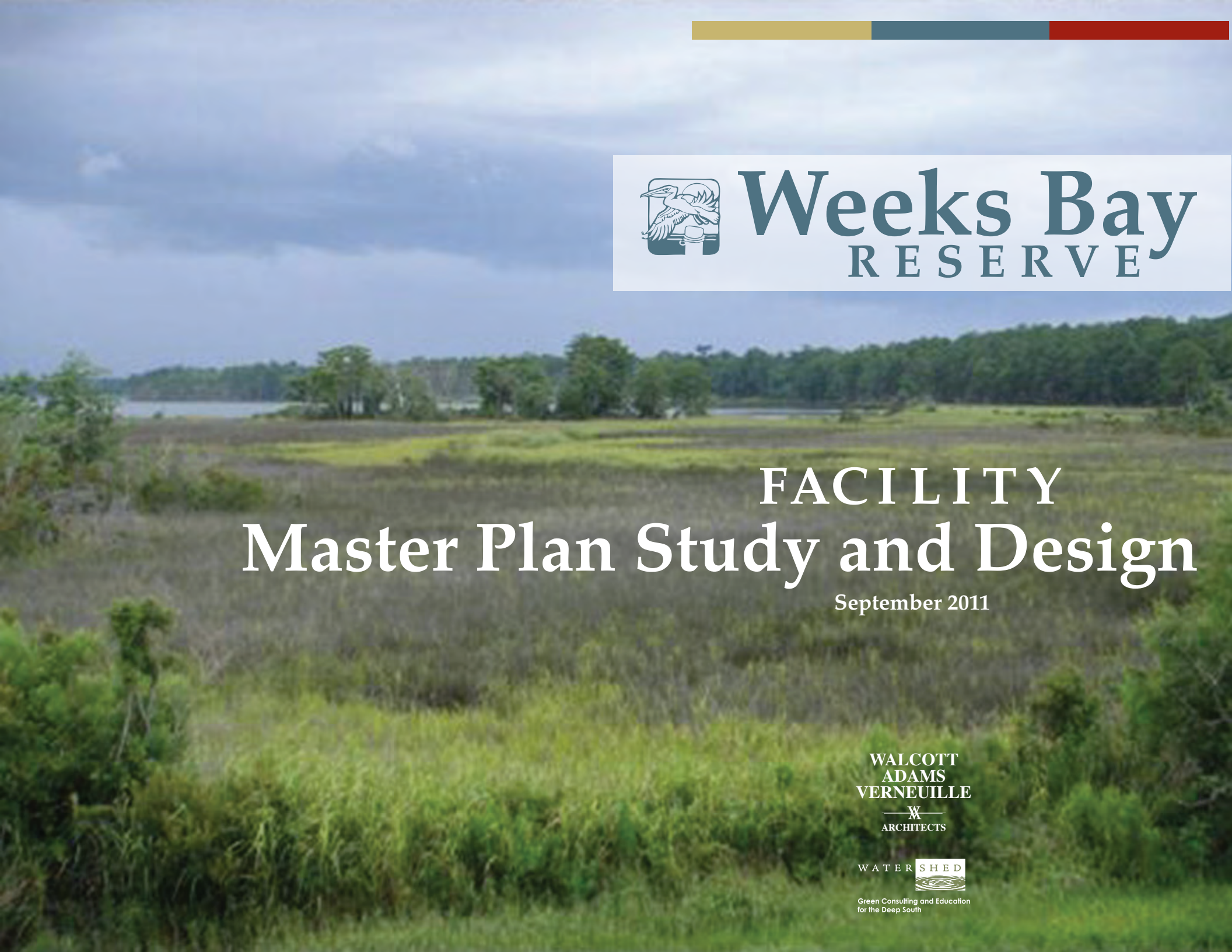

Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

September 2011

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Acknowledgements

This Facility Master Plan (Master Plan) has been developed to assist future planning at the Weeks Bay National Estuarine Research Reserve (Reserve). It responds to program developments that are foreseen in the near to long term future. As programs grow and develop, requiring new or adapted facilities, this document will assist in providing guidance through implementation of various projects.

The Master Plan was made possible through the cooperative efforts of the Reserve staff, the Weeks Bay Advisory Committee, the Alabama Department of Conservation and Natural Resources State Lands Division - Coastal Section, and the National Oceanic and Atmospheric Administration Estuarine Reserves Division staff. In addition, valuable comments were provided by members of the Weeks Bay Foundation Board of Directors and the Weeks Bay Watershed Project Citizens Advisory Committee.

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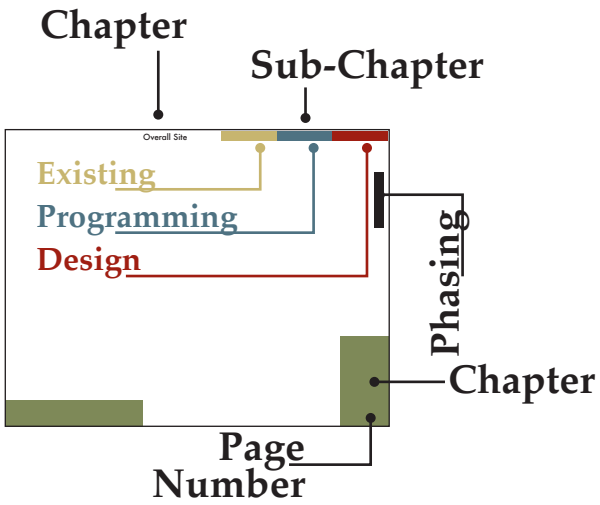
This publication is available for downloading at www.weeksbayreserve.com

Table of Contents

Table of Contents:
Graphic Layout of Book



Chapters	Weeks Bay Principles	Overall Site	Visitor Center	Resource Center	Research Center
Introduction & Overview Executive Summary	1	2	3	4	5
Existing Conditions					
Programming					
Design Concepts					
Budget Projection					

6 Budget Summary

7 Appendix

8 Index

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Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

Table of Contents

Introduction & Overview

The Weeks Bay Reserve (Reserve) is a 6,525 acre National Estuarine Research Reserve (NERR) that operates on several parcels of land in the Weeks Bay, Alabama area. Established in 1986 as the 16th reserve in the NERR System, the Reserve is funded both by the NERR System, an agency of the National Oceanic and Atmospheric Administration (NOAA) and the Alabama Department of Conservation and Natural Resources, State Lands Division. The Reserve also receives assistance and support from the Weeks Bay Foundation. The Management Plan for the Reserve (available online at www.weeksbayreserve.com) identifies the current strategic goals and objectives of the Reserve. This Facility Master Plan (Master Plan) was commissioned in December of 2009 to identify and forecast the development of the facilities and infrastructure necessary to achieve the goals of the Reserve Management Plan.

This Master Plan was developed in five distinct chapters; the first of which, the Weeks Bay Principals (Chapter One) was designed as a roadmap to align the design and construction of the future facilities at the Reserve with the goals described in the Reserve Management Plan. The next four chapters describe each of the four facility activity areas of the Reserve, with each chapter including an Existing Conditions overview, Program, Design Concepts, and Budget Forecast for each site over the next ten years.

Executive Summary

The current operations of the Weeks Bay Reserve (Reserve) are housed in facilities located on predominantly two existing sites; the "Fish River Marina" site, now known as the Resource Center site; and the existing Interpretive Center site. This Facilities Master Plan (Master Plan) takes the current and future operations of the Reserve and deploys them onto three distinct sites. The **"Visitors Center"** site takes the existing Interpretive Center facilities and incrementally redevelops them into an evolved compound, positioned to provide services for visitors, educational groups, administration, and resident research (short term). The "**Research Center**" site takes the old "Safe Harbor" property (currently owned by the Reserve) and anticipates the reclamation / redevelopment of an approximately 90 acre site into three use areas; a 69+/- acre wetlands restoration area, a 15+/- acre limited public use area, and a 6 acre +/- development zone, where the future Research and Support Facilities would be built. The potential future evolution of the Weeks Bay Foundation office site, while not controlled by the Reserve, are also identified. The "**Resource Center**" site takes the existing infrastructure there and enhances it in regards to Reserve boat docking, public/State/ Reserve boat launching, tidal flooding, security, and stormwater management.

Executive Summary

This Master Plan also addresses the "Overall Site" for issues regarding Reserve traffic safety/traffic calming, way-finding, and future "neighborhood" considerations.

The evolutions of each of the three sites {Visitors Center; Resource Center; Research Center} are sequenced and prioritized into three "Eras" or phases; Short -Term (1-3 years), Mid-Term (3 –6 years), and Long-Term (7 –10 years). Budget estimates for each site /era were then forecast as total development budgets. If all of the Master Plan needs for all three sites (plus the Overall Site) were met in each of the Eras identified, the total budgets would be as follows: Short Term $3,453,780; Mid Term $5,039,155; Long Term $3,248,388. See page 6.1.00.

The Facility Master Plan is a document that provides a road map to the future. Ideally Weeks Bay Reserve will continue as a center of excellence and once fully developed the Reserve will achieve outcomes as a result of this master planning process. A vision decades down the road will result in the best of what Reserve programs can be (Appendix 7.1.01-7.1.02). Facility development will result in a need for increase staffing as projected in Appendix page 7.1.03.

Weeks Bay Principles

Weeks Bay
RESERVE

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and Design

Chapter 1
Weeks Bay
Principles

1.0.00

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The oldest task in human history is to learn to live on a piece of land without spoiling it.

Aldo Leopold

Introduction

The Weeks Bay Principles have been developed as a guide for design teams and facility operators at the Weeks Bay National Estuarine Research Reserve (Reserve). The principles are intended as a roadmap to align Weeks Bay Facilities and Construction with the three goals described in the Reserve's Management Plan, "to promote Education, Stewardship, and Scientific Research focusing on Estuarine Ecosystems," by defining appropriate ways for new and existing buildings to interact with the ecology of the Reserve.

The principles lay out measurable performance goals for both new and existing facilities on the Reserve in 5 categories: Site Development, Restoration, and Protection; Water Conservation and Re-use; Efficient Energy Use; Building Materials and Resource Conservation; and Creating Healthy Indoor Environments. These performance goals can be used to give direction to the teams responsible for the design and construction of new facilities on the Reserve. They can also be used as a roadmap to improve the environmental performance of existing facilities over time, as funds and personnel become available.

Introduction

The principles reference national green building standards and tools, but the performance goals are specific to the local characteristics of the Reserve. Individual facilities can build on the baseline established by these principles by pursuing an independent green building certification, such as Leadership in Energy and Environmental Design (LEED). Even if certification is not pursued, the principles lay out a roapmap for achievement of each of the performance goals in new and existing buildings.

Each chapter also recommends a series of performance metrics that can be used to establish baselines and track achievement of facility environmental goals. These metrics also present an opportunity to meet the growing need for regionally specific research and education about the impact of the built environment on estuarine ecosystems.

Weeks Bay Principles

Site Development, Restoration, & Protection

I

The Weeks Bay National Estuarine Research (Reserve) encompasses rich and diverse habitats. Buildings and site development on the Reserve need to be designed to meet the goals of the Reserve Management Plan while celebrating the ecology of an estuarine habitat.

Development of new facilities should be restricted to previously impacted areas of the Reserve identified in the Facility Master Plan Study. Ecologically sensitive zones to be protected from development and impacted or impaired ecosystems to be targeted for restoration have been identified. The following goals and metrics highlight opportunities for facilities to enhance wildlife habitat, protect water quality, and restore degraded areas while creating educational and research opportunities to further the mission of the Reserve.

Performance Goals

1 Balance Development and Restoration.
New construction should be restricted to developable areas described in the Facility Master Plan Study.[1] With the scope of work for each new building, include the restoration of an area in the "demonstration and/or restoration zones" of the Reserve, equal to or greater than the limits of construction for the new building.

2 Prevent light pollution
Use shielded, full cut off exterior light fixtures[2] that employ shielding and fixture design to protect nocturnal wildlife and prevent light pollution of the night sky. Exterior lighting design should strive to achieve the minimum lighting densities [3] required to insure safety and comfort.

3 Stormwater Sensitive Site Design [4]
New development on the Reserve should create no net increase in Stormwater Discharge [5, 7] and no net decrease in Stormwater Quality [5, 7] from pre-development levels. Emphasis should be placed on slowing stormwater velocities, preventing erosion, and increasing infiltration. Follow accepted Best Management Practices for "Low Impact Design."

4 Stormwater Pollution Prevention Practices (SWPPP)
Implement a SWPPP Plan [6] during ALL construction activities and designate "wash out areas" with impervious liners for construction activities such as washing paint brushes, buckets, concrete tools, etc. in order to protect the water quality of the Reserve.

Site Development, Restoration, & Protection

I

Performance Goals

5 Non-Point Source Pollution

Establish a purchasing plan to minimize the use of pesticides,[8] fertilizers,[8] or cleaning agents[12] on the exterior of buildings and the landscape of the Reserve that could create harmful sources of non-point source pollution. The plan should list acceptable products, including low- phosphorus, biodegradable cleaning agents. Describe appropriate native plants[9] that require minimal pesticides and fertilizers, and lay out Integrated Pest Management[10, 11] procedures.

6 Clean Marinas

The design of any boating facilities should follow the Clean Marinas Guidelines[13] for Siting and Design. Signage and interpretive materials should make Clean Marina Management measures pertaining to boat operation and maintenance, fish waste, boat cleaning, petroleum and sewage waste clear to the boating public.

Performance Metrics

- A large monitor in the Visitor Center could be used to display the water quality sampling results from Weeks Bay and adjacent waterways after significant storm events. The display could make real time data accessible to the public indicating if samples were taken before, during, and after any construction or site development activities. The samples could be displayed electronically in the Visitor Center in order to publicly track the impact of low impact development and Clean Marina Management practices.

- Highly visible rainwater collection cisterns and rain gardens can be incorporated into the interpretive "story" of the Reserve. With active monitoring, these can be used to track the quality of water stored for re-use in the cisterns and the quality of water returned to the earth through the rain gardens.

- Educational signage could be incorporated into landscaped areas to identify plant materials and landscaping practices that protect water quality in our region. Highly visible rain gauges in public areas could serve as both design and research elements. Scientific research could compare water use, chemical and pesticide use, and habitat utilization of the Reserve landscape to traditional "sod and shrubs" landscaping.

- The impact of site lighting practices on nocturnal wildlife could be tracked with wildlife monitoring cameras installed in both developed and undeveloped portions of the Reserve.

Site Development, Restoration, & Protection

Tools and Resources

[1]Facility Master Plan Study: Restoration, Development and Protection Areas

[2]Dark Sky Approved Fixtures
http://www.darksky.org/index.php?option=com_content&view=article&id=452

[3]Exterior lighting levels
http://www.darksky.org/mc/page.do?sitePageId=84399&orgId=idsa

[4]Low Impact Design:
http://www.wbdg.org/resources/lidsitedesign.php

[5]Georgia Stormwater Management Manual, with Coastal Supplement
http://www.georgiastormwater.com/

[6]Field Guide for Erosion and Sediment Control on Construction Sites in Alabama
http://swcc.alabama.gov/pdf/Handbooks&Guides/Complete_Field_Guide.pdf

[7]Bioretention Design Resources:
http://www.aces.edu/waterquality/nemo/lidres.htm

[8]Reducing fertilizer and pesticide use:
http://livinggreen.ifas.ufl.edu/landscaping/fertilizers_and_pesticides.html

[9]Greenscapes, cost effective, environmentally friendly landscaping:
http://www.epa.gov/epawaste/conserve/rrr/greenscapes/index.htm

[10]Integrated Pest Management Guidelines:
http://livinggreen.ifas.ufl.edu/landscaping/ipm.html

[11]Pestwise, An EPA partnership program:
http://www.epa.gov/pestwise/index.html

[12]List of less toxic cleaning products
http://www.greenseal.org/findaproduct/i&icleaners.cfm

[13]Clean Marinas Guidelines
http://coastalmanagement.noaa.gov/initiatives/management_m.html

Water Conservation and Re-Use

II

The Weeks Bay watershed receives an average rainfall of over 60 inches annually, making it one of the wettest regions in the country. However, as development in the area increases, more and more of that rainfall is concentrated into erosive runoff from impervious surfaces. The resulting siltation, combined with other non-point pollution sources such as discharge from faulty or failing septic systems, agricultural runoff, and chemicals from residential landscaping present a critical threat to the water quality of the waterways within the watershed boundaries.

Water is still a relatively cheap commodity in the communities located in the Weeks Bay watershed, and there is a perception that water is an unlimited natural resource, therefore conservation is not widely practiced. Conserving water does more than protect our aquifers. Water conservation protects water quality by reducing nutrient runoff from landscaped areas and preventing septic overload. By protecting water quality, collecting our abundant rainfall, and conserving potable water, the Reserve can promote respect for our finite water resources and protect the ecology of the Weeks Bay Coastal Area.

Performance Goals

1 New Buildings Demonstrate Conservation
New buildings shall utilize best management practices[14, 15] to use 30% less potable water than required by code.

2 Retrofits Reduce Water Use
Retrofit plumbing fixtures in existing buildings with water conserving upgrades[16] and implement water conservation strategies to achieve 2% reduction in water use each year through fiscal year 2015, or a 16% reduction by fiscal year 2015.[17]

Water Conservation and Re-Use

3 Reduce Exterior Water Use
Install native landscaping[18] or landscaping that is adapted to live on the abundant available rainfall of the Reserve. Consider using temporary irrigation when new plants are installed, so that it can be removed once the plants are established. Prioritize the use of rainwater, condensate, and other non-potable water resources for irrigation.

4 Water Collection, Re-use, and Treatment
Demonstrate rainwater,[20] grey water,[19] and HVAC condensate re-use. Model alternatives to traditional septic tank water treatment systems such as composting toilets, or constructed wetland treatment systems.

Performance Metrics

- Set a goal to benchmark water use[23] throughout the existing Reserve through metering and a leak detection survey.[21] Tracking water use over time will increase leak identification and preventative maintenance. Don't forget to account for the energy savings associated with reducing hot water use.
- To measure and compare the results of water conserving upgrades, consider sub-metering plumbing fixtures, hot water, and/or irrigation system. As the staff of the Reserve grows, consider holding competitions[22] between dormitories or office buildings that challenge Staff to reduce water use through conserving behavior.
- Installing highly visible water metering in bathrooms or interpretive areas, or tying water use information into a graphic display can increase awareness of water use and environmental impacts.

Water Conservation and Re-Use

Tools and Resources

[14]Water Efficiency Best Management Practices:
http://www1.eere.energy.gov/femp/program/waterefficiency_bmp.html

[15]Water Efficiency in Laboratories
http://www.labs21century.gov/pdf/bp_water_508.pdf

[16]Energy cost calculator for water conserving fixtures and appliances
http://www1.eere.energy.gov/femp/technologies/eep_eccalculators.html

[17]Executive Order 13514
https://www.eecbg.energy.gov/femp/pdfs/water_guidance.pdf

[18]Native Plants in Coastal Alabama Landscapes:
http://www.aces.edu/counties/Mobile/documents/NativePlantReferencesandOtherResources.pdf

[19]Grey Water
http://greywateraction.org/

[20]Rainwater Harvesting Manual
http://www.twdb.state.tx.us/publications/reports/rainwaterharvestingmanual_3rdedition.pdf

[21]Waterwiser daily waste leak calculator
http://www.awwa.org/AWWA/waterwiser/dripcalc.cfm?showLogin=N

[22]Auburn University Sustain-a-bowl competition:
http://www.auburn.edu/projects/sustainability

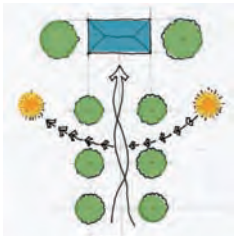
[23]Energy Star Benchmarking Tools:
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager#manage

Efficient Energy Use

The most cost effective and practical approach to reducing energy use is one informed by the people and plants that have adapted to life on the bay over time. Building on those accumulated lessons about siting, shading, and wind with modern technology can result in significant gains in energy conservation and emissions reductions. Because of both the latitude and generally low-rise development within the Reserve, roofs of buildings receive considerably more solar radiation than walls. Strong, well insulated, and reflective roof surfaces are a critical line of defense against excessive heat gain. Designers should utilize passive solar design principles and physical structures to work with existing resources of sunlight, wind, and water at the Reserve and reduce the need for electric lighting and mechanized climate control. After buildings are occupied, measuring the actual energy use of each facility can allow facility operators to judge the effectiveness of energy reduction strategies and make informed operational decisions.

III

Increasing energy conservation in existing and new buildings on the Reserve is not only fiscally sound, but also environmentally responsible. By raising awareness of the connection between energy use and air pollution, the Reserve can encourage energy conserving behavior in the public that ultimately protects our water resources from pollutants such as nitrogen compounds, sulfur compounds, mercury, pesticides, and other toxics that are generated in the production of electricity.



Performance Goals

1 Cool Daylighting
In all new facilities, design to maximize daylight[24] while shielding windows[25] from direct sun from April to October to minimize heat gain in all the hotest seasons.

2 Energy Efficient - New Construction
New buildings should be designed to achieve an Energy Performance Rating of 75 or better using the Energy Star Target Finder[26] tool.

Efficient Energy Use

3 Energy Efficiency- Retrofits
Prioritize energy upgrades,[27] and renovate existing buildings[28] to achieve an Energy Performance Rating of 75 or better.

4 Renewable Energy Production
Investigate demonstrating Renewable Energy use on site as funding[29] becomes available. Possible renewable energy sources include but are not limited to: wind energy, solar hot water heating, geothermal HVAC, geothermal hot water heating, and photovoltaics.

III

Performance Metrics

- Energy Star benchmarking tools can be used to track the energy use and related emissions of all buildings at the Reserve over time, identify problem areas, and increase preventative maintenance.
- Submetering each building can aid in tracking and comparing results of upgrades. As staffing increases, consider holding competitions between office or dormitory buildings to see who can create the largest energy savings and emissions reductions.
- Installing highly visible meters in classrooms or tying metering into a graphic display can increase awareness of energy use and the associated environmental impacts.
- Set a goal to develop an Operations and Preventative Maintenance Plan for all building systems, and train the facilities manager and building operators in the most efficient building operations and maintenance.
- Performing Energy Audits every 5 years can help the Reserve to improve its existing buildings, and maintain the efficiency of new buildings.

Efficient Energy Use

Tools and Resources

[23]Energy Star Benchmarking Tools:
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager#manage

[24]Cool daylighting Guidelines:
http://www.daylighting.org/design.php

[25]Solar Shading:
http://windows.lbl.gov/daylighting/designguide/section5.pdf

[26]Target Finder
http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder

[27]Cash Flow Opportunity Calculator
www.energystar.gov/ia/business/cfo_calculator.xls

[28]Energy Star Building Upgrade Manual
http://www.energystar.gov/index.cfm?c=business.bus_upgrade_manual

[29]Database of State Incentives for Renewables and Efficiency:
http://www.dsireusa.org/

III

Building Materials and Resource Conservation

Both the form and material of the buildings of the Reserve can be used to reinforce a strong sense of place and awareness of natural systems. Regionally abundant materials such as wood, sand, shells, and brick should be showcased in building design whenever possible. Visibly recycled and/or salvaged materials can reduce demand for virgin materials, while also creating interpretive opportunities for new facilities. The hot, moist, and storm prone environment of the Reserve creates many maintenance challenges for facilities. Buildings should be designed to meet many durability challenges, including UV rays, moisture, mold, decay, termites, and high winds. Some historical responses to these maintenance challenges include rain porches, deep overhangs, and raising buildings above the ground.

Construction and demolition waste represents 30% of the waste that Americans send to landfills each year. Much of that "waste" is actually usable material, an overlooked resource. In rural coastal Alabama there is not a scarcity of space for new landfills and regulation of solid waste is not stringent. Because of this, fees remain relatively low, depressing the market for construction waste management. However, by utilizing a common sense approach to material salvage and reuse, and implementing construction protocols, it is still possible to significantly reduce construction waste and demonstrate responsible resource conservation through recycling.

IV

Performance Goals

1 Construction Waste Reduction and Recycling[30]
All construction projects should plan to reduce construction waste, identifying which materials are readily recyclable, and which can be diverted for another use. For example, concrete, metals, wood, paper, and cardboard are all readily recyclable around Weeks Bay. The recycling of drywall is increasing in our area. Many waste management companies are now offering turn-key recycling services, where they sort all waste deposited in their dumpsters. New facilities should strive to divert[31] at least 75% of construction and demolition waste from the landfill during their construction.

Building Materials and Resource Conservation

2 On-site Salvage and Re-use
Identify a site to store valuable demolition waste on site, in a coordinated manner so that they are easily accessible for re-use. Look for opportunities to grind non-recyclable construction waste for use as inert fill under roadways or paths, and re-use demolition waste in new facilities when feasible and desirable.

3 Operational Waste Reduction
The Reserve already does an excellent job of recycling paper, aluminum, plastic and electronics. As staff becomes available, the Reserve could look for opportunities to further reduce waste by purchasing items with limited packaging, prioritizing the purchase of recyclable items, starting a composting[32] program for kitchen and landscaping debris, and educating visitors about recycling.

4 Sustainable Purchasing
As funds and staff become available, consider creating a Sustainable Purchasing Policy[33,34] for the Reserve, to guide the selection of building materials, cleaning products, and ongoing purchasing at the Reserve. This may require working with the Purchasing Department statewide, to include in bidding practices.

5 Resilient Facities
Seek funding to perfom a vulnerability assessment. Both new facility construction and improvements to exiting facilities should address vulnerabilities identified in the assessment. Wetland buffer zones should be preserved and restored. New facilities should consider current scientific projections of sea level rise, as well as current FEMA base flood elevations, when determining their location, finished floor elevation, and construction type. Improvements to existing facilities should increase the resiliency of structures to threats of water and wind based through hardening, flood resistant construction, or current best practices and technologies.

IV

Performance Metrics

- Recycled and Regional Material Calculators can be used to quantify the percentage of recycled and regional content for the new buildings on the Reserve. Interpretive signage can be used to draw attention to materials that have significant environmental and durability benefits. Possible visitor activities include scavenger hunts challenging K-12 students to identify the "past lives" of building materials. Interpretive materials that track regional building materials from source to their use in the building could be used to encourage sustainable uses of our local resources such as brick, sand, and lumber.

Building Materials and Resource Conservation

- Tracking construction waste generated by new construction and renovation projects can help design and construction teams to police construction waste management activities and calculate the positive environmental impacts of their work. The data can be used to compare the waste/sq. ft. sent to the landfill to the national average of about 4 pounds of construction waste per square foot of building. It could also be used to calculate the potential economic and environmental implications if new construction projects diverted 75% of their waste from the landfill.

- Waste Stream Audits, performed on existing buildings, can be used to calculate existing recycling rates and identify opportunities to increase recycling rates. Publish or post waste stream tracking to educate others about recycling and resource conservation.

- Markings on river signage or boardwalks can use System-Wide Monitoring Program (SWMP) Data to show the extent of storm surges during Hurricanes Ivan and Katrina, projections of sea level rise, and historic water levels below the surface. The Resource Center pilings and the boardwalk are other areas of opportunity to benchmark and illustrate changing water levels and storm surge elevations over time.

Tools and Resources

[30]Sample Construction Waste Management guidelines:
http://www.ga.wa.gov/eas/cwm/guideline.html

[31]About Construction Waste Management:
http://www.wbdg.org/resources/cwmgmt.php

[32]Organic Materials Recycling:
http://www.epa.gov/osw/conserve/materials/organics/index.htm

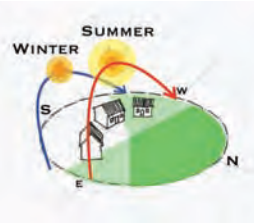
[33]Environmentally Preferrable Purchasing:
http://yosemite1.epa.gov/oppt/eppstand2.nsf

[34]Environmentally Preferable Purchasing Tools:
http://www.epa.gov/opptintr/epp/tools/index.htm

Creating Healthy Indoor Environments

The Reserve is a beautiful place to visit, to study, and to work. When a visitor enters a facility on the Reserve, the experience of participating in a diverse healthy ecosystem should not stop as they cross the threshold. Taking advantage of the abundant resources of sunlight and views is another way that facility design can support the mission of the Reserve. Natural daylight, views to the exterior, good indoor air quality, and a comfortable temperature are all important components of a healthy, pleasant, and productive research environment. Considering that design and construction costs make up just 2% of the 30 year life cycle cost of a typical building, energy and maintenance costs just 6% and personnel costs 92%, an investment in high quality work and research environment is a fiscally sound decision.

Performance Goals



1 Climate Control
When feasible and appropriate, design facilities with integrated natural and mechanical ventilation systems. Include feedback on exterior temperature and humidity to inform users when conditions are optimal for natural ventilation.

2 Cool Daylighting[35]
Utilize fenestration patterns and lighting design to harvest daylight. As funding becomes available, retrofit existing buildings to shade hot windows and/or increase daylighting.

3 Access to Views
New building designs must include views to the outdoors for all research, education, administrative, and meeting rooms. When renovating existing facilities, orient occupied spaces to take advantage of prime views and cluster service areas away from windows. Consider adding interior windows, to share views with interior spaces, and bring light deeper inside the buildings.

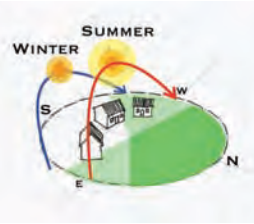
Creating Healthy Indoor Environments

4 Low Emitting Materials[38]
Establish a "buyer's guide" to low emitting building materials and low-emitting cleaning products. All interior paints, coatings, adhesives, and sealants to be used on either new or existing facilities should have low levels of Volatile Organic Compounds (VOC's) or no VOC's. All agrifiber and wood products should not contain any added urea formaldehyde. As staff becomes available, review cleaning products[36] for irritating or harmful off gassing and select alternatives.

5 Humidity Control
Buildings and mechanical systems should be designed in compliance with ASHRAE Standard 55-2004 for Ventilation, Temperature and Humidity. Consider separating humidity control from temperature control, so that it can be effectively managed in our temperate seasons that require little or no temperature control.

6 Pollution Prevention
Construction teams can use Indoor Air Quality Best Management Practices[37] during all construction activities to protect building materials from moisture and ductwork from contamination.

Performance Metrics



- A photo log of Indoor Air Quality best management practices can be integrated into normal construction observations in order to keep the attention of the construction team focused on protecting indoor air quality.
- An Indoor Environmental Quality Audit[38] can be used to assess effectiveness of equipment, operations, and maintenance[40] in maintaining a healthy interior environment and identify areas for improvement.
- Require contractors to submit the VOC content of all interior paints, coatings, adhesives, and sealants used in facility construction, and the formaldehyde content of all wood and agri-fiber products. Post allowable VOC levels somewhere readily accessible by facilities staff, for their use.
- Consider performing a Thermal Comfort Survey on all new buildings within a year after occupancy in order to fine tune temperature settings, identify potential maintenance issues, and maximize efficiencies.

V

Creating Healthy Indoor Environments

Tools and Resources

[35]Daylighting:

http://www.wbdg.org/resources/daylighting.php

[36]Less toxic cleaning products

http://www.greenseal.org/findaproduct/i&icleaners.cfm

[37]IAQ Management Plan during construction

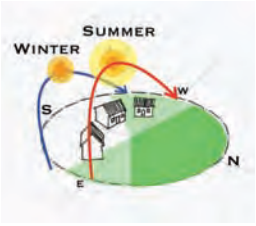
http://www.epa.gov/iedweb00/schooldesign/construction.html#IAQ%20Management%20During%20Construction%20Planning

[38]Energy Star IAQ Tools

http://www.epa.gov/iaq/largebldgs/pdf_files/baqactionplan.pdf

[39]Sample IPM Procedures for Cockroach infestation in school or office:

http://schoolipm.ifas.ufl.edu/tp4c.htm



[40]Pestwise, An EPA partnership program:

http://www.epa.gov/pesp

Low VOC Architectural Coatings

http://www.aqmd.gov/rules/reg/reg11/r1113.pdf

Low VOC Adhesives and Sealants

http://www.aqmd.gov/rules/reg/reg11/r1168.pdf

Low VOC Paints

http://www.greenseal.org/GreenBusiness/Standards.aspx?vid=ViewStandardDetail&cid=0&sid=6

V

Overall Site

Existing Conditions
Programming
Design Concepts
Budget Projections

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FACILITY
Master Plan Study and Design

Chapter 2
Overall Site

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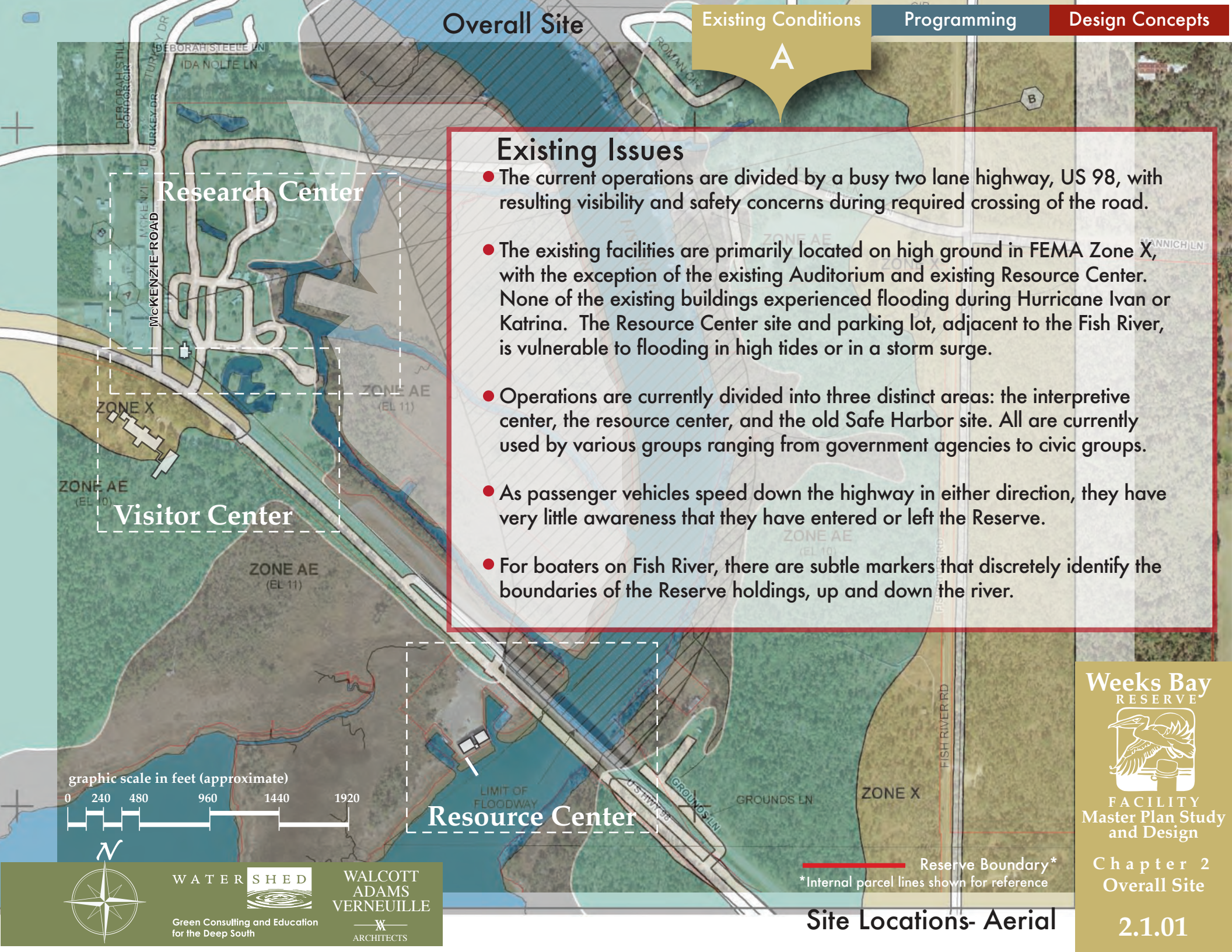
Overall Site
Existing Conditions



Existing Issues

- The current operations are divided by a busy two lane highway, US 98, with resulting visibility and safety concerns during required crossing of the road.
- The existing facilities are primarily located on high ground in FEMA Zone X, with the exception of the existing Auditorium and existing Resource Center. None of the existing buildings experienced flooding during Hurricane Ivan or Katrina. The Resource Center site and parking lot, adjacent to the Fish River, is vulnerable to flooding in high tides or in a storm surge.
- Operations are currently divided into three distinct areas: the interpretive center, the resource center, and the old Safe Harbor site. All are currently used by various groups ranging from government agencies to civic groups.
- As passenger vehicles speed down the highway in either direction, they have very little awareness that they have entered or left the Reserve.
- For boaters on Fish River, there are subtle markers that discretely identify the boundaries of the Reserve holdings, up and down the river.

Reserve Boundary*
*Internal parcel lines shown for reference

Site Locations- Aerial

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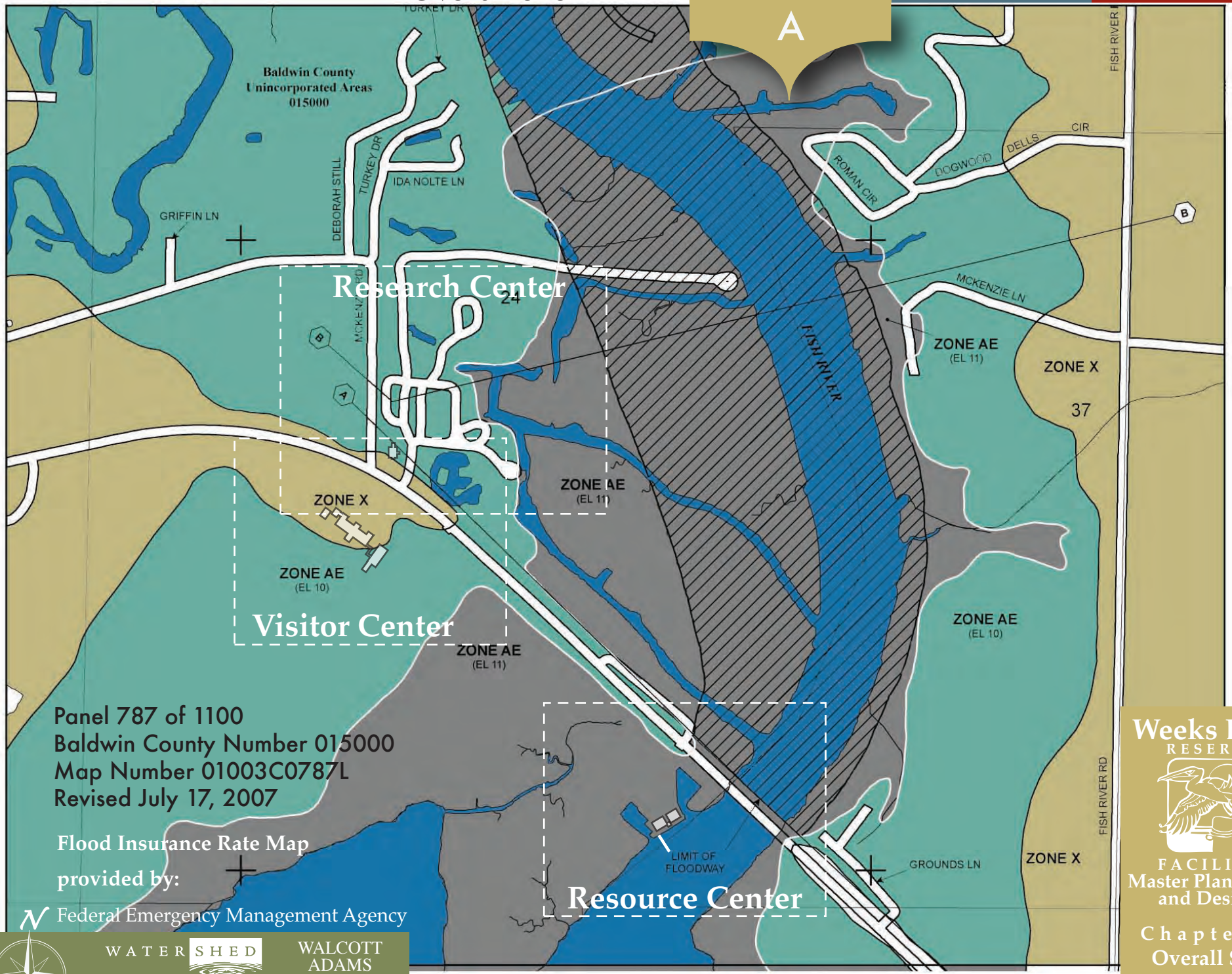
Overall Site



Flood Insurance Rate Map (FIRM)

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Overall Site
Programming

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Programming

Site

- Provide signage to identify boundaries of Reserve for highway travelers
- Use alternative landscaping on US 98 right of way (ROW) to further reinforce "you are passing through" something special
- Utilize some type of traffic calming methods to slow traffic and protect pedestrian crossings to enhance visitor safety
- Create and install new educational markers for water boundaries along the river and bay
- Explore options for “dark sky” lighting for sign elements or reinforcement of site boundaries

Short Term Goals

Boundary & Perimeter Markers

Exterior Signage Program

Mid Term Goals

Define Demonstration Zones

Paving Pattern on US 98

Create Natural Edge areas along US 98

Long Term Goals

Grow out of Landscape Elements

Define Congruent Common Fence Element/Boundary along McKenzie Rd*

*See Chapter 5 for fence division between Development Zone and adjacent zones

Overall Site

Design Concepts

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Overall Site

SHORT TERM GOALS

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FACILITY Master Plan Study and Design

Chapter 2 Overall Site

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Conceptual Site Plan

DIRECTIONS FOR INSTALLING WOOD DUCK NEST BOXES

1. Materials

   nest box
   predator guard
   post
   rebar
   7" x 5/16" bolt, washers, nut
   wooden support blocks
   spiral nails
   sheet metal screws
   wood chips

2. Insert 5/16" bolt into post. Attach wood duck box to bolt using washers and nut.

3. Place 4" to 6" of wood chips or shavings (sawdust not recommended) into the nest box. Insert nail in pre-drilled hole in the side of the box to secure door.

