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# *Wakulla Springs Alliance*

*"Protecting and restoring water quality, spring flow and ecological health of Wakulla Spring"*

February 14, 2022

Dear Planning Commissioner \_\_\_\_\_:

Subsequent to my letter of February 7, we have received responses to several questions we posed to State Geologist, Harley Means, concerning the vulnerability of the aquifer to spills and leaks that might arise from the proposed gas station on the northwest corner of routes 319 and 267.

Based on that information and additional literature research we have conducted, the Wakulla Springs Alliance Board continues to urge that the Planning Commission recommend denial of the application by Southwest Georgia Oil Company to change the Future Land Use map designation of its property (CPM21-12) from Agriculture to Rural 2 to enable rezoning the property from Ag to C-2 to allow for development of the site as a gas station.

Mr. Means stated that in the absence of site-specific hydrogeologic data, the best basis for assessing the vulnerability of the underlying aquifer to contamination is the [Wakulla County Aquifer Vulnerability Assessment](#) (2009). As shown on the map below, prepared by Michael Core with the Florida Resources and Environmental Analysis Center at FSU, vulnerability on the property ranges from "more vulnerable" to "most vulnerable."

While gasoline and diesel fuel tend to float at the top of the water table because their densities are lower than water, some of their constituents can dissolve from a spill plume and travel long distances.<sup>1</sup> Of particular concern are the so-called BTEX chemicals, benzene, toluene, ethyl benzene, and xylene, and in diesel fuel, polynuclear aromatic hydrocarbons (PAHs). The USEPA has set federal maximum contaminant levels for each of these substances in drinking water.<sup>2</sup> The Groundwater Protection Council of state ground water regulatory agencies reports that the benzene in a 10-gallon gasoline spill can contaminate up to 12 million gallons of water.<sup>3</sup>

A fuel leak or spill could, therefore, contaminate nearby wells while dissolved contaminants could travel both horizontally and vertically. A potentiometric map of the area (see below) indicates that groundwater generally flows to the southeast in this area of the Wakulla springshed. Mr.

Means indicated that ground water exchange between the limestone aquifer and the underlying caves (see map below) will depend on head gradients.

Concerns also have been raised with the disposition of wastewater from the planned carwash on the site which will contains oils and grease as well as nitrogen and phosphorus from detergents.<sup>4</sup> These dissolved contaminants also pose a risk of contaminating the aquifer. David Edwards has indicated that the county has discussed extending sewer service to the property at the applicant's expense but evidently no formal agreement has been reached.

