



ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

1. SITE FINGERPRINTING UTILIZING GIS AND GPS

- 1.1 What is Site Fingerprinting? ..... 1-1
- 1.2 Site Fingerprinting using GIS and GPS ..... 1-1
  - 1.2.1 What is GIS? ..... 1-3
  - 1.2.2 What is GPS? ..... 1-5
- 1.3 Synthesize Site Context ..... 1-6
- 1.4 Tupelo Tract, A Model Site in Coastal Georgia ..... 1-7
- 1.5 GIS Data Sources ..... 1-8
  - GIS Exhibits ..... 1-9

2. DESIGNING WITH THE LANDFORM

- 2.1 Principles & Objectives ..... 2-1
- 2.2 Conservation Design ..... 2-3
  - 2.2.1 Reduce Impervious Cover and Land Disturbance ..... 2-4
  - 2.2.2 Preserve Native Vegetation and Soils ..... 2-7
  - 2.2.3 Protect Wetlands and Streams ..... 2-10
  - 2.2.4 Protect Wildlife Habitat and Buffers ..... 2-13
  - 2.2.5 Increase Buffer Effectiveness ..... 2-16
  - 2.2.6 Preserve Greenspace ..... 2-17
- 2.3 Street & Parking Design ..... 2-18
  - 2.3.1 Street Width and Length ..... 2-20
  - 2.3.2 Right-of-Way Width ..... 2-21
  - 2.3.3 Cul-De-Sacs & Alternative Turnarounds ..... 2-22
  - 2.3.4 Sidewalks and Driveways ..... 2-24
  - 2.3.5 Parking and Parking Lots ..... 2-25
- 2.4 Lot Development ..... 2-27
- 2.5 Stormwater Management ..... 2-28
- 2.6 Design Comparison ..... 2-30
  - 2.6.1 General Description of Development Types ..... 2-35
  - 2.6.2. Comparison of the Tupelo Site Plans ..... 2-38
- 2.7 Revenue and Cost Analysis ..... 2-51
  - 2.7.1 Site Acquisition Cost ..... 2-55
  - 2.7.2 Roadway Cost ..... 2-56
  - 2.7.3 Site Infrastructure Cost ..... 2-57
  - 2.7.4 Cost Conclusion ..... 2-57
  - 2.7.5 Revenue and Profit Analysis ..... 2-58
  - 2.7.6 Revenue and Profit Conclusion ..... 2-59
  - 2.7.7 Tax Considerations ..... 2-60
- 2.8 Economic Benefits ..... 2-60
- 2.9 Social Benefits ..... 2-61

3. LOW IMPACT DEVELOPMENT AND STORMWATER MANAGEMENT	
3.1 Introduction.....	3-1
3.2 Natural Processes for Stormwater Management.....	3-4
3.2.1 Infiltration and Filtration.....	3-5
3.2.2 Detention and Retention .....	3-6
3.2.3 Sedimentation .....	3-8
3.2.5 Interaction of Stormwater with Vegetation .....	3-10
3.3 Stormwater Management Practices.....	3-11
3.3.1 Introduction.....	3-11
3.3.2 Stormwater Ponds .....	3-12
3.3.3 Stormwater Wetlands .....	3-19
3.3.4 Bioretention Areas .....	3-28
3.3.5 Infiltration Devices.....	3-33
3.3.6 Filtration Devices.....	3-39
3.3.7 Green Roofs .....	3-44
3.3.8 Permeable Paving.....	3-52
3.3.9 Oil Grit Separator.....	3-59
4. STREAM BANK STABILIZATION	
4.1 Introduction.....	4-1
4.2 Erosion .....	4-1
4.2.1 Overland and Stream Channel Erosion.....	4-2
4.2.2 Stream Characteristics Affecting Erosion .....	4-3
4.3 Types of Channels.....	4-3
4.4 Stream Bank Zones .....	4-4
4.5 Low Impact Bank Stabilization Practices .....	4-5
4.5.1 Bio-Engineering: Shaping and Planting Banks.....	4-6
4.5.2 Natural Vegetation Establishment .....	4-8
4.5.3 Temporary Reinforcement: Coir Rolls & Fiber Mats .....	4-11
4.5.4 Permanent Reinforcement: Synthetic Solutions .....	4-13
4.5.5 Pole Plantings.....	4-16
4.5.6 Brushlayering.....	4-17
4.5.7 Contour Wattling / Brush Mattresses .....	4-19
4.5.8 Brush Trench.....	4-21
4.5.9 Rock Rolls / Vegetated Gabions.....	4-23
4.5.10 Vegetated Cribwalls.....	4-25
4.5.11 Revetments.....	4-27
4.5.12 Bendway Weirs & Low Sills.....	4-29

