

**Pima County Regional Flood Control District
Water Resources Division**

Riparian Habitat Mitigation Plan (RHMP) Submittal Checklist for Development Projects

Applicability: Pursuant to Chapter 16.30.050.A of the Pima County Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5 (Ordinance), if an applicant demonstrates to the satisfaction of the District that alteration of regulated riparian habitat (RRH) cannot reasonably be avoided, a Riparian Habitat Mitigation Plan (RHMP) shall be submitted to the District for approval when more than 1/3 acre (14,520 square feet) of RRH is disturbed. Additionally, if the 1/3 acre (14,520 square feet) disturbance lies within either an Important Riparian Area (IRA) or Hydroriparian/Mesoriparian (Class H) habitat, and exceeds 5% of the total mapped RRH on the property, the RHMP will require Pima County Board of Supervisors (Board) approval (16.30.050.B).

Plan Review Timeframes: Review timeframes are determined by Development Services Subdivision Coordination and Development Review Division (Subdivision Coordination). The Subdivision Coordination website can be viewed at: <http://www.pimaxpress.com/SubDivision/Default.htm>. When Board approval is required, additional time may be necessary for final approval, which averages 3-4 weeks (please note that subdivision review timeframes do not apply to the Board approval process.) The Board meeting schedule as well as the Clerk of the Board (COB) deadline for submittal of agenda items may be viewed at: <http://www.pima.gov/cob/schedule.htm>. The RHMP must be submitted to the District for review, approval, and administrative processing no later than 15 working days prior to the COB deadline.

When applicable, the RHMP shall be submitted with the tentative plat or development plan, unless special circumstances exist. Subject to District approval, an applicant may request to submit a Preliminary RHMP with the Tentative Plat or Development Plan if circumstances exist that would require delay of a final RHMP until the Improvement Plan (Grading, Paving and/or Sewer Plan) or Final Plat. If the applicant would like to delay submittal of the RHMP, please provide a written request with the first development project submittal.

The Preliminary RHMP, if allowed, must include the following information: location and extent of disturbance relative to RRH, location of mitigation areas, inclusion of field mapping/onsite vegetation survey information, and other checklist items noted below in grey and with an asterisk. For the final RHMP, the checklist items in black must be added to the preliminary RHMP.

A Final RHMP must be approved prior to RRH impacts (i.e., depending upon sequence of development, prior to approval of the Final Plat, Development Plan or Improvement Plan), and shall include all items noted on this checklist. If the Final RHMP will be submitted with the Improvement Plan, an appropriate note must be placed on the Tentative Plat or Development Plan notifying Development Service Department reviewers of this requirement.

An exception to the submittal process noted above is when Board approval is required. In this situation, the Final RHMP shall be submitted with the Tentative Plat or Development Plan. Board review and approval is required for impacts to IRA and Class H habitat, as noted above, and when proposing a Conservation Plan. This exception is to prevent unnecessary expense and effort on behalf of the applicant, should the Board request changes to the RHMP and/or site design.

Please note that revisions to the plat or development plan affecting an approved RHMP will require submittal of a revised RHMP for review and approval.

Submittal Requirements: The RHMP shall be prepared in accordance with 16.30.050.C and follow the requirements outlined in the *Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines* (Guidelines), which can be viewed at: <http://rfcd.pima.gov/rules/>. Preferably, the RHMP shall be included as a sheet in the Landscape Plan, although submitting the RHMP as a separate document is allowed.

Avoidance Justification (16.30.040.A.1):

- *During the planning phases of the project, the location and extent of RRH on the project site shall be evaluated for the proposed use. Site improvements shall be designed to avoid and/or minimize disturbance to riparian areas (TECH-024). If the parcel to be developed contains developable areas outside of the RRH, but improvements are encroaching into RRH, evidence that no reasonably practicable alternative exists to the proposed impacts and evidence that the

impact has been minimized to the maximum extent practicable will be required at the time of RHMP submittal. The applicant shall provide justification regarding why RRH could not be avoided. Examples of why RRH could not be avoided include site constraints, such as steep slopes which are regulated under the Zoning Code or public health and safety considerations such as traffic control (location of access roads relative to major roadways).

