



UNB CAMPUS LANDSCAPE DESIGN GUIDELINES

UNIVERSITY OF NEW BRUNSWICK, FREDERICTON, NB

"Landscape is a major factor in defining the campus experience. It embodies cultural as well as aesthetic values."

Researcher quoted in "Design Process of a Campus Plan: A Case Study of Duzce University Konuralp Campus"..... Ozgur Yerli. Int. Journal of Engineering Research and Application ISSN :2248-9622, Vol. 7, Issue 4, (Part -1) April 2017, pp.50-59

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University of New Brunswick

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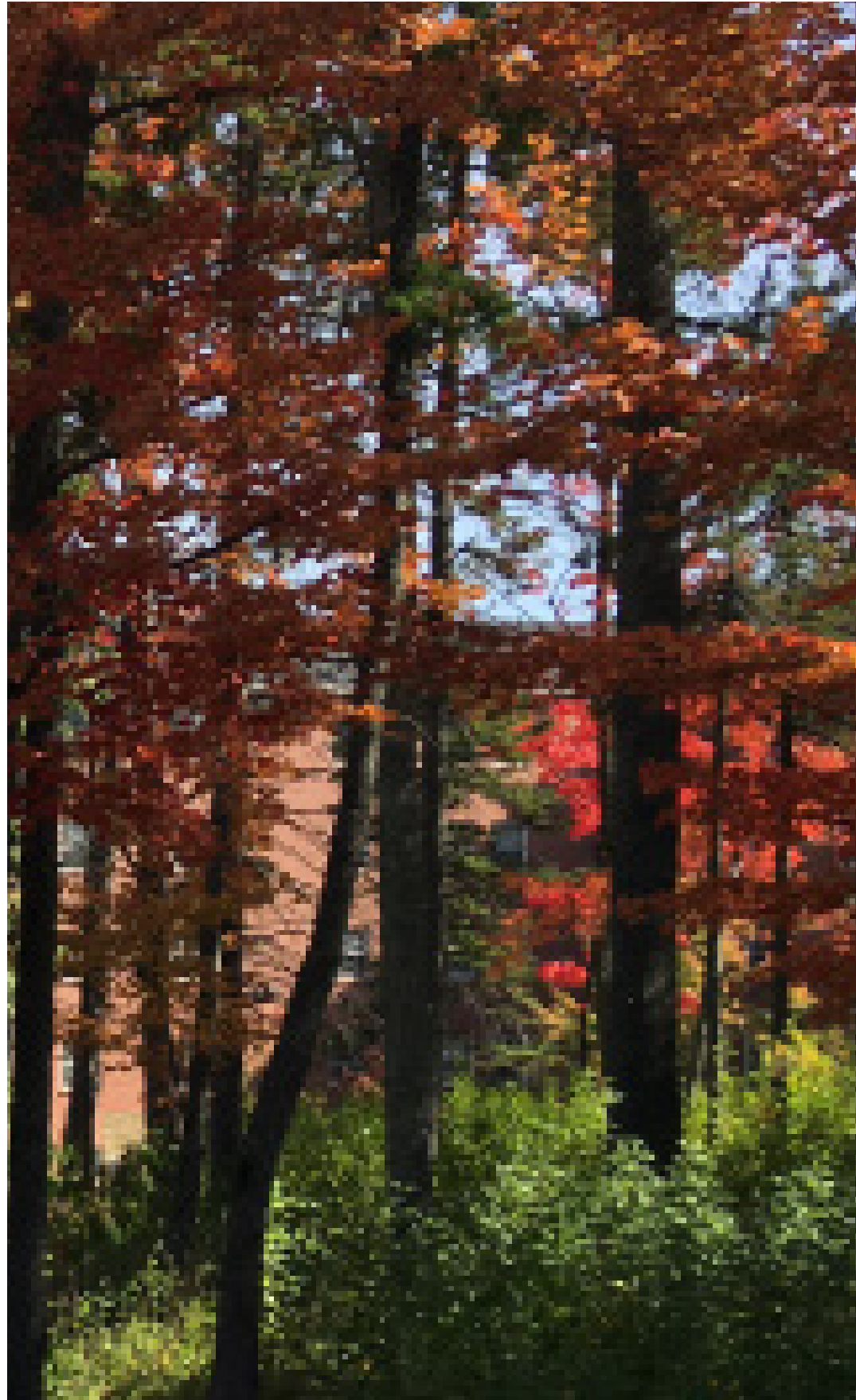


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A photograph of a large, multi-story brick building with a prominent clock tower. The building is covered in red ivy. In the foreground, there is a paved walkway and a street lamp. The sky is blue with some green leaves visible in the top left corner.

REMARKS

“Designers and planners are challenged with identifying the spaces that embody the essence of the campus, the “places of memory” that create emotional ties, and to preserve them for future generations. They may be the first spaces people see as they approach the campus, or the spaces they walk through on their way to somewhere else. They are often ceremonial and establish a hierarchy for campus spaces.” Places of Memory

Thank you to the various department representatives who assisted collaboratively in the development of this plan.

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EXECUTIVE SUMMARY

Background and Purpose

University of New Brunswick Fredericton has a long and incredibly rich history as an educational institution within Canada. Blending tradition in balance with current day, the landscape spaces on campus and the spaces created by landscape elements are significant to not only first impressions of UNB but equally important lasting memories.

UNB has demonstrated a commitment to building environmentally responsible infrastructure and has required LEED, WELL and Green Globes as part of their recent building projects. Looking to the future, sustainability, green infrastructure, and maintenance considerations will inform campus developments including landscape related projects. Green infrastructure technology, building methods and materials on campus will continue to be at the forefront of new initiatives.

The intent of this plan is to establish a framework for the campus landscape as a whole resulting in a unified, consistent, sustainable approach that also addresses maintenance for a strengthened campus identity.

The mandate of this plan was to:

- Develop a landscape plan that encourages a unified landscape framework for the campus as a whole (blends past, current and future development). The plan should address: uses, connections, nature, appropriateness, aesthetic value and management/maintenance.
- Develop the landscape master plan in coordination with university staff and administration.
- Develop a landscape master plan that marries, form and aesthetics with function and maintenance.
- Develop a plan that addresses climate change, sustainability, and ecology of the campus landscape.
- Develop a plan that takes into consideration the maintenance requirements.

- Develop a plan that addresses: plant material, walkways, site furnishings, signage, openspace, lighting, etc.
- Develop a plan that incorporates and builds on studies and inventory reports previously prepared (i.e. Walkways Master Plan, Tree inventory, bench location inventory, etc.).

Process

In developing this document, representatives from various departments at the University of New Brunswick participated providing input and background information.

Summary Recommendations

The primary recommendation is to maintain simplicity and consistency across the campus landscape while designing or renovating greenspaces with sustainability, human use and maintenance in mind. Maintenance should be part of the early design discussions.

