

## **Minutes from the D'Olive Watershed Working Group (DWWG)**

Lake Forest Country Club

December 9, 2009

In attendance:

### **Thompson Watershed Management Plan Team:**

Emery Baya, Thompson Engineering

Glen Coffee, Thompson Engineering

John Carlton, Thompson Engineering

Neil Johnston, Hand Arendall

Carl Pinyerd, Thompson Engineering

Cindy Roton, Thompson Engineering

Barry P. Vittor, Barry Vittor & Associates

Bethany Kraft, Alabama Coastal Foundation

### **D'Olive Watershed Working Group (DWWG):**

Julie Batchelor, Baldwin County Commission

Commissioner David Ed Bishop, Baldwin County Commission

Scott Brown, ADEM

Vince Calametti, ALDOT

Ashley Campbell, City of Daphne

Marlon Cook, Geological Survey of Alabama

Representative Randy Davis, Alabama House of Representatives

Kara Lankford, Baldwin County Commission

Cal Markert, Baldwin County Engineer

Mike McMillan, City of Spanish Fort

Christian Miller, Auburn University Marine Extension and Research Center

John Peterson, Lake Forest Property Owners Association

Sara Shields, MBNEP

Tom Herder, MBNEP

### **Media:**

Jessica Jones, *Daphne Bulletin*

Sara Shields opened the meeting and welcomed the DWWG members. She introduced the elected officials: Commissioner David Ed Bishop, Spanish Fort Councilman Mike McMillan, and State Representative Randy Davis and offered them an opportunity to make comments before the presentation.

Commissioner Bishop introduced County Engineer Cal Markert and then commented on the Baldwin County transportation projects, including completion of the extension of Highway 13 into Interstate 10 and construction of a service road between Hwy 181 and US 98. He noted that lots of time and effort had gone into the planning and expressed the County's desire to improve watershed problems as projects are undertaken and completed. Mr. Markert reported that permit applications have been submitted and noted negative comments from the Mobile Bay Keeper and

the Lake Forest Property Owners Association (LFPOA). He said that their purpose is transportation, they have spent two to three years working on this project, and he reiterated Commissioner Bishop's assertion that Baldwin County wants to be part of the solution. Commissioner Bishop continued, saying that the Hwy 13 extension has been under way for years and that the section between CR 104 and CR 64 is now being completed. He informed the Group that one bridge costs over \$7M to satisfy environmental considerations. He stated that the need and benefits are not only for the Daphne-Spanish Fort area but also the entire Eastern Shore, Baldwin County, and even Lake Forest. He concluded that the purpose of the project is economic, but that the County wanted to complete it in the most environmentally favorable manner possible. Councilman McMillan of Spanish Fort spoke in favor of the project to construct a service road to connect Hwy 181 with US 98 north of Interstate 10 and mentioned that the project included an important hospital situation.

Glen Coffee of Thompson Engineering presented the results of their watershed analysis and wetland condition evaluation and the identification of watershed problem areas. The objectives of the meeting were to:

- Share results of the field assessment
- Identify problem areas
- Rank/prioritize problems
- Establish the foundation to develop conceptual solutions
- Obtain the concurrence of the MBNEP and DWWG

Mr. Coffee provided detailed the nomenclature convention used to identify the sub-watersheds and tributaries. The convention starts by labeling sites according to the three major creeks as "D" (D'Olive Creek), "T" (Tiawasee Creek), or "J" (Joe's Branch). Additional letters are added to each of these letters to identify smaller tributaries joining the three mainstem streams. The overall watershed is divided into nine sub-watersheds based upon work conducted previously by Marlon Cook of GSA. There was consensus with this nomenclature system.

Mr. Coffee summarized the methodologies used to conduct the Watershed Assessment and Wetland Condition Evaluation. Details on these methodologies are contained in his PowerPoint Presentation developed for the meeting.

