

Illustrated Standards *for* Landscape Professionals

Landscape Bed Maintenance & Planting



Bridget Rivas

Bridget Rivas has been crafting landscapes and designs since 2001. She co-owns Rivas Design & Landscaping, a design/build firm that serves municipal, commercial and residential clients in their design, installation and maintenance needs. She is a Virginia Society of Landscape Designers Certified designer, a Chesapeake Bay Landscape Professional, Level II, has been certified as both a Michigan and Virginia certified Horticulturist and an avid home gardener. She has spent years developing her skills to better serve her clients in their diverse needs. She

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This comprehensive guide is a compilation of standard practices implemented on a daily basis at Rivas Design.

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Plant Quality Form

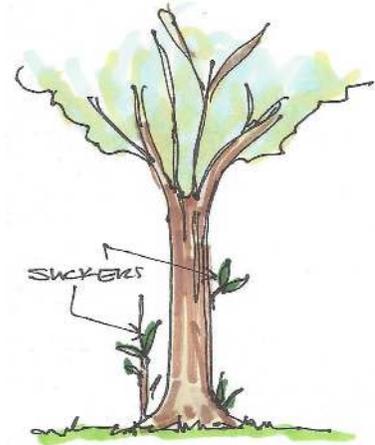
Resources and References

CHAPTER 1

Standards for Bed/Tree Ring Maintenance

1.1 Plant Cleanup (under 10' and as needed—see Chapter 3: PROPER PRUNING for greater detail)

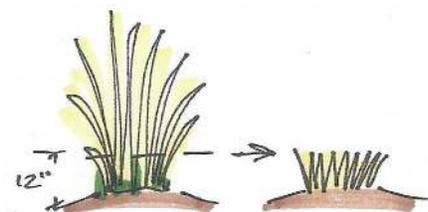
To maintain healthy and attractive plants, it is necessary to prune for shape, remove **suckers** and cut out dead portions. During seasonal and on-going cleanups, pruning-out of dead branches may occur without affecting the plant. Removal of suckers may also take place when they are observed. Pruning for shape should be done per the pruning schedule to avoid inadvertently removing flower buds or causing damage.



Refer to the pruning schedule (in Chapter 3) to ensure appropriately timed shaping and **dead-heading**.

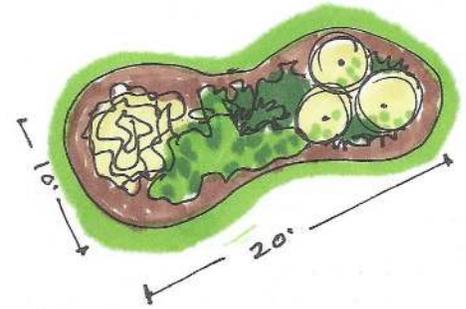
1.2 Bed Maintenance.

- A. **Frequency.** Beds should be cleaned thoroughly bi-annually, in the spring and in the fall. Regular spot cleaning should be done throughout the growing season, at least every 2 weeks.
- B. **Cleanup.** Before fertilizing or installing mulch, beds should receive a general cleanup. Cleanup shall include:
 - Removal and disposal of all debris from the bed, including organic material (like leaves and branches) and inorganic material, such as trash.
 - Cutting back of **perennials** that are still standing after winter near to the ground. (examples: grasses, sedum, hosta).
 - Thorough removal of **weeds** by hand/tool, by chemical application or a combination of the two.
- C. **Edging.** Twice a year, before the mulch is installed, a trench edge should be made around the bed or tree circle. With a square shovel, a cut should be made to create a trench 3-4" deep between the sod and the mulch area.



1.3 Mulching.

- A. **Frequency.** Double-Shredded
Hardwood mulch shall be applied twice a year: at the **spring cleanup** and at the **fall cleanup**
- If there is excessive mulch remaining from a previous mulching, old mulch should be removed and distributed in wooded areas or disposed of. Build up of mulch without reduction from time to time will distort the mulch area and begin to affect the bark of the trees/shrubs.
- B. **Acquisition and amount.** Mulch should be acquired from a reputable vendor and should be weed-free.
- In estimating the quantity of mulch required for any given space, the following calculation should be used:



**1 cubic yard of mulch will cover approximately
100 square feet of space, 2" deep.**

Length (in feet) _____ x Width (in feet)
_____ = Total Square Feet _____
Divide Total Square Feet _____ by **100**.
That will give you the cubic yards needed.

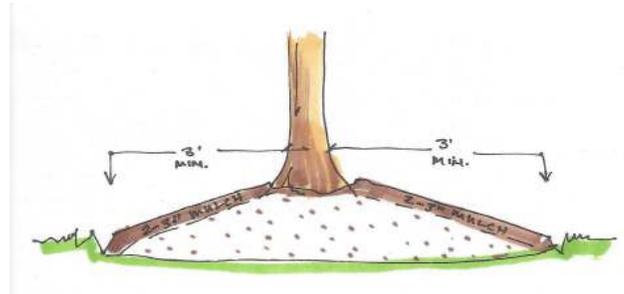
- For example, if the bed is 20' x 15', multiply 20 by 15 to get the square footage. In this case it is 300 square feet, or 3 cubic yards of mulch (1 cubic yd over 100 sq. ft.) Depending on how large the plants are and how many, you would reduce the cubic yards needed.
- C. **Applying the mulch.** In order to be more efficient, it is necessary to get the truck as close as possible to the actual location where the mulch will be installed.

NOTE:

There are 27 cubic feet in a square yard. If using bagged mulch:

- 2 cubic foot bags requires **14 bags** of mulch to cover 100 sq. ft.
- 3 cubic foot bags requires **9 bags** of mulch to cover 100 sq. ft.