4. Nail the support blocks (three) onto the post approximately 6" to 12" below the box using spiral nails.

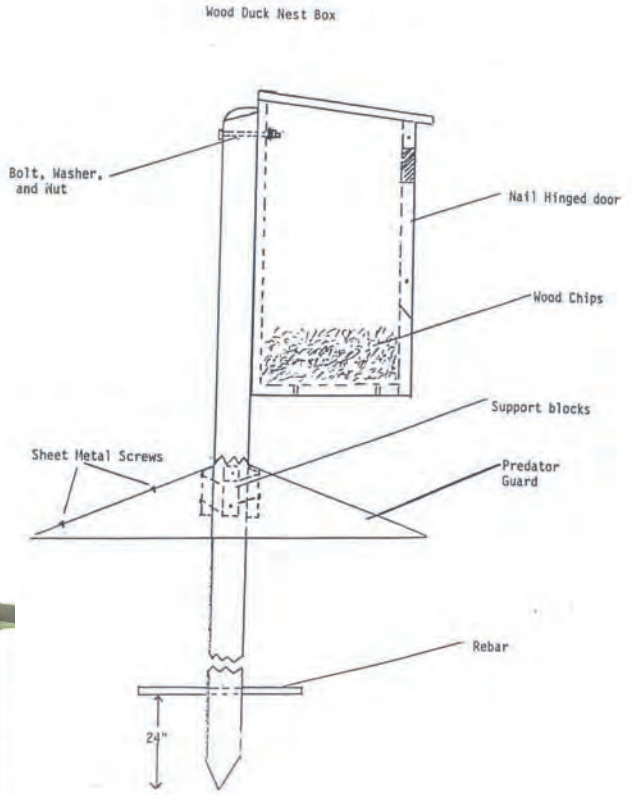
5. Bend the notched center of the predator guard upward and place it around the post. Pull the two edges of the predator guard together to make the cone shape. Use a pair of vice grips to temporarily hold the sheet metal in the conical shape. Punch a starter hole in the sheet metal using a nail. Use the sheet metal screws to permanently fasten the two edges of the sheet metal together.

6. To erect the box structure one of two methods can be used. If the box is to be mounted in a soft substrate, use the following technique. Insert the rebar into the pre-drilled hole, stand the box up and push the post into the ground by standing or jumping on the rebar. If the substrate is hard, a hole must be dug for the post using post hole diggers. Be sure and tamp the soil around the post to keep it firmly in place.

******Important Notes******

* Nest boxes must have 4" to 6" wood chips (not saw dust) replaced each year. Wood ducks do not bring nest materials into the nest box.

* Locate nest boxes so that predator guards remain at least 1 to 2 feet above the high water mark and away from any over-hanging branches or vines.



SHORT TERM GOALS

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Wood Duck House
Boundary Markers

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Master Plan Study and Design

Chapter 2
Overall Site

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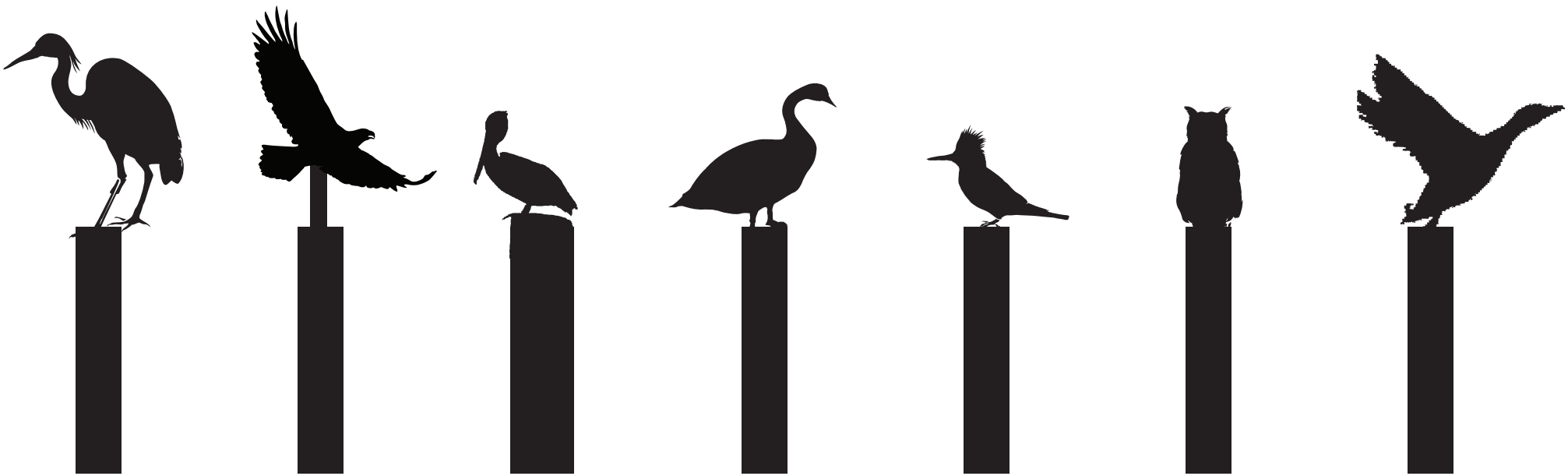

Bird Silhouette
Boundary Markers

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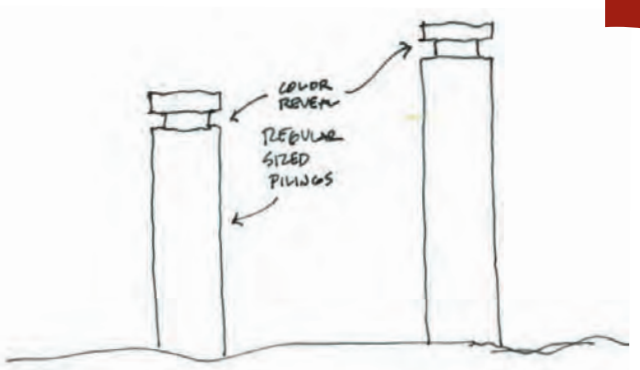

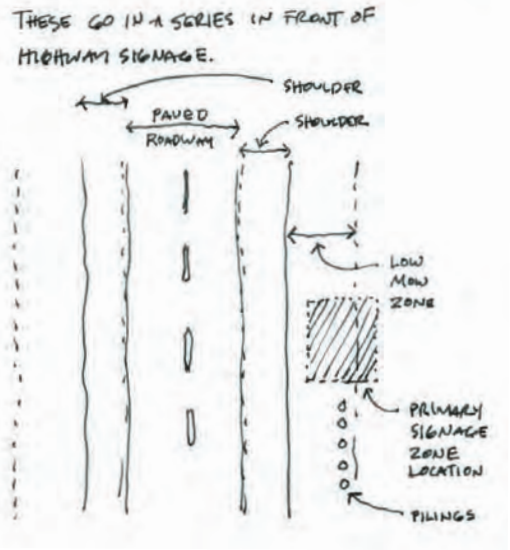

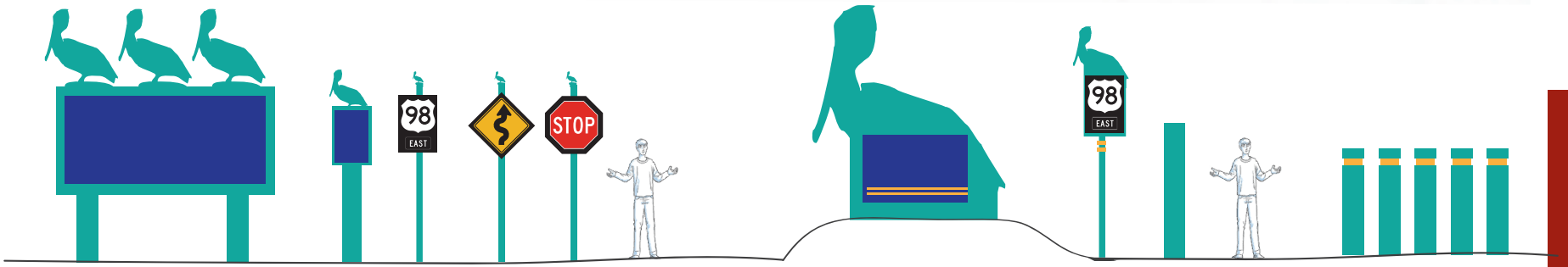

Primary Identification & Regulatory Exterior Signage

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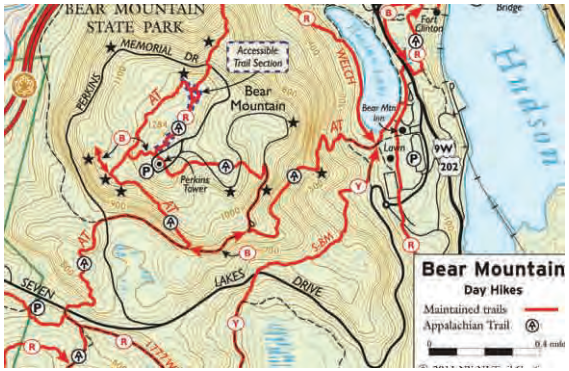
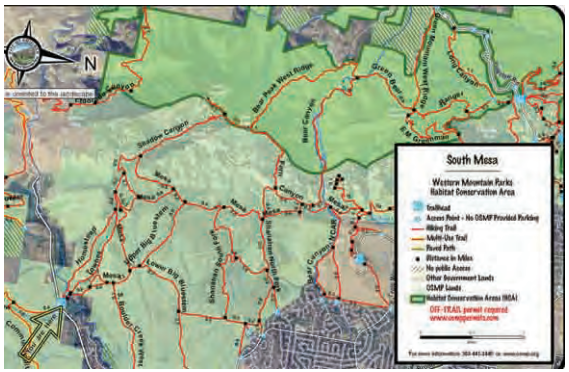
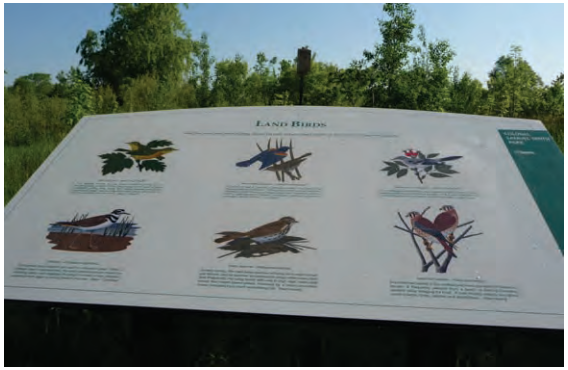
Additional Signage-

"You Are Here" signs are beneficial to individuals and user groups to help orient their location within the whole facility. These signs are typically a view of the entire property, with an enlarged view of area location. This category of wayfinding signage could easily be incorporated and adapted to this project.



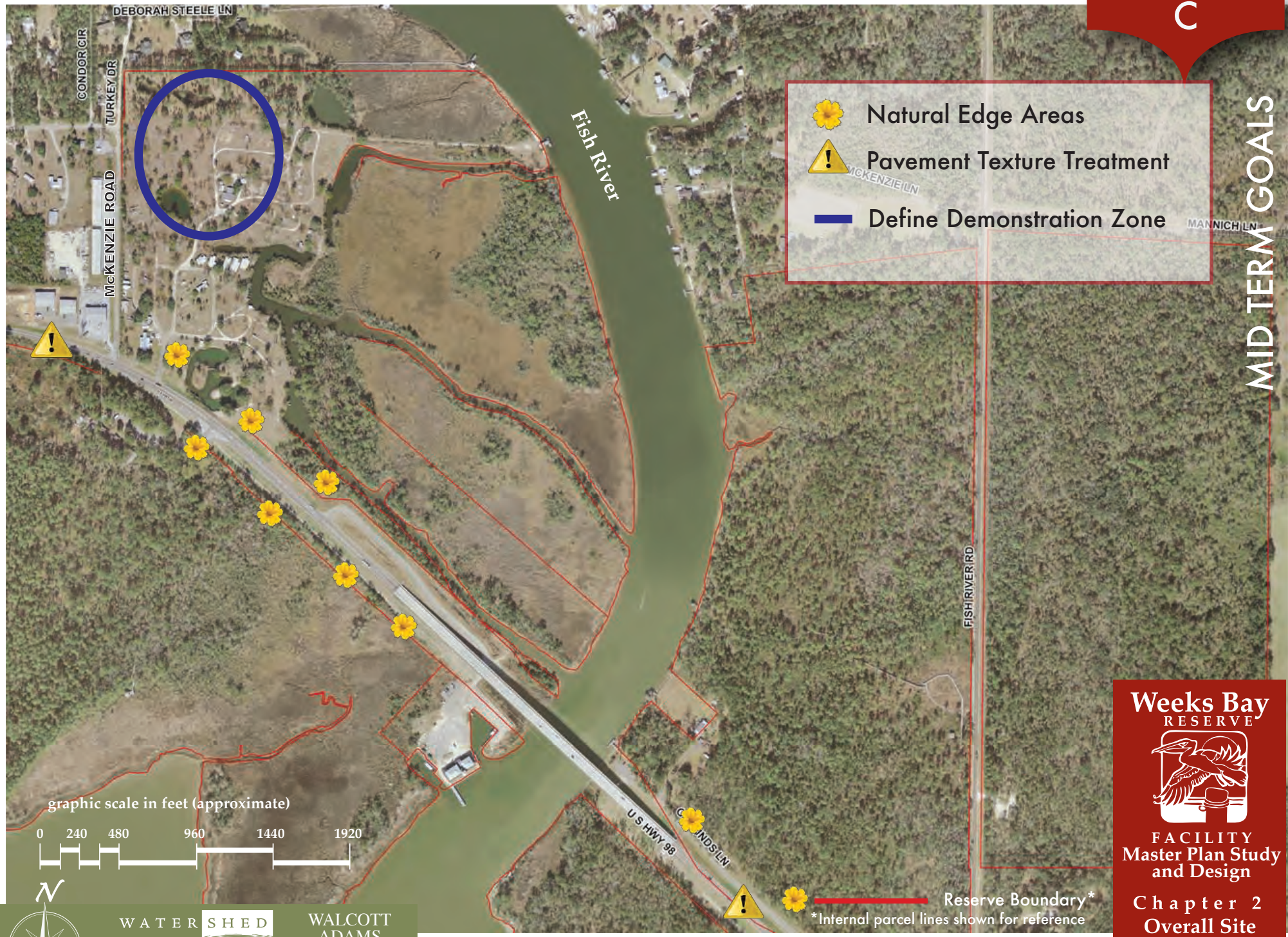




Wayfinding Signage

Conceptual Entry View

Overall Site



MID TERM GOALS

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FACILITY Master Plan Study and Design

Chapter 2 Overall Site

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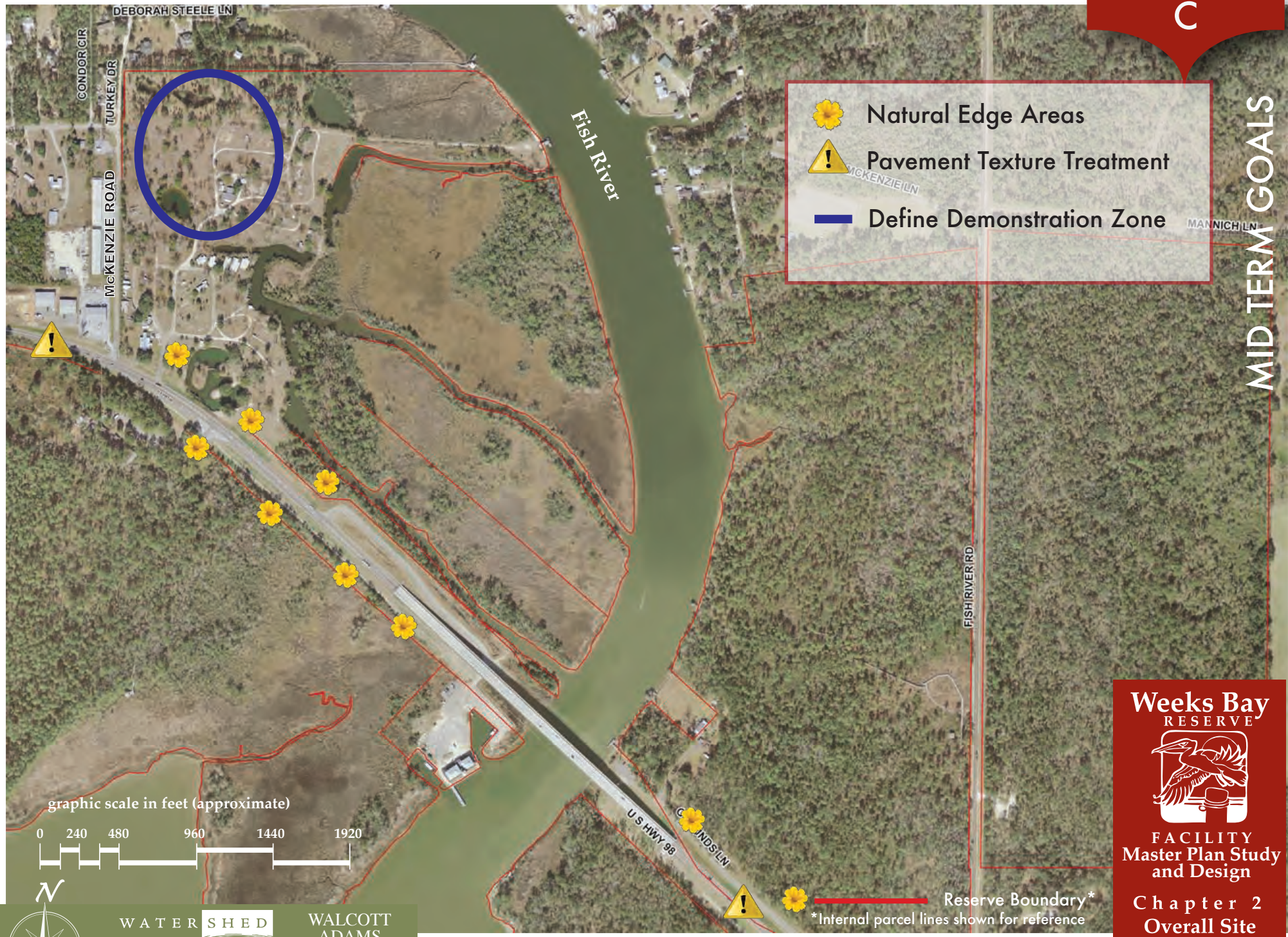
Conceptual Site Plan

Overall Site



MID TERM GOALS

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Chapter 2 Overall Site

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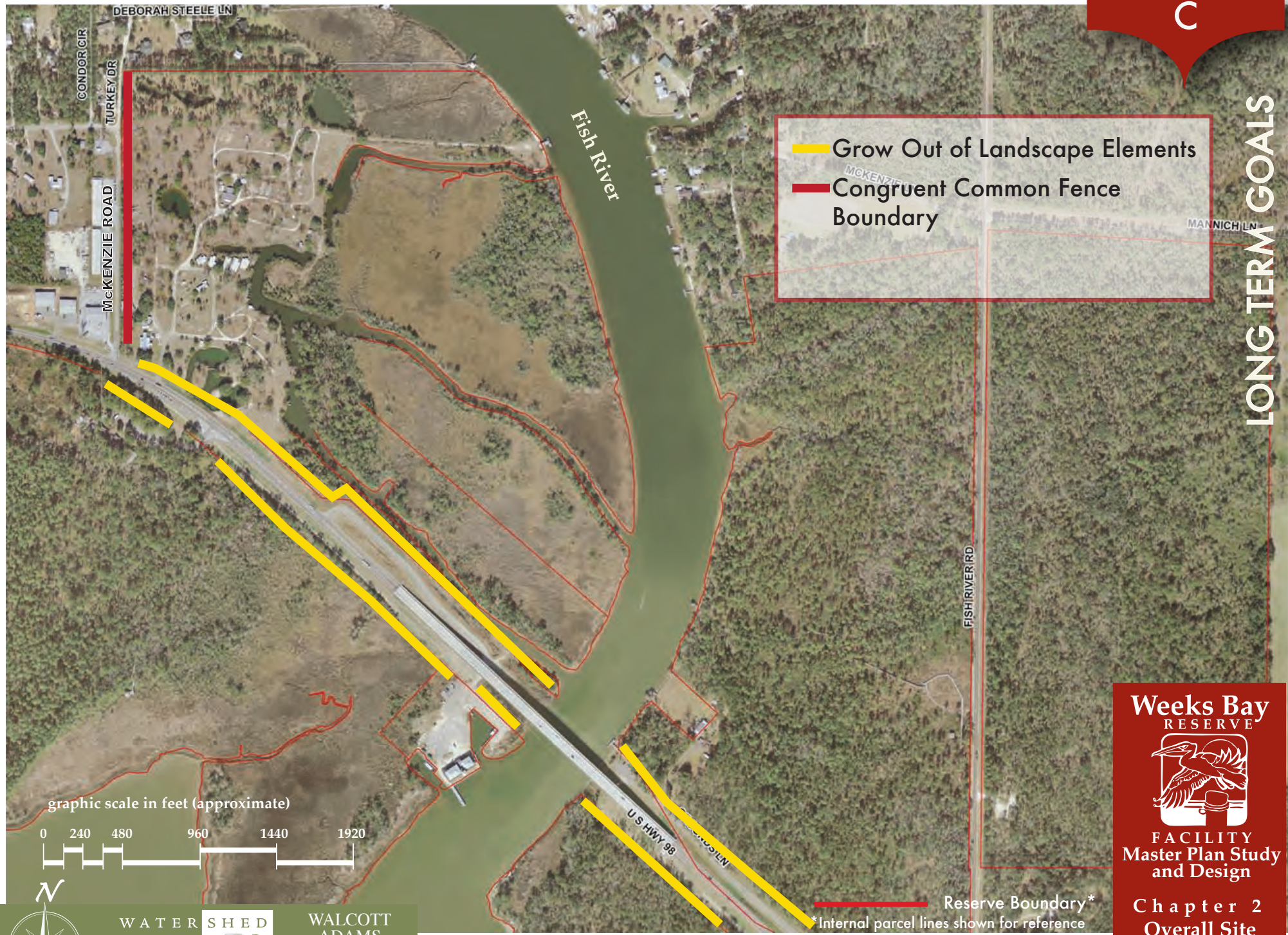
Conceptual Site Plan

Overall Site



LONG TERM GOALS

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Chapter 2 Overall Site

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Conceptual Site Plan

Overall Site

Composite Goal Plan

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Chapter 2 Overall Site

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Budget Projection

Overall Site
Budget Projection

Budget Projection

SHORT TERM GOALS[h]	Survey[a]	Construction[b]	Testing[c]	FF&E[d]	A/E Fees[e]	Contingency 10%[f]	Total[g]
Demolition							
None proposed	-	-	-		-		
Site	**5,000**	**-**	**-**		**18,000**	2,300	25,300
Boundary & Perimeter Markers	*	16,000 ①	-	N/A	**	1,600	17,600
Exterior Signage Program	*	15,000 ②	-	N/A	**	1,500	16,500
Total	**5,000**	**31,000**			**18,000**	**5,400**	**59,400**

* Includes survey work for all elements along US 98

** Includes design work for all elements along US 98 and boundary markers along Fish River

*** Includes survey work for reclaimation zone & development zone

① 40 marker elements @ $400/marker

② 3 new signs & solar lighting @ $5,000/each

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

Budget Projection

MID TERM GOALS[h]	Survey[a]	Construction[b]	Testing[c]	FF&E[d]	A/E Fees[e]	Contingency 10%[f]	Total[g]
Demolition							
None proposed							
Site	2,500					250	2,750
Define Demonstration Zones	***	3,000	-	N/A	**	300	3,300
Paving Pattern on Hwy 98	*	55,500③	-	N/A	**	5,550	61,050
Create natural edge areas along 98	*	100,000④	500	N/A	**	10,050	110,550
Total	2,500	158,500	500			16,150	177,650

* Includes survey work for all elements along US 98

** Includes design work for all elements along US 98 and boundary markers along Fish River

*** Includes survey work for demonstration zone & development zone

③ 7,400 LF road; 1850 sets of striping @ $30/set

④ 10 acres +/- @ 10,000/acre allowance

[a] Refers to civil engineer topographical survey

[b] Refers to anticipated cost of building construction of item listed

[c] Refers to soil testing, etc.

[d] Refers to "fixtures, furnishings, and equipment"

[e] Refers to "architect/engineering fees"

[f] Refers to owner's allowance for unforeseen conditions or needs

[g] Total for this section, current term goals only-see chapter 6

[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

Budget Projection

LONG TERM GOALS [h]	Survey[a]	Construction[b]	Testing[c]	FF&E[d]	A/E Fees[e]	Contingency 10%[f]	Total[g]
Demolition							
None proposed							
Site							
Grow out of Landscape elements	*	-	-	N/A	**		
Define Congruent Common Fence [i]	***	-	-	N/A	**		
Element/Boundary		54,000 ⑤	-			5,400	59,400
Total		54000				5,400	59,400
GRAND TOTAL (Short,Mid,Long)	7,500	243,500	500		18,000	24,950	296,450

* Includes survey work for all elements along US 98

** Includes design work for all elements along US 98 and boundary markers along Fish River

*** Includes survey work for demonstration zone & development zone

⑤ 1,700LF @ $32/foot

[a] Refers to civil engineer topographical survey

[b] Refers to anticipated cost of building construction of item listed

[c] Refers to soil testing, etc.

[d] Refers to "fixtures, furnishings, and equipment"

[e] Refers to "architect/engineering fees"

[f] Refers to owner's allowance for unforeseen conditions or needs

[g] Total for this section, current term goals only-see chapter 6

[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

[i] Fencing along McKenzie Road

Visitor Center

Existing Conditions
Programming
Design Concepts
Budget Projections

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FACILITY
Master Plan Study and Design

Chapter 3
Visitor Center
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Visitor Center
Existing Conditions

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Master Plan Study and Design

Chapter 3
Visitor Center

3.1.00

Visitor Center

Existing Issues: Parking/Site

- Original asphalt paving is 20+ years old and ready for restoration/repair
- School bus/large group visits overwhelm existing parking capacity
- Traffic flow is poorly directed:
  - Visitor parking vs. staff parking
  - Service access to work yard
  - Visitor flow: front door of interpretive center vs. front door of auditorium
  - Dead end lot has bottleneck potential
- School bus groups do not have welcoming/orientation area/ picnic area that is segregated from general visitor flow

Existing Issues: Visitor Center

- Built in 1990, lab wing added in 2001, a single story 4700sf "residential grade" wood frame stucture, slab on grade
- HVAC Systems: (5) residential-type units of varying ages, efficiency, simple thermostat control
- Lighting: Early generation fluorescent and incandescent with some occupancy sensors

Visitor Flow Issues:

- Boardwalk can only be entered through exhibit space
- Bottlenecks between large groups and individuals at front entry
- Administration functions are interrupted by exhibit visitor flow

Exhibit Issues

- Permanent Exhibit last updated in 2006 with no capacity for traveling exhibits or new content
- Exhibit experience is diminished by overlapping of classroom, conference, and administration activities

Existing Issues: Auditorium

- Built in 1996; two story wood frame structure with lap siding; shingle roof, 2900 sf
- Original single HVAC unit for first floor is in need of replacement

Classroom Space downstairs:

- HVAC noise is distraction, room is "loud" when full of students

Bathroom capacity is currently inadequate

Additional storage needed for teaching supplies, teaching aids

graphic scale in feet (approximate)

0 30 60 120 180

N

Reserve Boundary*

*Internal parcel lines shown for reference

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Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 3
Visitor Center

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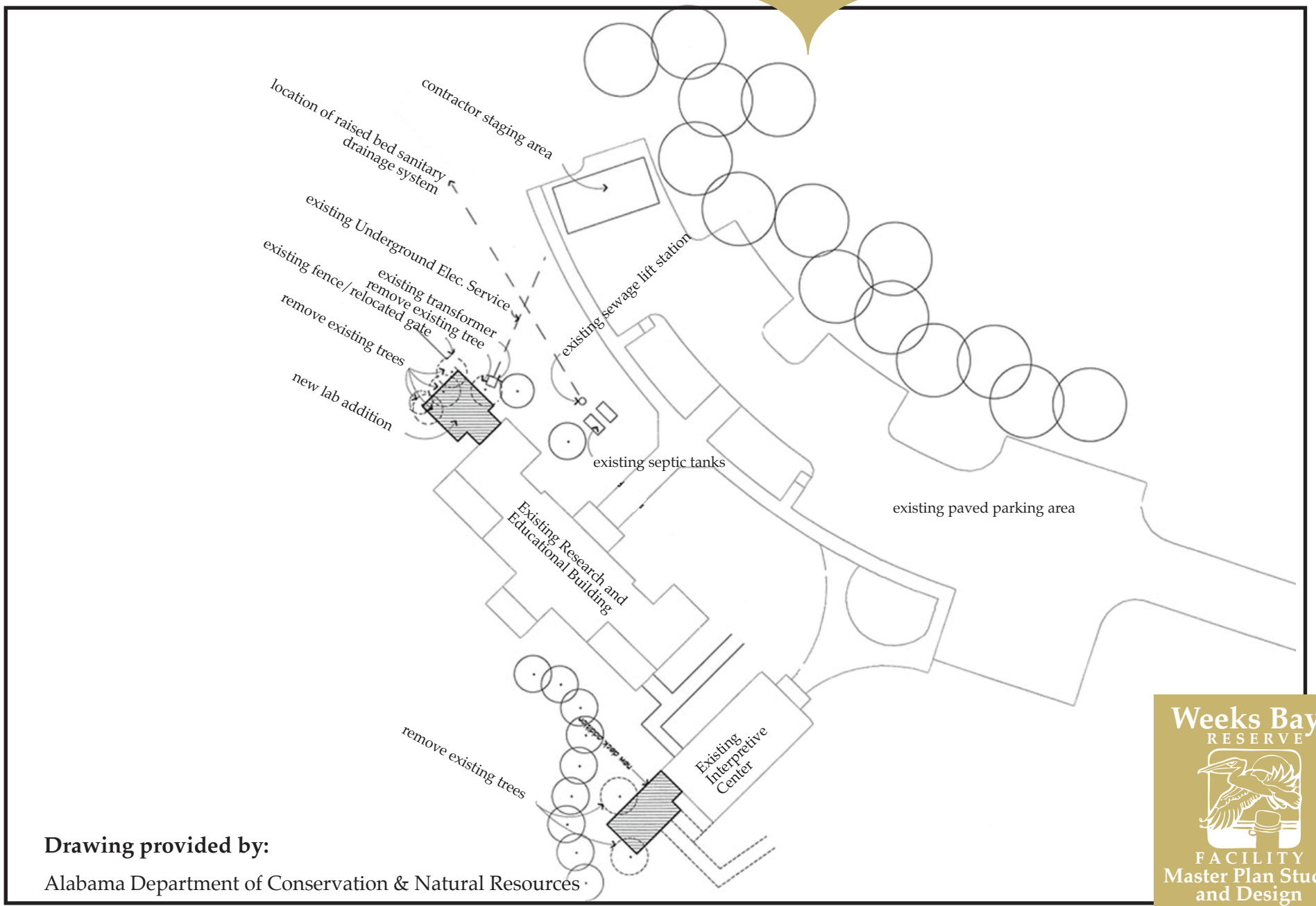
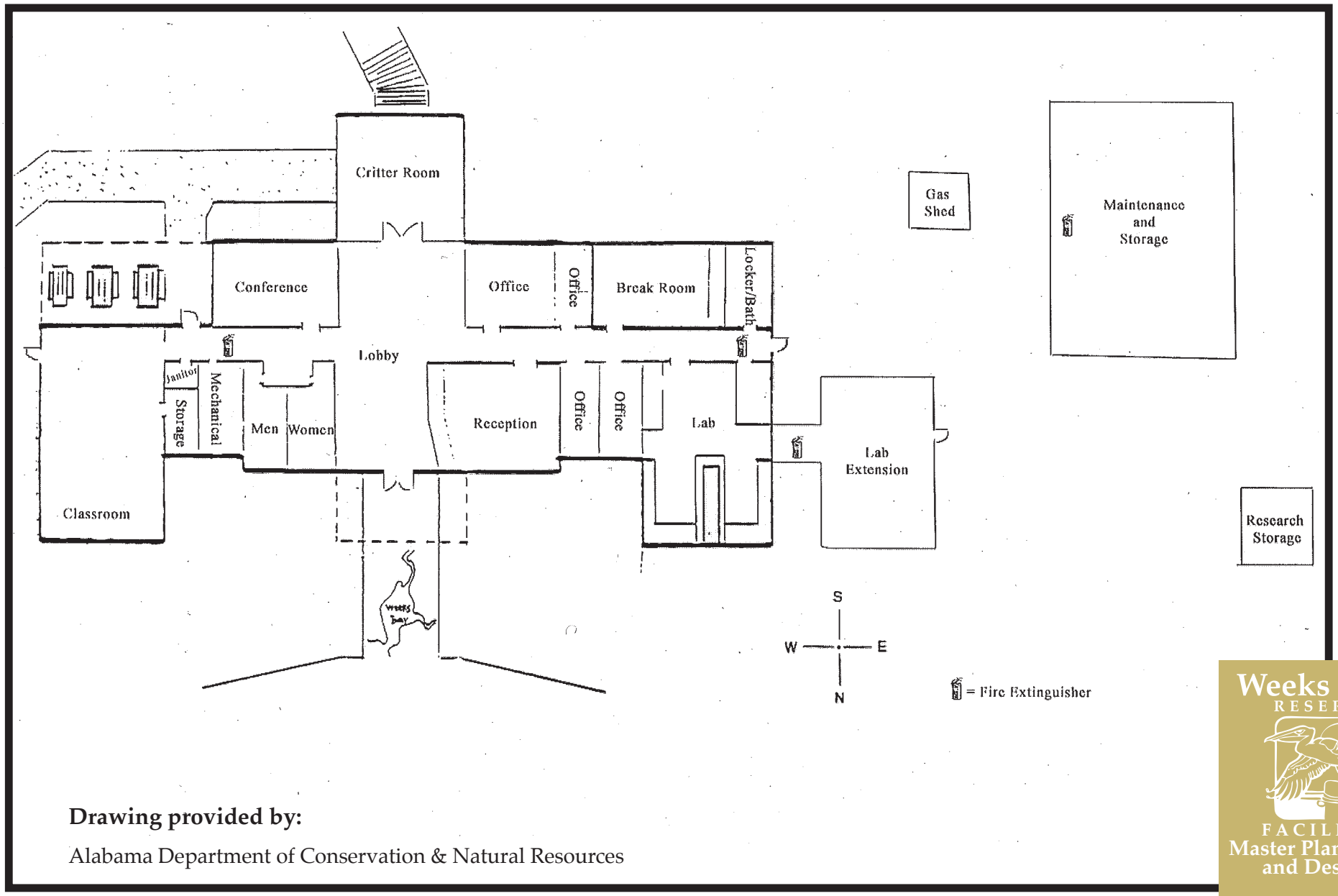


Drawing provided by:

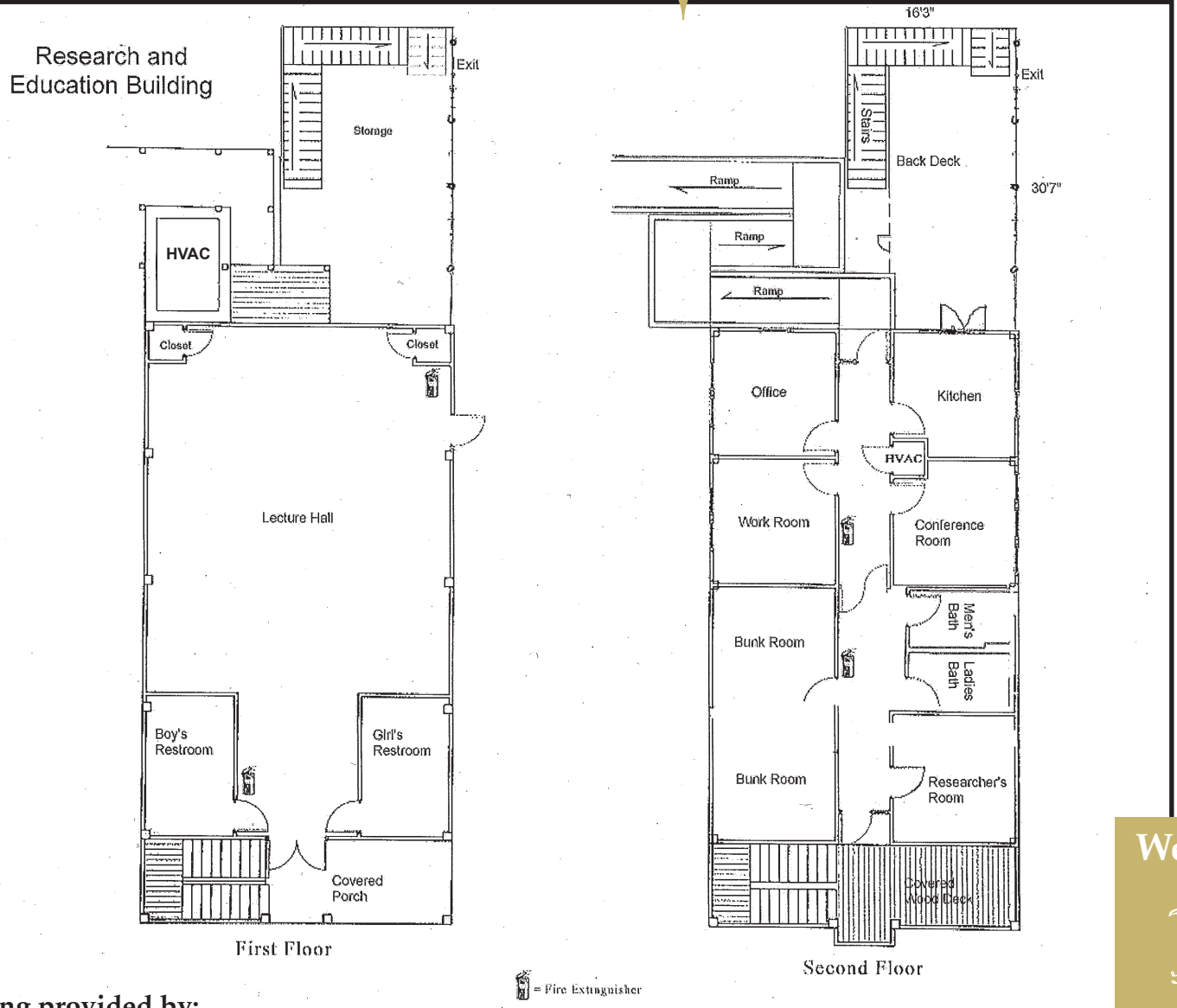
Alabama Department of Conservation & Natural Resources



