Memorandum

To: **City Plan Board Members**

From: **eda engineers-surveyors-planners, inc.**

RE: **Supplemental Information concerning PD amendment for Blues Creek, Unit 5, Phase 2 (PB-15-115 PDA)**

Date: **February 17, 2016**

Introduction

This document provides supplemental information concerning PB-15-115 PDA, which is an application to amend the Blues Creek PD for a subdivision to be known as Unit 5, Phase 2. Information is provided in a question and answer format to aid in the understanding of some of the proposed changes and why they are being proposed.

eda staff and expert consultants will be available at the Plan Board hearing to answer any questions about this material or provide clarification on issues. If there are any questions about this material prior to the Plan Board meeting, please refer those to Planning staff so that they can be forwarded to eda. We will prepare responses for the Plan Board hearing.

Questions and Answers

Q1. Why is a jack and bore utility crossing being proposed?

The proposed Unit 5, Phase 2 subdivision of the Blues Creek development requires centralized potable water and wastewater services. This portion of the Blues Creek development has been shown on the Planned Development (PD) plans since the inception of the development.

Due to the slopes/topography of the area, the wastewater in a gravity system would flow southward. The most feasible way to provide wastewater is through a connection

to the south. Both City of Gainesville and State regulations would allow that utility connection to be made with a trenching/open cut type of connection. However, in recognition of the sensitivity of the area, the applicant is proposing to use the jack and bore method to preserve the integrity of the surface area.

The jack and bore method was not commonly used for utility connections until the late 1990s or early 2000s. The original Blues Creek development dates back to the 1980s before this was a commonly used technique. In addition, the technology for the technique has matured significantly over the years, and it is now recognized as an general use method of crossing roads, environmentally sensitive areas, and other areas to avoid surface disturbance and impacts.

An additional crossing for the potable water pipe system has been requested by GRU to loop the system to insure its safety and integrity (this is a standard GRU practice). GRU may also request that the underground electrical system be looped for safety and system integrity. Therefore, all three utilities are being proposed for the jack and bore underground connection.

Q2. Will the jack and bore utility connection cause any surface environmental impacts?

There will be no measurable environmental impacts at the surface above the jack and bore utility connection area. There will be no open trenching or surface disturbance. The entry portals for the jack and bore will be outside of the "drainage easement, developed recreation, & conservation area." One portal will be located inside the Unit 5, Phase 2 subdivision area. The other portal will be located in the ROW for NW 69th Lane.

Because the jack and bore utility construction is entirely underground, it is not regulated by the Water Management District for wetlands impacts, and there would be no required mitigation for wetland impacts.

The surface impacts from construction that is currently allowed within the "drainage easement, developed recreation & conservation area" such as nature trails, walkover structures, gazebos, or other similar above-ground improvements are measurable and greater than from any underground jack and bore method that has no surface disturbance.

Q3. Will the jack and bore utility construction cause any negative environmental impacts underground?

Due to the depth of the jack and bore connection (between 6-10 feet in depth) there will not be any measurable impacts. The casing surrounding the pipes is used to prevent subsidence that may occur.

GSE Engineering & Consulting, Inc. (a local geotechnical engineering firm) has provided a report (see attached, dated February 17, 2016) that indicates the following:

"The proposed "jack and bore" method for the installation of the sanitary sewer and water supply lines is considered an appropriate method for advancing the piping and avoiding impacts to the ground surface through the wetland and creek area. The creek and wetland area in question is located near the southern portion of the proposed subdivision phase…

There is no imminent threat of surface collapse as a result of this method when conducted in accordance with industry standards. It is not expected that the ground surface in the area of the creek or wetland would be subject to surface collapse as a result of the proposed "jack and bore" technique. In fact, it appears to be an environmentally sensitive and appropriate alternative approach to leave these features undisturbed.

