ACCOUNTABILITY AND OVERSEEING MAINTENANCE CONTRACTS: NOVUS INTERNATIONAL

SWT DESIGN
CARRIE COYNE, ASLA
CARRIE COYNE – LANDSCAPE ARCHITECT, HORTICULTURALIST
SWT Design

• Team of twenty landscape architects, planners, horticulturalists
• Founded in parks and recreation
• Focus on sustainable design
• New sector of maintenance management
NOVUS INTERNATIONAL SWT DESIGN

- Owner
- Nutritional Products
- Livestock, Pets & People
- Sustainable Focus

LANDESIGN, LLC

- Landscape Architect
- Horticultural Mediator
- Contract Manager
- Maintenance
- Landscaping
- Residential / Commercial
- Construction / Design-Build

PROJECT INTRODUCTION
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DEVELOPING A PLAN FOR OVERSEEING MAINTENANCE CONTRACTS

- Create plan for success
- Develop framework for accountability
- Ongoing contract management
PLANNING FOR SUCCESS
ESTABLISH SITE GOALS

- Physical example of corporate commitment to sustainability
- Maintain enjoyable outdoor amenity
- Foster healthy ecosystems, natural habitats
- Human health and well-being
UNDERSTAND SITE CONDITIONS

• Soils
• Hydrology
• Native habitats
• Site uses
• Site context
• Connectivity

PLANNING
Soil Map

Note:
Colors represent pre-construction soil sample zones. Numbered markers are the approximate locations where samples were taken for each zone.
WEED CONTROL THRESHOLD ZONE MAPS

- High Impact Visibility Areas
- Medium Impact Visibility Areas
- Low Impact Visibility Areas

PLANNING
MAINTENANCE GOALS

- Soil, Water, and Habitat Stewardship
- PHC – Plant Health Care
- IPM – Integrated Pest Management
- Short and long term aesthetic tolerances for establishment period and climax state
FRAMEWORK FOR ACCOUNTABILITY
CREATE FRAMEWORK FOR ACCOUNTABILITY

- Client education
- Contractor partnership
- Thorough Specifications

Novus International Site Improvements
SWT Design No. 09-062
February 2010
Construction Documents

SECTION 329400 – GROUNDS MAINTENANCE SERVICES

Note: Any changes made after February 09, 2010 are underlined and in larger font which will be part of Appendix #1

PART 1 - GENERAL CONDITIONS

1.1 SCOPE OF WORK
   A. The following landscape maintenance specification shall be agreed upon for a (3) year period beginning immediately after Substantial Completion.

1.2 RELATED DOCUMENTS
   A. See for "Landscape Maintenance Task and Frequency Schedule Matrix" at the end of this document.
   B. Refer to the following sections for more information:
      1. Plant and Greenroof – Section 329500
      2. Native Seed and Soil – Section 329200

1.3 SCOPE OF WORK
   A. The scope of maintenance work will include the following components:
      1. All general conditions required by SWT Design and Owner
      2. Turf Maintenance
      3. Native Seed Maintenance
      4. Perennial Planting Maintenance
      5. Mulching
      6. Watering
      7. Weed Control
      8. Insect Disease Control
      9. Pruning
      10. Lawn and Native Plant Overseeding
      11. Storm Debris Removal
      12. Pest Control
      13. Replacement of Plants
      14. Other Controls
      15. Sectional Soil Test for Planting Areas

   B. The contractor shall provide lawn maintenance, native plant maintenance, litter removal, mulching, watering, weed and pest control services for SWT Design on behalf of the Owner for the area defined within the Construction Documents.

   C. The contractor shall not engage or use the services of subcontracts in performing the contract, unless noted and approved by the SWT Design and Owner’s representative(s).

   D. The contractor shall be responsible for all supervision required to satisfactorily perform the requirements of the contract.
FRONT END
- Contract duration
- Scope of work
- Quality assurance
- Liability

SERVICES
- Plant Stewardship
- Invasive Plant Species Management
- Organic Materials Management
- Soil Stewardship
- Water Use and Irrigation
- Stormwater BMP Management
- Snow and Ice Management
# MAINTENANCE TASK MATRIX

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PLANT STEWARDSHIP

• Understanding existing plant material
• General grounds clean-up and weeding
• Pruning
• Fertilizing
• Mulching
• Plant Division and Staking
• Understanding common weed pests
• Understanding common insect pests
• Understanding common disorders: foliar, stem, root, and trunk

Insect Infestations Common to Region
Gypsy Moth

General Description and Host: The gypsy moth is the most significant tree-detrimental insect in the eastern U.S. and is slowly expanding its range to include Missouri. Gypsy moth caterpillars have very large appetites and are capable of defoliating on 100 species of trees and shrubs. The caterpillars defoliate trees quickly and are best controlled when their populations are at low levels. Gypsy moth caterpillars do not build tents. The adult moths are active during daylight hours and the adult male may be observed as an active brown moth flying about in a zig-zag pattern. The large off-white female moth does not fly but may be observed crawling on the ground or clinging to the back of trees.

Gypsy moth caterpillars feed on leaves of their preferred host plants, most species of oak. As they increase in size, they are capable of defoliating entire trees. Older caterpillars will feed on the foliage of trees that younger caterpillars avoid. Caterpillars attain a size of 3 inches and are hairy with a large head. Prominent blue dots followed by red dots are distinguishable along the back. Gypsy moths can be serious pests of oak trees and will readily feed on birch, willow, hawthorn, fruit trees, and many shrubs. The caterpillars are best controlled when their populations are at low levels.

