Ecological Restoration and Habitat Enhancement Plan

When recommended by the project biologist or QEP, the City of Colwood may require an Ecological Restoration and Habitat Enhancement Plan as part of an environmental development permit area (DPA) application.

Colwood has four environmental DPAs (Riparian, Marine Shoreline, Sensitive Ecosystems, and Hillsides) each with its own set of DPA guidelines. The subject DPA guidelines should be reviewed to inform the recommendations of the Ecological Restoration and Enhancement Plan.

Purpose and Scope of the Report

The purpose of the report is to inventory existing species and ecosystems at risk and habitat on site and recommend enhancements and mitigation measures for protection and enhancement. The report may be required due to the presence of a Species or Ecosystem at Risk or to support the Construction Environmental Mitigation Plan when impacts cannot be avoided or minimized.

An Ecological Restoration and Enhancement Plan provides detailed information and assessment beyond a Site Adaptive Design Plan. Should the City also require a Site Adaptive Design Plan, the applicant may combine the Terms of Reference and produce one plan.

The scale and scope of the report will be different according to the development proposal. Small developments situated away from intact environmentally sensitive areas will require less detail than a large development situated closely to an environmentally sensitive area that is or will be in need of restoration.

Ecological restoration and habitat enhancement can benefit landowner enjoyment and property values over time as vegetation matures. If the subject property would benefit from extensive restoration, the scale of the development should be kept in mind. As a rule-of-thumb, the cost of the restoration should equate to no more than $5000 per residential unit. This would not include restoration required to mitigate impacts of the development proposal.

A budget should be established at the outset so that the report, materials, labour, and maintenance can be scaled accordingly. Should the applicant wish to go beyond expectations, they may wish to pursue additional resources (e.g., partnerships with non-governmental organizations or institutions, in-kind support, on-site plant propagation, and plant salvaging, grants, etc.).

Who can prepare the report?

In the Riparian DPA, a Qualified Environmental Professional (QEP) is required and is defined in the Glossary of the Official Community Plan. For other environmental DPAs, a professional, or professionals, acting within their area of expertise, and in good standing with a regulatory body may prepare, sign, and seal the report, such as members of the following:

- College of Applied Biologists
- British Columbia Institute of Agrologists
- Forest Professionals BC

Other members of the consulting team may include:

- A member of the British Columbia Society of Landscape Architects
- A member of the Professional Engineers and Geoscientists British Columbia
- An arborist certified by the International Society of Arborists
- A Certified Wildlife/Danger Tree Assessor
- A member of the Association of British Columbia Land Surveyors

Required Content:

1. **Methodology:** Provide a methodology. Describe the inventory methods and reference materials used. Include the dates of field work and any study limitations. The names, qualifications, and experience (briefly) of each professional are to be listed.
2. **Findings:** Present the findings of both a desktop review of existing data and field inventory including ecosystem or plant association identification and locations, existing and potential habitat features, invasive species infestations, ecological corridors, and a plant inventory. Exterior ecosystem or plant association boundaries, wildlife trees, and

the habitat of species at risk should be flagged by the subject matter professional and mapped by a surveyor.

3. **Impacts:** Assess the potential impacts to existing species and ecosystems at risk and habitat. Complete a sun/shade analysis if appropriate to address the potential impacts. Recommend measures to protect these features from disturbance according to the mitigation hierarchy (Province of BC's Environmental Mitigation Procedures, 2014), with level 1 being the best approach:
    I. **avoid** impacts on environmental values and associated components by considering siting, timing, tools/techniques, or not proceeding to negate an impact
    II. **minimize** impacts on environmental values and associated components by considering siting, timing, tools/techniques, or not proceeding to partially avoid impacts
    III. **restore** on-site the environmental values and associated components that have been impacted
    IV. **offset** impacts (on-site) on environmental values and associated component (this may require consideration of variances before the City will entertain this approach)
4. **Solutions:** Prescribe ecological restoration and nature-based solutions to improve the resilience of the natural features from disturbance, erosion, climate change, invasive species, etc. If the development proposal is within the Riparian DPA, consider using the *Riparian Areas Regulation Revegetation Guidelines for Brownfield Sites*, or the most recent version for prescriptions within the Streamside Protection and Enhancement Area (SPEA).
5. **Recommendations:**
    a. Recommend habitat enhancements to improve the potential for increased biodiversity on site.
    b. Recommend measures to meet the environmental DPA guidelines specific to the site. The report must address all DPA guidelines that pertain to ecological restoration and habitat enhancement.

