

# **The City of Sherwood Greenspaces Restoration Project Final Report**

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## **I. INTRODUCTION**

### **A. Purpose**

The purpose of this report is to provide the details of the Sherwood Greenspaces Restoration Project by summarizing project goals and objectives, itemizing the budget, explaining the work tasks that were completed to reach project goals and discussing the benefits of the project. Additionally, the report is designed to comment on how the project relates to the Metro Greenspaces Program, examine things that worked and things that didn't work, and to provide advice and recommendations for other project leaders.

### **B. Background**

The first people to live in the Sherwood area were Native Americans. By the 1870's, many pioneer families had come to settle in the area which is now Sherwood. In 1885, J.C. Smock granted a railroad right-of-way through his property, which provided the beginnings of the city that was founded in 1889 and named Smockville. In 1892, the city was incorporated and renamed Sherwood.

Today, the City of Sherwood is considered to be one of the fastest growing cities in the state of Oregon with an annual growth rate of about 15%. The community has experienced an explosion of development in the past few years. The current population of Sherwood is over 5,200 compared to 3,090 in 1990, which is more than a 68% increase over a period of five years.

Because of this rapid growth, the community's goals to preserve environmental and historical resources have been given high priority. Since the City applied for the Metro Greenspaces Restoration Program grant two years ago, a significant amount of progress has been made toward planning for future growth and development, while maintaining a healthy and livable community. For example, the City of Sherwood has actively and successfully pursued the preservation of acreage along the Cedar and Rock Creek Greenways and other "significant natural areas." The City has also continued its involvement with the Tualatin River National Wildlife Refuge study (see map and information in Appendix D) and has begun the Sherwood Sustainability Project, a process that enables community members to participate in long range local and regional planning. Additionally, on January 10, 1995 the City of Sherwood adopted a tree ordinance and added an historic preservation chapter to its City Zoning and Development Code.

## **II. PROJECT DESCRIPTION**

### **A. Location**

The City of Sherwood, Oregon is located in the southwest corner of Washington County. The project site is located along Cedar Creek which runs through Stella Olsen Park (See Figure 1 in Appendix A). Stella Olsen Park is located west of the historic Smockville Old Town District and east of Sherwood High School. Its northern boundary line is just north of Washington Street and its southern boundary is south of West Villa Road, bordering the

Southern Pacific Railroad. The legal description of the park location is the northwest quarter of Section 32 of Township 2 and Range 1 West. The portion of the park where all of the project work was completed is between Washington Street and West Villa Road.

## B. Site Characteristics

Stella Olsen Park is the City of Sherwood's primary park. The park is approximately 24 acres, including the acquisition of an additional 10 acres of "natural area" in 1992-1993. The north four acres are dedicated to active recreational pursuits centered on two islands formed by three channels of Cedar Creek. This area is the site of Sherwood's annual Robin Hood Festival. There were originally ten acres of wetlands, woodlands, and riparian areas which have been reserved by the Park's Master Plan as a natural area (see Figure 2 in Appendix A). Only passive recreational uses are allowed in this particular portion of the Park. The additional ten acres recently acquired are wetlands floodplain and riparian areas. This new acreage is comprised of a parcel of land north of Washington Street, east and west of the "Lagoon" and south of West Villa Road. By recent Council action, all but the north four "active" acres have been officially renamed the Cedar Creek Greenway.

The Metro Greenspaces Program project is illustrated in Figure 3 (Appendix A). The map illustrates the various sites where improvements were made and experiments were conducted.

## C. Goals and Objectives

The primary goals of the project were as follow:

1. Restore the passive recreational area of Stella Olsen Park to its natural state through the combined effort of the City, community businesses, Washington County Service Corps and Sherwood School District 88J.
2. Create an aesthetically pleasing transition zone between the active and passive recreation areas of Stella Olsen Park.
3. Further develop the potential of the park for recreation, environmental education and enjoyment of nature.

These goals were accomplished as all of the above organizations, as well as the Cascade Education Corps and David Evans and Associates, worked together toward the following objectives. This team work effort had a positive environmental impact on the park and made the area more desirable for recreational activities, educational projects and the enjoyment of nature.

The following is a list of the Sherwood Greenspaces Project objectives:

1. Restore and enhance a portion of the Cedar Creek riparian corridor and associated wetlands.
2. Improve wildlife habitats.

3. Improve water quality of Cedar Creek.
4. Teach students about ecosystems, riparian areas and wetland vegetation.
5. Provide handicap access to the creek side of the Park.
6. Ensure maintenance of the wetlands and riparian areas.
7. Determine the most effective native plant species propagation methods.
8. Encourage further entertainment and recreational activities at Stella Olsen Park.
9. Increase communication between public agencies, local businesses and non-profit organizations.
10. Publicize the Metropolitan Greenspaces Restoration Program.

### III. PROJECT BUDGET

#### A. Itemization of Local Share vs. Metro Grant

This section itemizes the actual local share of the Sherwood Greenspaces Project compared to the Metropolitan Greenspaces Restoration Program grant moneys, and outlines and identifies project expenditures. The originally projected budget is included as an exhibit (see Table 1 below).

**TABLE 1**  
**LOCAL SHARE AND METRO GRANT**  
**(Projected Budget)**

|  | LOCAL MATCH         | REQUEST OF METRO    | TOTAL               |
|--|---------------------|---------------------|---------------------|
| Personnel  | \$ 14,420.00        | \$ 18,000.00        | \$ 32,420.00        |
| Materials, Plants, and Supplies                                  | 2,000.00            | 2,000.00            | 4,000.00            |
| Rental Fees  | -0-                 | 1,135.00            | 1,135.00            |
| Professional Services  | 2,000.00            | 2,500.00            | 4,500.00            |
| Volunteer Labor Hours @\$4.75                                    | 8,075.00            | -0-                 | 8,075.00            |
| Indirect Costs/Overhead<br>(not grant eligible)                  | 2,000.00            | -0-                 | 2,000.00            |
| Contingency (not grant eligible)                                 | 2,500.00            | -0-                 | 2,500.00            |
| Local resources dedicated to the<br>project (not grant eligible) | 2,000.00            | -0-                 | 2,000.00            |
| <b>TOTAL</b>   | <b>\$ 32,995.00</b> | <b>\$ 23,635.00</b> | <b>\$ 56,630.00</b> |

Table 2 illustrates the actual local share and Metro grant. Further explanations about the expenditures follow Table 2.

**TABLE 2**  
**LOCAL SHARE AND METRO GRANT**  
**(Actual Budget)**

|  | LOCAL MATCH         | REQUEST OF METRO    | TOTAL               |
|--|---------------------|---------------------|---------------------|
| Personnel  | \$ 3,632.73         | \$ 11,150.00        | \$ 14,782.73        |
| Materials, Plants, and Supplies                                  | 1,284.10            | 1,284.10            | 2,568.20            |
| Rental Fees  | -0-                 | 141.95              | 141.95              |
| Professional Services  | 1,142.72            | 1,396.66            | 2,539.38            |
| Volunteer Labor Hours @\$4.75                                    | 7,034.75            | -0-                 | 7,034.75            |
| Indirect Costs/Overhead<br>(not grant eligible)                  | 2,000.00            | -0-                 | 2,000.00            |
| Local resources dedicated to the<br>project (not grant eligible) | 3,900.00            | -0-                 | 3,900.00            |
| <b>TOTAL</b>   | <b>\$ 18,994.30</b> | <b>\$ 13,972.71</b> | <b>\$ 32,967.01</b> |

## LOCAL MATCH

### Personnel:

|                       |                               |                    |
|-----------------------|-------------------------------|--------------------|
| City Manager          | \$25.24/hour X 30 hours =     | \$ 757.20          |
| Finance Director      | \$19.97/hour X 20 hours =     | \$ 399.40          |
| Teacher               | \$15.00/hour X 119.75 hours = | \$ 1,796.25        |
| Teacher               | \$15.00/hour X 4 hours =      | \$ 60.00           |
| Assistant Planner     | \$13.70/hour X 40 hours =     | \$ 548.00          |
| Senior Utility Worker | \$11.98/hour X 7.5 hours =    | \$ 71.88           |
| <b>Total</b>          |                               | <b>\$ 3,632.73</b> |

Materials, Plants, Supplies: Lumber, building supplies, nursery stock, plants, etc. = \$1,284.10. (Total of \$2,568.20 was split 50-50 between "Local Match" and Metro.)

|   |                 |
|---|-----------------|
| Trees (Washington County Service Corps) | \$ 60.00        |
| Seedlings (IFA Nursery)                 | 40.00           |
| Concrete (WACO Service Corps)           | 10.76           |
| Drainage Pipe (WACO Service Corps)      | 4.29            |
| Lumber and Supplies (Chavez Lumber)     | <u>2,453.16</u> |
| Total                                   | \$ 2,568.21     |

Professional Services: David Evans and Associates provided biological and landscaping architecture consulting services, assistance with development of hydrology and plant monitoring plans, and assistance with implementation of plan. Bruce Allert Photography supplied the City with photographs before and after the completion of the project. Local share = \$1,142.72 (Total of \$2,539.38 was split 45-55 between Local Match and Metro.)

Volunteer Labor: Intermediate and high school students involved in nest box construction and installment, plant propagation, and back-up to Washington County Service Corps for species eradication and planting. Students : \$4.75/hour X 1481 hours = \$7,034.75

Indirect Costs/Overhead: Design of project by David Evans and Associates \$2,000 (Actual cost).

Local Resources Dedicated to Project: Two viewing platforms = \$3,900 (Construction and installation)

NOTE: The \$2,500 in contingency cash from the City was not needed.

## REQUEST FROM METRO

Personnel: Washington County Service Corps and Cascade Education Corps contract runs at \$65.00 per student per day. \$65.00/student/day X 8 students/day X 21.44 days = \$11,150.00 (Total charges less the cost of materials, plants and supplies @ \$75.05.)

Materials, Plants, Supplies: Lumber, building supplies, nursery stock, planting supplies = \$1,284.10 (Total of \$2,568.20 split 50-50 between Local Match and Metro.)

Rental Fees: The City of Sherwood has an internal "rental" system for heavy equipment. Back hoe @ \$28.39/hour X 5 hours = 141.95

Professional Services: David Evans and Associates provided biological and landscaping architecture consulting services, development of hydrology and planting monitoring plans, and assistance with implementation of plan, Bruce Allert Photography supplied photographs. Metro's share = \$1,396.66. (Total of \$2,539.38 was split 45-55 between Local Match and Metro.)

## B. Project Expenses

The following table lists the vendors whose services were required during fiscal year 1992-1993. David Evans & Associates aided the City in the coordination and design of the project. (The actual design of the project @ \$2,000 is not grant eligible and, therefore, is listed in the budget as Indirect Costs/Overhead rather than professional.)\* The company prepared the grant application, was instrumental in gathering plant and education materials, and provided field orientation to students and volunteers. The Washington County Service Corps installed waterbars on trails, removed brush and grass on trails, removed blackberries, built stairs and trails, propagated and planted trees, shrubs, and other native vegetation, and constructed and installed nesting boxes. Local students from both the high school and intermediate school also participated in blackberry removal, planting, and nesting box installation. Chavez Lumber sold the City pressure treated lumber for the project. (See invoices for Table 3 in Appendix C.)

**TABLE 3**  
**SHERWOOD GREENSPACES PROJECT EXPENSES**

| FY 1992-1993   |  |             |
|----------------|--|-------------|
| <u>DATE</u>    | <u>VENDOR/ORGANIZATION</u>                   | <u>COST</u> |
| 4/93           | Lazerquick Printing                          | \$ 5.34     |
| 7/92           | David Evans & Associates, Inc. *             | 1,173.75    |
| 8/92           | David Evans & Associates, Inc.               | 826.25      |
| 9/92           | David Evans & Associates, Inc.               | 433.40      |
| 10/92          | David Evans & Associates, Inc.               | 497.56      |
| 12/92          | David Evans & Associates, Inc.               | 272.53      |
| 4/93           | David Evans & Associates, Inc.               | 855.26      |
| 5/93           | David Evans & Associates, Inc.               | 46.84       |
| 6/93           | David Evans & Associates, Inc.               | 95.48       |
| 3/93           | Washington County Education Service District | 750.00      |
| 4/93           | Washington County Education Service District | 2,080.00    |
| 5/93           | Washington County Education Service District | 2,665.00    |
| 6/93           | Washington County Education Service District | 2,145.00    |
| 6/93           | Washington County Education Service District | 260.00      |
| 6/93           | Washington County Education Service District | 500.00      |
| 4/93           | Alan Chavez Lumber Sales                     | 44.48       |
| 5/93           | Alan Chavez Lumber Sales                     | 100.80      |
| 5/93           | Alan Chavez Lumber Sales                     | 15.68       |
| FY 92-93 TOTAL |  | 12,767.37   |

Table 4 illustrates the expenditures for the greenspaces project during fiscal year 1993-1994. Alan Chavez Lumber Sales sold the City of Sherwood pressure treated lumber, screws, pier hangers, etc. for the viewing platforms and nesting boxes. David Evans & Associates assisted the City in designing and planning the wetland construction that was completed fall of 1993. Cascade Education Corps "at risk" youth constructed viewing platforms, constructed a new wetlands area, removed blackberries, worked on the trails, planted trees, and propagated and seeded wetland plants. Bruce Allert provided five black and white 8 X 10 prints of the wetland area. (See invoices for Table 4 in Appendix C.)

**TABLE 4**

**SHERWOOD GREENSPACES PROJECT EXPENSES**

| FY 1993-1994 |  |                 |
|--------------|--|-----------------|
| <u>DATE</u>  | <u>VENDOR/ORGANIZATION</u>                               | <u>COST</u>     |
| 6/93         | Alan Chavez Lumber Sales                                 | \$ 199.20       |
| 6/93         | Alan Chavez Lumber Sales                                 | 17.68           |
| 7/93         | Alan Chavez Lumber Sales                                 | 314.07          |
| 7/93         | Alan Chavez Lumber Sales                                 | 417.08          |
| 11/93        | Alan Chavez Lumber Sales                                 | 67.20           |
| 12/93        | Alan Chavez Lumber Sales                                 | 770.56          |
| 12/93        | Alan Chavez Lumber Sales                                 | 150.69          |
| 12/93        | Alan Chavez Lumber Sales                                 | 355.72          |
| 9/93         | David Evans & Associates, Inc.                           | 191.90          |
| 9/93         | Washington County School District 15                     | 3,000.00        |
| 11/93        | Washington County School District 15                     | 660.00          |
| 12/93        | Washington County School District 15                     | 1,050.00        |
| 1/94         | Washington County School District 15                     | 2,015.05        |
| 1/9          | Bruce Allert Photography (5 black & white 8 X 10 prints) | 45.00           |
|              | <b>FY 93-94 TOTAL</b>                                    | <b>9,254.15</b> |

The following table lists the greenspaces project expenditures for fiscal year 1994-1995. (See invoices for Table 5 in Appendix C.)

**TABLE 5****SHERWOOD GREENSPACES PROJECT EXPENSES**

|             | FY 1994-1995               |                  |
|-------------|----------------------------|------------------|
| <u>DATE</u> | <u>VENDOR/ORGANIZATION</u> | <u>COST</u>      |
| 2/95        | Photography (slides)       |                  |
|             | 2 Hours @ \$35/Hour        | \$70.00          |
|             | Film (2 rolls)             | 14.30            |
|             | Processing                 | 17.10            |
|             | <b>FY 94-95 TOTAL</b>      | <b>\$ 101.40</b> |

**C. In-Kind Services**

Table 6 illustrates the in-kind services that were provided to the City for the Metro Greenspaces Project. Supervised by Terrel Smith, a high school teacher at Sherwood High School, students cleared invasive blackberry vines and removed some creosote logs from Cedar Creek (see Sherwood High School Tasks and Hours in Appendix B). Sherwood Intermediate School teacher John McGinity and his students assisted in the wetland creation. They also propagated plants and monitored the growth of plants (see Sherwood Intermediate School Wetland Log in Appendix B). City Staff was provided for oversight, monitoring and some direct labor. IFA Nurseries, Inc. gifted Gregg Everhart of David Evans and Associates, Inc. a variety of species of seedling trees to plant in the areas which were targeted for revegetation. (See invoices for Table 6 in Appendix C.) The intermediate and high school students are listed in the budget under "Volunteer Labor", the teachers are listed under "Personnel" with the City of Sherwood Staff.

**TABLE 6****SHERWOOD GREENSPACES PROJECT**

|             | IN-KIND SERVICES             |                     |
|-------------|------------------------------|---------------------|
| <u>DATE</u> | <u>VENDOR/SERVICE</u>        | <u>COST</u>         |
|             | Sherwood High School         | \$ 259.50           |
|             | Sherwood Intermediate School | 8,631.50            |
|             | City of Sherwood (Personnel) | 1,776.48            |
|             | IFA Nurseries, Inc.          | 40.00               |
|             | <b>TOTAL</b>                 | <b>\$ 10,707.48</b> |

#### IV. PROJECT STAFF/WORKERS/VOLUNTEERS AND TASKS

##### A. Project Staff and Volunteers:

Jim Rapp, City of Sherwood  
Polly Blankenbaker, Financial Director  
Bruce Allert, Senior Utility Worker  
Ed Armstrong, Washington County Service Corps  
Eric Marter, Washington County Service Corps  
Andrew Dyke, Washington County Service Corps  
Kitty McDonald-Boyer, Washington County Service Corps  
Jim Gorter, Washington County Education Service District  
Washington County Service Corps Corps members  
Cascade Education Corps Corps members  
Susan Cunningham, David Evans and Associates, Inc.  
Gregg Everhart, David Evans and Associates, Inc.  
Terrel Smith, Sherwood School District 88J  
Students of Sherwood School District 88J  
John McGinity, Sherwood School District 88J  
Al Chavez, Chavez Lumber

##### B. Local Students Who Constructed Nesting Boxes:

###### Students

Grant Behm  
Jodi Broadhurst  
Dan Carson  
Justin Dodge  
Amber Fillmore  
Matt Gram  
Reggie Kemper  
T.J. Leavitt  
John Lenz  
James Overfield  
Erik Pahlow  
Joe Schofield  
Cole Smith  
David Wethel  
Aaron Wilcott  
Dustin Williams  
Jared Wilmarth  
Jason Nye

###### Bird Species

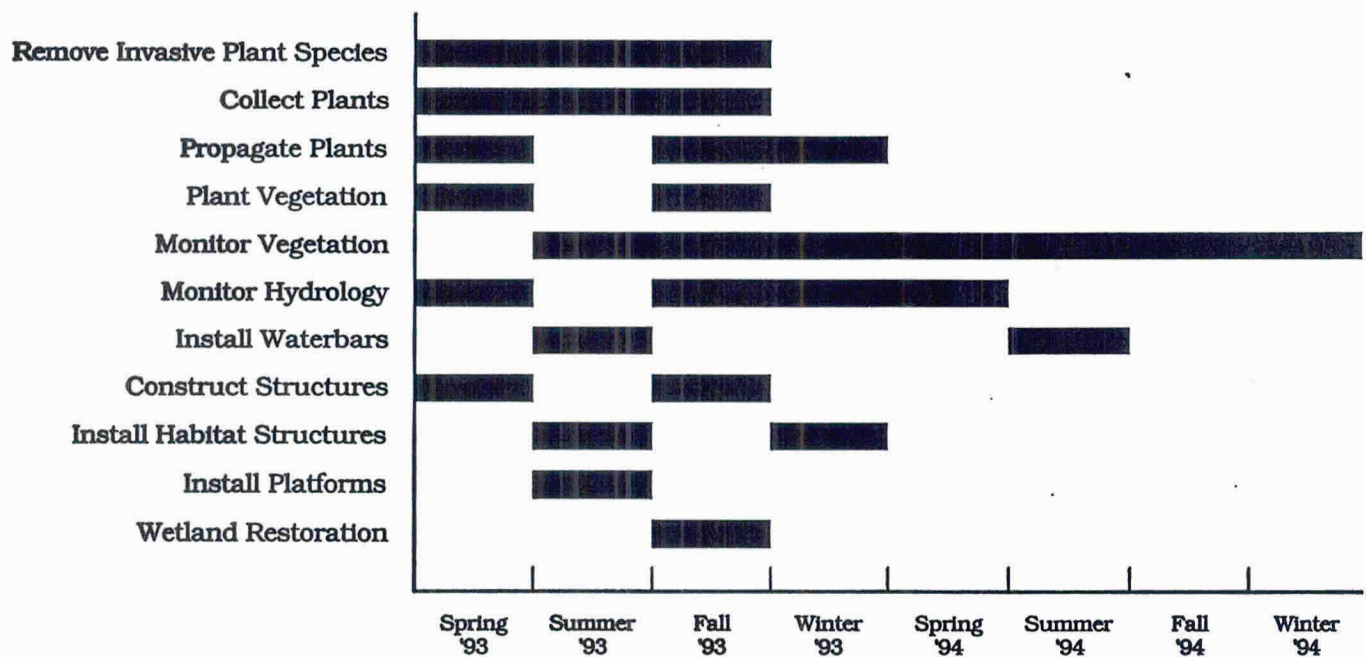
Scrub Jay (Flicker Box)  
Violet Green Swallow  
Robin  
Redwing Blackbird  
Song Sparrow  
Gold Finch  
Downy Woodpecker  
Flycatcher  
White Crowned Sparrow  
Blackbird  
Stellar Jay  
Northern Flicker  
Black Throated Grey Warbler  
Starling  
Wood Duck  
Pileated Woodpecker  
Barn Swallow  
Barn Owl

### C. Work Tasks

The major tasks that were completed are listed on the work schedule time line for the Sherwood Greenspaces Project (see Figure 4 below). As you can see by reviewing the schedule, the majority of the work was completed as of Winter 1993. The task which involves monitoring vegetation is still in progress. For more information regarding work tasks that were completed, please refer to Appendix B which contains the Sherwood High School Tasks and Hours, the Sherwood Intermediate School Wetland Log, the work done by Washington County Service Corps and Cascade Education Corps, and a letter outlining the work performed by David Evans and Associates.

