any action is taken.

As always, thank you for your consideration.

Sincerely,

William C. Stringer, PhD
President
South Carolina Native Plant Society.