- A wheelbarrow should be used to haul the mulch any distance.
- Use pitchforks to move and distribute the mulch evenly in the bed.
- It will be applied at a **depth of 2-3"**, evenly spread throughout the area. For uniformity, the mulch will be raked and lightly tamped in place with a rake. All attempts should be made to keep the mulch from burying any parts of the plants. Special care should be made to avoid burying perennials.
- For trees, **mulch circles should extend approximately 3' from the center trunk.** Tree trunks should be at the center of the circle. Mulch should taper gradually from the tree to the outer part of the mulch circle. No mulch volcanoes where the mulch is built up at the trunk in a pile.



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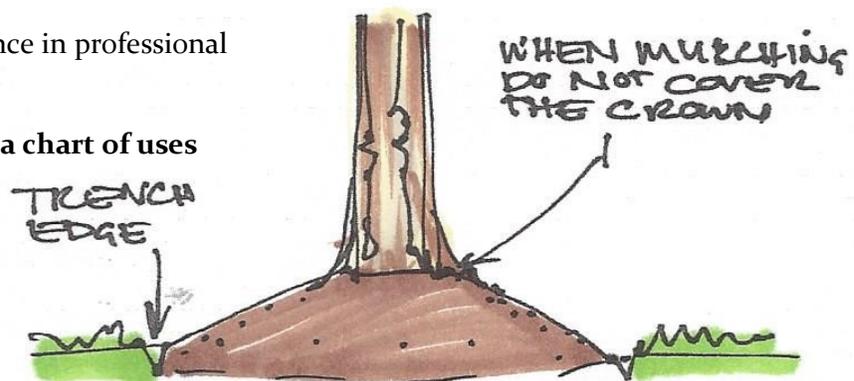
1.4 Debris Removal & Disposal

- All debris that is generated from regular bed maintenance and mulching will be removed from the area of work and disposed of per the requirements of the supervisor.
- Natural/organic yard material may be composted if an area is designated for grounds disposal. Inorganic material (trash, etc.) should be bagged and deposited into a trash receptacle or, if in quantity, to the landfill.

1.5 Tools & Efficiencies.

The right tools make the difference in professional appearance and efficiency.

The following page includes a chart of uses and appropriate tools designated for each type of job.



TOOLS

Types of Tools & Their Efficient Uses

Digging & Mulching Tools



Steel Square Shovel (tall)



Square Shovel (short)



Pitchfork



Pick



Round Shovel



Short Round Shovel



Hand Trowel

Tasks

Tasks	Steel Square Shovel (tall)	Square Shovel (short)	Pitchfork	Pick	Round Shovel	Short Round Shovel	Hand Trowel
Cutting Roots				✓	✓		
Edging	✓	✓					
Digging: small holes				✓	✓	✓	✓
Digging: large holes				✓	✓		
Leverage	✓	✓		✓	✓		
Planting Annuals				✓	✓	✓	✓
Spreading Dirt		✓			✓		
Spreading Mulch			✓				
Weeding				✓		✓	✓

Miscellaneous: Hauling & Staking



Wheelbarrow



Tarp



Post Pounder

Tasks

Tasks	Wheelbarrow	Tarp	Post Pounder
Hauling Debris	✓	✓	
Hauling Leaves		✓	
Hauling Mulch/Soil	✓		
Staking Trees			✓

TOOLS

Types of Tools & Their Efficient Uses

Spreading & Raking Tools



Round
Shovel



Square
Shovel
(short)



Pitchfork



Steel Leaf
Rake



Metal
Rake



Gravel
Rake

Tasks

Tasks	Round Shovel	Square Shovel (short)	Pitchfork	Steel Leaf Rake	Metal Rake	Gravel Rake
Loading Mulch			✓			
Loading Soil	✓	✓				
Raking Dirt					✓	✓
Raking Gravel					✓	✓
Raking Leaves/Debris				✓		
Spreading Mulch			✓		✓	
Spreading Soil	✓	✓			✓	✓

Gas Powered Tools



Back Pack Blower



Hedge Trimmers



14-16" Chain Saw

Tasks

Tasks	Back Pack Blower	Hedge Trimmers	14-16" Chain Saw
Blowing Leaves	✓		
Branch Cutting			✓
Finish Cleanup	✓		
Hedge Trimming		✓	

CHAPTER 2

Plant Health

2.1 Signs of Stress/Deficiency/Pest Damage (see Chapter 4 on **Integrated Pest Management IPM**)

Plants and trees should be monitored regularly for any signs of stress.

Signs of stress include:

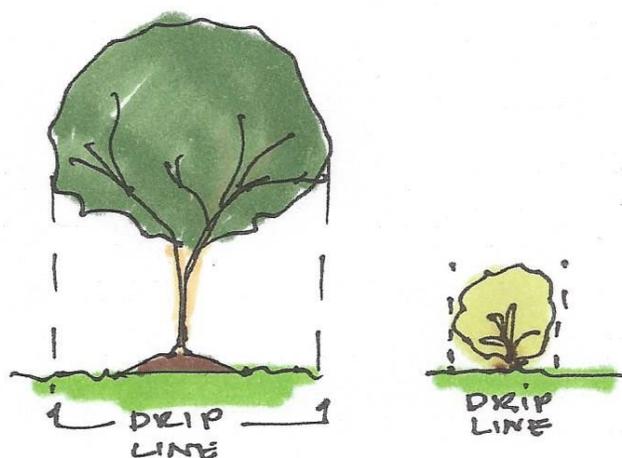
- Wilting / falling leaves
- Dead branches
- Stunted growth, small leaves
- Yellowing leaves (not in the fall)
- Holes in leaves, fungus or oozing
- Presence of insects (their offspring, egg sacs or home structures)

2.2 Fertilization.

A. Slow release fertilizer is the preferred fertilizer for plants and trees. Should be applied at a rate of between 1 and 3 pounds per 1000 sq. ft. A soil test should be done to determine if additional phosphorus or potassium is required.