Mr. Coffee noted developing solutions to the problems affecting the watershed requires that we understand the geology and physiography of the basin. He listed the four principal factors affecting surface runoff, erosion, and sediment transport: 1) rainfall, 2) topography, 3) surface soils and geology, and 4) land use and land cover (LU/LC). He noted that only one of these four factors is under our control - LU/LC and that solutions to problems created by LU/LC are needed to address the surface runoff and erosion/sedimentation issues affecting the watershed. The following summarizes key points of the discussion.

#### Rainfall:

- Mobile rated as the wettest city in the U.S., with similar volumes falling in the D'Olive Watershed.
- Annual rainfall averages 67 inches.
- 59 average annual rainy days.

- Rainfall events are often intense producing large volumes of water within a short period of time
- Many storms are characterized by large raindrops that possess considerable energy with impact.

The Rainfall Erosion Index values for the north central Gulf Coast, within which the Mobile Bay area is located, is among the highest of the continental United States.

Topography: The topography of the D'Olive Watershed is extreme relative to other northern Gulf Coast locales and the geology of the area is the product of several million years of development. He pointed out the extreme relief on a contour map and made the following points:

- Elevation increases from sea level to 160 feet in less than four miles from the Mobile Bay shoreline.
- Steep gradient streams result in powerful runoff which, when native vegetation is removed, accelerate natural "headcutting" of streams which increases channel instability and produces high sediment transport rates.
- Many stream segments bordered by slopes exceeding 25 degrees.

Consequently, soil loss is greatly affected by topographical influences and stream gradients.

Soil Conditions:

- Typically subsoils are more erodible than top soils.
- Underlying the surface soils are non-cohesive geological materials dominated by sands.
- Natural bank materials range from highly erodible fine sands to somewhat erosion resistant hard clays and some easily weathered rock.

Land Use/Land Cover (LU/LC): Data from the MBNEP-funded NASA LU/LC change analysis between 1974 and 2008 were presented, along with 2009 aerial photography provided by Baldwin County. The LU/LC data show that during the 34-year period between 1974 and 2008 the forest cover was reduced from 56% to 35%, with the former forested areas being converted to urban areas. However, the relative percentage of the land in agriculture remained the same. Work on the CWMP will assume 100% build-out of the remaining developable land into the future. The presentation revealed that urban development typically results in the following consequences:

- Elimination of natural forest cover of area
- Reduction in infiltration capacity of soils
- Increased runoff rates
- Increased flood peaks
- Accelerated rate of head-cutting
- Increased streambank erosion
- Increased sediment load

The discussion highlighted the effects of the high runoff rates and resulting stream velocities in those stream reaches bordered by high slopes exceeding 25 degrees. Such areas frequently experience a phenomenon known as "mass wasting," or major slumping of the adjacent

streambank which collapses into the stream due to erosion of the unstable underlying strata during periods of extreme stream flow. This causes localized stream instability and generates large quantities of sediments.

While bank revetment and grade control structures can be used to address the in-stream channel problems, the source of the problems is accelerated runoff rates. As a result, solutions should be directed at reducing runoff volumes and rates to pre-development levels.

Problems associated with woody debris jams were also discussed since they are frequently associated with mass wasting. Trees falling into streams create blockages that produce localized high velocities as water attempts to flow around the jams, eroding the adjacent banks. Problems associated with debris jams include:

- Erosion of flanking streambanks
- Scouring of streambeds
- Threats to infrastructure

Landowner practices that contribute to erosion problems in the Watershed were also discussed:

- Replacement of natural riparian vegetation with lawns and ornamental plants
- Stabilization of banks with riprap, gabions, concrete mattresses, etc.
- Unpaved roads
- Utility right-of-ways

Most wetlands in the Watershed found above the Lake Forest Lake are associated thin riparian strips of vegetation that border the streams, narrow flood plain reaches, and beaver ponds.