Drawing provided by:

Alabama Department of Conservation & Natural Resources

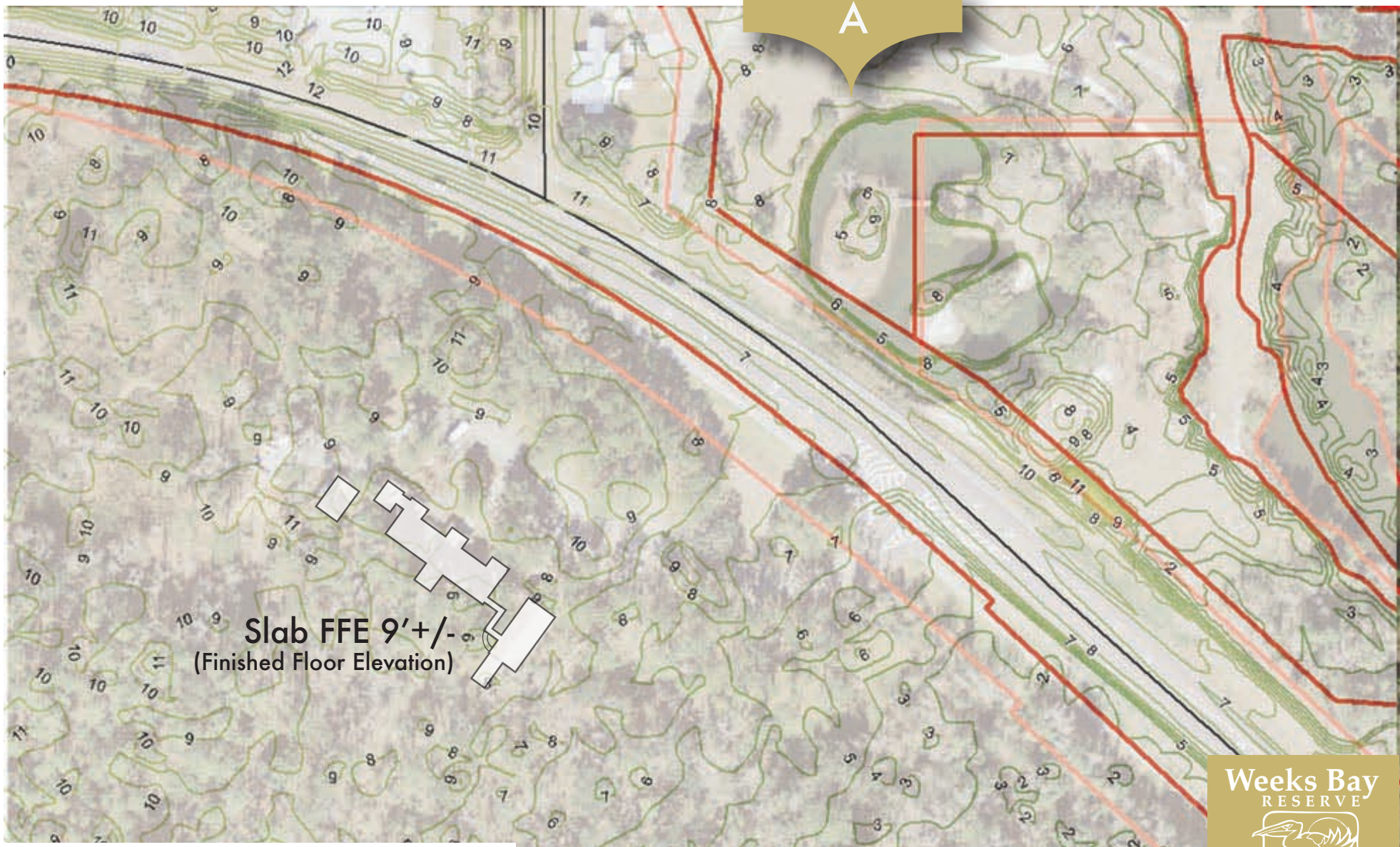
Existing Floor Plan Exhibit Building



Drawing provided by:

Walcott Adams Verneuille Architects

Existing Floor Plan Auditorium



Reserve Boundary
*Internal parcel lines shown for reference

Contour Lines at 1 foot intervals

Topography Map provided by:
Alabama Department of
Conservation & Natural Resources

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Topography Map

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FACILITY
Master Plan Study and Design

Chapter 3
Visitor Center

3.1.05

Visitor Center

Data Points
Wetland Boundary Flags
Wetland Boundary
Transect Lines
Project Boundary

graphic scale in feet (approximate)

0 30 60 120 180 240

Aerial provided by:
Alabama Department of Conservation & Natural Resources

Wetland Delineation

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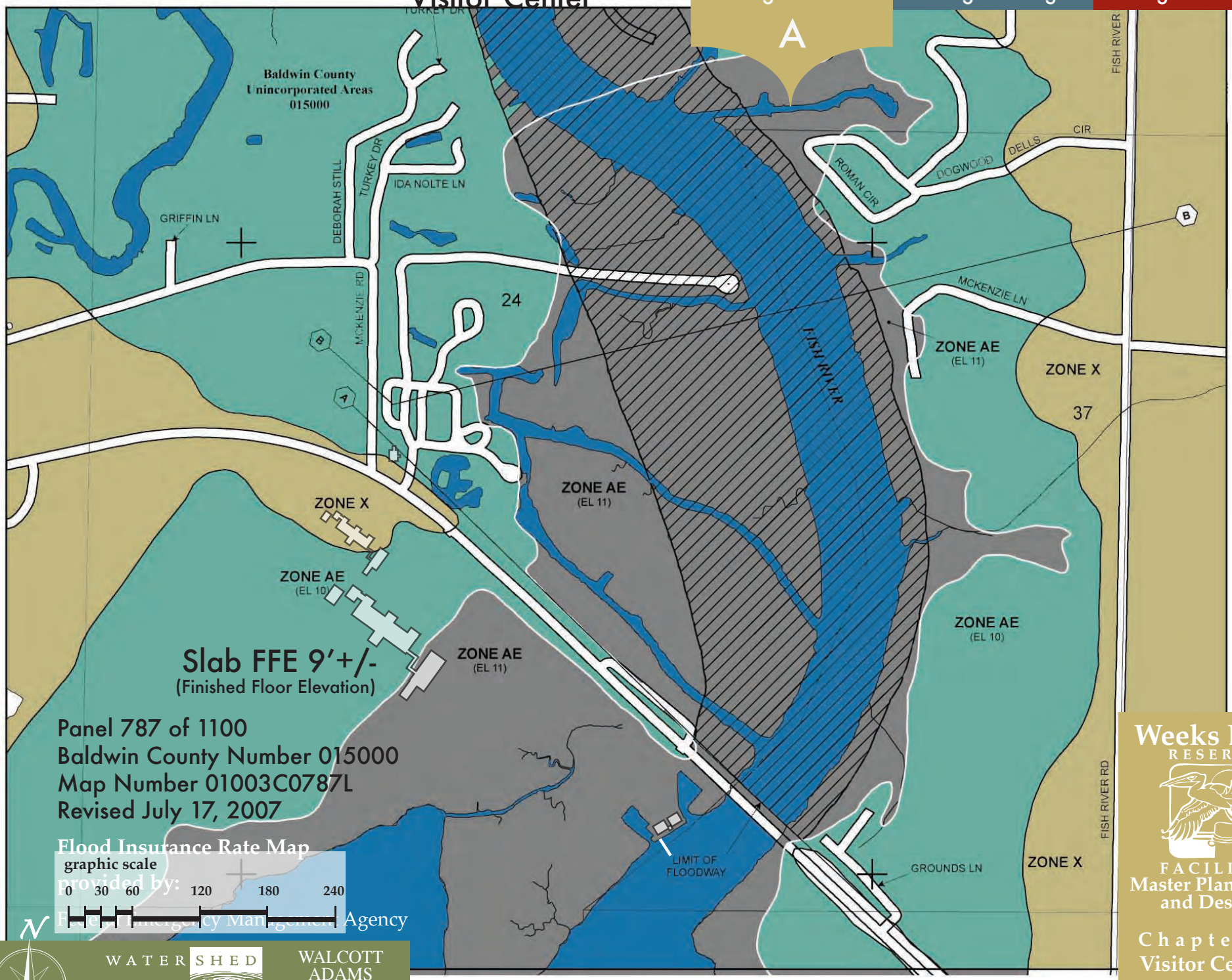

Slab FFE 9'+/-
(Finished Floor Elevation)

Panel 787 of 1100
Baldwin County Number 015000
Map Number 01003C0787L
Revised July 17, 2007

Flood Insurance Rate Map
provided by:
Federal Emergency Management Agency

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Flood Insurance Rate Map (FIRM)

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RESERVE

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Chapter 3
Visitor Center

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Visitor Center
Programming

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Programming

Site

- Rework existing parking area to provide permeable or minimum discharge drainage from site
- Provide parking/loading area for school bus groups
- Provide defined area for welcoming/orientation/picnics for school groups
- Adjust boardwalk/trailhead flow away from main flow of visitor center
- Provide signage/wayfinding elements to segregate public from staff and clarify entrance to building
- Provide new maintenance/groundskeeping support building

Facilities

Visitor Center

- Develop revised visitor flow to create the following:
  - Enhanced experience for visitors to exhibits
  - Segregation between visitor flow and administration/research functions
  - Segregation between large group flow and individual visitors
  - Improved exhibit visibility
  - Enhanced experience for visitors
- Develop plan for incremental growth of exhibits over the next 10-15 years, including gift shop activities
- Develop plan for long term use of existing labs
- Evaluate existing mechanical, electrical, plumbing systems of buildings, with a goal of developing a plan of action to reduce energy and water consumption, using alternative energy sources if practical

Facilities

Auditorium

- Evaluate existing mechanical, electrical, plumbing systems of buildings, with a goal of developing a plan of action to reduce energy and water consumption, using alternative energy sources if practical
- Modify bathrooms and vestibule to accomodate initial "surge" of arriving/departing students
- Provide additional storage for classroom/teaching equipment/supplies
- Provide plan for long term use of research dorms upstairs
- Remediate acoustic deficiencies

Short Term Goals

Site

New Permeable Parking Lot
New Front Courtyard/Habitat Area
Solar Panels (Focal Point)
New Overflow Parking/Bus Parking
Exterior Signage System
Relocate Recycle Center
Relocate Boardwalk Trail Head

Building-Auditorium

Enlarge Bathrooms
Add Elevator
Create Foyer at Entrance
Classroom Acoustics Remediation
HVAC Upgrade

Building-New

New Connector to Visitor Center
New Welcoming Porch Building
New Powershed/Storage Building

Mid Term Goals

Building-Visitor Center

New Exhibit/Entry/Gift Shop
Foam Insulation
Door/Window Upgrade
Lighting Upgrade
Hvac Upgrade
New Entry-Administration
Rework Existing Exhibit Space
Solar Panels

Building-Auditorium

Second Floor Convert to Office/
Work Space

Long Term Goals

Building-Visitor Center

New Exhibit Space Building
Existing Exhibit Space
Renovation

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Programming Goal Matrix

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Master Plan Study and Design

Chapter 3
Visitor Center

3.2.02

Visitor Center

Design Concepts

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Master Plan Study and Design

Chapter 3
Visitor Center

3.3.00

Visitor Center

SHORT TERM GOALS

Conceptual Site Plan

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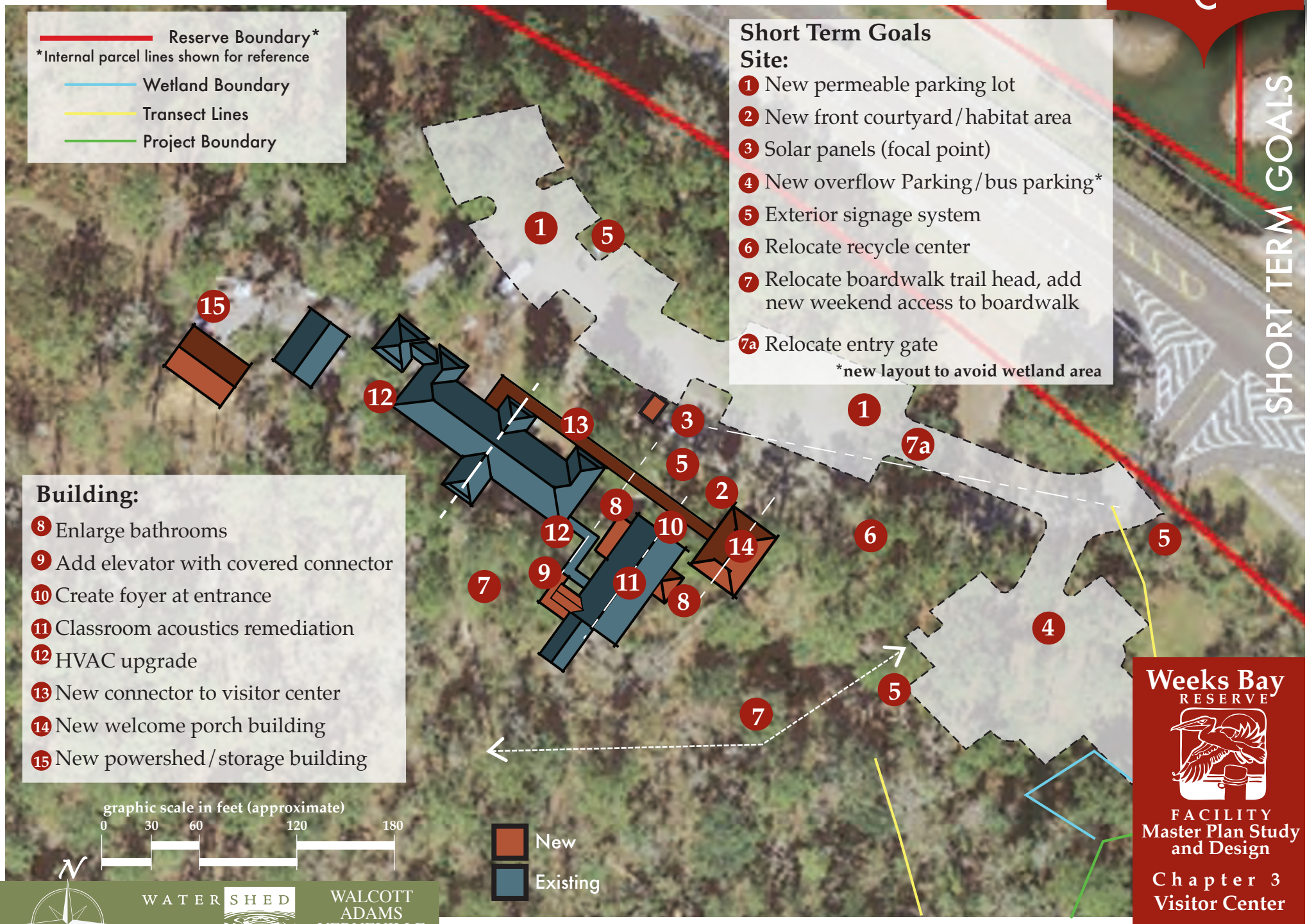

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Conceptual Site Plan

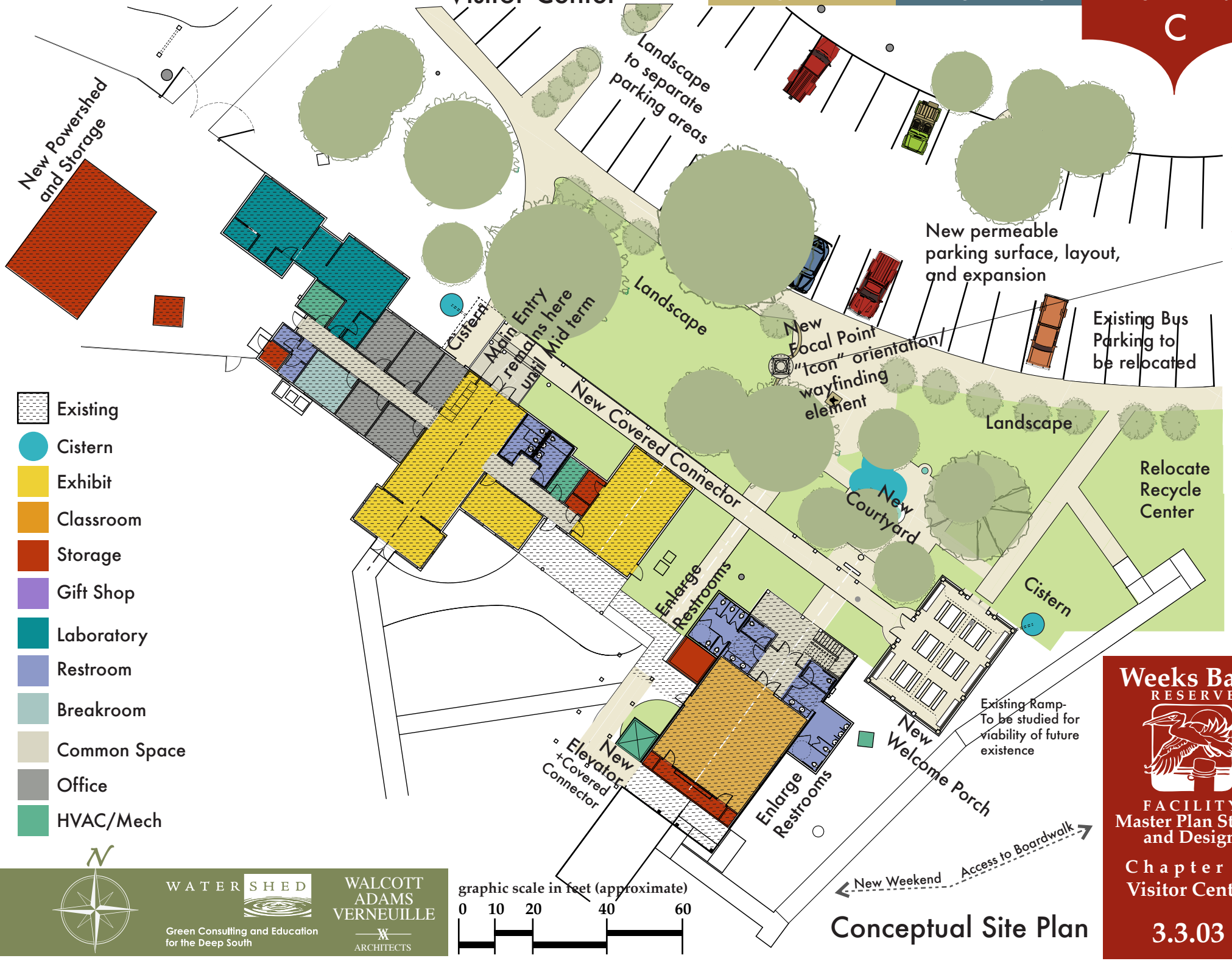
Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

Chapter 3
Visitor Center

3.3.02

Visitor Center



SHORT TERM GOALS

Conceptual Site Plan

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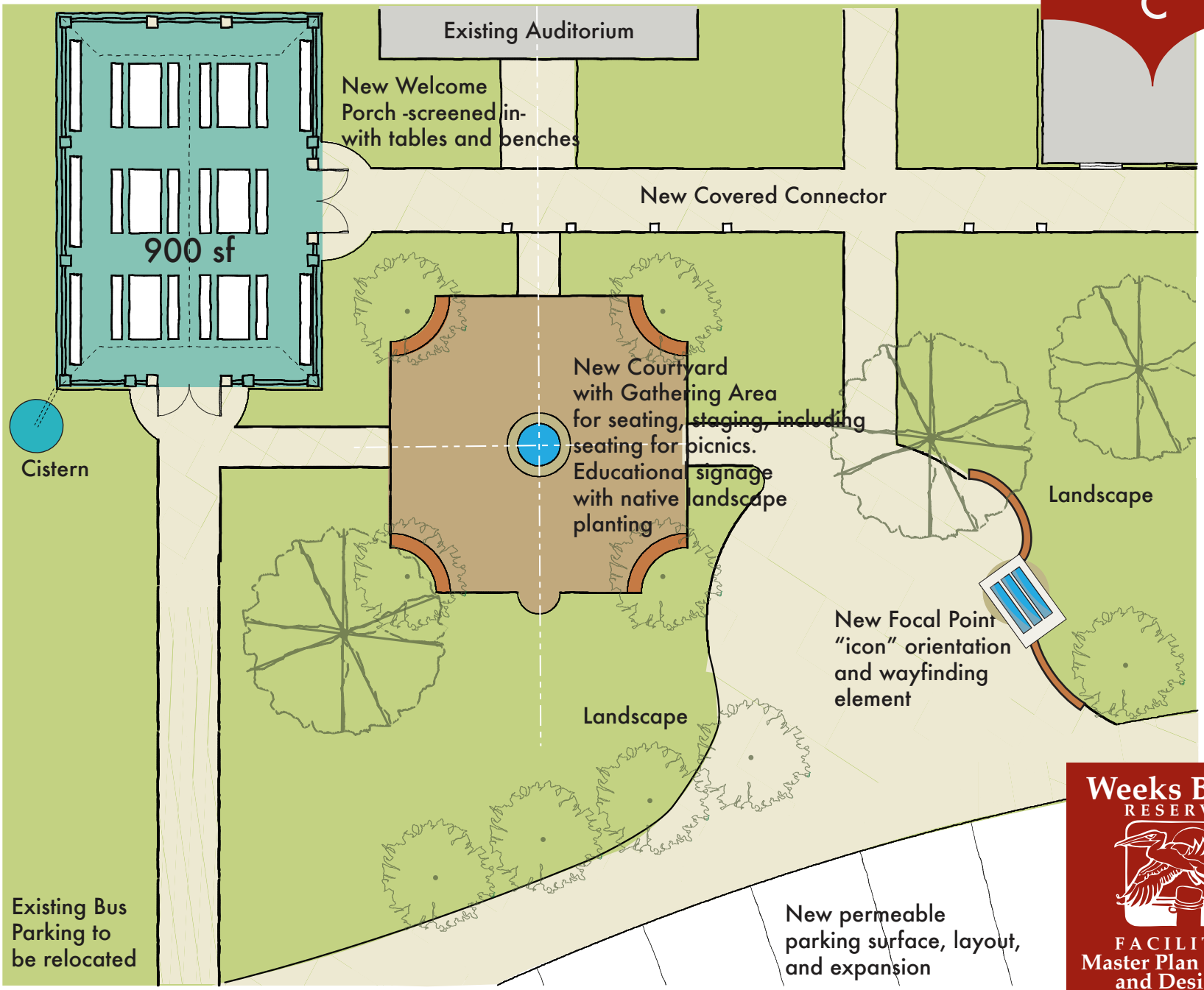
FACILITY Master Plan Study and Design

Chapter 3 Visitor Center

3.3.03

Visitor Center



- Cistern
- Solar Panel
- New Porch
- Existing
- New Courtyard
- Low wall seating

graphic scale in feet (approximate)

0 5′ 10′ 20′ 30′

Welcome Porch Site Plan

SHORT TERM GOALS

Weeks Bay RESERVE

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Chapter 3 Visitor Center

3.3.04

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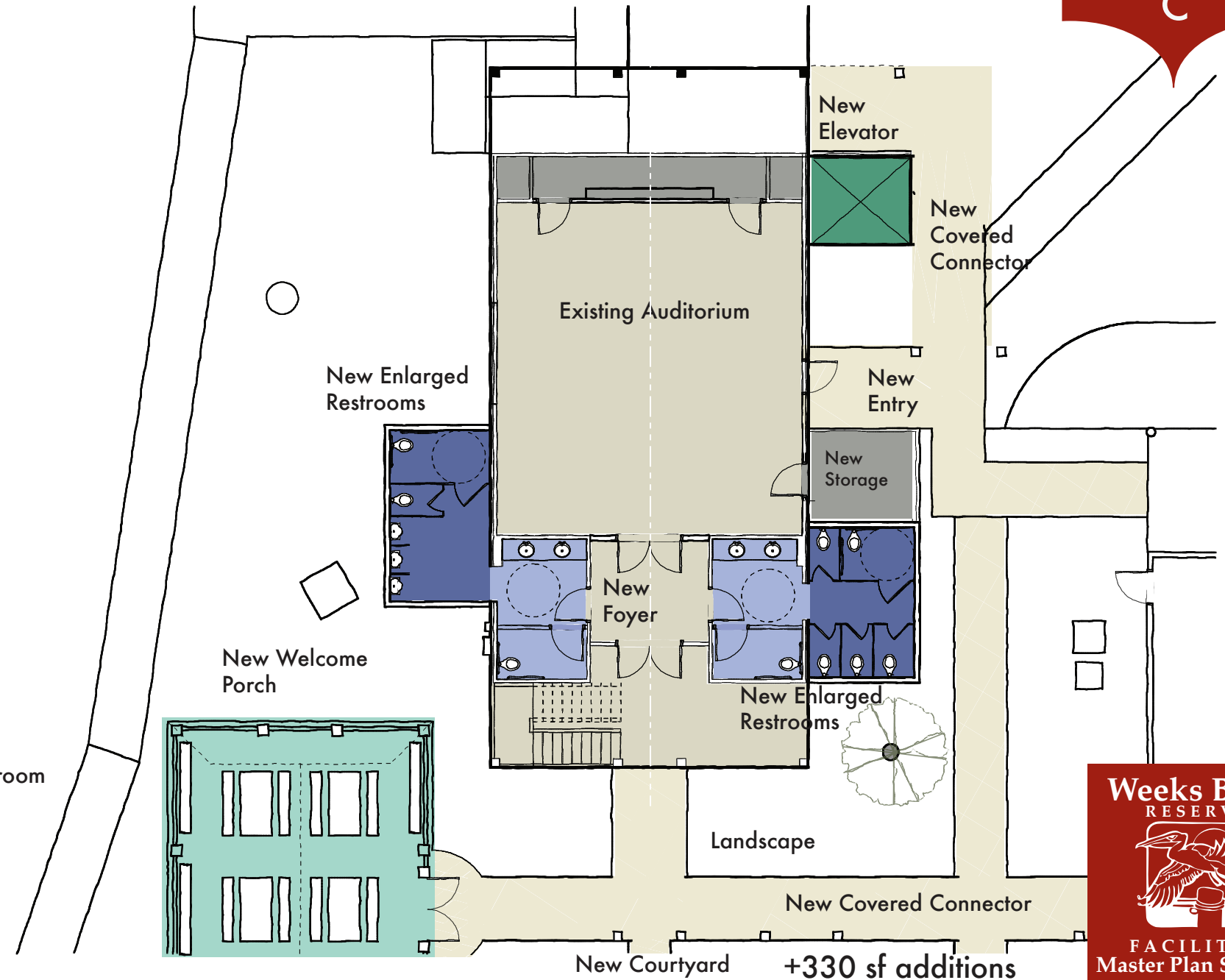
Visitor Center

SHORT TERM GOALS



+330 sf additions
425 sf renovated

graphic scale in feet (approximate)
0 5′ 10′ 20′

Restroom Addition/Renovation Concept

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New Power Shed Building

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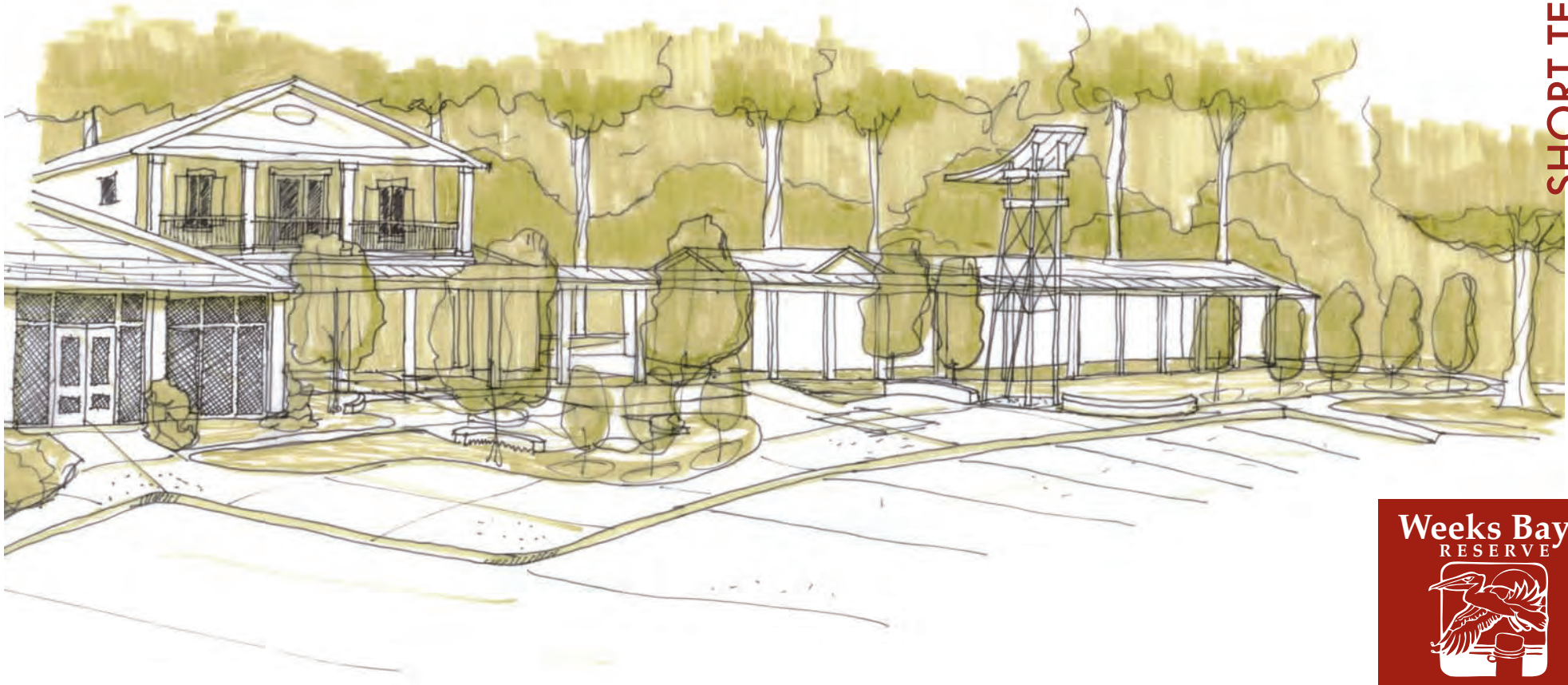
Chapter 3
Visitor Center

3.3.06



Entry View of Visitor Center

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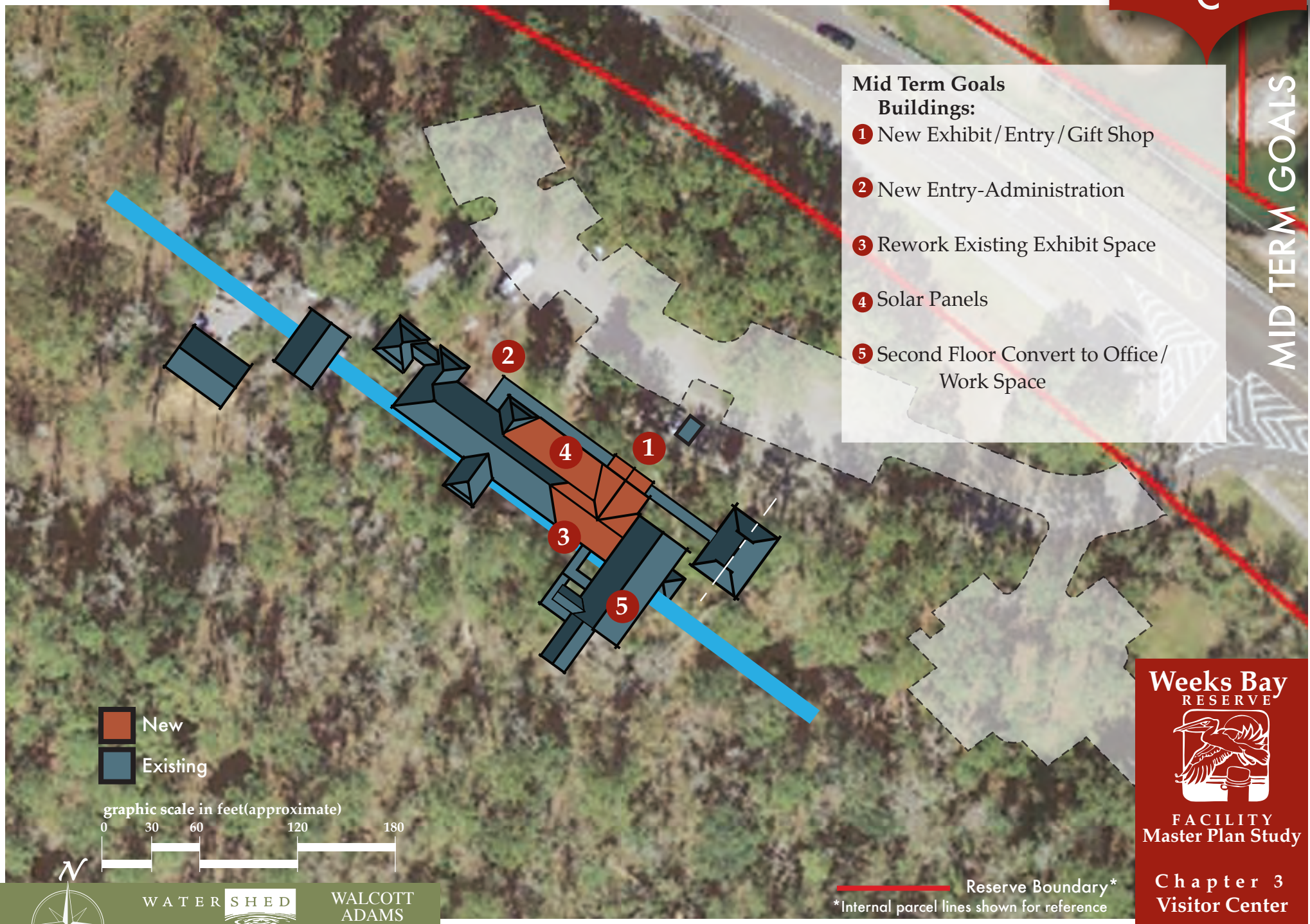

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Conceptual Site Plan

Weeks Bay RESERVE

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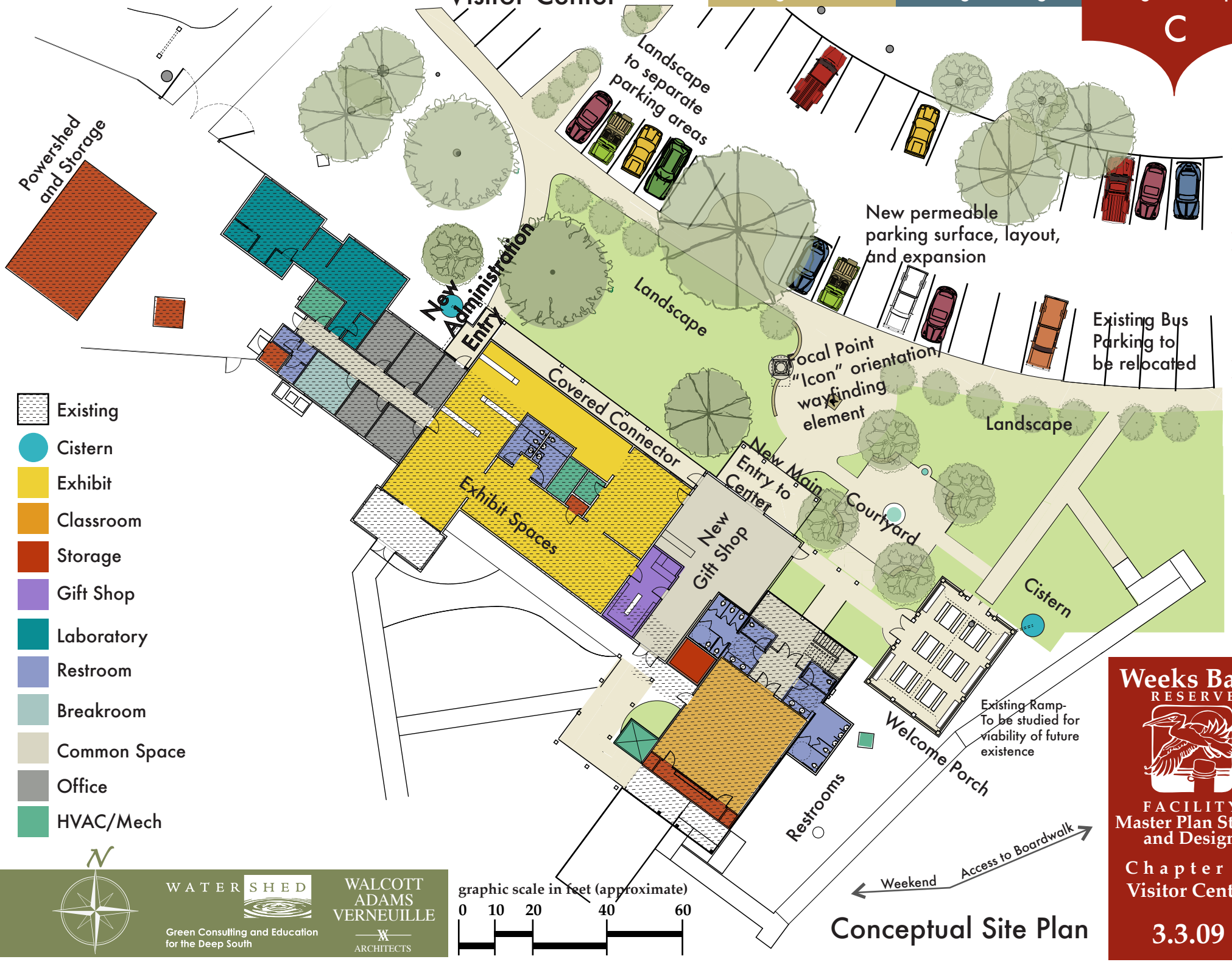
Chapter 3
Visitor Center

3.3.08

Visitor Center



MID TERM GOALS

Conceptual Site Plan

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Chapter 3
Visitor Center

3.3.09

Entry View of Visitor Center

LONG TERM GOALS

Conceptual Site Plan

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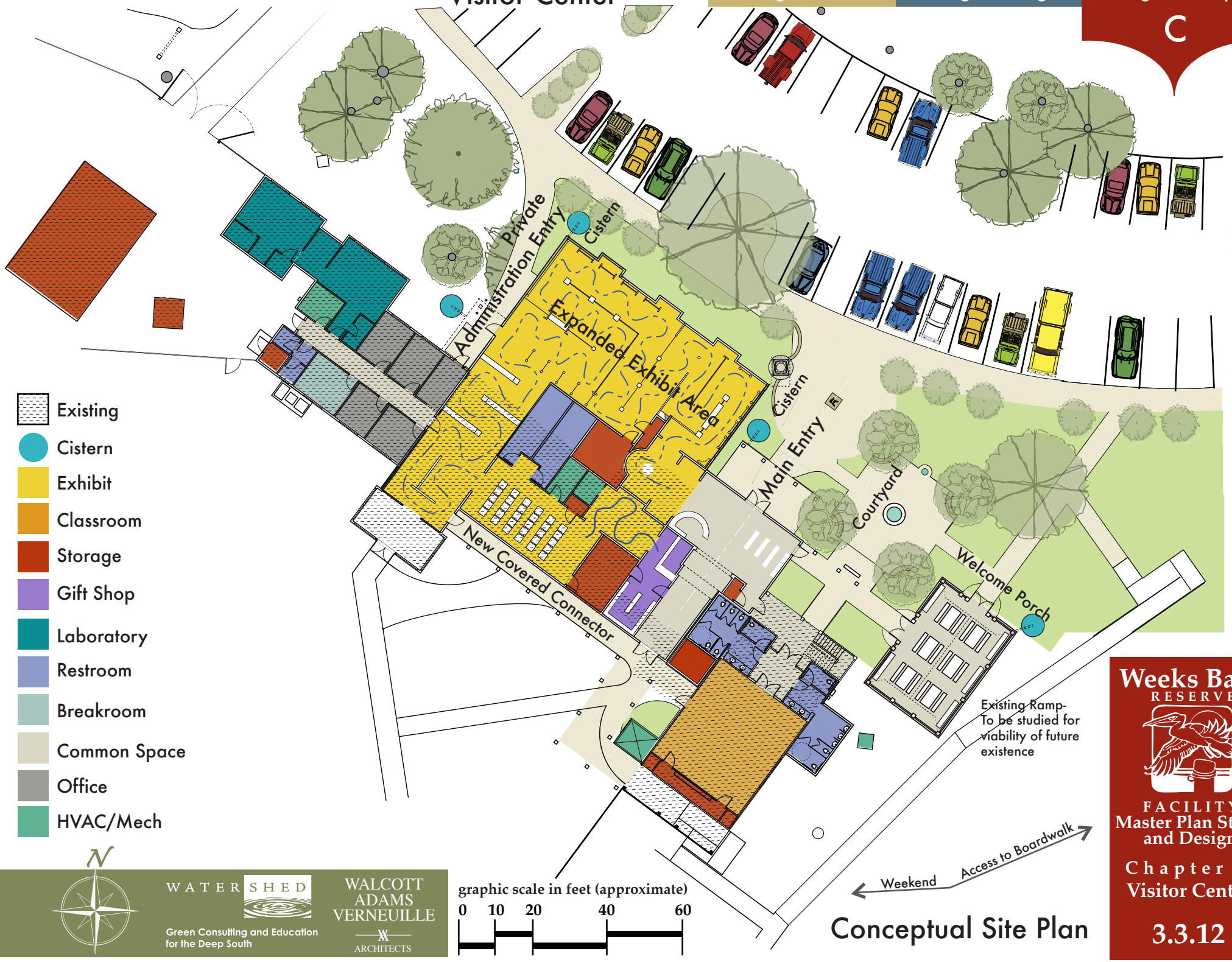
FACILITY
Master Plan Study