RHMP Checklist – This checklist serves as a list of general requirements for the RHMP as outlined in the Guidelines:

- *The RHMP shall be prepared at the same scale as the plat or development plan, as feasible, or at a standard engineering scale that shows all required details. Provide one copy on 24” x 36” size paper and one electronic copy in pdf format with the first development plan or tentative plat submittal (Guidelines, Section 3, pg. 43).
- *Provide a scale, north arrow, location map, brief description of site location, project number and other general information as appropriate for the project.
- *Label the sheet “Riparian Habitat Mitigation Plan”
- *Show site specific limits of the RRH (Guidelines, Section 3, pg. 43). Show each RRH classification type on the plan and provide a legend that describes each line type. Use the following line type and legend descriptions:

<u>Line Type Description</u>	<u>Legend Description</u>
IRA/XA,XB,XC,XD,H	Important Riparian Areas (with underlying class...)*
H	Class H habitat*
XA, XB, XC, XD	Xeroriparian Class (A, B, C, or D) habitat*
* add (rectified or field verified) if applicable	

- *Existing site topography (1 or 2 foot contour interval if available) (Guidelines, Section 3, pg. 44).
- *Proposed finished grades within the mitigated area (Guidelines, Section 3, pg. 44). Finished grades shall be depicted by contours (1 or 2 foot contour interval) or by another method that clearly depicts the finished grades and slope conditions.
- *Limits of disturbance/grading limits, including building envelopes, septic systems, utilities, drainage infrastructure, off-site improvements, etc. Temporary disturbance, such as equipment staging areas, shall also be included in the limits of disturbance (Guidelines, Section 3, pg. 44).
- *Most recent available aerial photograph (Guidelines, Section 3, pg. 43). The preferred method of meeting this requirement is to use an aerial photograph as a base for your plan. The aerial photograph required for the Native Plant Preservation Plan may be used, or if unavailable, aerial photographs are available through the Pima County MapGuide website: <http://gis.pima.gov/maps/>. Aerial photographs are also available from the private sector.
- Delineate the mitigation area (Guidelines, Section 3, pg. 44). The mitigation area shall be shown as both a general location and as a detailed planting plan which indicates locations of individual trees and shrubs. The detailed planting plan can either be shown directly on the RHMP sheet or shown on the Landscape plan sheets and referenced on the RHMP sheet.

When using plant replacement quantities outlined in the Guidelines, the mitigation area shall be a minimum of 70% the size of the area disturbed (Guidelines, Section 2). For example, if you will be disturbing 1 acre of Xeroriparian habitat, the actual size of the mitigation area must be at least 0.70 acres. Alternatively, if an onsite vegetation survey has been performed (Guidelines, Appendices F and G), use planting densities determined by the survey and mitigate the area at a 1:1 ratio (1 acre of disturbance = 1 acre of mitigation), unless it can be demonstrated that a smaller area will support the required plant density. If the applicant demonstrates the full mitigation requirement cannot be completed onsite, a combination of onsite and offsite mitigation will be allowed. For offsite mitigation options, see the *Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County*, which can be viewed at: <http://rfcd.pima.gov/wrd/riparian/guidelines/pdfs/offsite-guidelines.pdf>.

Onsite mitigation shall be located to the extent practicable in a manner that enhances the overall function of natural open space and contributes to the overall value of riparian habitat protected within the project area (Guidelines, Section 2, pg. 33). To achieve this, please consider the following when locating the mitigation area:

- Locate the mitigation area where there is potential to enhance existing habitat or create new habitat with an equivalent biological value to habitat removed from the site.
- Once irrigation is removed, the chosen location must sustain riparian vegetation over the long-term by accounting for existing plant densities and available water.
- When locating individual trees and shrubs within the mitigation area, space plants according to their mature canopy width.
- Planting within existing undisturbed riparian habitat is not allowed unless it can be demonstrated that enhancement will increase the value of the habitat and be sustainable long-term. If restoring degraded riparian habitat is not possible, mitigation can be located in an area that receive sufficient water to facilitate growth and maintain healthy habitat (i.e., drainage swales, low-lying areas, water harvesting basins, etc.) with the goal of replacing lost habitat function by establishing vegetation of similar density and structure.
- The mitigation area shall be one continuous area in a density that creates habitat, as the site allows. Mitigation areas are to be located away from improved areas, to prevent the desire to maintain in a manner similar to adjoining landscaped areas.