**FIGURE 4**

**STELLA OLSEN PARK METROPOLITAN GREENSPACES  
PROJECT REVISED SCHEDULE**



Source: Sherwood Greenspaces Project

The following table identifies the work tasks that were proposed in Sherwood's Greenspaces Project and their current status (see Table 7 below). All but two of the work tasks of the proposed Greenspaces project were met. The osprey breeding platform was not constructed on the advise of Greenspaces committee members. Additionally, the Sherwood Intermediate School students are still in the process of monitoring the plants that were involved in this particular task (see graphs of plant monitoring in Appendix B).

**TABLE 7**  
**METRO GREENSPACES PROJECT WORK TASKS**

| WORK TASKS  | STATUS:   |    |       |
|---|-----------|----|-------|
|   | COMPLETE? |    | ON-   |
|   | YES       | NO | GOING |
| Prevention of trail erosion.  | X         |    |       |
| Restore wetland area.   | X         |    |       |
| Remove invasive plant species.  | X         |    |       |
| Expand riparian area of Cedar Creek by planting Western Cedars.   | X         |    |       |
| Create a buffer between active and passive areas by planting Western Cedars.  | X         |    |       |
| Plant a variety of native plant species where invasive plant species are removed.   | X         |    |       |
| Propagate plants (Intermediate and High School Students).   | X         |    |       |
| Monitor plants' adaptation to different physical conditions, success of propagation methods and survival rate of different species in the natural area. |           |    | X     |
| Replant selected areas along trails.  | X         |    |       |
| Install waterbars along new trails which were already installed within the park.  | X         |    |       |
| Install 2 creek access/viewing platforms.   | X         |    |       |
| Build osprey breeding platform.   |           | X  |       |
| Build and install song bird, wood duck and bat boxes.   | X         |    |       |
| Restore bank where 2nd creek access will be (located in the south end of the forested area just before existing trails emerge onto the new boardwalk).  | X         |    |       |

## V. BENEFITS OF PROJECT

The City has experienced several benefits from the Sherwood Greenspaces Project. The project enabled the City of Sherwood to restore and enhance portions of park wetlands and the Cedar Creek riparian corridor in Stella Olsen Park. This was achieved by removing invasive, non-native plant species and revegetating the area with native species. Crews from the Washington County Service Corps, the Cascade Education Corps, local students, and a group of volunteers "cleared blackberry vines from the wetlands and then replanted the area with six different species of plants" (The Oregonian, March 22, 1993, Appendix D). The species eradication included the removal of English ivy, Himalayan blackberry and holly. Tree planting included 80 hemlock, 80 cedar, 50 ponderosa pine, 120 alder and 120 douglas fir. Seedlings that were planted include 30 each of elderberry, ninebark, salmon berry, red twig dogwood, 20 hazel seedlings and 20 scirpus seedlings (see memo and invoice in Appendix C). Also planted were small-fruited bullrush and 40 ferns from the Tillamook State Forest. Additionally, the crews cut and propagated 100 native starts each of willow and red twig dogwood.

The Sherwood Greenspaces Project has improved the environmental condition of the park by minimizing some of the physical damage that has been done to the wetlands and riparian areas by individuals who had veered off the trails. This was accomplished by closing various trails in the project area and vegetating informal and abandoned trails. For example, attempts were made to close pedestrian trails by placing logs, brush, ropes, and barbed wire in front of trail entrances and by planting native species on the trails. Abandoned trails were stripped of invasive species and revegetated with native plant species. Additionally, viewing platforms were constructed and strategically placed to block areas that had been trampled bare by heavy pedestrian traffic. The viewing platforms and the new bark trail which was installed also reduced the amount of damage that was done by providing areas for walking, hiking, bird watching and other activities.

Some of the trail closures were successful. The most effective method of trail closure was the process of blocking trails off by constructing viewing platforms in front of them and planting native species on the trails. Where this was done, the native vegetation that was planted is thriving and pedestrian usage has decreased. Unfortunately, not all of the trails that were physically closed remained that way and much of the vegetation that was planted on those trails has been destroyed. Evidently, trail closures where more obvious methods were used brought more attention to the trails and peaked pedestrian curiosity and traffic. Additionally, trails and areas where blackberry bushes, ivy and holly were eradicated became more vulnerable because they became visible from other trails. For instance, non-native species were removed from one of the stream banks which revealed trails on the opposite side of the creek. Once the trail was in full view, the traffic on that side of the stream increased dramatically. The vegetation in that area has been destroyed, leaving just a muddy bank.

In addition to trail closures, small interpretive signs will be designed and placed in the Park this summer which will describe the project, its goals and achievements and how it was funded. These signs will increase awareness of the recent restoration work done in the Park and help deter people from vandalizing and misusing the area, which will ultimately contribute to the overall environmental condition of the project area.

Wildlife habitats were improved as degraded areas of Stella Olsen Park were enhanced and restored to their natural states. For instance, the project involved diminishing the spread of non-native, invasive plant species through controlled removal and revegetating abandoned and informal trails and cut-offs with native species. After these plants were removed, more desirable, native species were planted to provide a more natural environment for wildlife species that live in the wetland areas. Controlling the erosion of the Cedar Creek stream banks helped maintain the quality of habitats by reducing the amount of disturbance to the wetland ecosystem. This improved fish and other water wildlife habitats. The creation of viewing platforms and the gravel/bark path established a defined area for pedestrian traffic and other human activities which decreased the amount of physical damage to wildlife habitats. Also, Washington County Service Corps, Cascade Education Corps, and the local students assembled several cedar bird houses and put them up throughout the park. Crew members built and installed bird, wood duck, and bat boxes within the riparian and lagoon areas (See Nest Box Specifications in Appendix D). All of this work contributed to the improvement of wildlife habitats.

The water quality of Cedar Creek was improved by routing storm water runoff with waterbars, filling in the eroding draw and vegetating it with species that reduced sediment input, thereby decreasing turbidity and siltation and increasing nutrient uptake. More specifically, waterbars made of old tires were installed into the walking trails to reduce the amount of runoff on the trails. Prior to the waterbar installation, water runoff from the ground above the trails had severely eroded the center portion of the trails, creating a six inch trench. Since the waterbars have been in place, the soil erosion to the trail is nearly nonexistent. Consequently, the waterbars have been very successful in reducing the amount of sediment that flows into Cedar Creek.

In addition to the waterbar installation, a drainage ditch was targeted for the creation of a wetland area. The ditch ran from the high school parking lot, down a steep slope, under a foot bridge and feed into Cedar Creek. Prior to the project, the ditch was several feet deep and narrow; the water in the drainage ditch rushed down the hillside after heavy rains and poured sediment into the creek. The creek banks were overgrown with invasive species which blocked the creek from view. During the Sherwood Greenspaces project, the youth corps removed blackberry bushes, holly and ivy from the stream banks on the hillside and revegetated the area with native species. The City's Senior Utility Worker widened the drainage ditch with a back hoe and filled in the deep trench that had been created by the strong current of water running down the hillside. The youth corps hand dug the areas of the ditch where the back hoe was unable to reach and created two dikes so that the water would pool before entering the creek. The intermediate students created rock check dams which terraced the drainage ditch. The end result was the creation of a pond so that the water would flow more slowly and gradually overflow onto the banks and into the creek, creating a marshy area. The tasks involving the wetland creation were successful in reducing the amount of erosion to the creek and enabling the natural vegetation to grow back along the stream banks, which ultimately led to improvement of Cedar Creek water quality.

The project has been an educational tool for students and volunteers by teaching them about ecosystems in riparian and wetland areas. It has offered hands-on experience to the Sherwood intermediate and high school students. The students actively participated in all of

the stages of wetland creation, stream bank restoration, as well as the propagation, growing and monitoring of plants from cuttings and seedlings. Additionally, volunteers participated in the identification, collection, and planting of native plant material. They learned about three ecosystems, how they interrelate, and what species of wildlife inhabit and utilize them. Also, the students and volunteers were taught the benefits of removing invasive vegetation and replacing them with native species, protecting wildlife habitats, controlling soil erosion and minimizing the physical impacts of recreational activities. As mentioned above, the local students and volunteers also learned how to construct nesting boxes for various bird species.

Participation by crews from the Washington County Service Corps and the Cascade Education Corps provided important motivation and educational opportunities for students who were considered "at risk" in the conventional high school system. These students participated in and learned about wetland and riparian area restoration work. They also learned how to identify different plant species, how to handle plant vegetation and learned what is necessary to remove noxious species. This involvement provided these crew members with entry level experience and enabled them to acquire skills necessary to find and retain employment. The project was featured as part of National Youth Conservation Corps Week celebrations in 1994 and was featured in local television news broadcasts.

The project enabled the City to provide access for handicapped people which did not exist prior to the completion of the project. The crews from the Washington County Service Corps and the Cascade Education Corps made Cedar Creek accessible to handicapped people via an access ramp was installed in the summer of 1993.

Maintenance for the wetlands and riparian areas of the project area were ensured as the City incorporated the project into the City of Sherwood's Parks and Open Space Capital Improvement Plan and committed City Public Works Staff to ongoing park maintenance.

The project has provided the opportunity to determine the most effective propagation methods in the wetland area. The plant monitoring has been an on-going process that began during the planting phase of the project in the summer of 1993. Sherwood intermediate school students continue to monitor the plants' adaptation to different physical conditions, the success of propagation methods, and the survival rate of different species in the natural area. This monitoring program has also provided the opportunity to observe the success of plantings and to control the invasion of opportunistic species.

As mentioned in the introduction, Stella Olsen Park is used by many community members for recreational activities and events. Local citizens use the park for walking, hiking, picnicking, bird watching and playground activities. The park is also utilized for events such as the Annual City Picnic, and the Robin Hood Festival which has been a local tradition since 1946. The Sherwood Greenspaces Project was a community effort that drew more attention and people to the Stella Olsen Park. The community was exposed to the tasks that were being completed and learned about the importance of restoring the wetland areas of park. As the public became more knowledgeable, their interest in the park increased and more citizens have come to enjoy the recently restored area. Consequently, the project has encouraged further entertainment and recreational activities at the park.

Due to the increased interest in and use of Stella Olsen Park, the 1992 Seasonal Bird List was updated to include several additional bird species which have been spotted in the Park. Also, a summary on the Metro Greenspaces Restoration project was added to the back page of the list (see the Stella Olsen Park Seasonal Bird List in Appendix D).

Overall, the goals of the Metro Greenspaces Restoration Program have been enhanced and further publicized as a result of the Sherwood Greenspaces Project. This has been accomplished through public meetings and media coverage. Also, as mentioned above, the Bird List that is regularly updated and the interpretive signs that will be installed in the Park in the summer of 1995 will provide information about the program, its goals and the funding that was received by the City.

## **VI. HOW THE PROJECT RELATES TO THE METRO GREENSPACES PROGRAM**

The project was designed to correspond with the goals and objectives of the Metro Greenspaces Restoration Program. The primary goal of Metro's program is "to develop a regional plan for the preservation, restoration, protection, and public acquisition of natural areas, urban wetlands, and stream corridors" (Cooperative Agreement between Fish and Wildlife Service and Metropolitan). The objectives of the program include granting moneys to communities to carry out restoration and preservation and enhancement projects and encouraging the cooperative efforts of various agencies and organizations to show that solutions can be found through collaborative and regional approaches. Other objectives of the Metro Greenspaces Program include the restoration and/or enhancement of wildlife habitat areas and increasing the public awareness of the significant loss of urban natural resources and of the importance of preserving the wetlands, riparian areas and streams.

The main objective of Sherwood's project is to work toward the "protection and restoration" of the natural area in Stella Olsen Park which contains urban wetlands and stream corridors. In the above sections, many tasks were completed to enhance the condition of the ecosystems in the wetlands and the riparian areas. These included removing invasive plant species, planting native species trees and plants, controlling erosion, building waterbars, constructing viewing platforms and paths, creating bird boxes and installing them throughout the park, and monitoring the plant growth.

The project was designed to combine the efforts of the City, community businesses, Washington County Service Corps, Cascade Education Corps and Sherwood School District 88J, therefore meeting the objective of encouraging cooperative efforts of various agencies and organizations.

The City's greenspaces project also focused on increasing the awareness of the public. Public meetings, newspaper articles, television newscasts and community involvement all contributed to communicating the plight of the "significant loss of urban natural resources" and the importance of "preserving the wetlands, riparian areas and streams." More specifically, the work tasks that were completed received publicity in the Oregonian and a local newspaper article (see Appendix D). Additionally, organizations, students, and volunteers who use the park regularly learned about the various threats to the wetlands and

stream corridors and how the preservation and restoration of urban natural areas can be compatible with human activities.

As mentioned in Section V, the Sherwood Greenspaces Project met the objective of restoring and enhancing wildlife habitat as staff and volunteers removed non-native, invasive plant species (English ivy, holly and Himalayan blackberry bushes), planted native species, reduced soil erosion, constructed viewing platforms and the gravel/bark path, and built and installed nest boxes.

**NOTE:** The City of Sherwood had already formulated plans to acquire an additional acreage of natural areas prior to submitting an application to the Metro Greenspaces Program. As mentioned previously, the 10 acres of undeveloped wetland and riparian areas that were acquired during the course of this project increased the size of Stella Olsen Park to 24 acres, which contributed to Metro's goal of "public acquisition of natural areas." The facilities that are present in Stella Olsen Park, the recent addition of 10 acres, and the improvements made during the project represent just a part of the City's strong commitment to natural open spaces.

## **VII. WHAT WORKED/WHAT DIDN'T/HELPFUL HINTS**

Most Sherwood Greenspaces Project elements were highly successful. Native plant species survival has been high, and reinvasion by non-native species has been minimal. The newly constructed wetland has effectively reduced erosion and improved water quality through natural treatment of surface water runoff from the high school. Erosion on trails has been significantly curtailed by installation of "old tire" waterbars. Several informal trails and areas which were "pounded bare" are now returning to a vegetated state.

The persistent problem with this project has been vandalism and misuse. A variety of techniques were attempted to keep people out of revegetated and closed trails and areas. "Natural" barriers of limbs and pruning were piled at trail entrances. These were typically walked through or pushed aside, even when blackberry vines and holly cuttings were piled up. Revegetated areas were roped off and signing installed. These were universally pulled down and thrown into the creek.

More success was achieved with barbed wire and when "walls" of limbs were wired together across trail entrances. Most successful was placement of viewing platforms and information kiosks at each end of the closed creekside trail, and construction of a wetland and pond in and around said trail. These improvements made access to the creek bank more difficult and being less obvious than our more deliberate barriers, the trail was "forgotten" over time.

In any event, significant replanting had to occur to repair areas damaged by unwanted traffic and deliberate vandalism, until we got the "barrier" formula right.

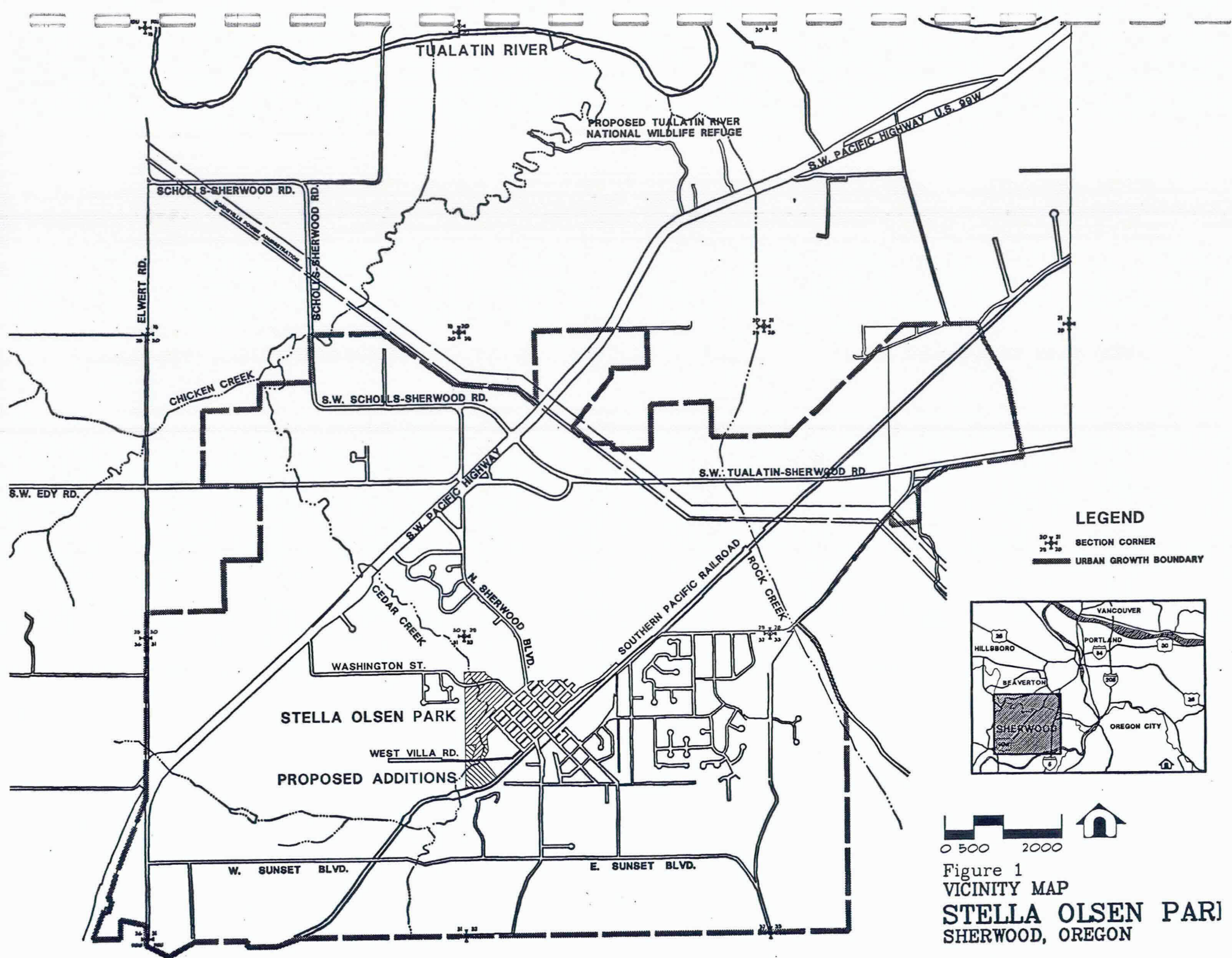
## VIII. ADVICE FOR OTHER PROJECT MANAGERS

Besides the problem of keeping newly planted areas off limits, Greenspaces project managers should take particular care in coordinating student volunteer efforts. The time and energy commitment of all participants must be carefully assessed. For instance, Sherwood High School participants never completed the species eradication tasks to which they agreed, forcing us to "backfill" these tasks with Service Corps youth. As might be expected, record keeping by the volunteers was a variable quality. Record photography was not regularly kept, as evidenced by the less than desirable product included in this grant report.

