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Provide protective fencing to prevent vehicular access.

Area to be cleared of invasive vegetation as directed by the habitat restoration specialist.

Cottonwood snags to remain in place.

Mesquites and paloverdes to remain in place.

Refer to note on invasive species removal, sheet 3.
NOTE: SEE SEPARATE ENGINEERING DRAWINGS FOR CHANNEL DESIGN & DETAILS.

AREA 2

NOTE: SEE SEPARATE ENGINEERING DRAWINGS FOR CHANNEL DESIGN & DETAILS.

AREA 3

NOTE: SEE SEPARATE ENGINEERING DRAWINGS FOR CHANNEL DESIGN & DETAILS.

TABLE 1 - CHANNEL DIMENSIONS

<table>
<thead>
<tr>
<th>NO.</th>
<th>WIDTH</th>
<th>DEPTH</th>
<th>COVER</th>
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<td>12</td>
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<td>2</td>
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<td>3</td>
<td>20</td>
<td>25</td>
<td>18</td>
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</tbody>
</table>

NOTE: SEE SEPARATE ENGINEERING DRAWINGS FOR CHANNEL DESIGN & DETAILS.

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<table>
<thead>
<tr>
<th>Invasive Species Treatment Table</th>
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<tr>
<td><strong>Mechanical Treatment Options</strong></td>
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<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>Sedges</td>
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<tr>
<td>Grasses</td>
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<tr>
<td><strong>Chemical Treatment Options</strong></td>
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<tr>
<td><strong>Notes:</strong></td>
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</table>

### Invasive Species Notes:

1. Invasive species shall be identified for removal in coordination with the Habitat Restoration Specialist. Removal shall be consistent with the Invasive Species Management Plan. Species-specific treatments are summarized in the Invasive Species Treatment Table on this sheet.

2. The western basin of Area 3 will require intensive invasive treatment that will be coordinated with the Habitat Restoration Specialist, who will flag areas to be treated according to the Invasive Species Plan. Invasive species removal mapping may be one of the preferred methods to be used. Because these areas will not be planted or seeded, intensive control will be necessary to allow native species to re-establish.

3. Large culls of Giant Reed (located in the eastern basin of Area 3) shall be cut and treated with herbicide, but the bases (up to 6 ft) shall remain in place to provide habitat for reptiles while the redshank plantings become established. Smaller culls shall be entirely removed with mechanical means only.

4. If herbicide application is necessary, it shall be applied directly to individual plants and not broadcast on the soil. Herbicides will be applied only by personnel with a current and applicable application license from the State of Arizona. Herbicides shall be applied according to manufacturer’s label, and all applicable safety-handling measures shall be followed.

### Grading Notes:

1. The Arizona Department of Agriculture (AZDA), Tucson Office, shall be notified in writing of plans to cover, grade and conduct surface disturbing activities associated with the project at least 30 days in advance of clearing and grading activities. Notification shall be in conformance with the Arizona Native Plant Law. Arizona Revised Statutes, Chapter 7, as administered by the AZDA.

2. The Contractor shall cause the project site to be Blue-Staked prior to the start of any excavation or trenching work, and shall be familiar with plans showing utility locations. Engineering Plans shall be reviewed to identify the locations of known underground utility and telephone lines. Blue-Staking shall be kept current during the course of the project.

3. Rainwater Harvesting Berm/Basin Grading Drawings are diagrammatic. Drawings are intended to show the approximate locations and grading limits for basins. All berms/basins shall be located within the project limits. Minor adjustments in the location and layout may be necessary. Final layout must be approved in the field by Landscape Architect.

4. Berm/Basin staking. Locations and outlines shall be field staked by the Contractor and then field-verified and approved by USACE, Pima County, and the Landscape Architect prior to any surface disturbance. Minor adjustments in layout may be made in order to best capture rainwater runoff. Contractor shall receive written authorization to initiate surface area preparation and basin construction after all locations and basins are staked and verified by Landscape Architect.

5. Surface Area Preparation: Surface area shall be raked and the raked surface material (i.e., rock, wood, debris, and vegetative material) shall be collected prior to basin/basin construction. This material shall be distributed over the new soil surface of the basin after all excavation, planting, and irrigation installation is complete. Rough rake the surface to blend with adjacent undisturbed soil.

6. Berm/Basin excavation. In order to best capture and temporarily hold rainfall and surface runoff during heavy storms, the basins/basins shall be built such that excavated material is removed (Cut) from the higher elevation area of the basin (upspoke) and placed (Fill) along the lower elevation area (downspoke) in a low berm according to the following parameters:

   • Cut and fill soil material shall be balanced among all of the basin/basin elements, and to the extent possible, within each individual berm/basin.

   • Basins/Basins shall be dug, shaped, and contoured using hand tools and mechanical equipment.

   • Cut slopes of basins shall not exceed 1:1 (i.e., 25% slope) and in most cases will be less steep.

   • Fill slopes of low berms forming the basin containment shall not exceed 3:1 (i.e., 33% slope) without authorization by Landscape Architect or Habitat Restoration Specialist. Where authorized, fill slopes exceeding 3:1 shall receive erosion control blanket.

   • Maximum depth of any basin shall not exceed 18" (existing grade), maximum height of berms shall not exceed 18" above existing grade. This will result in a difference in elevation of 3', measured from low point of basin to top of berm.

   • Rocks and boulders that are excavated shall be utilized to stabilize the side slopes of the low berms and shall be clustered at the ends to prevent erosion at times of overflow. Broken concrete and other inorganic debris shall be removed from site.

   • Excavated soil shall be placed in 6' maximum layers (6"th) to form low berms. Firmly tamp down soil in each lift before adding the next 6" lift. Spray water after each lift is placed.

7. Final Shaping and Draining: Once excavation and fill work is complete at each berm/basin, and the containment berm is firmly tamped down, apply water in a gentle spray to wet the entire surface area without avoiding the berm slopes. Let dry. Fill any basins and use hand tools and rock axe as needed to repair and reshape surface as needed and directed by Landscape Architect or Habitat Restoration Specialist. Fill basins with water, taking all precautions necessary to avoid erosion. Let berms and basins settle and reshape as necessary where settlement has occurred and to insure a 3' difference in elevation between basin bottom and top of berm. Contact Landscape Architect or Habitat Restoration Specialist if a basin does not completely drain within 24 hours. Rough rake all surface areas receiving hydroseed and incorporate surface material previously set aside (per note 5 above) and blend with adjacent undisturbed soil surface.
NOTES:

1. ALL PIPING, COMPONENTS AND VALVES SHALL BE 2" IN Diameter.
   ALL PIPING SHALL BE 2" IRRIGATION SYSTEM.
   ALL PIPING SHALL BE PURPLE, INDICATING NON-POTABLE IRRIGATION SYSTEM.

2. SEE SHEETS 9 & 10 FOR TYPICAL LAYOUT AND PIPING DIAGRAMS FOR SPRINKLER/SPRAY AND DRIP IRRIGATION SYSTEMS.

3. SEE SHEET 9 FOR AREA 3 SPRINKLER/SPRAY IRRIGATION SYSTEM LAYOUT & SEE SHEET 10 FOR AREA 3 DRIP IRRIGATION SYSTEM LAYOUT.

4. LOCATION OF IRRIGATION COMPONENTS IS SHOWN DIAGRAMMATICALLY. FINAL PLACEMENT SHALL BE FIELD APPROVED BY LANDSCAPE ARCHITECT.

5. ALL SPRAY HEADS SHALL BE INSTALLED TO AVOID OVER-SPRAY ONTO CURBS, PAVEMENT AND PEDESTRIAN PATHS.
AREA 3

REVEGETATION TREATMENT AREAS

- **CHANNEL BOTTOM = NO PLANTING OR SEEDING**
- **XERORIPARIAN TERRACE = SEEDING + RIPARIAN CONTAINER PLANTING**
- **XERORIPARIAN BUFFER = SEEDING + RIPARIAN CONTAINER PLANTING (LOWER DENSITY)**
- **ENHANCEMENT = SEEDING + ENHANCEMENT CONTAINER PLANTING**
- **SEED ONLY**

**EXISTING PEDESTRIAN BRIDGE**

**NOTE: DO NOT INSTALL ANY CONTAINER PLANTS IN THE XERORIPARIAN TERRACE AREA WITHIN 150' OF PEDESTRIAN BRIDGE STRUCTURE. DISTRIBUTE THOSE PLANTS IN ADJACENT AREAS AS FIELD-DIRECTED BY LANDSCAPE ARCHITECT.**

**AREA TO BE CLEARED OF INVASIVE VEGETATION AS DIRECTED BY THE HABITAT RESTORATION SPECIALIST. COTTONWOOD SNAGS TO REMAIN IN PLACE. MESQUITES AND PALOVERDES TO REMAIN IN PLACE. REFER TO NOTE ON INVASIVE SPECIES REMOVAL, SHEET 5.**

**EXISTING PEDESTRIAN BRIDGE**

**NOTE: DO NOT INSTALL ANY CONTAINER PLANTS IN THE XERORIPARIAN TERRACE AREAS WITHIN 150' OF PEDESTRIAN BRIDGE STRUCTURE. DISTRIBUTE THOSE PLANTS IN ADJACENT AREAS AS FIELD-DIRECTED BY LANDSCAPE ARCHITECT.**

**AREA OF SOIL-CEMENT, TYP. DO NOT PLANT OR SEED. SEE ENGINEERING DRAWINGS.**
REVEGETATION & PLANTING NOTES:

1. All planting and Landscape Restoration work shall be performed in accordance with these Work Plan Drawings and Specifications.

2. Plant layout is to be approved by Field/Landscape Architect or Habitat Restoration Specialist prior to actual planting and irrigation work.

3. Site preparation and planting work shall be coordinated with grading and irrigation work. Planting shall not be initiated until channel grading is complete and approved, and irrigation system is installed sufficient to provide immediate water upon planting. Work that is constructed in a manner that is not supported by the Landscape Restoration Specialist may result in removal of such items at the Contractor’s expense. No work shall be performed prior to the approval of the Landscape Restoration Specialist of any field conditions which prevent the installation of the irrigation system as shown. Contractor shall complete notification of UACSE and City of Tucson prior to the start of any work involving irrigation equipment.

4. The Contractor shall provide and ensure in place all existing vegetation except those species that are identified by the Invasion Species Management Program of the Habitat Restoration Specialist for removal. Area vegetation that is not identified by either the Invasion Species Management Program, and that is damaged or removed by the Contractor, shall be replanted, at contractor’s expense, with appropriate species from the approved list.

5. All native species protected by state and local laws shall remain in place undisturbed, even if they occur within an area identified for clearing and weed removal. The Habitat Restoration Specialist will identify all trees and shrubs to be preserved in place with flagging and adequate protective vegetation.

6. Surface Area Preparation: Surface area at planting locations shall be raked and the raked surface materials i.e. rock, woody debris, and miscellaneous materials shall be set aside for use with future planting. This material shall be distributed to the exposed soil surface around the plantings after planting is completed. Rocks and soft dirt to be mixed with full soil organic matter.

7. Planting, Staking and Fertilizing: Shall be in accordance with planting details of this Work Plan. Fertilizer rate shall be applied to planting sites as shown in the work plan. 1 cup per 5 gallon container plant or 1 to 2 pounds per 50 gallon container plant

8. Potting soil shall be in accordance with details of the Work Plan. All potting soil mix (except cactus) shall be placed such that they have a shallow basin surrounding them, permitting drainage. All container plants shall be cushioned with double layers of 1/2" raschel. The container plant shall be set at the level of the grade and 2 inches back from the planting location.  

9. Irrigation: All container plants shall be watered by an automatic irrigation system per the Irrigation details. Any changes shall be approved by the Landscape Architect.

10. Erosion Control: Erosion Control shall be designed to prevent erosion control on areas where otherwise unprotected slopes are slopes. Erosion Control shall be designed to protect slopes from rainfall and prevent erosion.

11. Maintenance: All required planting and irrigation shown here shall be maintained during the life of the project. Maintenance during installation and during a one year’s postinstallation period of the plant materials and the irrigation system is the responsibility of the Contractor and shall consist of regular weeding, watering, clearing areas of weeds and excess, and the removal and replacement of dead plant material with like kinds and colors, and keeping the irrigation system in working order. Management of invasive species according to the Invasive Management Plan is the responsibility of the Contractor during the one year Landscape Establishment period.

12. Guarantee: Contractor shall guarantee all planting for one year from the date of written job acceptance by UACSE and Pima County, including replacement of dead or dying plants, and repair of any damaged or settled condition. All plants shall be alive and thriving before the job acceptance is granted.
REPRESENTATIVE PLANTING CROSS-SECTION

NOT TO SCALE

- XERORIPARIAN TERRACE
- CHANNEL BOTTOM & LOW FLOW BANKS
- XERORIPARIAN TERRACE
- XERORIPARIAN BUFFER

SEED ONLY

- HIGH FLOW BANK
- TERRACE BENCH
- LOW FLOW BANK

VARIIES

- 6'
- 18'
- 8'

DRIP IRRIGATION PIPING & PRESSURE REDUCER - INSTALL IN BUFFER (NOT ON SLOPE OR TERRACE)

SPRINKLER HEADS - INSTALL 60' BACK OF LOW FLOW BANK

PLANT TREES & SHRUBS ALONG TOE OF HIGH FLOW BANK

PLANT TREES & SHRUBS ALONG TOP OF HIGH FLOW BANK

REPRESENTATIVE PLANTING CROSS-SECTION

NOT TO SCALE

* NOTE: TERRACE BENCH ON EAST CHANNEL IS 18' WIDE, AND IS 8' WIDE ON THE WEST & CENTRAL CHANNELS.

REFER TO ENGINEERING DRAWINGS FOR OTHER DIMENSIONS

XERORIPARIAN TERRACE (DO NOT SEED OR PLANT)
Soil Specification for Plantings:

Prepared Soil Backfill mix for planting holes shall consist of 4 parts native soil thoroughly mixed with 1 part soil conditioner/mulch. Remove non-soil materials (e.g., rocks, sticks, brush, roots, plastic, refuse) of 1" size or larger from native soil before mixing soil with mulch. Soil conditioner/mulch shall be composted, pass a 1" sieve, and shall not contain poultry, animal or human waste, pathogenic viruses, fly larvae, insects, herbicides, fungicides or poisonous chemicals that would inhibit plant growth. Add fertilizer to each planting hole per Note 10 on Planting Holes & Tables. Sheet 6.
1. ALL PIPING, COMPONENTS AND VALVE BOXES SHALL BE COLOR PURPLE, INDICATING NON-POTABLE IRRIGATION SYSTEM.
2. SEE SHEET 10 FOR AREA 3 DRIP IRRIGATION SYSTEM LAYOUT.
3. SEE SHEET 4 FOR AREA 2 DRIP & SPRINKLER/Spray IRRIGATION SYSTEM LAYOUT.
4. INSTALL SPRAY HEADS 70' FROM CURBS & PATH AND 60' FROM TOP OF LOW FLOW BANK.
NOTES:
1. ALL PIPING, COMPONENTS AND VALVE BOXES SHALL BE COLORED PURPLE, INDICATING NON-POTABLE IRRIGATION SYSTEM.
2. SEE SHEET 9 FOR AREA 3 SPRINKLER/SPRAY IRRIGATION SYSTEM LAYOUT.
3. SEE SHEET 4 FOR AREA 2 DRIP & SPRINKLER IRRIGATION SYSTEM LAYOUT.