PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
Riparian Habitat Mitigation Plan (RHMP) Checklist for Single-Lot Development

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 RRH on the property, the RHMP will require Pima County Board of Supervisors (BOS) approval.

Plan Review Timeframes: On average, RHMP reviews are completed within 10 business days, although this timeframe may vary based on staff workload. Review of the RHMP may be completed concurrently with review of the Floodplain Use Permit (FPUP), provided the RHMP is submitted with the FPUP application. If BOS approval is required, please account for the additional time required for final approval, which averages 3-4 weeks. The schedule for BOS regular session meetings as well as the Clerk of the Board (COB) deadline for agenda submittals may be viewed at: http://www.pima.gov/cob/schedule.htm. The RHMP must be submitted to the District for review and approval 10 business days prior to the COB deadline. Submittals received in less than 10 business days may not be reviewed in time to meet the COB deadline.

Submittal Requirements: The RHMP shall follow the requirements outlined in the *Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines* (Guidelines), which can be viewed at:
http://rfcd.pima.gov/wrd/riparian/pdfs/revised_guidelines_jan2010.pdf

Avoidance Justification:

- ☐ If the property 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 requested at the time of RHMP submittal. The applicant shall provide justification regarding why habitat could not be avoided. Examples of why habitat could not be avoided include site constraints, such as steep slopes which are regulated under the Zoning Code, allowance for legal use of the property requiring encroachment into riparian areas or public health and safety considerations such as traffic control (driveway access relative to major roadways) and fire safety zones. Preserving views, cost of construction and similar factors are NOT sufficient justification for not avoiding disturbance of RHH.

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

- ☐ The mitigation planting plan must be provided on 11” x 17”paper or larger – Two sets required.
- ☐ The plan must be drawn at a measurable, standard engineering scale of 1” = 100’ or larger.
- ☐ The plan must show scale and north arrow.
- ☐ Label the plan “Riparian Habitat Mitigation Plan”.
- ☐ Indicate the parcel ID number, parcel address, property owner name, and FPUP number on the plan.
- ☐ Show the site specific limits of the RRH. Show each riparian habitat classification type on the plan and provide a legend that describes each line type. Use the following line type and legend descriptions:

Line Type Description	Legend Description
IRA	Important Riparian Area (with underlying class...)*
H	Class H habitat*
XA -D	Xeroriparian Class (A, B, C, or D) habitat*

* add (rectified or field verified) as applicable

- ☐ Existing site topography (1 or 2 foot contour interval), if available.
- ☐ Proposed finished grades within the mitigated area. 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 and/or grading limits for all existing and proposed improvements including utilities, driveways, and septic systems. If your local fire district requires the creation of defensible space around the structure, extend the grading limits to show the additional area of disturbance. As part of the submittal, provide documentation of the defensible space requirement from the local fire district. Any part of this area of disturbance that extends beyond the area of disturbance for the existing/proposed improvements can be subtracted from the total disturbance calculation.

- ☐ Most recent available aerial photograph. The preferred method of meeting this requirement is to use an aerial photograph as a base for your plan. Aerial photographs may be available at our office located at 97 E. Congress Street, 3rd floor or through the Pima County MapGuide website: http://www.dot.pima.gov/gis/maps/ Aerial photographs are also available from the private sector.

- ☐ Delineate the mitigation area. The mitigation area shall be shown either as a general location on the RHMP or as a detailed planting plan which indicates locations of individual trees and shrubs. If the mitigation area is shown as a general location, provide a table with the number of trees and shrubs per area, or depict the number of trees and shrubs, per area, directly on the RHMP. When using plant replacement amounts outlined in the Guidelines, the mitigation area shall be a minimum of 70% the size of the area disturbed (see Section 2 of the Guidelines). 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 (Appendix F and G of the Guidelines), use planting densities determined by the survey and mitigate the area at a 1:1 ratio (1 acre of disturbance = 1 acre of mitigation). If it is demonstrated that the full mitigation requirement cannot be completed onsite, a combination of onsite and offsite mitigation will be allowed. Subject to approval by the District, if you will be enhancing existing riparian habitat, space the trees and shrubs within the undisturbed area, according to the individual plant species mature canopy width.

