

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 HEADQUARTERS: PROJECT INTRODUCTION



NOVUS INTERNATIONAL SWT DESIGN

- Owner
- Nutritional Products
- Livestock, Pets & People
- Sustainable Focus
- Landscape Architect
- Horticultural Mediator
- Contract Manager

LANDESIGN, LLC

- Maintenance
- Landscaping
- Residential / Commercial
- Construction / Design-Build



PROJECT INTRODUCTION





SITES[™]
PILOT PROJECT
SUSTAINABLE **SITES** INITIATIVE[™]

PROJECT INTRODUCTION





View Northwest Towards Service Yard



View Southeast from Edge of Parking Field



View South Along Research Drive



Parking 'Bioswale'



View Northwest From Edge of Existing Woodland Path



View Southeast Over Parking Field



View From End of Northeast Entry Walkway



View From Southwest Corner of Auto Court Down Entry Drive



View Northeast From Research Park Drive



View North Over Detention Pond

PROJECT INTRODUCTION



DEVELOPING A PLAN FOR OVERSEEING MAINTENANCE CONTRACTS

- Create plan for success
 - Develop framework for accountability
 - Ongoing contract management

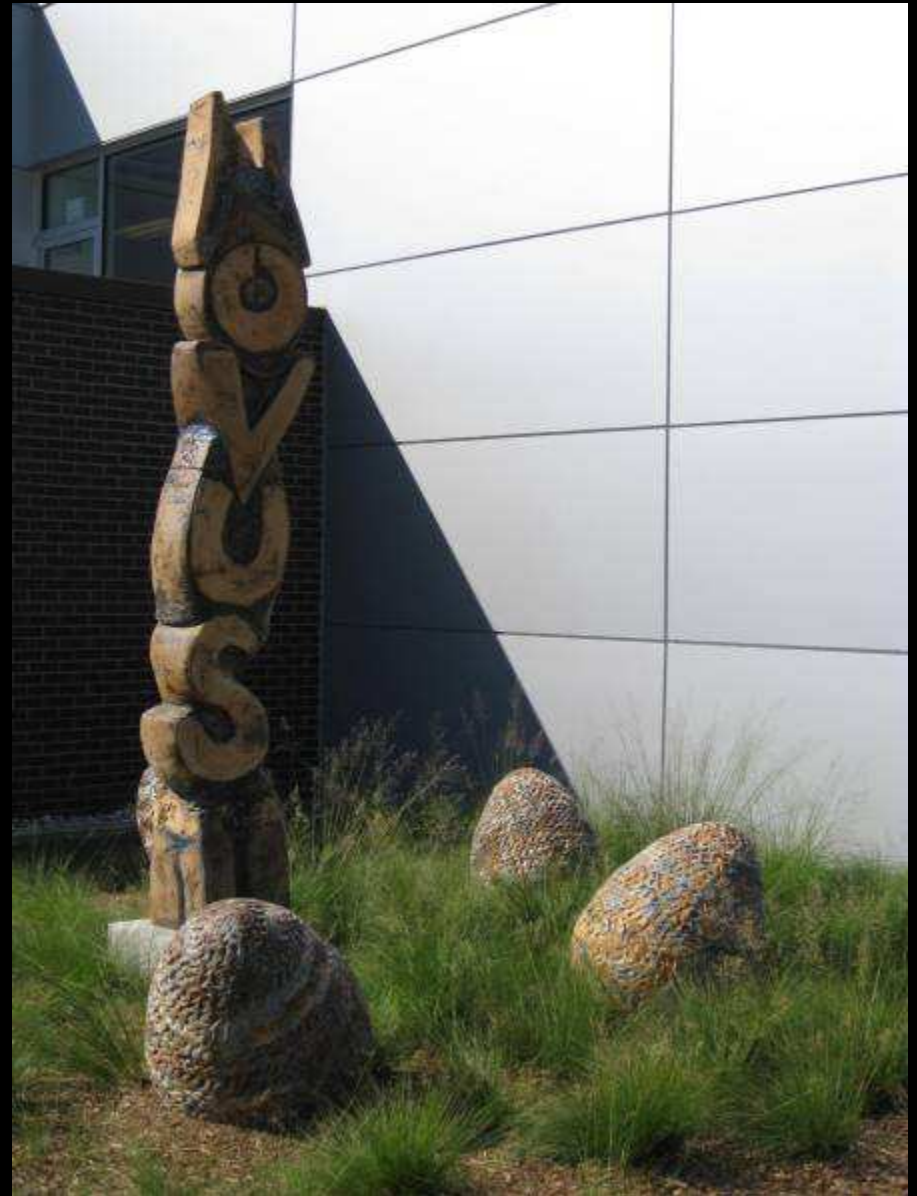


PLANNING FOR SUCCESS

The image features a solid teal background at the top, which transitions into a black background at the bottom via a smooth, wavy horizontal line. The text 'PLANNING FOR SUCCESS' is centered in the teal area in a white, sans-serif, all-caps font.