Based on the results of the field assessment efforts, the following Watershed problems have been identified:

- Channel incision
- Channel headcutting
- Mass wasting of streambanks
- Areas of excessive sedimentation
- Disturbed areas with high erosion rates
- Areas with accelerated surface runoff
- Detention and retention of surface runoff facilities that could be improved with retrofits
- Absence of riparian vegetation buffers along streams
- Damage to wetland resources
- Water quality issues

Representative Davis asked about the issues affecting riparian zones. Mr. Coffee explained that a riparian area represented the area bordering streams that is occasionally flooded, but is not necessarily considered to be wetlands. Riparian vegetation is frequently cleared by the actions of individual landowners and/or large development that eliminate their buffering capacity for streams. Rep. Davis asked about appropriate BMPs to protect riparian areas. Mr. Coffee

responded that buffers could be mandated by local ordinances and pointed to the recent action by the Town of Magnolia Springs that had passed an ordinance establishing a 70-foot buffer along headwater streams draining forming the Magnolia River. Rep. Davis mentioned recommendations for mitigation to remedy/restore riparian buffers. Barry P. Vittor explained that riparian areas are not necessarily protected by wetland regulations since, under current laws, “you can clear every stick right down to dirt by law, if you don’t move the dirt.”

The following stream reaches and generalized upland areas were identified as having specific problems. The priority areas and problems are highlighted in bold and are recommended for special attention.

#### D’Olive Creek – Main Stem Channel

- **Upstream of U. S. 90**
  - Sediment deposition
  - Headcutting towards bridges is a problem
- **U. S. 90 to I-10**
  - Headcutting
  - Mass wasting
  - Woody debris jams
- I-10 to Timber Creek
  - Less impacted

#### D’Olive Creek: DA Tributary

- Mouth to CR 13
  - Sediment deposition
  - Headcutting
  - Mass wasting
  - Woody debris jams
  - Small riparian zones
  - Threats to infrastructure
- CR 13 to U. S. 90
  - Mass wasting
  - Sediment deposition

#### **Tiawasse Creek – Main Stem and Lower Reaches of Tributaries to CR 13**

- Sediment deposition
- Headcutting
- Mass wasting
- Clearing of riparian zone

#### Joe’s Branch

- Above Spanish Fort Town Center
  - Channel unstable
  - One headcut
  - Rills and gullies at power line

- **Tributary JA**
  - Steep eroding embankment
  - Mass wasting
- **Tributary JB**
  - Mass wasting
  - Sediment deposition – this material does not flow into Lake Forest Lake. It flows into the Bay.

#### Headwater Upland Areas

- Undeveloped areas
  - Remaining forested areas
  - Agricultural lands
  - Riparian/wetland borders
- Developed lands
  - Residential subdivisions and office parks
  - Commercial developments
- Utility right-of-ways
- Future road improvements

#### Priority Problems Areas

- **Headwater drainage areas**
- **Riparian buffers**
- **Developed mid-drainage reaches**
- **Individual developments**
- **Individual properties**
- **General Problem Areas**
  - **Stream segments with bank slopes exceeding 25 degrees**
  - **Headcutting reaches**
  - **Unstable banks**
  - **Threatened riparian borders**
  - **Areas of excessive sediment deposition**

Mr. Coffee discussed the remaining CWMP schedule that highlighted the following major milestones. The next meeting with the DWWG will be held in March 2010 to present the conceptual measures that will be recommended for inclusion in the CWMP:

- Jan 2010 – Analyze Regulatory Framework
- Feb 2010 – Identify Funding Sources
- Mar 2010 – Develop Conceptual Measures
- May 2010 – Draft CWMP
- Jul 2010 – Final CWMP

Following the representation, the DWWG was asked for feedback or suggestions. The following summarizes the ensuing discussion:

John Peterson asked if the CWMP would address protection or remediation measures. Mr. Coffee responded that both categories of measures would be addressed in the CWMP. However, due to the limitations of budget and time, it would not be possible to develop and recommend specific solutions. Cost estimates would be developed at the rough-order-of-magnitude level.