Chapter 3
Visitor Center

3.3.11

Visitor Center



LONG TERM GOALS

Conceptual Site Plan

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3.3.12

Entry View of Visitor Center

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Visitor Center

3.3.13

Visitor Center

Composite Goal Plan

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3.3.14

Visitor Center
Budget Projection

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FACILITY
Master Plan Study and Design

Chapter 3
Visitor Center

3.4.00

Budget Projection

SHORT TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Site							
New permeable parking lot	5,000*	175,000 ①	3,000	N/A	17,000	20,000	220,000
New front courtyard/habitat area	*	50,000	2,000	5,000	5,000	6,200	68,200
Solar panels (focal point)	*	40,000 ②	2,000	N/A	4,000	4,600	50,600
New overflow Parking/bus parking	*	90,000 ⑦	3,000	N/A	9,000	10,200	112,200
Exterior signage system	*	3,000 (allow)				300	3,300
Relocate recycle center	*	5,000 (allow)				500	5,500
Relocate boardwalk trail head	*	10,000 (allow)				1,000	11,000
Building(Auditorium)							
Enlarge bathrooms	*	90,000 ③	2,000	1,000	9,000	10,200	112,200
Add elevator	*	50,000 (allow)	2,000	N/A	5,000	5,700	62,700
Create Foyer at Entrance		10,000 (allow)			1,000	1,100	12,100
Classroom acoustics remediation		10,000	N/A	N/A	1,000	1,100	12,100
HVAC upgrade		50,000 (allow)	N/A	N/A	5,000	5,500	60,500
New connector to visitor center	*	120,000 ④	2,000		12,000	13,400	147,400
New welcome porch building	*	88,000 ⑤	2,000	10,000	9,000	10,900	119,900
New powershed/storage building	*	222,000 ⑥	3,000	20,000	20,000	26,500	291,500
Total: Short Term	5,000	1,013,000	21,000	36,000	97,000	117,200	1,289,200

* Includes survey work for all elements along US 98

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

① See Appendix for Engineer's Estimate
② Assumes 5kw pv array on "tower" element
③ Assumes 400sf new construction @ $200/sf; $10,000 renovation allowance
④ Assume 1,600sf @ $75/sf
⑤ Assume 900sf @ $75/sf; $20,000 sidewalk allowance
⑥ Assume 1,800sf building @$90/sf; $50,000 alt. energy package; $10,000 sitework allowance
⑦ Prorated estimate based on new permeable parking lot

Budget Projection

MID TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Building-Visitor Center							
New Exhibit/entry/gift shop	3,000*	290,000 ①	3,000	3,000	30,000	32,900	361,900
Foam Insulation	*	15,000 (allow)	N/A	N/A	N/A	1,500	16,500
Door/Window upgrade	*	25,000 (allow)	N/A	N/A	2,000	2,700	29,700
Lighting Upgrade	*	10,000 (allow)			1,000	1,100	12,100
HVAC upgrade	*	20,000 (allow)	N/A	N/A	2,000	2,200	24,200
New Entry-Administration	*	10,000 (allow)			1,000	1,100	12,100
Rework existing Exhibit Space	*	125,000 ②	N/A	75,000	20,000	22,000	242,000
Solar Panels	*	50,000 ③ (allow)			5,000	5,500	60,500
Building-Auditorium	*						
Second Floor convert to Office/Work Space	*	10,000 (allow)			2,000	1,200	13,200
Total: Mid Term	3,000	555,000	3,000	78,000	63,000	70,200	772,200

* Includes survey work for all elements along US 98

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

① Assumes 1400sf "infill" addition @ $200/sf; $10,000 sitework allowance
② Assumes 2500sf renovation @ $50/sf
③ Assumes 10 kw array

Budget Projection

LONG TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
New exhibit space building	4,000	390,000 ①	4,000	100,000	50,000	54,800	602,800
Existing exhibit renovation		180,000 ②	N/A	50,000	20,000	25,000	275,000
Total: Long Term	4,000	570,000	4,000	150,000	70,000	79,800	877,800
GRAND TOTAL (Short,Mid,Long)	12,000	2,138,000	28,000	264,000	230,000	267,200	2,939,200

* Includes survey work for all elements along US 98

① Assumes 1800sf new construction @ $200/sf; $30,000 sitework allowance
② Assumes 1800sf renovation @ $100/sf

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

Resource Center

Existing Conditions
Programming
Design Concepts
Budget Projection

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FACILITY
Master Plan Study and Design
Chapter 4
Resource Center
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Resource Center
Existing Conditions

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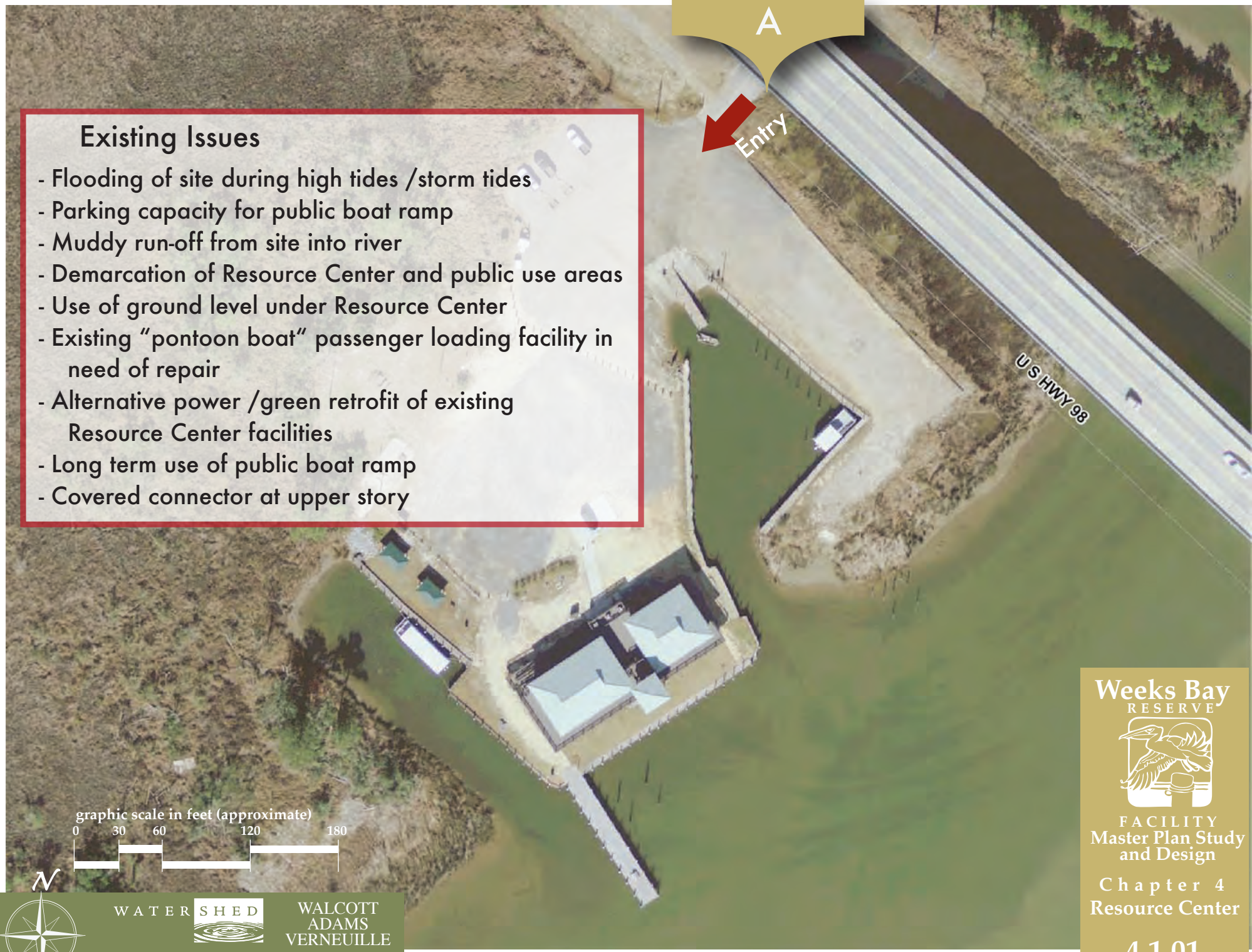
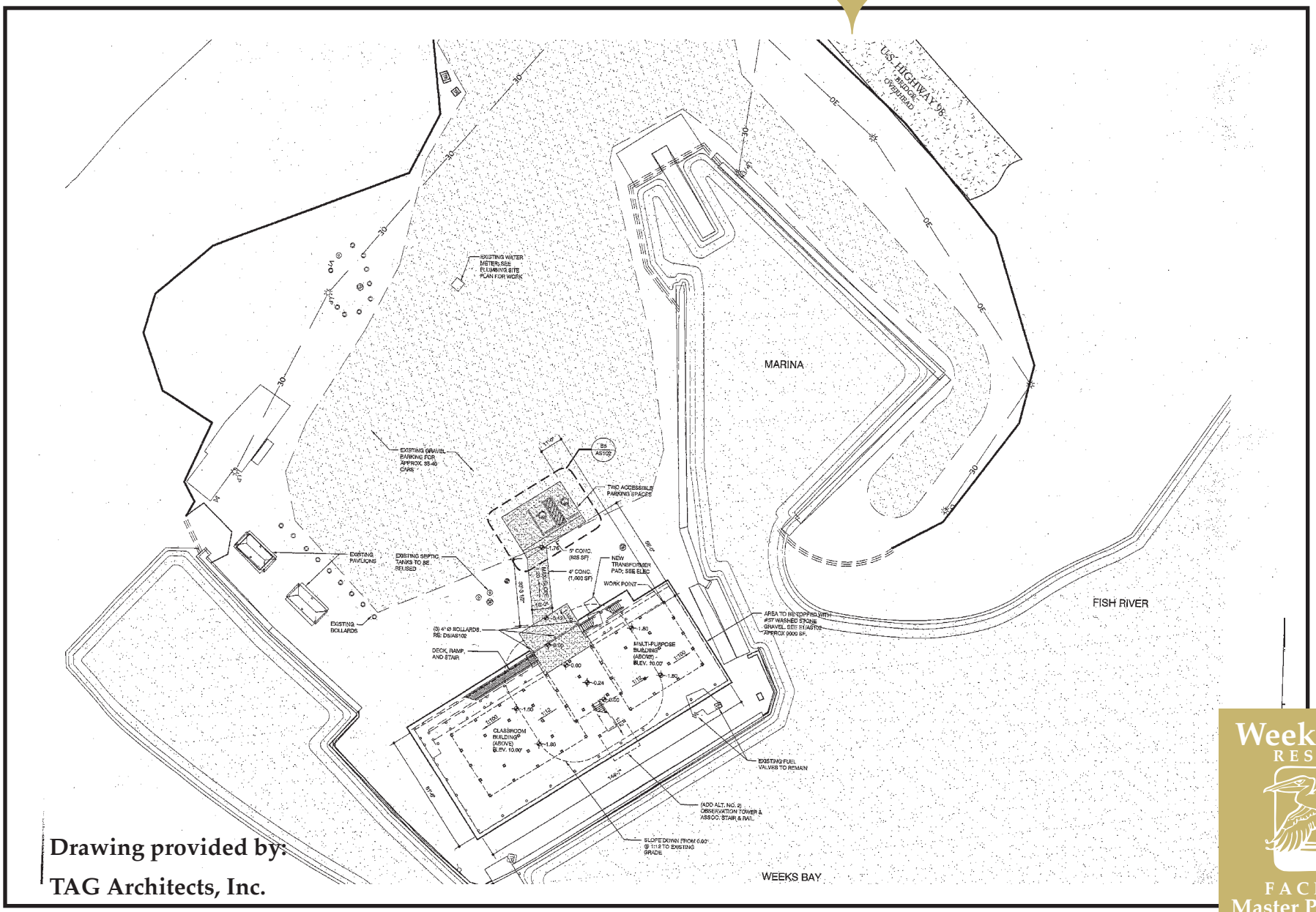
Existing Issues

- Flooding of site during high tides /storm tides
- Parking capacity for public boat ramp
- Muddy run-off from site into river
- Demarcation of Resource Center and public use areas
- Use of ground level under Resource Center
- Existing "pontoon boat" passenger loading facility in need of repair
- Alternative power /green retrofit of existing Resource Center facilities
- Long term use of public boat ramp
- Covered connector at upper story

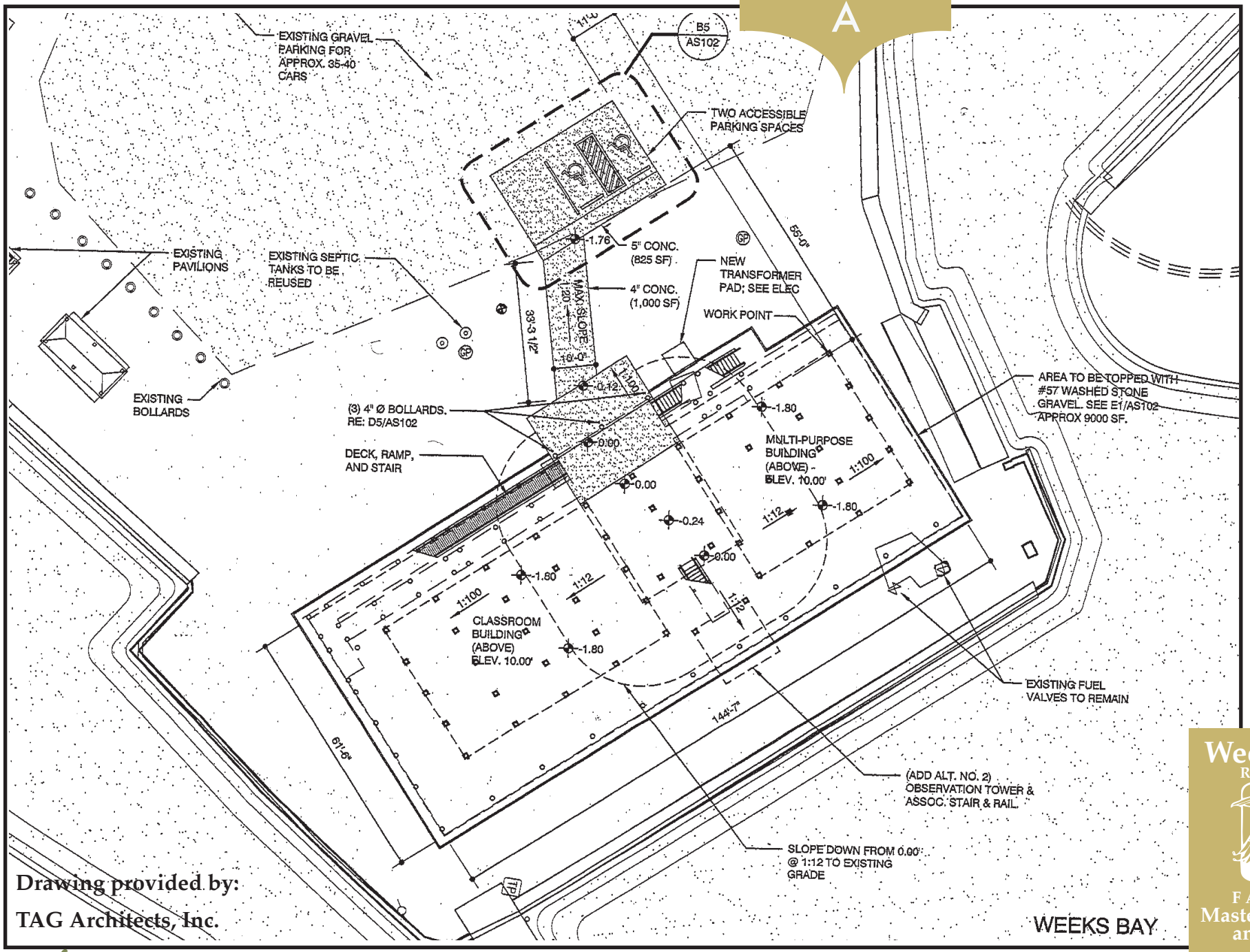




Drawing provided by:

TAG Architects, Inc.

Existing Site Plan



Drawing provided by:

TAG Architects, Inc.

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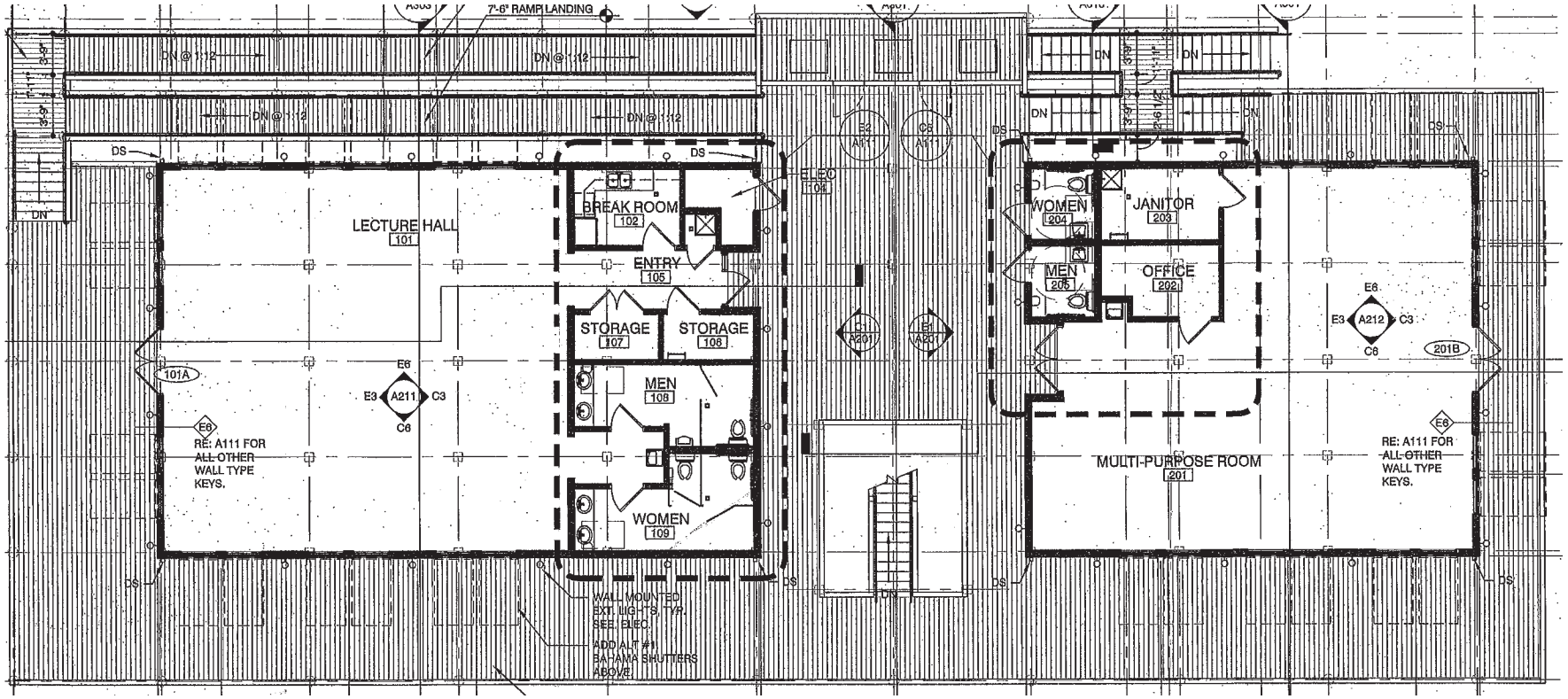
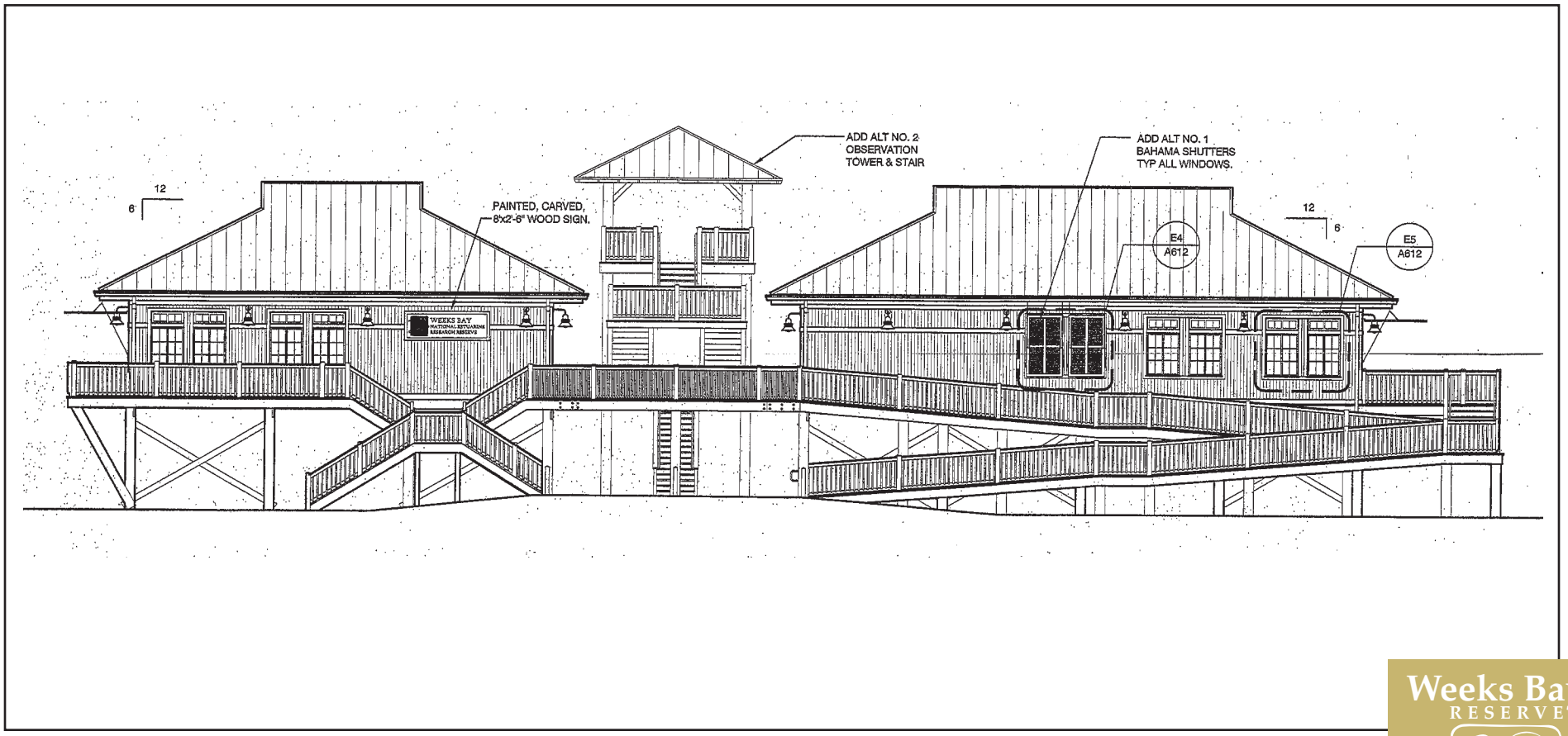
Existing Floor Plan-Ground Level



Drawing provided by:

TAG Architects, Inc.

Existing Floor Plan-Upper Level



Drawing provided by:

TAG Architects, Inc.

Existing Elevations

Reserve Boundary
*Internal parcel lines shown for reference

Contour Lines at 1 foot intervals

Topography Map provided by:
Alabama Department of
Conservation & Natural Resources

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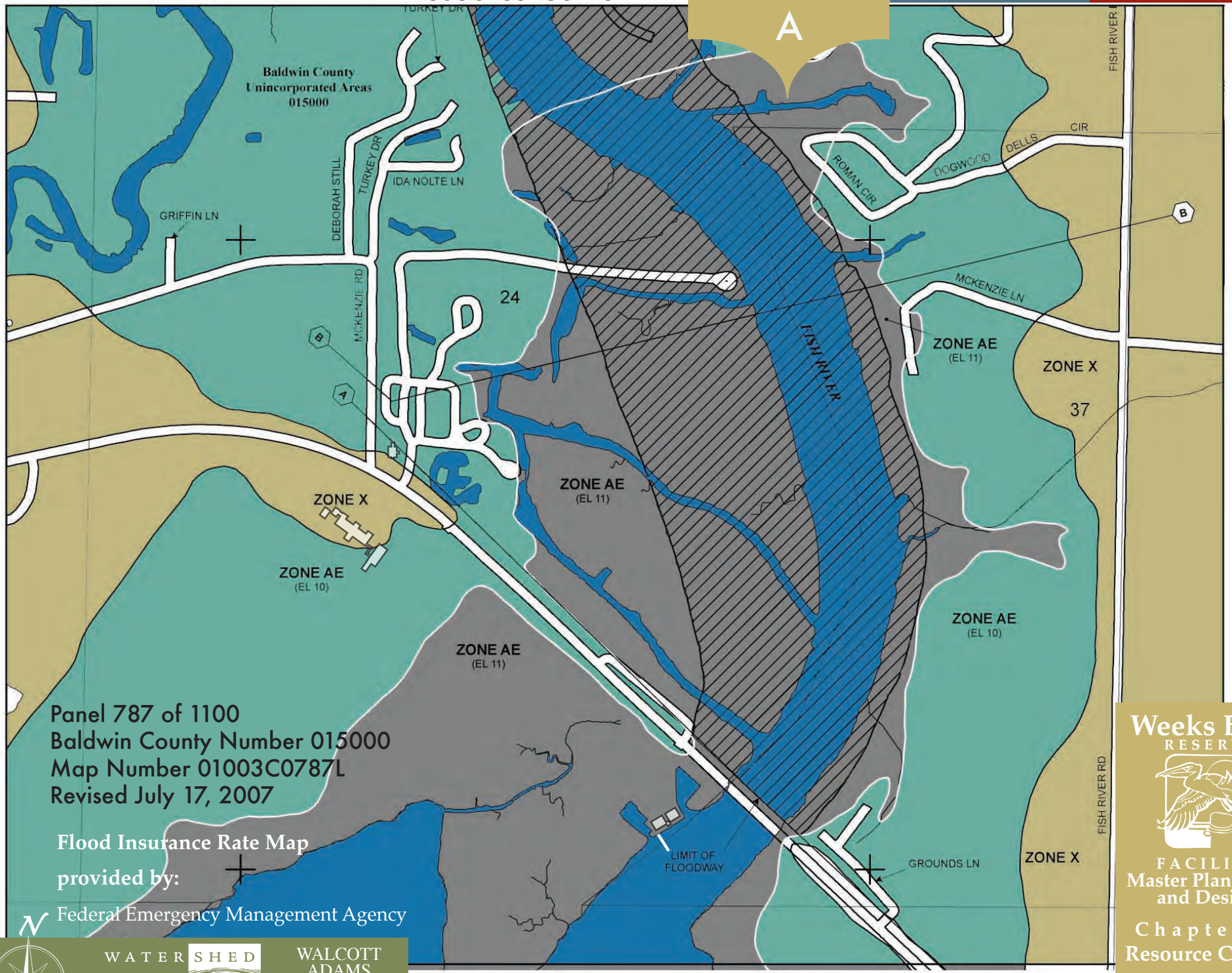
Topography Map



Panel 787 of 1100
Baldwin County Number 015000
Map Number 01003C0787L
Revised July 17, 2007

Flood Insurance Rate Map

provided by:

Federal Emergency Management Agency

N

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Flood Insurance Rate Map (FIRM)

Weeks Bay
RESERVE

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Chapter 4
Resource Center

4.1.07

Resource Center
Programming

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Programming

Site

- Minimize flooding of site
- Reduce muddy run-off from site
- Define /Enforce policies for public use areas for the following groups:
  - Boaters
  - Fisherman
  - Visitors to Resource Center
- Use Landscaping elements to establish "Shade Zones" to provide micro-climate cooling of site
- Provide amenities to facilitate outdoor events
- Provide defined parking for 40 +/- vehicles at Resource Center

Facilities

Boat Launch Concepts

Scenario A:

- Dual-use of site by public and state agencies continues
- After elimination of boat launches at existing canal site provide new state agency restricted boat launch
- Provide 12 +/- spaces for public boat trailer parking
- Provide 8 +/- spaces for state agency boat trailer parking
- Provide new kayak launch

Scenario B:

- New Public Boat launch facility is developed on east side of river, on ALDOT land under bridge
- Weeks Bay and other state agencies have exclusive use of Resource Center site

Facilities

New Shading Pavilion

- Provide new shading pavilion for loading /unloading passengers of tour groups. Group sizes vary from 10 to 40; pavilion should include secure stage area for equipment and bathroom for passengers

Public Event Area

- Establish and define area for temporary facilities (tents, portable toilets, vendors) for large events

Retrofit of Existing Resource Center Building

- Develop concepts for more effective FEMA compliant use of under story space beneath building.
  Uses Include:
  - Storage
  - Outdoor teaching/gathering
  - Fund-raising events
- Develop concepts for alternative power retrofit to Resource Center both to minimize energy cost and demonstrate effectiveness of systems

Future Facility Growth

- Develop concepts for future growth of Resource Center mission include the following:
  - Teaching/gathering space
  - Administration support space

Short Term Goals

Demolition

Remove Concrete Pads, Miscellaneous Foundations

Site

Elevate Existing Parking Lot
New Perimeter Filtration Beds
New Parking Surface, Controlled Drainage & Layout
New Trees at Parking Lot Entry
Wind Generators
Locate Vendor & Event Tent Areas

Building

New Shading Pavillion With Solar Panels
New Understory Buildout
New Ridge Mounted Wind Generator
New Covered Connector At Upper Story

Mid Term Goals

Demolition

None Proposed

Site-Scenario A

New State Agency Boat Launch
New Kayak Launch
New Parking Area Under Bridge

Site-Scenario B

New East River Boat Launch/Dock
New Security Gates at Access Road

Building

New Covered Boat Facility

Long Term Goals

Demolition

None Proposed

Site

None Proposed

Building

New Resource Center Facility

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Programming Goal Matrix

Resource Center
Design Concepts

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Short Term Goals

Site:

1. Elevate and re-grade existing parking area with 1' to 3' of granular fill-add retaining walls per design
2. Create perimeter filtration beds to filter parking lot run-off prior to discharge into wetlands or Fish River
3. Define new parking layout with "Shading Island"of trees; 40 +/-spaces provided
4. New tree planting at perimeter/remove existing concrete pads
5. Event tent locations for public events
6. Vendor locations for public events

Building:

7. New shading pavilion, see page 4.3.02
8. Photovoltaic solar panel array on roof of shading pavilion
9. New pole mounted wind generator
10. New decking /new layout for under story: see Sheet 4.3.03
11. New ridge-mounted wind generator
12. New covered connector

Boat Landing Area

Scenario A

New Boat Trailer parking under bridge, see page 4.3.04

Scenario B

Funding / Planning / Permitting of New East Boat launch,see page 4.3.08

SHORT TERM GOALS

Weeks Bay RESERVE

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Chapter 4 Resource Center

4.3.01

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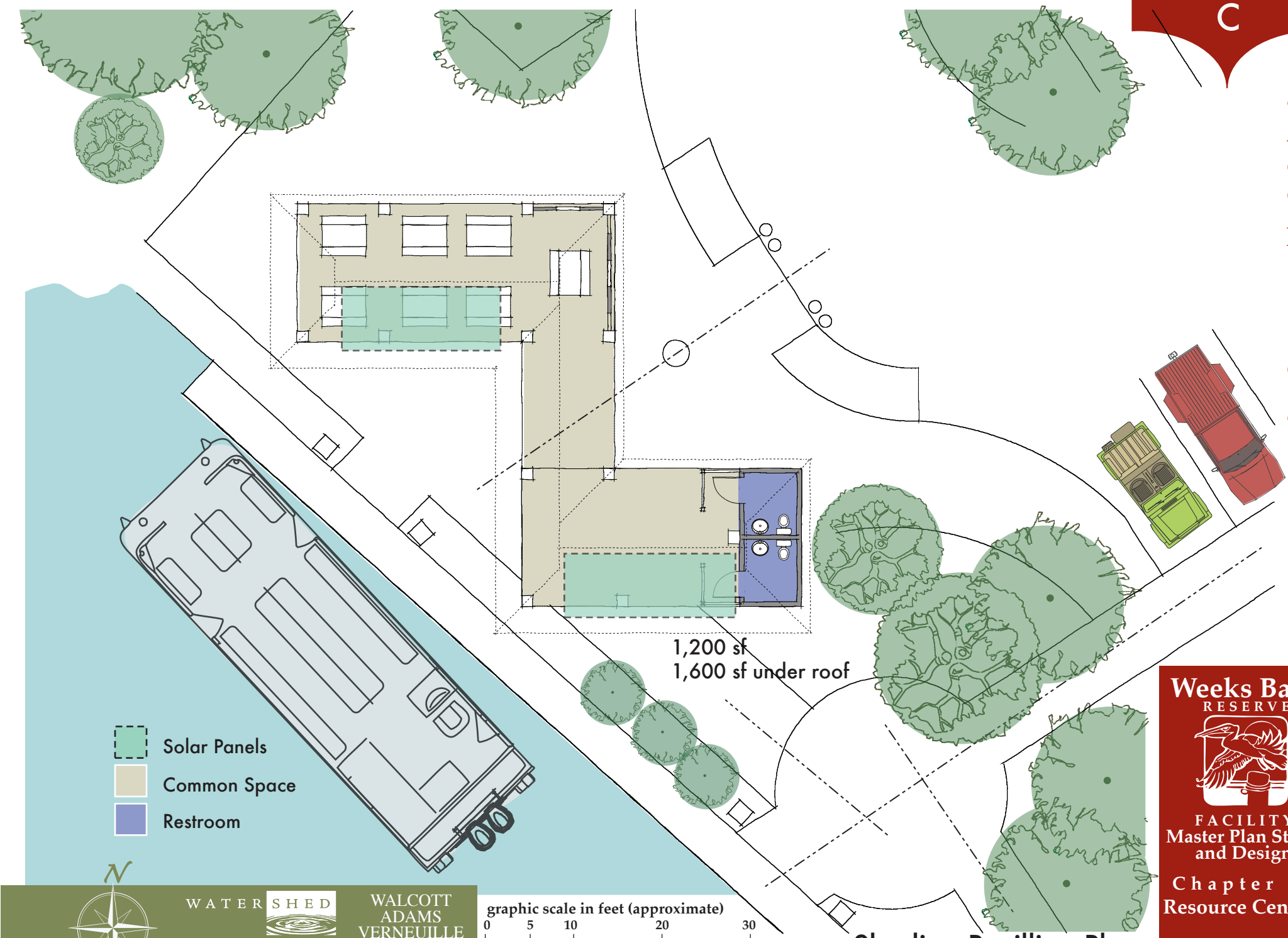
Conceptual Site Plan

Resource Center



Shading Pavillion Plan

SHORT TERM GOALS

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4.3.02

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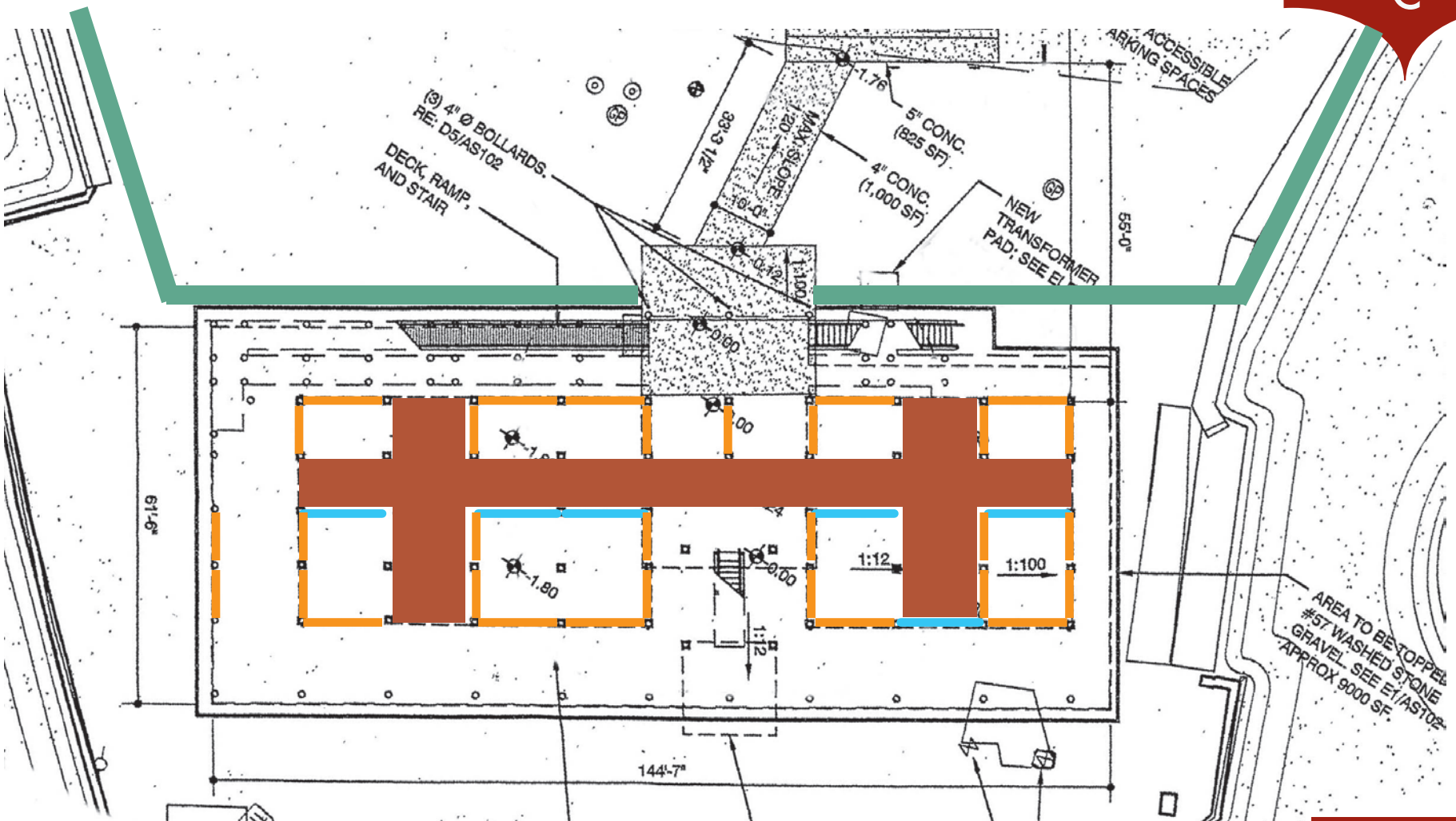

Drawing provided by:
TAG Architects, Inc.

