APPENDIX D: HABITAT PRESERVATION AND RESTORATION GUIDELINES

GOALS DISCUSSION

The Great Spokane River Gorge is one of Spokane's greatest environmental resources. Protection and enhancement of the natural habitats of the gorge ecosystem are critical to the survival of native species of plants and animals and key to the quality of life of Spokane's citizens and visitors. Since much of the gorge includes or abuts areas of urban development, this section is closely related to Section 4.7, Green Infrastructure Element, which covers stormwater management and other functions performed by urban vegetated landscapes. These two elements together form an interconnected system of open space and ecological function.

The first goal for habitat in the gorge should be preservation, or not disturbing existing landscape integrity. This strategic master plan identifies general natural habitat areas and some strategies for their management, but a thorough survey of vegetation, topography, and geology should be conducted prior to the specific siting of any trails, interpretive features, recreation amenities, catalytic development, or infrastructure in the gorge to avoid damaging sensitive natural areas. This is especially important if there are any rare or endangered species present. The survey should include tribal representation to fully appreciate the cultural value of existing resources.

Where existing conditions indicate significant past disturbance or where new development cannot avoid disturbance, a habitat restoration program should be initiated. Restoration re-establishes the continuity and functions of the cultural and natural landscape severed and disrupted by urban development. Existing landscape and vegetation patterns can provide references for accurate restoration of native habitat. Of course, in an urban setting with constant human interaction, it will not always be possible to completely restore a pristine ecosystem in the gorge. However, native habitats are beautiful and educational landscapes and working toward restoring them as fully as possible will yield a healthy environment that requires less maintenance.

GUIDELINES DISCUSSION

<u>Seed and Plants</u>

Native plants are integral to maintaining cultural and natural integrity of the gorge landscape. All planting in the gorge should be indigenous vegetation adapted to the local conditions. Plant material and seed stock should be sourced from local genetic stock. Exceptions may be allowed for particular plants that have a broad genetic distribution, but the acceptable geographic limit for seed and plant sources will vary by species.

Seed collection and propagation is recommended to support the regional sourcing approach. To ensure that adequate plant material is available at the time of installation, seed collection and propagation need to occur well in advance of restoration. Estimates of the needed quantities of seeds, cuttings, tubelings, and container stock could be established based on the area of the intended restoration and performance-based seed collection and propagation contracts could be let.

A contractor could essentially create a "plant bank" for the gorge. This plant bank would grow and hold all the plants for gorge restoration efforts. Excess stock should be grown and reserved for use during the maintenance and establishment period. In addition, some excess stock might be grown into larger material to include in prominent locations on new and existing project sites. Successful planting and installation could be ensured through performance-based revegetation contracts with a two-year establishment period so that it is in the contractor's best interest to properly handle, install, and maintain vegetation through the establishment phase.

Preservation and Salvage

The first priority of actions in the gorge should be preservation, or not disturbing existing landscape integrity. Preservation of existing native vegetation and landscape elements such as dead and downed logs, duff, large rocks, and natural leaf litter is essential to the natural functioning and cultural significance of the gorge environment. These materials should be preserved or salvaged to give restored areas a more natural appearance, encourage reoccupation by wildlife, and accelerate the reestablishment of native plant species. Furthermore, preserving these elements reduces restoration costs that would otherwise be incurred.

Where preservation is not possible, salvaging existing plants and landscape elements should be required. Salvaging some landscape elements such as logs and rocks will be fairly straightforward. However, salvaging topsoil is more complicated. Limit soil stockpiling to a period of one year or less and create covered piles no taller than 4 feet. Carefully salvage native plants material for transplanting, especially rare and cultural plant species. An effective salvage program will help support ecological and cultural values while reducing restoration costs.

Salvage contracts should be combined with plant propagation contracts. This ensures that the same qualified contractors who are gathering and growing plant material for propagation would collect and maintain salvaged plants. The salvaged plants could become part of the plant bank, providing a reliable source for site-adapted material. The City of Spokane could designate temporary plant holding facilities, such as Parks Dept. property in High Bridge or People's Park, to minimize costs of transporting salvaged material to and from the gorge. Preservation and salvage areas should be clearly indicated on construction documents and in the field with fencing. A strict preservation and salvage plan should be adhered to by anyone working on a project in the gorge.

Maintenance and Invasive Weed Control

Once the seed is broadcast and the plants are put in the ground, the new vegetation will require care and maintenance during a 24-month period in order to become successfully established. Temporary irrigation, erosion control, weed control, plant replacement, and browse control are some of the initial practices that will facilitate plant establishment. Performance-based revegetation contracts address these plant maintenance needs.

"Competitive exclusion" is the basic principle for reducing noxious or invasive weeds. Disturbance of soil, such as during construction, creates openings for invasive species so it is particularly critical to initiate restoration on any lands immediately after

disturbance. This needs to be addressed specifically in cooperation with Spokane County's Weed Control Board. Methodology for appropriate weed control requires research into the specific characteristics of each species to be controlled. Invasive plants are a difficult problem to address, but weed control is critical if native plant communities are to become established and thrive. A comprehensive approach to weed control will allow native plant species to compete with invasive plant species that have already colonized much of the gorge. Invasive species observed around Spokane include:

- wild four o'clock, *Mirabilis nyctaginea***,** a perennial herb, sometimes woody at the base, reaching 3 to 4 feet tall, that reproduces by seed and by fragmented root pieces.
- Dalmation toadflax, *Linaria dalmatica*, an erect, short-lived, perennial herb, 3-5 feet tall, hairless and glaucous, and growing from a woody, branching base.
- Russian knapweed, *Acroptilon repens*, a bushy, branched perennial growing one to three feet tall and forming clones or colonies from its vigorous, spreading root system.
- yellow starthistle, *Centaurea solstitialis*, characterized by a yellow thistle-like flower with 3/8- 3/4 inch yellowish spines in star-like arrangement at the base of the flower head, which occurs singly a the ends of branched stems 18-36 inches from a basal rosette of leaves.
- Scotch broom, *Cytisus scoparius*, an evergreen shrub in the legume family that can grow up to 10 feet tall with more-or-less erect, dark green, broom-like branches.
- spotted knapweed, *Centaurea biebersteinii,* an 8 to 48 inch tall perennial with a stout tap root and a somewhat woolly appearance.

You can learn more about these invasive weeds and dozens of others as well as their distribution and control from Spokane County's Noxious Weed Control Board (www.spokanecounty.org/weedcontrol/).

Long-term Adaptive Management

Adaptive management will help measure the success of the planting and allow for necessary improvements. Long-term adaptive management includes the following: monitoring plant community establishment, replacing dead or damaged plants, documenting successional changes, adapting practices such as overseeding. Monitoring and adaptive management provide the mechanism to evaluate the progress of the restoration, effectiveness of erosion control, water quality and weed invasion and to adjust management and maintenance accordingly.

An adaptive management plan would establish the optimal conditions for success over the long term and allow for less mature initial plantings. This can result in lower up-front costs due to lower planting densities, smaller plant materials, and less dramatic approaches to weed control. Monitoring the outcome of initial restoration efforts will provide useful information for future restoration projects.