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

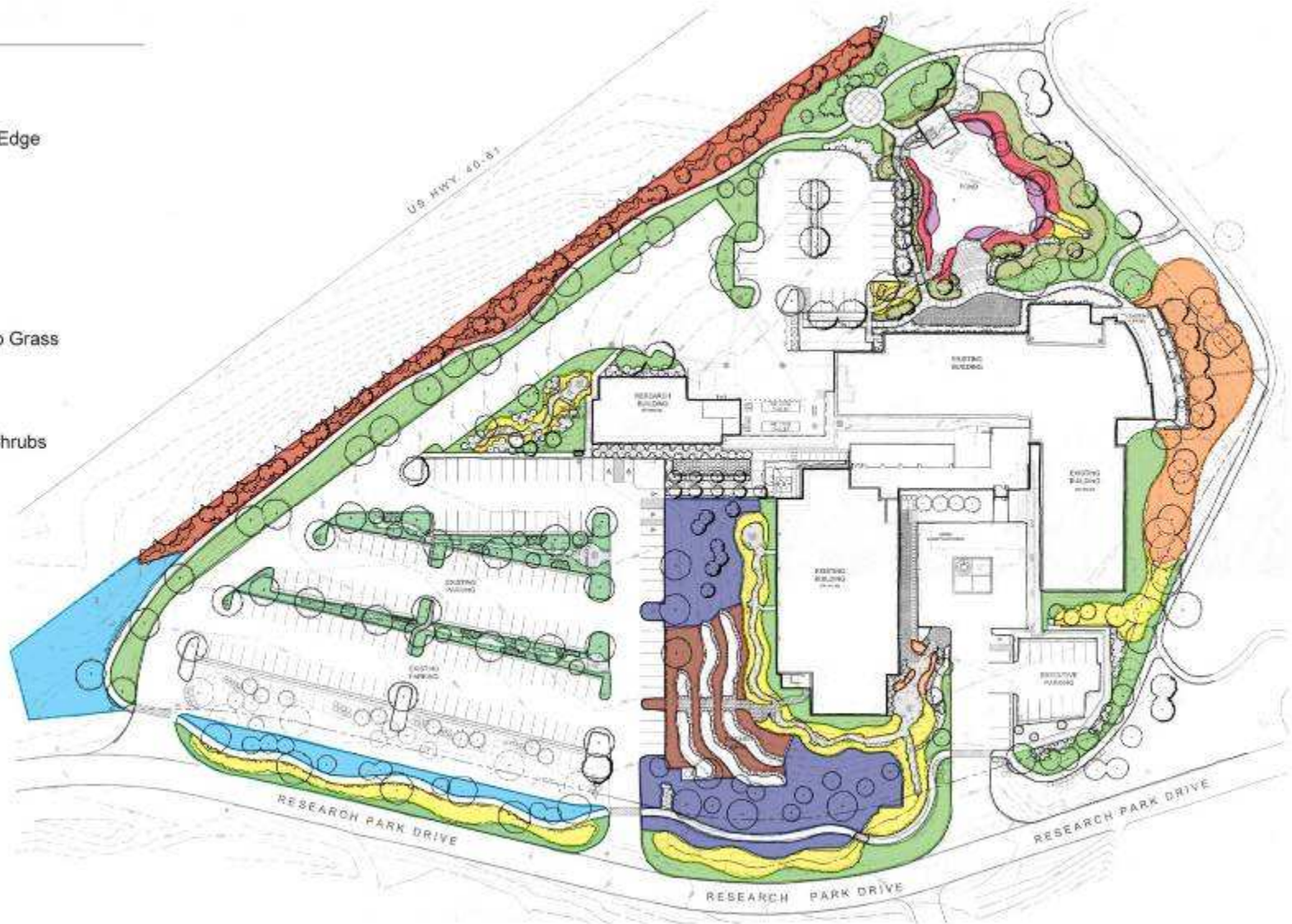
- Soils
- Hydrology
- Native habitats
- Site uses
- Site context
- Connectivity