Existing X-Brace to remain
Existing X-Brace to be removed (replace w New engineered K-Braces)
New retaining wall TBD
New deck area at grade

Understory Deck Area

SHORT TERM GOALS

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4.3.03

MID TERM GOALS- SCENARIO A

Mid Term Goals

Scenario A:

1. New state agency boat launch
   8 +/- spaces
2. New kayak launch
3. Extend bike path
4. New parking area

Conceptual Site Plan

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Resource Center

4.3.04

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MID TERM GOALS- SCENARIO B

Mid Term Goals

Scenerio B:

1. New security gates at access road with card access
2. New "Water Gate" for security
3. New covered boat lift facility 8 stalls
4. Extend landscape concept to entire site

Conceptual Site Plan

Weeks Bay RESERVE

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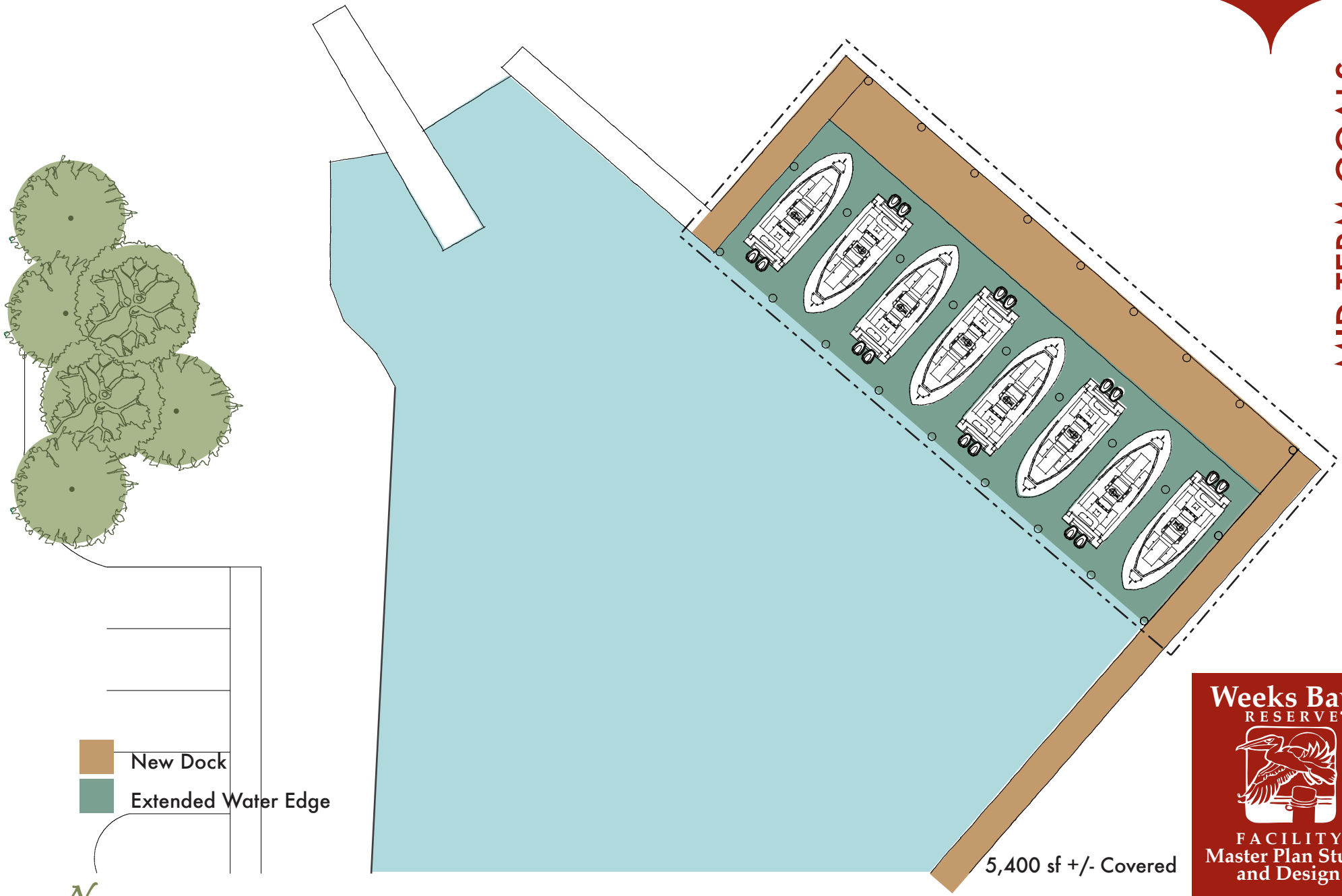
Resource Center



MID TERM GOALS

Boat Storage Facility

Weeks Bay RESERVE

FACILITY
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Chapter 4
Resource Center

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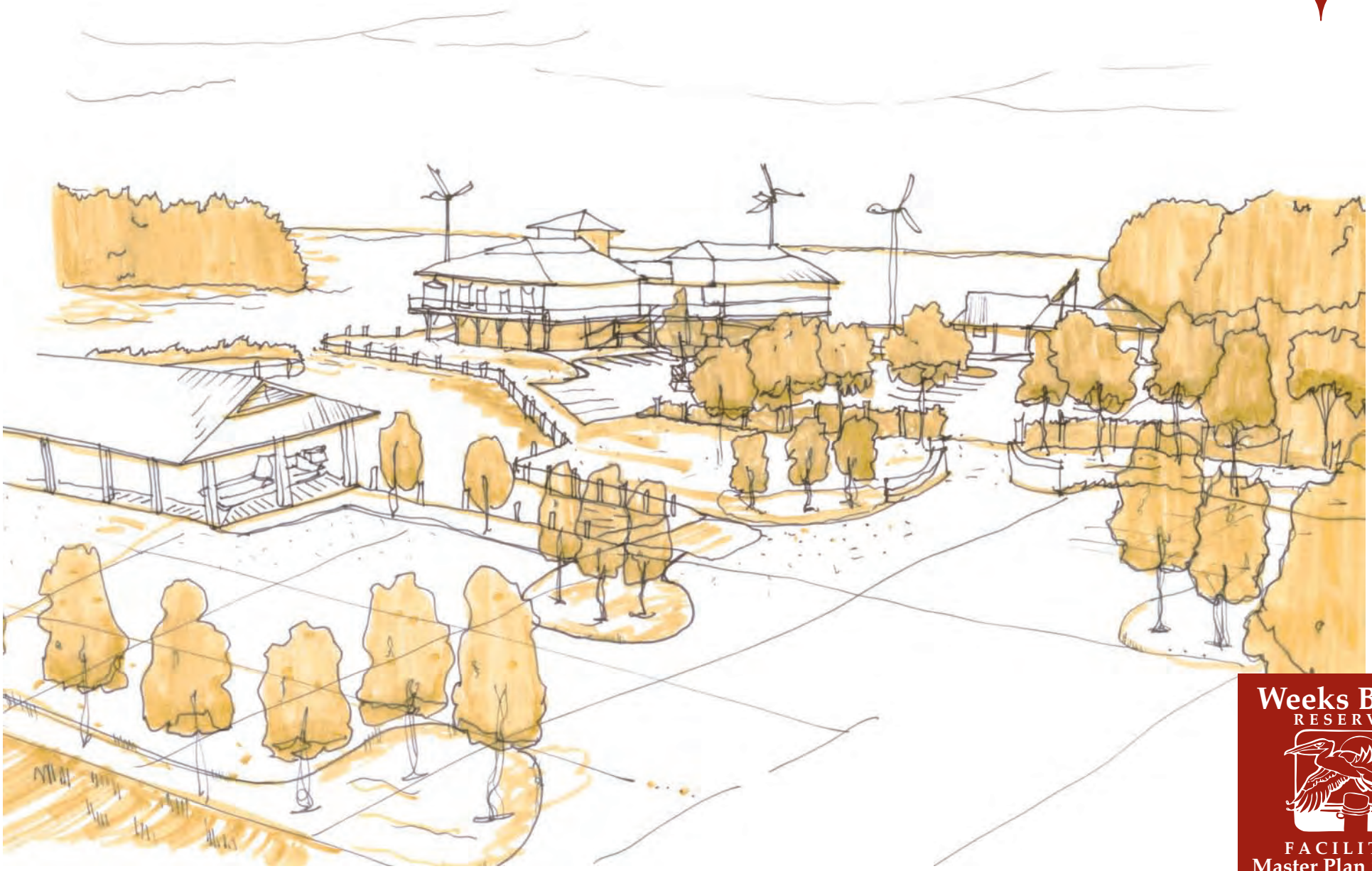

Entry View of Resource Center

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Mid Term Goals

Scenerio B:

1. New east river boat launch & dock
2. New parking
   - 18 +/- standard spaces
   - 23 +/- extended spaces
3. New filtration beds
4. New kayak launch

MID TERM GOALS- SCENARIO B

Conceptual Site Plan

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Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

Chapter 4
Resource Center

4.3.08

LONG TERM GOALS

Long Term Goals

Building:

1. Future Resource Center building with solar panels
   2,200 +/- sf

graphic scale in feet (approximate)
0 30 60 120 180

Conceptual Site Plan

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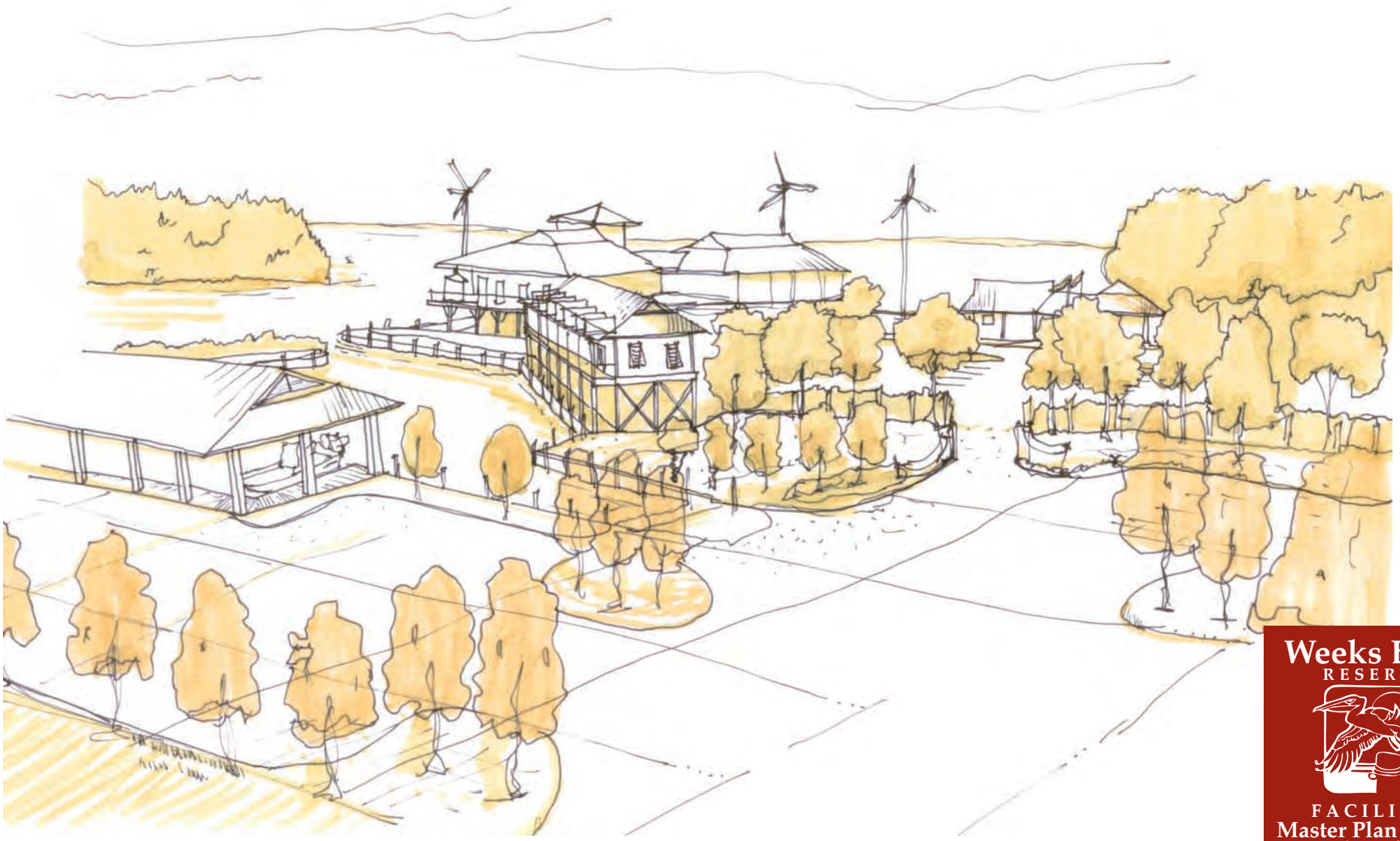
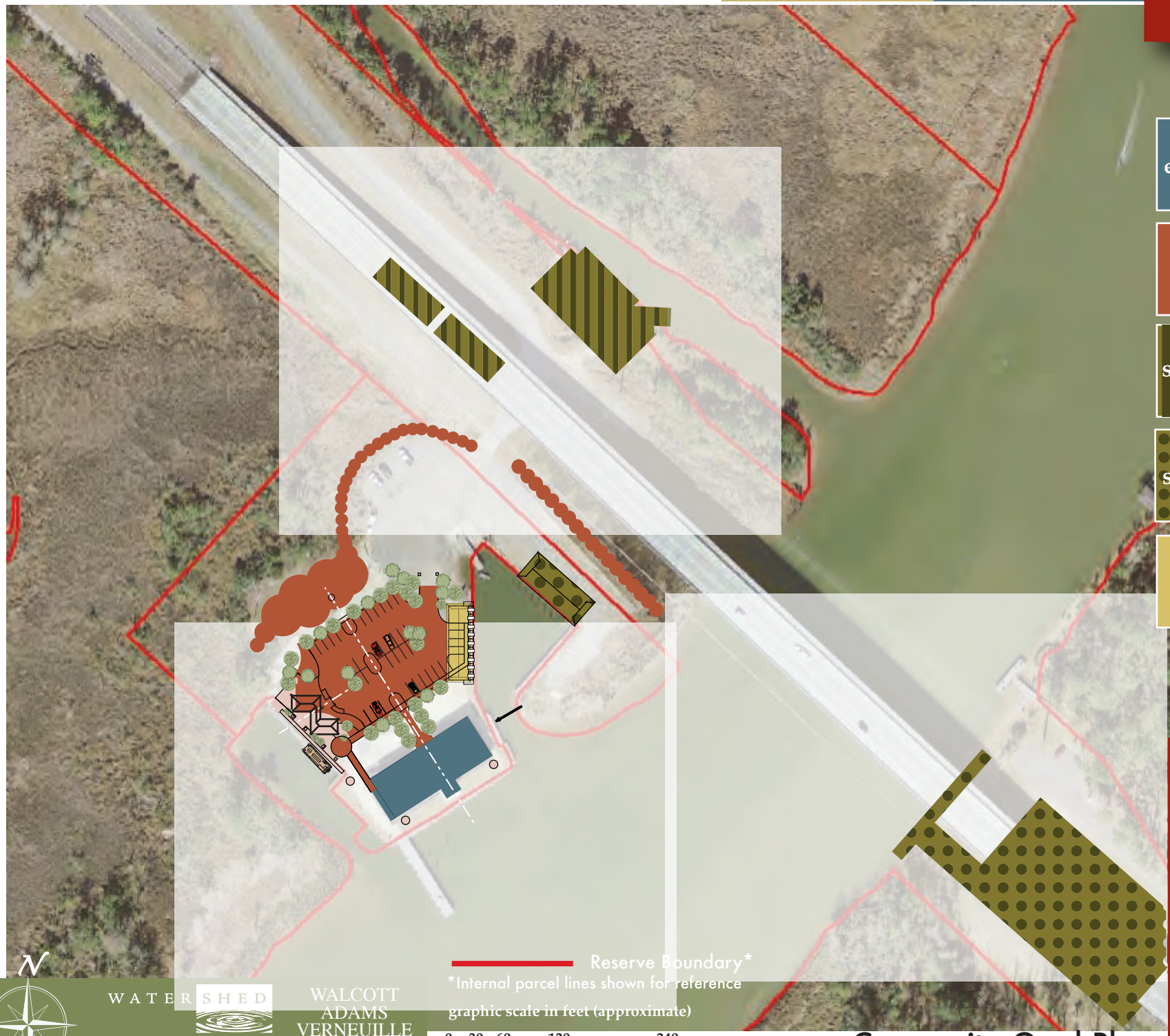
Chapter 4
Resource Center

4.3.09



Entry View of Resource Center



Composite Goal Plan

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 4 Resource Center

4.3.11

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Budget Projection

Resource Center
Budget Projection

Budget Projection

SHORT TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Demolition				N/A	N/A		
Remove conc pads, misc. foundations		5,000 (allow)				500	5,500
Site	4,000*	-	5,000	N/A		900	9,900
Elevate existing parking lot	*	33,600 ①			3,500	3,710	40,810
New perimeter filtration beds	*	38,000 ②			3,800	4,180	45,980
New Parking surface, controlled drainage & layout	*	81,000 ③			8,100	8,910	98,010
New Trees at parking lot	*	24,000 ④			2,000	2,600	28,600
Wind Generators	*	36,000 ⑤	2,500		5,000	4,350	47,850
Locate vendor & event tent areas	*	2,000 (allow)				200	2,200
Building							
New Shading Pavillion w/ solar panels	*	136,000 ⑥	2,500	3,500 (allow)	10,800	15,280	168,080
New Understory layout	*	73,000 ⑦			7,000	8,000	88,000
New Ridge mounted wind generator		24,000 ⑧			2,000	2,600	28,600
New connector @ Upper Story		44,800 ⑨				4,480	49,280
Total: Short Term	**4,000**	497,400	**10,000**	3,500	42,200	55,710	612,810

* Includes survey work for area in scope of work mentioned.

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

① 4200 CY fill @ $8/CY
② Excavate/fill trenches $13,200;wetland vegetation 25,000 allow
③ 6" gravel paving 1650 tons @ $30/ton;drainage system 12,500 allow; bulkheads $10,00 allow;wheel stops $9,000 allow
④ 20 trees @ $1,200 each
⑤ 2 @ $18,000
⑥ 1600 sf "under roof" @ $85/sf
⑦ 6 new "K" braces @ $1,800/each; 2,500sf deck @ $25/sf
⑧ 4 @ $6,000 each
⑨ 1120sf @ $40/sf

Budget Projection

MID TERM GOALS	Survey[a]	Construction[b]	Testing[c]	FF&E[d]	A/E Fees[e]	Contingency 10%[f]	Total[g]
Demolition							
None proposed							
Site-Scenerio A	10,000*					1,000	11,000
New State Agency Boat Launch	*	80,000	3,000	2,000 (allow)	8,000	9,300	102,300
New Kayak Launch	*	20,000		2,000 (allow)	2,500	2,450	26,950
New Parking under bridge	*	25,500 ②				2,550	28,050
Extend bike path		2,500	1,500			400	4,400
Sub Total: Scenerio A	10,000	128,000	4,500	4,000	10,500	15,700	172,700
Site-Scenerio B							
New East River Boat Launch/Dock	*	701,050 ①	5,000	5,000 (allow)	35,000	74,605	820,655
New Parking under bridge	*						
New Security Gates at access road	*	④					
Extend landscaping to entire site		18,000 ①				1,800	19,800
New perimeter filtration beds	*						
Building	*	③					
New Covered Boat Facility	*	432,000	5,000	10,000	40,000	48,700	535,700
Sub Total: Scenerio B		1,151,050	10,000	15,000	75,000	125,105	1,367,155

* Includes survey work for area in scope of work mentioned.

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6

① See Appendix for Engineer's Estimate page 7.1.04
② Clear & grub: allow $1,500; gravel paving -800 tons @ $30/ton
③ 5,400sf @ $80/sf
④ 15 trees @ 1,200 each

Budget Projection

LONG TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Demolition							
None proposed							
Site							
None proposed							
Building							
New Resource Center Facility	3,000*	440,000 ①	3,000	30,000 (allow)	50,000	52,600	578,600
Total: Long Term	3,000	440,000	3,000	30,000	50,000	52,600	578,600
GRAND TOTAL Scenario A (Short,Mid,Long)	17,000	1,065,400	17,500	37,500	102,700	124,010	1,364,110
GRAND TOTAL Scenario B (Short,Mid,Long)	7,000	2,088,450	23,000	48,500	167,200	233,415	2,567,565

* Includes survey work for area in scope of work mentioned.

① 2,200sf @ $200/sf

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

Research Center

Existing Conditions
Programming
Design Concepts
Budget Projection

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Existing Conditions

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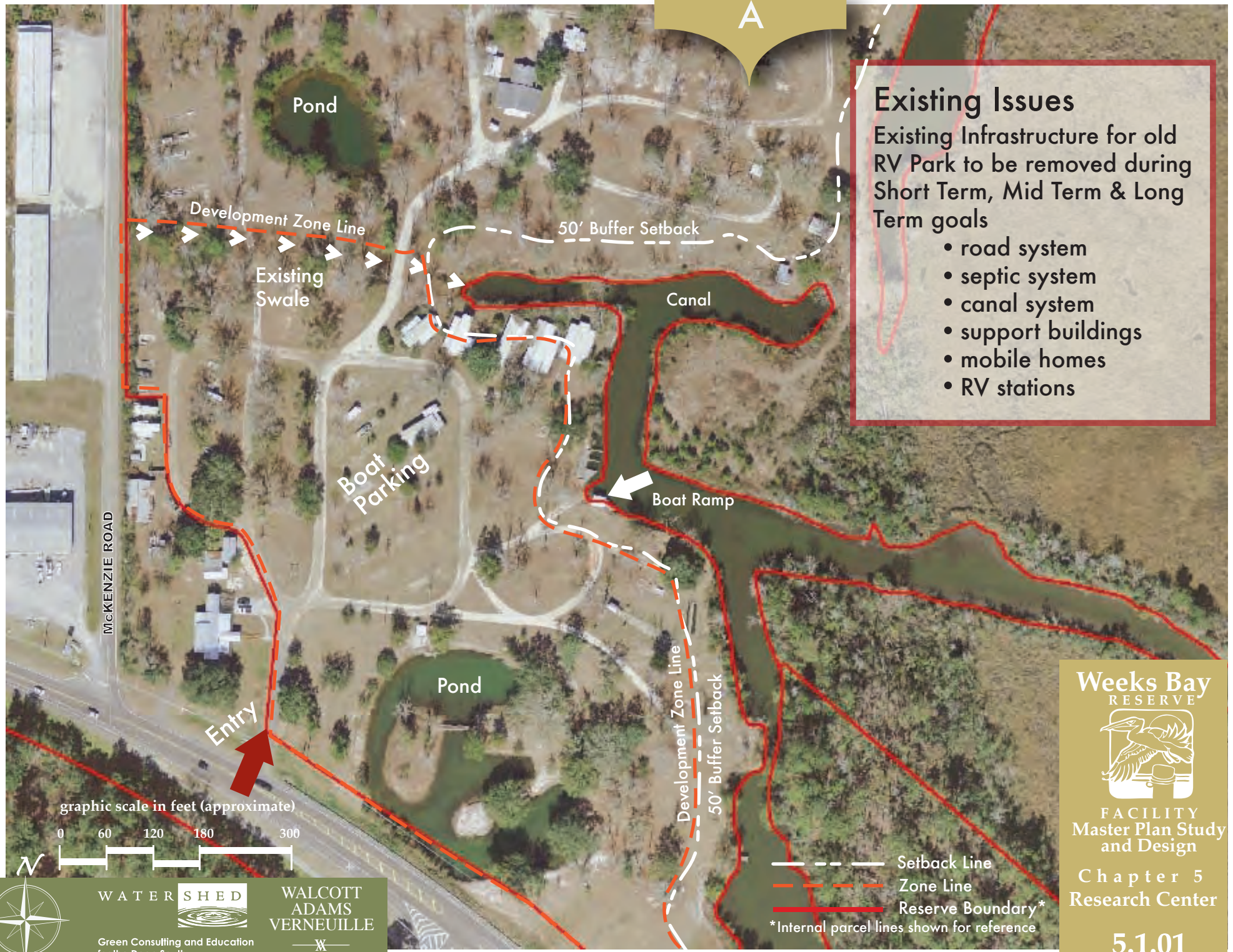

Existing Issues

Existing Infrastructure for old RV Park to be removed during Short Term, Mid Term & Long Term goals

- road system
- septic system
- canal system
- support buildings
- mobile homes
- RV stations

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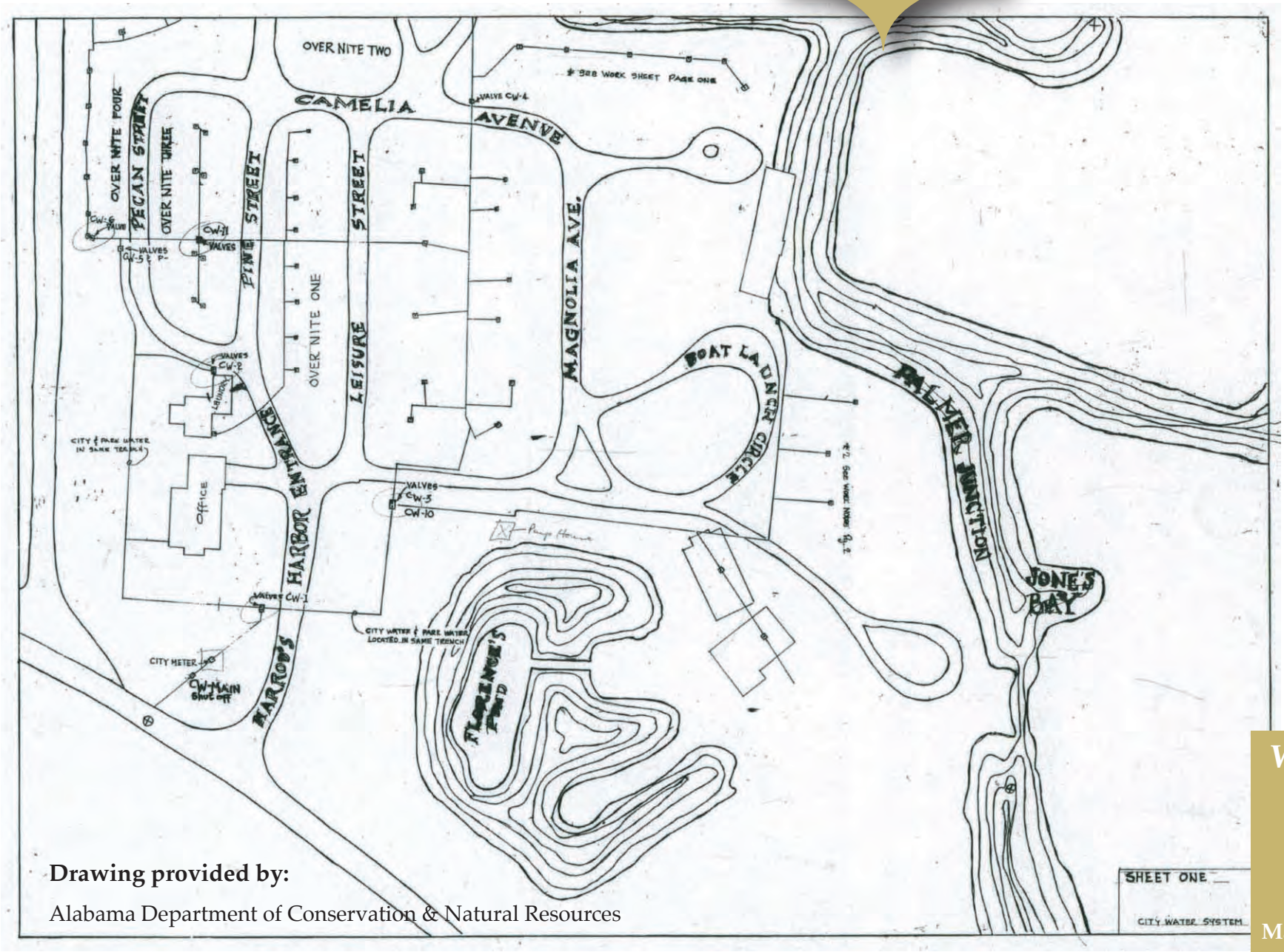
Canal construction changed hydrology
of the marsh & created a need for restoration.

1949 Image

Current Image

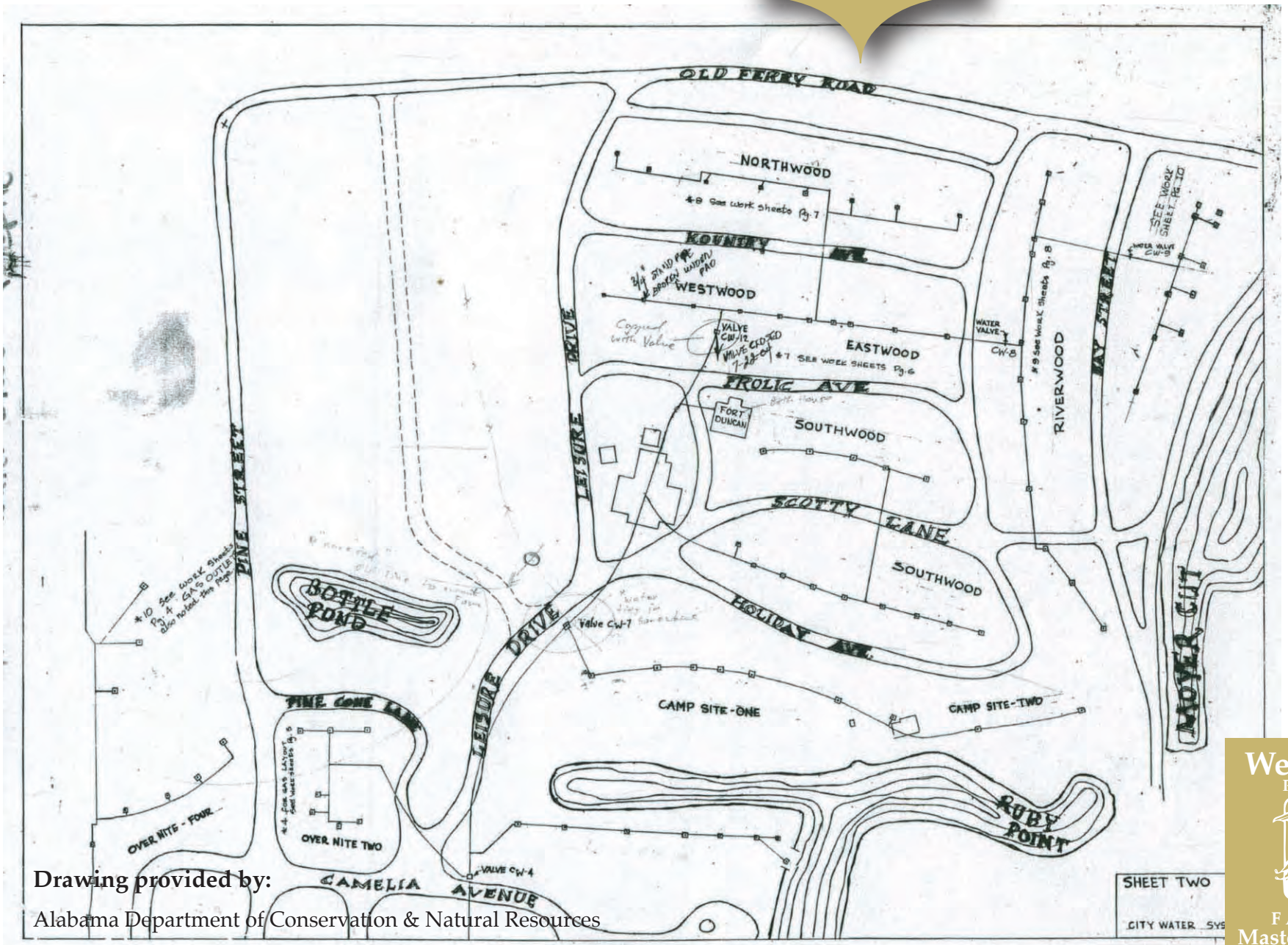
Marsh Impact by Canals



Drawing provided by:

Alabama Department of Conservation & Natural Resources

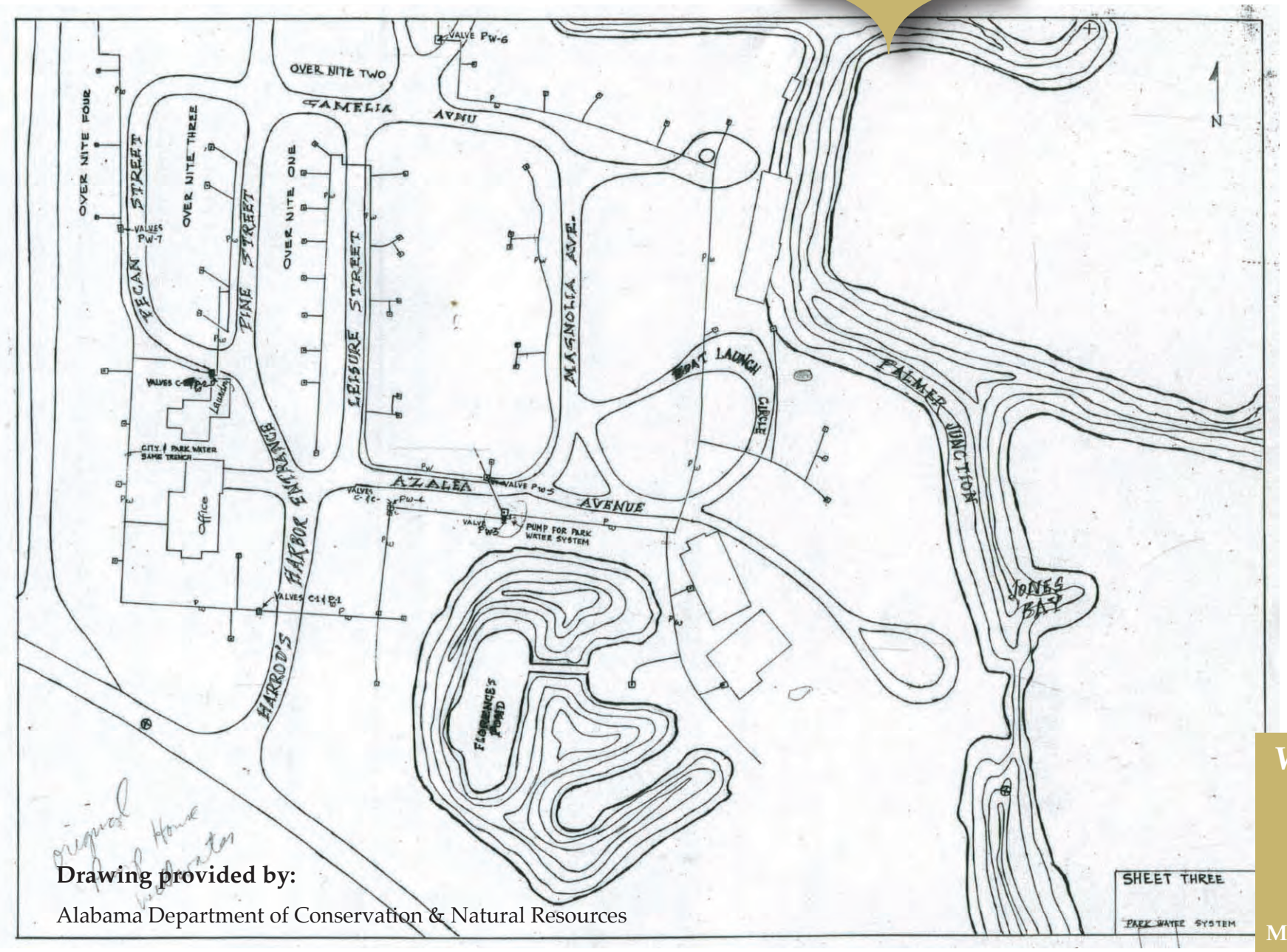
City Water Line Locations Part A



Drawing provided by:

Alabama Department of Conservation & Natural Resources

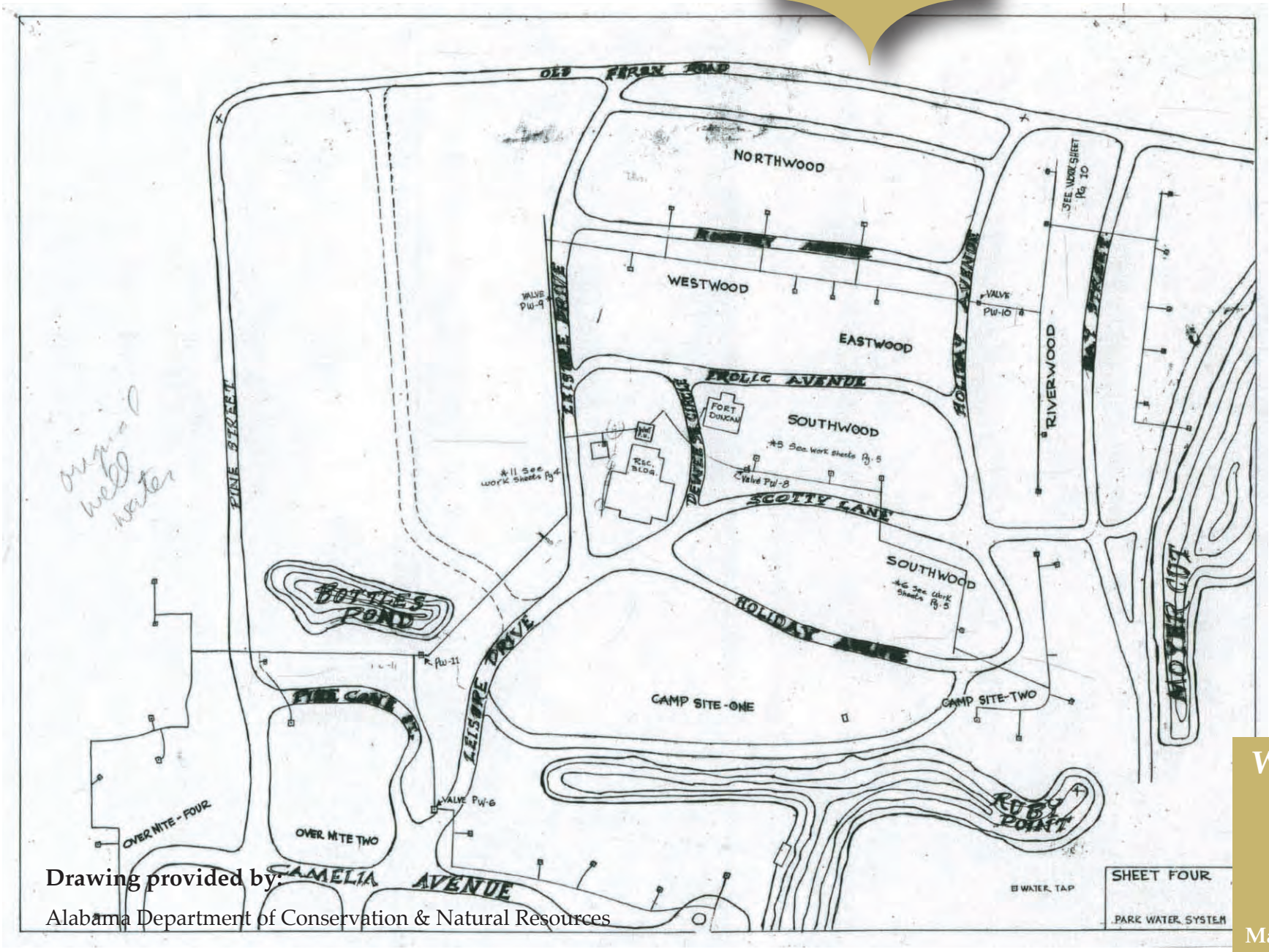
City Water Line Locations Part B



Drawing provided by:

