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SECTION 1: SITE DESCRIPTION AND PROBLEM IDENTIFICATION

By Glenna Erlandson

Current Site:

The Family Centre is a communal space available for families of the University of Victoria (UVic) living on and off campus. The Centre provides programs, events and support to families in hopes of bringing well-being and connectivity to the community (Family Centre, 2005). The Family Centre is located just off the northern outskirts of campus down Finnerty Road in the Family Housing Facilities at 2375 Lam Circle. Currently of little usefulness, is a patch of lawn out front of the Centre; this area is the site of our restoration project.

This ‘front yard’ of sorts is bordered on the south side by the road leading into Lam Circle, the east by a footpath to the Family Centre front door and, to the west by Haro Woods Ravine. It is an open area, with little privacy or protection from the road or the ravine. The area shows very little vegetation aside from four medium sized red alders. These are approximately 10ft in height and are spaced fairly evenly across the site. The rest of the space is covered in sad, unhealthy, short lawn grass of approximately 2cm in height with patches of moss. The area is currently maintained by Facilities Management and last year the lower shading branches of the trees were cut away opening up the space and leaving a ring circle of moss growth around the base of the trees (Quong, 2009). Along the front wall of the Centre is a small dirt bed with a sword fern in it as well as a small above ground wooden planting box lacking attention. Along the ravine patches of snowberries grow amongst a large arbutus tree, a few Douglas firs and some English ivy and salal (Alaback, et al., 1994).

According to Elizabeth Quong, the Family Centre Director, deer, birds, squirrels and domestic cats are common to the area. Presently the infamous UVic bunny is uncommon. Hopes of the Director and interested parents of Family Housing are to bring more creatures to the area to increase their families’ connection to the environment.

During positive weather conditions the site is used for Music and Movement Playgroup, evenings of group singing and holiday events (Quong, 2009). Increased functionality of the site would allow for more outdoor activities.

Problem Identification:

Two face to face meetings were held between members from our restoration group and Elizabeth Quong as well as invited interested parents who use the space and would like to see some improvements. Thanks to their time and help, our group was able to define the site problems and hopes for future functionality.

Projected hopes for this site all encompass ideals of community connection both socially and naturally. The current Family Centre is an apartment made into an office and meeting place for functions. This space is very small and opportunity for outdoor activity is limited by the lack of functionality of the 'front-yard'. Safety is one of the main concerns for the use of the area; demographics of main concern are children aged five and under. In order for the families to use the space comfortably a barrier between the road, ravine and the site space is necessary. All compounding changes to the area must address safety issues for this age group.

Families want to be able to comfortably use this space to enhance community social connectivity and feel a sense of ownership and pride in the area. They want a space in which they can augment their children's connection and respect for the natural environment. The space currently holds little aesthetic pleasure or natural emotion. The restored space should peak both children and parents interest and respect for all living things including plants, animals and insects through beauty, physical interaction and learning. The restored space should create an atmosphere in which functions and gatherings within the community will be proud and comfortable to meet in. Enhancing the beauty, functionality and ecological health will help fuel a reconnection between culture and nature. People will have the opportunity to create a personal measure of the importance of natural spaces (Hall, 2005), as well as gain respect, knowledge and awareness of First Nations use of the land (Turner, 2002).

A lack of biodiversity in the area impedes the ecological health of the area. Invasive species are currently of little issue in the site area, but precautions should be taken to make sure an avenue for them to spread is not created. Deer in the area pose a mild herbivore threat to any native plants that may be planted in the area.

Facilities management policy regarding changes and activity within the projected site may create obstacles in project plans and timeline. Policy acknowledgement and the resulting paperwork often spans over unforeseen time periods. Designation of site maintenance poses another barrier to project success. Since the restoration of the site is largely community based opposed to focussing on ecological self-functioning, the site will need some measure of human management. Will facilities management continue to uphold the site, or will families play a large role in any necessary maintenance? If the families will play a large role, how will successional designation be passed when families, whom are permitted a limit of five year residency, move on?

References:

Alaback, P., et al. (1994). *Plants of Coastal British Columbia: including Washington, Oregon & Alaska*. Vancouver: Lone Pine Publishing.

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SECTION 2: RESTORATION GOALS AND OBJECTIVES

'Bringing people and nature together.

Uniting community.

We must work together towards a common end.'

By Melissa Hingston

Introduction:

Before formulating a plan for particular activities in a restoration project and in order to measure and monitor project success, it is essential to set goals and define objectives. In the previous section, the Family Centre site is described and the problems are identified. In this section, project goals and objectives will be outlined and discussed. Specific project plans, in Section 3, will build on these project goals and objectives.

This project is largely built upon the natural and cultural values of the family housing community. In order to gain an understanding of the natural, physical, social, functional, and cultural aspects of the site, we have completed research, performed observation activities, and conducted meetings with people from the Family Centre and the local community. Based on ideas from within these gatherings and through these activities, realistic and achievable goals and objectives have been created. The Family Centre is quickly becoming a 'neighbourhood house' for University of Victoria student families living both on and off campus (University of Victoria, 2005); this restoration project can facilitate this transition to a neighbourhood gathering area by providing an outdoor space that is more supportive of activities and events. The growing number of user groups will also be helpful in the success of the project through participation and support.