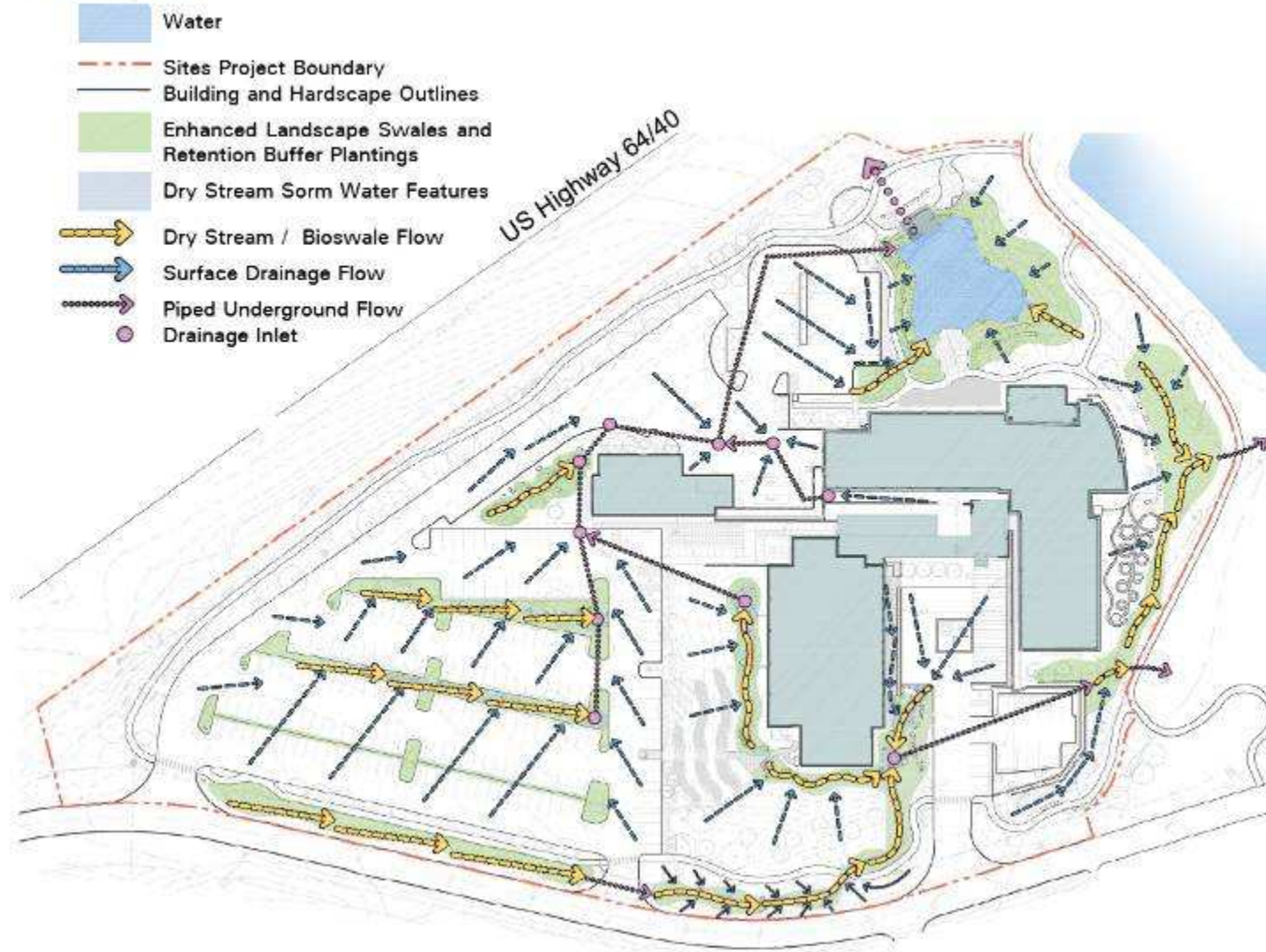
PLANNING

PLANT ZONE LEGEND

-  No Mow Lawn Mix
-  Hedgerow Woodland Edge
-  Short Prairie Mix
-  Bioswale Plug Mix
-  Parking Lot Bioswale Supplementation
-  Overseed With Buffalo Grass
-  Buffalo Grass Sod
-  Native Grasses And Shrubs
-  Mesic Prairie
-  Emergent Aquatics
-  Aquatic Pocket
-  Upland Slope