Additionally, it is important for project managers to be aware of the impacts of other activities in the project area. For example, a Boy Scout troop conducted a stream clean-up while the project was underway. Although properly conducted according to USA guidelines, the Scouts unfortunately piled stream debris on the creek bank, over the top of some newly planted areas.

# **APPENDIX A**

- 1. Project Area Map**
- 2. Project Site Map**
- 3. Proposed Greenspaces Project Map**



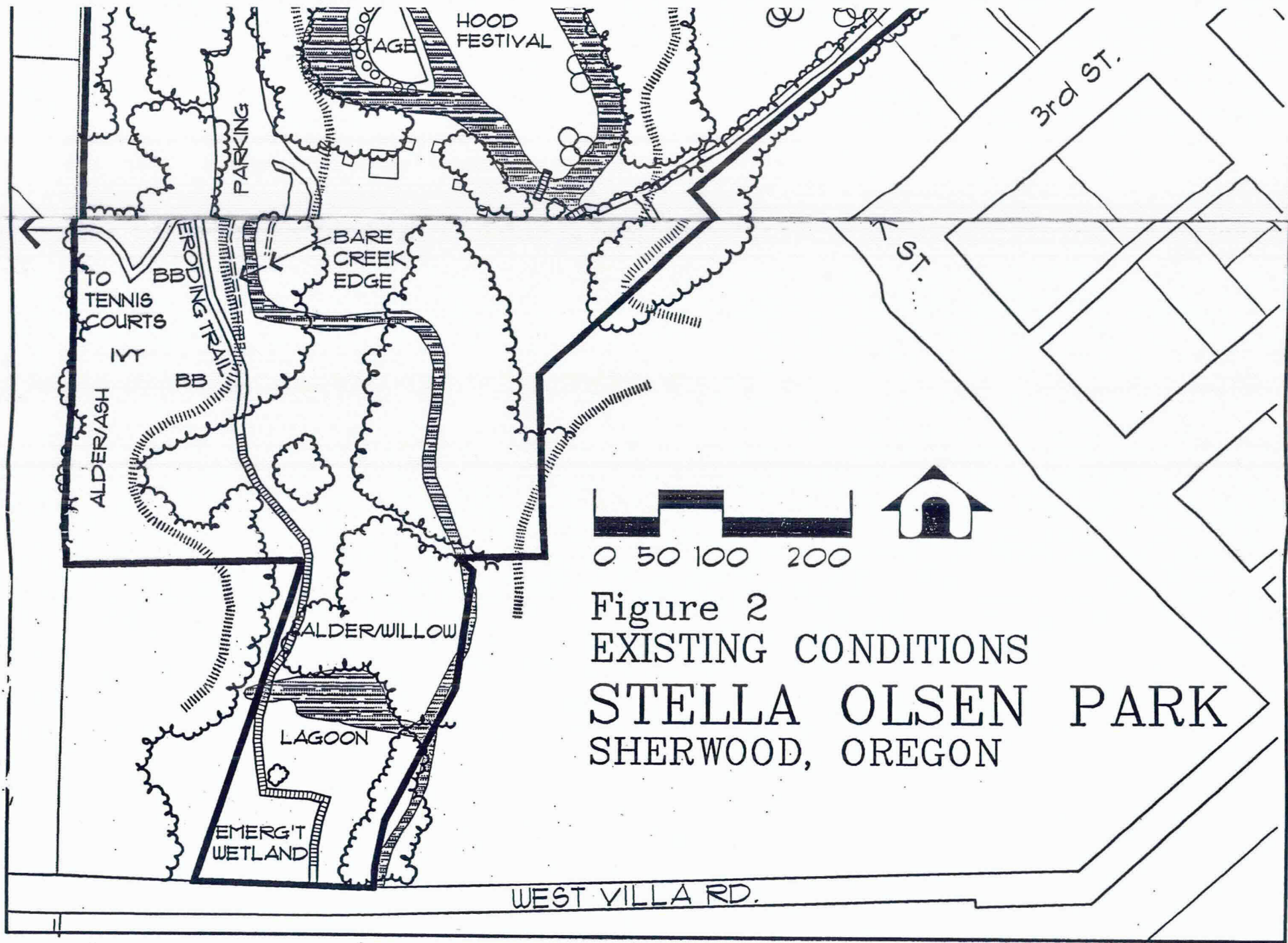
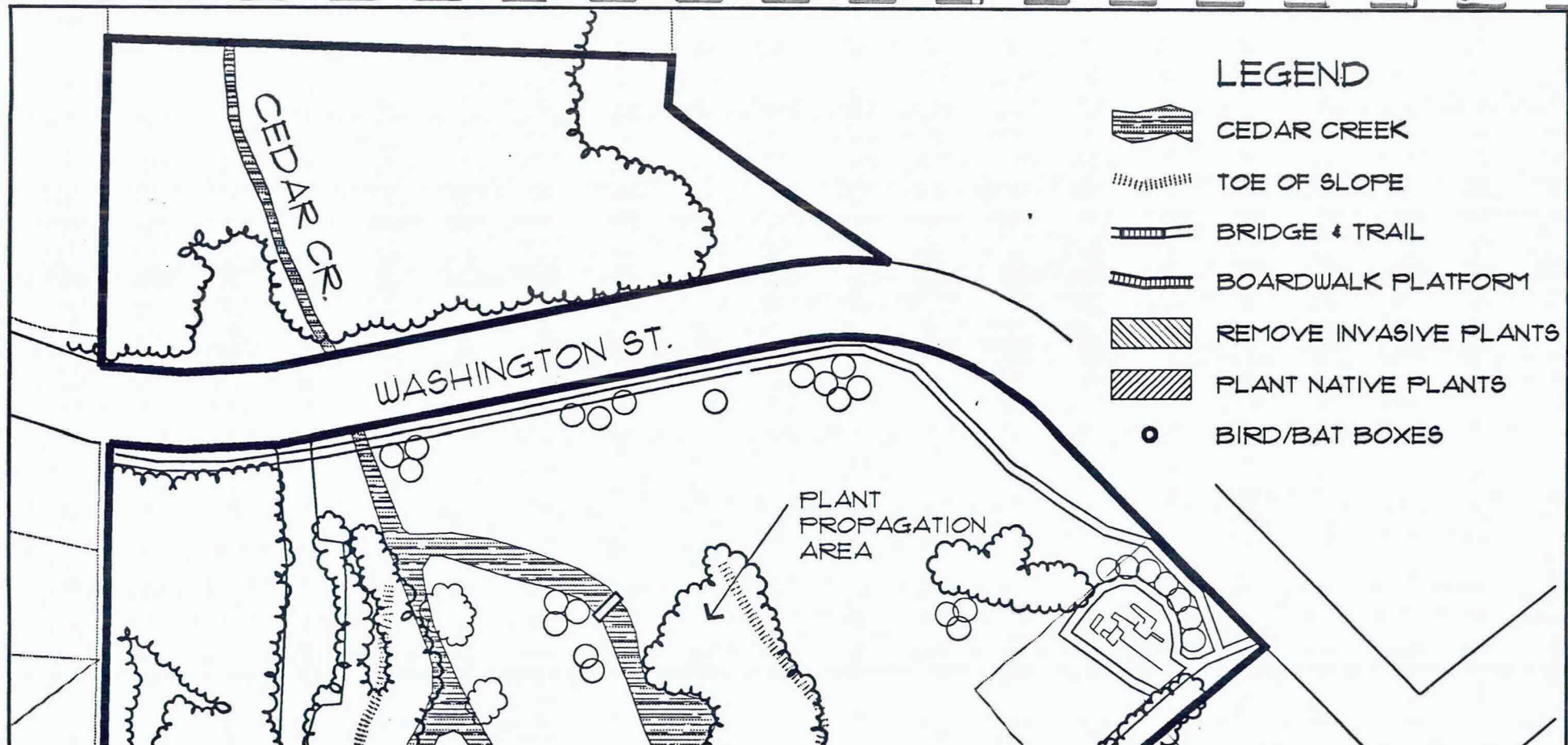


Figure 2  
EXISTING CONDITIONS  
STELLA OLSEN PARK  
SHERWOOD, OREGON



## LEGEND



CEDAR CREEK



TOE OF SLOPE



BRIDGE & TRAIL



BOARDWALK PLATFORM



REMOVE INVASIVE PLANTS



PLANT NATIVE PLANTS



BIRD/BAT BOXES

## **APPENDIX B**

- 1. Sherwood High School Tasks and Hours**
- 2. Sherwood Intermediate School Wetland Log**
- 3. Washington County Service Corps and  
Cascade Education Corps**
- 4. Letter of Work Tasks from David Evans and  
Associates**
- 5. Graph of Plant Monitoring**
- 6. Nest Box Specifications**

## **SHERWOOD HIGH SCHOOL TASKS AND HOURS**

**Terrel Smith, High School Teacher**

Terrel Smith and 14 students from Sherwood High School cleared blackberry vines from the wetland area and removed creosote logs from the stream.

**Student Hours: 14 X 3 hrs = 42 hrs X \$4.75 = \$199.50**

**Teacher Hours: 4 Hrs X \$15.00 = \$ 60.00**

**Total: \$ 259.50**

## **SHERWOOD INTERMEDIATE SCHOOL**

### Cedar Creek Wetland Log:

by John McGinity, Intermediate School Teacher

- 3/4/93** - Grant meeting at City Hall. Discuss new schedule, planning activities. (1 hour)
- 3/9** - Go to park to survey and discuss various areas with Greg, Erik and Terrill. I.D. work areas. (1 hour)
- 3/10-3/16** - Review book - An Approach to Improving Decision making in Wetland Restoration and monitoring/EPA. Great ideas for my monitoring activities; transect/plant/hydrology/soil. (.75 hour)
- 3/17** - Dig plants out of my backyard to bring to school. (.75 hour)  
Begin planning monitoring activities, discuss project with class. (.25 Hour) Talk to Jim regarding planting. Wrote in log. (.25 hour)  
Water/measure/read: Transferred plants for park to school. 12 students measured height of plants for monitoring. Watered plants. Read EPA book about wetlands monitoring. (3 Student hours, .75 Teacher hour)
- 3/18** - Plants planted.
- 3/19** - Surveyed planting: (15 min.)  
Red = Red tick dogwood (flags)  
Blue = Sedge  
Yellow = Salmon berry  
White = Hazelnut
- 3/24** - Bought and made pipes for water level measure. Read wetlands flora/fauna info. (1 hour)
- 3/26** - Called City for transit- no luck - checked plants - creek flooded 1-2 feet over bank this week. Saw snake. (15 min)
- 3/27** - Bought and made transit-like device. (1 hour)
- 3/31** - Took students to park, measured plants, toured repair areas, installed water depth tubes. (12 students/1 hour, 1 teacher hour)
- 4/1** - Took Students to park. Started transects, installed last water tube. (12 students/1 hour, 1 teacher hour)

- 4/2** - Analyzed plant measurements, rewrote data. (12 students/.5 hour, 1 teacher hour)
- 4/9** - Stream flooded over banks again. Not familiar enough with area to know if it is just normal flooding or due to clearing up above.
- 5/21** - Students back to stream - measure plants. (13 student/hour, 1 teacher hour)
- 6/7** - Graphs. (1.5 teacher hours, 10 students/1 hour)
- 6/21 - 8/15** - Collected seeds for replanting. (3 teacher hours)
- 8/31** - Met biologist/spoke on phone. (1.5 teacher hours)  
- Stock plants. (1 teacher hour)
- 9/7** - Planned monitoring activities. (2 teacher hours)
- 9/15** - Bought trays/root hormone. (1 teacher hour)
- 9/24** - Took six classes down to visit wetlands and collect twigs for sticking. (135 student hours, 8 teacher hours)
- 9/29** - Advised 6th grade team regarding wetlands activities/pitfalls. (1 teacher hour)
- 10/11** - Maintaining cuttings. (2 teacher hours)
- 10/15** - Sorted seeds for planting. (1 teacher hour)
- 10/16** - Designed observation forms. (1 teacher hour)
- 10/22** - Seeded trays for home set. (2 teacher hours)
- 10/25** - Took classes to wetlands for observation/data collection/survey. (135 student hours, 8 teacher hours)
- 10/27** - Graded/recorded observation forms. (1 teacher hour)
- 11/21** - Took Classes to wetlands for 2nd observation and to plant seeds. (135 student hours, 8 teacher hours)
- 12/20** - Made 2 more dams, placed rock fill in ravine. (8 student hours, 3 teacher hours)
- 12/31** - Maintain cuttings through 12/31. (10 teacher hours)

**12/31 - Total Hours:**

|         |             |
|---------|-------------|
| Teacher | 65.75 hours |
| Student | 469 hours   |

**J/1-J/25** - Take care of plants. (2 hours) Observe wetlands (135 students/1 hour, 8 teacher hours)

**1/94-4/94 - Industrial Technology-**

|               |                      |
|---------------|----------------------|
| Bird research | 6 weeks X 5 days X   |
| Design        | 1 hour X 20 students |
| Construction  | = 600 hours          |
| Installation  |                      |

Teacher - Planning (6 hours)  
- Teaching (30 hours)

- Plant cutting maintenance. (1 hour)

- Willow cutting installation. (135 students X 1 hour = 135 hours, 9 teacher hours)

**Total Hours:**

|       | <u>Student</u> | <u>Teacher</u> |
|-------|----------------|----------------|
| 1993  | 469            | 65.75          |
| 1994  | <u>970</u>     | <u>54</u>      |
| Total | 1,439          | 119.75         |

**TOTAL:**

1,439 X \$4.74 = **\$6,835.25**

119.75 X \$15.00 = **\$1,796.25**

(Volunteer students paid @ \$4.75/hour, Volunteer teachers paid @ \$15.00/hour)

**Work done by Washington County Service Corps and Cascade Education Corps in Stella Olsen Park, Sherwood, Oregon since March 3, 1993.**

**Construction of 2 decks:**

|               |                  |
|---------------|------------------|
| Design        | 20 student hours |
| Construction  | 91 crew hours    |
| Drainage line | 2 crew hours     |

**Construction and roofing of 3 information kiosks:** 42 crew hours

**Planning and construction of 3 viewing platforms and benches:** 21 crew hours

**Stairway and Gravel\Barkdust Path Construction** 24 crew hours

**Birdhouse Construction and Hanging** 4 crew hours  
(Assembled 12 cedar bird houses; put up throughout park)

**National Youth Service Day preparation and planning** 2 crew hours

**Tree Planting** 28 student hours  
(80 Hemlock, 80 Cedar, 50 Ponderosa Pine, 120 Alder, 120 Douglas Fir)

**Cut and propegated native starts of Willow and Red-Twig Dogwood** 3 crew hours  
(100 each)

**Fern Propegation** 4 crew hours  
(40 ferns from Tillamook State Forest)

**Dug and gravel-lined water trench and retaining pool** 15 crew hours  
**Seeded area surrounding pool with native grasses** 1 crew hour

**Pathway Maintenance:**

|               |                  |
|---------------|------------------|
| Boardwalk     | 16 student hours |
| Trails        | 32 crew hours    |
| Bridge Repair | 30 student hours |

**Species Eradication** 648 crew hours  
(Removed English Ivy, Himalayan Blackberry, Holly)

TO: DHG, SLC, LLD  
 FROM: GSE *gse*  
 DATE: March 8, 1993  
 SUBJECT: SHERWOOD METRO GREENSPACES PROJECT

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I met on-site with Terrill Smith, John McGinty, and Eric Martell on Thursday afternoon, March 4, 1993. It was still raining so we had the opportunity to see hydrology in action. This memo is intended to document what the group agreed upon and then offer some further observations.

Terrill will have his high school group remove the line of blackberries that is outside the existing line of Western red cedars. I think part of this work can be done with his tractor and part by hand. The students have limited time and need dry weather. The Washington County Service Corps will finish anything not cleared by the end of March as part of their major April effort. It turns out that Eric can move a crew to the site next week. They will focus on clearing blackberries from our test planting area so that the test-tube seedlings can be planted at the end of the week, about the 11th of March. Eric will try to give a days warning so we can get the plants from John's garden and locate the planting areas on site. The Service Corps and any school kids available will do the planting. It was interesting to find that the *Oemleria cerasiformis* is beginning to leaf out and that some Skunk Cabbage (*Lysichitum americanum*) is starting to shoot (in the plant test area).

I gave each person a set of xerox sheets of line drawing and limited description of woody trees and shrubs to be found or planted on site. Terrill got the bird box plans. John needs to talk to Susan about what hydrologic monitoring his class has done and what else we would like. I think Jim Rapp should maintain the "diary" that METRO wants by collecting documents like this.

The bulk of the clearing work will be done in April by the Service Corps crew. Their water bars were working well in a steady downpour — except the top one which had been removed. The creek was flowing nearly bankful; and the missing handrail on the bridge is hazardous. A lower railing would be helpful and may be a task the Service Corps can handle. When the posts and railing are repaired, the bridge should be lifted for better clearance at high flows. The other area in need of additional attention is the top of the drainage we propose to repair. The culvert under the trail appears to be partially blocked, resulting in water ponding up behind trail and starting to flow over it by the time I left the site. Eric will look into this once the water has drained out.