Site Significance:

This project recognizes the importance of native flora and fauna. It also recognizes First Nation groups who have used this area in the past and their knowledge of and connectedness with the landscape. Prior to colonial development, the University of Victoria area was travelled upon and used by Saanich and Songhees First Nations; the knowledge of and connectedness with the environment were strong and cultural history in the area is substantial (Turner, Bryce & Beckwith, 2002). Indigenous populations know a way of living ‘with’ the landscape (Davis, 1993; Deur & Turner, 2005) and this Family Centre restoration project recognizes the need to restore environmental knowledge and gain a better understanding of the past.

Although this project considers First Nation groups and native flora and fauna in the goals and objectives, the aim of this project is not to restore the system back to a certain point in history. It is not in the interest of the Family Centre, and therefore not realistic, to determine a trajectory or restoration end point using historic reference conditions. In order to recognize some of the values of the Family Centre and make restoration more meaningful, historical information has been used to gain information about the area prior to development and this information has been incorporated in the goals and objectives.

Today, the Family Centre site is an important location for families and group activities (University of Victoria, 2005); this restoration project aims to support this, in addition to offering much more. As a complex and integrative restoration project, the past, present and future are considered. This project recognizes the importance of learning, the importance of nature and the importance of bringing people together. Although this restoration project is situated at a particular site, the goals and objectives go well beyond the boundaries of the site. The project is site based, but also community and ecological based.

Personal Goals:

Not included in the detailed project goals below, but worth mentioning here, are our goals as project designers. One of our goals in the development of this project has been to gain a more

comprehensive understanding of both the need for cultural restoration projects and ecological restoration projects. We have also strived to gain knowledge about the needs and wants of Family Centre users so that we can effectively design a project plan that will be successful. In designing this project, we have come to appreciate the time it takes to develop restoration plans and we have come to more fully understand the dedication needed during the restoration process. We hope that with this restoration project experience we will each be able to go forth and conduct or help with other restoration projects as knowledgeable, open and experienced individuals.

Project Goals Introduction:

This restoration project is a building and rehabilitating project, considering both ecological and cultural outcomes. The project goals reflect the wants, needs and values of the various stakeholders. Project goals have been organized under six different topics as follows:

1. Social and Community Rehabilitation
2. Ecological
3. Educational/Awareness
4. Health and Recreation
5. Safety
6. Cultural

For each of these topics, one goal has been identified. These goals are broad and ambitious with inherent flexibility. Goals are qualitative and help to define the future state of the system (Canadian Parks Council, 2008; Society for Ecological Restoration International Science & Policy Working Group, 2004). Our restoration team has strived to develop goals that are clear, achievable and consistent within the broader framework of the Family Centre and the University of Victoria community. For each goal, desired outcomes are also identified.

Project Goals:

Topic 1: Social and Community Rehabilitation

- **Goal:** To build a sense of connectedness among families, family housing employees, facility maintenance, visitors, and youth.
 - **Desired Outcome:** Respect and appreciation between the diverse users. Pride in the landscape and sense of ownership.

Topic 2: Ecological

- **Goal:** To re-establish a more diverse and natural habitat.
 - **Desired Outcome:** Rejuvenation of the native plant population. Enhance the biodiversity within the area.

Topic 3: Educational/Awareness

- **Goal:** To educate the public about the importance of healthy ecological systems and about the benefits of restoration.
 - **Desired Outcome:** Concern for and knowledge of the environment, fauna and flora. Recognize how restoration offers ecological, social and economic benefits. Understand the variety of ways to become involved in restoration.

Topic 4: Health and Recreation

- **Goal:** To improve people's physical and emotional wellbeing by offering a peaceful space and through participation in the restoration and site activities.
 - **Desired Outcome:** Recognize the importance of recreation and relaxation to health.

Topic 5: Safety

- **Goal:** To ensure individuals and user groups are safe from undue physical harm.
 - **Desired Outcome:** Consideration and concern for user safety. Recognize actions needed to reduce risks.

Topic 6: Cultural

- **Goal:** To acknowledge the historic First Nations relationship with the land and recognize the cultural importance of the area.
 - **Desired Outcome:** Awareness of positive human-environment relationships and appreciation for traditional cultural values. Sense of responsibility for ecosystem health and sustainability.

Project Objectives Introduction:

Whereas goals are ideals and are value-based, objectives are specific measures taken to achieve goals (Canadian Parks Council, 2008; Society for Ecological Restoration International Science & Policy Working Group, 2004). Objectives are more quantifiable and tangible; they build upon the project goals. Goals, objective and activities are nested within each other. Objectives are measured through the success of specific project plans and activities. Building upon this, the success of objectives leads to the success of goals. Each activity stated in the following section, Section 3, is an in-progress indicator of objective achievement and project success.