HYDROLOGY MAP

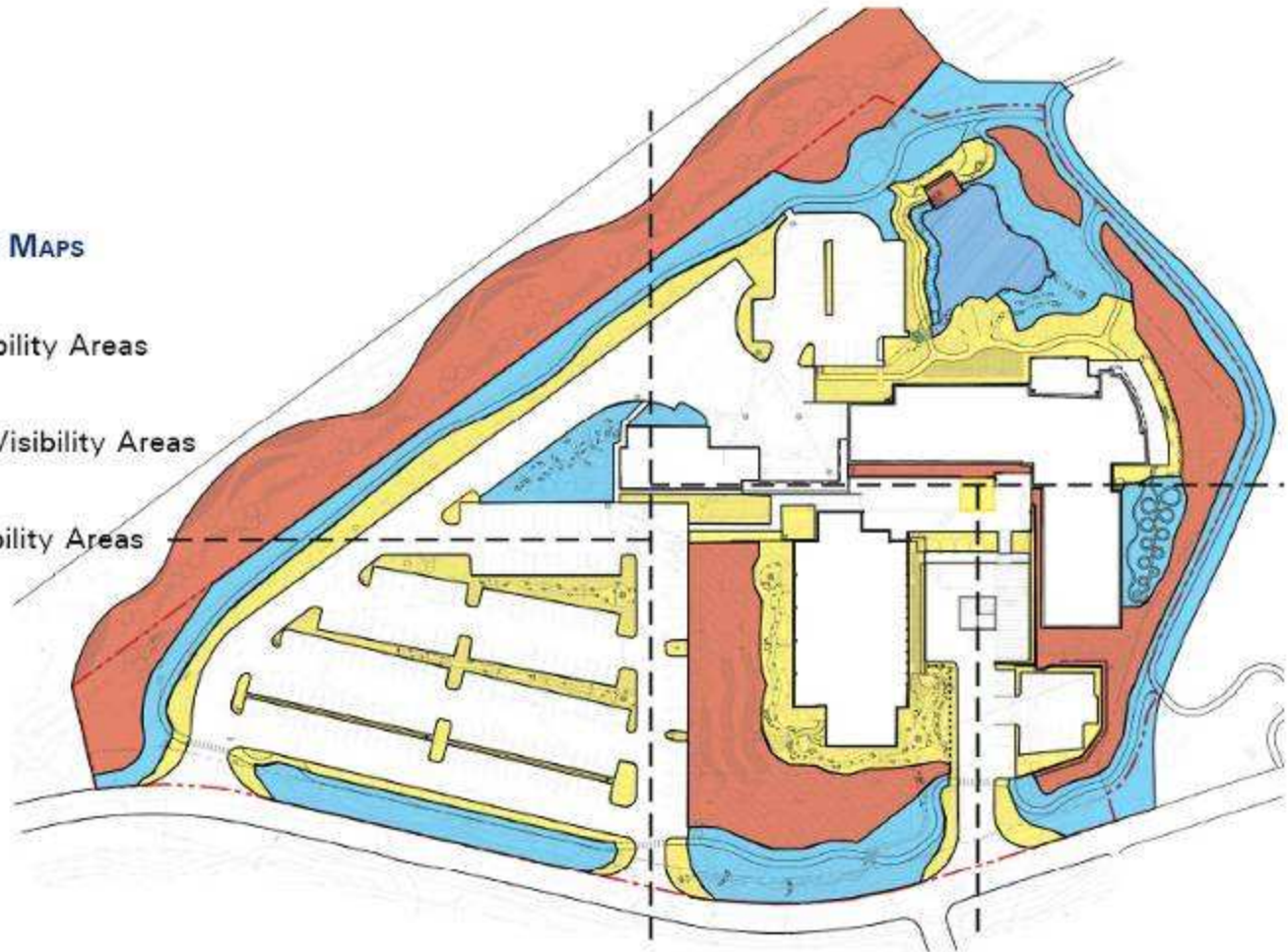


Note:
Colors represent pre-construction soil sample zones. Numbered markers are the approximate locations where samples were taken for each zone.



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

The image consists of a solid teal upper section and a solid black lower section. A wavy, undulating line separates the two colors, creating a horizon-like effect. The text 'FRAMEWORK FOR ACCOUNTABILITY' is centered in the teal area in a white, sans-serif font.

CREATE FRAMEWORK FOR ACCOUNTABILITY

- Client education
- Contractor partnership
- Thorough Specifications



Novus International Site Improvements
SWT Design No. 09-062

February 2010
Construction Documents

SECTION 32 9400 - GROUNDS MAINTENANCE SERVICES

Note: Any changes made after February 28, 2010 are underlined and a larger font which will be part of Addendum #1

PART 1 - GENERAL CONDITIONS

1.1 SCOPE OF WORK

- A. The following landscape maintenance specification shall be agreed upon for a (3) three 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 32 9300
 2. Native Seed and Sod - Section 32 9200

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. Fertilization
 6. Mulching
 7. Watering
 8. Weed Control
 9. Insect and Disease Control
 10. Pruning
 11. Lawn and Native Plant Overseeding
 12. Storm Debris Removal
 13. Leaf Removal
 14. Replacement of Plants
 15. Litter Control
 16. Seasonal Soils 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 subcontractors 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.

SWT Design

32 9400 - 1

FRAMEWORK



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

	Time	Jan	Feb	March	April	May	June	Jul	Aug	Sep	Oct	Nov	Total
Functions													
Turf Maintenance													
Mowing				1	0	1	0	1	0	1	0	1	5
Turf Fertilization and weed control				1						1			2
Turf Aeration										1			1
Planting Maintenance													
Tree and shrub fertilization				1							1		2
Tree pruning		1						1					2
Shrub pruning					1						1		2
Mulch application				1							1		2
Weed control application					1	1	1	1	1	1	1		7
Fertilization					1	1	1	1	1	1	1		7
Weekly bed maintenance				1	1	1	1	1	1	1	1		8
Native Overseeding				1						1			2
Weekly site inspection and clean-up		4	4	4	4	4	4	4	4	4	4	4	44
Spring cleanup				1									1
Fall cleanup												1	1
Tree & shrub insecticide					1	1	1	1	1	1			6
General Site Inspection		4	4	4	4	4	4	4	4	4	4	4	44

PLANT STEWARDSHIP

- Understanding existing plant material
- General grounds clean-up and weeding
- Pruning
- Fertilizing
- Mulching
- Plant Division and Staking

EXISTING PLANT MATERIAL Trees

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Scientific Name	<i>Aesculus pavia</i>	Common Name	Red Buckeye
Plant Family	Hippocastanaceae		
Plant Genus	Horse Chestnut		
Summer Leaf	Green	Height	12 - 15
Fall Leaf	No change	Spread	12 - 15
Bloom Color	Red	Exposure	Full sun to part shade
Bloom Time	April to May	Moisture	Medium
Fruit	Brown	Soil & Climate	Tolerates average, well-drained soils; prefers moist fertile soils; prefers some shade in hot summer climates
Growth Rate	Medium		
Hardiness Range	Zone (5/6 - 9)		
	Attributed and Features North American Native Can be used as a hedge Attracts hummingbirds Seeds are poisonous Not prone to mildew like other members of <i>Aesculus</i> genus, but may contract leaf blotch		

Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses by Michael A. Dirr
Missouri Botanical Garden: <http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?code=J210>

- Understanding common weed pests
- Understanding common insect pests
- Understanding common disorders: foliar, stem, root, and trunk

Root & Trunk Disorders Common to Region
Oak wilt

Host Plant: Black Oak Group including Red, Black, Burckett, and Pin Oaks is more susceptible than the White Oak Group (WOG). Red, Chinkapin, and Swamp Oaks.

