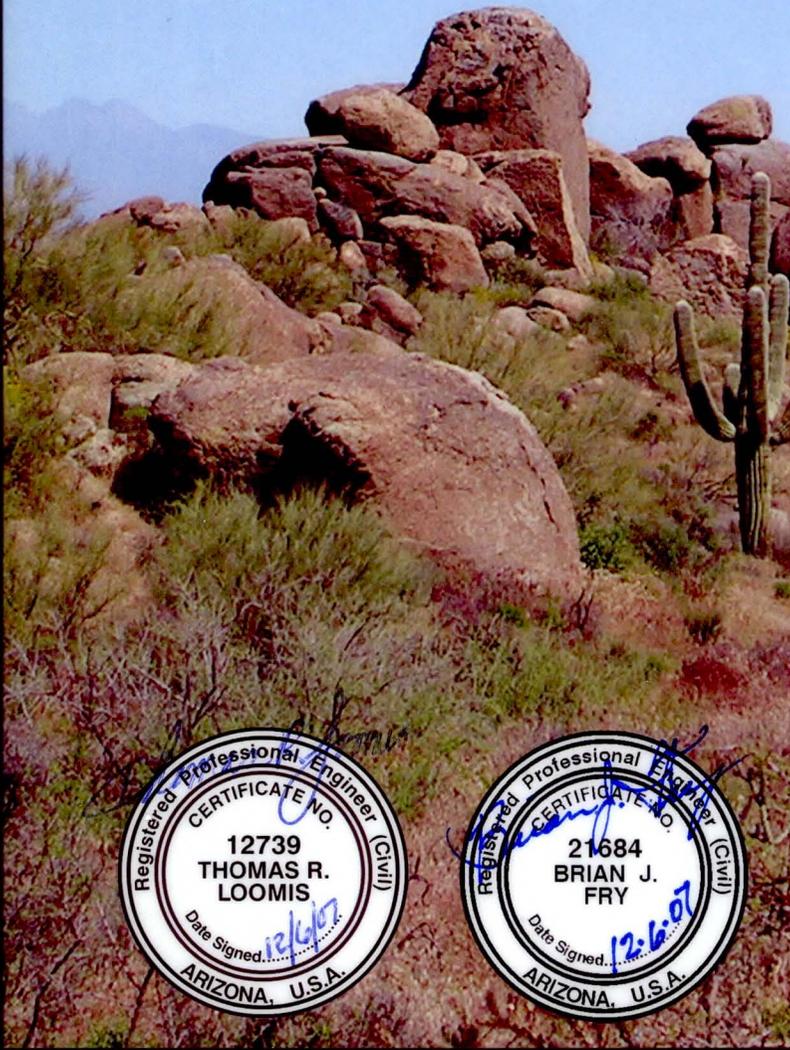


*Rio Verde Area Drainage Master Plan  
Floodplain Delineation  
FCD 2001C056*

*Volume I  
Technical Data Notebook  
Master Volume*

*November 2007*

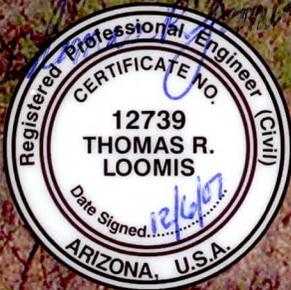


*Prepared by:*



*In association with:*

**Dibble  
Engineering™**



RIO VERDE AREA DRAINAGE MASTER PLAN  
FLOODPLAIN DELINEATION  
FCD Contract No.: 2001C056

Volume 1  
TECHNICAL DATA NOTEBOOK  
MASTER VOLUME

November 2007

Prepared by:



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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
FLOODPLAIN DELINEATION OF THE RIO VERDE ADMP**