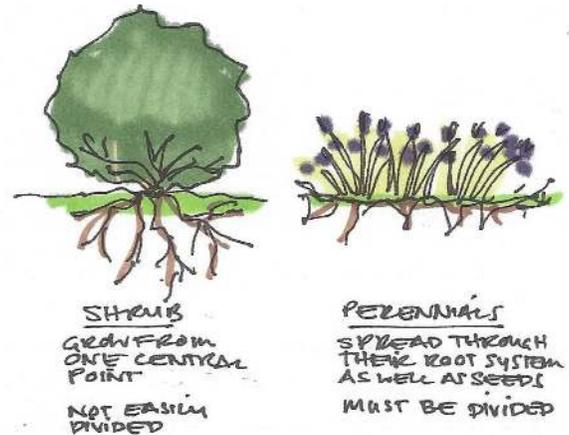
- **Refer to the packaging of fertilizer for actual rates of application.**

- B. When applied, fertilizer should be dispersed under the drip line for a shrub and within 1.5x the drip for a tree.
- C. For further information, go to <http://www.dcr.virginia.gov/document/standardsandcriteria.pdf>
- D. **Fertilization Record Form** is in the Appendix. To be used for charting fertilizer applied, when and where and for what intent or purpose.
- E. **MSDS** (*Material Safety Data Sheets*) of fertilizers used should be kept on file.



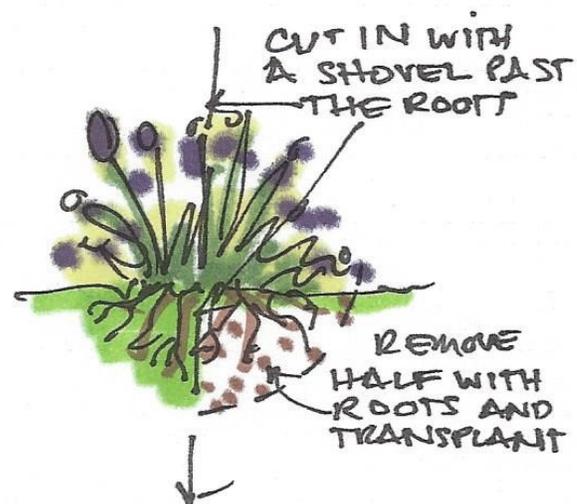
2.3 Pruning & Removal

- A. Pruning should be done to **improve the plant appearance and overall health**. Excessive growth can cause strain on the plant and result in an untidy appearance.
- B. **General notes about pruning:**
- Pruning should be done to improve overall appearance while aiding the planting in future growth.
 - Removal of **dead branches** or sections can be done at any time without affecting the plant.
 - See **Chapter 3 for specifics on PRUNING**.
- C. Debris resulting from pruning should be **disposed of immediately**. If branches removed have any signs of fungus or bugs, burning or landfill disposal is preferable to composting.



2.4 Division of Perennials

- A. Shrubs grow from a single branching structure, usually growing outward from the center (if at all) or merely increasing in size from the main branching structure. Perennials are distinct because of the way they spread through their root system.
- B. **If perennials are growing too tightly** and are showing signs of stress, it may be necessary to divide them. To divide them, cut the perennial clump in half, remove one half, leave the other behind. The half that is removed can be further divided and transplanted elsewhere. The more roots that are dug up with the removed section, the greater chance of survival the divided half will have when transplanted.
- C. **The best time to divide and transplant perennials is in the FALL.**



CHAPTER 3

Proper Pruning

3.1 When to Prune

ACTION	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Shrub Pruning (3x / year)				X		X		X				
Spring Flowering Shrubs	<i>Immediately after flowering</i>				X	X						
Summer Flowering Shrubs	X	X	X		<i>Before New Growth in Spring</i>						X	X
Evergreen Shrubs	X	<i>Heavier Pruning</i>		X							<i>Prune Lightly</i>	
Deciduous Tree Pruning			X	X								
Perennial Cutting Back				<i>Dead head as needed (remove old flowers)</i>						X	X	
Liriope Cutting Back		X	X									
Grass Cutting Back	X	X	X								X	X
Removal of Dead Branches	X	X	X	X	X	X	X	X	X	X	X	X

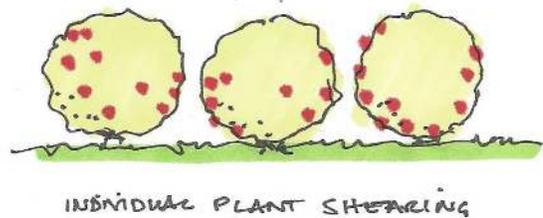
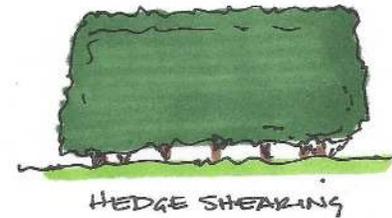
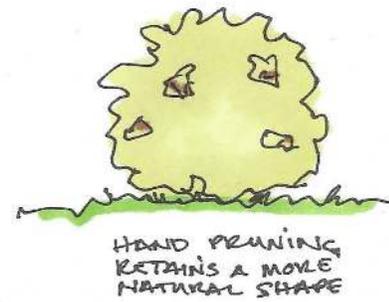
3.2 How to Prune

A. There are **different types of pruning** and different tools to achieve certain results.

- **Thinning:** is removing undesirable branching and suckers by cutting them back to the main stem.
- **Renewal:** is removing older or weaker branches to allow new branches to grow. On established plants, the process should be done over 2 to 3 years—not all at once—to avoid damage to the mature plant. Some plants, like spiraea, forsythia and buddleia respond well to being cut back severely in the spring to allow for regeneration.
- **Access Pruning:** is trimming back plants that have grown into walkways, buildings and other points of access.