Life Cycle: The fungus spreads through the water conducting vessels of the sapwood. The tree is susceptible to the presence of the fungus results in the disruption of sap flow, and the affected areas wilt. Oak wilt can spread to healthy trees through natural grafts with roots of adjacent oaks of the same species up to 30 feet apart. Root grafts join together the vascular systems of the trees, forming a network through which the disease can spread. The disease can also spread by sap-feeding beetles that transport spores of the oak wilt fungus from infected trees to healthy ones.

Recognitions and Signs: The first symptoms include a dull-green appearance of wilted leaves. Later, wilted leaves curl and turn tan or brown, beginning at the outer portions of the leaves. The base of the leaf and the main vein will remain green for some time. Defoliation may be delayed for weeks. Pruned tops or a cut branch from an infected tree may show a brown or black discoloration at the outer annual sapwood ring.

Integrated Pest Management Strategies:

1. There is no cure for the disease. If oak wilt is suspected, a laboratory test is needed to make a positive diagnosis. Contact an arborist or an extension office on sampling procedures and fees associated with the laboratory testing. Samples of healthy wilted stems (not dead) about 1/2 to 1 inch in diameter and 6-10 inches in length are needed for the laboratory test.
2. Sealed root grafts: Destroying root grafts with chemicals or by mechanical means can slow the spread of the disease from diseased to healthy oak trees. Since there is a delay between infection and the appearance of symptoms, destroying root grafts is a gamble. Root grafts do not occur between the black oak and white oak groups.
3. Improve plant vigor: Your best defense against getting oak wilt is to keep your oak trees, especially oaks in the black oak group, healthy. If your oak trees do not appear in the best of health, have an arborist or extension office evaluate their health and recommend a course of action. Most cases of white oaks may respond to pruning of diseased wood plus fertilizing and watering to increase plant vigor.
4. Avoid pruning or reducing the tree between mid-March and late June. During this time of year, insects carrying the disease are attracted by the sap which flows freely from wounds. The safest time to prune oaks is during winter before mid-March.
5. Plant white oaks rather than the more susceptible black oaks. If you do plant black oaks, be certain they are more than 50 feet apart to eliminate future disease spread via root grafts. Limit black oak use where oak wilt is prevalent.

<http://www.missouri.org/extension/gardening/04/04sp/04sp0101/>

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Weeds Common to Region
Lamb's-quarters

Host Plant: A member of the mallow family, it is an upright winter annual that blooms in the spring. The leaves are rounded on the sides and with rounded toothed edges that grow opposite one another on square stems. Upper leaves lack petioles. Herbs can grow from 4 to 12 inches tall on weak stems. Although an upright plant, weak stems sprouting from the bottom may lay almost horizontal.

Herbicide Use: Herbicide can be applied with purple deadnettle. The leaves of purple deadnettle, however, are more pointed at the tip and are slightly scalloped. The lower leaves of purple deadnettle are long petioles. The upper leaves are on short petioles. The flowers of herbicide are purple, tubular shaped and form in the axils of the upper leaves. Herbicide spreads only by seed and is generally not a problem in dense, vigorous turf grass sites.

Cultural Practices: Herbicide can be highly competitive in newly seeded areas and then or dormant turf. Herbicide thrives in cool, moist areas. Growing conditions can be made less favorable by lightening the soil or otherwise improving drainage, especially in shady areas. Heavy, constant shade should be lightened as well where possible. Shady areas should be planted with turf grass species which do well in the shade and which will provide maximum competition to weed species which invade shady areas.

Herbicide Use: Use a selective post-emergent herbicide taking care to follow safety intervals of treating newly seeded areas. Optimum control will be obtained when herbicide is actively growing and in the seedling to flower stage of growth.

<http://www.missouri.org/extension/gardening/04/04sp/04sp0101/>

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INSECT INFESTATIONS COMMON TO REGION Gypsy Moth

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General Description and Host: The gypsy moth is the most significant tree-defoliating 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 feeding on 500 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 doesn't fly but may be observed crawling on the ground or clinging to the bark 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 can attain a size of 2 inches and are hairy with a beige 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, firewood, or in other 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 climb up to the tops of the trees and begin to feed by chewing small pinholes 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 treetop at dusk. Caterpillars defoliate trees for 6-8 weeks and pupate for 7-14 days 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 caterpillar as it trunks from the canopy to hiding 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 Btk on the leaves of the tree at the time the *Spiraea* x

<http://www.missouri.org/extension/gardening/04/04sp/04sp0101/>

INTEGRATED PEST MANAGEMENT

- Control through planning
- Control through cultural practices
- Control through physical means
- Control through biological means
- Control through pesticides



FRAMEWORK

INVASIVE PLANT MANAGEMENT

• Understanding local invasives



INVASIVE PLANTS COMMON TO REGION Cirsium arvense - Canada Thistle

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Control Recommendations: Prescribed fire can be effective in controlling this species and is a preferred treatment. Late spring burns, between May and June, are most detrimental to this noxious weed and should be used when possible. Prescribed burns to control this plant should not be conducted early in the spring, as early spring burns can increase sprouting and reproduction of this species. During the first 3 years of control efforts, burns should be conducted annually. Management practices that maintain and encourage the development of healthy stands of native species will help prevent establishment of Canada thistle or help shade and weaken plants in areas already infested. Repeated and frequent pulling or hand-cutting of individual plants will eventually starve underground stems. Cutting or pulling should be at least 5 times each season, in June, August, and September. This treatment is feasible for light and moderate infestations, but may be relatively time consuming in heavy infestations. Hand application of the amine formulation of 2,4-D according to label instructions can control this plant. Individual plants of Canada thistle should be treated with a neck applicator or hand sprayer. This herbicide 2,4-D amine is selective for broadleaf plants. To reduce vapor drift, use an amine formulation of 2,4-D rather than an ester formulation. Precautions should be taken to avoid surrounding non-target plants with the solution. Do not spray so heavily that herbicide runs off the target species. The herbicide should be applied while working away from the areas to avoid walking through the wet herbicide. By law, herbicides may only be applied as per label instructions.