Focus intensive landscape responses to areas of high visibility and use for the greatest impact.

Select native and adaptive species that are appropriate to each site.

Continue to update consistent styles of furniture and site amenities.

Relationship to UNB Campus Master Plan and Strategic Plan

*“We will support and encourage active living and wellness and environmental sustainability on each campus.”
University of New Brunswick, Strategic Plan, November 5, 2010*

Green infrastructure and Ecosystem Benefits

- Appropriateness
- Aesthetic Value (Function and Impression)
- Sustainability
- Stormwater Management
- Climate Conscience



Keirstead Courtyard - The courtyard was renovated to incorporate existing vegetation into the planted spaces, provide accessible access and better circulation, and create opportunities for seating.

2

CAMPUS LANDSCAPE SPACES

The Fredericton UNB campus landscape consists of a series of landscape spaces that create a sense of place and campus identity. Whether walking through these spaces on the way to class, gathering for an impromptu game of ball on the lawn, or enjoying the sunshine in a quiet courtyard campus landscapes contribute greatly to the campus experience. The following section outlines some of the primary landscape spaces.

2.1 GATEWAYS

Gateways establish the first opportunity to make an impression upon arriving at the campus, and last impression when leaving the campus, either on a daily basis or as a visitor. Gateways announce the campus for pedestrians or vehicle marking campus boundaries. These are spaces where more intensive plantings may be appropriate so long as the required maintenance time can be dedicated to these high profile spaces. Mass plantings of a selective plant palette and colour provide impact warranted at campus gateways. Sight lines, snow storage, and salt tolerance species must be taken into consideration at campus gateways.

2.2 COURTYARDS AND GARDENS

Campus courtyards and gardens are places of social interactions and places where students, staff and visitors may spend extended periods of time. These are spaces where more intensive landscape treatment is appropriate provided maintenance levels can be allocated to the space. Gardens may be formal or informal, manicured or natural. Courtyard and garden planting may be more elaborate providing interest throughout all seasons, however a simple palette of plant material rather than elaborate will improve consistency across the campus landscape spaces. In all cases plant material should be selected for appropriate levels of maintenance and drought tolerance as irrigation is not recommended. Site furniture, variety of paving materials, lighting, and art add to the human enjoyment of these special places on campus.

Other gardens may be designed for food production or as pollinator gardens. Pollinator species and edibles should be encouraged within planted spaces.

2.3 OPENSOURCE/LAWNS

The landscape spaces of the campus are iconic and easily identifiable as UNB. The large open lawn area below the SUB and Harriet Irving Library are places on campus that provide opportunities for gatherings as well as areas for informal recreation for staff and students. Other greenspaces such as the lawn below Sir Howard Douglas Hall (the Old Arts Building) are shaded by high canopy trees.

2.4 OUTDOOR LEARNING SPACES

Currently there are no established formal outdoor learning spaces on the campus. In order to create a space conducive to instruction and learning future plans for exterior learning spaces should take into consideration: noise, activity, seating, sun and shade, possible weather protection and be sized according to the group to be accommodated. These spaces may range from a clustered seating arrangement to an amphitheater style configuration. Outdoor learning spaces may be integrated into existing campus greenspaces and would fit well near the Faculty of Education.

2.5 WOODED AND NATURALIZED AREAS

The Fredericton UNB campus has been laid out with large areas of protected wooded areas. The campus continues to see development and growth while protecting these natural spaces. These natural areas are rich in diversity of species and are valuable to the campus landscape.

2.6 PARKING AREAS

Perhaps not a landscape element in the traditional sense, parking is a predominant piece of the campus fabric within the landscape. New parking lots should be designed with stormwater

run-off and heat island effect in mind. Snow storage should be taken into consideration for all new parking areas and for any additional planting in proximity of parking areas. Species should be encouraged around the perimeter for shade but should be located so not be damaged by salt and snow storage.

2.7 GREENROOFS

The Kinesiology Building recently completed on campus was designed with a large greenroof. This particular greenroof is not accessible to the public but UNB's commitment to sustainability and green design is demonstrated by this project.

2.8 SPORTSFIELDS

While sportsfields have not been addressed within this plan specifically, fields are a major landscape spaces providing structured and formal recreation on campus. Sports fields require a high level of specific maintenance that is outside the scope of this document.

Within the landscape spaces on campus there are numerous elements that define and create the spaces outlined. Recommendations and guidelines are outlined in the following sections.



Above, Gateway to Campus
Below, Greenroof at the Kinesiology Building





3



ELEMENTS OF THE CAMPUS LANDSCAPE

3.1 CAMPUS TREES

The UNB Fredericton campus is shaped by the iconic red brick buildings, its placement on ‘the hill’ over looking the St. John River, its layout and the grounds. The trees on campus are a significant part of UNB’s infrastructure and defining landscape element.

Majestic high canopy mature deciduous trees create the framework for many of the spaces on campus. The trees provide much more than simply aesthetic value by contribution to clean air, providing shade (building cooling, asphalt life extension, reduction of heat island effect, cool environment for pedestrians and protection from the sun), reduction of noise, promoting stormwater management (uptake of rainwater water), soil and slope retention as well as creating habitat for wildlife. Trees along roadways help to reduce vehicle speeds and direct views along walkways and road. Trees delineate spaces and provide human scale in the larger openspaces of campus.

Ongoing tree planting efforts on the Fredericton campus will ensure a continued diverse tree canopy for future generations. The following are a series of recommendations for the campus canopy.



Examples of campus trees.

Recommendations

3.1.1 Inventory

Continue to catalogue and inventory the campus trees, recording location, species, size, and health. Continue to identify all memorial or commemorative trees. This inventory will continue to form the basis for future planting operations and species selection. Inventory to be coordinated with the UNB Faculty of Forestry and Environmental Management.

3.1.2 Protection

Work around existing trees should be carried out in a manner that mitigates potential damage to the tree and root system. When work will occur in proximity to existing trees, snow fencing should be installed at the root protection zone of each tree and work should not occur within that zone. When encroachment inside the root zone is unavoidable, work should not impact inside the limits of the drip-line. (Diagram 1) All trees should have mulch circles at the base of the trunk to ensure protection of the trunk from being damaged during mowing or grass trimming operations. If mulch circles are not possible an alternate form of protection should be implemented.