Objectives and goals have a supportive relationship: by successfully achieving one objective, another objective is often, at the same time, either achieved or advanced. Section 3 examines this relationship in more detail, but it is important to recognize that objectives are not mutually exclusive and, in most cases, the objectives can be pursued at the same time. For details on the project timeline refer to Section 4.

Project Objectives:

Social and Community Rehabilitation

Goal	To build a culture of respect and a sense of connectedness among families, family housing employees, facility maintenance, visitors, and youth.
Objectives	<ul style="list-style-type: none">• Encourage community and user-group participation in regular hands-on restoration activities.• Facilitate social gatherings and family get-togethers.• Establish a network of community members to ensure continued success.• Build relationships, friendships and support networks between families, employees, facility maintenance and other interested parties.

Ecological

Goal	To re-establish a more diverse and natural habitat.
Objectives	<ul style="list-style-type: none">• Control invasive species that are encroaching upon the area.• Promote the successful establishment of native flora.• Encourage fauna to utilize the space.• Enhance soil integrity so that it can better support the establishment of native plants and human activity.

Educational/Awareness

Goal	To educate the public about the importance of healthy ecological systems and about the benefits of restoration.
Objectives	<ul style="list-style-type: none">• Establish the area as a ‘community restoration site.’• Supply easily accessible, timely and captivating information for the public regarding the importance and benefits of the project.• Provide collaborative and informative events for the public regarding the project.• Develop and erect interpretive signs about the local flora to help educate

	<ul style="list-style-type: none"> • Involve University of Victoria students and faculty as sources of knowledge and education.
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Health and Recreation

Goal	To improve people's physical and emotional wellbeing through participation in the restoration project and in site activities and by offering a peaceful space.
Objectives	<ul style="list-style-type: none"> • Generate consistent awareness, interest and incentive to participate in the restoration project. • Encourage visitors to use the area by ensuring accessibility and by offering both areas to rest and observe the surroundings and areas to actively move around. • Provide families, youth, community members and visitors an opportunity to enjoy the site, relax and restore their minds, bodies and souls.

Safety

Goal	To ensure individuals and user groups are safe from undue physical harm.
Objectives	<ul style="list-style-type: none"> • Reduce or eliminate risks associated with the natural environment: slopes and plants. • Reduce or eliminate risks associated with the human environment: roadways, tools and equipment. • Reduce or eliminate risks associated with particular aspects of the restoration project: seating and landscape change. • Provide timely and accurate information regarding safety hazards.

Cultural

Goal	To recognize the historic First Nations relationship with the land and the cultural importance of the area.
Objectives	<ul style="list-style-type: none"> • Educate families and the public about the significance of the region to

	<ul style="list-style-type: none"> • Work together with experts who have both cultural pride and ecological interests and encourage First Nations participation. • Create an art structure to acknowledge the cultural values of the project.
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Summary:

Goals and objectives are essential in the development of a comprehensive restoration plan. In order to restore relationships between people and between people and the environment, this restoration project focuses both on people and on nature in an integrative and connected manner. Cultural values have played a key role in the development of project goals and objectives; in addition, natural references have been considered. The multiple goals and objectives within this project are consistent within the broader framework. In addition, they connect different ideas and are supportive.

It is important to remember that goals and objectives are adaptable and flexible; although the goals outlined in this section reflect the values of the family housing community, the goals and objectives can be changed to adjust for changing values, situations or environments. To minimize or prevent future conflicts or issues, regular communication must continue and knowledge must be shared among stakeholders so that project goals continue to be relevant and reflective of values. Open and ongoing communication is critical to the project’s success both in the short term and over the long term.

This project is both realistic and achievable, but will require enthusiastic, motivated and engaged people for success. The family housing community seems to fit this description; the community is excited about the prospect of restoration, eager to become involved and thrilled to experience and share the benefits of restoration. A successful restoration project requires ongoing commitment and understanding. By working towards the completion of specific activities, project objectives will be met and the goals will be achieved in time.

References:

- Canadian Parks Council. (2008). *Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas*. Gatineau, Quebec: Parks Canada and the Canadian Parks Council.
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http://www.ser.org/content/ecological_restoration_primer.asp
- Turner, N., Bryce, C., & Beckwith, B. (2002, Autumn). Campus and its Coast Salish heritage. *Uvic Torch*, pp. 36.
- University of Victoria. (2005). *Family Centre*. Retrieved March 4, 2009, from University of Victoria: <http://web.uvic.ca/family-centre/>

SECTION 3: FORMULATING A PLAN FOR ACHIEVING RESTORATION GOALS

'Creating a new space for a great place'

By Melissa White

Introduction:

Once the goals and objective are set for a restoration project, the plan of how to implement these goals is a key factor in creating a restored area. In this section the plan for achieving the restoration goals outlined in Section 2 will be discussed. These goals have been made from all parts of the restoration project and should be able to be easily completed. The following Section 4 will give a budget of these goals.