Rep. Davis asked about projected costs (since the Legislative Session begins on January 12, 2010) and if he is to seek funding appropriations effectively, it would be helpful to understand prospective costs for addressing problems identified in the CWMP. He asked the Thompson Team to see if it is possible by the first of 2010 to begin to identify funding needs so he can consider who to talk with in terms of Federal funding sources. He expressed hopes of getting that information as soon as possible. He reported that while the Fiscal Year 2010 budget has already been completed, the budget for FY 2011 is in development. Mr. Coffee responded that the Thompson Team would support such efforts to the extent possible by providing interim cost estimate information when it became available. Rep. Davis stated that budgets will be developed in about six weeks. Mr. Coffee offered to provide interim cost information to MBNEP Director Roberta Swann as soon as possible.

Ashley Campbell reported that last spring the City of Daphne tried unsuccessfully to get a Stimulus grant for \$11million for restoration of streams and to clean up Lake Forest Lake. Rep. Davis responded that the process is sometimes political, but with letters of legislative endorsement, priority can be impressed upon government funding sources.

Mr. Coffee stated that Section 206 funding from the U. S. Army Corps of Engineers provided an ideal authority to obtain construction funding to implement the types of projects that will be recommended in the CWMP to repair impaired streams. He also pointed out that the support of Congressman Bonner and Senators Sessions and Shelby is needed to have the Corps make Section 206 funds available.

Mr. Peterson asked whether, in seeking potential funding sources, Thompson is looking at those related to Interstate 10 and Federal transportation. Cindy Roton replied that all potential sources for funds would be considered, including those provided by the Federal Highway Administration.

Mr. Calametti referred to the service road connector project. He feels that we need to work quicker on finding solutions to those environmental impacts, suggesting that a committee should be formed to work on identifying projects that would mitigate the impacts within the D'Olive Watershed rather than just satisfying regulatory requirements by going to an existing mitigation bank.

Emery Baya clarified that the Thompson Team will not seek specific funding/grants, but rather identify potential sources and mechanisms from which specific project implementation funds can be obtained. He said that they will look at a variety of funding options and not just normal

grants. He also agreed that Thompson would work towards supplying necessary information in January.

In discussing Baldwin County's service road project connecting State Hwy 181 with US 98, Mr. Coffee suggested that although the project was being designed to meet established design criteria, it may be appropriate to consider a higher level of stormwater management in the design because of the concerns that exist in the D'Olive Watershed. Mr. Calametti acknowledged that this is a very sensitive project. Rep. Davis recognized that engineering on the project exceeded necessary legal requirements. Mr. Calametti admitted that despite attempts to lessen the degree of impacts of this project, there are still impacts associated with it.

Ms. Campbell commented that need the DWWG to make some decisions on project features that need to be modified to lessen impacts. She mentioned the role of the Corps and reported that Glenn Cunningham, who has represented the Corps on the DWWG, was recently deployed on an assignment to the Mid East and that a replacement representative for the Corps is needed.

Mr. Calametti informed the group that ALDOT had an erosion control contract and asked members to call him or one of his assistants should problems arise. He assured the group that they could be mobilized in four hours.

Mr. Baya was careful about being too critical about "band aid fixes", admitting that they are significant, but warned that the real challenge would be: Can you retrofit basin hydrology to approach natural? He said that nationwide low impact development techniques are being investigated and employed, including bio-retention facilities, rain gardens, and the like. He challenged the group to put on their "thinking caps" figure how we will fund solutions, and at what cost, and figure how to deal with legal issues and property rights. "It will take more than hardening surfaces to protect infrastructure," he concluded.

The Baldwin County Watershed Coalition was briefly discussed including how the production of the CWMP might provide a timely dovetail to get voters attention with a November referendum scheduled.

Mr. Baya expressed hopes that the DWWG attendees see where the Thompson Team stands in terms of understanding the Watershed problems. He asked the group if the Thompson Team is on track, and if the DWWG thinks there are other problem areas that should be addressed. He asked for the concurrence of the DWWG.

Mr. Coffee provided the following numbers to reach him: 861-7475 (his home office) and 599-6925 (cell). His email address is [gcoffee@thomsonengineering.com](mailto:gcoffee@thomsonengineering.com). He encouraged the DWWG members to call if anything comes to mind or if there is anything that they need.