**PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT**

**DRAINAGE REPORT AND PROJECT CONDITIONS REVIEW CHECKLIST**

**Project Name ___________________________ Project Number ________________________**

**FEMA or RFCD STUDY?**  Yes _____  No _____
**FEMA Panel Number_____________________ Effective Date ______________________ Zone ________________**
**LOMR Case No. _________________________ Effective Date ______________________**
**RFCD Special Study _________________________________________________________**

**REZONING/SPECIFIC AREA PLANS/COMPREHENSIVE PLAN AMENDMENTS?**  Yes ____  No ____
**Case No. _______________________ Flood Control Conditions Checked _____**
**If Hold Harmless required follow PDD-ADM-203**

**DRAINAGE COMPLAINTS?**  Yes _____  No _____
**If yes, recent files checked _____**

**PRE-SUBMITTAL AGREEMENTS?**  Yes _____  No _____
**SDRC?**  Yes _____  No _____
**If yes, minutes in file _____**

**DRAINAGE REPORT REQUIREMENTS (to Follow TECH-114):**

**General**
- Engineer’s Seal on Drainage Report
- Cover Sheet follows TECH-114
- General Location Description
- Location Map
- Description of Proposed Development
- Description of Existing Conditions
- Description of Affecting Watershed Conditions
- Relevant Drainage Features 16.36.020
- Aerial Photo
- Description of FEMA Zones
- Alterations to FEMA Mapping. CLOMR Requested. (16.16.070, 16.36.040)
- FEMA Firmette with project location show
- Description of Special Studies
- Description of Regulatory Floodplains/Sheet Flood Areas
- Critical or Balanced Basin
- Site-specific Detention/Retention Requirements?
- 404 Compliance Statement
- Summary and Conclusions
- Engineer’s Statement
- References
- Drainage Report CD

**Procedures**
- Description of methodology and assumptions
- Previous Studies? Engineer verifies discharges used.

**Hydrology & Hydraulics**

**Offsite**
- Description of watersheds
- Soils Map
- Watershed Map
- Rainfall Data
- Peak Discharges with Hydro Sheets
- Table of CP’s, Drainage Areas, Peak Discharges
- Exhibit with entering and exiting CP’s (16.36.030)
- Adjacent Improvement Plans/Plats Provided
- Topography consistent with MapGuide

**Onsite/Existing**
- Description of Site-Specific Conditions
- Peak Discharges with Hydro Sheets
- Table of CP’s, Drainage Areas, Peak Discharges
- Drainage Exhibit
- Watershed Boundaries
- Drainage Infrastructure
- Entering/Exiting CP’s
- Regulatory Floodplains
- Erosion Hazard Setbacks
- Hydraulic Cross-sections
- Average Depth of Flow for Sheet Flood Areas
- Hydraulic Modeling and CD

**Onsite/Proposed**
- Description of Site-Specific Conditions
- Peak Discharges with Hydro Sheets
- Table of CP’s, Drainage Areas, Peak Discharges
- Drainage Exhibit
- Watershed Boundaries
- Drainage Infrastructure
- Entering/Exiting CP’s
- Regulatory Floodplains (16.36.020)
- Erosion Hazard Setbacks
- Hydraulic Cross-sections
- Average Depth of Flow for Sheet Flood Areas
- Hydraulic Modeling and CD
- Encroachment (16.08.220)
- Developed Conditions approximate Existing Conditions at Property Boundaries
- Clear Drainage Pattern
- Scuppers
- Curb Openings
- Catch Basins
- Storm Drain
- Culverts
- Headwater
- Inlet/Outlet Protection
- Sediment Transport Ratios
- Channels, Swales
- Security Barriers
- Street and P.A.A.L. Capacity
- Q100 shown at all drainage structures
- Details and profiles shown
- Spot elevations or topo to demonstrate drainage pattern
ADDITIONAL REVIEW REQUIREMENTS:

Sheet Flood Area
- Special Study 46 (TECH-106)
- Shaded Zone X (TECH-013)
- Structures Elevated 1.5 feet BFE
- Fill pads extend 25 feet, or engineering analysis, or Erosion protection (TECH-006)
- Estimated depth of sheet flow; limits shown.

Walls and Fences (TECH-005)
- Elevation
- Wall Openings

Erosion Hazard Setbacks
16.28.020
- Santa Cruz, etc. 500 feet
- >10,000 cfs 250 feet
- 10,000 – 5,000 cfs 100 feet
- 5,000 – 2,000 cfs 75 feet
16.28.030
- 2,000 – 500 cfs 50 feet
- <500 cfs 25 feet

Setback Reduction requires 9-point Engineering Analysis and approval of Division Manager (TECH-002)

Channel Design (16.36.120)
- Earthen channel (DCDC V-11 to V-24)
- Perimeter Channels 16.36.120B
- Minimum longitudinal slope .5%
- Impervious bottom requires Chief Engineer approval
- Toe Down (TECH-006)
- Rip-Rap (DCDS V-6, COT 9.3.3)
  - D_50 (Minimum = 6")
  - Thickness = 2D_50
  - Filter Fabric
  - Grouted if side slopes < 3:1

Retention/Detention (SRDM, 16.36.100, 16.48, TECH-007)
- Drainage report clear proposed = existing CP’s (16.36.030)
- No adverse impact to adjacent property
- 2-yr or 5-yr Retention
- 100-year inflow and outflow
- Detention and Retention volumes
- Routing
- 100-year water surface elevation
- Top and bottom elevation
- Adjacent structure FFIE
- Near structures require soils engineer recommendation
- Positive drainage, minimum .5% bottom slope
- Cross-sections of basin as appropriate
- Details/profiles of structures
- Security Barriers (TECH-008)
- Embankment details
- Underground emergency overflow, maintenance covenant
- Waiver Request follows PDD-ADM-202
- In-lieu Fee Payment

All-Weather Access
- Hydraulics and water surface verified (16.36.060)
  - Waiver requires approval of Chief Engineer.
  - dv^2 < 18, d<3 feet (16.26.050)

Other Project-Specific Requirements
- Existing Easement Conflicts
- New Easement Requirements
- Maintenance Access Easements
- CIP
- Public Dedications
- Maintenance Agreements/Covenants
- Right-of-way Use Permit-License Agreement
- Infrastructure Maintenance or Inspection Reports
- Sediment Transport Analysis
  - Notification to Adjacent Jurisdiction (16.36.050)

Landscape Plan Review
- Conflicts with Drainage Infrastructure
- No obstructions at basin outlets
- TECH-009 Followed

Site Inspection
- Inspection Completed
- Photos filed on I: Drive

The purposes of this checklist are to assist Pima County Regional Flood Control District staff in completing a review of project drainage information and to help assure consistent reviews. The checklist is provided as a courtesy to the public. It is not a substitute for professional judgment or complete text of codes, policies and design standards. Submitting the items summarized by the checklist does not insure project approval.