As outlined in Section 2, goals and their resulting implementation are based on natural and cultural values of the family housing community. Our mission is to delineate a plan that could be easily accomplished by people who have busy schedules, in hopes that neighborhood involvement in site creation will foster a greater sense of community connection and pride. This project is not set out to restore this land to a certain point in history; we are trying to create a natural area that is safe, user friendly and aesthetically pleasing to ensure community enjoyment (Quong, 2009). This restoration project is set to take place over a medium length of time. The goals are as follows:

Projected goals from Section 2:

7. Social and Community Rehabilitation
8. Ecological
9. Educational/Awareness
10. Health and Recreation
11. Safety
12. Cultural

The following goals are broad and flexible in order to account for any barriers that may arise in the implementation process such as policy barriers or changes in the needs or wants of the family housing community. The goals are our interpretation of the input we received from interested parents and Elizabeth Quong, the Director of the Family Centre. Outlined goals from Section 2 with attached project plans are as follows:

Goals from Section 2 with Implementations of Project Goals:

1. Social and Community Rehabilitation:

- **Goal:** To build a sense of connectedness among families, family housing employees, facility maintenance, visitors, and youth.
- **Plan:** This can be achieved through neighbourhood and community involvement. When the area is in development stages it will give the community a chance to work with volunteers and companies who donate items to build a better sense of connectedness throughout the local community. Once the area has been developed with sitting and gathering areas, it will give a better chance for the Family Centre to hold larger gatherings outside. It will help to plan more regular events because the area is out in the open where everyone can join and feel welcome. Birdhouse building could be an event held at the site that could involve the both parent and child participation. Then the area could become a bird watching space for people who enjoy the hobby or want to start. The information gathered from watching the birds could be shared with the community about what bird species visit their home. We also decided that a great idea would be to use the stepping stones or rocks that are placed around the area as a creative art project. The stepping stones may be used as a blank canvas for making mosaic art from donated supplies, which could be easily obtained from hardware stores that have broken supplies that are not useable. An additional activity may involve rock painting. Children could collect and paint pictures onto rocks and position them around the site to bring a sense of ownership and pride to the area. Both outlined activities are flexible in time of initiation as well as avenues to which obtain the materials.

2. Ecological:

- **Goal:** To re-establish a more diverse and natural habitat.
- **Plan:** Vegetation on the site is limited. Two notable invasive species, holly and English ivy, are creeping up the outskirts of the site perimeter along the ravine edge. The planting of a hearty, stable hedge along the ravine edge will aid in safety and help create a barrier against the encroaching invasive plants. We chose two hedge type plants that would work well in the area: native shrubs Hairy Manzanita (*Arctostaphylos Columbiana*) and Soap Berry (*Shepherdia canadensis*) Both have dense hedge characteristics and a high tolerance of fluctuating water regimes and shade as described in Section 4. These shrubs are native to the area and will attract a diverse range of birds, butterflies and hummingbirds. Before or during the planting of the hedge, an invasive species pull would be a good idea to enhance the health of the native species already present. Other native garden plant species which promote a healthy ecosystem on the site include Nodding Onion (*Allium cernuum*), Harvest Brodiaea (*Brodiaea coronaria*), Satinflower (*Olsynium douglasii*) and Common Camas (*Camassia quamash*). This could be one of the first areas to be started (Garry Oak Ecosystems Recovery Team, 2009).

3. Educational/Awareness:

- **Goal:** To educate the public about the importance of healthy ecological systems and about the benefits of restoration.
- **Plan:** A small information sign about what the benefits are from the plant and what animals that they will attract may be placed in front of each of the native plant species planted. This could be done at anytime throughout the restoration process, and could also involve the community to promote learning about the species that have been planted on the site. Also, a pamphlet could be placed in the Family Centre entrance that discusses the flora and fauna; this would help peak interest in people to enjoy or even take part in caring for the surroundings. Additionally, a continuing program could be in place for bird watching once the bird houses, as discussed in section one of the plan, are built.

4. *Health and Recreation:*

- **Goal:** To improve people's physical and emotional wellbeing by offering a peaceful space and through participation in the restoration and site activities.
- **Plan:** Sign/posters could be put up, or emails could be sent out to the community of the family housing area by sign-up sheet, to inform them of what is happening on a monthly base while the restoration is taking place. An announcement, accompanied by following updates in the Family Centre Newsletter would also be a great avenue to increase awareness of and involvement in the project. This way the community could know what activities will be happening on what day and they can make the decision if they want to participate in creating something that is beneficial for them. Entrance and exit signs may be placed on both open sides of the area so people feel welcome to come through the area and enjoy the site. The use of tree stumps as seats will draw the interest of people to come to the site and see the unique seating created, while serving as a good spot for parents to sit and watch their kids play in the open space in the center of the area. These stumps will also provide a place to relax and enjoy the outdoors in a beautiful natural setting, and they can be implemented at anytime. Also, gardening for the flowers will be available at anytime with encouragement to start a small vegetable garden in the raised box near the ravine.

