

MEMORANDUM



TO: Lisann Morris (Southwest Florida Water Management District (District)) and Stephanie Dunham (District)

FROM: Brett Cunningham (Jones Edmunds) and Kent Boulicault (Singhofen & Associates)

DATE: March 8, 2007

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RE: Myakka River Watershed Initiative (H048)
Independent QA Methodology

1.0 INTRODUCTION

This technical memorandum is the first deliverable under Task 1.1.5.1 in Work Order #1. It discusses how the Howard Creek, Lower Myakka, and Big Slough basin models and GIS data will be evaluated for use in this project.

2.0 BASIN STUDY REPORT

We will evaluate the documentation provided in the basin study reports for assumptions and treatment of data and supporting documentation (e.g., hydraulic element data) that may conflict with the District's *Guidelines and Specifications*. Additionally, we will correspond with the original modeler to determine if there are other details they can provide that are not contained in the documentation. One of the questions we will try to determine is how much channel survey was performed and how much cross section translation was applied. We will note any discrepancies in our documentation and provide recommendations on how to resolve the discrepancies.

3.0 MODEL VS. GIS

The first check that will be made is if there is a one-to-one correspondence between the model input and GIS data (including subbasin areas). A list of discrepancies will be generated, along with recommendations for resolving the discrepancies. In some cases, we may be able to resolve the discrepancies with the information provided. In other cases, it may be necessary to perform field reconnaissance, review record drawings, or contact the firm responsible for the model.

4.0 MODEL INPUT AND OUTPUT

Model input data will be screened for potential outliers—such as unusually large times of concentration and coefficients that are out of expected ranges—and consistency with the Myakka River model. Outliers that are easily resolved will be updated and noted in the documentation, unless it is a parameter that will be updated more globally (e.g., recalculation of all curve

numbers) in another phase of the project. Others that require additional data to resolve will be noted for future resolution. Rating curves—particularly for bridges—will be evaluated for anomalies and noted for future resolution where applicable. To the extent that is practical, we will also evaluate potential cross section translation issues (i.e., where a cross section was applied in a different location than where it was taken and where a significant change in storage/conveyance may exist between the actual and translated cross section).

Model output will be checked for instabilities, mass balance issues and unacceptable extrapolation. Significant problems will be documented.

5.0 MISSING INTERCONNECTIONS

Floodplains will be compared to subbasins and the model schematic to determine if there are any missing interconnections. Missing interconnections will be noted in the documentation and added later in the modeling process. Note that additional missing interconnections may be identified once the models have been updated with new topographic information and other data.

6.0 SUBBASIN VERIFICATION

Previously developed subbasins will be compared to the initial subbasin boundaries discussed in the Surface Water Modeling Plan memorandum. Areas not meeting the details required by the *Guidelines and Specifications* or that have changed significantly based on the new terrain data and/or new development will be noted for editing under a future task. It is anticipated the most of the existing subbasin boundaries will need at least slight edits due to differences in the DTMs. Although some changes may be fairly minor (e.g., less than 20 ft), inaccurate subbasin boundaries with respect to the new DTM will render some automated process invalid and therefore will not be cost-effective or acceptable.

7.0 SCHEMATIC REVIEW

The previously developed junction-reach network schematics will be reviewed against the most recent aerial photography and DTM for proper arcing (particularly for channels) and completeness. Additionally, documentation of hydraulic features in the schematic will be evaluated for documentation that meets the *Guidelines and Specifications*. Deficiencies will be noted in the documentation, and an estimate will be made on the cost to develop documentation meeting the *Guidelines and Specifications* for the hydraulic features.

8.0 DOCUMENTATION

A summary of findings from the tasks above will be presented in a technical memorandum and an associated GIS database. The documentation will also include a well-defined scope of work for updating the respective models.