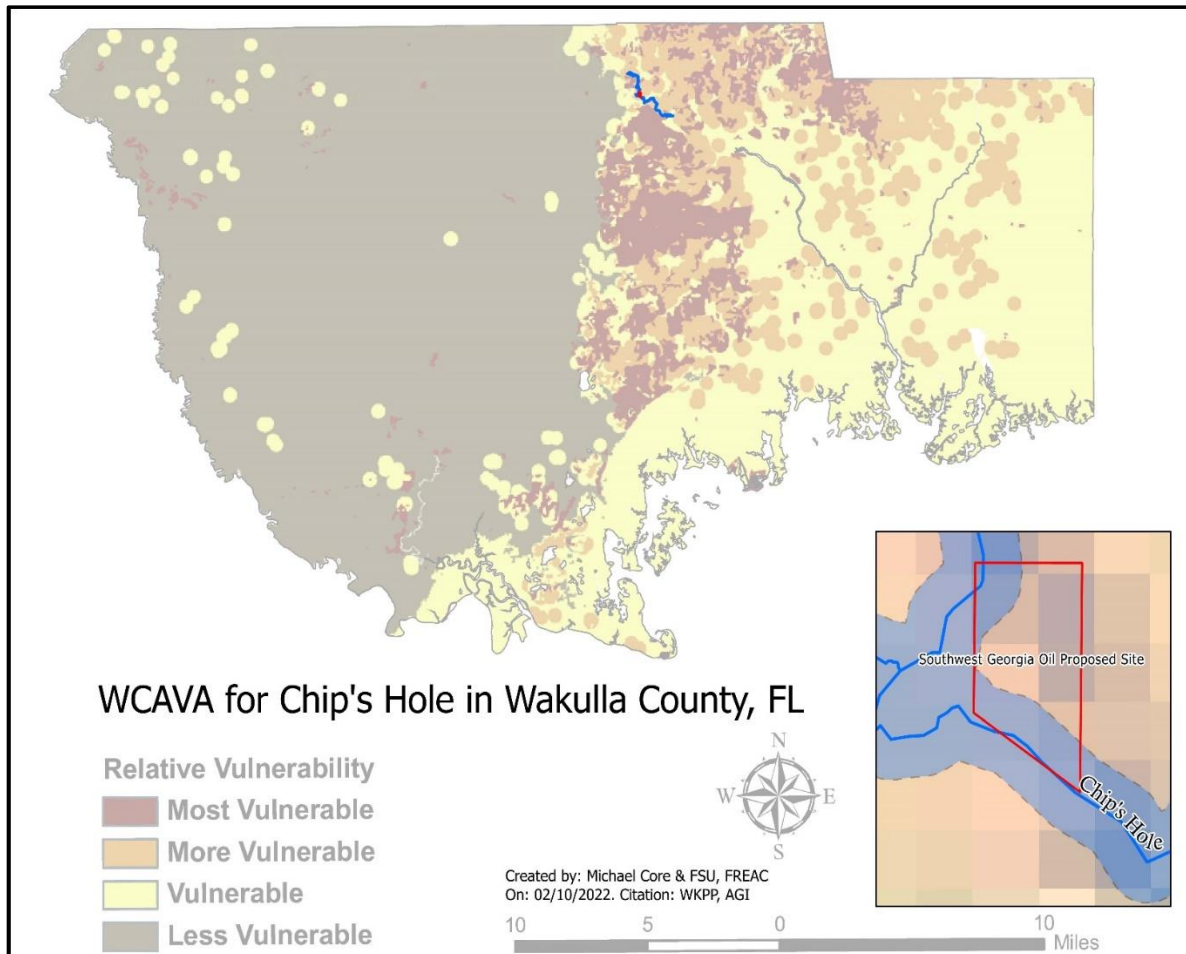
Given the vulnerability of the aquifer to contamination at this location, the potential for contaminated ground water to enter the caves under some conditions, and the fact that the applicant has no entitlement to a change in the future land use classification of the property, the Wakulla Springs Alliance continues to urge you to recommend denial of the application.