5. *Safety*

- **Goal:** To ensure individuals and user groups are safe from undue physical harm.
- **Plan:** The main two areas of safety concern are the ravine and the area closest to the main road. Our concerns, matched by those expressed by members of the Family Centre, are that the children could easily run onto the road or fall down the ravine bank and preventative measures are necessary. The first project to be initiated is a fence. Our recommendation is a split-cedar rail fence to be implemented along the edge of the lawn adjacent to the street. The building materials will likely cost up to \$150. The community could use this project as a group work project or advertise as a volunteer project for the

6. *Cultural*

- **Goal:** To acknowledge the historic First Nations relationship with the land and recognize the cultural importance of the area.
- **Plan:** To encourage knowledge about the relationship that the First Nations people have with the land. One option may be that one of the tree stumps could be carved into a historic animal with a plaque placed on it detailing the message and informing the community of the importance of the land to First Nations. Encouragement of First Nations participation in events within the community may bring future ideas of diverse learning activities on the site.

Summary:

This restoration project is designed to meet the family housing community needs and ideals. It is a flexible plan that can be completed all at once or over a longer period of time with more community involvement. The goals and objectives can be changed to adjust for changing values, situations or environments. The project is not heavy, intensive work and could be completed by anyone, and the timeline is not a definite one; any of the ideas can be completed when the time is right.

References:

Garry Oak Ecosystems Recovery Team. Copyright 2009. Available online at www.goert.ca

Quong, E. Director of Family Centre. Interviewed, February 13, 2009 & March 12, 2009.

SECTION 4: BUDGET AND TIMELINE

By Katrina Nikolich

Introduction:

The execution for this project is mainly ‘yard work’, including planting, landscaping and building, therefore we recommend that most of the work be done in the late spring/early summer. The first phase of this project can be feasibly completed in a few months allowing the restored space to be enjoyed throughout the remainder of the summer by residents of the Family Housing community. Depending on which native plants are chosen and what form they are planted in (eg. seeds, bulbs, shrubs), they may need to be planted in early autumn, but many can be planted in summer so long as sufficient watering is done.

The budget for this project is flexible. With a little ingenuity, many of the materials may be acquired for free or much less than commercially sold. Provided that there are volunteers who will work free of charge, labour costs may also be reduced. In this section we will attempt to project the cost of executing the restoration at full cost, and then provide options for cutting costs where possible.

The following table describes the steps of the initial phase and their individual maximum projected cost. The subsequent Details section provides a cost breakdown, helpful hints and cost-cutting options for each step. The Further Options section contains a number of ideas put forth by Family Housing representatives as to their hopes for future phases of the restoration. Finally, the References section is a list of all resources used in this section, with a few additional websites and references which can be used to provide more information or for subsequent phase planning.

Quick-Reference Table:

This table provides an abbreviated description of each step in the first phase of the restoration plan for the Family Centre garden, as well as projected costs for each step. All costs are estimates and projected high; for full descriptions and cost breakdowns see Details section.

Step	Brief Description of Step	Maximum Projected Cost
Step 1	Build a fence along the side of the lawn facing the road	\$350
Step 2	Plant a hedge along the side of the lawn facing Finnerty Ravine	\$200
Step 3	Provide seating in the southwest corner of the garden and a picnic bench in the northeast corner	\$1000
Step 4	Dig up and edge flower beds along side of building and along fence; plant flowers and ferns	\$530
Step 5	Lay down bark mulch in flower beds	\$120
Step 6	Hang/stake birdhouses around trees; hang hummingbird feeders along front windows	\$150
Step 7	Place stepping stones in garden/leading from front door into garden	\$75
Step 8	Install small garden fountain or birdbath in southeast corner of garden	\$300
Total		\$2725

Details:

Step 1 – A low fence will prevent children or toys from getting out to the road, therefore our recommendation is a split-cedar rail fence. For the side of the lawn facing the street, building materials will likely cost up to \$150. The extra \$200 in the table includes other materials, labour costs, etc. One way to cut costs is to have volunteers install it. It should take about one day's worth of work. See References for a do-it-yourself guide.

Step 2 – In order to deter children from climbing down into the ravine, community housing representatives believed a thick, high hedge would be a better deterrent than a fence; however, thorns provide a hazard to children. To this end we recommend the native shrubs Hairy Manzanita (*Arctostaphylos Columbiana*) or Soap Berry (*Shepherdia canadensis*) for their hedge-like qualities and tolerance to fluctuating water regimes and shade. These species also attract

wildlife such as birds and butterflies and produce edible fruit. These shrubs are not available at all local nurseries, but may be specially requested which could cost up to \$200 given the number of plants needed to provide a good hedge. A way to cut costs would be to collect cuttings from local wild specimens. This, however, requires detailed knowledge of plant identification and propagation.

Step 3 – The goal with the seating area in the southwest corner is to make it as natural as possible. Rather than purchasing stone or wooden benches (projected cost of up to \$300/bench) or chairs (up to \$200/chair), making stools out of boulders or stumps of wood is a practical and cheap alternative. These can likely be obtained through donations by nearby blasting projects or tree-cutting companies, or from found materials. Larger seating pieces can be anchored into the ground, while smaller pieces may remain mobile.

A picnic table in the northeast corner would be ideal for occasions when food or beverages would be taken outside, and for crafts or other activities with the children. Solid wood picnic tables, varnished or unvarnished, can be found new for \$300-700. For maximum durability and longevity, we recommend buying new, however there may be alternatives. Saanich Parks (see References section) may be a source of slightly used picnic tables which could then be refinished by volunteers, or they may be willing to sell a table to the University at a discounted price.

