



# Flood Control District

## of Maricopa County

INTEROFFICE MEMORANDUM

**Date:** March 12, 2007

**To:** Timothy S. Phillips, P.E., Chief Engineer and General Manager

**From:** Felicia Terry, P.E., CFM, PPM Division

**Subject:** Rio Verde Area Drainage Master Plan – Regulating the Floodplains  
(FCD Contract 2001C056)

The Recommended Alternative for the Rio Verde ADMP is to delineate floodplains using HEC-RAS and FLO-2D and manage the single lot development using “rules” specifically developed for floodplains in the Rio Verde area. Traditional floodway modeling cannot be reasonably applied due to the braided and distributary nature of most washes and areas where the floodplain is predominantly sheetflow. Because of this, delineation of floodways does not seem necessary, but stricter management of the floodplains will be implemented. We are recommending that when development is proposed within the floodplain that the following rules must apply.

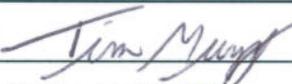
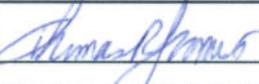
1. Every effort must be made to avoid disturbance of existing sandy bottom wash areas. If it is not possible to site the residential structure and associated improvements within the lot setback requirements without disturbing the wash, then the wash shall be rerouted. Rerouting the wash shall not result in adverse impacts to surrounding and downstream properties. Adverse impacts are defined as any increase in the 100-year flood base water surface elevation, increases in flow depth and/or velocity to upstream, downstream, or adjacent properties, and any divergence of flow (change in flow path) from existing conditions where flow enters and exits the property. Erosion/scour protection shall be considered in the design of the rerouted wash.
2. All development shall submit a Drainage Report sealed by a Civil Engineer licensed to practice within the State of Arizona. Using discharges from the Rio Verde Area Drainage Master Plan, an engineer must show using the US Army Corps of Engineers HEC-RAS program (HEC-RAS) or District approved program that the proposed development will result in no increase (0.0 ft) in the existing condition (pre-development) water surface elevation, or any adverse impacts to adjacent, upstream, or downstream property. The proposed development site shall be modeled first for the existing condition, which will be used as a baseline, and then compared to the proposed development model. HEC-RAS shall be run in the mixed flow regime to show no increase in velocities and for use in design of erosion protection, and shall be run in subcritical regime to show no increase in water surface elevation.

In addition, development within the FLO-2D study area shall be modeled using the total flow rate crossing the property. If the floodplain is wider than the parcel, the engineer shall end HEC-RAS cross sections at the property line, extended vertically. Development within the 1-dimensional (HEC-RAS) study area shall be modeled similarly. For these cases, the engineer shall meet with the District before beginning the drainage analysis to agree on a peak discharge estimate to use for the property in question.

3. The lowest floor elevation of the residential structure must be elevated a minimum of two (2) feet above the existing condition Base Flood Elevation or 18-inches above the highest point of natural ground within 10 feet of the structure, whichever is greater. Erosion protection for the pad must be engineered and sealed by a Civil Engineer licensed to practice within the State of Arizona.
4. It is recommended that new residences outside the 100-year floodplain and within the Rio Verde ADMP study area be elevated a minimum of eighteen (18) inches above highest adjacent ground within 10 feet of the structure.

When the Rio Verde ADMP is adopted by the Board of Directors, these “rules” will be used by the Floodplain Management Branch to manage the development within the Rio Verde floodplains. This memo when signed by the Chief Engineer and General Manager of the Flood Control District authorizes implementing these “rules” as the best available technical information until the Board adopts the ADMP.

Please concur and authorize below the use of this new data.

	
Felicia Terry, P.E., CFM Project Manager Date: 2/2/07	Timothy S. Phillips, P.E. Chief Engineer and General Manager Date: 3/20/07
	
Tim Murphy, P.E., CFM Flood Delineation Branch Manager Date: 2/8/07	Tom Loomis, P.E., RLS, CFM Special Projects Branch Manager Date: 3/6/07
	
Kathryn Gross, CFM Floodplain Delineation Reviewer Date: 2/7/07	Ed Raleigh, P.E. Engineering Division Manager Date:
	
Joe Tram, P.E., CFM Regulatory Division Manager Date: 2-20-07	
	
Russ Miracle, P.E. PPM Division Manager Date: 3.12.09	
File Copies: 1. _____ 2. _____	YES <input type="checkbox"/> GIS Posted (Pending Floodplain Only) Date: <input type="checkbox"/> No County Permits in this area Date: