

## Attachment A

### DESIGN REQUIREMENTS FOR JOINT USE PARK-DRAINAGE FACILITIES

Proposed joint use park-drainage facilities shall be designed as follows:

1. Design & Construction Standards. All improvements within joint use facilities shall be designed and constructed as per the City of Sacramento "Standard Specifications for Construction" dated 2007 or later; the PPDS's "Park Design and Development Standards"; and DOU's Section 11 of the "City of Sacramento Design and Procedures Manual". Should a discrepancy exist between documents, the proposed improvement shall be designed and constructed to the highest standard described in these documents, or as mutually agreed by DOU and DPR.

2. Recreation Uses Within Flood Plains. A joint use park-drainage facility shall be master planned with appropriate recreational elements provided within or above certain flood plain elevations consistent with each element's ability to sustain inundation. The following is a list of flood elevations with a description of recreational elements that would be appropriate to construct at or above that elevation:

<u>Joint use Acreage within the Following Flood Elevations</u>	<u>Typical Recreational Elements</u>
• 0-year through 2-year (such as areas around water quality ponds)	Concrete Trails, Observation Decks, Benches, Tables.
• greater than 2-year and through 10-year flood elevation	Open Fields (general use, turfed and irrigated w/ a max. slope of 5%).
• greater than 10-year and through 50-year flood elevation	General Use Ball Fields (w/ 2% cross slopes) excluding Soccer; Individual Picnic; Grass Volleyball.
• greater than 50-year and through 100-year flood elevation	Parking Lots (non-essential); Court Games (concrete floor); Soccer; Pit Games (sand volleyball, horseshoes); Formal Ballfields.
• above the 100-year	Play Areas; Group Picnic Facilities; Horse Arenas; Court Games (asphalt floor); Asphalt Biketrails.
• min. 1' above the 100-year base flood elevation, as are residential pads	Habitable Structures (restrooms, concessions, community centers); Parking Lots (essential); and Swimming Pools.

3. Land within 2-Year Flood Plain. No more than 50% of a joint use park-drainage facility is to be within the two-year flood plain. Any deviations are to be as approved by PPDS on a case-by-case basis.

4. Land Above 100-Year Flood Plain. At least ½ acre of a joint use park-drainage facility is to be

above the 100-year flood plain, and on land otherwise acceptable for park development as determined by PPDS. Park land immediately adjacent to a joint use park-drainage facility may be considered as satisfying this requirement if approved by PPDS.

5. Natural-look Design. Areas in joint use shall be designed and graded as determined by PPDS to have an attractive, natural look rather than a trapezoidal configuration.
6. Slopes. Any berms or slopes maintained by DPR shall be no steeper than five feet of run to every one foot of rise (5:1), unless otherwise approved by DPR. If maintained by Utilities, 4:1 maximum slopes are encouraged with 3:1 maximum slopes permitted on a case-by-case basis. This includes areas that may or may not be typically under water.
7. Tree Planting on Slopes. Trees shall not be planted on drainage facility side slopes that are graded 5:1 (rise:run) or steeper.
8. Grade joint use park-drainage facility sites in tiers or terraces where possible to accommodate a variety of recreational uses.
9. Size & Slope. Joint use park-drainage facilities shall include, at a minimum, an area 200' wide x 200' long, graded at a 2% cross-slope (2 feet of rise in every 100 feet of run) and located above a 10-year flood elevation to best accommodate active recreational uses such as a multi-purpose field. Exceptions to this minimum area may be considered on a case-by-case basis and must be approved by PPDS. Additional park areas may be narrower and on steeper slopes as appropriate to accommodate other park uses (such as a picnic area located on sloping terrain with only the table pad areas graded relatively flat).
10. Basic Park Landscaping. *Developed* joint use park-drainage facilities shall, at a minimum: (a) meet sediment control standards; (b) be landscaped as approved by PPDS, and with turf, a minimum of 20 trees per acre, and A.D.A. compliant access improvements; (c) be irrigated with a centralized automatic system; and (d) be drained to prevent standing water during non-flood periods, and after 48 hours of a flood event.
11. Irrigation. All irrigation lines sized 4 inch diameter and larger shall be designed to DOU's standard construction specifications.
12. Fencing. All areas shall be open to public access. Fencing (other than post-and-cable) shall not be installed surrounding detention areas, or in any configuration which restricts public access.
13. Service Road/Multi-use Trail. Utilities' service roads at joint use park-drainage facilities (at basins, along corridors, etc.) shall be 12' wide, minimum, asphalt or concrete and constructed for joint use as public multi-use trails and access roads for park maintenance vehicles. Roads shall be designed in compliance with DOU's specifications to withstand 80,000 pounds of gross vehicle weight with clear vertical access to outfall structures for cleaning.
14. Multi-use Trail Connections. Joint use park-drainage areas shall be designed to connect to the City's multi-use trail/bikeway system wherever possible and where appropriate. Location and design of proposed multi-use trails shall be coordinated with the City's Bikeway/Alternate Modes Coordinator. Bollards shall be used where necessary for vehicular access control.