  Locate your 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. The chosen location must be sustainable over the long-term, once irrigation is removed and account for existing plant densities and available water. Subject to approval by the District, if you chose to enhance existing riparian habitat, ensure trees and shrubs within the undisturbed area are spaced according to the individual plant species mature canopy width. If this option is not possible due to site constraints, the mitigation area shall be placed in locations that receive sufficient water to facilitate growth and maintain healthy habitat (i.e., drainage swales, low-lying areas, water harvesting basins, etc.). 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 the natural area as part of the landscaping adjacent to improvements. Mitigation plantings shall be installed per the approved planting methods outlined in the Guidelines. 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, intensive landscaping, outdoor play areas, etc."*

- ☐ Calculations and quantities for disturbance and mitigation. 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. Minimum required mitigation area, by class of habitat (Xeroriparian Classes A-D are mitigated at a 1:1 ratio, Class H and IRA are mitigated at a 1:1.5 ratio)
  4. Actual mitigation area, by class of habitat (if minimum mitigation area and actual mitigation area are different)

  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 of proposed disturbance. For Class H habitat or IRA, the area of disturbance shall be multiplied by 1.5 prior to calculating the quantity of trees and shrubs.

- ☐ A planting list or schedule that identifies plant species, quantities and sizes at the time of installation. The planting 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. This requirement may be modified upon submittal of an onsite plant survey performed by a qualified professional (Appendices F and G). A list of approved plant species can be viewed in Appendix B of the Guidelines. Tree and shrub sizes shall be in accordance with Guideline requirements (see Section 2).

- ☐ Seeding requirement. Mitigation area is to be seeded with a minimum of 12 species from the approved plant list (see Guidelines, Appendix B). 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." The property owner 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 property owner shall provide information regarding changes to the original RHMP with the first monitoring plan submittal ("as-built" RHMP).

- ☐ Method of irrigation. Irrigation methods may include an automatic system such as drip or a manual method such as hand watering. Irrigation method must demonstrate that adequate irrigation will be provided to the new plants during the five year establishment period. Use of onsite water harvesting methods is encouraged. A note shall be placed on the RHMP that identifies the type of irrigation method chosen.

- ☐ Plant establishment. 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 on the RHMP.

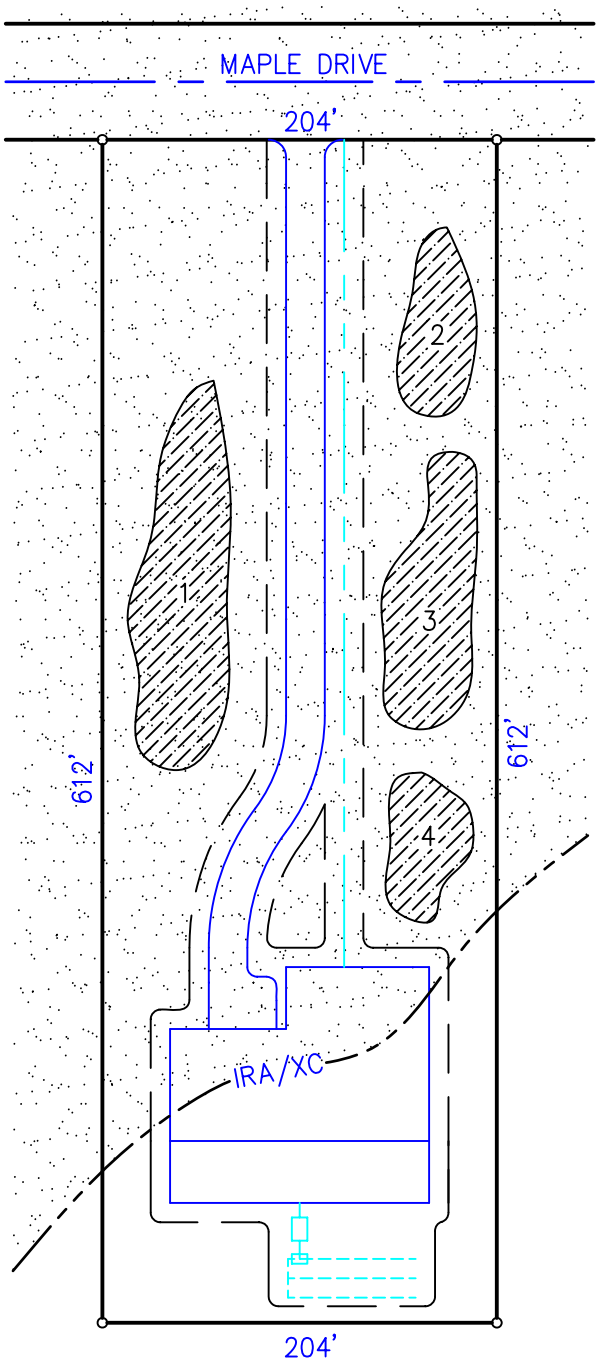
- ☐ Place the basic statement of maintenance on the RHMP as outlined in Section 2 of the Guidelines, "Required Maintenance".