Additional Comments:

- Failed or Ineffective Practices:
 - Fire early in the growing season can increase sprouting and reproduction. Prescribed burns in late spring are effective, as discussed previously.
 - Tillage disturbance of soil may provide ideal conditions for germination and for introduction of other exotics.
 - Grazing is not an effective control measure as the plants prevent livestock from grazing near Canada thistle.



<http://mdc.mo.gov/land-water/core/invasive-species-management/invasive-plant-management/canada-thistle-control>

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INVASIVE PLANTS COMMON TO REGION Cirsium arvense - Canada Thistle

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Plant Characteristics: A 2 to 5 foot tall forb with deep, wide spreading, horizontal roots. The grooved, slender stems branch only at the top, becoming covered with hair as the plant grows. The oblong, tapering, sessile 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 roadsides). It sometimes occurs in wet areas where water levels fluctuate (along stream banks and ditches). It can invade sedge 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, weedy perennial occurs in patches, commonly in disturbed areas. Introduction to new areas occurs mostly by windborn seed or sometimes by run-off in ditches. It spreads rapidly by rhizomes or root segments. Lateral roots 3 or more feet deep spread from a fibrous taproot. Aerial shoots are sent up at 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.



<http://mdc.mo.gov/land-water/core/invasive-species-management/invasive-plant-management/canada-thistle-control>

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FRAMEWORK

ORGANIC MATERIALS MANAGEMENT

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



FRAMEWORK

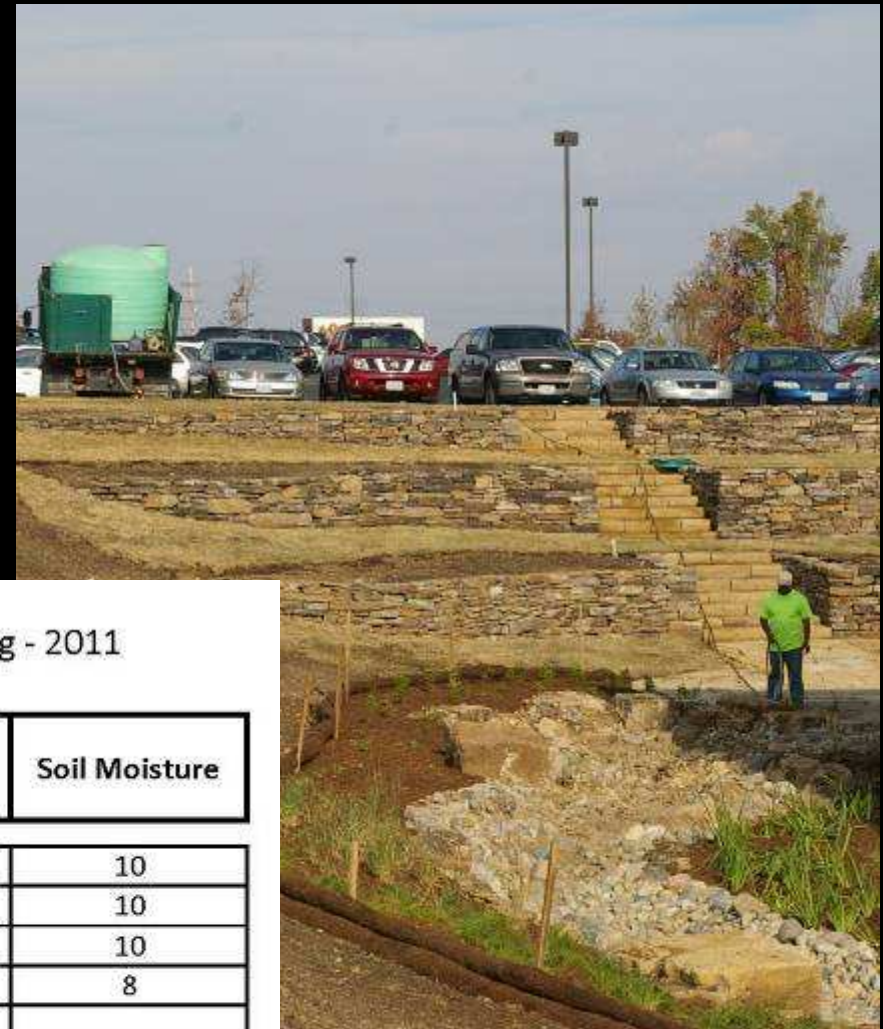
SOIL STEWARDSHIP

- 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

Month	Week	Rainfall (inches)	Snowfall (inches)	Soil Moisture
March	1	0	0	10
	2	0	4"	10
	3	.5"	0	10
	4	0	0	8
April	1	0.3	0	7
	2	1	0	10
	3	2.9	0	10
	4	2.5	0	10

FRAMEWORK

STORMWATER MANAGEMENT

- BMP maintenance
- Water feature monitoring and treatment



FRAMEWORK

- Chemical use
- Stockpile delineation



CONTRACT MANAGEMENT

The image is a graphic design featuring a teal upper section and a black lower section, separated by a wavy horizontal line. The text 'CONTRACT MANAGEMENT' is centered in the teal area in a white, sans-serif font.