Alabama Department of Conservation & Natural Resources

Park Water Line Locations Part A



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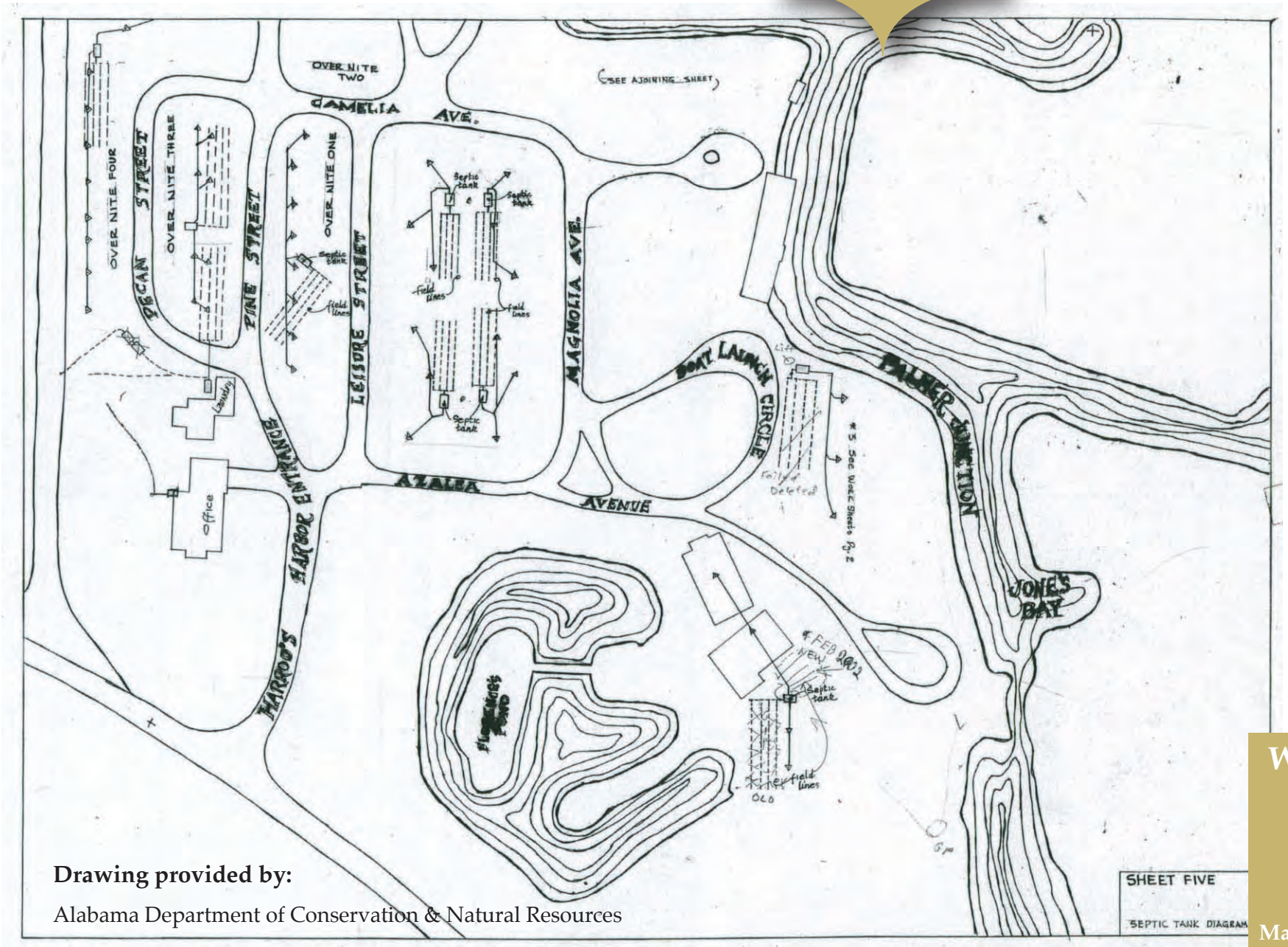
Alabama Department of Conservation & Natural Resources

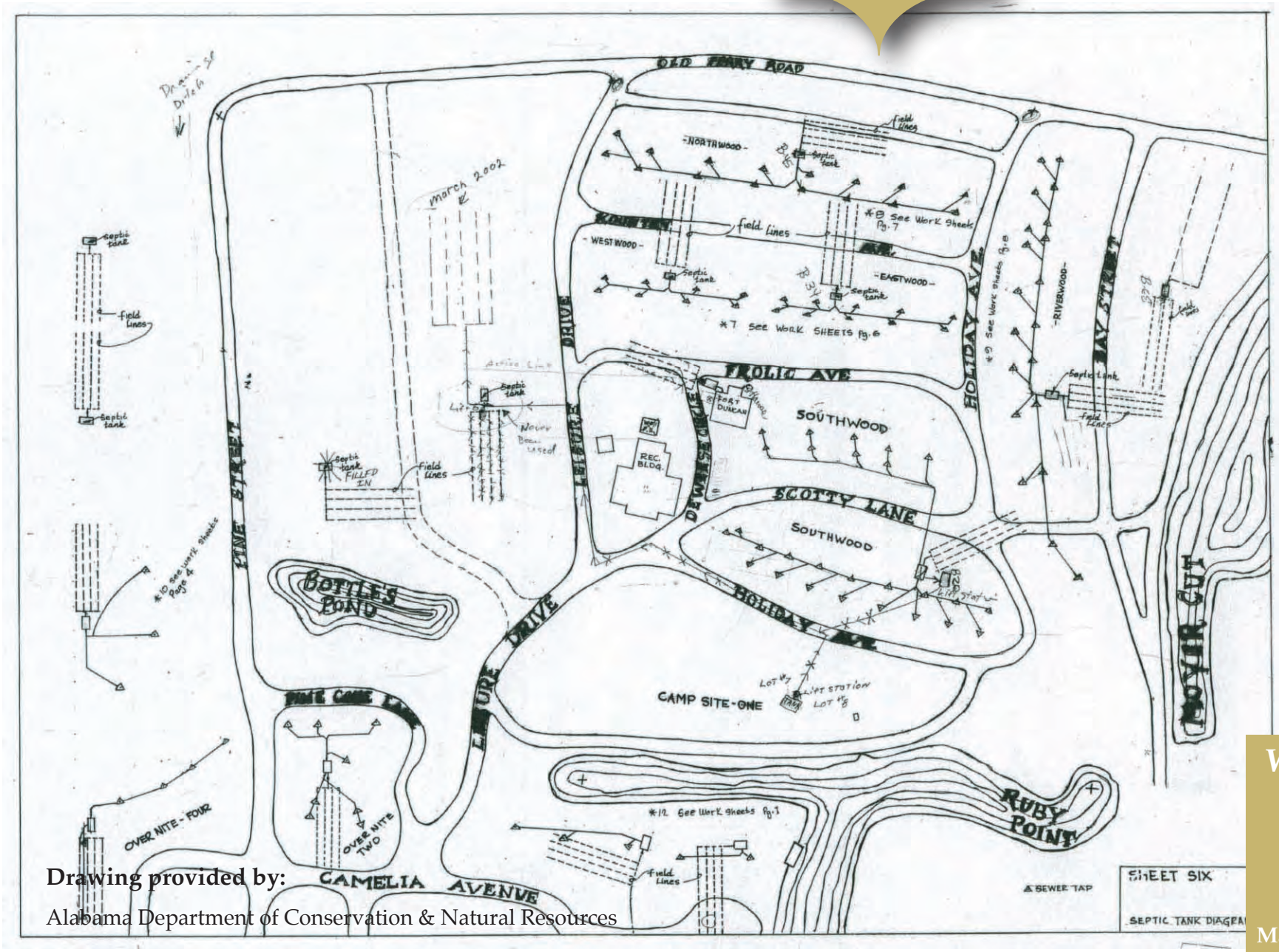
Park Water Line Locations Part B



Drawing provided by:

Alabama Department of Conservation & Natural Resources

Sewer Line Locations Part A



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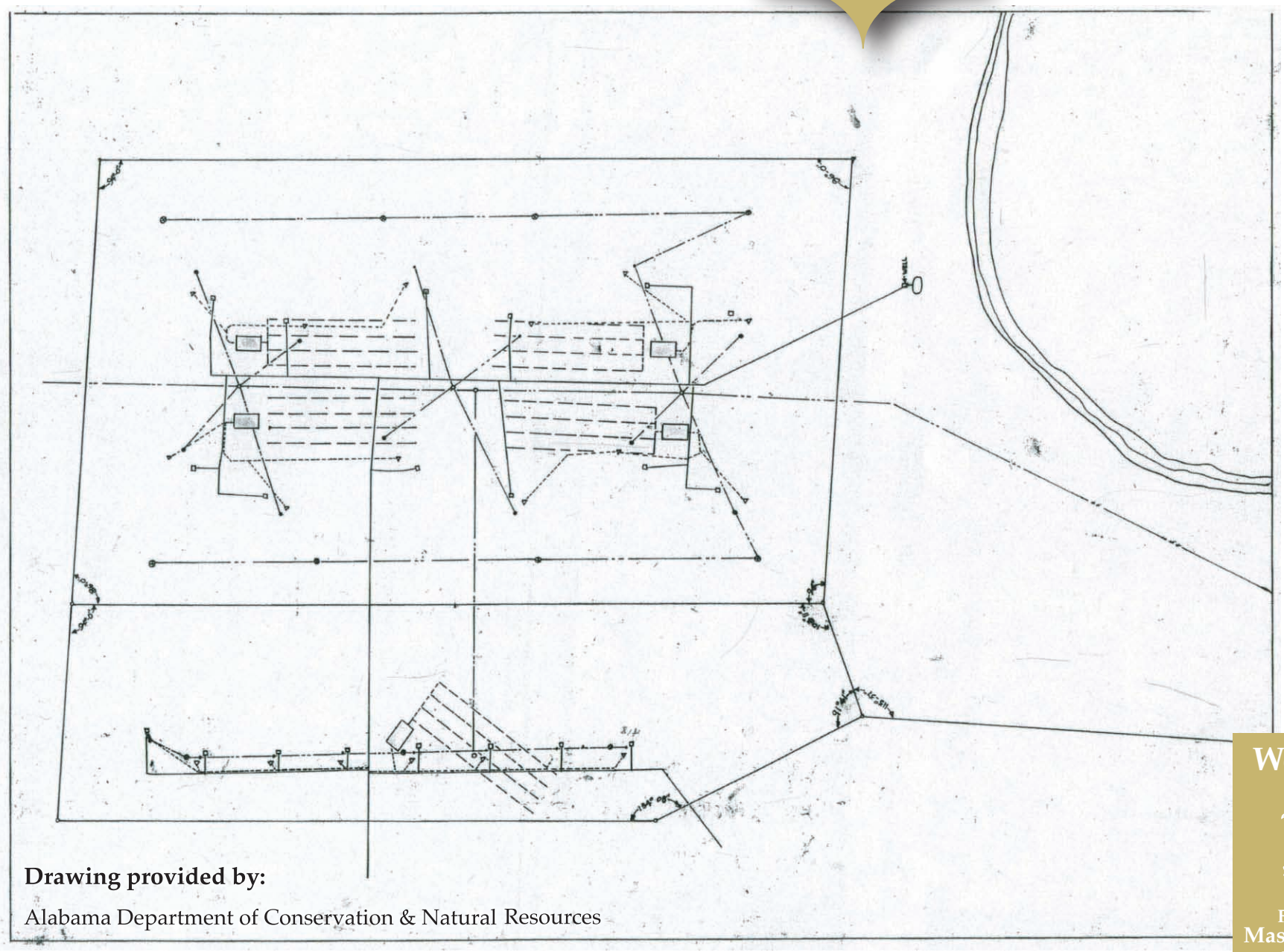
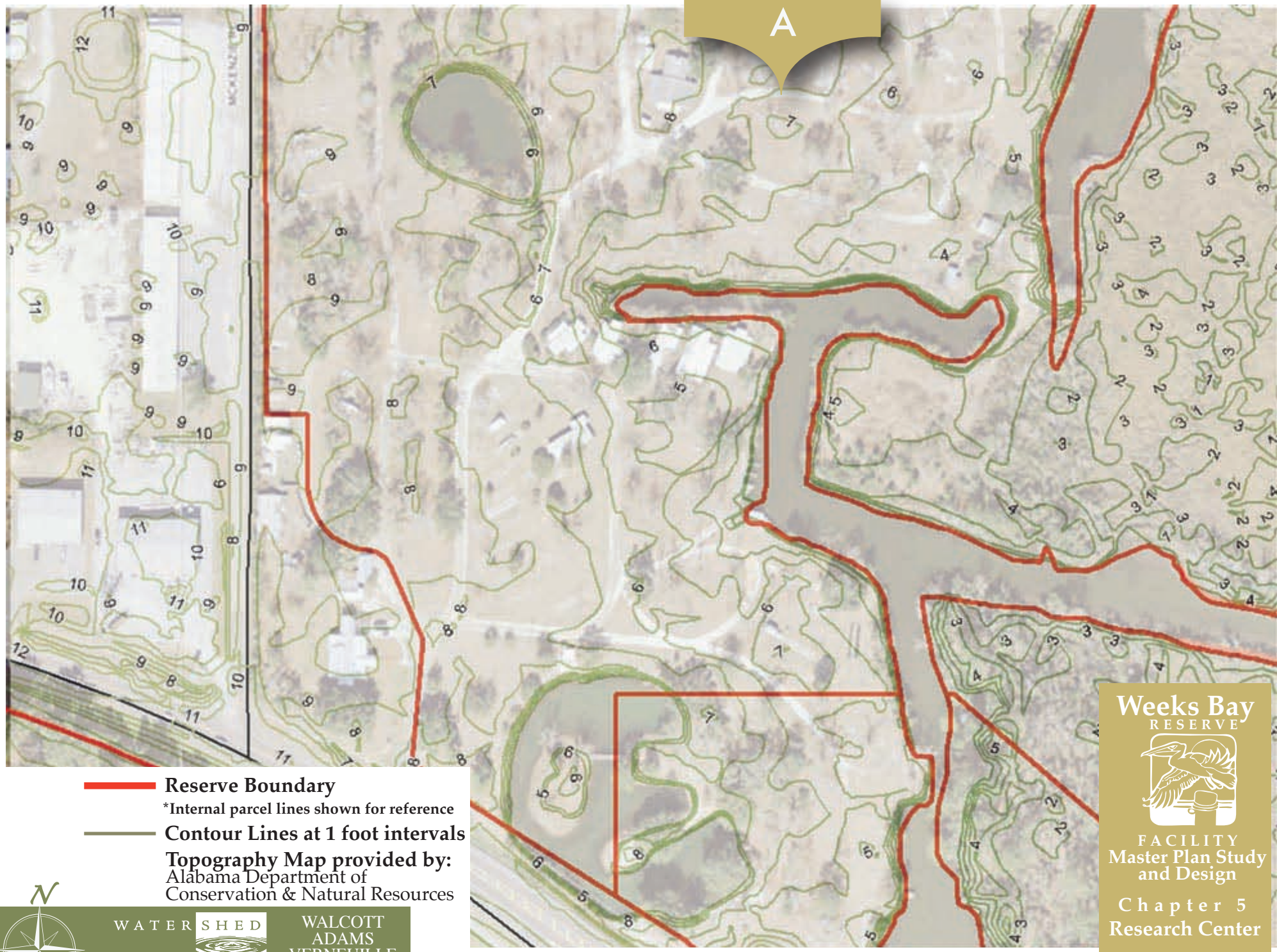
Sewer Line Locations Part B



Drawing provided by:

Alabama Department of Conservation & Natural Resources

Sewer Line Locations Part C



Reserve Boundary

*Internal parcel lines shown for reference

Contour Lines at 1 foot intervals

Topography Map provided by:
Alabama Department of
Conservation & Natural Resources

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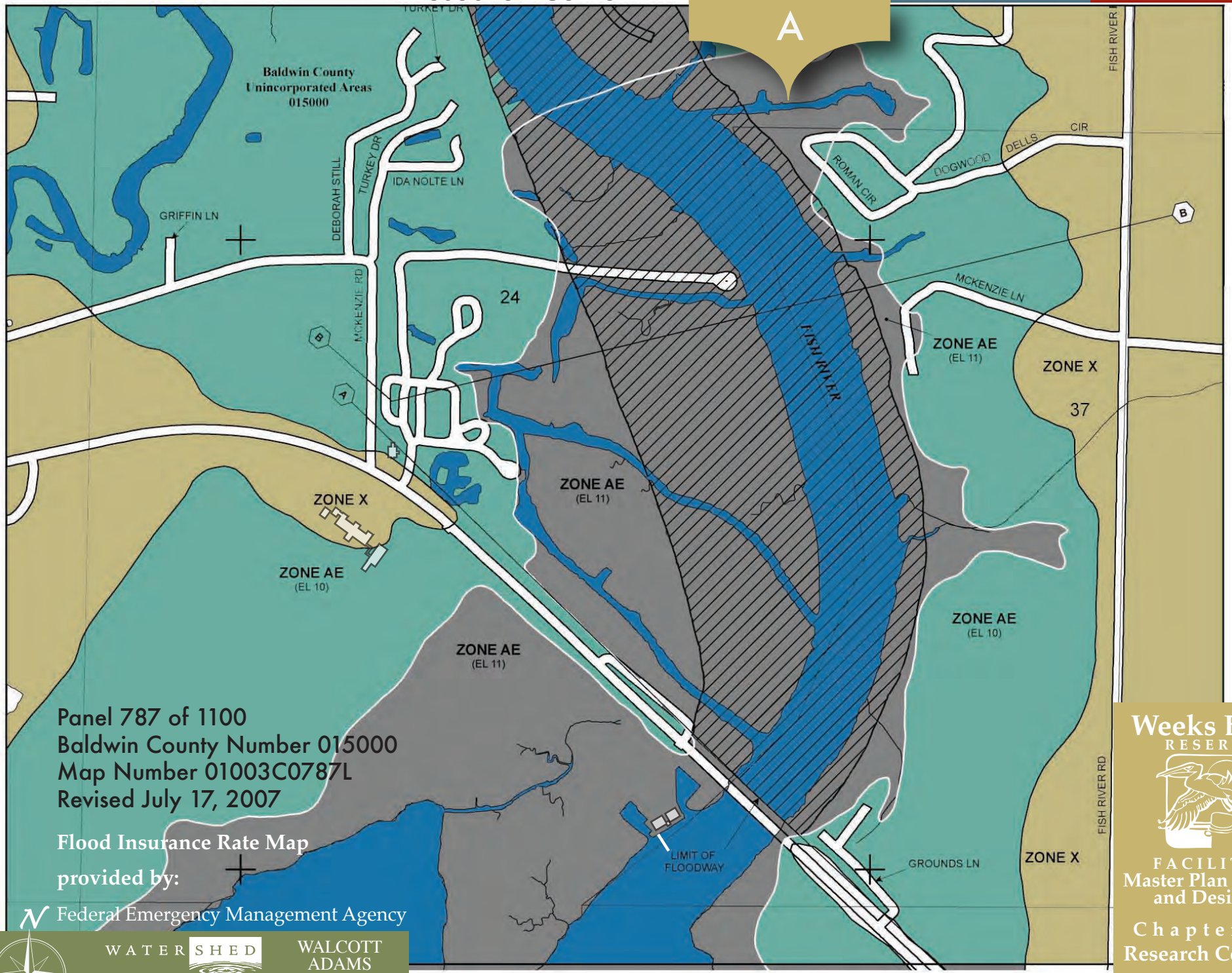
Topography Map



Panel 787 of 1100
Baldwin County Number 015000
Map Number 01003C0787L
Revised July 17, 2007

Flood Insurance Rate Map

provided by:

Federal Emergency Management Agency

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Flood Insurance Rate Map (FIRM)

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FACILITY
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Research Center

5.1.10

Research Center
Programming

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Research Center

B

RESEARCH SITE ZONES

Restoration Zone

Area planned for restoration to "pre-RV park" condition

Development Zone

Area reserved for future growth for planned research activities

Demonstration Zone

Area planned for reclamation for limited horticultural and public use activities

Zone Line
Zone Line
Zone Line
Reserve Boundary*

*Internal parcel lines shown for reference

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 5 Research Center

5.2.01

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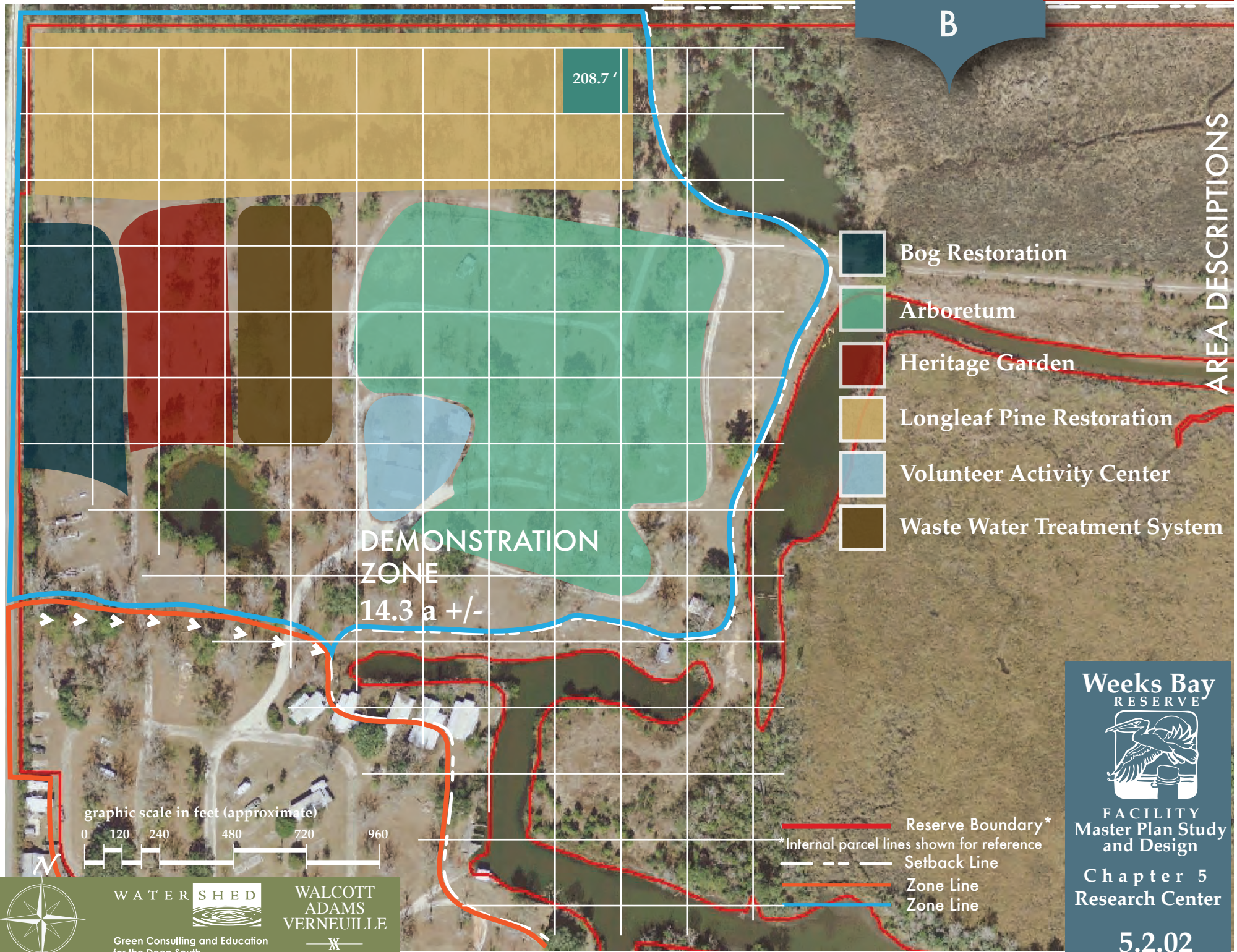
Research Center

B



AREA DESCRIPTIONS

- Bog Restoration
- Arboretum
- Heritage Garden
- Longleaf Pine Restoration
- Volunteer Activity Center
- Waste Water Treatment System

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5.2.02

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Description of Areas

Arboretum

This area will be an educational teaching site coordinated by the Weeks Bay Volunteers arboretum committee. The arboretum committee has been developing this site, planting and labeling trees to be used for education and outreach. A teaching area has been established with stone benches for use with visiting groups and workshop events. The volunteer group has supplemented their funds for this site by writing and securing grant funds that cover the cost of trees, mulch, compost, drilled water well, pump house, and other necessary items that support the arboretum. In addition, private funds and donations have contributed to the overall development of the site; some donations have funded specific features at the arboretum (i.e. teaching area with benches and landscaping).

Bog Restoration

This site will be an example of restored bog habitat in close proximity to the Weeks Bay Visitor Center. The area will undergo activities that will move this habitat towards a more bog-like area. Fire will be used in coordination with selected tree removal providing a demonstration of bog restoration. This demonstration will be used for education and outreach with groups and workshops as part of a larger program at the Reserve. In addition, this area will supplement activities in the volunteer arboretum on this same Safe Harbor site.

Heritage Garden

This site will demonstrate historical garden techniques coordinated by the Weeks Bay Volunteers. Gardening has always been a part of our cultural heritage and persists as an important part of the Weeks Bay coastal community. The selected area will be used to set up demonstrations of past and current techniques of gardening for education and outreach groups. In addition, this area will supplement activities in the volunteer arboretum on this same Safe Harbor site.

Longleaf Pine Restoration

This site will demonstrate restoration of longleaf pines. Longleaf pines represent the dominant species of a disappearing habitat. The area will be prepared to receive longleaf pines and managed as a demonstration of restoration of this valuable habitat. It will be used as a teaching site for a variety of groups and in general for education and outreach. In addition, this area will supplement activities in the volunteer arboretum on this same Safe Harbor site.

Description of Areas

Volunteer Activity Center

This area will continue to be used "in transition" for the volunteer activity center, kitchen, and restroom facilities. It will support volunteer work days, workshops, plant sales, and ongoing efforts to restore areas on the north side of Safe Harbor. The Volunteer Activity Center and associated structures will continue to be used in transition until other facilities described in the Master Plan come into fruition. Currently this is being used for volunteer office and storage space, gathering hall, kitchen, and restroom facility.

Waste Water Treatment System

The raised mound waste water treatment system is located in this area. It currently receives effluent from a septic tank at the restroom/shower facility next to the volunteer activity center (Fort Duncan). This system area would be the site of expansion to handle a new facility built on site.

Programming

Site

- Establish specific areas for public use of site
- Establish planned use for allied state agency's use of site
- "Deconstruct" infrastructure for RV park
  - Water Lines
  - Concrete Pads
  - Septic/ Field Lines
  - Electrical Connections
- Maintain existing boat ramp until new replacement boat ramp is built at Resource Center
- Establish buffer zone around existing canal system for future work in restoration zone
- Buffer Zone does not impact work planned in development zone
- Establish boundary area for use of Foundation
- Current FEMA flood maps indicate Zone AE (EL 10), which requires final floor elevations of 10'-0". Average Site elevation in development zone ranges from 7' to 9'.

Facilities

New Dormitory Facilities

Visiting researchers & occasional allied state agencies will use these new facilities. Use patterns vary greatly, depending on need

Anticipated activity Level:

	Min.	Max.
Short Term:	0	12
Mid Term:	4	18
Long Term:	4	24

Typical visits will be from one to seven days. Several plan types should be considered, to allow for variation in capitol funding and to allow for different sequences of operation. Typical visiting researchers are graduate students who are accustomed to housing with congregate living. Each dorm & facility should include the following:

- "Dirty Porch" for changing/ storage from soiled research gear/ clothing
- "Bunk Bed" sleeping rooms, with max. 2 bunk beds (four visitors) per room
- Shared toilets / showers
- Kitchen / Dining
- Washer / Dryer
- Living Room
- Screened Porch
- Solar Panels for water heating
- HVAC controls for constant run to control humidity & for zoned room by room use

Programming

New Laboratory Facilities

New Chemistry, Microbiology, Biology & Environmental labs each supported by office for research team leader(s). Lab buildings shall include the following functions:

- Chemistry Lab 700 s.f.
- Microbiology Lab 700 s.f.
- Biology/Environmantal Lab 700 s.f.
- 2 Support offices for each lab
- Connect storage area shared between labs
- Conference/library area for team meetings
- Break room /bathrooms
- Ability for expansion by the growth of additional lab modules

Special Events Facilities

Open-air pavilion intended to have fund-raising events or special exhibits/sales. Facility would be constructed on the Foundation property. The Foundation would own & operate this facility, which would be available for public use.

- Accommodate 300-500 standing guest "under roof"
- Bathroom facilities
- Catering kitchen
- Parking to be provided on adjacent Reserve land or by shuttle from adjacent property to the events facility

New Boat/Maintenance Facilities

- Six bays for secure covered storage of trailered boats and maintenance equipment
- Maintenance bay and shop for boat repair and other maintenance activity at Research Center site
- Secure, fence perimeter
- Service yard for access and additional vehicle parking

Short Term Goals

Demolition

Remove Roads, Trailors, Boats Concrete Pads, Miscellaneous Storage Buildings, and Existing Entry Drive

Site

New Signage at Corner, to be determined
New Control Gate at Demonstration Zone
New Treescape Border Between Zones
New Oak Alley
New Border Fencing at Foundation Property
Establish Buffer Along US 98
New Roadway to Resource Site
Create New Entry Off Mckenzie Road

Building

New Research Dormitory
New Boatyard Facility

Mid Term Goals

Demolition

Remove Additional Roads, Boat Ramp

Site

Establish Traditional Landscape
Areas at New Structures
New Low-Mow Policy in Developmental Zone

Building

New Research Laboratory
New Dormitories(2)
New Special Events Facility

Long Term Goals

Demolition

None Proposed

Site

Restore Edge of Wetlands
Restore Existing Pond

Building

New Laboratory Addition(s)
New Dormitory Buildings

Research Center
Design Concepts

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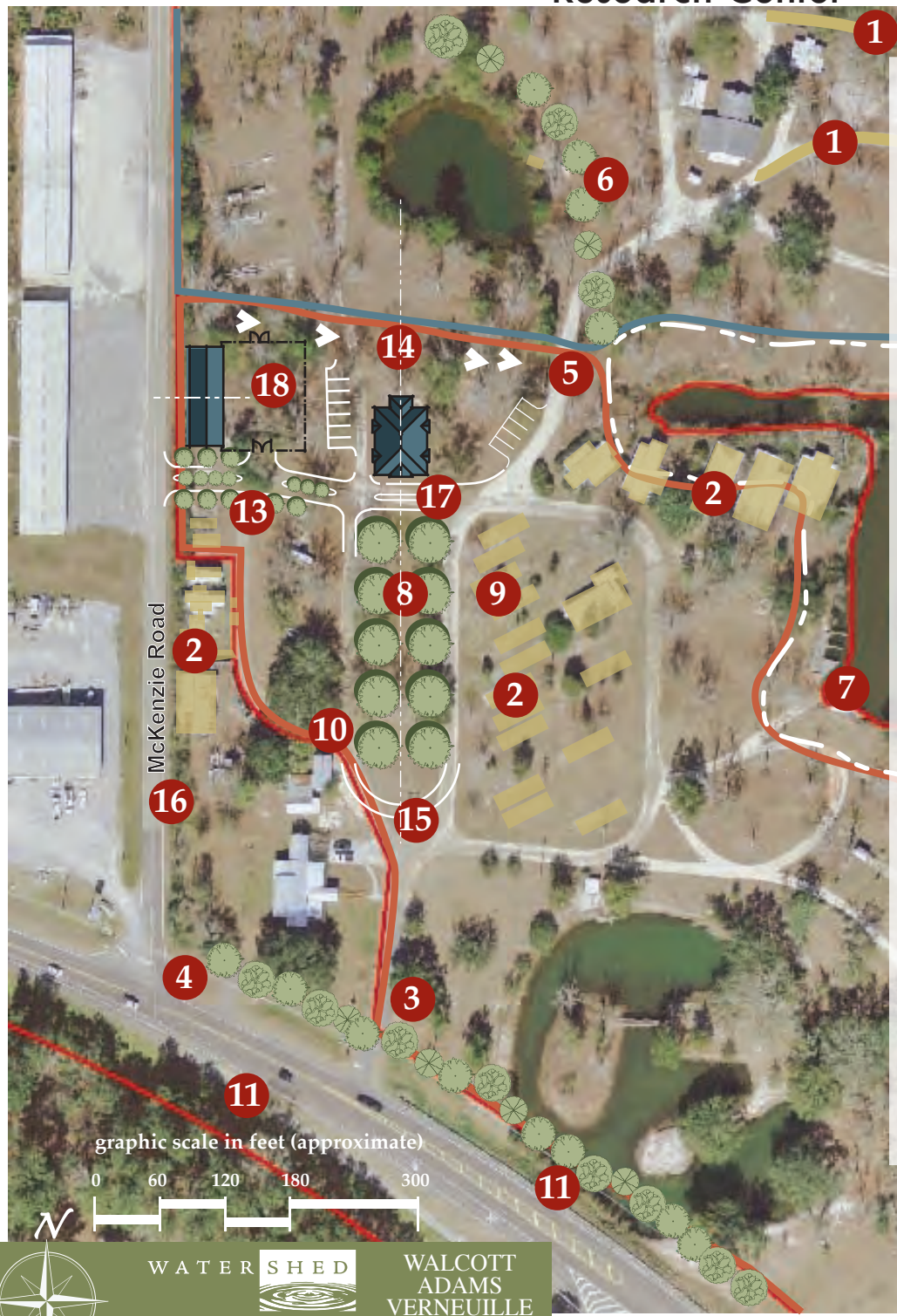

Short Term Goals

Demolition:

1. Remove existing RV roads, leaving main road intact
2. Remove existing structure, provide new topsoil/sod for all area disturbed by demolition
3. Relocate existing entry drive. See 5.3.01a

Site:

4. New signage at corner, to be determined
5. New control gate for access to demonstration zone
6. New landscape / tree scape to establish border between development zone & demonstration zone
7. Boat ramp to remain active and intact
8. New "Oak Alley", establish-grass parking area
9. Future research lab site
10. New fencing to define/screen Foundation Property
11. New landscape buffer along US 98; employ low-mow concept in right of way if allowed by ALDOT
12. New lite-use roadway to Resource Center site
13. New entry drive with secure access gate
14. Existing drainage swale
15. Rework turning radius for "u turn"
16. Enhance street edge- landscaping, etc.

Buildings:

17. New research dormitory building, plan types-see page 5.3.02, 5.3.04
18. New boat yard facility, see 5.3. 05

Current Term Goal
Setback Line
Reserve Boundary
*Internal parcel lines shown for reference
Zone Line
Zone Line

SHORT TERM GOALS

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 5 Research Center

5.3.01

Conceptual Site Plan

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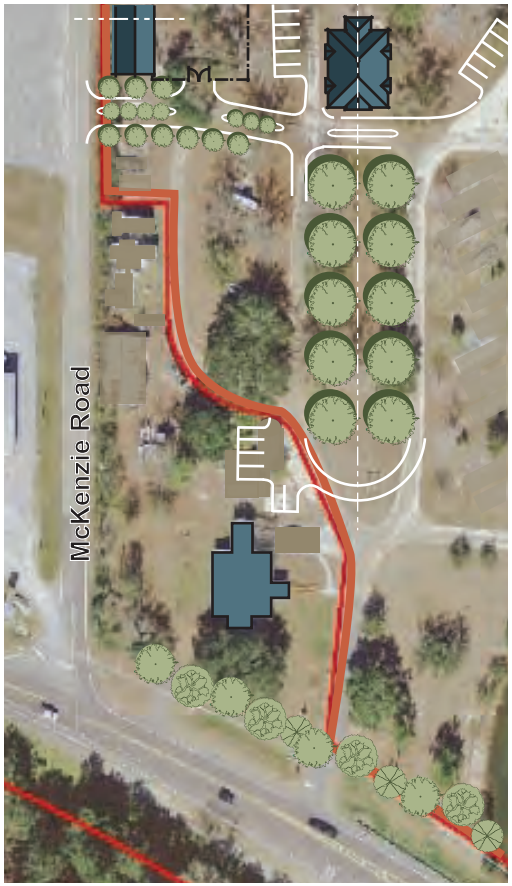
Short Term Goals

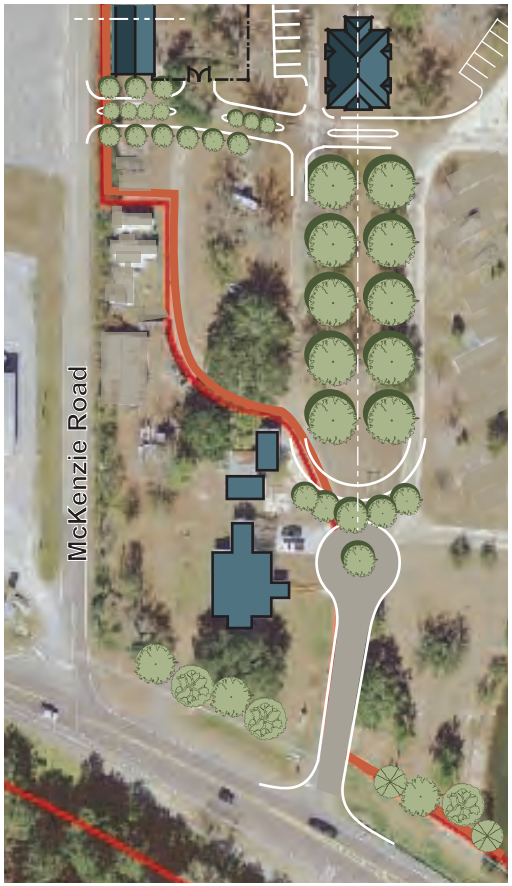
3 Entry Drive Options

SHORT TERM GOALS

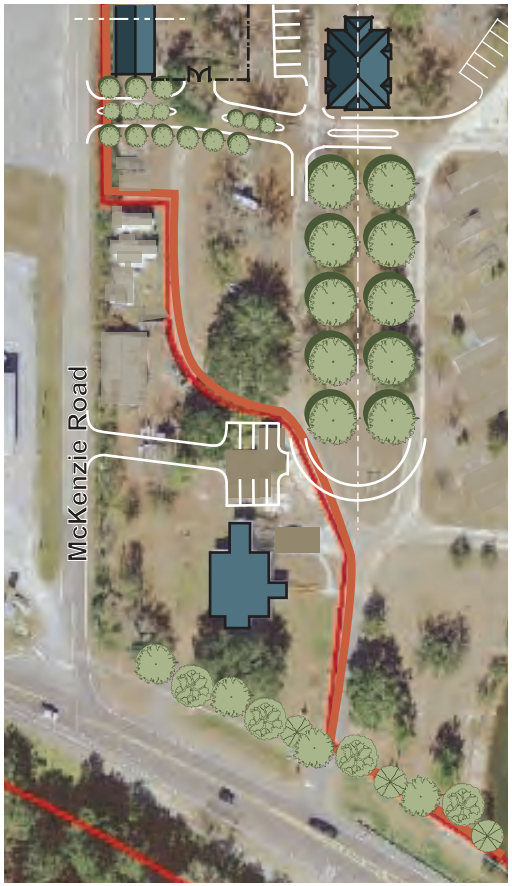
A Entry drive off Oak Alley



B New Cul de Sac



C Entry drive off McKenzie Road



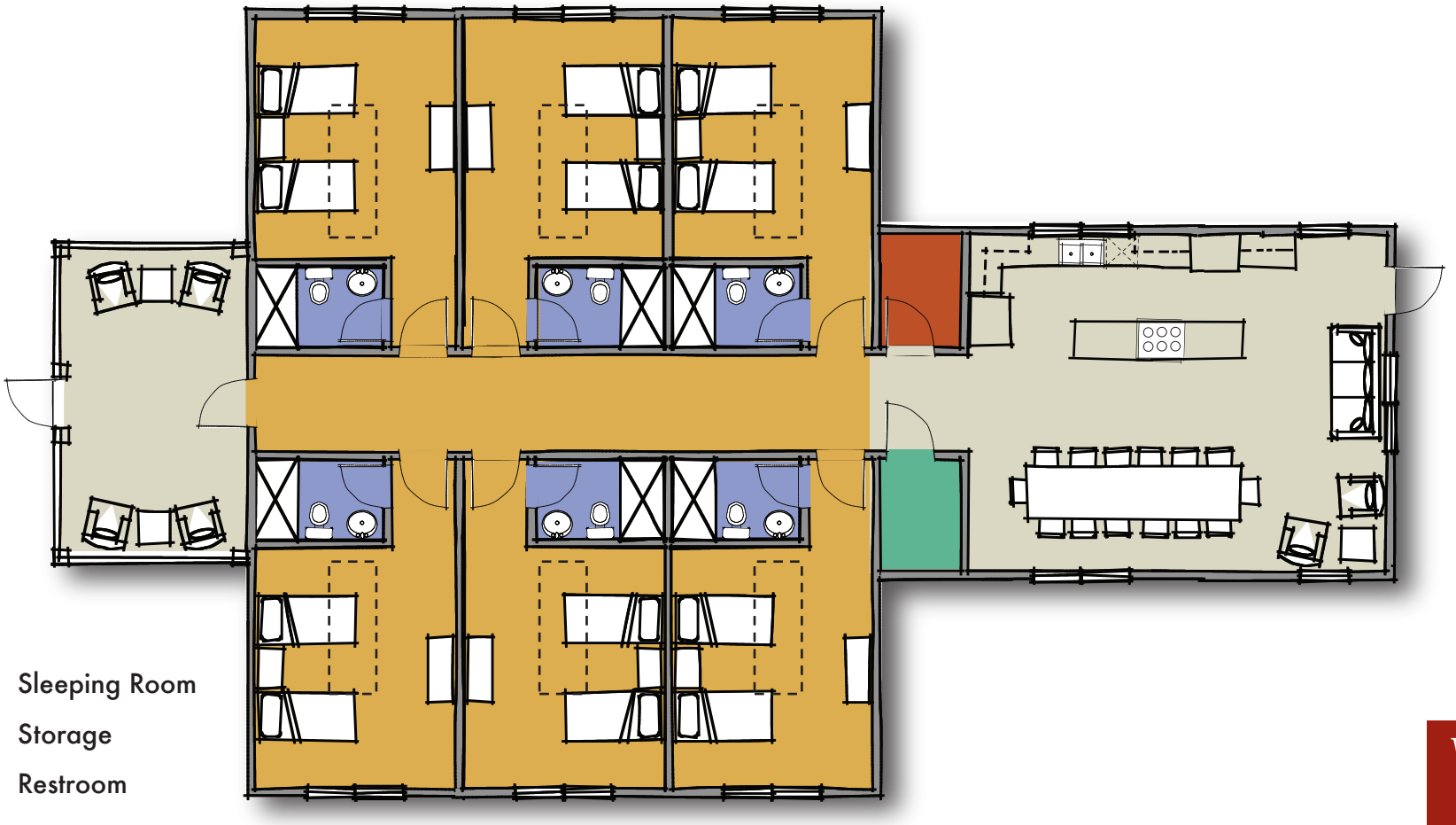
graphic scale in feet (approximate)