For residential developments, placement of mitigation areas and protected riparian habitat within common areas maintained by the Home Owners Association (HOA) shall follow requirements outlined in TECH-024 and ADM-209. Common areas containing mitigation plantings shall be delineated and labeled separately from “landscaped” common areas on the tentative and final plats.

- Mitigation plantings shall be installed per the approved planting methods outlined in the Guidelines (Guidelines, Section 3, pg. 44 and Appendix C, C-10). The following note shall be placed on the RHMP, “*Mitigation area(s) to be left in a natural state. No disturbance shall occur within the mitigation area(s) without RFCD review and approval. Such disturbance includes but is not limited to secondary impacts such as the presence of livestock, fencing, landscaping, etc*”
- *Calculations and quantities for disturbance and mitigation (Guidelines, Section 3, pg. 45). Calculations shall include the following:
 1. Total area of RRH on the project site, by class of habitat
 2. Area of disturbed RRH, by class of habitat
 3. Percent of total mapped RRH disturbed (provide for Class H or IRA habitat only)
 4. Area of mitigation, by class of habitat (area of disturbance x mitigation ratio; 1:1 for Xeroriparian Class A-D and 1.5:1 for Class H and IRA)
 5. Minimum required mitigation area (area of mitigation x 0.7 or 1), by class of habitat, and
 6. Actual mitigation area, by class of habitat (provide if different than minimum mitigation area)
 7. Plant quantities (i.e., number of trees/acre and shrubs/acre)

Disturbance and mitigation calculations shall be in acres, to the nearest hundredth (ex., 0.33 acres).

Plant quantities shall be calculated using plant densities obtained from either the Guidelines (Section 2) or through an onsite plant survey (Technical Procedure TECH-116), multiplied by the area mitigation.

- Plant schedule (Guidelines, Section 3, pg. 44). Provide a plant schedule that identifies plant species, quantities and sizes at the time of installation. The plant schedule shall list a minimum of 3 tree species, no more than 75% of any one species and 5 shrub species, no more than 35% of any one species. Tree and shrub size and species shall be selected in accordance with Guideline requirements (see Guidelines, Section 2 and Appendix B). This requirement may be modified upon submittal of an onsite plant survey performed by a qualified professional (Guidelines, Appendices F and G).