6. **Site Plan:** Provide a site plan that identifies the locations for all proposed ecological restoration and habitat enhancement works.
7. **Schedule and Cost Estimate:** Provide a detailed schedule and itemized cost estimate prepared in accordance with section 19.5 of the OCP detailing the resources (costs, time, materials) required to fulfill the Ecological Restoration and Habitat Enhancement Plan, including:
    a. The amount of the security deposit required to complete mitigation measures and enhancements proposed by the applicant such as:
        i. Plant material (quantities, sizes, spacing, alternatives in the case of unavailability
        ii. Planting medium, mulch, browse guards, and supplies
        iii. Materials for habitat enhancements (culverts used for wildlife passage can be included in the costs of road work if appropriate)
        iv. Fence material
        v. All labour
        vi. Professional oversight and on-going monitoring
        vii. Completion report
    b. A schedule for monitoring installation of on-site works and materials
    c. Quantifiable measure of success, such as:
        i. a minimum of 90% plant survival for a period of at least one year
        ii. maximum percentage of invasive species regrowth
        iii. installation of habitat enhancements
        iv. functioning of nature-based solutions and buffers
    d. Parameters for documenting and reporting success.

The purpose of the itemized cost estimate is to ensure that the work can be completed if the current landowner does not fulfil the works. While free plant materials and in-kind labour may be planned, the full cost of these items must be included in the event that the City pays for these in the future.

The schedule must include monitoring targets to ensure a high confidence level that the plants will thrive. The City's minimum is 90% plant survival after one year; therefore, frequent monitoring may be desired. Depending on the site conditions and the time of year, the specified time period may need to be extended.

Please note: the City may also require a Site Adaptive Design Plan, Arborist Report, and/or a Construction Mitigation Plan. Include recommendations for consideration where ecological restoration and habitat enhancements may influence or link with the outcomes of the other plans.

Please note: the City may also require a site-specific Ecological Stewardship Manual (refer to City's Terms of Reference) for the landowner to inform them of the significance of the natural features on their property, the ecological restoration and habitat enhancement that has occurred, and the role they can play in protecting, maintaining, and further enhancing the natural features. The plan will also identify how the landowner can contribute to biodiversity on the remainder of the property. Ensure that the Ecological Restoration and Enhancement Plan includes pertinent information directed to future landowners that can be incorporated into a site-specific Stewardship Manual.

Useful Resources

- *Ecological Restoration Guidelines for British Columbia* (Prov of BC)
- *RAR Revegetation Guidelines for Brownfield Sites Appendix 4: RAR Implementation Guidebook*, 2012
- *Green Shores® for Homes Credits and Ratings Guide (Stewardship Centre for BC) and Green Shores® for Shoreline Development* (Stewardship Centre for BC)
- *Coastal Zone Stewardship: A Guide for Planners, Builders and Developers* (Stewardship Centre for BC)
- *Guidelines for Raptor Conservation During Urban and Rural Land Development in BC* (BC Ministry of Environment)
- *Develop with Care: Environmental Guidelines for Urban and Rural Land Development in British Columbia* and *Develop with Care Factsheets* (BC Ministry of Environment)
- *Sensitive Ecosystems Inventory: East Vancouver Island and Gulf Islands 1993 – 1997 Volume 2: Conservation Manual* (Environment Canada and BC Ministry of Environment)
- *Protecting Garry Oak Areas During Land Development* (Garry Oak Ecosystem Recovery Team)
- *The Garry Oak Gardener's Handbook: Nurturing Native Plant Habitat in Garry Oak Communities* (Garry Oak Ecosystem Recovery Team, 2011)
- *Restoring BC's Garry Oak Ecosystems: Principles & Practices* (Garry Oak Ecosystem Recovery Team, 2011)
- *Field Manual for Invasive Species in Garry Oak and Associated Ecosystems in BC* (Garry Oak Ecosystem Recovery Team)
- *The Wetlandkeepers Handbook: A Practical Guide to Wetland Care* (see Stewardship Centre for B.C.)