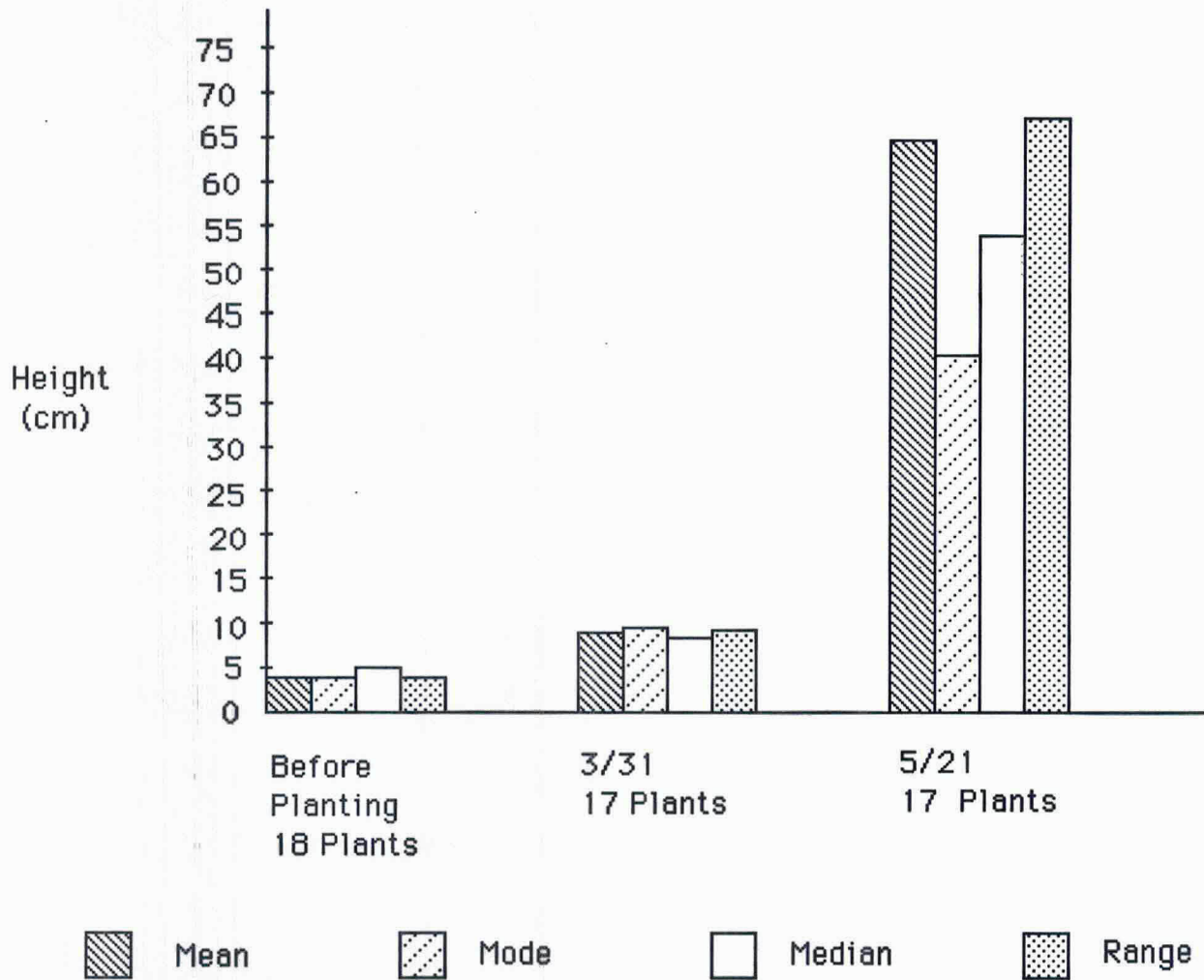
I took a roll of 36 prints since it turned out work would be starting earlier than planned. We need to go back on a drier day and stake photo stations at the site and mark final positions on a map.

XC: Jim Rapp

|  |                  |            |            |
|--|------------------|------------|------------|
| Post-It™ brand fax transmittal memo 7671 |                  | # of pages | 1          |
| To                                       | Jim Rapp         | From       | <i>gse</i> |
| Co.                                      | City of Sherwood | Co.        | DEA        |
| Dept.                                    | 625-5522         | Phone #    | 223-6663   |
| Fax #                                    | 625-5524         | Fax #      | 223-2701   |

# STELLA OLSEN PARK PLANTING DATA

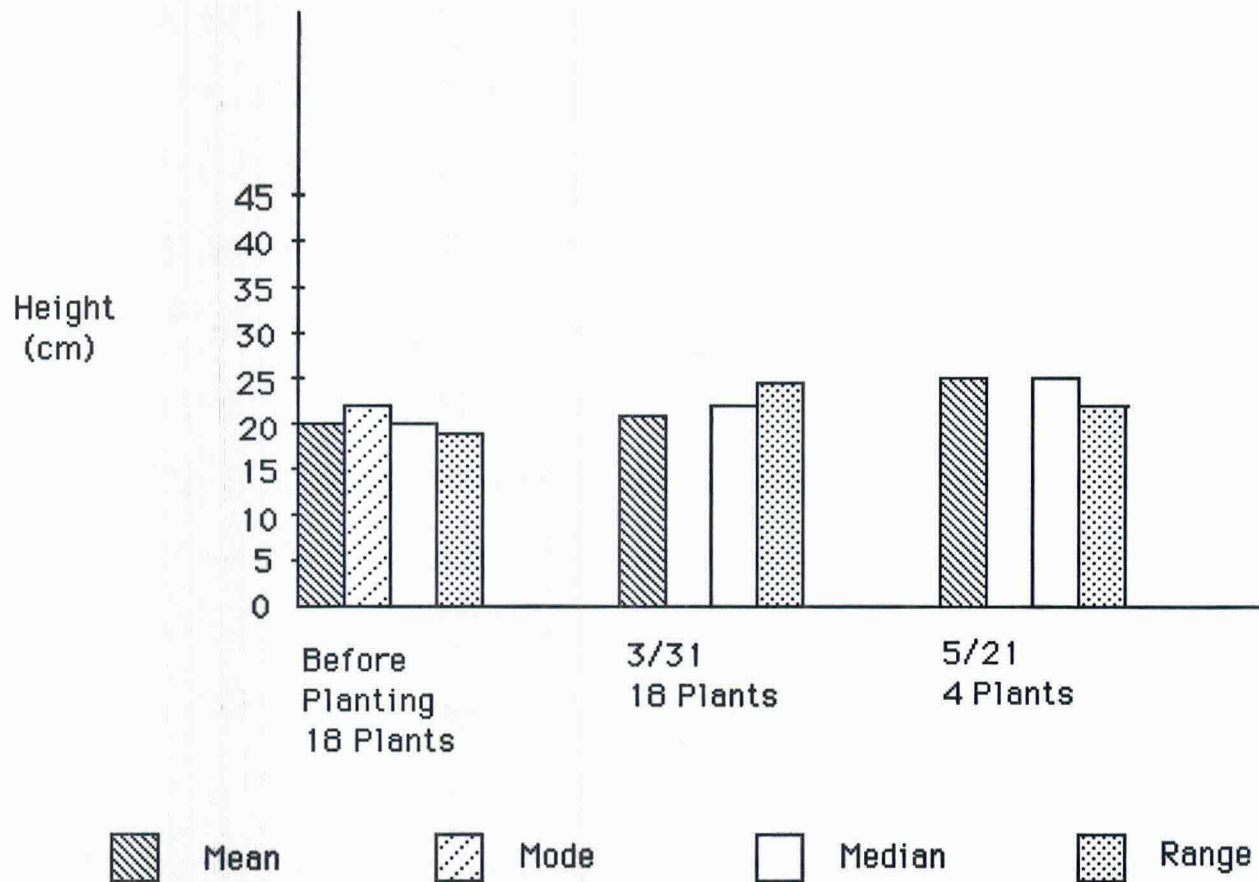
Plant Type: Small Fruited Bull Rush



Source: Sherwood Intermediate School

## STELLA OLSEN PARK PLANTING DATA

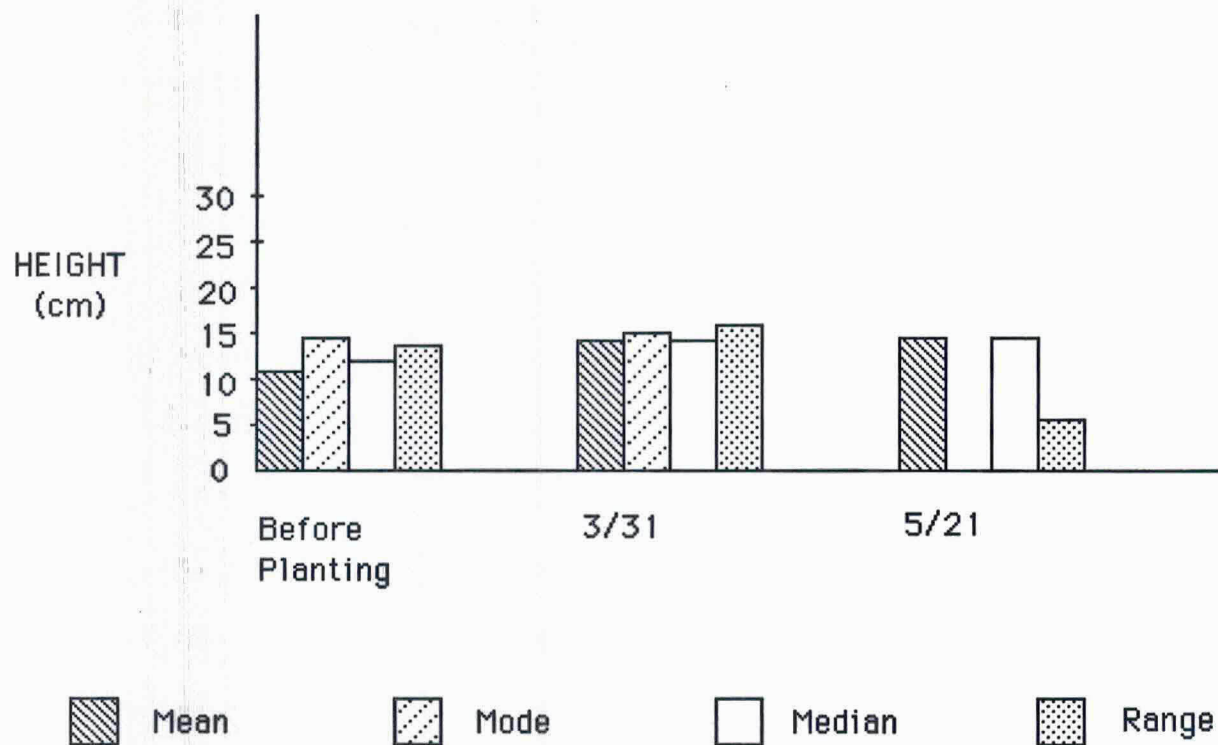
Plant Type: Hazelnut



Source: Sherwood Intermediate School

## STELLA OLSEN PARK PLANTING DATA

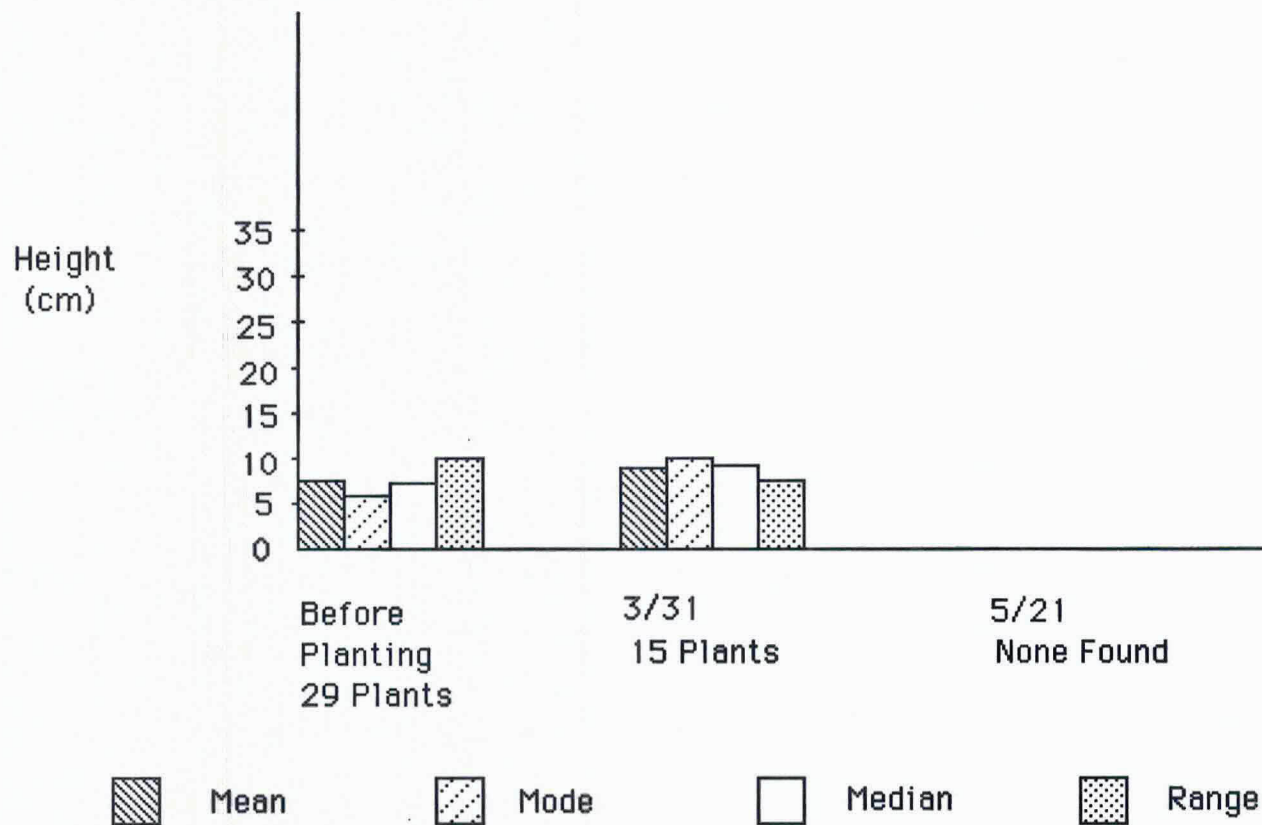
Plant Type: Pacific Nine Bark



Source: Sherwood Intermediate School

# STELLA OLSEN PARK PLANTING DATA

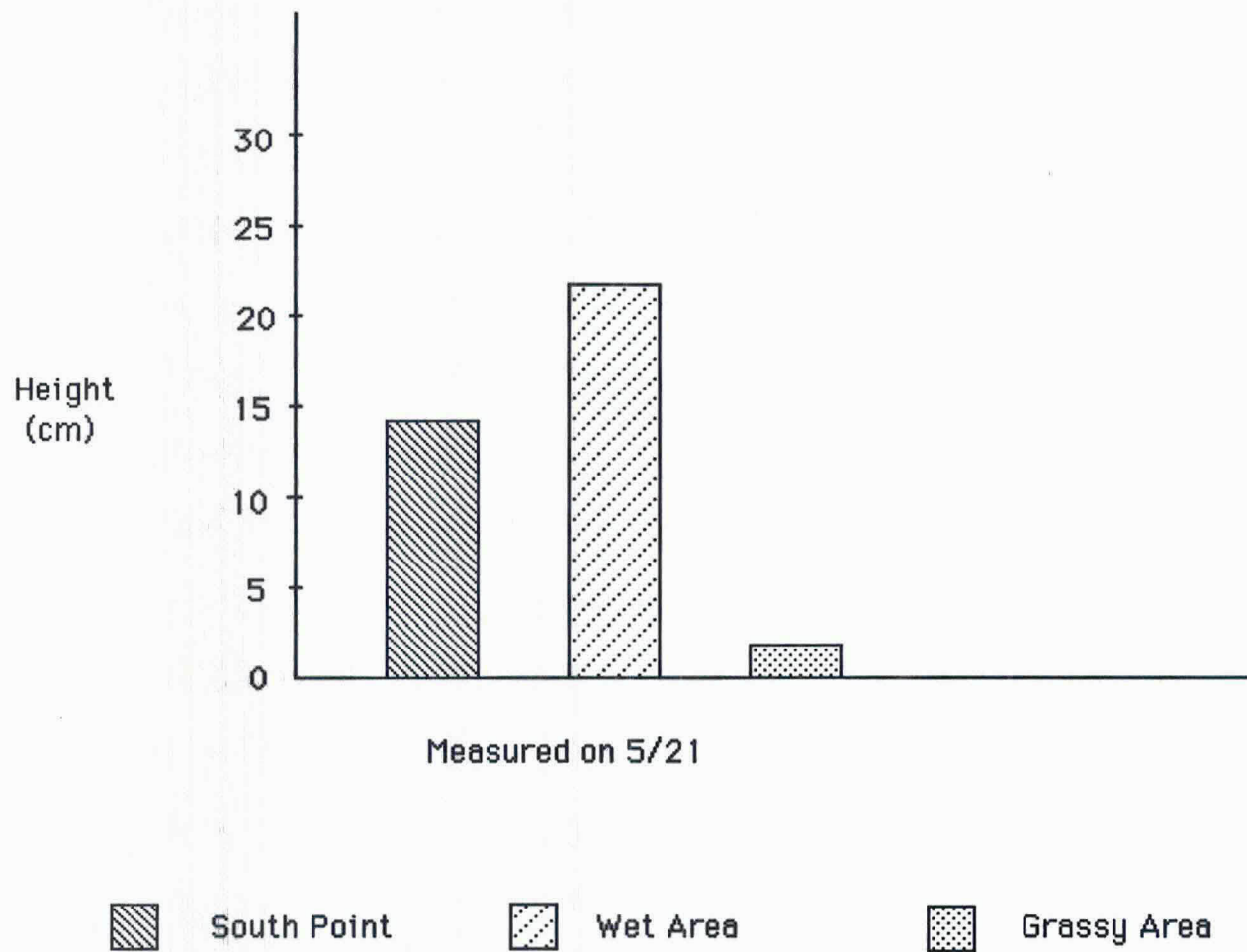
Plant Type: Salmon Berry



Source: Sherwood Intermediate School

## STELLA OLSEN PARK PLANTING DATA

### Height of Water Table Below Surface



Source: Sherwood Intermediate School

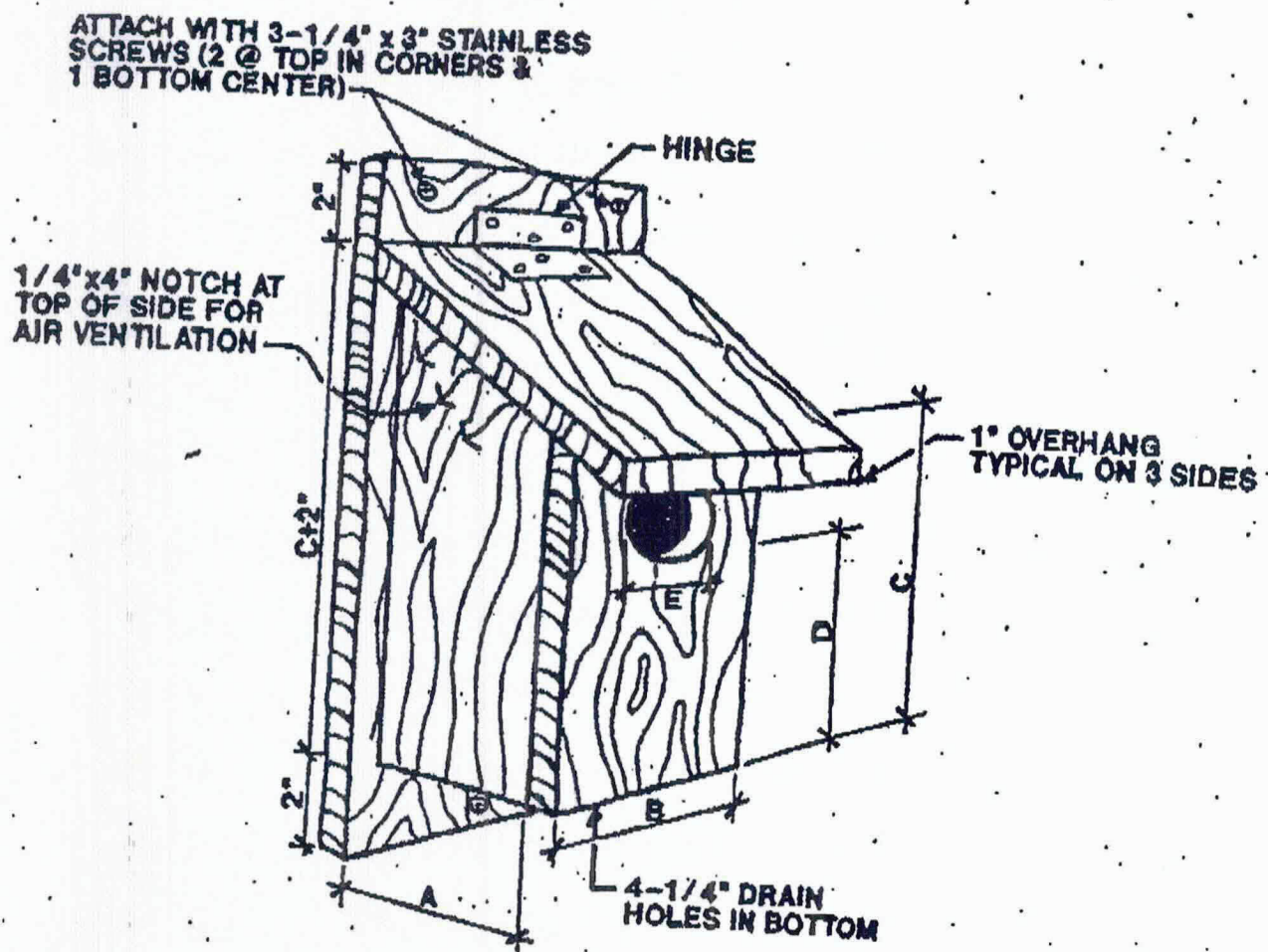
Table 1. Nest Box Specifications (Proctor, 1985; Cerulean et al., 1986).

| Target Species                            | Floor of Cavity | Depth of Cavity (inches) | Entrance Above Floor (inches) | Size of Entrance (inches) | Height Above Ground (feet) |
|---|-----------------|--------------------------|-------------------------------|---------------------------|----------------------------|
|   | A x B           | C                        | D                             | E                         |                            |
| barn swallow, robin                       | 6 x 7           | 7                        | *                             | *                         | 6 - 15                     |
| chickadee, nuthatch, and downy woodpecker | 4 x 4           | 8 - 10                   | 6 - 8                         | 1.25                      | 8 - 18                     |
| wren                                      | 4 x 4           | 6 - 8                    | 1 - 6                         | 1                         | 6 - 10                     |
| flicker, screech owl                      | 8 x 8           | 15 - 18                  | 12 - 16                       | 4                         | 8 - 25                     |
| tree and violet-green swallow             | 5 x 5           | 6                        | 1 - 5                         | 1.5                       | 10 - 15                    |
| wood duck                                 | 8 x 10          | 24                       | 16                            | 4                         | 15                         |

OPEN  
BOXES →

BE AWARE OF WHERE YOU PLACE THE BOXES w/ LARGER HOLES.

