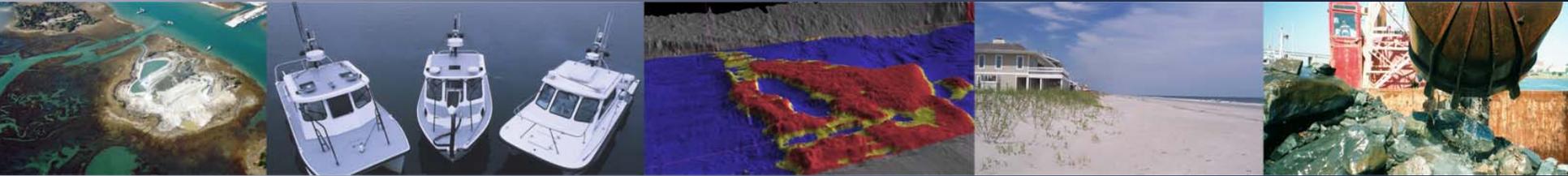


# Gahagan & Bryant Associates, Inc.



## From Concept to Completion

# COMPANY INFORMATION

Gahagan & Bryant Associates, Inc. (GBA)

Founded in 1975 to provide consulting services in coastal and dredging engineering.

Specialize solely in providing value added engineering to dredging related projects.

GBA has a 33 year history of bringing projects in on time & under budget.

SPECIALIZED AND

PRACTICAL EXPERIENCE

**Dredging the ORINOCO**

Bring... from...

MAPS OF THE DREDDING-CONTOURED REGION SOUTH AMERICA

\$9,000,000 in Specialized Equipment  
30 Million Yards of Dredging Completed in Record Time  
Ahead of Contract Schedule

**GAHAGAN**  
OVERSEAS CONSTRUCTION CO. INC.

**50 Years of Dredging in the Americas**

We Are Proud of Our 6 Years in Venezuela

COMPLETED ANNUALLY DREDDING PROJECTS OF THE GABRIEL ORGANIZATION IN THE UNITED STATES



# SERVICES

SPECIALIZED AND

PRACTICAL EXPERIENCE



**DREDGING ENGINEERING**

**COASTAL ENGINEERING**

**NAVIGATION CHANNEL DESIGN**

**HYDROGRAPHIC SURVEYING**

**CONSTRUCTION MANAGEMENT**

**COASTAL & ENVIRONMENTAL  
RESTORATION**

# SERVICES ENGINEERING

SPECIALIZED AND

PRACTICAL EXPERIENCE

## FEASIBILITY STUDY

Site Assessment

Geotechnical Engineering

Planning and Surveying

Quantity Calculations

Cost Estimating

Design, Plans and

Specifications

Permitting

Construction Management



Poplar Island, Chesapeake Bay



# REPRESENTATIVE PROJECTS

SPECIALIZED AND  
PRACTICAL EXPERIENCE

## HIGHLIGHTS

- Feasibility Study to evaluate the practicability and cost effectiveness of implementing a long-term dredge maintenance plan.
- Developed an optimal solution from the detailed dredging and placement analysis and cost estimate, based on the parameters provided by the Department and those developed during the study.



**San Gabriel Reservoir & Morris Dam**

Los Angeles County Department of Public Works  
Hydraulic/Water Conservation Division  
900 South Fremont Avenue  
Alhambra, CA 91803  
(626) 458-6144

# REPRESENTATIVE PROJECTS

SPECIALIZED AND

PRACTICAL EXPERIENCE

## HIGHLIGHTS

- Hydrographic surveys to provide the foundation for implementation of Dredge Material Management Plan
- Dredging Analysis and Cost Estimates
- Final Plans and Specifications

Montclair, VA



Susquehanna Reservoir, PA



Lake Nicasio, CA



# DREDGING 101

## What Is Dredging?

### Hydraulic Dredging

Pipeline Dredges

Hopper Dredges



### Mechanical Dredging

Clam Shell

Excavator

Dipper

Dragline



# DREDGING 101

## What Is The Most Important Question In Dredging?

### What do we do with the dirt?

#### Disposal Options Control

Method

Timing

Cost

Management Strategies

Ultimately, Disposal Site Selection is the Cornerstone of Any Good Project.