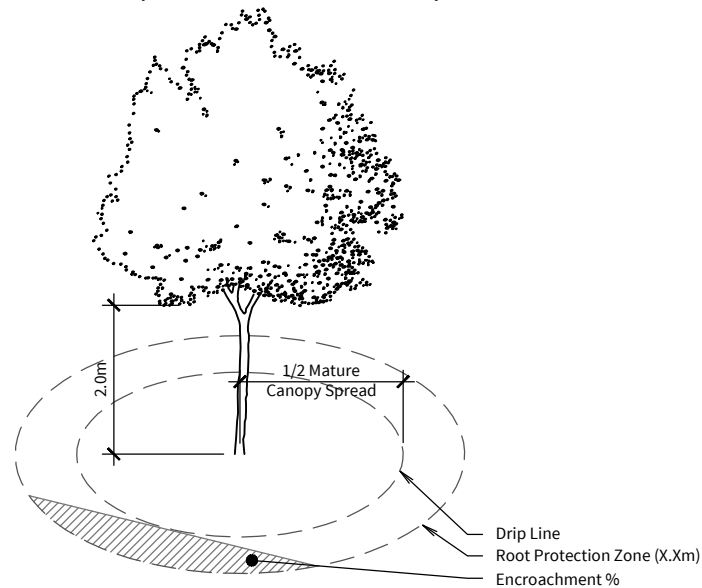


DIAGRAM 1

3.1.3 Replacement

Ongoing monitoring of all trees should be completed to review and assess the health and risk of each asset. As dead, dying or unhealthy trees are required to be removed, replacement should be considered. Dead trees or trees that pose a safety concern should be removed. At first sign of declining health, these trees should be identified for ongoing monitoring and a management plan developed prior to deciding to remove. An assessment of the approximate location should be reviewed to determine if replacement trees should be planted in vicinity of the trees removed or if there may be reasons to consider an alternate location. When possible reuse of materials from trees removed on campus is encouraged.

Effort should be made to replace trees using a biomass index rather than a 1:1 ratio (ex. 1 tree for 1 tree) for a more appropriate compensation within the campus landscape. This should be determined in consultation with the Faculty of Forestry and Environmental Management, Facilities and the Environment and Sustainability Committee. Prior to replacing a tree with the same species consideration must be given to ensure biodiversity of the tree canopy on campus.

3.1.4 Relocation

In cases where relocation is a viable option, trees should be relocated rather than removed. Each instance should be reviewed with an arborist to determine appropriate, method, time, manner, placement and follow-up care and plan. With all tree plantings, relocating a tree must take into consideration proximity to buildings, services, snow storage areas, mature growth, etc.

3.1.5 Planning

Develop a campus tree planting master plan that is built around the existing tree inventory. The Faculty of Forestry and Environmental Management should be consulted in the development of the plan. Consideration should be given to future development projects or anticipated infrastructure and building projects. The plan should outline continued biodiversity and

highlight areas of preferred tree planting and areas where trees should not be planted.

3.1.6 Recommended Species List

Native and adaptive species included in the recommended list for tree planting are intended to encourage biodiversity, zone hardy species, salt tolerant species (when in proximity to roads, parking and walkways), drought tolerant species and provide seasonal interest either with Spring/Summer flowering, Autumn colour or Winter structure.

Fruit bearing trees are included in the species list, but should be restricted to specific areas on campus and selected in coordination with the Department of Facilities Management. Suggested locations include: the community garden area, within planting beds or within courtyards that may have a more intensive planting arrangements. Avoid fruit and nut bearing trees in areas of lawn to be mown regularly.

3.1.7 Dedicated, Memorial or Commemorative Trees

UNB's Fredericton campus has a number of trees that have been dedicated as memorials or in commemoration of individuals or events. These trees are identified and included in the campus tree inventory and it is recommended that this be updated with each new planting. Continue to identify designated trees.

3.1.8 Campus Woodland

Within the heart of UNB is a significant block of woodland. This area along with various other natural places on campus provide a specific ecological zone that is rich and diverse. These areas should remain as areas of protection. Forest management of these areas should be coordinated with the Faculty of Forestry and Environmental Design, Facilities and the Sustainability Action Committee.

3.1.9 Tree Planting

Trees are a significant campus infrastructure and are a long term investment. Locations for planting should thoughtfully planned taking into consideration current site conditions and



Examples designated or identified campus trees.

potential future development plans. Locating campus trees in appropriate locations and planting properly along with ongoing maintenance are vital to the health of this landscape asset. The following section outlines a series of guidelines for tree placement and planting operations.

- **General** - In all cases when planting trees on campus, trees should not be located over buried infrastructure such as tunnels, utilities and services. (Diagram 2) Prior to initiating any planting operations all underground utilities and services are to be confirmed and marked. Trees should not be located under overhead lines (unless low mature height) or in utility easements or be located in the base of drainage swales or areas designated for snow storage. Deciduous trees are encouraged to be planted along the south facade of buildings for shading and cooling effects in the warmer months. When locating trees around a building the placement of trees should take into consideration windows locations and/or architectural features of the building.
- **Setbacks** - Trees along streets and walkways provide a number of benefits including providing shade, directing views and slowing traffic. Trees along roads, and walkways should be located setback approximately 2m from edge of sidewalk and 2.5m-3m from roads or back of curb. (Diagram 3, 4) This allows for sufficient space for trunk growth, facilitates mowing operation, and not impede snow removal operations. When planting trees around buildings, anticipated mature growth should be taken into consideration to allow for growth without impacting the building (branches or root system) by placing a minimum distance of half the anticipated mature canopy spread plus an additional 1m away from the facade. (Diagram 5, 6)
- **Sight Triangles** - Sight triangles at corners and intersections should be taken into consideration when locating tree setbacks.
- **Clearance** - Deciduous trees should be limbed up a clear 2m from ground to bottom branch along all walkways and roads or in areas of pedestrian and vehicle activity. (Diagram 7)