WE INSTALLED WOOD DUCK BOXES ON A WETLAND MITIGATION SITE NEAR THE CITY OF RENTON AND STARLINGS MOVED IN. I HAD TO KICK THEM OUT AND NAIL PIECES OF WOOD w/ SMALLER HOLES OVER THE ENTRANCE TO HOPEFULLY ALLOW OTHER SMALLER NATIVE SPECIES TO USE THEM. IT WAS A SAD DAY FOR THE STARLINGS.



NOTE: ALL WOOD TO BE 1"x CEDAR BOARDS

| Target Species                 | Qty. | Floor of Cavity | Depth of Cavity (inches) | Entrance Above Floor (inches) | Size of Entrance (inches) | Height Above Ground (feet) |
|--------------------------------|------|-----------------|--------------------------|-------------------------------|---------------------------|----------------------------|
|                                |      | A x B           | C                        | D                             | E                         |                            |
| tree and violet-green swallows | 4    | 5 x 5           | 6                        | 1 - 5                         | 1.5                       | 10 - 15                    |
| wood duck                      | 3    | 8 x 10          | 24                       | 16                            | 4                         | 15                         |

**FIGURE 4: NEST BOX DETAIL**



ASSEMBLY INSTRUCTIONS FOR  
BAT CONSERVATION INTERNATIONAL'S  
OFFICIAL BAT HOUSE

**MATERIALS:**

one 12' piece of 1" x 8" (actual measurements should be 7 1/4", but can vary from 7" to 7 3/4") untreated, rough-sided lumber

one 11" piece of 1" x 10" untreated, rough-sided lumber (This will be the top.)

approximately 20 six-penny galvanized nails

**TOOLS:**

skil saw with crosscut blade

hammer

ruler

tape measure

pencil

**NOTES:**

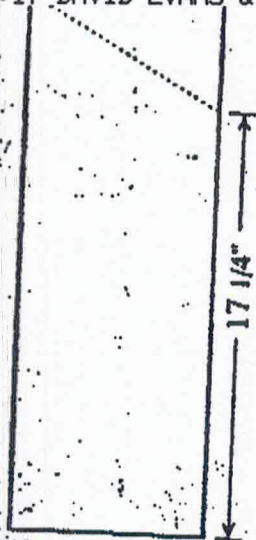
- 1) Read the instructions completely through before beginning.
- 2) Do not use paint on the sides or interior as the odor might repel bats.
- 3) Bats need a rough surface to secure a foot hold and for this reason, you should be sure that all surfaces, especially those on the interior, are rough. If rough sawn lumber is unavailable you may simply roughen it manually.
- 4) Some types of lumber split easily. You can avoid splitting by drilling small holes to nail into.

**ASSEMBLY**

1. Cut the 12' piece of lumber into six pieces of the following sizes:

- 34 }
- a) 3 pieces that are 22" long (These will be the two sides and back.)
  - b) 1 piece 17 3/4" (This will be the front.)
  - c) 2 pieces 13" (This will be one of two partitions.)
  - d) 1 piece 11" (This will be the other partition.)

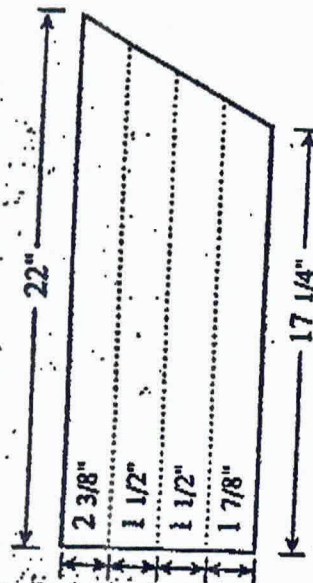
\* If the board varies in width, the width of this space will also vary.



Step 2

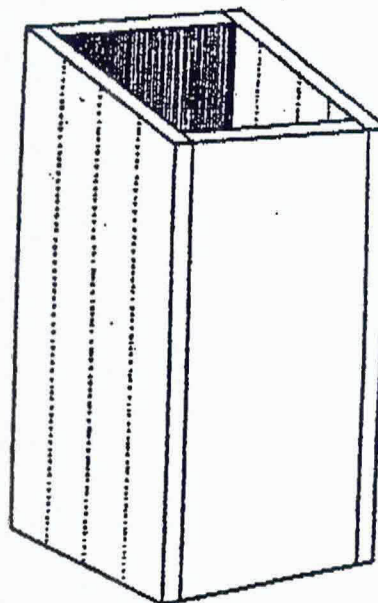


Step 6

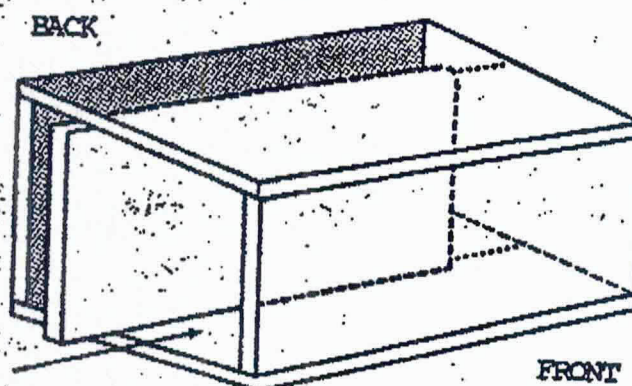


Step 7

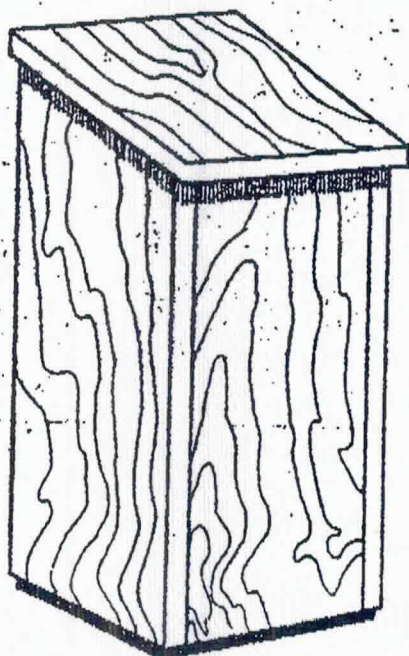
2. Take two of the 22" pieces and measure off 17 1/4" inches on one side of each piece. Make a pencil mark at this point.
3. Draw a diagonal line across the face of the board from the end (22") to the mark at 17 1/4".
4. Repeat Step 3 on the second piece.
5. Using a skill saw, cut along the diagonal lines. Set these pieces aside for the moment. (These will be the sides.)
6. Adjust your skill saw to a 33° angle. If your skill saw does not have a distinct mark at 33° then you can use the side piece as a guide for setting this angle. Take the third 22" board (the one without the diagonal line) and cross-cut the angle off one end. This piece will become the back. Repeat this same type of cut on the front piece, top piece (the 11" long 1 X 10), and for the three partitions.
7. Take the two pieces from Step 5 and, using a ruler and pencil, mark both pieces according to the measurements shown in this figure. Mark both sides of both boards.
8. You're ready to start building. Take the two sides, the 22" back, the 17 3/4" front (remember that the inside of the front piece will measure 17 3/4 and the outside will measure 17 1/4") and nail them together as illustrated at right, angled ends up. Note that the side pieces fit over the ends of the front and back pieces.



9. Now you can insert the partitions. Lay the partially completed house on its side. Take the 13" internal partition and slide it into the box, centering it along the set of pencil lines closest to the back of the box. Position the partition so that it is flush with the tops of the sides.



10. Secure the partition in place with nails from the outside. Use the outside lines as a guide for nail placement.
11. Follow the same procedure for securing the shorter partition along the lines near the front of the box.



12. Place the 11" 1" x 10" board on top so that the back edge of the board is flush with the back of the box and creates an overhang in the front and on the sides. Hold firmly and nail the top to the main frame.

The completed house should look like the drawing on the left. To insure a tight weather-proof seam along the top, we recommend you use a line of silicone caulk prior to nailing.



Your house can be hung in a variety of ways depending upon the circumstances. One of the easiest ways is to drill two 1/4" holes in the back of the box: the holes should be centered and about 4" from the top and bottom. Drive two stout nails into the desired tree or wall, and hang the house by placing the holes over the nails. In other situations, hooks or hangers may be best. Use your imagination!

#### ABOUT YOUR BAT HOUSE

Mother bats normally prefer the most stable temperatures available in the 80-100 degree Fahrenheit range, though some bats tolerate temperatures as high as 100 degrees or more. A nursery colony may include up to 30 or more individuals in one bat house. Bachelor groups tend to be smaller, sometimes consisting of half a dozen or fewer bats. These frequently select cooler roosts.

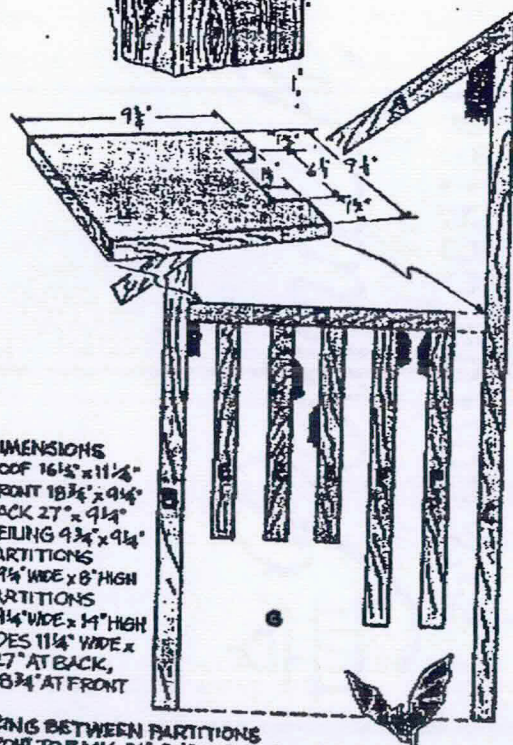
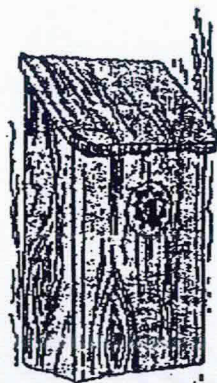
Since appropriate temperature may determine how or whether or not your bat house is used, you may wish to consider several geographic factors before mounting it. With increasing latitude and altitude, lower temperatures require that bat houses intended for use by nursery colonies be oriented to receive maximum solar radiation, especially in the morning (southeast exposure). They also may benefit from having the roof painted black. In exceptionally hot climates, plain tops and shaded sites may be preferred. Even if your bat house is too cool for a nursery colony, you may still attract bachelors.

Bat houses located near a permanent source of water, especially a marsh, lake or river, are by far the most likely to attract bats. They should be hung roughly 12-15 feet above the ground, sheltered as much as possible from the wind. Don't be discouraged if conditions for your bat house are not perfect. Even natural roosts are seldom ideal.

Bats sometimes occupy a house within hours, but most require one or two years to move in. If your bat house is not occupied by the end of the second year, try moving it to a warmer or cooler location. Unfortunately, in some areas heavy use of pesticides, a lack of hibernating sites, too great a distance to feeding or drinking sites, or even an abundance of already available summer roosting sites may preclude occupation.



Bat Conservation International  
P.O. Box 162603  
Austin, Texas 78716



- DIMENSIONS**
- A ROOF 16 1/2" x 11 1/4"
  - B FRONT 18 3/4" x 9 1/4"
  - C BACK 27" x 9 1/4"
  - D CEILING 9 3/4" x 9 1/4"
  - E PARTITIONS 9 1/4" WIDE x 8" HIGH
  - F PARTITIONS 9 1/4" WIDE x 14" HIGH
  - G SIDES 11 1/4" WIDE x 27" AT BACK, 18 3/4" AT FRONT

**SPACING BETWEEN PARTITIONS**  
FRONT TO BACK 3/4", 1/4", 3/4", 1", 1 1/4", 1 1/4"

A bat house designed by Bat Conservation International combines relative ease of construction with the varied crevice sizes most often used by American bats and temperature buffering features. Western red cedar is recommended for its ability to withstand outdoor exposure, though many other woods are suitable. Six feet of 1 x 12-inch board and 10 feet of 1 x 10-inch board are sufficient for construction. (Actual board sizes normally are about 3/4 x 9 1/4 inches and 3/4 x 11 1/4 inches.) Overall dimensions may be varied to allow for slight differences in board widths or personal preferences, but spacing between partitions should remain approximately the same. Use rough lumber and turn the rough sides of the roof, front, back, and sides inward. The rough side of the ceiling should face down. Cut 1/8-inch horizontal grooves at 1/2-inch intervals on the smooth sides of all partitions. This will enable bats to climb and roost. Apply a bead of silicone caulk along each exterior joint to prevent heat loss. The estimated cost of materials is less than \$20, and a single house may be occupied by a hundred or more bats.

A small bat house design used in Europe. These are usually 10 inches wide; the exact dimensions are unimportant. As many as 30 bats have been found occupying this type of house.



This and a slightly smaller version of this bat house can be purchased ready-made from BCI.

All inner surfaces of bat houses, regardless of the kind built, must be rough or horizontally grooved so that bats can get a firm foothold. Rough-sided lumber is adequate but usually planed on one side, requiring the cutting of 1/8-inch horizontal grooves into the surface of the smooth side of each roosting partition at about 1/2-inch intervals. For the roof, front, back, and sides the planed surface can be turned to the outside. When putting a house together, the contact points between the sides, front, back, and roof should be carefully caulked to eliminate air circulation except from the open bottom. This permits the bat's body heat to be trapped, likely increasing the probability of occupancy.

In constructing any bat house, no chemically treated woods should be used. Some lumber is impregnated with wood preservatives or insecticides that could harm bats.

Even without a bat house, you may provide a roost for a few bats simply by using an 18-inch-wide piece of tar paper or similar material. Wrap and staple it completely around a tree trunk so that it is tight at the top and flares out about 2 inches at the bottom. This permits bats to select shady or sunny sides as their temperature needs change over the day and season.

Roost requirements vary widely according to climate, species, and social group. For example, nursery colonies of larger species, such as big brown and pallid bats, like roost temperatures in the 80°-90°F (27°-32°C) range, while those of smaller species, such as mouse-eared and free-tailed bats, seem to prefer 90°-110°F (32°-43°C). Some live in roosts where temperatures reach as high as 120°F (49°C). Bachelor groups tend to choose cooler locations. Even in nature,

# **APPENDIX C**

- 1. Vendor/Organization Invoices**
- 2. City of Sherwood Invoices**
- 3. Time Sheets**

Photo copies  
for J R's

grant applica-  
tion

RECEIVED  
CYLIS  
PORTLAND, OR 97132

04-19-93  
1\* 12-56  
5\* 2.67  
2.67  
2.67 CA  
\*64..58

RECEIVED  
CYLIS  
PORTLAND, OR 97132

04-19-93  
1\* 12-29  
3  
0.89@  
5\* 2.67  
2.67  
10.00 CA  
7.33 CG  
\*64..57

July 25, 1992

File No. SHWX0029

Invoice No. 01-19168

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through July 25, 1992 on the METRO GREENSPACES GRANT in accordance with our agreement.

DCN

TOTAL THIS INVOICE

\$1,173.75

|                        |             |
|------------------------|-------------|
| Total Billed to Date   | \$1,173.75  |
| Total Received to Date | <u>0.00</u> |

**TOTAL NOW DUE** **\$1,173.75**

P-  
OK to  
pay  
Paul's SR.  
y/l

10-207-612

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

OK JR  
SEP 15 1992  
Dante SDC

August 28, 1992

File No. SHWX0029

Invoice No. 01-19371

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through August 28, 1992 on the METRO GREENSPACES GRANT in accordance with our agreement.

Work performed last month includes preparation of materials needed for the interview.

TOTAL THIS INVOICE

\$ 826.25

Total Billed to Date  
Total Received to Date

\$2,000.00  
1,173.75

TOTAL NOW DUE

\$ 826.25

10-207-612

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

OK JRL  
Parks SDG

September 26, 1992

File No. SHWX0029

Invoice No. 01-19528

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through September 26, 1992 on the METRO GREENSPACES GRANT  
in accordance with our agreement.

Work performed last month included coordination of project with the city and gathering of plant  
material for project.

den

TOTAL THIS INVOICE

\$ 433.40

|                        |                 |
|------------------------|-----------------|
| Total Billed to Date   | \$2,433.40      |
| Total Received to Date | <u>1,173.75</u> |

**TOTAL NOW DUE** **\$1,259.65**

10-207-612

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

October 31, 1992

File No. SHWX0029

Invoice No. 01-19658

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through October 31, 1992 on the METRO GREENSPACES GRANT in accordance with our agreement.

Work performed last month included coordination of project with the city, gathering of educational materials, and preparation of collected plant materials for propagation.

den

TOTAL THIS INVOICE

\$ 497.56

|                        |                 |
|------------------------|-----------------|
| Total Billed to Date   | \$2,930.96      |
| Total Received to Date | <u>2,433.00</u> |

**TOTAL NOW DUE**                      **\$ 497.96**

COPY

SLC:kam.xls

10-207-612

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

OK  
Paul GDC  
JK

December 10, 1992

File No. SHWX0029

Invoice No. 01-19879

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through November 28, 1992, on the METRO GREENSPACES GRANT in accordance with our agreement.