Step 4 – Our cost estimate assumes that garden labour would be done free of charge by volunteers or Campus Facilities Management. The \$530 is for flower bed edging (approx. \$40 for 20 feet) and plants (up to \$450). Flower beds would be dug and edged around the side of the building and along the fence facing the road. For along the wall, we recommend evergreen plants such as sword ferns (*Polystichum munitum*), Oregon Grape (*Mahonia nervosa*) and Common Juniper (*Juniperus communis*). These plants are hardy, shade-tolerant and will attract hummingbirds and mammals.

The projected garden along the road will receive more sunlight; therefore we recommend Garry Oak ecosystem flowers for colour and attractiveness to wildlife and insects. Nodding Onion (*Allium cernuum*) attracts birds and butterflies and grows well with Harvest Brodiaea (*Brodiaea*

coronaria), Satinflower (*Olsynium douglasii*) and Common Camas (*Camassia quamash*), which is a good attractor of bees. For other Garry Oak Ecosystem plants and propagation information, see the website of the Garry Oak Ecosystem Recovery Team (see References section).

Step 5 – Bark mulch or similar garden mounding material can be found at any garden supply store for approximately \$10 per 4 kg. We estimate that about a dozen bags will be needed to lay mulch over the flower beds, but more may be required. This can be done by volunteers or Facilities Management free of charge. We recommend, for ease of maintenance, that landscaping cloth be laid under the mulch to prevent weeds from growing. Landscaping cloth would incur little additional cost.

Step 6 – Once the major landscaping is done, accessories can be added to personalize the garden. Building of birdhouses is a great activity to bring children together with parents in the community. Birdhouse-making kits can be purchased from crafting stores for \$20-30 each, and can be put together and painted by children. This will create a sense of ownership in the space and will also attract wildlife. Hummingbird feeders (\$5-15 each) hung around the windows will also attract wildlife that can be seen from indoors, even during winter.

Step 7 – Another activity that can be done with children to personalize the space is to purchase a set of four or five stepping stones to create a path from the front door of the Family Centre leading into the garden. Children can paint these or create mosaics on them from coloured stones. Stepping stones can be purchased at garden centers for approximately \$15 each. An alternative, or perhaps additional option, is to collect smaller flat stones from a beach and have children paint them or put their handprint on them, then scatter these throughout the flower beds.

Step 8 – Finally, a water feature would add a nice touch to the first phase transformation of the garden. The space is not large enough to accommodate a pond, and this option would also be dangerous for children; a raised water fountain may offer an attractive alternative. These can be purchased from gardening and home improvement centers for \$150-300, and require little installation or maintenance. It can be turned off during winter to prevent freezing, but left running during summer to create a soothing atmosphere. A cheaper alternative to a fountain

would be a birdbath, which can be bought for up to \$100; these however, require more maintenance to avoid breeding diseases or pests.

Further Options:

The Family Housing representatives we spoke to offered ideas for further phases of the restoration. Our site plan only includes the first phase, but ideas for subsequent spring/summer projects include:

- A garden shed for storing garden tools, outdoor toys and other garden supplies. A mid-sized plastic or metal shed at Home Depot would cost between \$200 and \$700, and come assembled or can easily be assembled by volunteers.
- A greenhouse or raised planting box for growing a few food plants and teaching children about gardening. This could be made very easily by creating a wood frame and filling with topsoil for under \$200.
- Small signs labeling the native plants and containing some information about them, so that parents can help teach their children about native plants and their use in aboriginal culture. These signs can be designed by another ES 341 class and commissioned to a sign-making company, or made by volunteers. Potential cost for this project is unknown.
- A piece of native artwork in any form to add a cultural feel to the garden. This could be bought at an auction, commissioned by a native artist, or even bought online! The possibilities for this project could be worked out by subsequent planners for this restoration site.

References and Links:

For pricing information and ideas:

Home Depot. Copyright 2007. Available online at www.homedepot.ca

Home Hardware. Copyright 2009. Available online at www.homehardware.ca

Canadian Tire. Copyright 2009. Available online at www.canadiantire.ca

For information on gardening and fencing:

Garry Oak Ecosystems Recovery Team. Copyright 2009. Available online at www.goert.ca

Ford, R. 1998. Do It Yourself: the Rail Way. *Harrowsmith Country Life*: pp. 71-75.

(Available online at <http://www.cedarsplitrails.com/Harrowsmith.html>)

Additional information:

Saanich Parks. Available online: <http://www.gov.saanich.bc.ca/resident/parks/index.html>

SECTION 5: MONITORING PLAN

By Douglas Mathews

Introduction:

Monitoring is an integral part of any restoration project. Highly interactive and communicative monitoring practices help facilitate the journey from planning goals to the realization of objectives. As outlined in Section 2, our group has focused our restoration efforts on 6 topics: Social and Community Rehabilitation, Ecological, Educational/Awareness, Health and Recreation, Safety and Cultural. Each topic has related goals and specific objectives to be met as a measure of success of the project. An important aspect of monitoring is ensuring the restoration project has progressed and will continue to progress in a positive direction towards the fulfillment of its goals. Therefore this section will outline the methods of monitoring as well as specific recommendations for ensuring successful realization of each goals specific objective.