- B. There are different ways to prune plants depending on how you want them to look.
- **Hand Pruning:** refers to using a hand tool (like pruners) to selectively remove branches. This allows one to reduce size, to shape and to rejuvenate while still retaining a natural appearance. Use this method if you want to clean up and maintain a natural look.
 - **Shearing:** usually done with a gas-powered or electric hedge trimmer. This is good for hedges and grasses that require a uniform and orderly maintenance. Use this method if you want to achieve a manicured look.



3.3 Tools & Efficiency—

The right tools make the difference in professional appearance and efficiency. **The following page includes a chart of uses and appropriate tools designated for each type of job.**

Tips for Tools:

- Maintain all tools dry and stored in moisture-free areas. Rusting of any of the parts will result in poor quality cuts that may damage the plants.
- Keep the tools clean. Dirt and moisture will dull the blades and lock up the moving parts
- Sharpen your blades regularly for more efficient and clean cuts. If possible, replace the blades themselves.
- Sterilize the tools after each use if you are pruning or trimming diseased plants. Fungus and bacteria can be transferred from one plant to another when tools are left un-sterilized.

For PPE (*Personal Protective Equipment*)

- Use gloves and eye protection to avoid injury.
- Wear sturdy boots or shoes, sleeves and jeans.
- For above head trimming, wear head protection, helmet.



TOOLS

Types of Tools & Their Efficient Uses

Pruning & Cutting Tools



Tasks	Bypass Pruners	Hedge Shear	Loppers	Knife	Machete	Pruning Saw
Brush Clearing					✓	
Cutting Back Perennials	✓	✓			✓	
Cutting Roots					✓	✓
Cutting Twine	✓	✓		✓		
Hand Pruning	✓					✓
Less than 1" Diameter	✓		✓		✓	✓
Lopping Branches			✓		✓	

Gas Powered Tools



Tasks	20-22" Chain Saw	Hedge Trimmers	14-16" Chain Saw
Branch Cutting-Large	✓		✓
Branch Cutting under 12"			✓
Hedge Trimming		✓	

CHAPTER 4

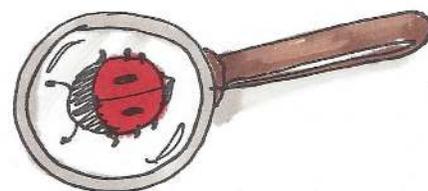
Integrated Pest Management (IPM)

WHAT IS IPM (Integrated Pest Management)?

IPM is “an ecological approach to pest control. It is based on the habitat and life cycle of the pest. IPM combines chemical and nonchemical methods in a single plan or strategy. The goal of an IPM program is to reduce pest populations to an acceptable level in a way that is practical, cost-effective, and safe for the environment as well as human health.” (*Virginia Tech Pesticide Applicator, Core Manual*)

4.1 How to Monitor for Pests.

- A. Begin by charting the area you will be monitoring by starting a record for that area (see attached record form). Identifying the type of pest you are dealing with and whether or not it is causing damage is your first step. You must determine if it is necessary to even control the pest in the first place.
- B. **Ask yourself the following questions:**
- What kinds of pests are present?
 - Are their numbers and the damage they caused great enough to justify control?
 - When is the right time to begin control?
- C. **What information should you gather while monitoring?**
- Temperature
 - Moisture Levels
 - Quantity of pests present
 - Damage to the host plants



FIND PICTURES OF THESE INSECTS
IN CHAPTER 7

Pest Classification Quick List for Ornamentals in Virginia:

Insects/Mites: *Arthropods that cause damage by eating or sucking on the plants, or carrying diseases. Common Insects are:*

- Aphids
- Azalea Lace Bug (*Stephanitis pyrioides*)
- Bagworm (*Thyridopteryx ephemeraeformis*)
- Bark Beetles (*family Scolytidae*)
- Black Weevil (*Otiorhynchus sulcatus*)
- Boxelder Bug (*Boisea trivittata*)
- Boxwood Leafminer (*Monarthropalpus flavus*)
- Boxwood Psyllid (*Psylla buxi*)
- Bronze Birch Borer (*Agrilus anxius*)
- Dogwood Borer (*Synanthedon scitula*)
- Eastern Tent Caterpillar (*Malacosoma americanum*)
- Fall Webworm (*Hyphantria cunea*)
- Fungus Gnats (*Family Sciaridae*)
- Gypsy Moth (*Lymantria disper*)
- Galls (*result of abnormal plant cell growth in response to an insect infestation*)
- Hemlock Woolly Adelgid (*Adelges tsuga*)
- Holly Leaf Miner (*Phytomyza ilicicola*)
- Japanese Beetle (*Popilla japonica*)

4.2 How to Control Pests with IPM

Here are some of the ways that pests can be controlled as part of an IPM program:

- **Natural Controls:** Are effects of nature that are out of one's control but should be noted. They would include
 - + Climate
 - + Natural Enemies
 - + Geographic Barriers
 - + Food & Water Supplies
 - + Availability of Shelter
- **Biological Control:** Uses natural predators of the unwanted pests to control them. It also utilizes pheromones and microorganisms (like bacteria and fungi) to reduce the pest numbers. Requires knowledge of pest life cycle to be effective.
- **Cultural Control:** By changing the environment, pest numbers can be reduced. Cultural controls can include mulching, tilling, planting trap crops, pruning and thinning, fertilizing to strengthen the plants. Cleanliness and ventilation make the habitat less desirable.
- **Mechanical & Physical Controls:** Uses traps, barriers, fences, aeration to control certain environmental conditions and drive out/prevent pest infestation.
- **Chemical Control:** This includes pesticides that destroy the pest or limit the damage it can do.