Work performed last month included coordination of project with the City and Metro and gathering of education material.

TOTAL THIS INVOICE

\$ 272.53

|                        |                 |
|------------------------|-----------------|
| Total Billed to Date   | \$3,203.49      |
| Total Received to Date | <u>2,433.00</u> |

TOTAL NOW DUE \$ 770.49

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

April 10, 1993

Invoice No. 01-20566

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

File No. SHWX0029

OK  
to pay  
Greenspaces \$

**For services performed through March 27, 1993, on the Metro Greenspaces Grant in accordance with our agreement.**

*Work performed last month included: coordination of project with the City, Sherwood School District, and Washington County Work Corp. Field orientation for those involved: planting tubelues, establishing transects; and documentation of project progress.*

**Total This Invoice**

**\$855.26**

10-207-612

|                        |                   |
|------------------------|-------------------|
| Total Billed to Date   | \$4,058.75        |
| Total Received to Date | (2,705.93)        |
| <b>TOTAL NOW DUE</b>   | <b>\$1,352.82</b> |

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

May 10, 1993

MAY 17 1993

6K gr  
File No. SHWX0029

Invoice No. 01-20744

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through May 1, 1993, on the Metro Greenspaces Grant in accordance with our agreement.

Work performed last month included: coordination of project with the City, Sherwood School District, and Washington County Work Corp. Expenses this month include photo documentation and mileage.

Total This Invoice

\$46.84

|                        |                |
|------------------------|----------------|
| Total Billed to Date   | \$4,105.59     |
| Total Received to Date | (4,058.75)     |
| <b>TOTAL NOW DUE</b>   | <b>\$46.84</b> |

10-207-612

SLC:aag.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

June 10, 1993

File No. SHWX0029

Invoice No. 01-20949

ok  
to pay

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

Attn: Mr. Jim Rapp

For services performed through May 29, 1993, on the Metro Greenspaces Grant in accordance with our agreement.

Work performed last month included: meeting and coordination of project with the City and Washington County Work Corp. Expenses this month include mileage.

Total This Invoice

\$95.48

|                        |                |
|------------------------|----------------|
| Total Billed to Date   | \$4,201.07     |
| Total Received to Date | (4,105.59)     |
| <b>TOTAL NOW DUE</b>   | <b>\$95.48</b> |

SLC:cle.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701



REMIT TO:  
**WASHINGTON COUNTY  
EDUCATION SERVICE DISTRICT**

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

**INVOICE**

**No. 930268**

This invoice number should appear  
on all payments and correspondence.

DATE

3/3/93

**TO:** CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

MAR 4 1993

**INQUIRIES:**

WASHINGTON COUNTY ESD  
OUTDOOR EDUCATION DEPT.  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229

**ATTN:** JIM RAPP

| WORK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION   | UNIT<br>AMOUNT | TOTAL     |
|-------------------------|--------------------------------|----------|------|---|----------------|-----------|
|                         |                                | 1        | EA   | REPAIR STEP IN WETLANDS AREA<br>INSTALL WATERBARS ON TRAILS<br>REMOVE BRUSH & GRASS ON TRAILS | \$ 750.00      | \$ 750.00 |

*Greenspace*  
*Erosion Repair*

200-1991-0000-120

PLEASE PAY THIS AMOUNT

\$ 750.00

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

**PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY**



# WASHINGTON COUNTY EDUCATION SERVICE DISTRICT

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

## INVOICE

No. 930903

This invoice number should appear  
on all payments and correspondence.

DATE

04/01/93

TO:

000180  
CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

INQUIRIES:

000003  
WASHINGTON COUNTY ESD  
SPECIAL STUDENT SERVICES  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229  
(503) 690-5428  
FAX # (503) 690-5440

APR 2 1993

| WORK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION  | UNIT<br>AMOUNT | TOTAL       |
|-------------------------|--------------------------------|----------|------|--|----------------|-------------|
|                         |                                | 1        |      | LABOR CHARGE FOR MARCH 1993<br>32 STUDENT DAYS @ \$65.00 EA. | \$ 2,080.00    | \$ 2,080.00 |

*greenspaces  
project*

-1991-0000-120

\$ 2,080.00

PLEASE PAY THIS AMOUNT

\$ 2,080.00

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY



REMIT TO:

**WASHINGTON COUNTY  
EDUCATION SERVICE DISTRICT**

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

**INVOICE****No. 931022**This invoice number should appear  
on all payments and correspondence.

DATE

05/05/93

TO:

000180  
CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

INQUIRIES:

000001  
WASHINGTON COUNTY ESD  
OUTDOOR EDUCATION DEPARTMENT  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229  
(503) 690-5402  
FAX # (503) 690-5440

MAY 10 1993

| WORK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION  | UNIT<br>AMOUNT | TOTAL      |
|-------------------------|--------------------------------|----------|------|--|----------------|------------|
|                         |                                | 1        |      | WORK DONE BY THE WASHINGTON<br>COUNTY SERVICE CORPS.<br>41 STUDENT DAYS @ \$65. EACH | \$ 2,665.00    | \$ 2,665.0 |

*Greenpaces*

1991-0000-120

\$ 2,665.00

PLEASE PAY THIS AMOUNT

\$ 2,665.0

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY



REMIT TO:

**WASHINGTON COUNTY  
EDUCATION SERVICE DISTRICT**

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

**INVOICE**

JUN 8 1993

No. 931202

This invoice number should appear  
on all payments and correspondence.

DATE

06/07/93

TO:

000180  
CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

INQUIRIES:

000003  
WASHINGTON COUNTY ESD  
SPECIAL STUDENT SERVICES  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229  
(503) 690-5428  
FAX # (503) 690-5440*OK to  
pay for  
greenspaces*

| WORK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION   | UNIT<br>AMOUNT | TOTAL       |
|-------------------------|--------------------------------|----------|------|---|----------------|-------------|
|                         |                                | 33EA     |      | 33 PEOPLE @ \$65 PER DAY<br>CLEANING BLACKBERRIES<br>BUILD STAIRS AND TRAIL<br>PLANT TREES AND SHRUBS | \$ 65.00       | \$ 2,145.00 |

1991-0000-120

\$ 2,145.00

PLEASE PAY THIS AMOUNT

\$ 2,145.00

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY



REMIT TO:  
**WASHINGTON COUNTY  
EDUCATION SERVICE DISTRICT**

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

**INVOICE**

**No. 931298**

This invoice number should appear  
on all payments and correspondence.

DATE

06/22/93

JUN 28 1993

TO:

INQUIRIES:

000180  
CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

000003  
WASHINGTON COUNTY ESD  
SPECIAL STUDENT SERVICES  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229  
(503) 690-5428  
FAX # (503) 690-5440

*OK*  
*JK*  
*Transpade*

| WORK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION   | UNIT<br>AMOUNT | TOTAL  |
|-------------------------|--------------------------------|----------|------|---|----------------|--------|
|                         |                                | 1EA      |      | LABOR CHARGE FOR 4 STUDENTS<br>4 X \$65.00 = 260.00 | \$ 260.00 \$   | 260.00 |

-1991-0000-120

\$ 260.00

PLEASE PAY THIS AMOUNT

\$ 260.00

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY



REMIT TO:  
**WASHINGTON COUNTY  
EDUCATION SERVICE DISTRICT**

17705 N.W. SPRINGVILLE ROAD - PORTLAND, OR 97229-1707

**INVOICE**

No. 931301

This invoice number should appear  
on all payments and correspondence.

DATE

06/22/93

TO:

INQUIRIES:

000180  
CITY OF SHERWOOD  
BUSINESS OFFICE  
90 NW PARK  
SHERWOOD OR 97140

000003  
WASHINGTON COUNTY ESD  
SPECIAL STUDENT SERVICES  
17705 NW SPRINGVILLE RD  
PORTLAND, OR 97229  
(503) 690-5428  
FAX # (503) 690-5440

*OK  
JH  
Greenspan*

| PK ORDER<br>NUMBER(S) | PURCHASE<br>ORDER<br>NUMBER(S) | QUANTITY | UNIT | DESCRIPTION   | UNIT<br>AMOUNT | TOTAL     |
|-----------------------|--------------------------------|----------|------|---|----------------|-----------|
|                       |                                | 1EA      |      | LABOR CHARGE FOR WASH. CO<br>SERVICE CORPS.<br>2 DAYS @ \$250. PER DAY = \$500. | \$ 500.00      | \$ 500.00 |

-1991-0000-120

\$ 500.00

PLEASE PAY THIS AMOUNT

\$ 500.00

1. Payment is due upon receipt of invoice.
2. Washington County ESD is an equal opportunity employer.
3. No statement rendered.

PLEASE RETURN YELLOW COPY WITH REMITTANCE  
CUSTOMER COPY

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

APR 23 1993

# INVOICE

16880

**(503) 625-7535**

TO

City of Sherwood  
90 NW Park  
Sherwood, Or 97140

DATE \_\_\_\_\_

4-20-93

ORDER NO.

SHIP TO

Skilla O'Shea folkloric

Net 30 days

46A 4/8

4448

change to project  
greenspaces

TRIPLICATE

PRODUCT 105  Inc., Groton, Mass. 01471. To Order PHONE TOLL FREE 1-800-325-6266

Thank You



40% Pre-Consumer Content  
10% Post-Consumer Content

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

**(503) 625-7535**

**MAY 14 1993**

# INVOICE

17190

TO

City of Sherwood

90 NW Park

Sherwood, Or 97140

DATE \_\_\_\_\_

5-13-93

ORDER NO.

# Wetlands

SHIP TC

net 30 days

564F

4x8 PT

180

10084

~~Park~~ ~~11-11-95~~

greenspaces

Thank You

TRIPLICATE

PRODUCT 185  Inc., Groton, Mass. 01471. To Order PHONE TOLL FREE 1-800-225-8100



40% Pre-Consumer Content  
10% Post-Consumer Content

# ALAN CHAVEZ LUMBER SALES

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

17314

**(503) 625-7535**

|         |           |
|---------|-----------|
| DATE    | ORDER NO. |
| 5-21-93 | Jim Rapp  |
| SHIP TO |           |
|         |           |
|         |           |
|         |           |

City of Sherwood  
90 NW Park  
Sherwood, OR 97140

net 30 days

2- 4X8-4 PT

196 1568

OK JK  
chr to  
Breenspace

Andrew WSCS  
Thank You

TRIPPLICATE

PRODUCT 105: **ANESST** Inc., Groton, Mass. 01471. To Order PHONE TOLL FREE 1-800-225-6360



40% Pre-Consumer Content  
10% Post-Consumer Content

# ALAN CHAVEZ LUMBER SALES

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD OREGON 97140

# INVOICE

17603

(503) 625-7535

|                 |                       |
|-----------------|-----------------------|
| DATE<br>6-10-93 | ORDER NO.<br>Wetlands |
| SHIP TO         | viewing platforms     |

TO  
City of Sherwood  
90 NW Park  
Sherwood, Or 97140

| QUANTITY             | DATE SHIPPED | DESCRIPTION | UNIT PRICE | TOTAL |
|----------------------|--------------|-------------|------------|-------|
| 6X8 PT 3/18          |              |             | 240        | 720   |
| 2X6 240 2/10         |              |             | 49         | 980   |
| 2X6 PT 3/12 6/8 2/10 |              |             | 68         | 7072  |
| 4X4 PT 5/8           |              |             | 646        | 3230  |
| 1X6 Cor 30/8         |              |             | 264        | 7920  |
|                      |              |             |            | 19920 |

Net 30 days

*Andrew J. Chavez*  
Thank You

ORIGINAL

For more information, please call 1-800-225-5267

40% Pre-Consumer Content  
10% Post-Consumer Content

P. 02

6255267

CHAVEZ LUMBER

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD OREGON 97140

**(503) 625-7636**

TO

City of Sherwood  
90 NW Park  
Sherwood, OR 97140

|         |           |
|---------|-----------|
| DATE    | ORDER NO. |
| 6-14-93 |           |
| SHIP TO |           |
|         |           |

| SALES PERSON         | DATE SHIPPED | QUANTITY | DESCRIPTION | TERMS       | UNIT PRICE | TOTAL |
|----------------------|--------------|----------|-------------|-------------|------------|-------|
|                      |              | 246      | PR 2/8 1/10 | net 30 days | 68         | 1768  |
| WCSK<br>Andrew H. K. |              |          |             |             |            |       |

Thank You

ORIGINAL

PRODUCT NO.  INC., Groton, Mass. 01471 To Order PHONE TOLL FREE 1-800-235-6560

 40% Pre-Consumer Conte  
10% Post-Consumer Conf

P. 01

6255267

CHAVEZ LUMBER

23025 S.W. Trial Sherwood Rd  
SHERWOOD OREGON 97140

# INVOICE

18331



City of Sharnold  
90 NW Park  
Sharnold, Or 97146

|         |   |           |  |
|---------|---|-----------|--|
| DATE    | 7-26-93   | ORDER NO. |  |
| SHIP TO | Stella Park North entrance - fair bank<br>as possible |           |  |

|        |                         | net 30 days |       |
|--------|-------------------------|-------------|-------|
| in lbs | 11 lb 10 oz 3/4         | 110         | 60    |
| 30 lbs | 5 lb 5 oz 1/2           | 51          | 2790  |
| 70 lbs | 5 lb 5 oz 1/2           | 51          | 2100  |
|        | 154 lb 7/16             | 70          | 2940  |
|        | 41 lb 9/10              | 41          | 6417  |
|        | 206 lb 18 1/2 9/12 7/16 | 53          | 13350 |
| 9 lbs  | 20 lb per 15 Average    | 356         | 3204  |
|        |                         |             | 31407 |

# TRIPPLICATE

Thank You

 40% Pre-Consumer Content  
10% Post-Consumer Content

18025 S.W. Tual-Sherwood Rd  
SHERWOOD OREGON 97140

# INVOICE

18402

|             |                  |
|-------------|------------------|
| DATE        | ORDER NO.        |
| 7-30-93     | Viewing platform |
| SHIP TO     |                  |
| Stella Park |                  |
|             |                  |
|             |                  |

City of Sherwood  
90 NW Park  
Sherwood, OR 97140

Net 30 days

26. PK 3/4 47 1/2 5/16 (S&K)

|    |       |
|----|-------|
| 53 | 34556 |
|----|-------|

249 8/4 20/2 4/12 2/16 (SING)

364 5472

4x4A 12/2

244F

|     |      |
|-----|------|
| 704 | 1680 |
|-----|------|

|     |    |
|-----|----|
| 417 | 08 |
|-----|----|

OK to pay?

Greenhouses

of project

CEC

*[Handwritten signature]*

TRIPPLICATE

Thank You



40% Pre-Consumer Content  
10% Post-Consumer Content

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

19959

**(503) 625-7535**  
**Fax (503) 625-5267**

|                  |           |
|------------------|-----------|
| DATE<br>11-30-93 | ORDER NO. |
| SHIP TO          |           |
|                  |           |
|                  |           |
|                  |           |

TO City of Sherwood  
90 NW Park  
Sherwood, OR. 97140

net 30 DAYS

|    |                  |     |      |
|----|------------------|-----|------|
| 16 | piers w/ hangers | 420 | 6720 |
|----|------------------|-----|------|

Rock

47M  
12-6-93

Anthony CEC

TRIPLICATE

**RECYCLED PAPER**

Contents: 40% Pre-Consumer • 10% Post-Consumer

Thank You!

# ALAN CHAVEZ LUMBER SALES

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

(503) 625-7535  
Fax (503) 625-5267

# INVOICE

20039

|                 |                                       |
|-----------------|---------------------------------------|
| DATE<br>12-9-93 | ORDER NO.<br><del>5111</del> 5111A/PK |
| SHIP TO         |                                       |
|                 |                                       |
|                 |                                       |

City of Sherwood  
90 NW Park  
Sherwood, Or 97140

net 30 days

21/8 18/8 13/10 22/12 13/14 14/16  
45/4 24/16  
25/4 2/8 4/10 4/12 2/14 1/18

Groundwater  
project

|    |        |
|----|--------|
| 62 | 585.28 |
| 53 | 108.72 |
| 44 | 76.56  |
|    | 770.56 |

Andrew Lyke  
CEL

TRIPPLICATE

RECYCLED PAPER

Contains: 40% Pre-Consumer • 10% Post-Consumer

Thank You!

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

**(503) 625-7535**  
**Fax (503) 625-5267**

DEC 15 1993

20090

DATE \_\_\_\_\_

DATE 10-14-93

ORDER NO.

SHIP TO

City of Sherwood

90 nw Park

Sherwood, Or 97140

net 30 days

3" deck screws (120 pc)

26 A 10/8 3/10 8/12

(12)

570

855

Lo

$$142 \overline{) 14}$$

15069

OK  
rempres  
JH

Andrew J. CFC

TRIPPLICATE

**RECYCLED PAPER**

Contents: 40% Pre-Consumer • 10% Post-Consumer

Thank You!

# ALAN CHAVEZ LUMBER SALES

13025 S.W. Tual-Sherwood Rd.  
SHERWOOD, OREGON 97140

(503) 625-7535  
Fax (503) 625-5267

# INVOICE

19986

|                             |                                    |
|-----------------------------|------------------------------------|
| DATE<br>12-10-93            | ORDER NO.<br>Jim Papp / Steve Park |
| SHIP TO<br>Queenspace Grant |                                    |

City of Sherwood  
20 NW Park  
Sherwood, OR 97140

|        |                                    |  | Net 30 Days |     |    |
|--------|------------------------------------|--|-------------|-----|----|
| 100 ft | 3/8 x 6 lag bolts w/washer         |  | 35          | 21  | 00 |
| 15 lbs | 3" dia. threaded deck screws       |  | 570         | 85  | 50 |
|        | 4x4 ft 4/4                         |  | 89          | 14  | 24 |
|        | 4x6 ft 1/6 1/8 2/12 2/14           |  | 139         | 91  | 74 |
|        | 2x6 ft 2/6 1/8 4/12 2/14 2/16 3/18 |  | 62          | 112 | 84 |
|        | 2x12 ft 1/20                       |  | 152         | 30  | 40 |
|        |                                    |  |             | 355 | 72 |
|        |                                    |  |             |     |    |
|        |                                    |  |             |     |    |
|        |                                    |  |             |     |    |
|        |                                    |  |             |     |    |

TRIPPLICATE

RECYCLED PAPER  
Contents: 40% Pre-Consumer • 10% Post-Consumer

Thank You!

SEP 13 1993

September 10, 1993

File No. SHWX0029

Invoice No. 01-21497

City of Sherwood  
90 NW Park Street  
Sherwood, OR 97140

*OK for pay*  
*[Signature]*

Attn: Mr. Jim Rapp

For services performed through August 28, 1993, on the Metro Greenspaces Grant in accordance with our agreement.

Work performed last month included: meeting and coordination of project with the City, Public Works, Washington County Work Corp, and Sherwood School District for construction of the wetland, and activities to perform this fall.