Examples of mature trees planted too close to building facades

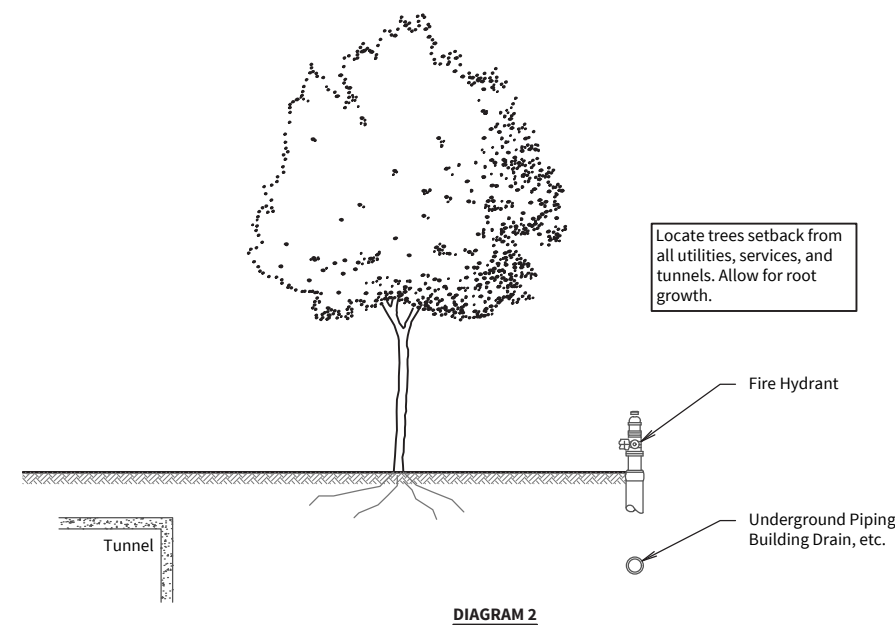


DIAGRAM 2

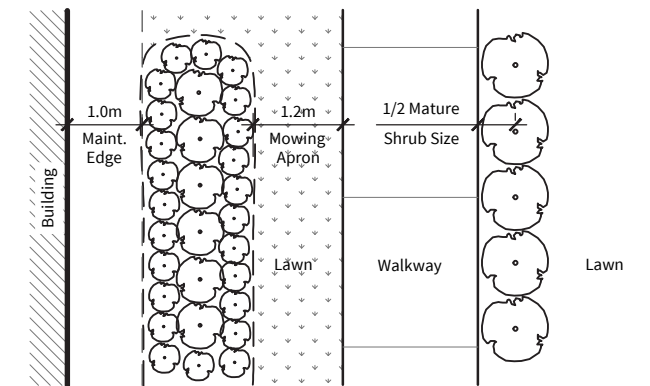


DIAGRAM 3

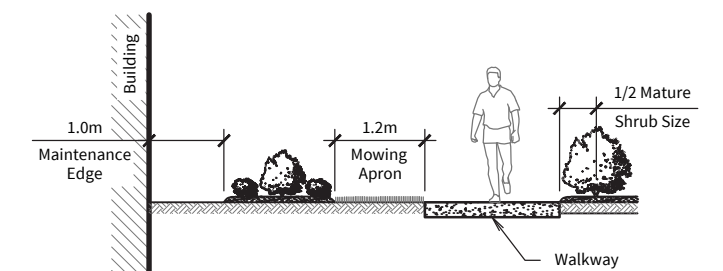


DIAGRAM 4

