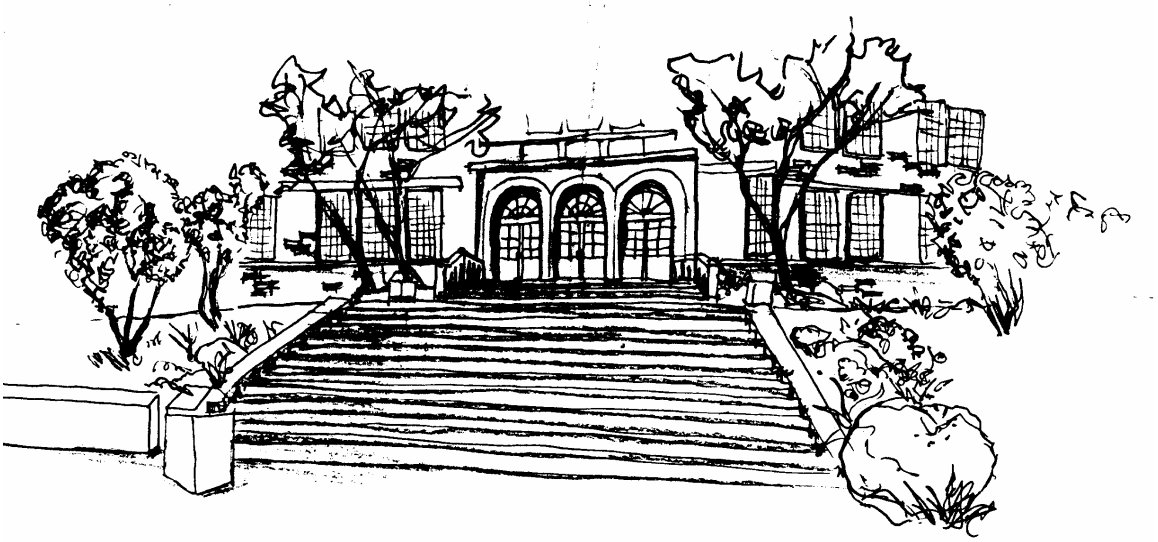
Garfield High School Plant Installation and Management Project
Spring 1999



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PROJECT DESCRIPTION

This project was a joint venture in planting design, installation, and management between the University of Washington (UW) and Garfield High School. UW Professor Linda Chalker-Scott led her UHF 445 Landscape Plant Management students to plan and implement the first stages of the project. These stages consisted of site selection, site analysis, site preparation, plant and materials installation, and site management plan development. The ongoing management of the site will be carried out by volunteers from Garfield High School, the University of Washington, and the local community, as well as Garfield High School grounds maintenance personnel.

Site Selection

The class visited Garfield to choose projects that could be accomplished within the course quarter. This report describes the process and plan for the main entrance site (Fig. 1).

Figure 1 The project site, located at Garfield High School's main entrance.

Site Analysis

The scope of the main entrance site consists of the lower and upper stair areas leading to the north entrance. The areas chosen for design were two parallel strips lining each side of the lower stairs, and two triangular spaces on each side of the upper stairs (Figs. 2 & 3). The students conducted a site analysis of these areas. The analysis examined current uses, existing vegetation, sun and shade patterns, soil conditions, water availability, existing architecture and hardscape, and context within connected areas.

Figure 2 One of the linear strips on the east side of the lower stairs.

Figure 3 One of the triangular spaces on the west side of the upper stairs.

The existing vegetation at the lower stairs consisted of a grove of limbed-up *Rhododendron* carpeted with *Hedera helix* (English ivy). In the upper stair area, there were several *Daphne laureola* (daphne), a small *Rhododendron*, a *Polystichum munitum* (sword fern), and two *Dicentra spectabilis* (bleeding hearts). The upper stair area was shaded at all times, while the lower area was mostly shaded, except for a limited time in the late afternoon. The soil was moderately compacted, not as finely textured as expected, and somewhat dry considering the wet weather conditions when inspected. Uses of the site were limited to school group photos, small student gatherings, and foot traffic in and out of the building.