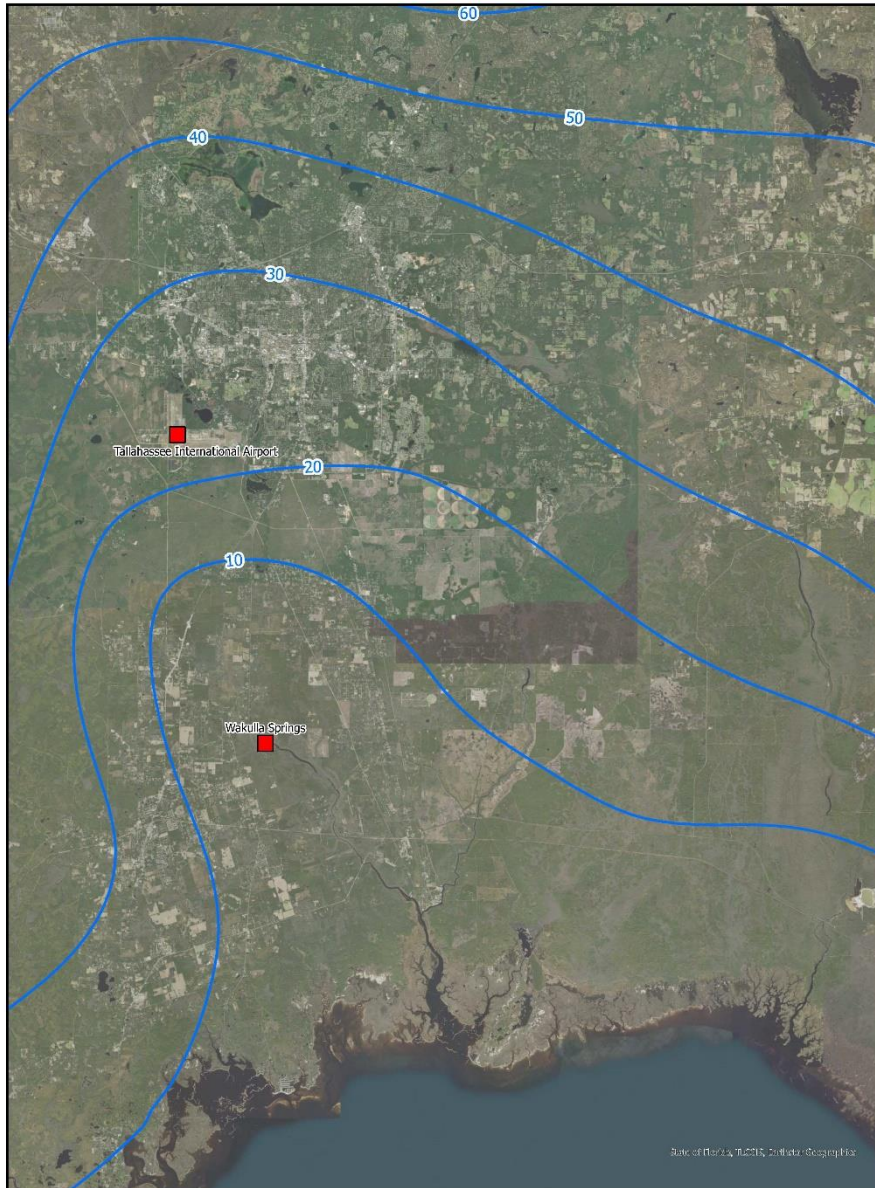
Sincerely,



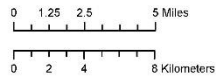
Robert E. Deyle, Chair  
Wakulla Springs Alliance

cc: David Edwards, County Administrator  
Sommer Pell, Director Planning and Community Development