0 60 120 180 300

Reserve Boundary

Zone Line

Entry Drive Options



Sleeping Room
Storage
Restroom
Common Space
HVAC
Solar Panels Above

2,900 sf
12 beds (24 bunk)

*Entrance steps/ramps to be determined

graphic scale in feet (approximate)

0 5′ 10′ 20′

Hickory Bend Dormitory Plan

Hickory Bend Dormitory

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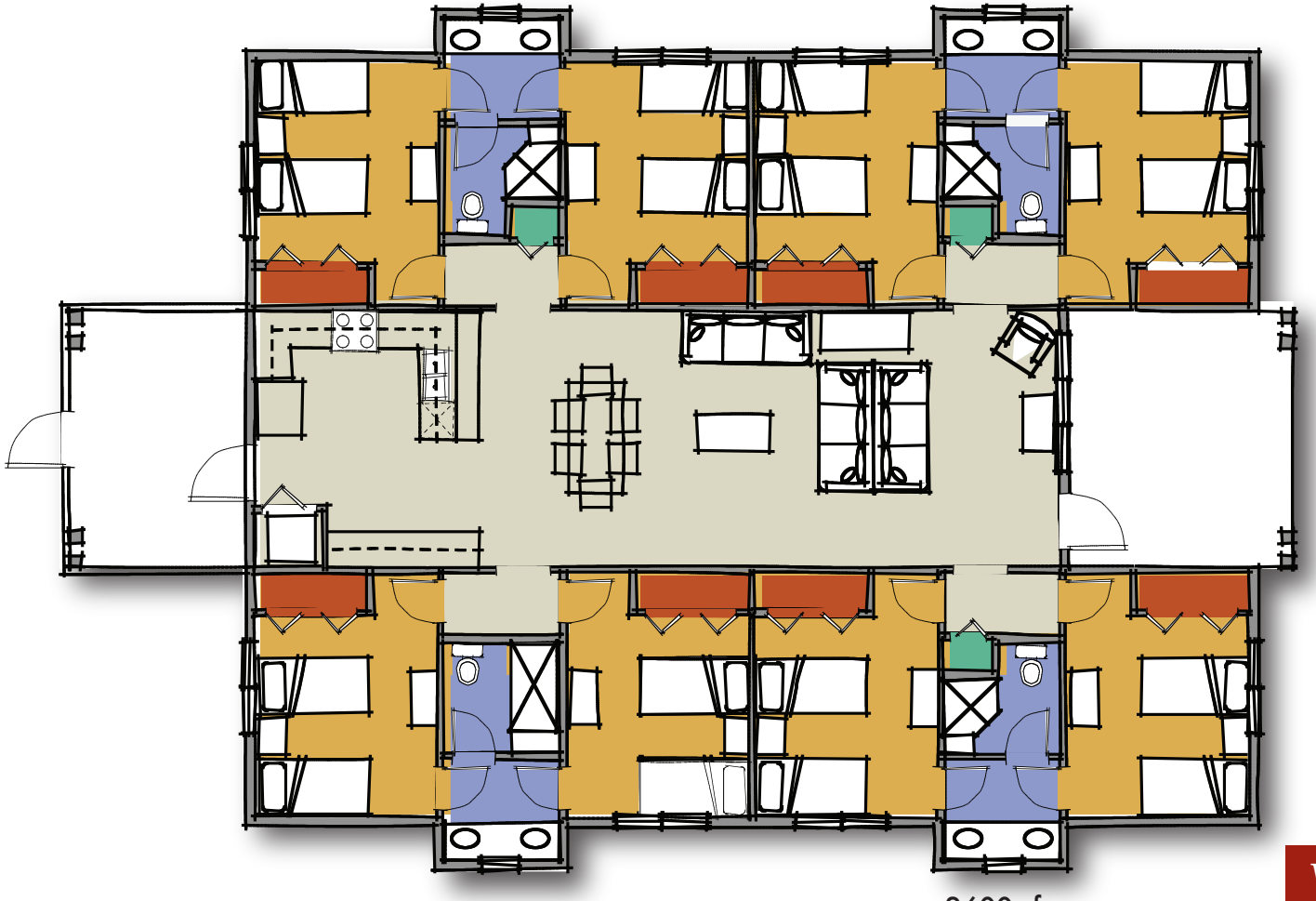
FACILITY
Master Plan Study and Design

Chapter 5
Research Center

5.3.03



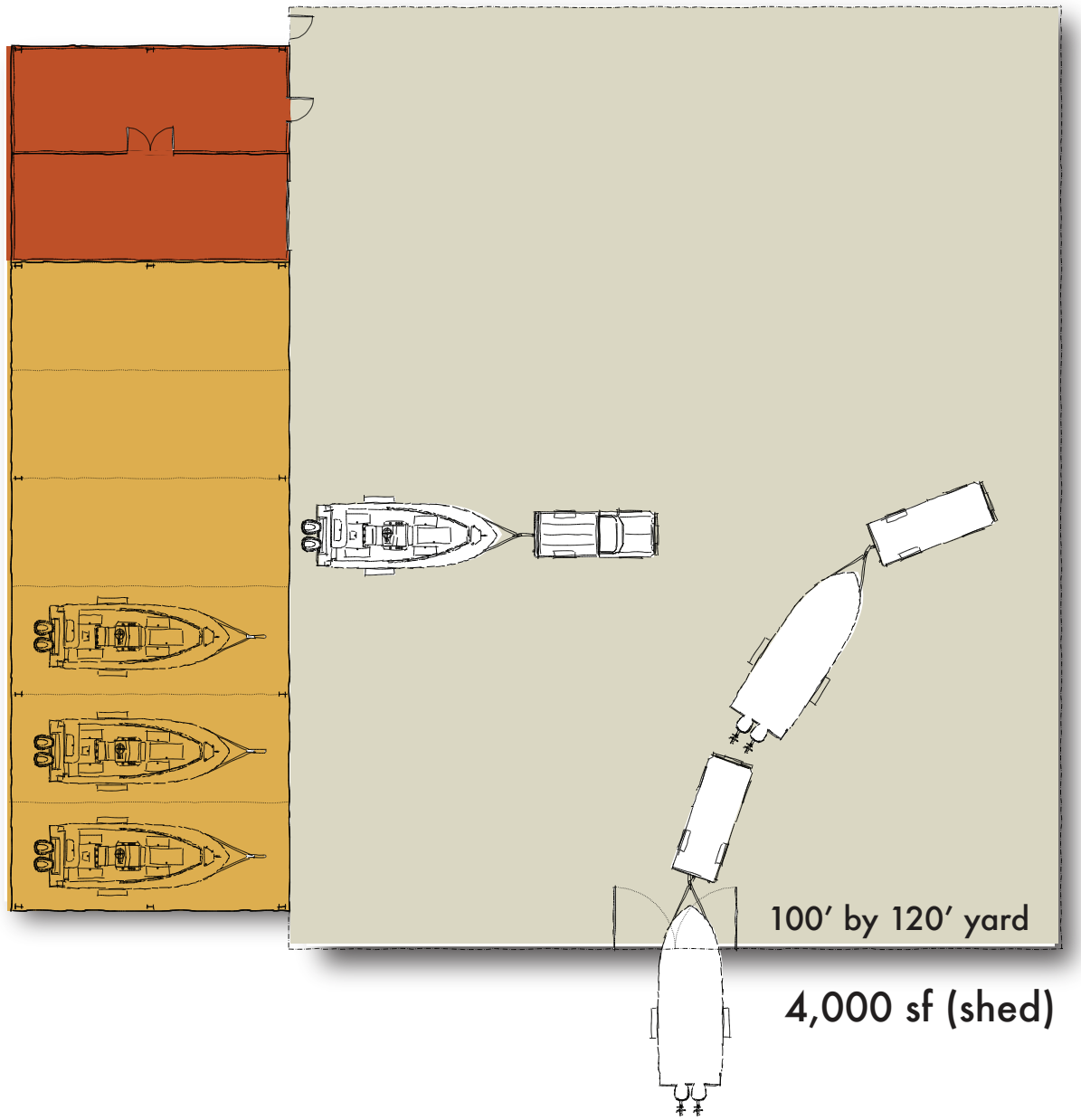
- Sleeping Room
- Storage
- Restroom
- Common Space
- HVAC

2600 sf
16 Beds (32 bunk)
*Entrance steps/ramps to be determined

graphic scale in feet (approximate)

0 5′ 10′ 20′

Sweet Gum Dormitory Plan



Boat Storage

Storage/Shop

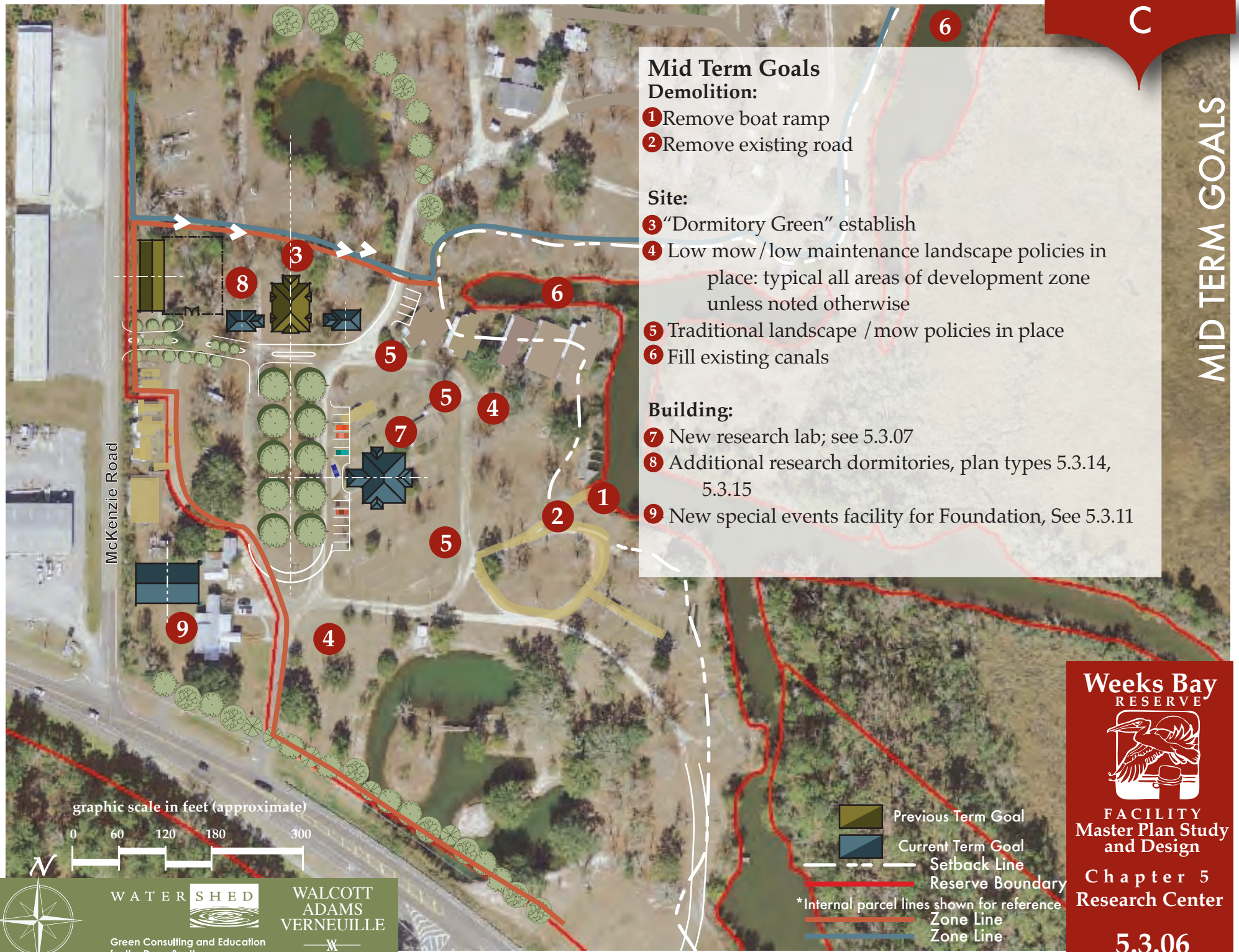
Boat Yard

graphic scale

0 5′ 10′ 20′ 30′

Boat Yard

Research Center



Mid Term Goals

Demolition:

1. Remove boat ramp
2. Remove existing road

Site:

3. "Dormitory Green" establish
4. Low mow/low maintenance landscape policies in place: typical all areas of development zone unless noted otherwise
5. Traditional landscape /mow policies in place
6. Fill existing canals

Building:

7. New research lab; see 5.3.07
8. Additional research dormitories, plan types 5.3.14, 5.3.15
9. New special events facility for Foundation, See 5.3.11

MID TERM GOALS

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 5 Research Center

5.3.06

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Research Center

- Biology Laboratory
- Chemistry Laboratory
- Support
- Storage
- Restroom/Breakroom
- Common Space
- Office
- HVAC

3,400 sf

*Entrance steps/ramps to be determined

graphic scale in feet (approximate)

0 5′ 10′ 20′ 30′

Research Laboratory

MID TERM GOALS

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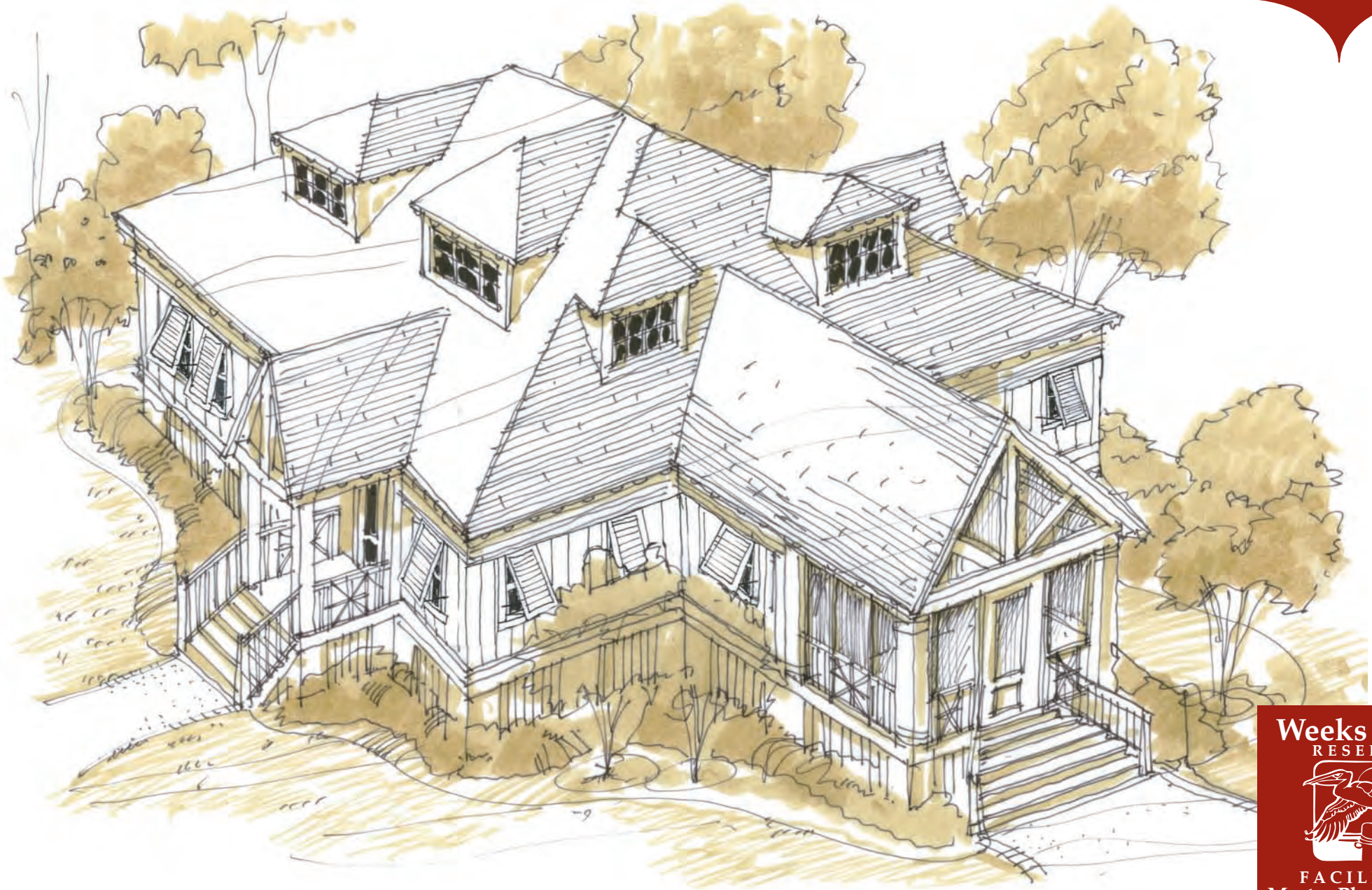

Research Laboratory

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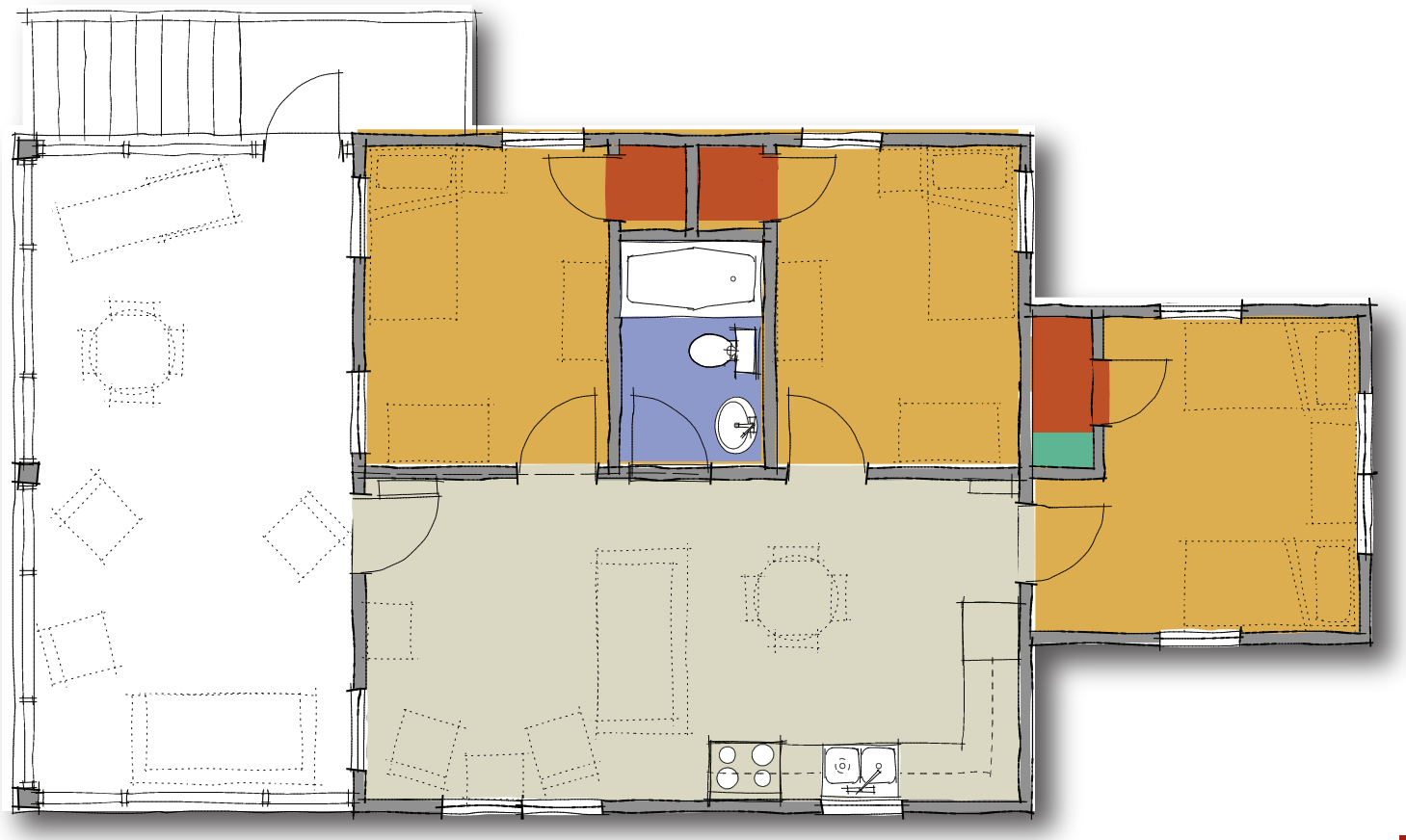
Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

Chapter 5
Research Center

5.3.08



- Sleeping Room
- Storage
- Restroom
- Common Space
- HVAC

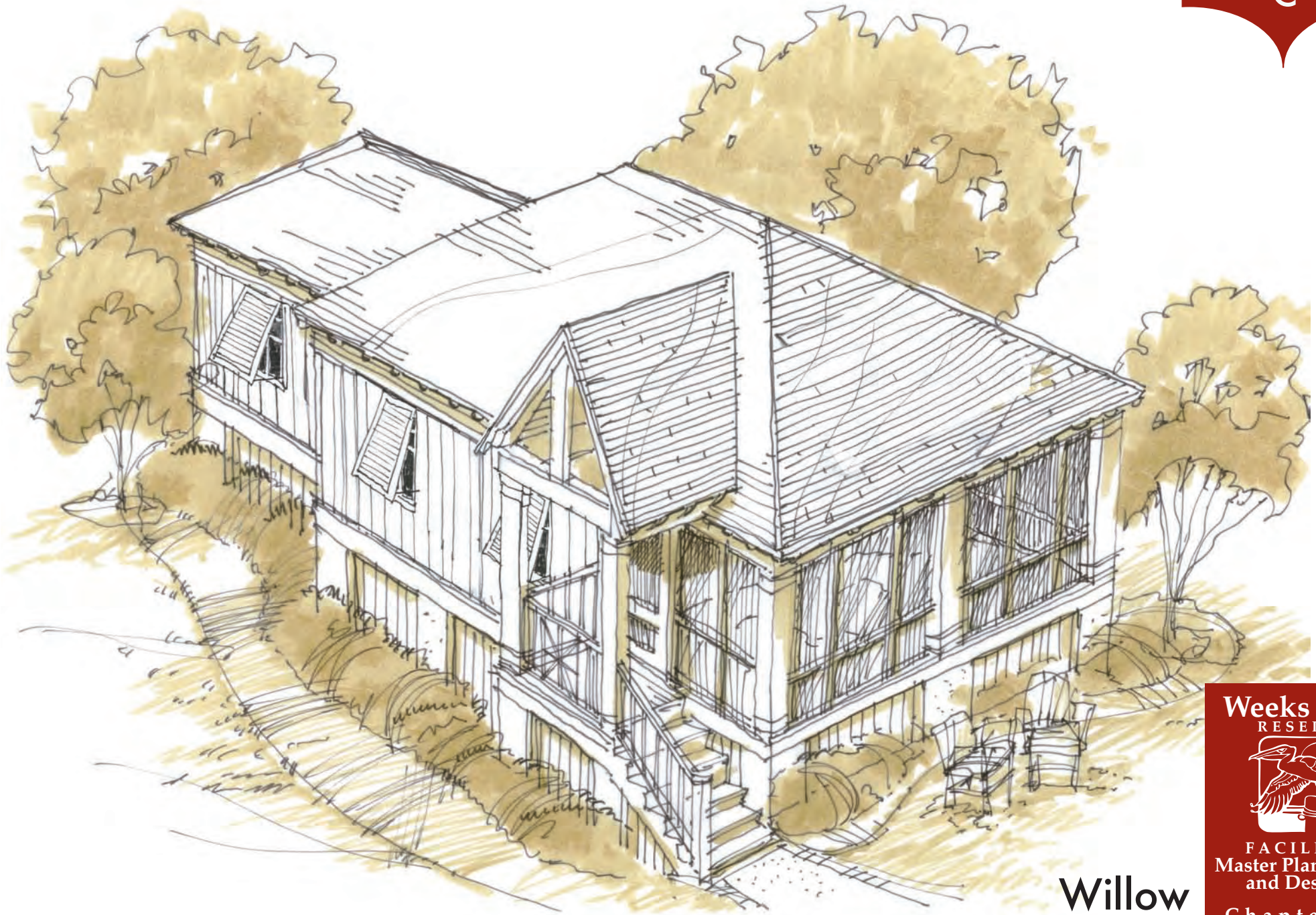
1,000 sf

*Entrance steps/ramps to be determined

Willow Bunk House

graphic scale in feet (approximate)

0 5′ 10′ 20′



Willow Bunk House

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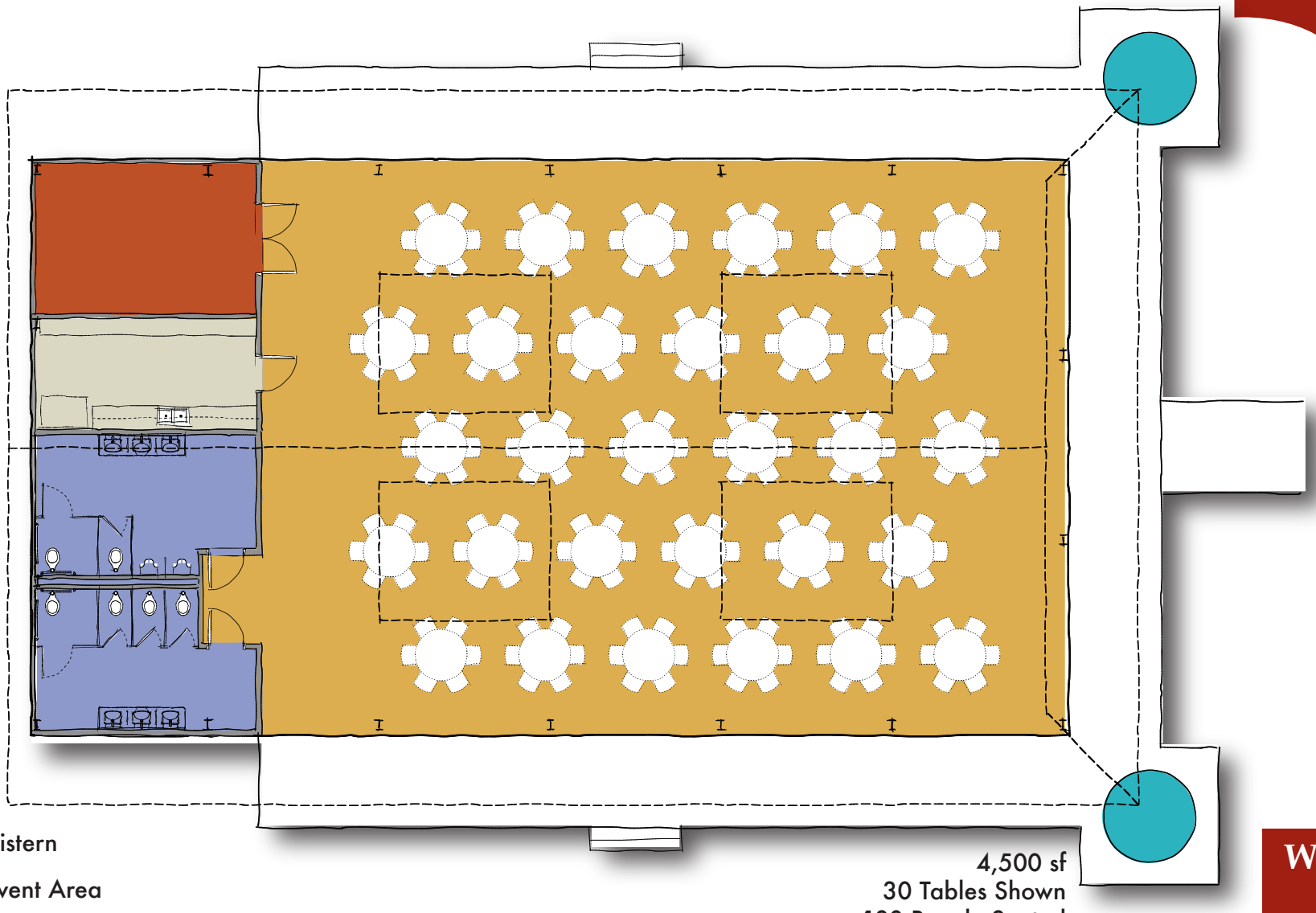
Chapter 5
Research Center

5.3.10



- Cistern
- Event Area
- Storage
- Restroom
- Prep Kitchen*

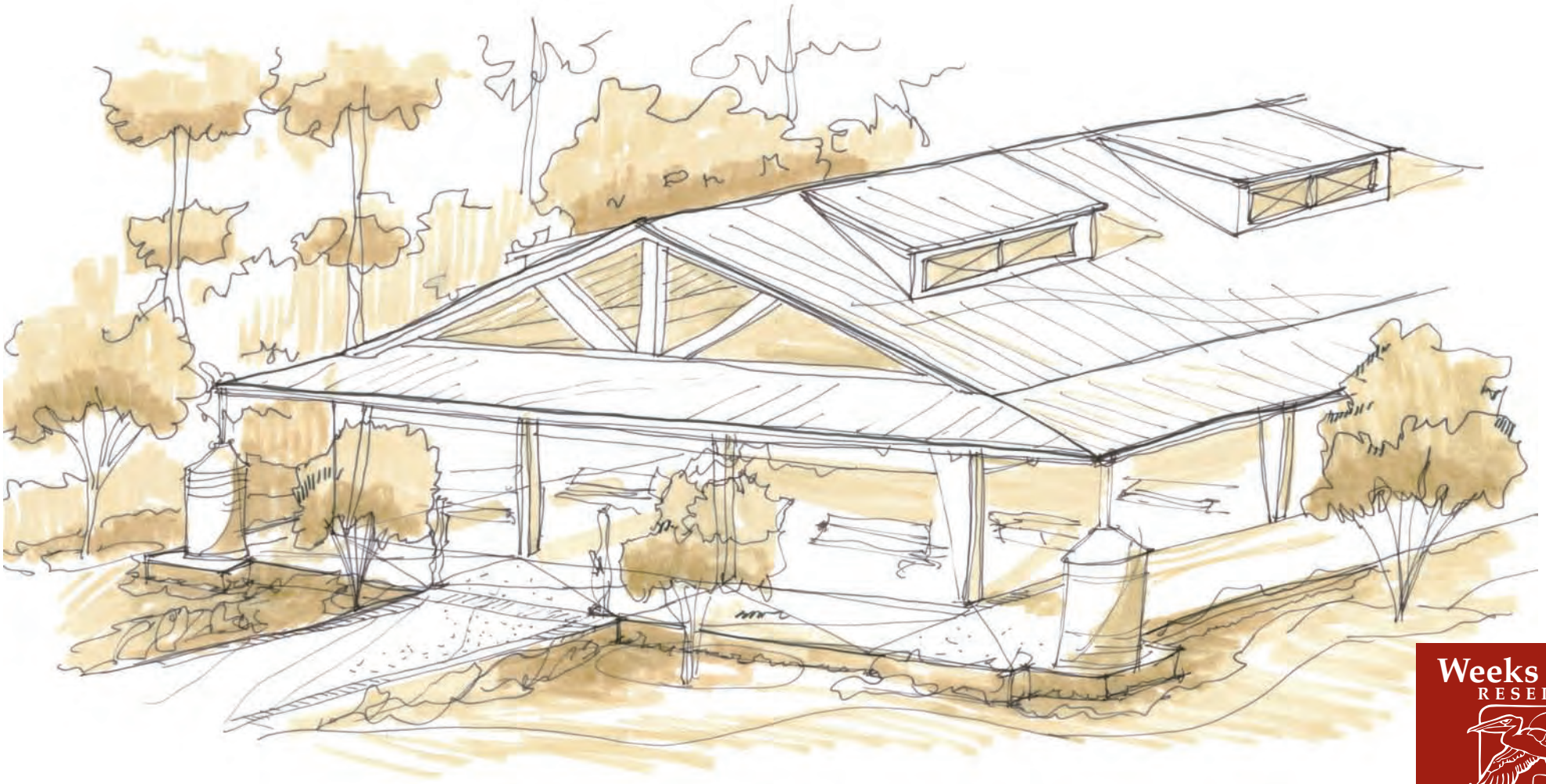
*Layout,equipment, furnishings, to be determined

4,500 sf
30 Tables Shown
180 People Seated

graphic scale in feet (approximate)

0 5′ 10′ 20′ 30′

Event Space Floor Plan



Event Space

Long Term Goals

Demolition:

1. Remove existing structures

Site:

2. New restored edge of recreated wetlands
3. Fill / restore existing pond, provide permeable parking surface

Buildings:

4. Additional research lab sites
5. Additional research dorm sites
6. Future building sites 13,000 s.f. , single story
7. Future building sites 16,000 s.f. , single story
8. 1,400 s.f. research lab module addition to extend research lab see page 5.3.14, 5.3.15

LONG TERM GOALS

Conceptual Site Plan

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- Biology Laboratory
- Support
- Storage
- Restroom/Breakroom
- Common Space
- Office
- HVAC

Additional 1,400 sf

*Entrance steps/ramps to be determined

Research Laboratory Addition

graphic scale in feet (approximate)

0 5′ 10′ 20′ 30′

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Research Center

- Research Laboratory
- Support
- Storage
- Restroom/Breakroom
- Common Space
- Office
- HVAC

Additional 1,400 sf

*Entrance steps/ramps to be determined

graphic scale in feet (approximate)

0 5′ 10′ 20′ 30′

Research Laboratory Addition

LONG TERM GOALS

Research Center

Existing Conditions | Programming | Design Concepts

C

Composite Goal Plan

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Chapter 5 Research Center

5.3.16

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Research Center

Budget Projection

Budget Projection

SHORT TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Demolition			N/A	N/A	N/A		
Remove roads, trailors, boats conc pads, misc. storage buildings, and existing entry drive		50,000 (allow)				5,000	55,000
Site	10,000*		N/A	N/A		1,000	11,000
New signage at corner	*	3,000			**	300	3,300
New control gate at demonstration zone	*	5,000			**	500	5,500
New treescape border between zones	*	5,000 ①			N/A	500	5,500
New Oak Alley	*	25,000 ②			2,000	2,700	29,700
New border fencing at Foundation property	*	19,200 ③				1,920	21,120
Establish Buffer along Hwy 98	*	128,000 ④	500		10,000	13,850	152,350
New roadway to Resource site	*	25,000 ⑤	N/A		2,000	2,700	29,700
Create New Entry off McKenzie	*	47,000 ⑥	2,000		5,000	5,400	59,400
Building							
New Research Dormitory		640,000 ⑦	5,000	55,000 (allow)	65,000	76,500	841,500
New Boatyard Facility		210,000 ⑧	3,000	10,000	30,000	25,300	278,300
Total: Short Term	10,000	1,157,200	10,500	65,000	114,000	135,670	1,492,370

* Includes survey work for area in scope of work mentioned.
** Stock Design under different phase of project

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

① Assumes design & install by allied group
② 10 trees @ $1,500; topsoil/grass beneath; allow $10,000
③ 600 LF +/- @ $32/LF
④ 80 "barrier" trees @ $800 each;160 "barrier" shrubs @ $400 each
⑤ $15,000 allow for "boardwalk" type crossing of drainage swale; $10,000 allow for path connecting to existing roads
⑥ Entry gate $5,000; entry apron/drainage: allow $25,000;entry drive :allow $10,000; signage: $2,000; landscape $5,000
⑦ 3200sf @ $165/sf; $110,000 sitework/utility allowance
⑧ 4000sf shed @ $40/sf; 12,000 sf fenced gravel yard: allow $50,000

Budget Projection

MID TERM GOALS [h]	Survey [a]	Construction [b]	Testing [c]	FF&E [d]	A/E Fees [e]	Contingency 10% [f]	Total [g]
Demolition	N/A			N/A	N/A		
Remove additional roads, boat ramp		50,000 (allow)	-	-	-	5,000	55,000
Site	8,000*			N/A		800	8,800
Establish traditional landscaped areas at new structures	*	30,000 ①	500		3,000	3,350	36,850
New low-mow policy in Developmental zone	*	75,000 ②	1,500	N/A	7,500	8,400	92,400
Building							
New Research Laboratory	*	760,000 ③	5,000	100,000	85,000	95,000	1,045,000
New Dormitories(2)	*	410,000 ④	4,000	35,000	45,000	49,400	543,400
New special events facility	*	550,000 ⑤	5,000	75,000	60,000	69,000	759,000
Total: Mid Term	8,000	1,875,000	16,000	210,000	200,500	230,950	2,540,450

* Includes survey work for area in scope of work mentioned.