15. Topsoil. Any proposed park site from which fill material is to be removed for any reason (including but not limited to excavation of a drainage facility) shall have the topsoil removed to a 12 inch depth, stockpiled and replaced as a part of that grading operation and as approved by PPDS.
16. Soils Test. Prior to the installation of irrigated turfgrass or other irrigated plant material, soil at the joint use site shall be tested by a licensed soil testing lab and soil amendments added as recommended by PPDS.
17. Distance from Water. Pedestrian pathways shall be designed to be at a minimum distance of 10 feet from the edge of a body of water during a 10-year flood event.
18. Inundation Duration. With the exception of permanent water features, joint use park-drainage facilities shall be designed to hold water for no more than 48 hours following a flood event.
19. Adjacent Drainage Facilities. Water quality basins, drainage channels or canals, and pump stations that are located within or immediately adjacent to parkland shall be designed and constructed as approved by DOU and PPDS to be visually and aesthetically compatible with park and attractive to park users and neighboring residents.
20. Water Quality Basins. Although not a joint use park-drainage facility, a water quality basin may be located within or alongside a park or joint use park-drainage facility, and can receive funding for recreational improvements. A water-quality basin shall:
  - a. Have a curvilinear form;
  - b. Be planted with native grasses, and drought-tolerant or native trees (with a minimum of 25% native) suitable for saturated soil conditions (See DOU *Water Quality Basin Landscape Guidelines*.);
  - c. Be maintained in a manner to ensure viability as a water quality treatment facility.

A water-quality basin may:

  - a. Include paths or walkways as approved by DOU and PPDS;
  - b. Include an observation deck/viewing platform with interpretive signage;
  - c. Include concrete picnic tables or benches, suitably placed for occasional inundation.
21. Drainage Improvements. Drainage facility pump stations, pipe outfall structures, and other restricted access areas within or adjacent to a park must be designed and constructed in a manner which is compatible with the park use. Typical construction restrictions are listed below:
  - a. Razor wire (concertina coils) is not permitted due to the relative hazard that it poses.
  - b. Openings under and around gates and fencing must be less than 3.5" to prevent head or torso entrapment.
  - c. Safety barriers must be placed at the top of all vertical drop-offs over 30" (post and cable is not suitable for this use).
  - d. Safety grates shall be installed on all exposed drainage pipes to restrict access and must have openings less than 3.5".
  - e. Any appurtenance, which under flood conditions may be hidden and therefore cause a safety concern for the public, must be designed with an acceptable means to mitigate that concern.
22. Basic Utility Level Landscaping. Utility level landscaping at a drainage facility includes as a minimum, seeding with non-irrigated grasses for erosion control, plus all other project landscape improvements specifically required by the Department.