Design Development

The development of the planting and hardscape design integrated numerous functional and aesthetic elements. It depended heavily on both the results of the site analysis and the wants and needs of Garfield High School students and faculty. Safety and pest issues were also considered. The planting design incorporates plants that do not block site lines, do not provide favorable conditions for harboring rodents, are shade tolerant, and are somewhat drought tolerant. Another factor considered in the design was the scale of the building to the planting material. The areas directly adjacent to the main entrance required a vertical element to provide a transition from the ground plane to the wall of the building.

The woodland theme of the design and the plant species used also compliment existing plantings (Fig. 4). This serves to connect the spaces and provide a pleasant entry walk. From this analysis a concept plan was drawn for a planting design (Fig. 5).

Figure 4 Existing plantings leading to the main entrance.

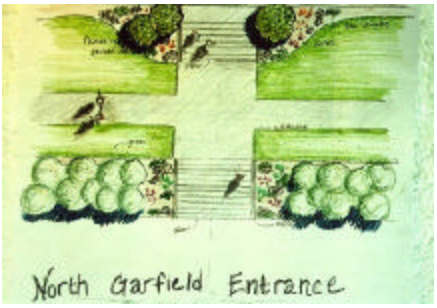

Figure 5 Concept plan resulting from the site analysis.

Site Preparation

Site preparation began as soon as the site design was finalized. This process involved moving or removing existing vegetation that was either invasive or inappropriate for the site. The site was cleaned of debris and the soil was loosened to reduce compaction (Fig. 6). Root barriers were installed along the lower steps to prevent encroachment of invasive *Hedera helix* (English ivy) (Fig. 7). Topsoil was brought in to build raised planting beds on both sides of the upper stairs.

Figure 6 Site preparation.

Figure 7 Root barriers made of unit pavers wrapped in plastic.

Installation

Plant material and boulders were installed according to proper practice and design specifications. Appropriately sized holes were dug for the various trees, shrubs, and groundcovers used in the designs. Root material was examined, and root problems were fixed, prior to installation. Soil berms (rings of raised soil) were created at the base of large plants to aid in water collection. All of the plant material was watered immediately after installation to ensure that the roots had water available for establishment. The three *Acer circinatum* (vine maples) used in the upper stair area were staked to provide support and protection until they develop strong root systems. The stakes should be removed in

spring, 2000, to prevent the plants from becoming dependent on them. Depressions were dug in preparation for boulders. The depressions were lined with a thick layer of gravel (to discourage rodents) then boulders were nestled into place (Fig.8).

Figure 8 Gravel beds used to discourage rats fromnesting under the boulders

Mulch was applied in a 4-6 inch layer over the planting beds. This well help to reduce evaporation, insulate plant roots, and prevent the germination of weed seeds (Fig. 9).

Management

To help ensure the success of this project, students created a five-year management plan. This plan delineates the necessary steps to promote the survival of the new plants and to retain the integrity of the design. Management issues such as watering, weed control, mulch reapplication, and pruning are outlined in this plan. The following table summarizes essential management steps for the five years following plant installation.

When management activities occur, they should include documentation such as observed plant conditions, work performed, results of treatments, and recommendations for future work. Entries should include the date and the name of the note taker. **Details accounting for pesticide and herbicide applications are not only essential for plant care, they are required by law for most public sites.** Records will aid in the diagnosis of current problems and help forecast future needs for the site. Successes are just as important to record as losses.

TABLE 1

GENERAL MAINTENANCE REQUIREMENTS

TASK	YEAR 1	YEAR 2-3	YEAR 4-5
WATER (bi-weekly)	All plants	All plants 2nd year; wean during 3rd year	Perennials and replacement plants
PRUNE*	Only remove dead, damaged, or diseased branches	Spring – clean-up perennials (e.g. ferns) Fall – training trees and shrubs	Trees – dead or damaged branches and to keep crown elevated. Thin as needed
EDGE	Yes	Yes	Yes
WEED REMOVAL	Weekly	Monthly	Monthly
PESTS	Monitor	Monitor	Monitor
FERTILIZE	Only as needed	Only as needed	Only as needed
TRASH REMOVAL	Weekly	Weekly	Weekly
RAKE	As necessary	As necessary	As necessary
MULCH	Apply post planting	Replace as needed	Replace as needed
EROSION	Monitor - especially hillside	Monitor – especially hillside	Monitor – especially hillside
INSPECTION BY TRAINED PERSONNEL	Monthly - plant health, watering needs, replacements, recommendations.	Monthly – plant health, watering needs, replacements, recommendations.	Monthly – plant health, watering needs, replacements, recommendations.

