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MEMO

TO: Marvin E. Carter, Michael O'Haire and David Gunter

FROM: George A. Simons, P.E.

THROUGH: Dean F. Luethje, P.E.

RE: IRFWCD – Clarifications Regarding:
Flood Plain Cut and Fill Policy for the 100 Year Storm Event and 2''/24 hour Discharge Limitation for the 25 Year Storm Event Within Development Sites and Affidavits of Exemptions (A.O.E.)

DATE: May 31, 2005, Second Revision of August 17, 2005

CAI requests that the supervisors formally accept the clarifications noted below. The clarifications are based on the results of a meeting held on May 20, 2005, in which the methodology of calculating the cut and fill balance within flood plain areas was discussed with county engineers and local consulting engineers. Additional clarifications to the 2''/24 hour policy were also discussed. The clarifications will assist all stormwater design engineers working within the district as well as the city and county engineers reviewing plans as to the appropriate methodology for meeting the flood plain cut and fill and the 2''/24 hour limitation policies.

A. <u>Flood Plain Calculations and Compensation for a Development Site – 100 Year Storm Event</u>

1. Within the project site, all flood plain storage must be maintained from pre to post development. Predevelopment calculations shall be based on existing site conditions (1929 NGVD) as determined by a Florida Registered Land Surveyor. Post development calculations shall be based on the design grades. The design engineer must select the 100 year flood elevation from the FIRM maps or on the results of the IRFWCD study.

2. The flood plain encroachment (fill) is based on the volume of proposed fill between the existing ground, (or the wet season water table if a lake or wetland is present) and the 100 year flood elevation. Fill above the 100 year elevation is not displacing flood waters and therefore not included.

3. The volume of flood plain compensating storage (cut) is based on the volume of cut between the existing ground and the wet season water table. If a wet detention system is used for the flood plain storage compensation, then the control elevation of the bleed down weir shall be used as the lower elevation of the cut volume calculations. The upper elevation of the compensating storage volume calculations is the ground elevation or the 100 year flood elevation if it is below the existing ground elevation.

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4. Flood plain compensating storage (cut) calculations, which include volume above the 100 year flood plain elevation, are not allowed, regardless if there is an onsite peak stage above the 100 year flood plain elevation at some point during the computer modeling of the event.

5. The flood waters within the District canals must be allowed to flow into the development's flood storage area when the District's canal system is above the flood storage area water levels within the development. Therefore, the stormwater outfall connection must meet the following criteria:

   a. Flap gates are not allowed.
   b. The pipe connections shall be of a large enough diameter that the head loss is minimal and flows maximized. Small diameter pipes designed to meet the 2'' limitation rule will restrict the flows during a flood event and therefore, are not allowed. Weirs/Orifices shall be utilized. The typical overflow structure which has a restrictive orifice(s) for the 2'' limitation will include a larger weir at the onsite 25 year storm elevation. During storm events larger than the 25 year storm, the larger weir will allow the flood waters from the District canals to move freely into and out of the development storage area. It is understood that below the 25 year storm elevation the inflow from District canals may be restricted to the 2" limitation orifice.

6. An offsite compensating flood storage area may be utilized to balance the cut and fill for a project in which the onsite flood storage is inadequate under the following conditions:

   a. The offsite flood storage area is located within the same sub-lateral drainage basin.
   b. The offsite flood storage area has approximately the same 100 year flood elevation (0.1'+/-).
   c. The offsite flood storage area must be encumbered with development restrictions to preserve the flood storage for the proposed project. The proposed project shall include home owners' association duties to preserve and maintain the offsite area in regards to function and appearance. In cases where the offsite flood storage area is itself a development, then the home owners association which covers the site must be required to preserve and maintain the site through deed restrictions.

7. Previously approved projects can not be utilized to compensate for flood storage for future developments.

B. <u>2''/24 hour Discharge Limitation Clarifications – 25 Year Storm Event</u>

1. The 2''/24 hour Volume Discharge Limitation design storm is the 25 year – 24 hour event with the discharge analyzed for 72 hours.

2. Each site is allowed 2''/24 hour of net positive discharge during a storm event for any given 24 hour period following a storm event. Some projects may experience a backflow of water from the District's canal system (receiving water) onto the site during a storm event. This flow may result in a negative discharge of runoff volume onsite, (i.e. the site's rainfall runoff plus the backflow from off site flood waters results in net negative discharge due to the flood storage). The 2''/24 hour criteria does not apply during the discharge of the (received from District canals) offsite flood waters. However, when the stormwater system has discharged the off site flood waters and the discharge of runoff generated from onsite begins, then the

2″/24 hour limitation is required. Additional flow to "catch up" with the discharge volume allowance lost during the time of negative flows is not allowed. Each 24 hour period must stand alone to meet the 2″/24 hour limitation criteria. If the overflow weir elevation of a lake is set at the 25 year storm elevation for the development, then flows in and out above this elevation could be greater than the 2"/24 hour criteria.

3. Affidavit of Exemptions (A.O.E.) projects must limit the number of discharge points into the I.R.F.W.C.D. sub-lateral canals by incorporating collector ditches/swales into the design. The collector ditches will convey the discharge from the individual lots to a common outfall to the district canals. One (1) outfall is preferred per development, two (2) may be allowed, with requests being reviewed on a case by case basis. Existing conditions or site geometry will be considered.

4. Affidavit of Exemptions (A.O.E.) projects which include a platted road shall include a stormwater system designed to limit the discharge to 2″/24 hour from the platted road drainage basin. Platted lots are not required to meet the 2″ limitation since only minimal increased discharge volume is anticipated. However, if the platted road drains to a stormwater lake which is shared with the platted lot, then the lot must be included in the 2″/24 hour limitations calculations, and the lake must be constructed when the road is constructed.