4.3 Identifying Common Pests

When trying to identify common pests, take note of their

- **location** (on what kinds of plants, whether they are on the branches or leaves or flowers, etc)
- **their appearance** (what is their size, do they have wings, color,
- **damage that they are causing** (is it chewing, sucking, larval)

- Locust Leafminer (*Odontota dorsalis*)
- Mealybugs (Families *Pseudococcidae* & *Eriococcidae*)
- Mites (Order *Acarina*)
- Pine Tip Moth (*Rhyacionia frustrana*)
- Scale (Family *Diaspididae* & *Coccidae*)
- Thrips (Family *Thripidae*)
- Two Banded Japanese Weevil (*Callirhopalus bifasciatus*)
- Whiteflies (Family *Aleyrodidae*)

+++++

Diseases: *cause damage by destroying tissue and weakening the plant. This results in greater chance of insect infestation and death.*

- Fungus
- Bacteria
- Viruses
- Leaf Spots (fungal or bacterial)
- Rusts, Root Infections, Fireblight
- Scabs, Crown Gall
- Powdery Mildew

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Nematodes: *Cause stunting, slow growth and even death by interfering with normal root functions.*

Mollusks: *Soft-bodied animals (slugs, snails) that destroy the plant by eating it.*

Weeds: *Plants that are either unwanted, undesirable or in the wrong place.*

CHAPTER 5

New Plant Installations

5.1 Installation of Annuals

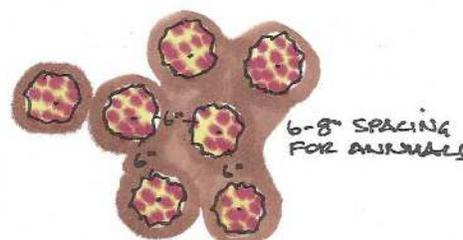
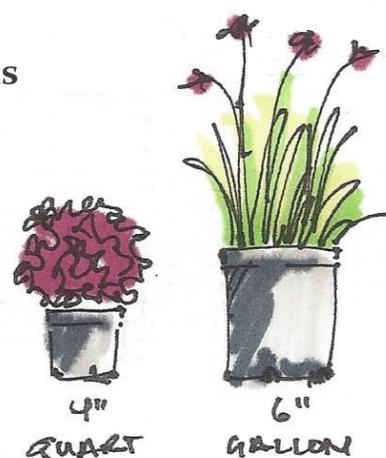
A. An **annual** is a plant that only lives for one cycle. They must be removed after the first frost in the fall if they are summer flowering, and replaced the following spring. Common annuals are:

- *Pansies*
- *Begonias*
- *Petunias, etc*

B. Standard landscape stock sizes for commercial use are **4" and 6"** (more commonly referred to their volume: 4" is a **Quart**; 6" is a **Gallon**). Size refers to width of the pot in which the plant is delivered.

C. **To install**, lay out the plants in their approximate locations, spacing evenly apart 6-8" from one plant to another.

1. **Dig a hole** slightly larger than the pot of the plant. Add starter fertilizer if prescribed.
2. **To remove the plant from the pot**, hold the pot firmly and press the sides to release the roots. Turn the plant over into your hand, remove the pot.
3. **Place the plant into the hole** so that the dirt of the plant is level with the dirt of the ground. Do not bury the plant deeper than the level at which it was grown.
4. Once all annuals are installed, **finish the project by laying mulch** in the spaces between. Avoid getting too close to the base of the plant. Caution must be used to install the mulch around flowers because they are easily damaged.



Planting Tips

- If the roots seem to be tightly woven, gently spread the roots apart. If extremely root bound, use a knife to cut a few slits to regenerate new growth.
- Do not plant deeper than the soil that the plant was grown in.
- Water thoroughly and promptly upon install.

CHAPTER 5

New Plant Installations

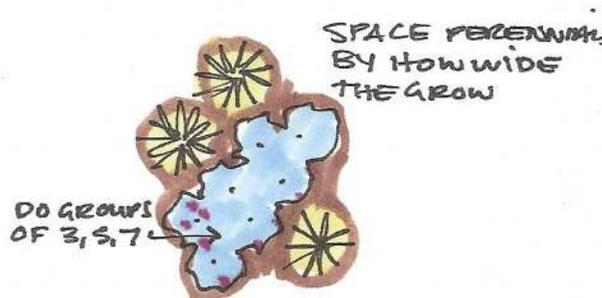
5.2 Installation of Perennials

A. **Perennials** are plants that survive 2 or more growth cycles. They return every year and can be divided and transplanted. Some examples would be:

- *Daylilies*
- *Hosta*
- *Liriope*

B. **Refer to Section 5.1 on Annuals regarding common sizes and how to properly install.**

C. **Spacing of perennials** depends on the grown size of a given plant. If a plant grows to be 2' wide, it should have the room to grow to its potential. Plant surrounding plants at least a foot away from the perennial that grows to 2' wide.



