Twiss ANALYTICAL, INC.

ENVIROSTARS ★★★★

July 15, 2009

Gary Lester
10216 51st St NW
Gig Habor, WA 98335

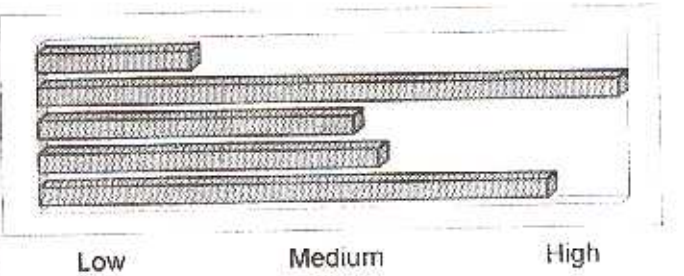
Project: Native Woody Ornamentals
Sample Date: 6/23/09

Lab Work Order #: 96915
Sample Received: 6/25/09

Report on Analysis

Sample ID: Composite Soil
Lab No: 96915-01

pH 1:2 soil to water	5.28
Phosphorus Bray (ppm)	105
Potassium (ppm)	136
Calcium (meq/100 g)	5.85
Magnesium (meq/100 g)	1.75
Sodium (meq/100 g)	0.04
SMP Buffer Index*	5.78
Organic Matter (% by Wt)	NA
Nitrate-Nitrogen (ppm)	5.86
EC 1:2 soil:water (dS/m)	0.07



NA- Not analyzed

Soil Fertility Levels

The soil sample submitted from your site was found to have the following general nutrient levels:

pH	Moderately Acid	5.2-6.0
Phosphorus (P)	Excessive	>100 ppm
Potassium (K)	Low	<150 ppm
Calcium	Medium	5-10 meq/100g
Magnesium	High	1.5 meq/100g
Nitrate-Nitrogen	Low	<10 ppm
Electrical Cond. (EC)	Salinity Negligible	<0.4 dS/m

Twiss Analytical Laboratories, Inc.

Project: Native Woody Ornamentals **Lab Work Order #: 96915**
Sample Date: 6/23/09 **Sample Received: 6/25/09**

Recommendation:

The pH of this soil is satisfactory for native woody ornamentals. But if you wish to raise the pH for certain other plants (see enclosed pH sheet), incorporate 200 lbs of lime (not dolomite) per 1000 sq ft, depth 6 inches, 50 lbs at a time over about a 2 year period.

The calcium (Ca) and magnesium (Mg) levels are adequate for most landscape plants. The macronutrients N, P and K are variable. Incorporate 5 lbs of 10-20-20 (or an equivalent amount of a different fertilizer) per 1000 sq ft of soil. Later in the season when/if the plant shows slower than desired growth or older leaves show yellowing, add 1 lb of actual nitrogen per 1000 sq ft. (Five lbs of 21-0-0 (ammonium sulfate) per 1000 sq ft of soil is equal to 1 lb actual nitrogen. Ammonium sulfate is the preferred fertilizer if the pH needs to be lowered as the sulfur will lower the pH naturally if used over a period of years.) Once a year in the spring for the next two to three years (or until the ornamentals reach 2/3 of their desired height), fertilize lightly (5 lbs per 1000 sq ft) with a complete fertilizer such as 10-20-20.

The sodium and EC results indicate that salts are not a problem in this soil. The soil is a medium dark brown and smells 'earthy' indicating that the organic matter content is good and that microorganisms are present that will break down the organic matter and release even more nutrients. The organic matter will also enhance the soil's nutrient and water-holding capacity.

Thank you for the opportunity to help you prepare a healthy garden.

Nancy Parrott

Nancy Parrott
QA Manager/Chemist

WDOE Accreditation #C1316

pH REQUIREMENTS OF VARIOUS PLANTS

Plants preferring a very acid soil (4 to 5¼):

Azalea	Gardenia	Hydrangea (Blue)	Rhododendron
Blueberry	Holly	Ladyslipper	Trailing Arbutus

Plants preferring a moderately acid soil (5 to 5¾):

Bayberry	Heather	Oak	Potato
Bent Grass	Hemlock	Orchid	Pumpkin
Blackberry	Laurel	Parsnip	Spruce (Red)
Fern	Lily of the Valley	Pine	Spruce (Black)
Grape	Yew	Plum	

Plants preferring a slighty acid soil (5¾):

Bean	Currant	Gooseberry	Squash
Begonia	Cypress	Lily	Strawberry
Bleeding Heart	Easter Lily	Lupine	Tomato
Citrus Fruits	Euphorbia	Oats	Turnip
Cowpeas	Fir	Pepper	Rutabaga
Cyclamen	Gloxinia	Rye	

Plants preferring a near-neutral soil (6½ to 7):

Anemone	Cosmos	Kale	Radish
Apple	Crocus	Larkspur	Raspberry
Aster	Cucumber	Leek	Rhubarb
Beet	Dahlia	Lima Bean	Rose
Broccoli	Eggplant	Marigold	Scabiosa
Butternut	Endive	Narcissus	Snapdragon
Candytuft	Feverfew	Muskmelon	Spruce
Canna	Flax	Onion	Spinach
Carnation	Fuchsia	Pansy	Stocks
Chrysanthemum	Gladiolus	Peach	Violet
Clarkia	Hawthorne	Pea	Watermelon
Carnation	Hickory	Poinsettia	Wisteria
Chives	Hollyhock	Poppy	Woodbine
Columbine	Hyacinth	Phlox	Yucca
Corn	Iris	Primrose	Zinnia

Plants preferring an alkaline soil (7 to 7½):

Arborvitae	Carrot	Delphinium	Lettuce
Asparagus	Cauliflower	Dogwood	Morning Glory
Barberry	Cinerea	Geranium	Nasturtium
Barley	Celery	Heliotrope	Parsley
Bluegrass	Clematis	Hydrangea	Petunia
Cabbage	Clover	Ivy (English)	Sweet Pea