- ☐ Note 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."*

- ☐ An annual monitoring submittal for a period of five full years following RHMP implementation will be required to ensure the RHMP is implemented and mitigation area maintained. Photo monitoring points will be chosen based upon site constraints, so that the entire mitigation planting area(s) is documented. 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. The monitoring plan shall be noted on the RHMP as follows, *"A monitoring plan, in accordance with the Guidelines, will be submitted annually for a period of five years 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 FPUP No. XX-XXX" 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).
- ☐

Compliance: It is the responsibility of the permittee to ensure the trees and shrubs received from the nursery are the correct plant species as noted on the RHMP (i.e., plants native to Pima County). The most common problem encountered is the substitution of non-native and/or hybrid mesquites for native species. Arizona has only 3 native species of mesquite. Those species include: Velvet mesquite (*Prosopis velutina*), Screwbean mesquite (*Prosopis pubenscens*) and Western Honey mesquite (*Prosopis glandulosa Torr*. Var. *torreyana*). The western honey mesquite has not been included on the approved plant list, since it is typically found outside of Pima County. The predominant species within Pima County is velvet mesquite. It is important that whoever installs the plants verify with the nursery, both prior to purchase and prior to installation, species nativity and conformance with the species listed on the RHMP. If, upon inspection by the District, the plants installed are found to be non-native (exotic) species, the permittee shall, at their expense, plant adequate native species to satisfy the requirements of the RHMP. A statement requiring verification of plant species nativity prior to installation will be a condition of the FPUP, to be agreed to and initialed by the permittee at the time of FPUP issuance.

An application for a FPUP provides the District with the authority to enter the subject property to inspect the mitigation area to ensure continued compliance with the permit during the five year maintenance period.



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1"=XX'

PLANT SCHEDULE

TREES	QTY	SIZE
IRONWOOD	5	15 GAL
OLNEYA TESOTA	4	5 GAL
VELVET MESQUITE	5	15 GAL
PROSOPIS VELUTINA	4	5 GAL
BLUE PALO VERDE	5	15 GAL
CERCIDIUM FLORIDUM	5	5 GAL
SHRUBS		
CREOSOTE	6	5 GAL
LARREA TRIDENTATA	6	1 GAL
DESERT HACKBERRY	6	5 GAL
CELTIS PALLIDA	6	1 GAL
BRITTLEBUSH	6	5 GAL
ENCELIA FARINOSA	6	1 GAL
JOJOBA	6	5 GAL
SIMMONDSIA CHINENSIS	6	1 GAL
TRIANGLE-LEAF BURSAGE	7	5 GAL
AMBROSIA DELTOIDEA	7	1 GAL

CALCULATIONS:

THIS SITE CONTAINS IMPORTANT RIPARIAN AREA WITH UNDERLYING CLASS C XERORIPARIAN HABITAT

TOTAL REGULATED RIPARIAN HABITAT ON-SITE = 2.20 ACRES
AREA OF DISTURBED REGULATED RIPARIAN HABITAT = 0.413 ACRES
AREA OF MITIGATION = 0.413 ACRES X 1.5 = 0.620 ACRES
TOTAL # OF TREES REQUIRED = 45 X 0.620 ACRES = 28 TREES
TOTAL # OF SHRUBS REQUIRED = 100 X 0.620 ACRES = 62 SHRUBS

MITIGATION AREAS

AREA 1	10 TREES	20 SHRUBS
AREA 2	6 TREES	14 SHRUBS
AREA 3	6 TREES	14 SHRUBS
AREA 4	6 TREES	14 SHRUBS

APPROVED SEED MIX SHALL INCLUDE:

ARISTIDA PURPUREA- PURPLE THREE-AWN	2.0 LBS/ACRE
ASTER TANACETIFOLIUS- PURPLE ASTER	3.0 LBS/ACRE
BAILEYA MULTIRADIATA- DESERT MARIGOLD	1.5 LBS/ACRE
DISCHLOSTEMMA PULCHELLUM- BLUE DICKS	5.0 LBS/ACRE
ERICAMERIA LACRICIFOLIA- TURPENTINE BUSH	1.0 LBS/ACRE
ERIGONUM FASCICULATUM- FLAT TOP BUCKWHEAT	1.0 LBS/ACRE
HYPTIS EMORI- DESERT LAVENDER	4.0 LBS/ACRE
LEPTOCHLOA DUBIA- GREEN SPRANGLETOP	4.0 LBS/ACRE
LYCIUM SPP.- WOLFBERRY	3.0 LBS/ACRE
LARREA TRIDENTATA- CREOSOTE	2.0 LBS/ACRE
NOLINA MICROCARPA- BEARGRASS	3.0 LBS/ACRE
PARTHENIUM INCANUM- MARIOLA	2.0 LBS/ACRE
PENSTEMON PARRYI- PENSTEMON	4.0 LBS/ACRE
SPHAERALCEA AMBIGUA- GLOBEMALLOW	3.0 LBS/ACRE
SPOROBOLUS CRYPTANDRUS- SAND DROPSEED	2.0 LBS/ACRE

LEGEND

IRA/XC	IMPORTANT RIPARIAN AREA WITH UNDERLYING CLASS C XERORIPARIAN HABITAT
2	MITIGATION AREA
	RIPARIAN LIMIT
	GRADING LIMIT
	UTILITY
	PROJECT BOUNDARY

GENERAL NOTES:

1. MITIGATED AREA WILL BE HYDROSEEDED WITH A MINIMUM OF 12 SPECIES FROM THE APPROVED XERORIPARIAN PLANT LIST FOUND IN APPENDIX A OF THE "REGULATED RIPARIAN HABITAT MITIGATION STANDARDS AND IMPLEMENTATION GUIDELINES." IF PLANT SPECIES LISTED ON THE MITIGATION PLAN ARE UNAVAILABLE, REPLACEMENT 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.

2. MITIGATION PLANTINGS TO BE IRRIGATED USING AN AUTOMATIC DRIP IRRIGATION SYSTEM.

3. MITIGATION PLAN IMPLEMENTATION SHALL BE COMPLETED BY THE FIRST GROWING SEASON FOLLOWING COMPLETION OF CONSTRUCTION, WHICH IS PROJECTED TO BE MARCH-MAY, 20XX.

4. A MONITORING PLAN, IN ACCORDANCE WITH THE GUIDELINES, WILL BE SUBMITTED ANNUALLY FOR A PERIOD OF FIVE (5) YEARS FOLLOWING IMPLEMENTATION OF THE MITIGATION PLAN. ANY CHANGES FROM THE APPROVED MITIGATION PLAN SHALL BE NOTED ON THE MONITORING PLAN SUBMITTAL.

   MONITORING PLAN SHALL BE SUBMITTED TO THE RFCD AT:

   PIMA COUNTY REGIONAL FLOOD CONTROL DISTRICT
   ATTN: WATER RESOURCES DIVISION STAFF
   97 E. CONGRESS ST., 2nd FLOOR
   TUCSON, ARIZONA 85701

   PLACE THE FPUP NUMBER ON THE ENVELOPE AND MONITORING PLAN SUBMITTAL.

5. THE PROJECT OWNER, AND/OR THE OWNERS SUCCESSORS, AGREE TO PRESERVE AND PROTECT THE MITIGATION AREA FOR THE DURATION OF THE PROJECT. FURTHER, THE PROJECT OWNER AND/OR SUCCESSORS AGREE TO ACTIVELY MAINTAIN THE MITIGATED AREA FOR A PERIOD OF NOT LESS THAN FIVE (5) YEARS. MAINTENANCE ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO, THE REGULAR OPERATION OF OF THE IRRIGATION SYSTEM, THE REPLACEMENT OF DEAD TREES AND SHRUBS, AND THE REMOVAL OF NOXIOUS AND/OR INVASIVE PLANT SPECIES.

6. 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, INTENSIVE LANDSCAPING, OUTDOOR PLAY AREAS, ETC.

RIPARIAN HABITAT MITIGATION PLAN

PROPERTY OWNER: JOE SMITH
PROPERTY ADDRESS: 200 W. MAPLE DRIVE
PARCEL TAX CODE NO. 123-45-6780
FPUP NO. XX-XXXRP