APPENDICES

A. The Georgia Coastal Nonpoint Source Pollution Management Program.....	1
B. Listing of GIS Data Libraries .....	5

REFERENCES



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## EXECUTIVE SUMMARY

The purpose of *Green Growth Guidelines Program* is to demonstrate how low impact development (“LID”) strategies can result in significant positive impacts on the environment while providing superior outcomes both socially and economically. *Green Growth Guidelines* outlines the environmental, social, and economic benefits from use of LID strategies when compared to today’s conventional development approach. This guide’s main objectives are to:

- ◆ Demonstrate how site fingerprinting and sensitive land planning can identify and protect natural resources,
- ◆ Provide developers with instructions on how to build with minimal impact to the environment,
- ◆ Compare low impact and conventional residential subdivision designs to show economic and environmental benefits of LID,
- ◆ Demonstrate alternative stormwater drainage solutions that protect the quality of receiving waterbodies, and
- ◆ Introduce various soft engineering techniques used to protect and stabilize coastal stream banks from erosion.

The overall goal of this manual is to show how a thorough understanding of a site can facilitate designing within the context of the landform and, thereby, reduce impacts on the environment. This approach provides measurable economic benefits by increasing profitability through higher initial low sales and a cost savings in both installation of infrastructure and on-going maintenance.

To exemplify how these strategies and techniques can be applied in this area, an undeveloped tract of land was selected in coastal Georgia as the model site. This 188-acre site, referred to as the “Tupelo Tract”, contains natural resource obstacles typical of this region including freshwater streams, wetlands, and critical habitat. In addition, the site is immediately upstream of a large system of tidal marshes, beaches, and creeks. The tract is strategically located along a main thoroughfare with accessible infrastructure, zoned for residential development, and in close proximity to recreational, civic, and commercial facilities making it ideal for residential development. This tract serves as an

example of how development can be planned and designed to conserve more land and improve water quality on-site and downstream.

## ***Chapter 1***

Chapter 1 takes the Tupelo Tract through a low impact land planning process called “site fingerprinting”. Using GIS and GPS technology, the site’s features are mapped and natural resources designated as “conservation areas”. This information, displayed in the form of generated maps defines the “buildable area” and essentially becomes the “base map” for planning future development. This process identifies environmental issues early in the development process, which facilitates effective resource protection.

## ***Chapter 2***

Chapter 2 uses low impact design principles to create two conceptual development plans for the Tupelo Tract. These two non-conventional plans are known as the “Community Preserve” and the “Village” and both highlight development techniques known as compact building - which uses smaller lots to maximize developable area while preserving natural resources. This chapter also compares the two land plans to conventional development with respect to economic, environmental, and social benefits. As consumers become more educated about the effects of sprawl, demand for these non-conventional developments is increasing, as is reflected in recent market studies. Our analysis revealed that these properties also have a higher initial lot value, faster appreciation, lower infrastructure cost per lot, and higher tax generation than conventional development. While numerous design possibilities exist for a given site, the economic and environmental objectives tend to be consistent: achieve greater project success and cost savings through simple yet intelligent LID strategies.

## ***Chapter 3***

Chapter 3 explores a range of multi-functional stormwater drainage techniques and is the core of what is traditionally known as LID. These techniques mimic the pre-development hydrologic function of the site by encouraging natural processes that detain and filter pollutants from stormwater runoff. The goal is to increase biologic activity by providing more surface area with which the stormwater comes in contact, thus allowing stormwater to be treated by natural processes inherent to an undisturbed site. Research indicates that densely wooded sites, with their attendant layers of vegetation and porous

topsoil, act as a sponge and provide effective stormwater treatment. LID systems are generally distributed throughout the site, which controls and treats runoff at its source reducing the effects of downstream non-point source pollution. In addition, this approach is often less expensive to construct and maintain compared to conventional systems.

## ***Chapter 4***

Chapter 4 demonstrates bio-engineered solutions for streambank stabilization, especially steep, sandy bluffs along coastal streams that are particularly susceptible to wind and water erosion. Various natural solutions are recommended that preserve the aesthetical and ecological quality of the stream and its banks. The use of native vegetation is strongly encouraged, as this method tends to promote the accretion of sediments reversing the effects of erosion. Most importantly, the use of non-invasive practices maintains essential aquatic habitat for creatures using these areas to live, feed, and reproduce.

This guide strives to make the green growth process an appealing and more readily accepted model for the rapid development facing this region. Balancing inevitable development demands and natural resource protection are essential to achieving better water quality in the region. Adopting low impact planning and development strategies for our coastal region achieves this balance. With creativity, determination, and support for these efforts, coastal Georgia can create and maintain healthy, vibrant communities that ensure economic vitality while retaining a healthy environment.