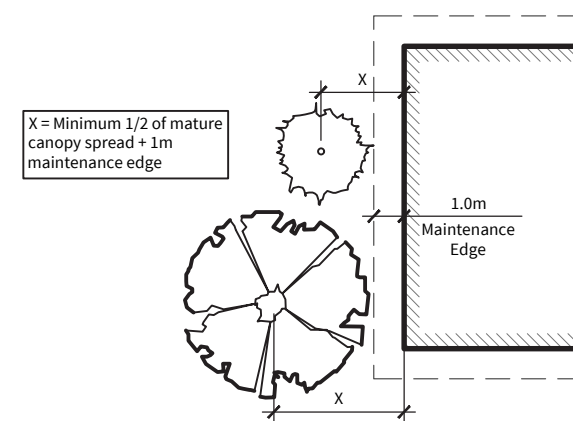


DIAGRAM 6

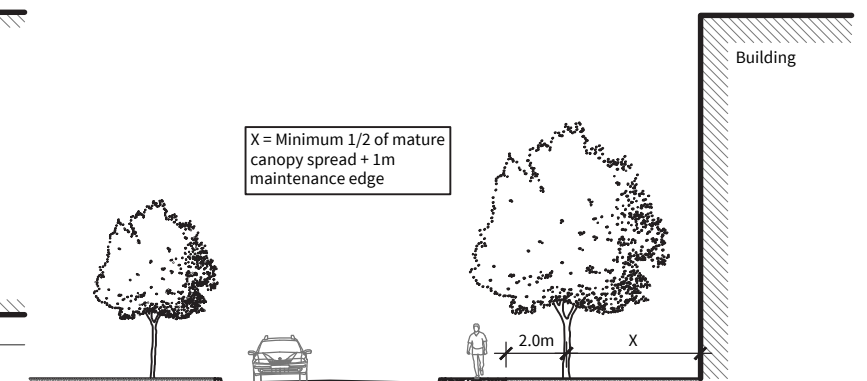
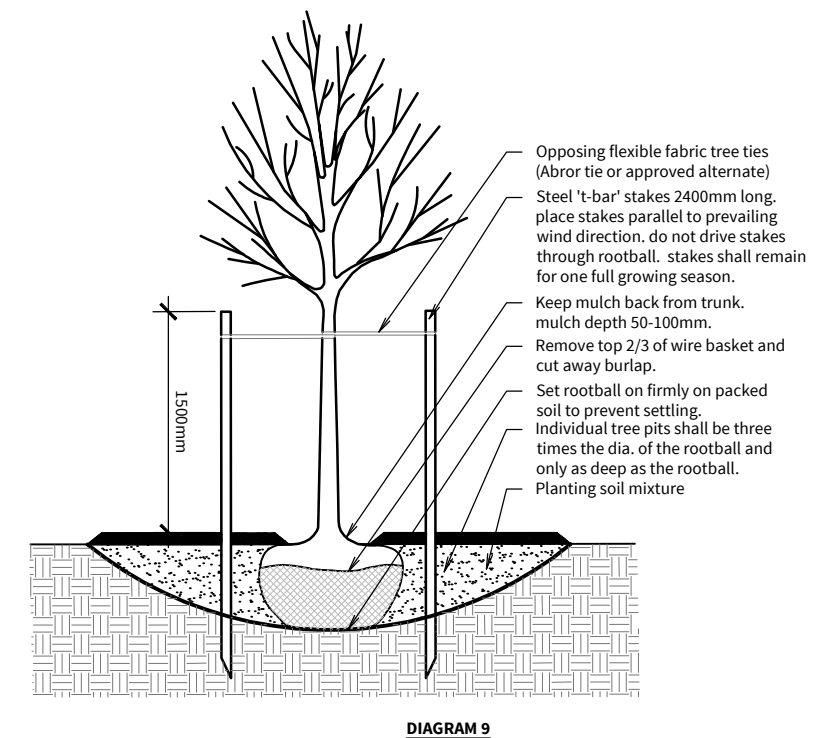
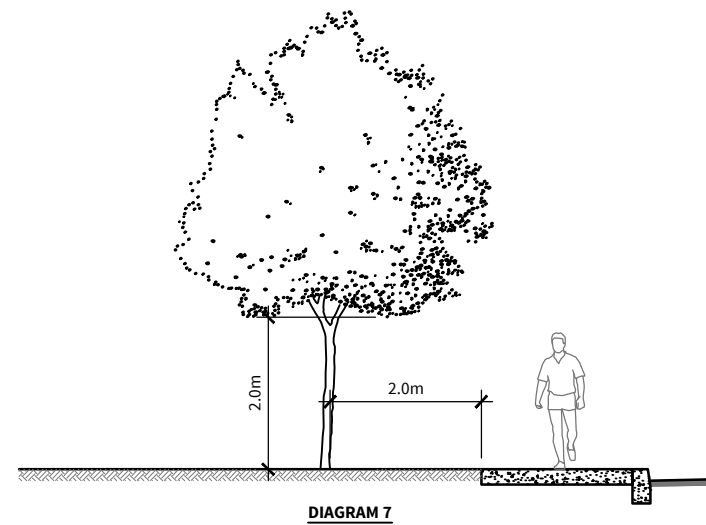
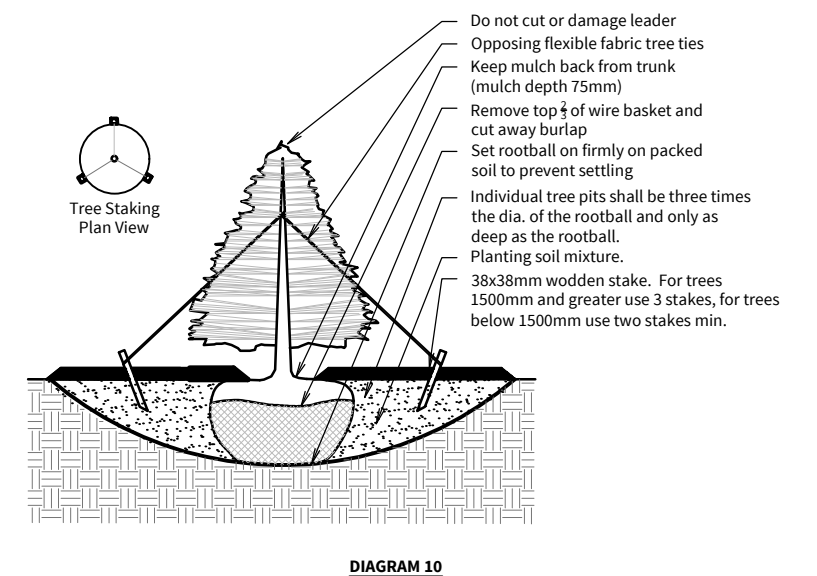
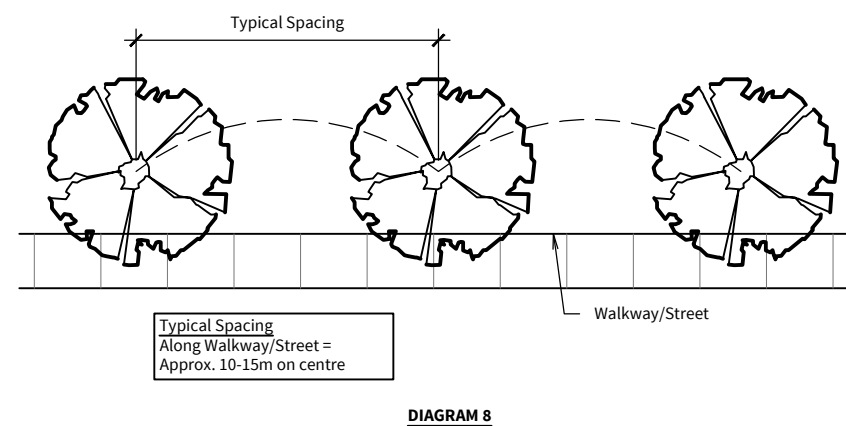