5.3 When to Install

Actions	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Summer Flowering Annuals (<i>like begonias</i>)					X	X	X	X				
Spring Flowering Annuals (<i>like pansies</i>)		X	X	X								
Fall/Winter Flowering Annuals (<i>like pansies</i>)									X	X	X	X
Installation of Perennials	X	X	X	X	X				X	X	X	X
Division/Transplant of Perennials	X	X	X							X	X	X

5.4 Tools & Efficiency

See following page for perennial/annual tools.

TOOLS

Types of Tools & Their Efficient Uses

Digging & Mulching Tools

Best Tools for Installing Annuals & Perennials



Steel Square Shovel (tall)



Square Shovel (short)



Pitchfork



Pick



Round Shovel



Short Round Shovel



Hand Trowel

Tasks

Tasks	Steel Square Shovel (tall)	Square Shovel (short)	Pitchfork	Pick	Round Shovel	Short Round Shovel	Hand Trowel
Edging	✓	✓					
Digging: small holes				✓	✓	✓	✓
Digging: large holes				✓	✓		
Leverage	✓	✓		✓	✓		
Spreading Dirt		✓			✓		
Cutting Roots				✓	✓		
Spreading Mulch			✓				
Weeding				✓		✓	✓
Planting Annuals				✓	✓	✓	✓

Miscellaneous: Hauling & Staking



Wheelbarrow



Tarp



Post Pounder

Tasks

Tasks	Wheelbarrow	Tarp	Post Pounder
Hauling Mulch/Soil	✓		
Hauling Leaves		✓	
Hauling Debris	✓	✓	
Staking Trees			✓

CHAPTER 6

Basic Design & Enhancement Principles

6.1 Focal Areas: Entrances

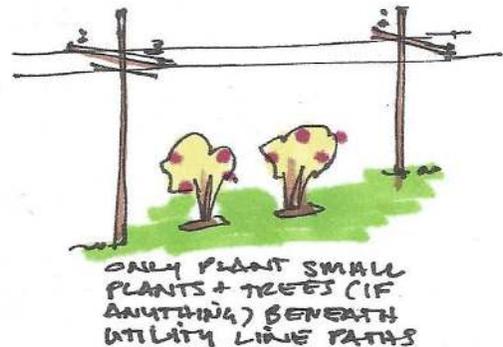
- A. **Entrance beds and islands are main focal points on a commercial property.** Every attempt to maintain an attractive appearance should be made throughout the year. Regular bed maintenance (weeding, trimming and edging) and annual mulching will help to maintain a tidy appearance.
- B. To **enhance the attractiveness** of an entrance feature, ensure that the plants are trimmed or sheared in uniformity. Remove any dead or diseased plants immediately.
- C. **Open mulch spaces lead to higher weed maintenance.** Consideration should be made for annual and perennial plantings to fill any large open spaces, especially when color would improve the appearance.



6.2 Practicality, Line of Sight, Proximity to Buildings & Structures, sidewalks, roads, and overhead utilities

When evaluating existing plantings or considering installing new plants, **there are several factors to consider for continued success and efficiency:**

- A. **Line of Sight:** Ensure that new or existing plantings do not interfere with driving visibility, especially when turning.



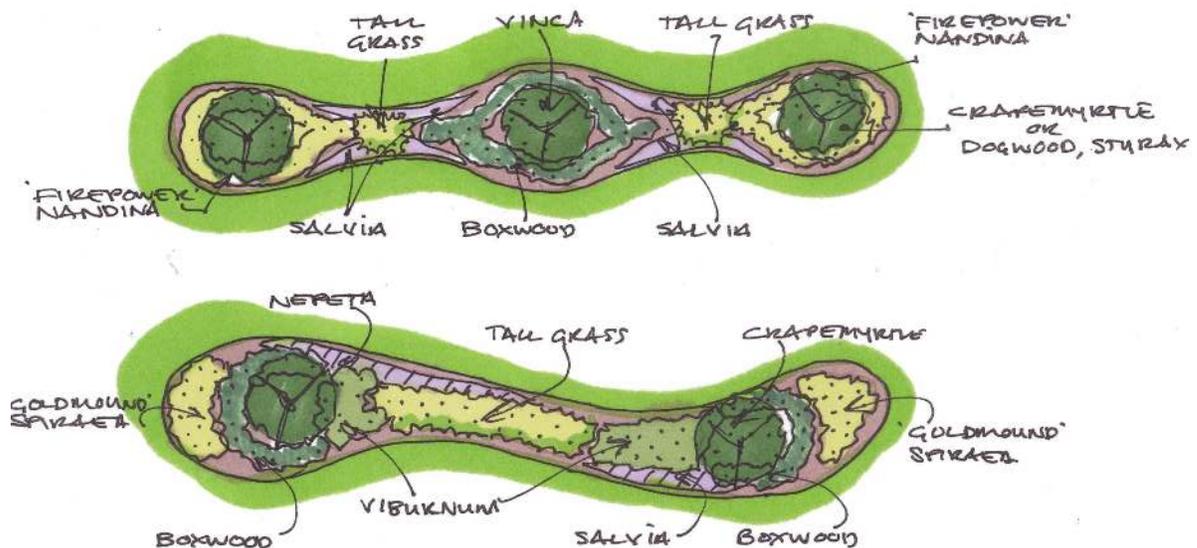
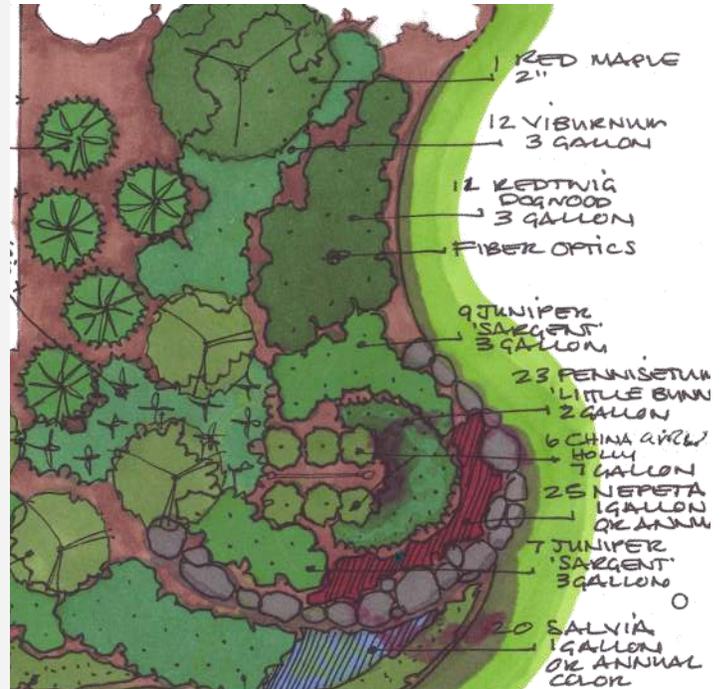
- B. **Proximity to Building, sidewalks, roads or overhead utilities:** Ensure that all existing trees and plants are kept trimmed away from any structures to avoid damage and beneath electric lines. Do not install new plantings too closely to buildings, sidewalks or roadways. New plantings beneath existing utilities should not grow to a height that would interfere with line maintenance.