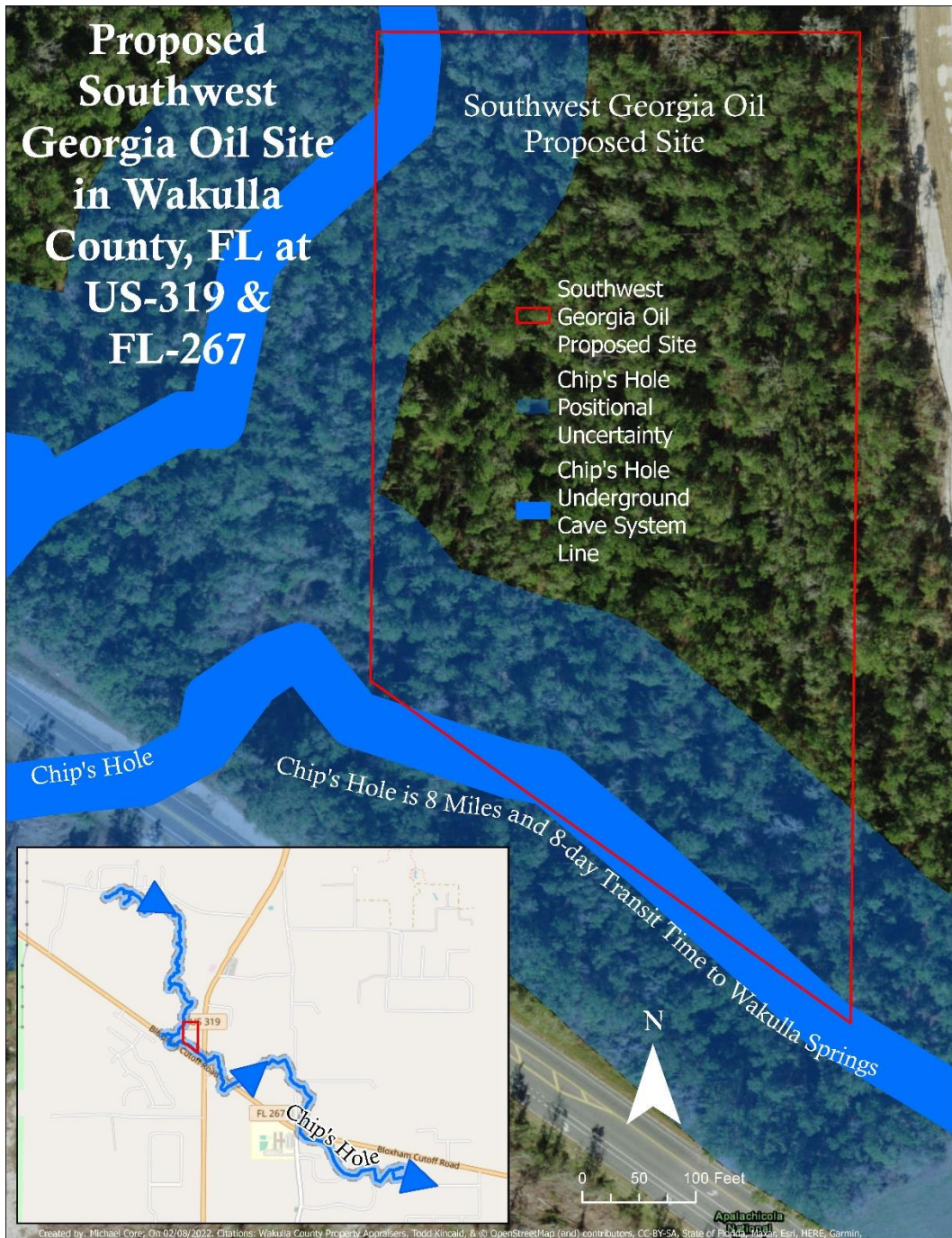
### Leon-Wakulla County Potentiometric Surface Map



— Potentiometric Surface Contour

Potentiometric surface lines are in 10 ft intervals.  
Contours were calculated from May 2019 Upper Floridan aquifer well data from the NFWFWD.





The cave system center line is displayed with a width of 50 feet reflecting the WKPP's report that the cave width is roughly 25 feet on each side of the line. The semi-transparent blue area represents a 3% margin of error (129 feet) for the exact position of the mapped cave center line.

<sup>1</sup> Malgorzata Glowacka. 2005. *Soil and groundwater contamination with gasoline and diesel oil : assessment of subsurface hydrocarbon contamination resulting from a fuel release from an underground storage tank in Vanstad, Skåne, Sweden.* <https://www.lunduniversity.lu.se/lup/publication/2338881>; Groundwater Pollution Council. c2008. *Groundwater and Underground Storage Tanks.* <https://www.gwpc.org/sites/gwpc/uploads/documents/Topics/Underground Storage Tanks/Underground Storage Tanks Full Chapter.pdf>.

<sup>2</sup> <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.

<sup>3</sup> Groundwater Pollution Council (c2008).

<sup>4</sup> Isaac Monney, Emmanuel Amponsah Donkor, and Richard Buamah. 2020. "Clean vehicles, polluted waters: empirical estimates of water consumption and pollution loads of the carwash industry." *Heliyon* 6(5).