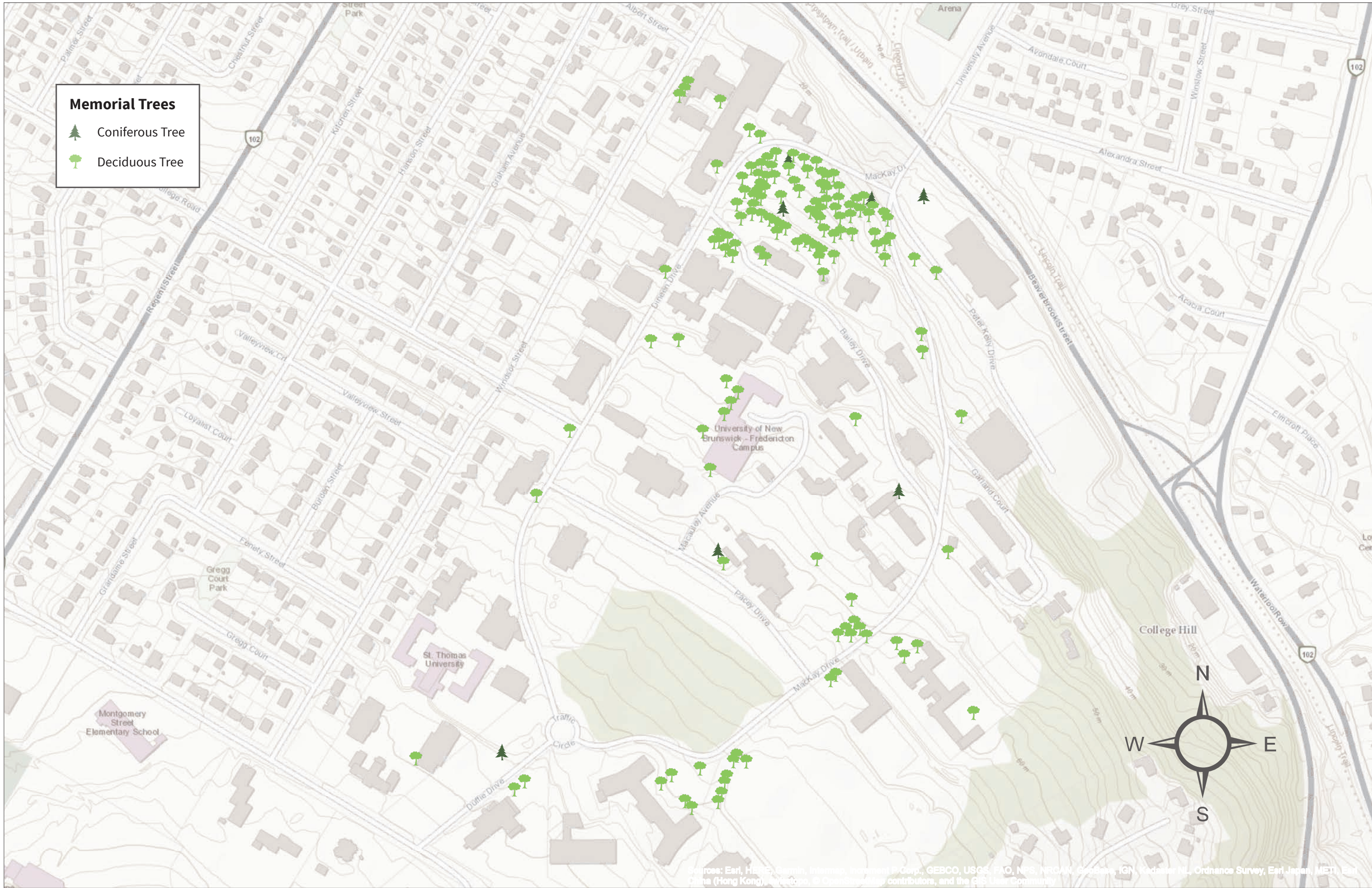
DIAGRAM 5

- **Spacing** - A typical guideline for tree spacing along roads and paths is 10m -15m on centre, however this may be adjusted to accommodate site services, light poles, drive-way access points, existing trees, other site specific features or mature canopy spread. (Diagram 8) Distance between other trees is not regulated as there may be a desire for tighter spacing for specific effect in some locations or larger spacing to allow for mature growth around each tree canopy. In all cases, spacing should be related to the anticipated mature growth of the canopy of each species selected.
- **Species Selection** - Plant material selected is encouraged to be native or adaptive, drought tolerant and zone hardy. Invasive species should be avoided.
- **Planting Operations** - Typical planting details for deciduous and coniferous trees are included in this section. UNB Facilities Management has prepared a garden maintenance schedule that should be reviewed when planting trees. (Diagram 9, 10)

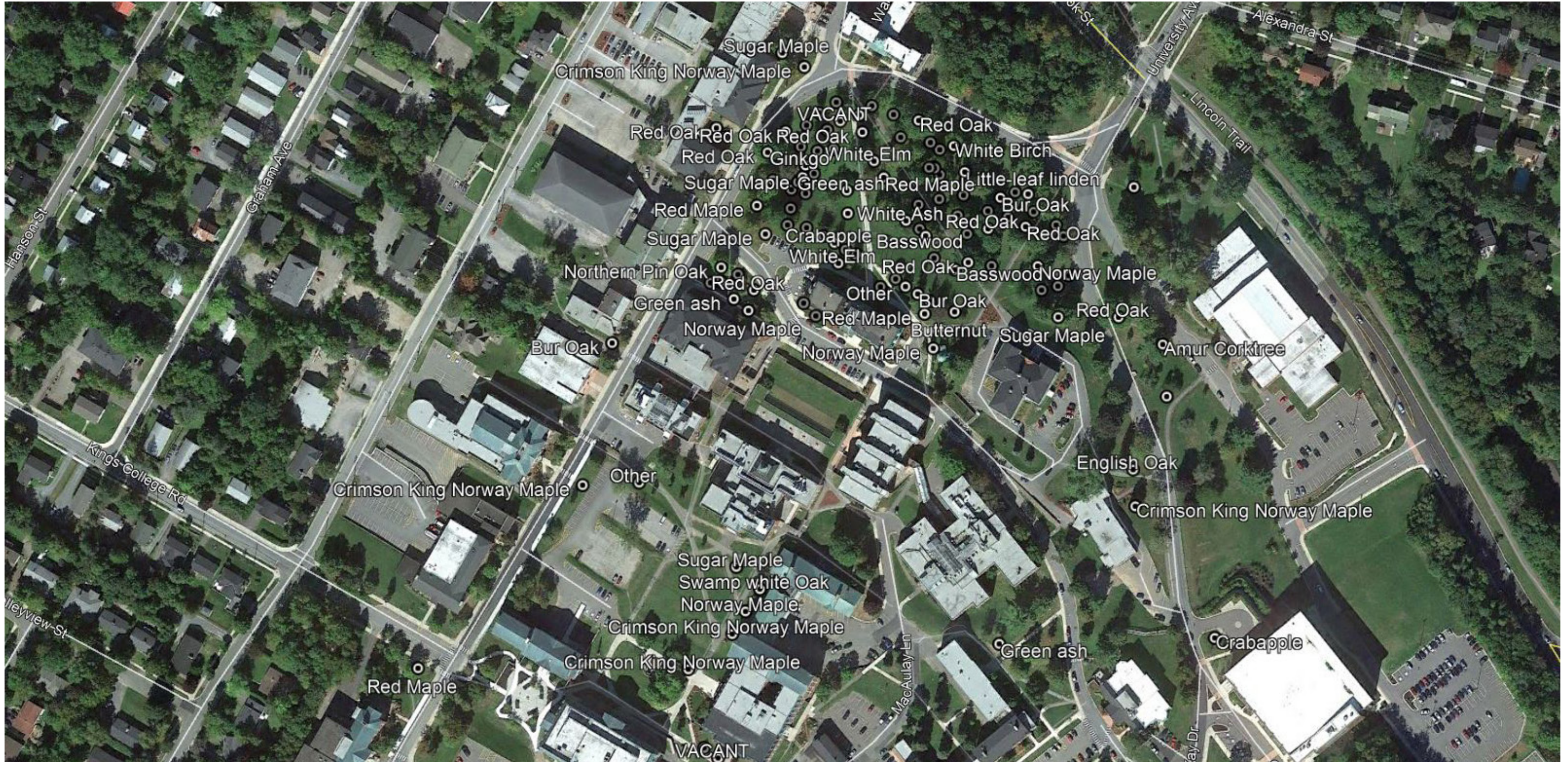


Mix of coniferous and deciduous trees on campus provide for year round colour and texture.





Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GEBCO, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swatch, © OpenStreetMap contributors, and the GIS User Community



UNB Tree Inventory and Database.

3.1.9 Recommended Tree Species List

The following list of recommended species is provided as a guideline. Other species may be introduced given careful consideration of location and long range development plans. Emphasis on native and adaptive trees is recommended and the campus has the opportunity to showcase native New Brunswick trees and the Acadian Forest species.

Pin Oak - Quercus palustris
Red Oak - Quercus rubra
White Oak - Quercus alba
Columnar Oak - Quercus robur 'Fastigiata'
Scarlet Oak - Quercus coccinea
Burr Oak - Quercus macrocarpa

Red Maple - Acer rubrum
Sugar Maple - Acer saccharum
Silver Maple - Acer saccharinum

Littleleaf Linden - Tilia cordata
Basswood - Tilia americana

Horsechestnut - Aesculus hippocastanum

Elm - Ulmus

White Ash - Fraxinus americana
Green Ash - Fraxinus pennsylvanica
Black Ash - Fraxinus nigra

White Birch - Betula papyrifera
Yellow Birch - Betula alleghaniensis

Beech - Fagus

Butternut - Juglans cinerea

Ironwood - Carpinus caroliniana

Colorado Spruce - Picea pungens
Red Spruce - Picea rubens
Black Spruce - Picea mariana
White Spruce - Picea glauca

Eastern White Pine - Pinus strobus
Jack Pine - Pinus banksiana
Red Pine - Pinus resinosa