6.3 Ease of Maintenance/Watering

- A. When planning new plantings, consideration should be made for how the **watering** will occur, whether the area is visible and accessible for mulching and maintenance.
- B. Note pathways and roadways for **delivering material**.

GENERAL DESIGN NOTES:

- When planting, **plant in odd-numbers:** groups of 3s, 5s, 7s for example.
- Install plants at **evenly spaced intervals** to produce the most professional appearance.
- Plant **taller things towards the back** and center. Plant shortest things in the front. Try not to plant taller growers in front of shorter ones to avoid blocking.
- Combine **evergreen and deciduous**, flowering and non-flowering for interest.
- To incorporate height, **add trees** and medium sized shrubs, as well as grasses.
- Choose a **narrow plant palette** and repeat instead of trying to add too many varieties. You will get greater impact by doing larger groups of fewer varieties.
- Choose commercially available plants, not specialty items. They are proven to survive in your climate with little hassle.



CHAPTER 7

Miscellaneous

7.1 Identifying Erosion

Erosion is the destabilizing of terrain caused primarily by moving water. Erosion can be unsightly and cause issues, especially around buildings. Some places to look for issues are:



A. **Drain pipes/downspouts around buildings.** If the water is running away from the foundation, it usually doesn't pose much of a problem. If, however, the lawn is graded back towards the building, water from the drains can direct back towards the foundation causing water to enter. **To Fix:** direct all drains away from structures and ensure that the soil is higher against the building, grading away from it to keep water flowing always away. Sometimes it is necessary to extend drains away from the structure by means of black corrugated drain tile or PVC.



B. **Steep hillsides.** When hillsides do not have well-established grass or planting beds to keep it from eroding, sever erosion can occur. **To Fix:** apply erosion control netting and install commercial grade contractor's mix seed. If erosion is severe, stone may be necessary to slow down the water.



CHAPTER 7

Miscellaneous

7.2 Identifying Common Weeds



Common Chickweed
(*Stellaria media*)



Henbit
(*Lamium amplexicaule*)



Knotweed
(*Polygonum aviculare*)



Broadleaf Plantain
(*Plantago major*)



Buckhorn Plantain
(*Plantago lanceolata*)



Dandelion
(*Taraxacum officinale*)



Ground Ivy
(*Glechoma hederacea*)



Mouse Ear Chickweed
(*Cerastium vulgatum*)



Red Sorrel (Sheep Sorrel)
(*Rumex acetosella*)

CHAPTER 7

Miscellaneous

7.2 Identifying Common Weeds



Violets
(*Viola, spp.*)



White Clover
(*Trifolium repens*)



Yellow Wood Sorrel
(*Oxalis stricta*)



Crabgrass
(*Digitaria spp.*)



Foxtail
(*Setaria spp.*)



Goosegrass
(*Eleusine indica*)



Japanese Stiltgrass/ Basketgrass
(*Microstegium vimineum*
var. *imberbe*)



Common Bermuda Grass
(Wire grass)
(*Cynodon dactylon*)



Dallisgrass
(*Paspalum dilatatum*)

CHAPTER 7

Miscellaneous

7.2 Identifying Common Weeds



Green Kyllinga
(*Kyllinga brevifolia*)



Nimblewill
(*Muhlenbergia schreberi*)



Purple Nutsedge
(*Cyperus rotundus*)



Yellow Nutsedge
(*Cyperus esculentus*)



Quackgrass
(*Elytrigia repens*)



Roughstalk Bluegrass
(*Poa trivialis*)



Wild Garlic
(*Allium vineale*)



Poison Oak



Poison Ivy

CHAPTER 7

Miscellaneous

7.3 Identifying Common Pests: BACTERIA, FUNGUS, VIRUSES

Leaf Spot-(may be bacterial or fungal)



Bacterial Spot: *Characterized by dark green, water soaked spots that may turn tan, dark brown, or black with a yellow border.*

Fungal Spot: *Generally have a dry appearance, can appear as shot holes.*



Leaf Rust



Scab



Powdery Mildew



Crown Gall

Abnormal growth as a response to an invading pathogen.