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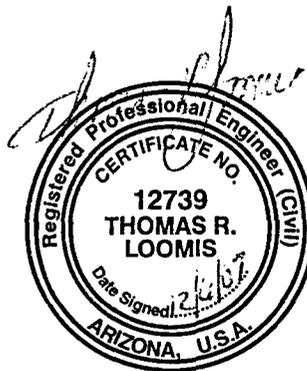
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**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY  
FLOODPLAIN DELINEATION OF THE RIO VERDE ADMP**

**Section 1.0: Introduction**

These technical data notebooks are composed of work performed by the Flood Control District of Maricopa County and a number of sub-consultants. Because work is easily divided based on the methodology employed or the type of information obtained, information is provided here in a number of individual volumes. The master volume directs the reader to the appropriate supplemental volume to find the corresponding information. Volumes included in this compilation are as follows:

**Volume 1 - Master Volume**

This volume contains the project Introduction and a directory of information contained in companion Volumes

**Volume 2 - Survey & Mapping**

This volume contains supporting information for all topographic survey, ground control survey, and aerial mapping used on the project

**Volume 3 - 1-Dimensional Hydrology Technical Data Notebook**

This volume contains information in support of HEC-1 hydrology used in one-dimensional hydraulic floodplain modeling

**Volume 4 – 1-Dimensional Hydrology Technical Data Notebook Appendices**

This volume contains the Appendices in support of HEC-1 hydrology used in one-dimensional hydraulic floodplain modeling

**Volume 5 – 1-Dimensional Hydraulics Technical Data Notebook**

This volume contains information in support of one-dimensional hydraulic floodplain modeling

**Volume 6 – 2-Dimensional Hydrology & Hydraulics Technical Data Notebook**

This volume contains information in support of two-dimensional hydrology and hydraulic floodplain modeling

**Volume 7 – 2-Flood Profiles & Work Study Maps**

This volume contains 11x17 prints of 2-Dimensional modeling flood profiles and work study maps

**1.1 Purpose of Study**

The Rio Verde area is rapidly developing with one-acre lot single-family residences and subdivisions. As a result, road crossings, stock tanks, diversions, and other human induced changes to the watershed have resulted in redistribution of flooding.

Floodplain delineation of the washes in the area has been undertaken as a regulatory solution to potential flood hazard. The total length of studied washes is approximately 144 miles. Floodplain modeling is accomplished using a combination of 1-Dimension and 2-Dimensional hydraulic modeling.