Methods:

Many of our goals and objectives are vitally connected with the Family Housing communities' ability to interact with the project at all stages. We received some very helpful information from meeting with the Family Housing representatives. Many of the monitoring techniques that will be outlined are designed to integrate well with the specific preferences and capabilities of the family housing members.

A main conduit to the success of our restoration project will be establishing an environment of continuous interaction between the Family Housing members and the restoration area. A great vehicle to facilitate this interaction is the Family Housing Newsletter. This newsletter provides an ideal forum for distributing information, heightening awareness and receiving feedback. Updates on the timeline of the restoration program can be delivered through the newsletter. This will help encourage the Family Housing members to participate in the various stages of development. A suggestion offered at one of the meetings was to send out a survey via the

newsletter one year after the completing of the initial restoration. This survey is a great way to obtain some feedback from the community about their feeling on the state of the project. The results of this survey can be used to facilitate a further course of action.

After the landscaping and planting stages are completed, periodic evaluations of the site must take place. The intent of these inspections is to quickly identify any problems that have arisen. This way they can be dealt with in a timely and cost effective manner. Main areas of concentration during inspections are the level of proliferation of native species, hydrological and nutrient demands of the flora and the integrity of the capital installed. The site inspections should be performed frequently (every 2 months) for the first year and then be scaled back to once every 6 months. The intent is to eventually create a stable, primarily self sustaining ecosystem. Effective ecosystem-based management usually requires that ecosystems be managed with minimal intervention (Parks Canada 2008). Periodical site inspections will also aid in adjusting plans for the next step of development.

Ecosystems are complex, and no two intact ecosystems are ever identical, at least not when examined in fine resolution (SER 2004). As environmental scenarios are ever changing, especially in this west coast climate, making predictions of all possible disturbances is very difficult if not impossible. To counteract these variables adaptive management techniques must be utilized. Possible problems include but are not limited: the effect of human and animal interaction, degree of rainfall experienced, the ponds micro-hydrology, runoff from the housing center roof, division of the hedges and the emergence of invasive species.

Monitoring Project Objectives:

The following are monitoring plans and their related response measures for the goals and objectives previously outlined. For specific descriptions of these goals and objectives please refer to Section 2.

Topic 1: Social and Community Rehabilitation

- **Goal:** To build a sense of connectedness among families, family housing employees, facility maintenance, visitors, and youth.
 - The bulk of the objectives outlined can be realized by strong interaction between the Family Housing community and the restoration project, plans and site.
 - The Family Housing Newsletter is a great forum to facilitate group interaction via community events held on the site.
 - Engagement and participation of the community during the development stages and monitoring process will be conducive to the achievement of the objectives.

Topic 2: Ecological

- **Goal:** To re-establish a more diverse and natural habitat.
 - Plant pulls to remove invasive species. Continuous pulls may be necessary to protect the site. The frequency of these pulls will vary depending on the time of year but should generally be concentrated in spring and summer months.
 - Replanting of native species may be required as some plants will die due to any number of environmental and anthropogenic disturbances.
 - Regular watering especially in the spring and summer seasons.
 - Replenishing food in birdfeeders and hummingbird feeders.
 - Turning the soil to promote plant growth.

Topic 3: Educational/Awareness

- **Goal:** To educate the public about the importance of healthy ecological systems and about the benefits of restoration.
 - Send out insert in newsletter outlining information about the native and invasive plants.
 - Organize community engagement during planting process. Provide leaders of these processes information about plant species so that they are able to educate the community via experiential education.
 - Plan an opening event upon completion and use this to establish a connection between the site and the people who will be using it.
 - Have future UVIC Environmental Studies classes involved in developmental stages and community events to provide support as educational sources.

Topic 4: Health and Recreation

- **Goal:** To improve people's physical and emotional wellbeing by offering a peaceful space and through participation in the restoration and site activities.
 - Objectives will be met depending on the level of participation and interaction. During meetings the Family Housing Representatives expressed a desire for increased use of the site.
 - Proper physical maintenance will help promote utilization of area.
 - Organizing events and activities for the space will also encourage its use.
 - Maintenance of the pond and surrounding area will help add to the serenity and peacefulness of the area.

Topic 5: Safety

- **Goal:** To ensure individuals and user groups are safe from undue physical harm.
 - This is a very important goal to meet as there will be many children interacting with the area. It is prudent that the monitoring of the area and facilities be continuous and intensive.
 - Stability of the fence should be checked as children may play on it making the possibility of a collapse a real hazard.
 - Splinters on the fence, log benches and table may be a danger.
 - Installing the utilities shed so that gardening tools and other potentially hazardous materials are kept safe.
 - Maintaining the integrity of the hedge to prevent access to the ravine.