- Seeding requirement (Guidelines, Section 3, pg. 44). Mitigation area is to be seeded with a minimum of 12 species from the approved plant list (see Guidelines, Appendix B, B-3 and B-4). Of the 12 species, 4 shall be shrubs, 4 shall be annuals/perennials/vines, and 4 shall be grasses. Seeding methods include; hydroseeding, drill seeding with crimped straw mulch or broadcast seeding and raking into seedbed with straw or other approved mulch. List plant species used in the seed mix on the RHMP and add the following note, *“Mitigated area will be (insert method of seed placement) with a minimum of 12 species from the approved (Class H or Xeroriparian) plant list found in Appendix B of the “Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines.” If plant species listed on the mitigation plan are unavailable, replacements species from the approved plant list may be selected based upon availability. Of the 12 species, 4 shall be shrubs, 4 shall be annuals/perennials/vines, and 4 shall be grasses. Any changes to the seed mix shall be noted on the first monitoring plan submittal.”* The applicant is encouraged to consult with a seed vendor prior to selecting plant species for the seed mix. If plant species and/or seeding rates change after approval of the RHMP, the applicant shall provide information regarding changes to the original RHMP with the first monitoring plan submittal (“as-built” RHMP) (Guidelines, Section 3, pg. 46).
- *Method of irrigation (Guidelines, Section 2, pg. 34, Section 3, pg. 44, and Appendix C, C-6, C-10). Irrigation method shall include an automatic system such as drip, sprinklers, or other automatic irrigation system. The method of irrigation must demonstrate that adequate water will be provided to the new plants during the establishment period. Use of water harvesting methods is encouraged as a supplement to irrigation in addition to providing long-term benefits to the plants. A note shall be placed on the RHMP that identifies how mitigation plantings will be irrigated, including identification of an irrigation water source.
- Plant establishment (Guidelines, Section 3, pg. 47 and Appendix C, C-10). Native plants are well adapted to annual rainfall amounts in the Tucson Basin and can typically survive without supplemental irrigation, once established. To create a successful mitigation area, initial plant establishment is essential. Once a healthy root system is established (one to three years for most plant species, but possibly longer depending upon the species and/or establishment within areas of shallow groundwater), plants shall be “weaned” from supplemental irrigation. The intent is to adjust the irrigation schedule until plants can survive on natural rainfall. This can be accomplished by decreasing the frequency of irrigation each year. While decreasing supplemental irrigation, monitor plant health, especially during times of drought, when plants may require additional irrigation. Establishment of the mitigation area will be considered successful when 80% of the plants are living and actively growing (without significant die back or loss) after one year without supplemental irrigation. Place the following note on the RHMP: *“Once plants have established (approximately 1 to 3 years after installation), supplemental irrigation will be decreased in accordance with Appendix C of the Guidelines.”*
- Identify construction methods that protect riparian habitat to be left unaltered, such as protective fencing or other methods (Guidelines, Section 3, pg. 42).
- Place the basic statement of maintenance on the RHMP as outlined in Section 2 of the Guidelines, “Required Maintenance” (Guidelines, Section 2, pg. 35).
- *Identify the entities or individuals responsible for implementation of the RHMP, monitoring of the mitigation area, and long term ownership and management of the mitigated area(s) (Guidelines, Section 3, pg. 42).
- Identify the growing season mitigation will be implemented by placing the following note on the RHMP, *“Riparian Habitat Mitigation plan implementation shall be completed by the first growing season following completion of construction, which is projected to be (select one season) March-May, 20XX/July-September, 20XX/September-November, 20XX.”* If the development will occur in phases or planned completion is unknown, provide a general note that approximates date of completion. A good rule of thumb to follow is that once riparian habitat has been impacted, mitigation must occur (Guidelines, Section 3, pg. 42).
- Monitoring success of the mitigation area(s) (Guidelines, Section 3, pg. 44 and 46-48). Mitigation area(s) shall be maintained and monitored following implementation of the RHMP to ensure 80% of the plants are living and actively growing without supplemental irrigation or significant die-back at the end of five years. Mitigation areas will be monitored by establishing photo monitoring points where photographs will be taken annually to monitor success of the mitigation area over time. The location of points will be chosen to capture the entire mitigation planting area(s). A minimum of one photograph per monitoring point is required. If the mitigation planting area cannot be captured by

one photograph, several points shall be used. Depict photo monitoring points on the RHMP as a close-ended arrow, to show the location and direction of photographs. The monitoring plan shall be noted on the RHMP as follows, “A monitoring plan, in accordance with the monitoring schedule outlined in Section 3 of the Guidelines, will be submitted over a five year period following implementation of the riparian habitat mitigation plan (RHMP). Any changes from the approved RHMP shall be noted on the monitoring plan submittal.” Submittals shall be labeled “Annual Monitoring Report for P12XX-XX” and sent to the following address: Pima County Regional Flood Control District, ATTN: Water Resources Division Staff, 97 E. Congress Street, 2nd floor, Tucson, AZ 85701. **Note address for sending monitoring plan submittals on the RHMP.** The individual or entity responsible for implementation and monitoring of the mitigation area shall provide an “as-built” RHMP with the first monitoring plan submittal (see monitoring report submittal requirements in Section 3 of the Guidelines).

- *Provide a note on the RHMP describing any deviations from requirements as outlined in the Guidelines. Describe any special site conditions, such as presence of noxious and/or invasive species, previous disturbance, etc. (Guidelines, Section 3, pg. 42).

*When a preliminary RHMP is allowed, this item must be included in a preliminary RHMP submittal

Resources:

Chapter 16.30 of the Floodplain and Erosion Hazard Management Ordinance No. 2010-FC5

<http://www.pima.gov/cob/code/>

Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines and Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County

<http://rfcd.pima.gov/rules/index.cfm>

Technical Policies and Procedures and Administrative Procedures

<http://rfcd.pima.gov/rules/index.cfm>

Pima County Mapguide to view Regulated Riparian Habitat

<http://gis.pima.gov/maps/>

Chapter 18.07.080 of the Zoning Code for information on modified development standards

<http://www.pima.gov/cob/code/>