

BEST MANAGEMENT PLAN: NATURAL RESOURCES & KARST PROTECTION

The purpose of this Best Management Practices (BMP) Plan is to establish required natural resource protection and karst management practices consistent with the Special Area Study Resolution. These practices apply to all development, land alteration, stormwater construction, and golf course–related improvements within the Phase 1 SAP Institutional Use UF Property.

The Best Management Practices identified in this Plan are intended to implement and satisfy the requirements of ULDC Section 404.66.5 and Section 406.59.1(e), which establishes design and operational standards for golf courses to ensure protection of natural resources. Consistent with this section, all golf course components shall be constructed and managed to conserve water, protect existing vegetation where feasible, and minimize reliance on fertilizers and pesticides through adherence to the project’s Nutrient Management Plan

Protection of Sensitive Habitat, Karst Topography, and Native Vegetation

Areas identified as Conservation Management Areas (CMAs) shall be preserved in accordance with the Special Area Study (SAS) and the CMA Management Plan established for this development. Habitat connectivity between CMAs and adjacent natural areas shall be maintained by avoiding fragmentation, and while pedestrian trails, roadway crossings, and wildlife fencing may occur within CMAs, such improvements shall be designed and located in a manner that protects habitat and wildlife to the extent feasible. Existing vegetation within CMAs and natural drainage corridors shall be retained to the maximum extent feasible, and clearing shall be limited strictly to areas necessary for approved construction. Wildlife corridors shall remain continuous and unbroken across the site, and where fencing is provided within a CMA, it shall be wildlife permeable to the maximum extent feasible unless the intent of fencing is to serve as a barrier to reduce human-wildlife conflict. Any crossings required for access or utilities shall be minimized in width and revegetated pursuant to the Landscape BMPs established for this project. Natural drainage patterns shall be preserved to the extent practicable, and any alterations of existing drainage systems shall not increase hydrologic loading to karst features or CMAs.

Pertaining to SAS Resolution Conditions #10 and #12, fuel load reduction within conservation areas will be accomplished through the use of prescribed fire, where appropriate, or through alternative methods of selective vegetation removal such as mechanical thinning, mowing, or chemical selective vegetation removal when necessary. These practices are intended to reduce wildfire risk, protect adjacent developed areas and infrastructure, and maintain the ecological integrity of native plant and animal communities. All fuel management activities will be planned and implemented in accordance with applicable state and local regulations and recognized land-management guidelines. Fuel reduction measures will be documented within the site’s land management plan to demonstrate ongoing stewardship and risk mitigation.

Invasive exotic plant control will be implemented through an integrated management approach that includes mechanical removal, targeted herbicide applications when necessary, and ongoing

monitoring. Control measures will be selected based on species, site conditions, and proximity to sensitive natural resources to minimize non-target impacts. Routine inspections will be conducted to detect new infestations early and prevent reestablishment. All invasive plant management activities will comply with applicable state and local regulations and be documented in the site's land management plan.

Excavation and Fill Limitations to Protect Shallow Karst

Development shall be designed to avoid adverse impacts to karst features identified within the study area and adjacent conservation areas, and any development proposed within areas identified in Exhibit D of the Special Area Study Resolution as "Strategic Ecosystem Development Standards Apply" shall comply with the ULDC and be governed by subsections 406.03(b)(1) and (2). Excavation within shallow karst areas shall be limited to the minimum depth required for construction, and no over-excavation shall occur in areas with documented shallow limestone or void-producing formations.

Fill placement shall be placed in a manner that does not significantly alter existing drainage patterns. Stormwater basins and detention features shall be sited outside high-risk karst zones; however, if such placement is unavoidable, basins shall be lined using engineered clay, synthetic liners, or low-permeability soils.

Geophysical and Subsurface Investigation

A phased geophysical and subsurface investigation shall be completed prior to final design of stormwater pond facilities to evaluate potential interactions between proposed stormwater improvements and underlying karst conditions. The investigation shall be limited to the proposed stormwater management areas and shall be used to assess design feasibility and identify appropriate engineering measures. The results of the following geophysical and subsurface investigations shall be submitted to County staff at Preliminary Design Plan review as results are available.

Phase 1 – Desktop Review and Site Reconnaissance

Available geologic, hydrogeologic, karst, aerial, and site-specific data shall be reviewed, together with field reconnaissance, to identify areas of potential concern relevant to the proposed stormwater facilities. ECT's 2021 report on significant geologic features within the Hickory Sink Strategic Ecosystem and conduit flow paths to the Santa Fe River will be considered as part of this review and incorporated into design.

Phase 2 – Ground Penetrating Radar (GPR)

Ground Penetrating Radar shall be performed within proposed stormwater pond areas in a georeferenced grid or other appropriate layout to screen for potential subsurface anomalies, including depressions, irregular limestone surfaces, or areas of possible subsidence concern. GPR is intended as an initial screening method only and shall not, by itself, serve as the sole basis to reject a proposed pond location. Where Ground Penetrating Radar (GPR) identifies clear and laterally consistent subsurface features such as shallow limestone, solution features, or voids that can be reasonably interpreted to affect design, the investigation may proceed directly to *Phase 4 (Geotechnical Borings)* without performing *Phase 3 (Targeted Electrical Resistivity Imaging)*.

Phase 3 – Targeted Electrical Resistivity Imaging (ERI)

Where GPR identifies discrete anomalies that warrant additional evaluation, targeted Electrical Resistivity Imaging shall be performed as necessary within the affected portion of the proposed pond area to further characterize anomalies identified by GPR. ERI shall be limited to areas reasonably necessary to evaluate the specific anomaly identified by GPR and shall not require blanket investigation of the broader site. Preliminary geotechnical results shall be provided as part of the preliminary development review package. As additional testing, including GPR and ERI are conducted, results shall be provided as they become available. Additional testing may be required per ULDC 406.92 and shall be submitted as a part of final development plan review.

Phase 4 – Geotechnical Borings

Borings shall be performed within proposed stormwater pond areas, including at locations necessary to evaluate anomalies identified during GPR or ERI, to confirm subsurface conditions for design. At a minimum, borings shall be provided at an average density of one (1) boring per acre of proposed stormwater pond area, with additional targeted borings in anomalous areas as reasonably necessary to characterize site conditions for engineering design. Borings shall be used to evaluate depth to limestone, soil thickness, and the presence or absence of voids or solution features. The boring investigation shall constitute the primary basis for final engineering evaluation and design of stormwater pond facilities.

Evaluation of Stormwater Reuse and Irrigation Minimization

A hydrologic and engineering analysis shall be performed to evaluate the feasibility of stormwater storage and reuse on-site, including assessment of runoff availability, seasonal fluctuations, storage capacity, pumping requirements, and water quality treatment needs. Where technically and economically feasible, stormwater reuse systems shall be incorporated into the project, with storage provided through lined ponds, tanks, or other reclaimed water-compatible basins. Irrigation demands shall be minimized for all portions of the UF Institutional Property, and where supplemental wells are necessary, withdrawals shall be limited to the minimum required for turf and landscape survival. Low Impact Development (LID) systems that enhance infiltration and reduce irrigation demand shall be prioritized, and vegetation outside golf play areas shall prioritize drought-tolerant native species to reduce overall water needs.