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

① Assumes 1.5 acre site; allow $30,000
② Assumes 6 acres; allow $75,000
③ 3,400sf @ $200/sf; $75,000 sitework allowance
④ (2) 1,000sf "cabins" @ $175/sf; $30,000 sitework allowance
⑤ 4,500 sf @ $100/sf; $100,000 sitework allowance

Budget Projection

LONG TERM GOALS [h]	Survey[a]	Construction[b]	Testing[c]	FF&E[d]	A/E Fees[e]	Contingency 10%[f]	Total[g]
Demolition			N/A	N/A	N/A		
Continue Site Demolition		50,000 (allow)				5,000	55,000
Site				N/A			
Restore edge of wetlands		100,000 (allow) ①	5,000		10,000	11,500	126,500
Restore existing pond		120,000 ②	3,000		15,000	13,800	151,800
Building							
New Laboratory Addition(s)(two wings)	3,000	590,000 ③	5,000	100,000	75,000	77,300	850,300
New Dormitory Buildings (2)	5,000	410,000 ④	4,000	35,000	45,000	49,900	548,900
Total: Long Term	8,000	1,270,000	17,000	135,000	145,000	157,500	1,732,500
GRAND TOTAL (Short, Mid, Long)	26,000	4,302,200	43,500	410,000	459,500	524,120	5,765,320

① Assumes reclaimation of wetlands restoration of existing canals is on-going as separate project
② Assumes 4 acre site @ $30,000/acre
③ Assumes (2) 1,400sf "wings" @ $200/sf; $30,000 sitework allowance
④ (2) 1,000sf "cabins" @ $175/sf; $30,000 sitework allowance

[a] Refers to civil engineer topographical survey
[b] Refers to anticipated cost of building construction of item listed
[c] Refers to soil testing, etc.
[d] Refers to "fixtures, furnishings, and equipment"
[e] Refers to "architect/engineering fees"
[f] Refers to owner's allowance for unforeseen conditions or needs
[g] Total for this section, current term goals only-see chapter 6
[h] Emergency Power Generators shall be included in new construction. Generators are not included in these budget projections

Budget Summary

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Weeks Bay RESERVE

FACILITY
Master Plan Study and Design

Chapter 6
Budget Summary

6.0.00

Budget Summary

	Short Term	Mid Term	Long Term	Total Term
Overall Site	59,400	177,650	59,400	296,450
Visitor Center	1,289,200	772,200	877,800	2,939,200
Resource Center (Scenario A)	612,810	172,700	578,600	1,364,110
Resource Center (Scenario B)	612,810	1,376,155	578,600	2,567,565
Research Center	1,492,370	2,540,450	1,732,500	5,756,320
Grand Total (Scenario A)	3,453,780	3,633,000	3,248,300	10,365,080
Grand Total (Scenario B)	3,453,780	4,866,455	3,248,300	11,568,535

Appendix

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Weeks Bay
RESERVE

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Appendix

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Appendix

Vision 2050

The Facility Master Plan serves as a road map to the future. Ideally, the Weeks Bay Reserve (Reserve) will continue to serve as a center of excellence for coastal Alabama where research, education and conservation come together for the benefit of all. A vision for the future will continue to support the successful state and federal partnership that comprises the Reserve in such a manner that it exemplifies all the beneficial outcomes of the reserve system at the local, state, regional and national levels. The vision of desirable future outcomes associated with use of the Facility Master Plan are described more fully in the following sections. This document will be used to guide development of Reserve facilities in a manner consistent with the Reserve mission:

Provide leadership to promote informed management of estuarine and coastal habitats through scientific understanding and encourage good stewardship practices through partnerships, public education, and outreach programs.

Design Principles

The Weeks Bay Principles provide guidance and recommendations that relate to construction practices. It is the vision of this document to provide guidelines for planning and construction that not only relate to practices used at the Reserve but also in the surrounding community. The intent is to reduce impact on the environment and limited resources while maintaining a high quality of property and facilities. Such design principles could be utilized for modeling developments in coastal areas, establishing practices in local counties and municipalities, and providing guidelines to make best use of building materials and limited resources.

Overall Site

A vision of the overall site development is that Weeks Bay Reserve will continue to serve as a valuable resource of the State of Alabama. The overall site will have a focus on the Visitor Center as the main public center of the Reserve and will also provide access to other areas and opportunities as appropriate. It is envisioned that the Reserve will be well known in the community as a resource for coastal science, education and information about inshore areas such as the estuary found at Weeks Bay. The site will be well recognized, a location to visit both on-site and virtually, and be known as an asset of the local community and available to all. The various components that make up the Reserve will be accessible to allow the public at large to learn more about their natural community and valuable coastal resources of the State of Alabama. The Reserve will continue to emphasize hands on discovery and it will be utilized as a living laboratory to learn more about the science of estuaries, watersheds, habitats, biodiversity, water quality, and environmental response to change. Efforts will continue to protect and restore the natural communities historically found at Weeks Bay Reserve.

Vision 2050

Visitor Center

The Visitor Center will be an outstanding experiential learning center that engages visitors in a way that touches all the senses. A vision of exhibits to come will place Weeks Bay in a context consistent with an ecosystem approach showcasing biodiversity and coastal resources, including the human experience with those resources. Visitors will be welcome to explore the facility, exhibits, trails, boardwalks, and various resources and habitats of the Reserve.

Resource Center

The Resource Center is a public facility housing educational programs including but not limited to the Coastal Training Program, summer estuary camps, conservation and community outreach, and special programs in support of the Reserve. The site highlights Weeks Bay and the resource that is the focus of the Reserve and exemplifies community opportunities for learning more about this nationally important estuary. The Weeks Bay Resource Center will be the gateway to the estuary and will enhance and improve access for the Reserve.

Research Center

The Research Center focuses on providing a platform for research of the Weeks Bay estuarine habitats and greater watershed drained by the Fish and Magnolia Rivers. This Research Center will consist of dormitory and laboratory space that provides opportunities for researchers to visit and utilize the Reserve to benefit the science of estuaries and help inform resource management decisions for the future. The Research Center will be nationally renowned and will serve as a local asset to the community. This Research Center, like all other assets of the Reserve, will be utilized for public outreach as feasible and will facilitate the on-site partnership, office and shared goals with the Weeks Bay Foundation.

Staff Projection

Area	Short Term		Mid Term		Long Term		Area Totals
OVERALL SITE							
Site work, maintenance on site	1	see note ①					1
Building N/A							
VISITOR CENTER							
Site work, maintenance on site		see note ①					
Buildings		see note ②	+2	see note ③	+2	see note ④	4
RESOURCE CENTER							
Site work, maintenance on site	+1	see note ⑤					1
Buildings				see note ⑥	+4	see note ⑦	4
RESEARCH CENTER							
Site work, maintenance on site		see note ⑧					
Buildings	+2	see note ⑨		see note ⑩		see note ⑪	2
Sub Totals							
Site work	2						2
Buildings	2		2		6		12
GRAND TOTALS							

Notes

① Increase on site area maintenance- Refer to each chapter section

② New Porch, 900sf*
New Restrooms 330sf*
New Powershed

③ New Infill(Gift Shop,Exhibit space) 2600sf*

④ New Infill(Enlarged Gift Shop, increased Exhibit space) +1500sf*

⑤ New Shade Pavilion 1200sf*
Understory Deck Area 8800sf*

⑥ New Boat Facility 5400sf*

⑦ New Resource Building 2200sf*

⑧ Maintenance Areas up to 10 acres* and will vary over time

⑨ New Dorm 2900sf* or 2600sf*
New Boat Shed 4000sf*

⑩ New Dorms (2) 2000sf*
Special Event 4500sf*

⑪ New Dorm Cabins (2) 2000sf*
Lab Additions (2) 2800sf*

Civil Engineer Estimates

Engineer's Estimate - Phase 1

Item #	Description	Unit	Qty	Unit Price	Total
Earthwork					
1	Clear & Grub	Acre	0.6	$ 2,000.00	$ 1,200.00
2	Strip Topsoil - Haul Off	CY	775	$ 8.00	$ 6,200.00
3	Remove Existing Asphalt - Haul Off	SY	2800	$ 7.00	$ 19,600.00
4	Remove Existing Base Material - Haul Off	SY	1900	$ 6.00	$ 11,400.00
5	Remove Existing Sidewalk - Haul Off	SY	80	$ 8.00	$ 640.00
6	Infiltration Pond Excavation	CY	500	$ 4.00	$ 2,000.00
7	Infiltration Pond Sand Bottom	CY	100	$ 12.00	$ 1,200.00
8	Fill Imported	CY	650	$ 8.00	$ 5,200.00
9	Storm Piping System	LS	1	$ 15,100.00	$ 15,100.00
Paving and Striping					
1	Install Pervious Gravel Base 18" Depth	TON	2800	$ 25.00	$ 70,000.00
2	Install Gravel Paving	TON	950	$ 30.00	$ 28,500.00
3	Structural Grass Paving	SF	17500	$ 0.50	$ 8,750.00
4	Replace Signage/Wheel Stops	LS	1	$ 4,000.00	$ 4,000.00
		Total			**$ 173,790.00**

Scope: Clear and Grub old landscape islands, Bathroom Additions, Courtyard, and Calming Porch. Removal of existing asphalt and base material and replace with a pervious base material and concrete. The parking area will be expanded to include the existing landscaped island.

Engineer's Estimate - Phase 2

Item #	Description	Unit	Qty	Unit Price	Total
Earthwork					
1	Clear & Grub	Acre	0.2	$ 2,000.00	$ 400.00
2	Remove Existing Sidewalk - Haul Off	SY	80	$ 8.00	$ 640.00
Paving and Striping					
1	Install Concrete Sidewalk	SY	50	$ 65.00	$ 3,250.00
		Total			**$ 4,290.00**

Scope: Clear and Grub Area for Entry Porch, Gift Shop, and Courtyard. Removal of conflicting sidewalk. Add sidewalk for new entry location.

Engineer's Estimate - Phase 3

Item #	Description	Unit	Qty	Unit Price	Total
Earthwork					
1	Clear & Grub	Acre	0.15	$ 2,000.00	$ 300.00
2	Remove Existing Sidewalk - Haul Off	SY	90	$ 8.00	$ 720.00
Paving and Striping					
1	Install Concrete Sidewalk	SY	30	$ 65.00	$ 1,950.00
		Total			**$ 2,970.00**

Scope: Clear and Grub area for New Exhibit Addition. Removal of conflicting sidewalk. Install new sidewalk to Administration Entrance.

Visitor Center- See Chapter 3

Civil Engineer Estimates

Engineer's Estimate - Phase 1

Item #	Description	Unit	Qty	Unit Price	Total
Earthwork					
1	Clear & Grub	Acre	0.25	$ 2,000.00	$ 500.00
2	Strip Topsoil - Haul Off	CY	350	$ 8.00	$ 2,800.00
3	Remove Existing Concrete - Haul Off	SY	250	$ 8.00	$ 2,000.00
4	Infiltration Pond and Trench Excavation	CY	750	$ 4.00	$ 3,000.00
5	Infiltration Pond and Trench Sand Bottom - Import	CY	850	$ 12.00	$ 10,200.00
6	Fill Imported	CY	4200	$ 8.00	$ 33,600.00
7	Storm System	LS	1	$ 12,500.00	$ 12,500.00
Paving, Striping, Pond Landscaping					
1	Concrete Paving - 5" Depth	SY	450	$ 65.00	$ 29,250.00
2	Install Gravel Paving - 6" Depth	TON	1650	$ 30.00	$ 49,500.00
3	Wetland Vegetation	LS	1	$ 25,000.00	$ 25,000.00
4	Replace Signage/Wheel Stops	LS	1	$ 9,000.00	$ 9,000.00
		Total			**$ 177,350.00**

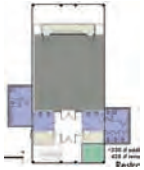
Scope: Raise the gravel parking area approximately 2' with imported fill material. New parking area will slope away from the Bay and to perimeter swales and an infiltration pond. Swales and pond to have wetland vegetation. Infiltration Pond to have an overflow structure that discharges to the bay. Money was not included for bulkhead modifications, concrete under new structures, and overall site landscaping.

Resource Center- See Chapter 4

Appendix

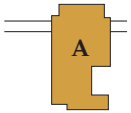
Public

Welcome Porch



Public Restrooms

Event Gathering Space



Visitor Center & Gift Shop

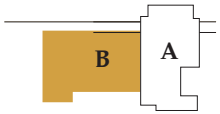
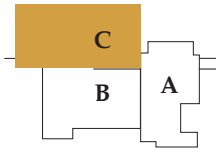
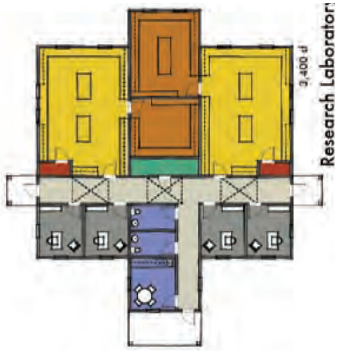


Exhibit Space



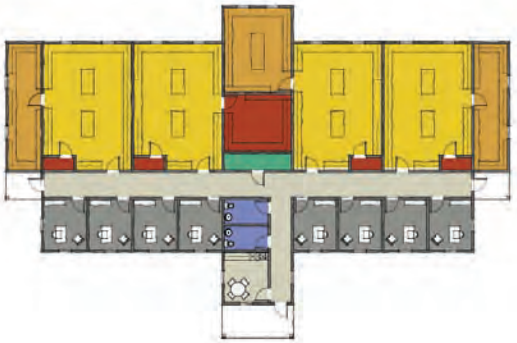
Enlarged Exhibit Space

Research



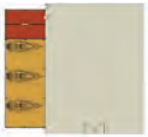
Research Laboratory

Research Laboratory II

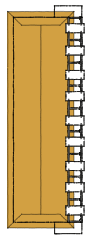


Research Laboratory III

Support



Boat Yard/ Storage

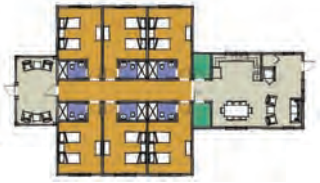


Resource Center

Shading Pavilion

Lodging

Willow



Hickory Bend

Sweet Gum

Plan Types

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FACILITY Master Plan Study and Design

Appendix

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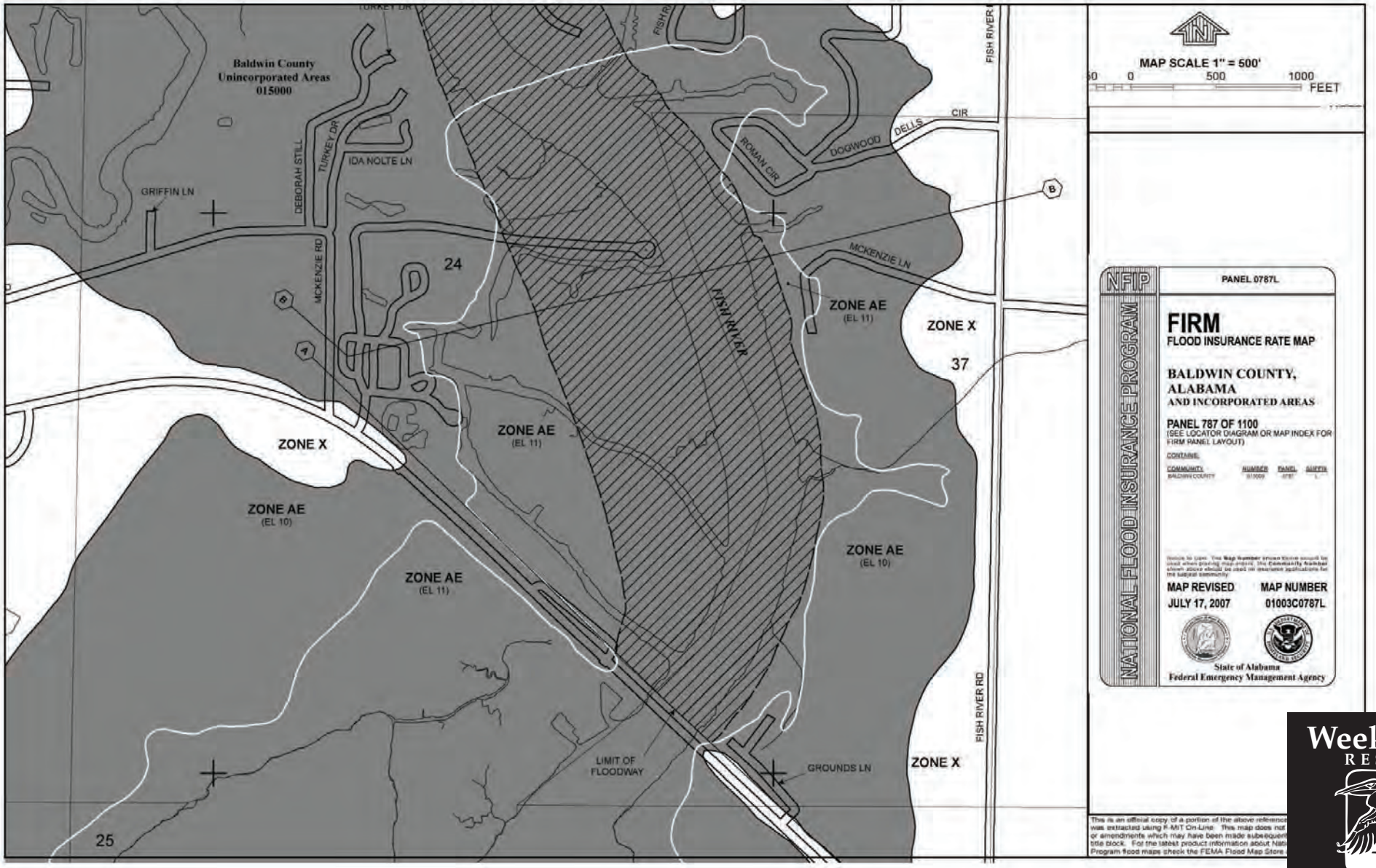
Appendix



Flood Insurance Rate Map

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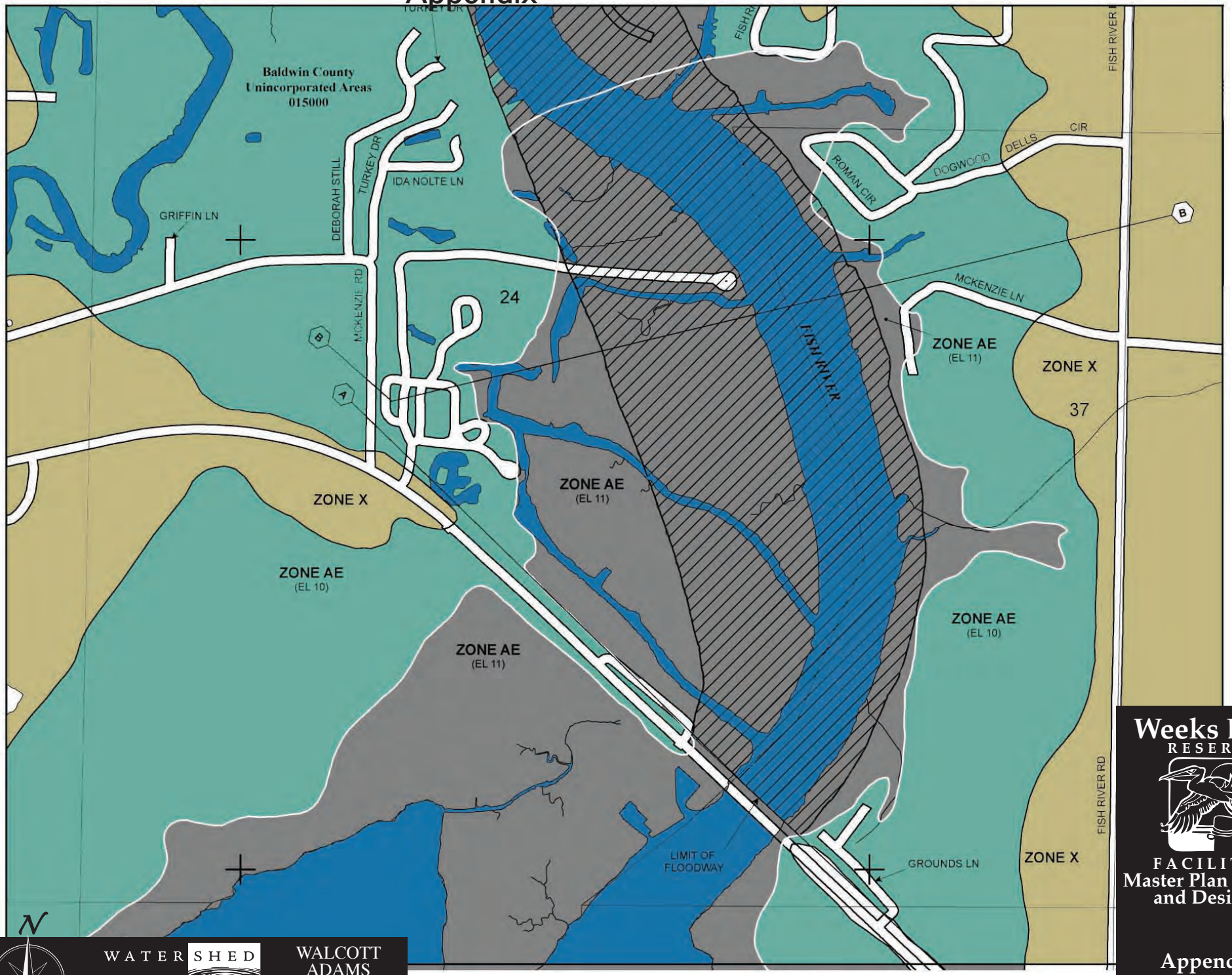

Color Coded FIRM

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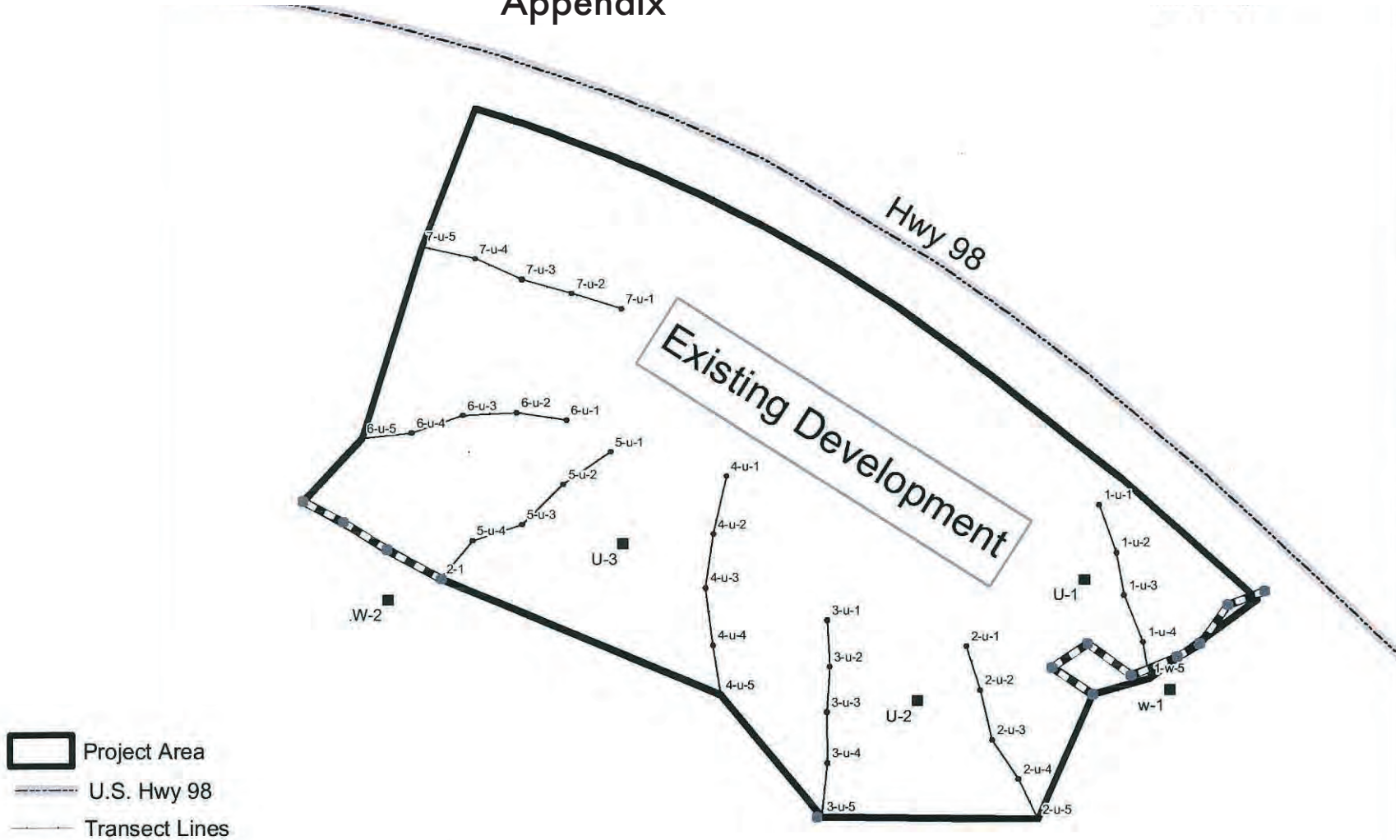
7.3.01

Wetlands Dileneation Map



Project Area
U.S. Hwy 98
Transect Lines
Transect Flags
Wetland Boundary
Wetland Boundary Flags
Data Points

N
W
E
S

0 100 200 400
Feet

Transects were conducted from the existing developed area to a distance of roughly two hundred feet. A wetland determination was performed at intervals of fifty feet. A flag was hung for each sampling point and denoted with a numerical value and an "u" (upland) or "w" (wetland) status. In areas where there were wetland encroachments into the project area, wetland boundary flags were hung. All flags were located on 3/2/2005 using a Trimble Geo XT and differentially corrected to sub-meter accuracy. From more information concerning this map contact Stan Arbaczauskas at (251) 654-1427.

N

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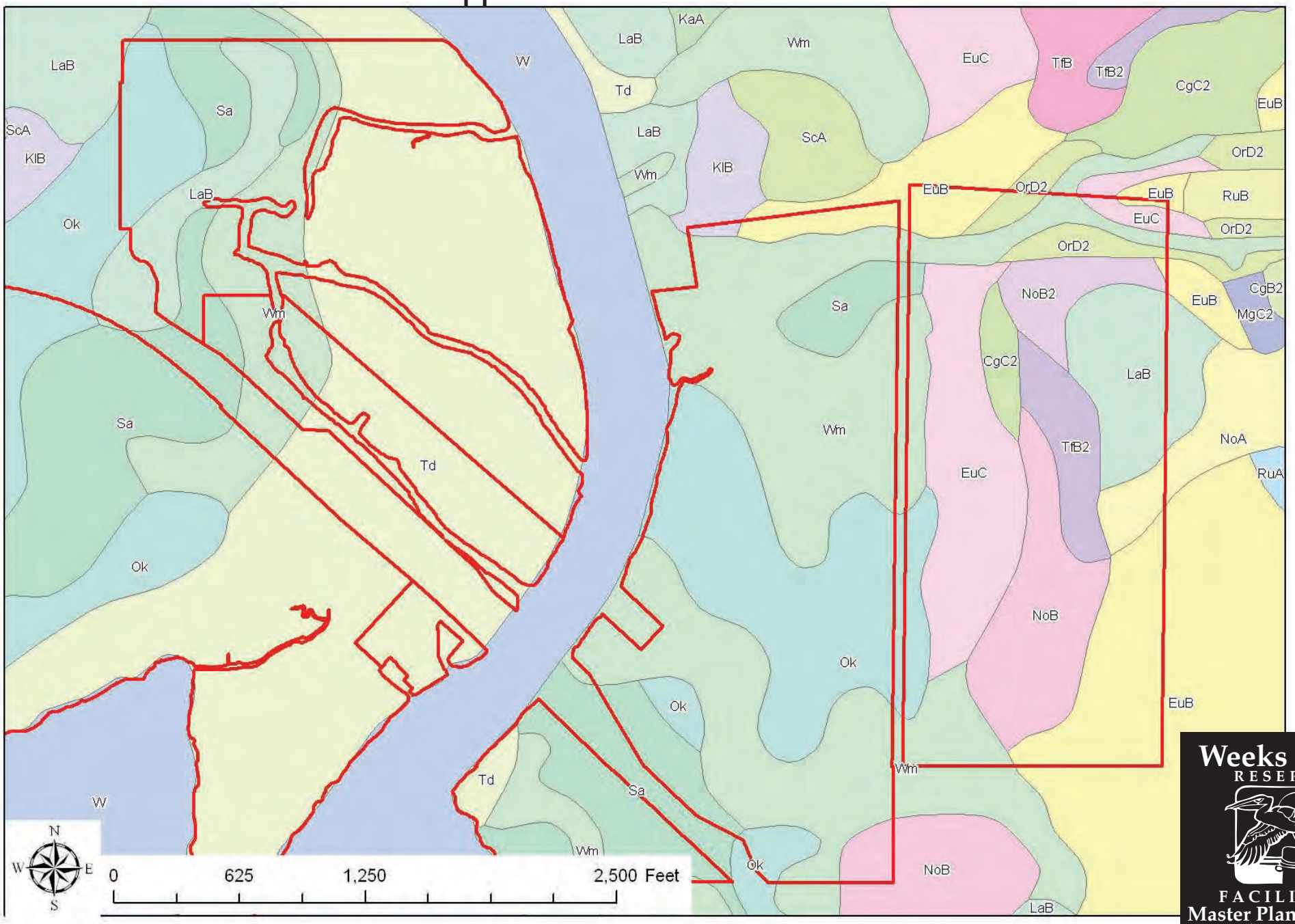
Appendix

7.3.02



Soils Map

N

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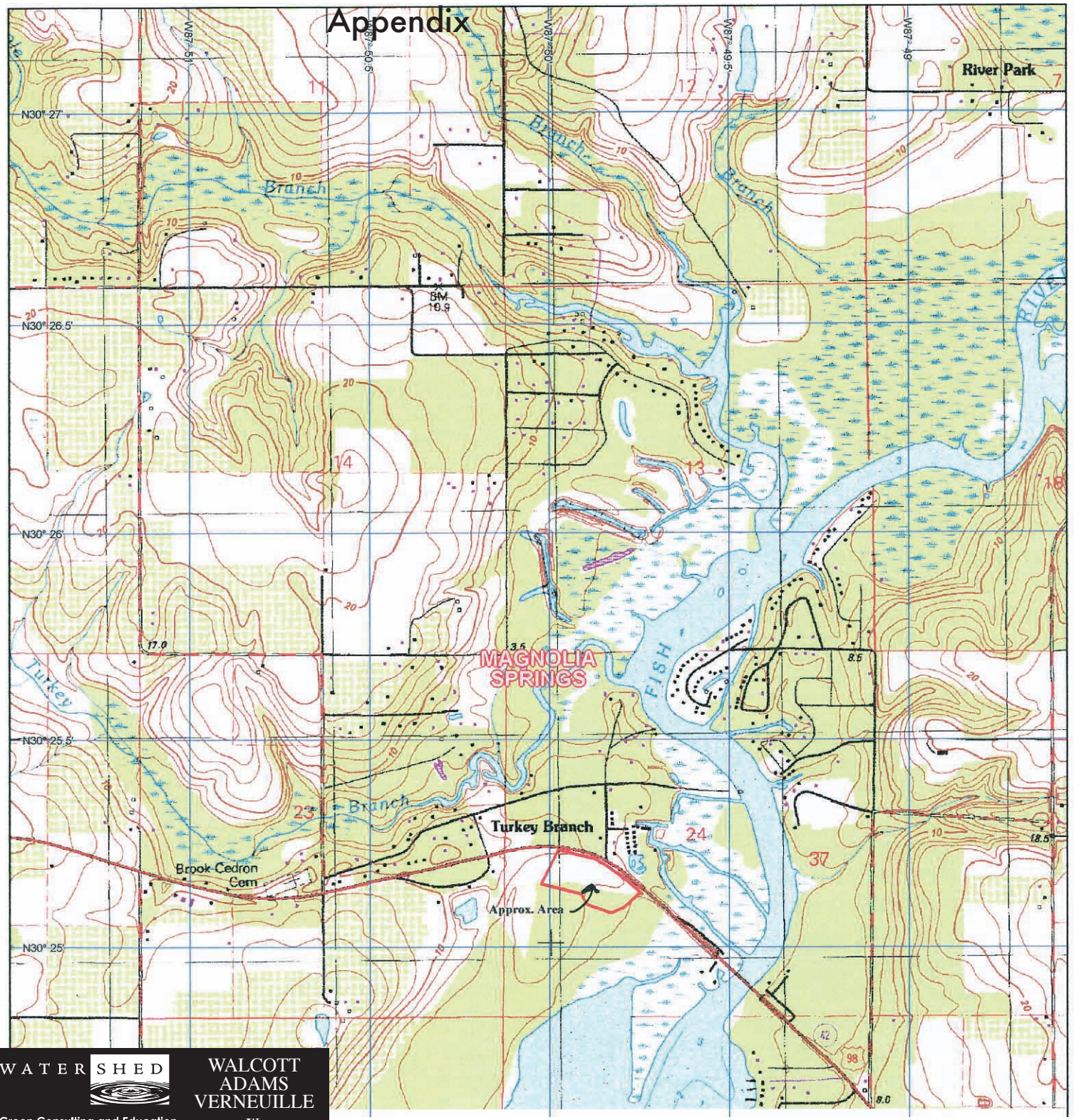
7.3.03



Topography Map

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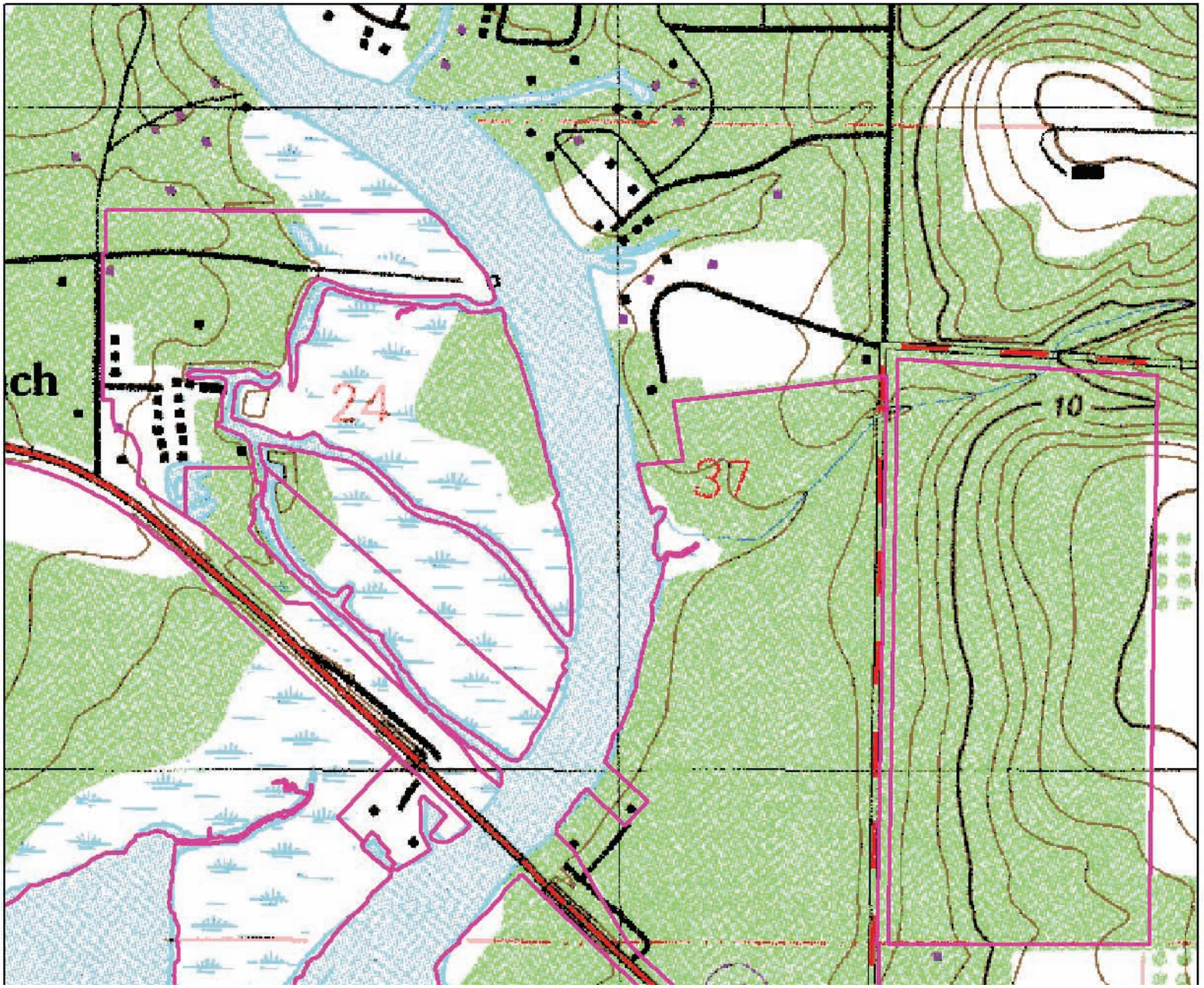
Appendix

7.3.04



Match Line A

Match Line A

Topography Map Part A

N

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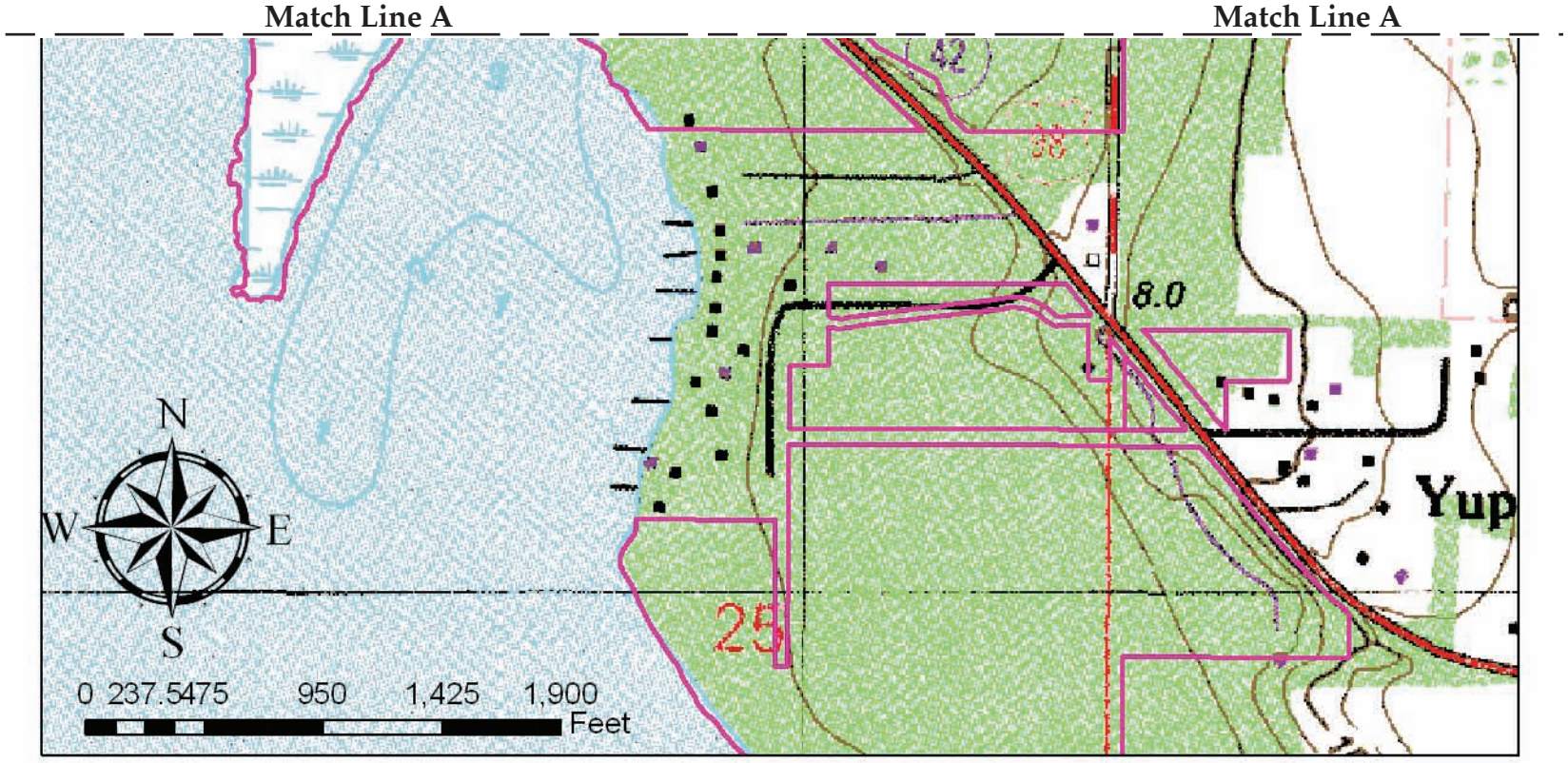
Appendix

7.3.05

Topography Map Part B



Index

Chapter 1 Weeks Bay Principles

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Chapter 2 Overall Site

Index

Weeks Bay RESERVE
FACILITY Master Plan Study and Design

Index

8.0.01

Chapter 3 Visitor Center

Chapter 4 Resource Center

Chapter 5 Research Center Center

Existing Conditions

Programming

Design Concepts

Budget Projections

Chapter 6 Budget Summary

Appendix

Index

Weeks Bay RESERVE

FACILITY Master Plan Study and Design

Index

8.0.03