* A trained horticulturist or arborist should perform the pruning to ensure that it is done properly.

APPENDIX A

DETAILED PLANT INFORMATION

TYPE AND POTENTIAL HEIGHT	BOTANICAL NAME	COMMON NAME	WATER NEEDS	SPECIAL NEEDS
TREE-deciduous 5-35'	*Acer circinatum*	Vine Maple	**moist throughout the growing season**	**Prune (DO NOT TOP!) to maintain lower canopy between 4-12'**
SHRUB-evergreen to 4'	*Daphne laureola* (existing)	Spurge Laurel	**minimal summer water increases spring flowers**	**Porous soil**
SHRUBLET-evergreen to 6"	*Gaultheria procumbens*	Wintergreen	**maintain a damp root system through dry seasons**	**Good drainage; slow to establish, but once established may need root pruning to control**
SHRUB-evergreen to 2'	*Mahonia nervosa* aka *Berberis nervosa*	Longleaf Mahonia	**drought tolerant once established**	**Slow to establish**
SHRUB-deciduous 8-10'	*Ribes sanguineum*	Red Flowering Currant	**fairly drought tolerant, but does best with moderate watering**	**Good drainage**
SHRUB-evergreen 3-5' in sun 8-12' in shade	*Vaccinium ovatum*	Evergreen Huckleberry	**fairly drought tolerant, but does best with moderate watering**	**Slightly acid soil; ample peat moss, leaf mold or ground bark**
PERENNIAL 8-18"	*Campanula carpatica*	Bluebells	**best if kept moist through the dry months**	**Readily drained soil**
PERENNIAL 2-3'	*Dicentra spectabilis* (existing)	Bleeding Heart	**moist conditions**	**Rich, light, moist soil**

PERENNIAL 2-3’	*Hosta*	Hosta	**regular summer watering**	**Fertilize once a year; slug bait 3-4 times a year; divide as needed**
PERENNIAL 1-3’	*Smilacina racemosa*	False Solomon's Seal	**water during spring growth**	**Can go dry during summer in shade**
PERENNIAL 8-18”	*Trillium grandiflorum*	Wake Robin	**never let plant completely dry out**	**Loose, woodsy soil**
PERENNIAL 4-5’	*Xerophyllum tenox*	Bear-grass	**drier sites**	**Irregular flowering**
PERENNIAL 3-6”	*Viola*	Violet	**moist conditions**	**Rich, moist soil**
FERN-evergreen 1-3’	*Blechnum spicant*	Deer Fern	**moist conditions**	**Woodsy soil; deep shade**
FERN-evergreen 4-12”	*Cytopteris fragilis*	Fragile Fern	**moist to moderately dry**	**Likes calcium rich rocky forests**
FERN-evergreen 3-5’	*Polystichum munitum*	Sword Fern	**can tolerate dry conditions, but does best with moderate water**	**Rich organic matter**
CORM to 1’	*Erythronium*	Fawn Lily	**moist conditions**	**Rich porous soil**

NOTE: Not all of these plant species were available or used in the planting design. However, if replacements become necessary, they are possible species to use.

BIBLIOGRAPHY

ANSI Z133.1a-1995. *Safety Requirements for Tree Care Operations – Pruning, Trimming, Repairing, Maintaining and Removing Trees, and Cutting Brush*. (Supplement to ANSI Z133.1-1994).

Kruckeberg, A. K. (1993). *Gardening with Native Plants of the Pacific Northwest.* University of Washington Press. USA.

Pojar, J. and A. MacKinnon. (1994). *Plants of the Pacific Northwest Coast.* Lone Pine Publishing. Canada.

Sunset New Western Garden Book. (1985). Lane Publishing Co. Menlo Park, CA.