Total This Invoice

\$191.90

|                        |                 |
|------------------------|-----------------|
| Total Billed to Date   | \$4,297.49      |
| Total Received to Date | (4,105.59)      |
| <b>TOTAL NOW DUE</b>   | <b>\$191.90</b> |

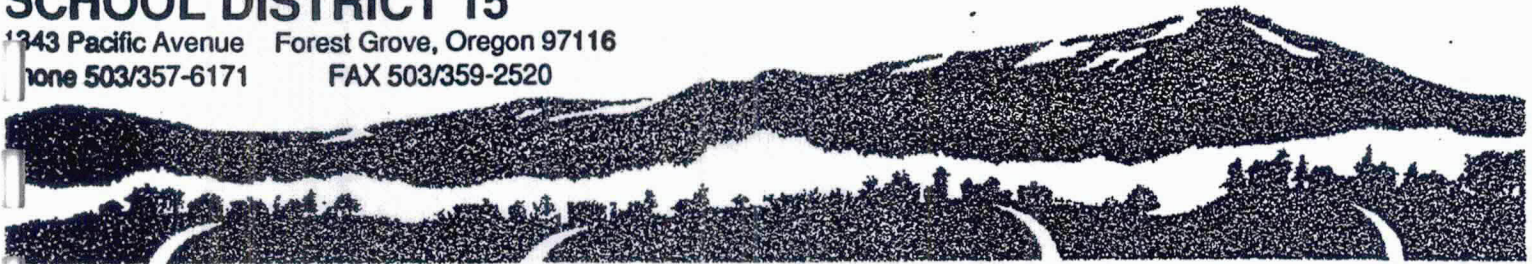
SLC:baf.xls

DAVID EVANS AND ASSOCIATES, INC.  
A PROFESSIONAL SERVICES CONSULTING FIRM  
OFFICES IN OREGON, WASHINGTON, CALIFORNIA AND ARIZONA  
2828 S.W. CORBETT AVENUE  
PORTLAND, OREGON 97201-4830  
(503) 223-6663 FAX (503) 223-2701

# Washington County SCHOOL DISTRICT 15

SEP 17 1993

1343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520



Cornelius

Forest Grove

Gales Creek

Dilley

September 14, 1993

## I N V O I C E

**To:** City of Sherwood  
90 NW Park  
Sherwood, OR 97141

|             |                                    |            |
|-------------|------------------------------------|------------|
| <b>For:</b> | CASCADE EDUCATION CORP - LABOR     | \$3,000.00 |
|             | Deck Construction                  | \$1,500.00 |
|             | Species Eradication (Blackberries) | 1,400.00   |
|             | Trail Work                         | 100.00     |

*OK to  
pay  
Greenspace  
program*

**Pay to:** Washington County School District No. 15  
1343 Pacific Avenue  
Forest Grove, OR 97116

Irv Nikolai, Ph.D., Superintendent

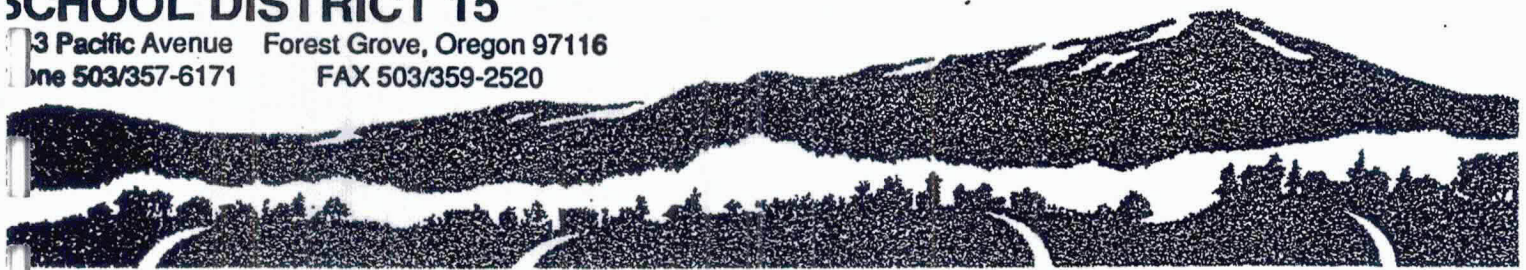
Board of Directors: Carol Brown, Linda Jaramillo, Jim Currie, Ralph Vasey, Mike McCloskey

An Equal Opportunity Employer

NOV 17 1993

# Washington County SCHOOL DISTRICT 15

133 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520



Cornelius

Forest Grove

Gales Creek

Dilley

November 15, 1993

OK to  
pay

## I N V O I C E

To: City of Sherwood  
C/O Jim Rapp  
90 NW Park Avenue  
Sherwood, OR 97140

For: CASCADE EDUCATION CORP - LABOR & MATERIALS

3 Days labor @ \$300.00 per day \$900.00

Plant 30 trees

Seed Wetland Area

Species Iradication (blackberries)

Wetlands Construction

KEOSC Construction

|             |                      |          |
|-------------|----------------------|----------|
| 10 - 1 Gal. | Douglas Fir Trees    | \$ 20.00 |
| 10 - 1 Gal. | Ponderosa Pine Trees | \$ 20.00 |
| 10 - 1 Gal. | Hemlock Trees        | \$ 20.00 |

Total

\$960.00

~~300.00~~

~~break out~~ \$660.00 to  
Greenspaces  
project

10-207-  
702110

Pay to: Washington County School District No. 15  
1343 Pacific Avenue  
Forest Grove, OR 97116

1 Kiosk \$300.00 Chg to Oregon  
Community Foundation  
grant  
10-207-702130

Irv Nikolai, Ph.D., Superintendent

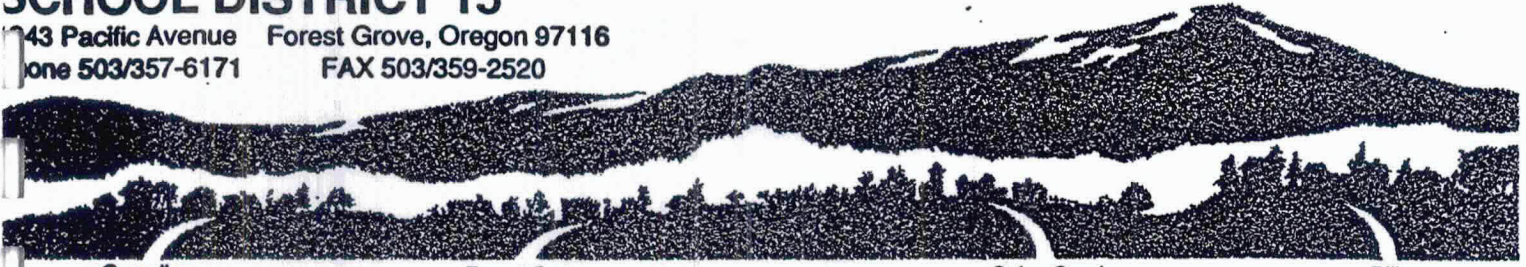
Board of Directors: Carol Brown, Linda Jaramillo, Chris Billman, Ralph Vasey, Mike McCloskey

An Equal Opportunity Employer

Washington County  
**SCHOOL DISTRICT 15**

1343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520

DEC 16 1993



Cornelius

Forest Grove

Gales Creek

Dilley

December 14, 1993

I N V O I C E

**To:** City of Sherwood  
C/O Jim Rapp  
90 NW Park Avenue  
Sherwood, OR 97140

**For:** CASCADE EDUCATION CORP - LABOR  
1/40sk  
Keese Construction 1.5 days  
Deck Construction/Design 2 days  
Propagate & seed wetland plants .5 days  
Species Eradication 1 day

**Total**

\$450.00

600.00

150.00

300.00

\$1,500.00

*Water  
Quality  
Grant*

*Greenspaces  
Grant*

**Pay to:** Washington County School District No. 15  
1343 Pacific Avenue  
Forest Grove, OR 97116

Irv Nikolai, Ph.D., Superintendent

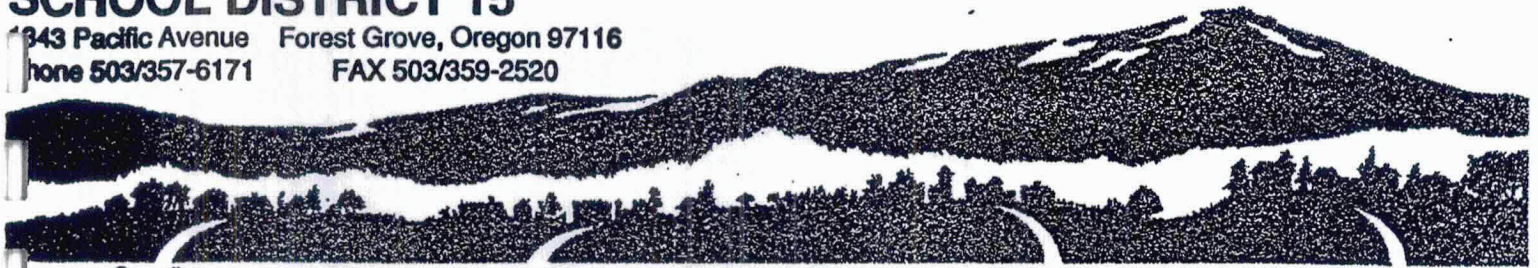
Board of Directors: Carol Brown, Linda Jaramillo, Chris Billman, Ralph Vasey, Mike McCloskey

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# Washington County SCHOOL DISTRICT 15

1343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520

JAN 26 RECD



Cornelius

Forest Grove

Gales Creek

Dilley

January 10, 1994

Invoice # CEC0004

*OK to  
pay Greenspaces  
project*

## INVOICE

**To:** City of Sherwood  
Jim Rapp  
90 NW Park Ave.  
Sherwood, Or. 97140

**For:** Cascade Education Corps Labor  
Deck Construction \$1,800.00  
Species Eradication \$ 100.00  
Trail Maintenance \$ 100.00

**Materials**  
Drainage Pipe \$ 4.29  
Concrete \$ 10.76

**TOTAL** \$2,015.05

**Pay To :** Washington County School District NO. 15  
1343 Pacific Avenue  
Forest Grove OR, 97116

Irv Nikolai, Ph.D., Superintendent

Board of Directors: Carol Brown, Linda Jaramillo, Jim Currie, Ralph Vasey, Mike McCloskey

An Equal Opportunity Employer

chg to  
greenspace  
grant

**INVOICE NO.**

7355

# INVOICE

| CUSTOMER'S ORDER | SALESMAN                     | TERMS | F.O.B. | DATE                |
|------------------|------------------------------|-------|--------|---------------------|
| 5                |                              |       |        | 2-15-94             |
|                  | Black & white 8X10 PRINTS    |       |        | \$ 45 <sup>00</sup> |
|                  | DOCUMENTING THE STELLA OLSEN |       |        |                     |
|                  | PARK WETLANDS MANAGEMENT     |       |        |                     |
|                  | AND CREEK DIVERSION PROJECT  |       |        |                     |
|                  |                              |       |        |                     |
|                  |                              |       |        |                     |
|                  |                              |       |        |                     |
|                  |                              |       |        |                     |
|                  |                              |       |        |                     |
|                  | TOTAL:                       |       |        | \$ 45 <sup>00</sup> |

# Washington County SCHOOL DISTRICT 15

1343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520



Cornelius

Forest Grove

Gales Creek

Dilley

Dear Jim

As you requested here is a list of the things that I see us working on for this summer along with there prices. The prices do not include the cost of materials, I will send those to you as soon as possible.

As I walked around the park last week I noticed that the blackberries are starting to sprout back up. This will happen for a while as some of their roots are still alive. In order to eradicate them completely we will need to stay on top of them for this summer as well as the first part of next spring. This should be sufficient to kill them off completely, or as completely as blackberries can be killed.

Southern Viewing Platform (with benches) \$1,500

Species Eradication (Blackberries, Holly, Ivy) \$1,800

Tree Planting \$ 300

75 Trees (Hemlock, Ponderosa Pine, & Doug Fir) \$ 150

Install Bird Houses or other Habitat Structures, as needed

(The cost for this will vary depending on amount. No Charge for doing a small amount)

If we have time this summer we would like to build the Northern Platform, if not we would like to schedule it in for early fall.

Northern Viewing Platform (covered, with benches) \$2,400

If you have any questions please feel free to call on me 357-9774.

Sincerely Yours

Erik Marter

Cascade Education Corp

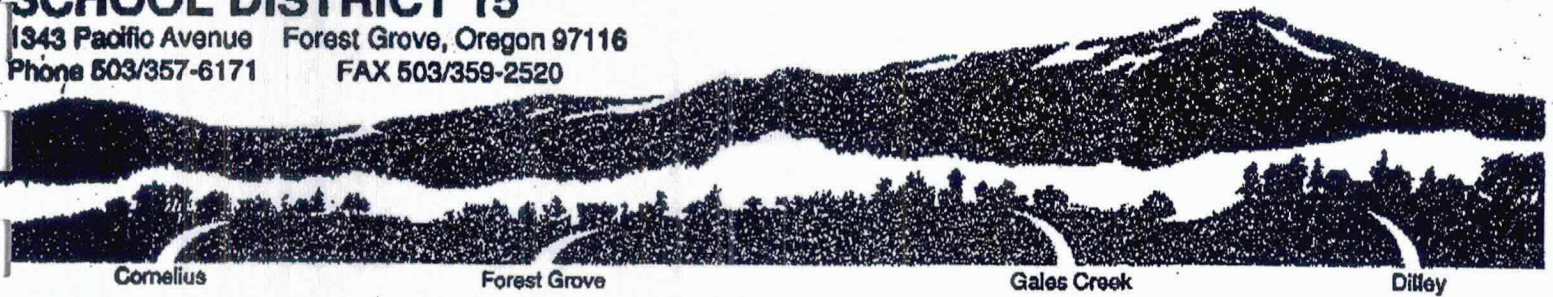
Irv Nikolai, Ph.D., Superintendent

Board of Directors: Carol Brown, Linda Jaramillo, Jim Currie, Ralph Vasey, Mike McCloskey

An Equal Opportunity Employer

# Washington County SCHOOL DISTRICT 15

1343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520



Cornelius

Forest Grove

Gales Creek

Ditley

## SOUTHERN VIEWING PLATFORM MATERIALS

|             |      |                                     |                         |
|-------------|------|-------------------------------------|-------------------------|
| Posts       | 9    | 4"X4"X10'                           | Deck / Railing Supports |
|             | 7    | 4"X4"X6'                            | Railing Supports        |
| Beams       | 6    | 2"X6"X12'                           |                         |
|             |      |                                     |                         |
| Joists      | 7    | 2"X6"X16'                           |                         |
|             | 18   | 2"X6"X2'                            | Joist Blocking          |
| Skirt       | 2    | 2"X6"X16'                           |                         |
| Decking     | 35   | 2"X6"X12'                           |                         |
|             |      |                                     |                         |
| Seats       | 12   | 4"X4"X2'                            | Seat Supports           |
|             | 20   | 2"X4"X2'                            | Cross Bars              |
|             | 10   | 2"X6"X12'                           | Seat Decking            |
| Rails       | 1    | 2"X6"X16'                           | Cap                     |
|             | 2    | 2"X6"X12'                           | Caps                    |
|             | 2    | 2"X6"X4'                            | Caps                    |
|             | 2    | 2"X4"X16'                           | Rails                   |
|             | 4    | 2"X4"X12'                           | Rails                   |
|             | 4    | 2"X4"X4'                            | Rails                   |
| Knee Braces | 4    | 2"X4"X4'                            |                         |
| Footings    | 9    | 12"Diameter w/4X4 brackets          |                         |
| Fasteners   | 6lbs | 16 Penny Spiral or Ring Shank Nails |                         |
|             | 30   | 5/8"X5 1/2" Carriage Bolts          |                         |
|             | 20   | 5/8"X7"                             | Carriage Bolts          |
|             |      |                                     |                         |

CL Allen Chavez

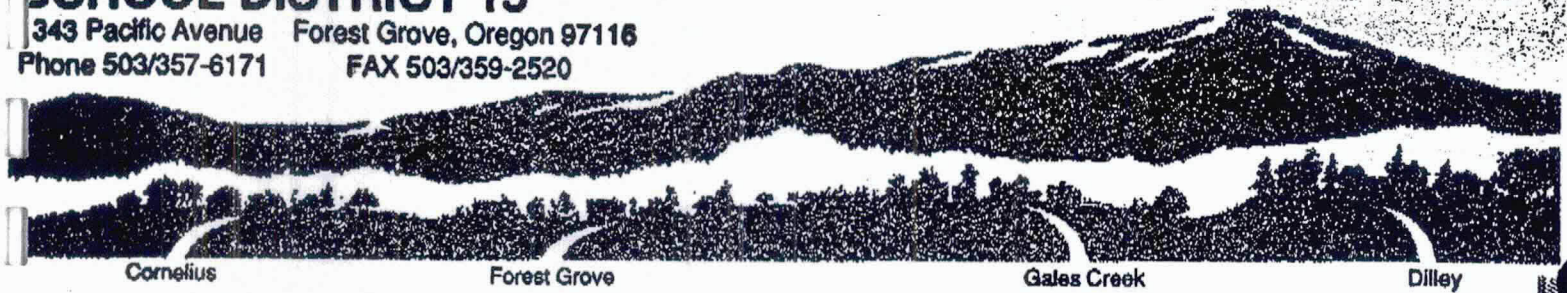
Page 1

Irv Nikolai, Ph.D., Superintendent

Board of Directors: Carol Brown, Linda Jaramillo, Jim Currie, Ralph Vasey, Mike McCloskey

# Washington County SCHOOL DISTRICT 15

343 Pacific Avenue Forest Grove, Oregon 97116  
Phone 503/357-6171 FAX 503/359-2520



Cornelius

Forest Grove

Gales Creek

Dilley

## SOUTHERN VIEWING PLATFORM MATERIALS TO BUY

|      |                                     |        |
|------|-------------------------------------|--------|
| 10   | 2"X6"X16'                           | \$ 108 |
| 60   | 2"X6"X12'                           | \$ 489 |
| 2    | 2"X4"X16'                           | \$ 14  |
| 4    | 2"X4"X12'                           | \$ 21  |
| 12   | 2"X4"X8'                            | \$ 40  |
| 18   | 4"X4"x10'                           | \$ 160 |
| 6lbs | 16 Penny Spiral or Ring shank nails | \$ 12  |
| 30   | 5/8"X5 1/2" Carriage Bolts          | \$ 36  |
| 20   | 5/8"X7" Carriage Bolts              | \$ 30  |
| 9    | 12" Footings w/4"X4" Brackets       | \$ 38  |

- All retail prices -
- Pressure treated wood.

\$ 948

cc Allen Chavez

Page 2

Irv Nikolai, Ph.D., Superintendent

Board of Directors: Carol Brown, Linda Jaramillo, Jim Currie, Ralph Vasey, Mike McCloskey

TELECOPY TRANSMITTAL

To: Jim Rapp

Of: City of Sherwood

From: Gregg S. Everhart

FAX Number: 625-5524

Telephone Number: 625-5522

Date: 4 Oct 92 Time: \_\_\_\_\_

Contents: this is name & address of person/company  
to thank for "testtube seedlings". You got  
20 each elderberry, ninebark, salmonberry  
& red twig dogwood.

NUMBER OF PAGES INCLUDING TRANSMITTAL: 1

If you do not receive the indicated number of pages, please call the number listed below.

Sender 20 hazel,  
20 scirpus - priceless now  
but eventually \$100 to \$200 (guess)

Please just a paragraph or two  
on green spaces program,  
the site & the participants.  
They are interested in how  
successful this technique is &

DAVID EVANS AND ASSOCIATES, INC.  
CONSTRUCTION MANAGEMENT DIVISION  
OFFICES IN OREGON, WASHINGTON AND CALIFORNIA  
OLD TACOMA CITY HALL  
625 COMMERCE STREET, SUITE 180  
TACOMA, WASHINGTON 98402  
(206) 572-8366

we'll be using  
various methods  
& monitoring success



IFA NURSERIES, INC.