WEEKLY SITE INSPECTIONS

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

NOVUS INTERNATIONAL HEADQUARTERS
HARDSCAPE MAINTENANCE ACTIVITY



DATE: _____

WEATHER CONDITIONS: _____

WORK PERFORMED BY: _____

MAINTENANCE WORK PERFORMED: <small>(CHECK ALL THAT APPLY)</small>	EQUIPMENT USED:
<input type="checkbox"/> GENERAL CLEAN UP	_____
<input type="checkbox"/> PAVING MAINTENANCE	_____
<input type="checkbox"/> SITE FURNISHING MAINTENANCE	_____
<input type="checkbox"/> POND EQUIPMENT MAINTENANCE	_____
<input type="checkbox"/> LIGHTING MAINTENANCE	_____
<input type="checkbox"/> OUTDOOR STRUCTURE MAINTENANCE	_____
<input type="checkbox"/> WALKING TRAIL MAINTENANCE	_____
<input type="checkbox"/> TRASH RECEPTACLE PICK UP	_____
<input type="checkbox"/> OTHER: _____	_____

CONDITION MONITORING:
(NOTE ANY VISIBLE SYMPTOMS OF WEAR OR DEGRADATION THAT NEED TO BE MONITORED. IDENTIFY LOCATION AND ITEM AFFECTED INCLUDING THE SEVERITY OF ISSUE.)



NOVUS INTERNATIONAL MAINTENANCE LOG

TODAY'S DATE: 8/5/2011

WEATHER DESCRIPTION Rain .30 inches

LOCATION ON SITE: All Over

MAINTENANCE WORK PERFORMED: CHECK ALL THAT APPLY

EQUIPMENT USED

<input checked="" type="checkbox"/> Weeding		Hands
<input checked="" type="checkbox"/> Watering	Total Gallons used: 1100	Tank On Truck
<input checked="" type="checkbox"/> General Cleanup		_____
<input type="checkbox"/> Mowing / Aeration		_____
<input type="checkbox"/> Mulching		_____
<input type="checkbox"/> Pruning		_____
<input type="checkbox"/> Overseeding / Plant replacement		_____
<input type="checkbox"/> Other: _____		_____

CHEMICAL APPLICATIONS

<input type="checkbox"/> Fertilizer Application	List product / quantity: _____
<input type="checkbox"/> Pesticide Application	List product / quantity: _____
<input type="checkbox"/> Herbicide application	List product / quantity: _____
<input type="checkbox"/> Other	List product / quantity: _____

NOTES / OBSERVATIONS: Please note action items for next visit.

Did site walk through and picked up trash , pulled weeds where needed , deep watered trees , checked rain gauge , and took soil moisture reading (averaged an 8) .

Tuesday : Pull weeds and spot spray where needed .

Friday : Pull weeds , do site check , pickup trash , soil moisture check , and finish cleaning right of way beds .

PERSONNEL PERFORMING WORK: _____

CONTRACT MANAGEMENT



MONTHLY SITE OVERVIEW

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



CONTRACT MANAGEMENT

NOVUS SITE MAINTENANCE REVIEW



In Attendance: Carrie Coyne (SWT)
Chris Moon (SWT)
Date/Time: June 1, 2011 (8:00am)
Submitted by: Carrie Coyne (SWT)
Submittal date: June 7, 2011
Submitted to: Ed Roebuck (Novus)
Mark Sykora (Novus)
Ted Speld (SWT)
Chris Moon (SWT)

Below is an account of observations made while on site to review maintenance procedures, site conditions and plant health on the Novus International Headquarters Campus. This list contains items that need immediate attention and items that need continual monitoring.

General / Overall Site Issues:

- There are many weeds present in mulched planting beds. All planting beds shall be weeded on a weekly basis. Weeds shall be hand pulled.
- Dead wood in all shrubs and trees (fles in particular) shall be removed using standard pruning practices.
- No-Mow seed along Research Park Drive has not established. It shall be reseeded.
- Trash and debris, including large sticks, and branches shall be removed from planting beds.
- Remove all mulch fungus growths in highly visible locations.
- Reduce mulch levels around all trees so that there is NO mulch touching the trunk of the trees.

Specific Site Issues:

(Each item numbered below relates to an item number included on the map at the end of this document.)

- Vibeds present between walls. Remove.
- Annual vines are growing on the shade structure. Novus shall confirm their desire to remove the vine.
- Mulch on new sedum planting has washed away. Bed shall be remulched.
- Annual vine and Parthenocissus are choking lites and growing on the shade structure. Annual vines shall be eliminated. Parthenocissus shall be removed from the shrubs and continually checked to ensure it isn't choking the shrubs. Novus shall confirm their desire to remove the vine from the shade structure.
- There are many weeds present in the plugged area. Weeds shall be removed.
- Mulch sock is broken in this location. Review and repair all mulch socks where broken. Cut stakes holding socks down to the level of the sock. Monitor all socks.