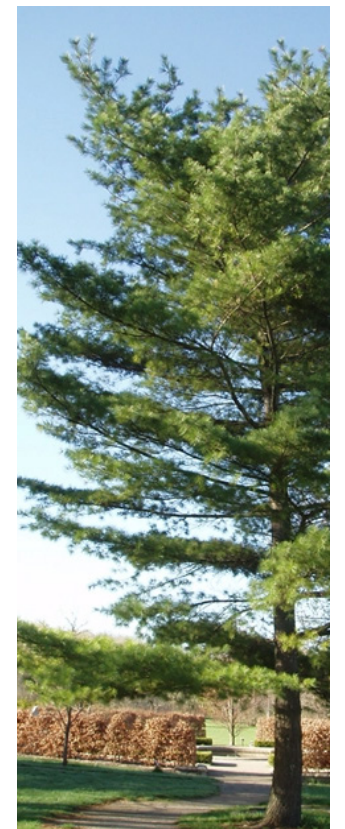
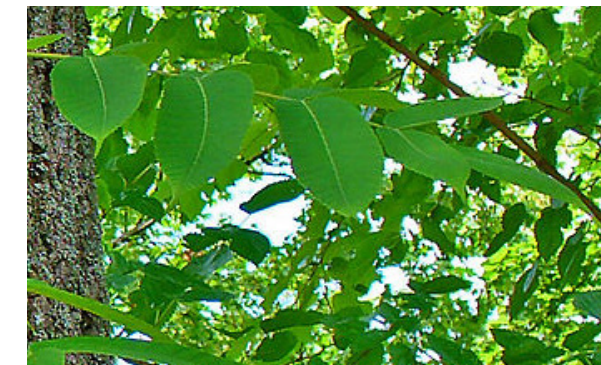
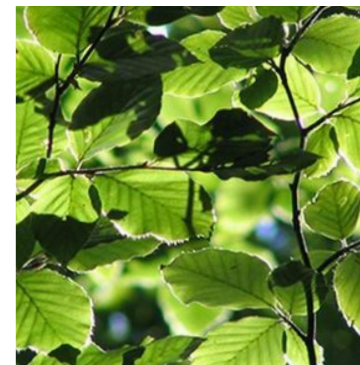
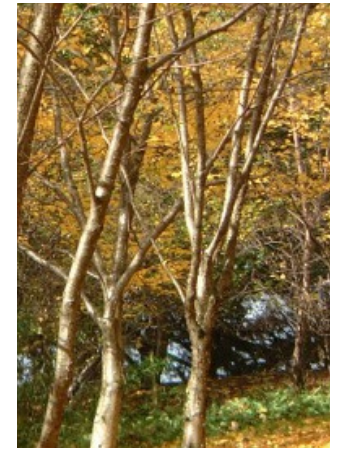
Larch/Tamarack - Larix laricina

Hemlock - Tsuga canadensis

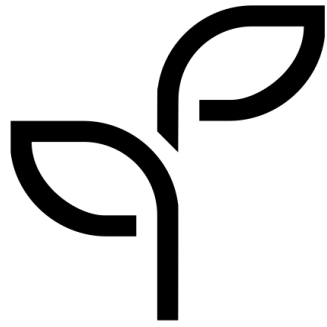
Balsam Fir - Abies balsamea

Eastern White Cedar - Thuja occidentalis

Ivory Silk Tree Lilac - Syringa reticulata 'Ivory Silk'
Mountain Ash - Sorbus aucuparia
Serviceberry - Amelanchier canadensis
Sumac - Rhus typhina
Amur Maple - Acer ginnala
Flowering Crabapple (various varieties) - Malus



Continue to ensure a diverse tree canopy with the selection of native and adaptive tree species.



3.2 PLANTING BEDS

Planting beds are extensive within the campus landscape, primarily located around buildings as accents, within courtyards and gardens, along walkways and at campus gateways. Emphasis should also be allocated to graduation locations. Consisting of perennials, ornamental grasses, shrubs, trees, bulbs and annuals, planting beds provide an opportunity to showcase floral displays that are aesthetic in nature or can be part of the campus sustainability plan, however in all cases ongoing maintenance must be taken into consideration when adding or modifying beds. More intensive plantings require more intensive maintenance. A detailed maintenance plan for each area of the campus has been prepared by UNB Campus Operations, outlining the current maintenance efforts. These reports have been included in the appendix for reference.

Planting beds may fall under a particular category or may fall under several categories.

- Ornamental and Aesthetic - Provide year round interest with a variety of blooming times, textures, colours, scents, etc. These beds may have a variety of species or a minimal palette. Mass plantings are more effective in creating impact.
- Edible - Integrated edible shrubs and plantings into planting beds with particular focus on keeping edible species in the community garden.
- Rain Garden/Stormwater Features - planting beds may be part of the stormwater management plan and have a collection of species that thrive in wetter soils.
- Pollinator Gardens - Integrated or designated planting beds with pollinator species.
- Slope Stabilization - Rather than rip-rap or steep lawns planting beds may be established on steep slopes as a

- means of bank stabilization.
- Medicinal - Incorporating medicinal plant species in an ornamental application when appropriate.

Currently there is a First Nation Medicine Wheel Garden and two designated pollinator gardens. Moving forward the campus does not intend to plant additional pollinator specific gardens however the addition of pollinator species within the various planted campus spaces is encouraged.

Recommendations

While planting beds and gardens can add tremendous visual impact, the use of appropriate species and placement can greatly reduce time and effort required for maintenance while providing the desired result. The following are a series of recommendations for the campus planting beds:

3.2.1 Inventory and Assessment

Continue to catalogue and inventory the location, limits, species, and health for the various planting beds and gardens on campus. Assess the effectiveness of the planting beds and determine if they should remain, expand or be eliminated. Update the maintenance reports for each location annually and adjust maintenance plan accordingly for the coming year.

3.2.2 Replacement

Ongoing monitoring of the planting beds and gardens should be completed to review if material should be removed, replaced, pruned, and if mulch requires topping. As beds are assessed each year, reasons for required replacements should be taken into consideration and a determination should be made as to whether planting is in an appropriate location, if species are thriving or if there are operations modifications required.

3.2.3 Planning and Locating

Plan planting beds in areas of high visibility such as gateways, at building entrances or in prominent areas and within courtyards. Consideration should be given to a mix of deciduous and coniferous. Avoid planting single shrubs isolated from beds and

planting ‘islands’ located within greenspaces not associated with a sign, monument or seating.

Suggested locations for more intensive planting beds include: foundation planting, at building entrances, campus gateways, within courtyards, on slopes that are not easily mowed (ex. adjacent to steps), along sections of walkways and in conjunction with signage. Islands within parking areas would also be appropriate areas for plant material. Snow storage should be considered with all proposed planting operations. Mature height of all material must be taken into account when selecting shrubs to ensure that there are clear lines of sight, that windows are not blocked and that branches are not extending into the walkway areas or beyond the planting bed limits.