# KEYS TO A SUCCESSFUL RESTORATION OF SOUTH FORK RIVANNA RESERVOIR

KNOW WHAT THE MATERIAL IS  
KNOW HOW TO DREDGE IT  
KNOW HOW TO MANAGE IT



# PHYSICAL & GEOTECHNICAL INVESTIGATIONS

## Physical Surveys

- Existing Condition of Reservoir
- Location of Shoal Material
- Potential Capacity After Restoration



## Geotechnical Surveys

- Identify Quality of Material
- Identify Potential Beneficial or Commercial Use
- Identify Locations and Divisions Between “Good” & “Bad” Material



# SFRR DREDGING METHOD

## DREDGE TYPE

Portable Hydraulic Dredge

14"-20" Pipeline

900-1500 HP

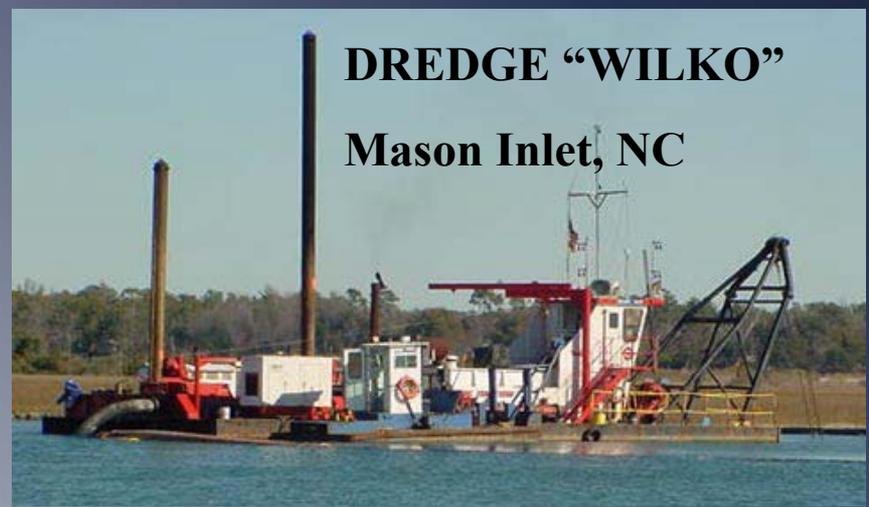


## Booster Pump

900-1500 HP

## Production

6,000 – 9,000 cy /day



# SFRR DISPOSAL SITE SELECTION

Proximity to SFRR

Pipeline Length

Elevation

Topography

Size of Site

Ability to Return Water to SFRR

Construction & Road Access

Initial Cost

Long Term Management Costs



# RECOMMENDATIONS

## Physical & Geotechnical Site Investigations

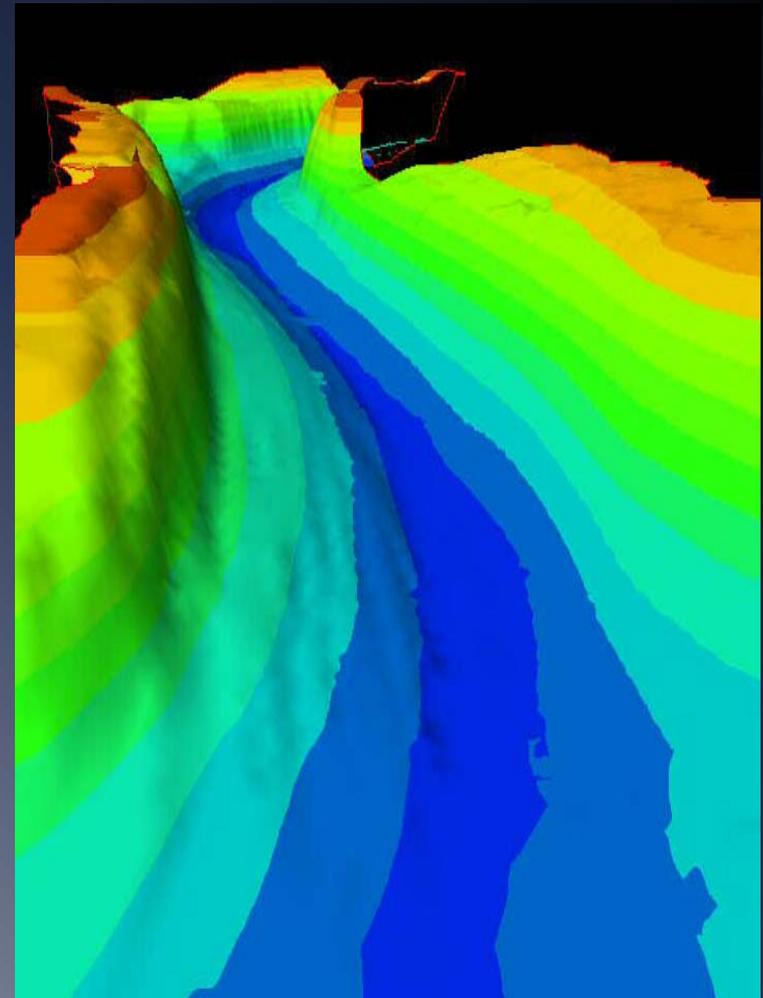
- Detailed Bathymetry of the Reservoir
- Sidescan Survey of the Reservoir
- Geotechnical Investigations
  - Problings
  - Vibracore Sampling