SWT Design

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6/7/11



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

NOVUS SITE MAINTENANCE REVIEW	
In Attendance:	Carrie Coyne (SWT)
Date/Time:	June 28, 2011 (8:30am)
Submitted by:	Carrie Coyne (SWT)
Submitted date:	July 3, 2011
Submitted to:	Cid Roebuck (Novus) Mark Sylone (Novus) Ted Speck (SWT) Chris Moon (SWT)

Below is an account of observations made while on site to review maintenance procedures, site conditions and plant health on the Novus International Headquarters Campus. The list contains items that need immediate attention and items that need continual monitoring.

General / Overall Site Issues:

- 1) Weeds are present in many mulched planting beds. However, the dry stream surrounding the building is particularly weedy and should be addressed ASAP. (Repeat)
- 2) Dead wood is present in a few trees and in tree shrubs. Dead wood shall be removed using standard pruning practices. (Repeat)
- 3) No-flow seed along Research Park Drive has not established. It shall be reseeded. (Repeat)
- 4) Reduce mulch levels around all trees so that there is NO mulch touching the trunk of the trees. (Repeat)
- 5) Dead trees were removed. Stumps and bolls are still present. Bolls shall be removed and plants replaced in the fall.

Specific Site Issues:
(Each item numbered below relates to an item number included on the map at the end of this document.)

- 1) Most Hawthorn on site have serious case of rust. As noted previously, these trees should be monitored. They could be treated in the spring, prior to leaf out, but the chances of eradicating the problem are slim. Usually, rust does not kill a plant only reduces vigor.
- 2) Mulch is too high on Hawthorn. Mulch shall be lowered.
- 3) There is debris/mulch in the parking lot corners. Debris shall be removed.
- 4) There are weeds present in Sedum and ornamental grass plantings. Weeds shall be removed.
- 5) Annual vine is growing on trellis structure. Novus shall confirm removal and contractor shall remove if desired. (Repeat)
- 6) Mulch and gravel debris in corner of paved area. Debris shall be removed.
- 7) There are weeds in the chat paving at the main entry. Weeds shall be removed from chat.

SWT Design Page 1 of 4 10/11

landesign

NOVUS INTERNATIONAL MAINTENANCE LOG

Today's date: _____

Weather description: _____

Location: _____

MAINTENANCE TASKS PERFORMED: (CHECK ALL THAT APPLY)

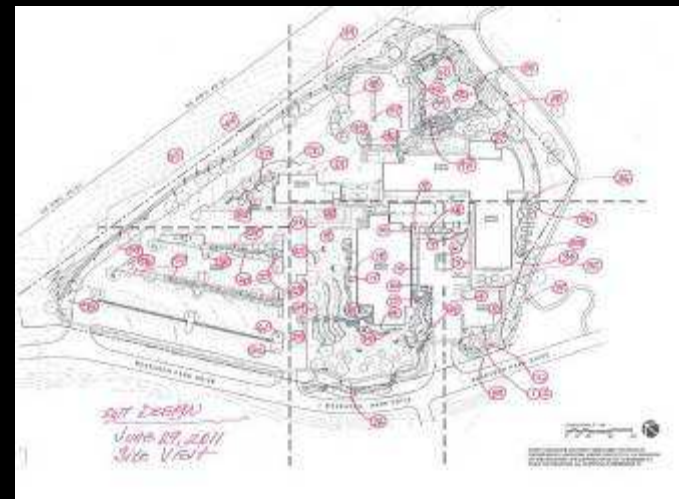
<input type="checkbox"/> Weeding	<input type="checkbox"/> Tree Pruning	<input type="checkbox"/> Fertilizing
<input type="checkbox"/> Watering	<input type="checkbox"/> Mulching	<input type="checkbox"/> Pruning
<input type="checkbox"/> Planting	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Pest Control
<input type="checkbox"/> Planting	<input type="checkbox"/> Planting	<input type="checkbox"/> Planting
<input type="checkbox"/> Planting	<input type="checkbox"/> Planting	<input type="checkbox"/> Planting
<input type="checkbox"/> Planting	<input type="checkbox"/> Planting	<input type="checkbox"/> Planting
<input type="checkbox"/> Planting	<input type="checkbox"/> Planting	<input type="checkbox"/> Planting

ANNUAL MAINTENANCE

<input type="checkbox"/> Annual Application	<input type="checkbox"/> 1st Annual Application
<input type="checkbox"/> Annual Application	<input type="checkbox"/> 2nd Annual Application
<input type="checkbox"/> Annual Application	<input type="checkbox"/> 3rd Annual Application
<input type="checkbox"/> Annual Application	<input type="checkbox"/> 4th Annual Application

NOTES: (REMARKS:) Please note in the Remarks field and check all items that apply to this site. (e.g., weeding, pruning, fertilizing, etc.)

APPROVED: (SIGNATURES AND DATES)



CONTRACT MANAGEMENT



CONCLUSION

SUCCESSFUL CONTRACT MANAGEMENT

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



CONCLUSION



QUESTIONS



CONCLUSION