TOLEDO FOREST NURSERY  
463 Eadon Road  
Toledo, WA 98591-9621  
(206) 864-2828

Kevin O'Hara  
Nursery Operations  
Advisor

& Bobbie Hanna

*[Handwritten signature]*

CLIENT City of Sherwood  
 JOB DESCRIPTION Shella Olson Park

JN. \_\_\_\_\_  
 BY See  
 SHEET 1 OF 1 SHEETS  
 DATE 5-8-95

|    |                  |   |     |   |      |
|----|------------------|---|-----|---|------|
| 30 | Elderberry       | @ | .25 | = | 7.50 |
| 30 | Ninebark         | @ | .25 | = | 7.50 |
| 30 | Salmonberry      | @ | .25 | = | 7.50 |
| 30 | red-twig dogwood | @ | .25 | = | 7.50 |
| 20 | hazel            | @ | .25 | = | 5    |
| 20 | scirpus          | @ | .25 | = | 5    |

\$ 40

Since the nursery that donated these plants grows them in large quantities, they are rather inexpensive at this stage. If they were larger, they would cost more.

**CITY OF SHERWOOD**

**INVOICE**

**TO:** METROPOLITAN GREENSPACES PROGRAM

**RE:** Services provided for the City of Sherwood's  
Greenspaces Project.

| <u>DATE</u>         | <u>SERVICE</u>                                   | <u>COST</u>        |
|---------------------|--|--------------------|
| <b>Personnel:</b>   |  |                    |
|                     | City Manager                                     | \$ 757.20          |
|                     | (30 hours @ \$25.24/hour)                        |                    |
|                     | Director of Finance                              | 399.40             |
|                     | (20 hours @ \$19.97/hour)                        |                    |
|                     | Assistant Planner                                | 548.00             |
|                     | (40 hours @ \$13.70/hour)                        |                    |
|                     | Senior Utility Worker                            |                    |
| 10/25/93            | Wetland Pond/Backhoe<br>(3 hours @ \$11.98/hour) | 35.94              |
| 10/26/93            | Wetland Pond/Backhoe<br>(3 hours @ \$11.98/hour) | 35.94              |
| <b>Rental Fees:</b> |  |                    |
|                     | Back hoe rental @ \$28.39/hour                   | 56.78              |
| 10/25/93            | Case Backhoe: 2 hours                            |                    |
| 10/26/93            | Case Backhoe: 3 hours                            | 85.17              |
| <b>TOTAL</b>        |  | <b>\$ 1,918.43</b> |

### DAILY TIME CARD

NAME: Bruce Albert

DATE: 10-25-93

[illegible]

TOTAL REGULAR HOURS

**TOTAL OVERTIME HOURS**

TOTAL STANDBY HOURS

B. Allert  
Employee Signature

J. D. M. S.  
Supervisor

1

# DAILY TIME CARD

NAME: James Albert

DATE: 10-26-83

[illegible]

TOTAL REGULAR HOURS .

TOTAL OVERTIME HOURS

**TOTAL STANDBY HOURS**

B. Allert  
Employee Signature

John L.  
Supervisor

1

# DAILY TIME CARD

NAME: Bruce Albert

DATE: 12-17-13

DEPT. DESCRIPTION

HR

wa Wells & Res

2

wa Well # 4

2

wa X conn

1/2

Park Park grant (Pictures Document)

1 1/2

st Locates

2

|                             |  |
|-----------------------------|--|
| 89 Ford Pick Up             |  |
| 85 Toyota Pick Up           |  |
| 80 Datsun Pick Up 1 Ton     |  |
| 83 Chevy 1 Ton              |  |
| 75 International Dump Truck |  |
| 72 Chev Sewer Cleaner       |  |
| 81 Case Backhoe             |  |
| 90 John Deere Tractor       |  |
| 76 Woods Mower Attach.      |  |
| 76 Satho Tractor            |  |
| John Deere Riding Mower     |  |
| 20" Push Mower              |  |
| Wacker Tamper               |  |
| 4" Homelite Pump            |  |
| 1 1/2" Homelite Pump        |  |
| 87 Henderson Chief Sander   |  |
| Cut Off Saw                 |  |
| Weedeater                   |  |
| 87 Hardi Sprayer Tract Mt.  |  |
| Paint Striper               |  |
| Smoke Blower                |  |

TOTAL REGULAR HOURS

7

TOTAL OVERTIME HOURS

TOTAL STANDBY HOURS

B. Albert

Employee Signature

J. D. M...

Supervisor

### DAILY TIME CARD

NAME: Prince Albert

DATE: 10-25-93

[illegible]

TOTAL REGULAR HOURS

TOTAL OVERTIME HOURS

TOTAL STANDBY HOURS

B. Allert  
Employee Signature

J. D. Nease Sr.  
Supervisor

# DAILY TIME CARD

NAME: Ernest Albert

DATE: 10-26-83

[illegible]

TOTAL REGULAR HOURS

TOTAL OVERTIME HOURS

TOTAL STANDBY HOURS

Employee Signature

Supervisor

### DAILY TIME CARD

**NAME:**

DATE:

12-17-13

[illegible]

TOTAL REGULAR HOURS

TOTAL OVERTIME HOURS

TOTAL STANDBY HOURS

Employee Signature

J. D. Mendenhall  
Supervisor

# **APPENDIX D**

- 1. Stella Olsen Park Bird List**
- 2. Tualatin River Wildlife Refuge Information**
- 3. Publications**

| <u>SPECIES</u>           | <u>Winter</u> | <u>Spring</u> | <u>Summer</u> | <u>Fall</u> |
|--------------------------|---------------|---------------|---------------|-------------|
| Grosbeaks, Towhees, etc. |               |               |               |             |
| Rufous sided Towhee      | x             | x             | x             | x           |
| Black headed Grosbeak    |               | x             | x             |             |
| Evening Grosbeak         | x             | x             |               |             |
| Western Tanager          |               | x             |               |             |
| Sparrows                 |               |               |               |             |
| Song Sparrow             | x             | x             | x             | x           |
| White crowned Sparrow    |               | x             | x             | x           |
| Golden crowned Sparrow   | x             | x             |               |             |
| House Sparrow            |               | x             | x             | x           |
| Chipping Sparrow         |               |               |               | x           |
| Blackbirds, etc.         |               |               |               |             |
| Red winged Blackbird     | x             | x             | x             |             |
| Brewers Blackbird        |               | x             |               |             |
| Brown headed Cowbird     |               |               | x             |             |
| Finchs                   |               |               |               |             |
| American Goldfinch       | x             | x             | x             | x           |
| Purple Finch             | x             |               | x             | x           |
| House Finch              | x             | x             | x             | x           |
| Pine Siskin              | x             | x             |               | x           |

The Cedar Creek Greenway is owned by the City of Sherwood and presently consists of 40 acres along Cedar Creek, a tributary of the Tualatin River. All but 4 acres of the Greenway have been established as a natural area, featuring riparian and wetlands zones, streams and ponds. Recent enhancements include a riparian restoration, a wetlands boardwalk, new footbridges, viewing platforms, information kiosks, and foot trails through forested areas. Much of this work has been funded through the Metro Greenspaces Program.

Excellent birdwatching is also available during business hours behind the Public Works Office adjacent to the Park. Besides numerous bird species, many other animals can be found in the Greenway. Beaver, nutria, snakes, bats, squirrels, raccoons, coyote, and deer have been observed. To report a new species call Tom Rapp at 625-6649 evenings.

The Greenway can be easily reached from several directions. Washington Street between Sherwood's historic Smockville Old Town District and Sherwood High School is the main access. The trailhead for the wetlands boardwalk is off Graveled Villa Road which intersects with Railroad Street in Old Town. Newly refurbished Big Fir Trail starts at the end of Park Street in Old Town near Sherwood City Hall. This trail descends through a forested area to a cat tail marsh.

## Seasonal BIRD LIST CEDAR CREEK GREENWAY Sherwood, Oregon



Winter = December - February

Spring = March - May

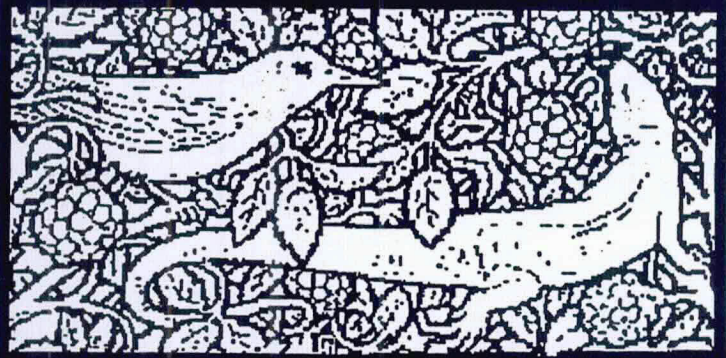
Summer = June - August

Fall = September - November

This seasonal bird list was only initiated in the late winter of 1992. Your help in making it as complete as possible as soon as possible would be appreciated. There are certainly more bird species in the Park than the 79 that have been spotted to date! If you identify a new species or a new season for a species, please call Tom Rapp at 625-6649 (evenings).

Current as of February 25, 1995

# TUALATIN RIVER NATIONAL WILDLIFE REFUGE



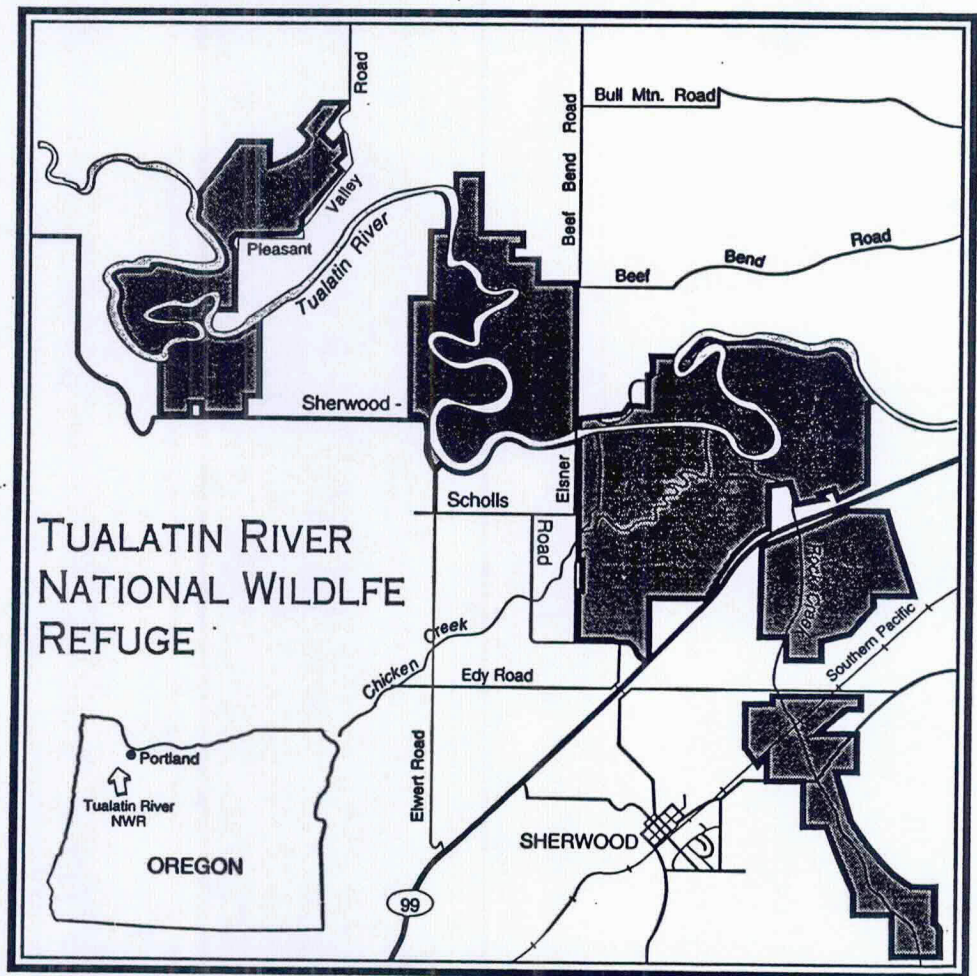
*Practically In Your Backyard*

*In 1990, a few residents and officials of the City of Sherwood began exploring an idea — a wildlife refuge along the Tualatin River. Today, that idea is becoming reality.*

A generous 12-acre donation of land in 1993 became the first building block for the 3,000-acre Tualatin River National Wildlife Refuge. The Refuge is located in and near Sherwood, Oregon (a quickly-growing suburb of Portland, Oregon).

It's an ideal setting. The area is already home to elk, geese, kingfishers, Great Blue Heron and countless other mammals, birds, reptiles, fish and plants. The Refuge will ensure them a secure home today and in the future.

The Friends of the Tualatin River National Wildlife Refuge are working with the US Fish and Wildlife Service, and other cooperating agencies, organizations and individuals, to make the entire Refuge a reality.



*This 3,000-acre wildlife refuge will be located just a short distance from the Portland/Vancouver metropolitan area's 1 million residents.*

FRIENDS OF THE TUALATIN RIVER NATIONAL WILDLIFE REFUGE

# The Raider Review

The newspaper of Sherwood Intermediate School

January 1994

Vol.15

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## Volunteers Help Dam up Stream

**by Rudy Bohm**

As a follow-up to work done by Mr. McGinity's science classes at Cedar Creek in Sherwood's Stella Olsen Park in November, a few volunteers worked around the creek on December 18th, during winter break.

Volunteers Nils Shervey, Sarah Hall, Rudy Bohm, science teacher John McGinity, and his daughter Kate, built small dams made

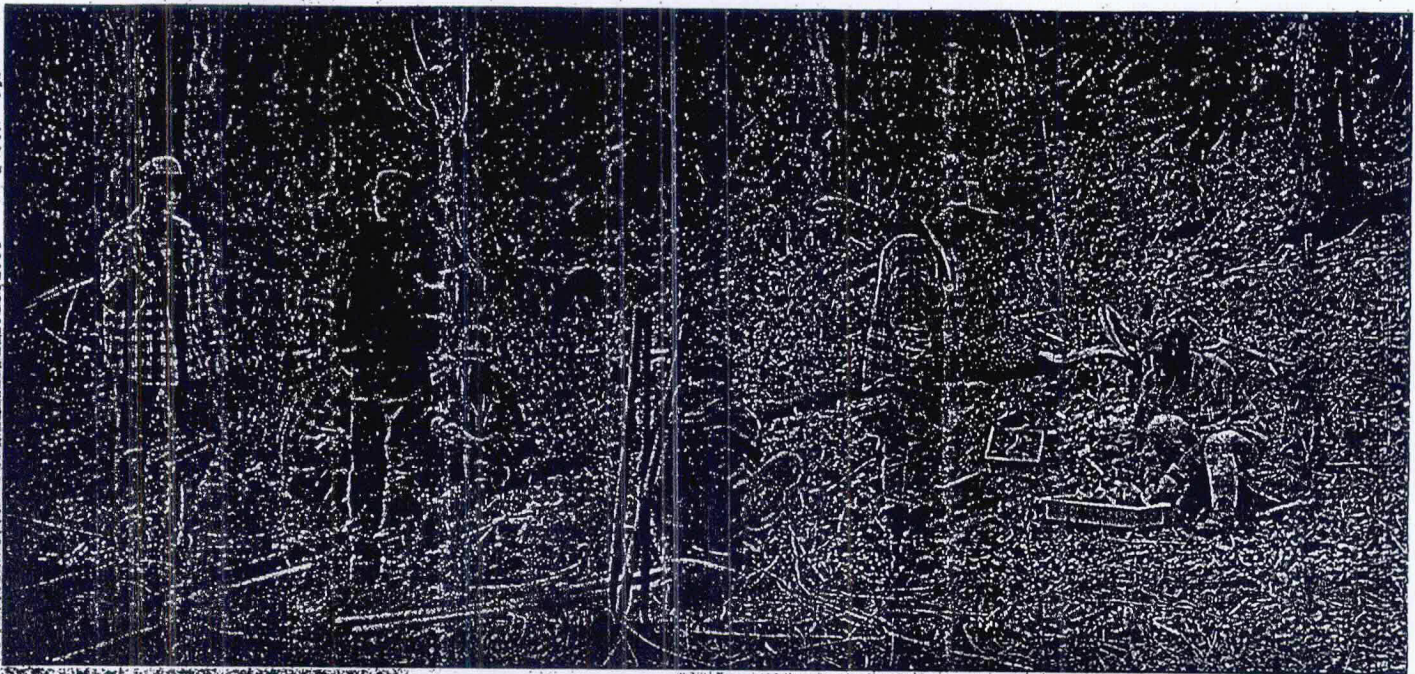
of rock to try to slow the water flow, to create ponds.

Work started at 10:00 AM and continued for about 2 hours. McGinity already had a load of rock dumped a little ways away from the creek when the crew began, so they had to haul them with a wheelbarrow and three five gallon buckets to the creek site. After 45 minutes of work, everyone except McGinity stopped for a break. They ate doughnuts and talked for about 10

minutes, before returning back to work.

About 3 dams were built after all of the rock hauling, slipping and falling in the mud, and throwing buckets around.

The three students from McGinity's class all received a bunch of extra credit and a good experience. The writer for one, would like to do it again sometime in the future.



ROBERT BACH/The Oregonian

A crew from the Washington County Service Corps surveys the task of restoring wetlands at Stella Olsen Park. The group cleared blackberry vines then replanted the area.

## Sherwood students pitch in to restore wetlands

Middle- and high-school students plant seedlings in Stella Olsen Park and plan to monitor their growth

By JOHN FOYSTON  
Correspondent, The Oregonian

SHERWOOD — It's spring. The skunk cabbage blooms and a young person's fancy turns lightly to the restoration of wetlands.

A crew of eight Washington County Service Corps kids spent most of last week clearing encroaching blackberry vines from a wetlands in Stella Olsen Park, and then replanting the area with six different species of plants.

And they're just the tip of the seedling, so to speak. Students from Sherwood middle- and high schools will monitor the seedlings' growth and the general health of the revitalized wetlands.

"We've been using the park as a classroom for about four years now," said John McGinty, who teaches eighth-grade science at Sherwood Intermediate School. "We've done stream surveys and monitored water quality, so this fits in perfectly. We're moving out from the stream to the surrounding wetlands."

The city of Sherwood may be the real winner in this deal: a Metro Greenspaces grant of \$22,500 is paying for the clearing, planting and restoration. But the city must come up with matching funds — no easy job these days.

The thing that makes it possible is the fact that student labor, teacher and city staff time all count as in-kind donations toward the matching money.

"The city is only going to have to put up about \$8,000 in cash," said City Manager Jim Rapp. "We've got to pay for backhoe work when we extend the floodplain of the creek, and we had to pay for preparing the grant application, but most of the rest of our share is in donations."

Down by the stream, the service corps



ROBERT BACH/The Oregonian

Right: Joel Lokey and Jennetta Minchue carefully ease a seedling into a prepared hole. Above: Landscape designer Gregg Everheart with David Evans and Associates ensures that the crew keeps the rows of seedlings straight.

crew tied colored ribbons onto stakes at each end of six perpendicular rows. Each row contained a different type of seedling: hazelnut, red twig dogwood, elderberry, nine bark, salmon berry and small-fruited bullrush.

"We wouldn't ordinarily plant in rows like this," said Gregg Everheart, a landscape designer with David Evans and Associates, "but this way we can chart the success of each species at different elevations up the



hill. This project will provide a lot of baseline data for other wetlands restorations."

The service corps crew is no stranger to the park. Run by the Washington County Educational Service District, the corps provides an alternative to traditional high school. Crews do various projects for governments in the county, charging nominal sums.

Last year, crews renovated trails, built bridges and a boardwalk in Stella Olsen Park

for less than half the \$25,000 estimated for the project.

"What can I say? The service corps has just opened up the whole park," said Rapp. "We couldn't have done it any other way."

"It's starting to look good," agreed Joel Lokey, 18. "I was here last spring and help build the trails and add on to the boardwalk and I hope I'll be here this summer. It's starting to feel like my park."

The Oregonian March 22, 1993 (Metro West)