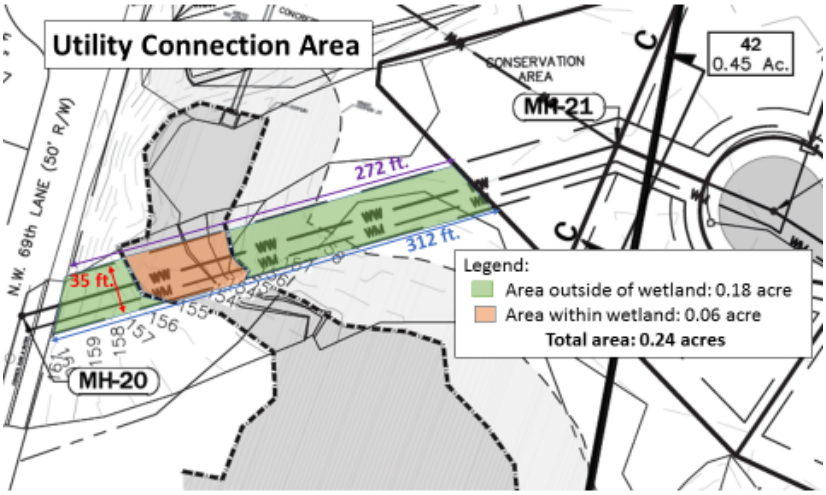
Development of sinkholes during or following improvements using the "jack and bore" method is considered improbable and unlikely in the area of Blues Creek. This near surface improvement activity would have no effect on the deep limestone formation (estimated to be at least 70 to 100 feet below existing grade) considering the near surface nature of construction and the presence of the underlying Hawthorne formation confining layer. There will be no underground "connection" between the near surface soil and deep limestone formation as a result of the proposed construction method."

Q4. How large is the area within the "drainage easement, developed recreation, & conservation area" where the jack and bore connection will be made?

The proposed utility easement area is 35 feet wide for a distance of 272+/- feet on the north side and 312+/- feet on the south side. The following information provides data on the area within the easement.

The sewer pipe casing diameter is 18 inches (steel casing ¼ inch thick) and the PVC sewer pipe itself is 8 inches in diameter. The water pipe casing diameter is 16 inches the (PVC water pipe is 8 inches in diameter). The electrical conduit (if needed) will be 4

inches in diameter. The sewer pipe must be separated from the water pipe by 10 feet. The electric line must be separated by 3 feet from the water line. The diagram below illustrates the utility crossing area.



The table below illustrates the area calculations in square feet and acres.

Total Area Within Easement	**Easement Area within Wetland**	**Area occupied with underground pipes in total area**	**Area occupied with underground pipes beneath wetland area**
10,233.7 square feet (0.24 acre)	2,413.1 square feet (0.06 acre)	4,794.4 square feet (0.11 acre)	1,098.96 square feet (0.03 acre)
	Represents 23.6% of the easement area.	Represents 46.8% of the total easement area.	Represents 45.5% of the wetland area in the easement.

Q5. How secure is the jack and bore connection for the sewer pipe?

The sewer pipe is encased in ¼ inch thick steel casing that is 18 inches in diameter. Interior to the casing there are separators that hold the actual 8 inch PVC sewer pipe in place providing secondary containment. GRU has indicated that this is a secure method and they have not seen failures of these types of systems. However, in the event of a problem with the sewer pipe, all repairs could be accomplished without surface

disturbance by pulling the piping from either of the manhole ends and then repairing or replacing them. No sewage would be dumped into the crossing area. The systems are designed to have the sewage flow contained within the casement pipe and out to the manhole areas that are outside of the connection easement. Repairs would be made from the exterior areas at the manholes outside of the "drainage easement, developed recreation & conservation area."

Q6. Are there any other alternatives to the jack and bore method for utility connections for Unit 5, Phase 2?

If GRU requires looping of the potable water and electrical systems, the only feasible alternative is to loop these utilities to the south of the development where there are existing centralized systems. The area to the west is IFAS property, and the area to the east is the "drainage easement, developed recreation, & conservation area" where there are no centralized utilities.

A lift station could be used for the sewer system. However, GRU has indicated that it not feasible to have a GRU-owned lift station. Therefore, the lift station would have to be privately owned and maintained for the 44 houses.

The only other sewer alternative would be installation of septic tanks. Both the applicant's environmental consultant, Pete Wallace with Ecosystem Research Corporation, and Mark Brown, the City's Environmental Coordinator, have indicated that the use of septic tanks would pose far greater environmental risks than the use of the jack and bore technique for centralized sewer.