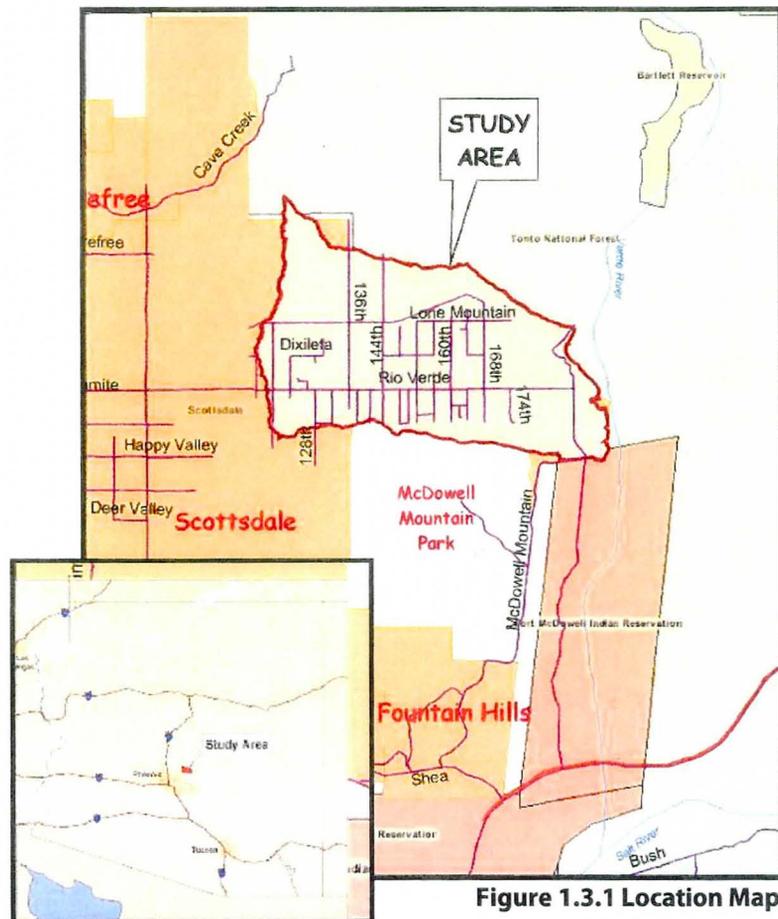
### 1.2 Authority for Study

Dibble Engineering (Dibble) performed the hydrologic and hydraulic analyses for one-dimensional floodplain delineations within this study in association with their subcontractors, Consultant Engineering Inc. (ground survey) and JE Fuller Hydrology and Geomorphology, Inc. (Geomorphology), for the FCDMC, Contract No. 2001C056. Additionally, the FCDMC performed internal 2-Dimensional floodplain delineations of a portion of the study area. The Project Manager for FCDMC is Felicia Terry, P.E. The Project Manager for Dibble Engineering is Brian Fry, P.E.

### 1.3 Location of Study

The Rio Verde watershed is located in Maricopa County, Arizona, and is generally bounded by the Tonto National Forest on the north, the McDowell Mountain Regional Park to the south, the Verde River to the east, and approximately the 115th Street alignment to the west. The total watershed area is about forty (40) square miles. **Figure 1.3.1** shows the location of the study area in a regional context.

The watershed is characterized by steep slopes and numerous braided ephemeral washes that drain to the Verde River.