Topic 6: Cultural

- **Goal:** To acknowledge the historic First Nations relationship with the land and recognize the cultural importance of the area.
 - Invite First Nations members to the planting stage as well as community events to provide historic and current information to the members.
 - In the above mentioned insert in the Family Housing Newsletter provide a historical account of the land from a First Nations Perspective.
 - Involve First Nations traditions and teaching in additions to the site such as art projects.

- Along with western descriptions provide First Nations descriptions, uses and experiences in information provided for the flora.

Observation Points:

In order to proactively monitor the site, four observation points were established. At these same points photos will be taken at various intervals of the restoration project. These photos will provide a means of comparison over time. The photos may also be used in the Family Housing Newsletter to show community members the progress that has been achieved. The photos should be then archived to allow for a visual record of the sites history.

Observation Point 1:



Observation Point 2:



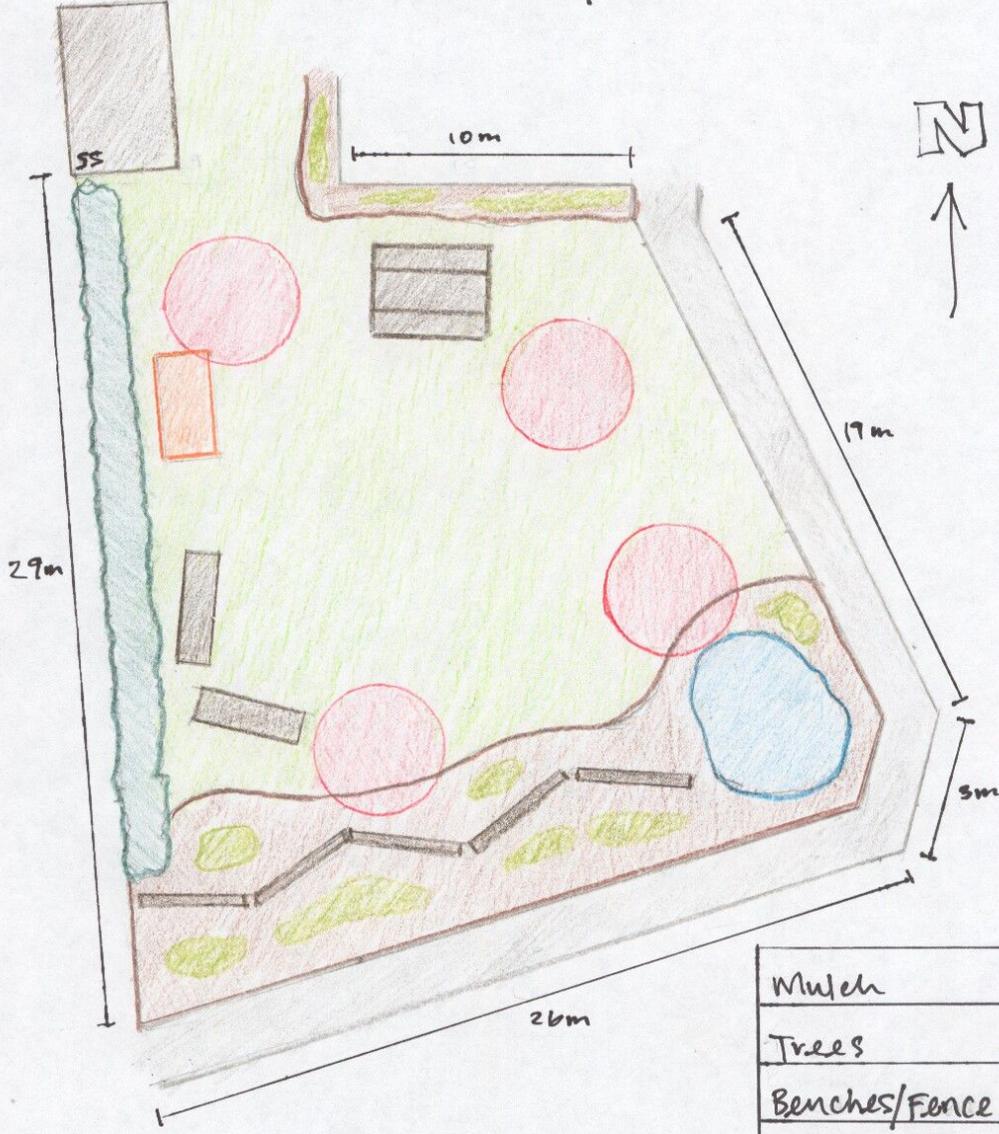
Observation Point 3:



Observation Point 4:



WVic Family Housing Centre



* 0.5cm = 1m

Mulch	
Trees	
Benches/Fence	
Hedges	
Pond	
Native Plants	
storage shed	SS
Garden Box	

References:

Society for Ecological Restoration International Science & Policy Working Group. (2004). *The SER International Primer on Ecological Restoration*. Retrieved January 15, 2009, from Society for Ecological Restoration International:
http://www.ser.org/content/ecological_restoration_primer.asp

Parks Canada, 2008, Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas ,National Parks Directorate, Gatineau, Quebec.

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