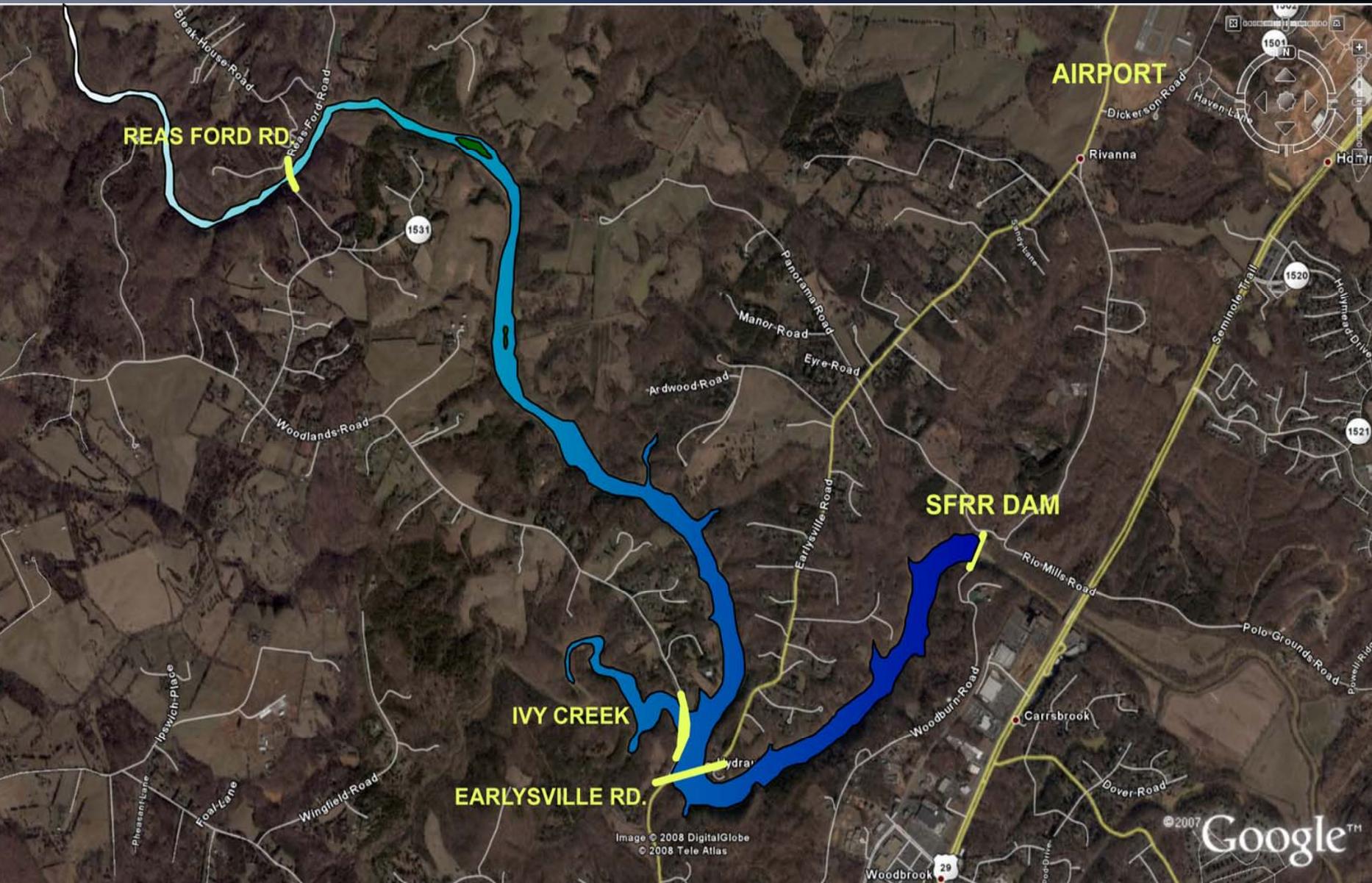
## Dredge Feasibility Study

- Constructability Analysis
- Determine Quantity and Quality of Material
- Identify Dredge Disposal Sites
- Determine Costs of Initial Construction

## Dredge Material Management Plan

- Identify Potential Beneficial Uses of Material
- Determine Schedule(s) for Future Dredging
- Identify Methods to Minimize Disposal Site Size
- Determine Incremental Costs





# OFFICE LOCATIONS

**BALTIMORE**  
**(410) 682-5595**

**OAKLAND**  
**(510) 547-3008**

**HOUSTON**  
**(832) 518-2112**

**TAMPA**  
**(813) 831-4408**

**LOS ANGELES**  
**(310) 521-8127**

**WILMINGTON, DE**  
**(302) 652-4948**

**NOVATO**  
**(415) 883-7683**

**WILMINGTON, NC**  
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**(215) 425-5639**



***www.gba-inc.com***