**Figure 1.3.1 Location Map**

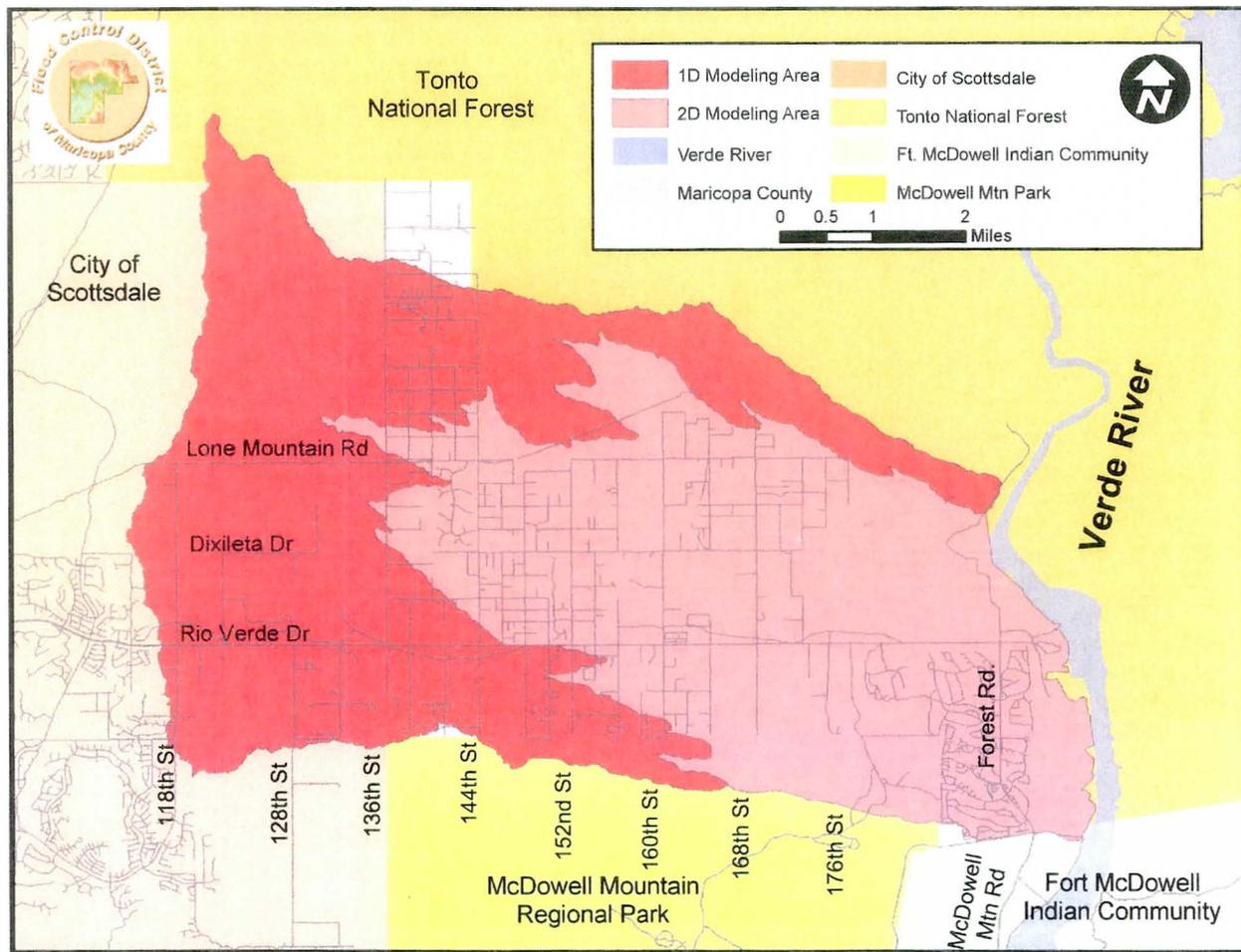
### 1.4 Summary of Methodology

A piedmont assessment of the study area was used to identify the areas appropriate for one-dimensional (1D) and two-dimensional (2D) flow analysis. This geomorphologic evaluation indicates that the upper watershed areas with steeper slopes and more defined channels are suitable for one-dimensional analysis while the lower areas with unconfined channels and flatter slopes are more suitable for two-dimensional analysis. **Figure 1.4.1** further divides the study watershed into one-dimensional and two-dimensional modeling areas. Please refer to the Companion Volumes for corresponding information on methodology.

### 1.5 Coordination and Acknowledgments

The following agencies were contacted for information, published reports, manuals, and comments during the study:

- The Flood Control District of Maricopa County (FCDMC)
- Federal Emergency Management Agency (FEMA)
- The City of Scottsdale
- Maricopa County Department of Transportation



**Figure 1.4.1 Rio Verde ADMP Project Watershed**

The public was notified of the project in two public meetings. The first was held on August 6, 2002. The second was held on July 19, 2007. Meeting announcements were mailed to all property owners in the area, and an informational brochure was presented at the first public meeting. The project was also publicized in the local newspaper and on the FCDMC website. Comments from the public were noted or discussed. Copies of the meeting announcements and legal advertisements are found in *Volume 3, 1-Dimensional Hydraulics Technical Data Notebook*.

## **1.6 Study Results**

Please refer to the Companion Volumes for corresponding study results.

## **Section 6: Erosion and Sediment Transport**

No detailed erosion and sediment transport analyses are included in the Rio Verde Area Drainage Master Plan Floodplain Delineation. A detailed study of the desert piedmont that makes up the Rio Verde ADMP was performed to determine areas suitable for one-dimensional versus two-dimensional modeling. Additionally, a geomorphic analysis was conducted on the watershed to aid in floodplain delineation. These studies were performed by JE Fuller Hydrology and Geomorphology, Inc. and are presented in the separate reports *Rio Verde Area Drainage Master Plan Piedmont Assessment Report – Basis for Delineation of Areas with 1-D vs. 2-D Flow Characteristics* and *Rio Verde Area Drainage Master Plan Geomorphic Analysis Report* and are not included here.

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