Fire Blight

CHAPTER 7

Miscellaneous

7.3 Identifying Common Pests: INSECTS



Aphids

(Families *Aphidae*,
Eriosomatidae, *Chermidae*)



Azalea Lace Bug

(*Stephanitis pyriodes*)



Bagworm

(*Thridopteryx ephemeraeformis*)



Bark Beetles

(Family *Scolytidae*)



Black Vine Weevil

(*Otiorhynchus sulcatus*)



Boxelder Bug

(*Boisea trivittata*)



Boxwood Leafminer

(*Monarthropalpus flavus*)



Boxwood Psyllid

(*Psylla buxi*)



Bronze Birch Borer

(*Agrilus anxius*)

CHAPTER 7

Miscellaneous

7.3 Identifying Common Pests: INSECTS



Dogwood Borer
(*Synanthedon scitula*)



Eastern Tent Caterpillar
(*Malacosoma americanum*)



Fall Webworm
(*Hyphantria cunea*)



Fungus Gnats
(Family Sciaridae)



Gypsy Moth
(*Lymantria dispar*)



Hemlock Woolly Adelgid
(*Adelges tsuga*)



Holly Leaf Miner
(*Phytomyza ilicicola*)



Japanese Beetle
(*Popilla japonica*)



Locust Leafminer
(*Odontota dorsalis*)

CHAPTER 7

Miscellaneous

7.3 Identifying Common Pests: INSECTS



Mealybugs
(Families *Pseudococcidae* & *Eriococcidae*)



Mites
(Order *Acarina*)



Pine Tip Moth
(*Rhyacionia frustrana*)



Scale Insects
(Family *Diaspididae* & *Coccidae*)



Thrips
(Family *Thripidae*)



Two Banded Japanese Weevil
(*Callirhopalus bifasciatus*)



Whiteflies
(Family *Aleyrodidae*)

*NOTE: All photographs of weeds, insects, etc are from bing.com.
Copyright ownership of photos is undetermined.*

CHAPTER 7

Miscellaneous

7.4 Identifying Beneficial Insects.

Beneficial Insects are insects that help to keep pests in check. They are natural predators them.



Lady Bug & Larva



Praying Mantis



Ambush Bugs



Larva of Common Lacewings



Ground Beetles



Robber Fly



Tachnid Flies



Small Wasps



Bees

*NOTE: All photographs of weeds, insects, etc are from bing.com.
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GLOSSARY

ANNUAL	A plant that completes its life cycle in one season. These are plants that must be replaced every year. <i>Examples would be pansies, begonias, coleus, etc.</i>
DEAD-HEADING	Refers to the removal of expired flower heads. When a flower has finished blooming and begins to die, the flower and stem can be removed to encourage more flowering or just to tidy up the plant.
HERBACEOUS	Refers to a plant that does not have woody branches above ground.
IPM	Integrated Pest Management is a holistic approach to managing pests that includes a variety of techniques from biological & environmental controls to chemical controls. The intent is to use the most natural controls to keep pest populations to an acceptable level with minimal chemical control and damage to beneficial insects.
PERENNIAL	A plant that returns every year from the roots. Growth tends to spread outward from the center and may be divided. May be woody or herbaceous. (<i>Examples would be sedum, coreopsis, salvia, lirioppe, etc.</i>)
PRUNE	The selective removal of branches of plants and trees to improve overall health or growth; removal of excess.
SPRING CLEANUP	Dedicated spring time cleanup of planting beds and mulched trees where plants are trimmed back while still dormant, beds are cleaned of weeds and trash, trench-edged and mulched. FALL CLEANUP is same but performed in the fall (if so desired by the county).
SUCKER	A growth that comes off of the roots of a plant, or under the soil.
TRIM	To shape a plant and make it neater in appearance. To remove excess.
WEED	Any plant that is not growing where it was intended. Although some plants are not considered weeds, if they have voluntarily begun to grow where they are not wanted, they would be considered a weed and should be removed.
WOODY	Refers to the density of the branches of a plant. A woody shrub would grow hard branches above ground.

IPM MONITORING FORM

DATE _____ PERSON MONITORING _____

LOCATION _____

Name of Plant	Condition of Plant*	Name of Pest Present	Abundance of Pest**	Degree of Damage***	Natural Enemies Present	Management Activities

- *Condition Rate: **E**=Excellent, **G** = Good, **F** = Fair, **P** = Poor
- **Abundance: **1**-Few, **2**-Abundant, **3**-Too Many to Count
- ***Degree of Damage: Minimal, Moderate, Widespread

RESOURCES & REFERENCES

PLANT IDENTIFICATION

- *United States Department of Agriculture (USDA)* : www.plants.usda.gov
- Any Michael Dirr Book
- Dave's Garden: www.davesgarden.com

INSECT IDENTIFICATION

- *Virginia Tech Cooperative Extension*: www.ext.vt.edu
- Rodale's Complete Guide to Organic Gardening book

SAFETY

- *Miss Utility*: www.va811.com or call 811. If digging on a property, call Miss Utility ahead of time to mark any public utilities. Will not mark private utilities (like irrigation and lighting). Takes up to 3 day to complete so plan for time.

PESTICIDES

- Virginia Department of Agriculture: www.vdacs.gov

GENERAL HORTICULTURE KNOWLEDGE FOR VIRGINIA

- *Virginia Tech Cooperative Extension*: www.ext.vt.edu
- *Virginia Nursery & Landscape Association*: www.vnla.org



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