Life Cycle: Egg masses are laid during July on the underside of branches, on tree trunks, new wood, or another shady spots. They may also be deposited on recreational vehicles, which facilitate the spread of gypsy moth when they are moved to another site. The egg masses overwinter and caterpillars emerge from egg masses beginning the following April. Caterpillars feed up to the top of the trees and begin to feed by chewing small phylides in the tender, young leaves. As the caterpillars get older, they begin to feed at night. At dawn they crawl down the tree and rest in the leaf litter, returning to the tree top at dusk. Caterpillars defoliate trees for 6-8 weeks and pupate for 1-2 weeks in leaf litter in late June to mid-July. Adult moths emerge from pupation and are present from July into August. The female gypsy moth is off-white and does not fly. The smaller male moth is brown and is active during daylight hours.

Integrated Pest Management Control: It is important to maintain plant health. Young healthy trees can withstand one to three defoliations with minimal damage. Older trees may not be able to withstand more than one defoliation.

Tree trunks can be wrapped with burlap bands or sticky bands in early June to trap the older gypsy moth caterpillars as it tries to climb the canopy to tidying places on the ground. Remove trapped caterpillars daily. Sticky bands have to be replaced periodically.

Bacillus thuringiensis kurstaki (Btk) is a biological insecticide that kills caterpillars. Spray 8% on the leaves of the tree at the time the Spirea x

https://www.moskitov.net/gardeningsite/guide/guide/GPM_camp/gtcsp/Feed_Mojo.html
INTEGRATED PEST MANAGEMENT

- Control through planning
- Control through cultural practices
- Control through physical means
- Control through biological means
- Control through pesticides
INVASIVE PLANT MANAGEMENT

• Understanding local invasives

INVASIVE PLANTS COMMON TO REGION
Citrus arvense - Canada Thistle

Plant Characteristics: A 2 to 5 foot tall forb with deep, wide spreading, horizontal roots. The groundcover, slender stems branch only at the top, becoming covered with hair as the plant grows. The oblong, tapering, entire leaves are deeply divided, with prickly margins. Leaves are green on both sides with a smooth or slightly downy lower surface. Numerous small, compact (three-quarter inch), rose-purple or white flowers appear on upper stems from June to September. Seeds are small (three-sixteenths of an inch long), light brown, smooth and slightly tapered, with a tuft of tan hair loosely attached to the tip.

Distribution: Naturalized from Europe, occurs throughout the northern U.S. east of the Rocky Mountains. It is scattered throughout the northern two-thirds of Missouri.

Habitat: Does best in disturbed areas (overgrazed pastures, old fields, waste places, fence rows, along roadways). It sometimes occurs in wet areas where water levels fluctuate (along stream banks and ditches). It can invade edge meadows and wet prairies from adjacent disturbed sites. This thistle does not do well in undisturbed prairies, good to excellent pastures, or in woodland. Plants are tall and lax, with few flowers, on sites that are shaded most of the day.

Life Cycle: This dioecious, weakly perennial occurs in patches, commonly in disturbed areas. Introduction to new areas occurs mostly by wind-born seed or sometimes by run-off in ditches. It spreads rapidly by rhizomes or root segments. Lateral roots 3 or more feel deep spread from a fibrous taproot. Aerial shoots are sent up 2 to 6 inch intervals. Basal leaves are produced the first year. Flowering stems the next. Pollination is mostly by honeybees, and wind pollination is limited. Most seeds germinate within one year. Some seeds immediately produce rosettes before winter and emerge to flower the next spring. Seeds remain viable in soil up to 20 years in some cases. Emergence occurs in early May, with bolting in mid-to-late June. As frequency of Canada thistle increases at a site, species diversity decreases, possibly due to allelopathic substances.

ORGANIC MATERIALS MANAGEMENT

- Healthy and diseased material disposal
- Kitchen garden plant material disposal
- Reduction of bio-mass for fire prevention
SOIL STEWARDSHIP

- Reduce erosion
- Chemical alteration reduction
- Balanced soil health
- Soil testing
- Soil compaction and aeration
WATER USE AND IRRIGATION

- Typical water consumption
- Temporary irrigation
- Vegetable garden irrigation

Novus International Water Monitoring - 2011

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STORMWATER MANAGEMENT

- BMP maintenance
- Water feature monitoring and treatment
SNOW AND ICE MANAGEMENT

- Chemical use
- Stockpile delineation
WEEKLY SITE INSPECTIONS

- Performed by contractor
- Weekly report of activities
- Submitted to client

CONTRACT MANAGEMENT
MONTHLY SITE OVERVIEW

- Performed by landscape architect
- Report of site condition
- Submitted to client

CONTRACT MANAGEMENT
ANNUAL RE-EVALUATION AND ADAPTIVE MANAGEMENT

• Performed by landscape architect and contractor
• Review report documents and site conditions
• Identify: successes, failures, problem areas
• Review: goals, budgets, schedules

CONTRACT MANAGEMENT
SUCCESSFUL CONTRACT MANAGEMENT

- Plan for maintenance success
- Create framework for accountability
- Manage, monitor, and re-evaluate
QUESTIONS
CONCLUSION