When beds are implemented as foundation planting the width of the bed should be determined by the mature size of the material plus an additional 1m maintenance area free of plant material. Shrubs and grasses should be located within the bed set back from the building to allow for mature growth. Window locations should also be taken into consideration when laying out planting beds. When beds are implemented along walkways in situations where a mown strip of grass is not maintained between the bed and the walk, shrubs should be set within the bed to allow of mature width without extending into the walkway.

All planting beds should be laid out and configured with snow storage in mind. If planting beds are to be located in areas designed for snow storage species for these locations will need to be able to withstand the weight and the salt. Ornamental grasses, perennials and lower shrubs are more conducive to these situations.

3.2.4 New Development Projects

Plantings should compliment and improve the exterior spaces of new development projects. With each new building projects, determine the extent of planting and level of required maintenance during the design stages in collaboration with Facilities to ensure the appropriate level of care can be dedicated to the expanding of services.



Pollinator gardens on campus with interpretive panels to provide additional information.

3.2.5 Planting

General - Isolated small scale planting beds should be avoided. Planting beds should be planned with the mature species in mind to avoid future over crowding requiring thinning out later on. Placement of material with the bed and the overall width of the bed should take in account growth. Beds should be configured to facilitate mowing operations if set within lawn spaces.

Setbacks - If a mowing strip is to be left between a planting bed and a walkway, the width should facilitate ease of mowing. Beds along building should be wide enough to allow for full mature spread plus an additional 1m maintenance area.

Soil - Planting beds should have a minimum depth of 450mm of planting soil. Soils tests should be completed and amended based on recommendations. (Diagram 11)

Mulch - Currently the campus has a mix of beds with either red bark mulch or dark back mulch. Planting bed mulch should be topped up as required to maintain the optimal depth.

Landscape Fabric - Between the soil and the mulch a layer of landscape fabric should be installed to prevent and reduce weed growth in the beds.

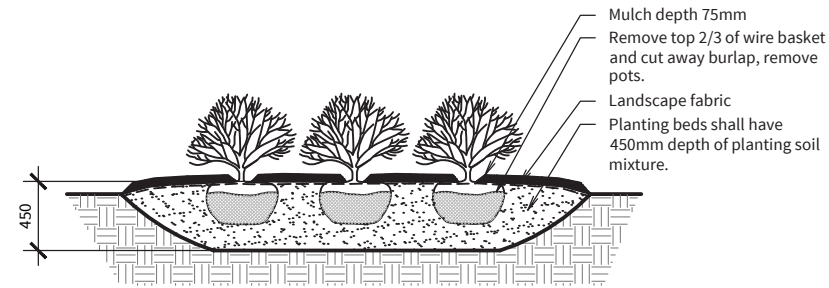


DIAGRAM 11

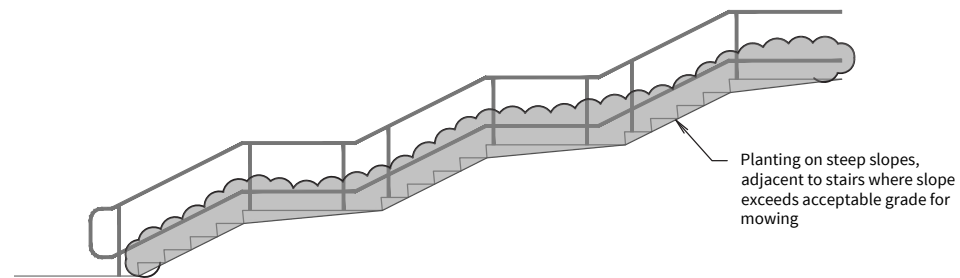


DIAGRAM 12



Mass plantings provide a stronger visual impact.



Avoid planting isolated shrubs in lawn spaces or small beds within large greenspaces unless associated with a feature such as a sign.

Edging - Beds shall be edged by mechanical means, plastic edging shall not be used to define beds. Where possible design beds to reduce the extent of edging required.

3.2.6 Recommended Species List

The following recommended shrubs, ornamental grasses, and groundcover species for campus planting beds. This list is in no way complete and other species should be considered. The list provided outlines species that have thrived on campus in the past. Native and adaptive species included in the recommended list for gardens and planting beds are intended to encourage biodiversity, zone hardy species, salt tolerant species (when required), drought tolerant species and provide seasonal interest either with Spring flowering or Autumn colour. As new beds are added effort should be made to ensure that there is biodiversity on campus with the integration of pollinator species and edible species. Invasive species should be avoided.

Suitability of plant species selections will need to address the site specific conditions of each location such as: sun and shade, microclimate, adjacent uses, architecture features and over all scale of the space.

Deciduous Shrubs

- Dwarf Burning Bush*
- Rosa Rugosa*
- Potentilla*
- Forsythia*
- Dogwoods*
- Alpine Currant*
- Cottoneaster*
- Lilac*
- Ninebark*
- Spiraea*

Conifer Shrubs

- Dwarf Mugho Pine*
- Microbiota*
- Globe Blue Spruce*
- Nest Spruce*

Juniper

Ornamental Grasses (various)

Groundcovers

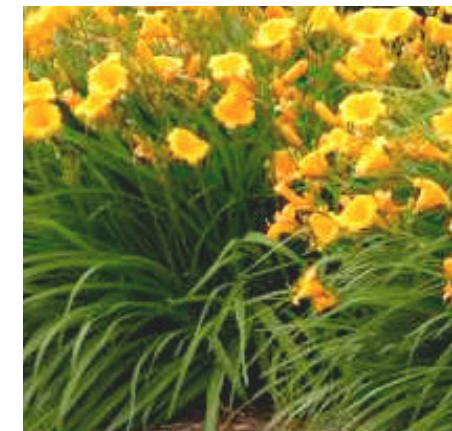
- Woolly Thyme*
- Creeping Thyme*

Perennials

- Purple Coneflower*
- Daylilies*
- Liatris*
- Hosta*

Bulbs

- Tulip*
- Daffodil*
- Crocus*



Continue to ensure a diverse selection of shrubs, perennials, grasses and bulbs. Mass plantings and simplicity in planting palette provides for consistency across the campus.



- Planting Beds
 - Remove Planting Beds
 - Approximate Campus Boundary
1. Aitken Center
 2. Burden Academy
 3. Carleton Hall
 4. CC Jones
 5. College Hill Daycare
 6. DKT
 7. Facilities Management
 8. Harriet Irving Library
 9. Keirstead Hall
 10. The New Courtyard
 11. Law School
 12. MacLaggan Hall
 13. Main Gate on Kings College
 14. Marshall D'avary
 15. Magee and McCloud
 16. MacKenzie House
 17. National Research Council
 18. New Residence
 19. Richard J Currie Centre
 20. Singer Hall
 21. South Gym
 22. Sub and Pacey Drive
 23. Tilley Hall
 24. Poets Corner
 25. Toole Hall and Jacobs Yard
 26. Traffic Circle Top of Campus
 27. Wu Center and Montgomery Street Gates
 28. Kinesiology Building

***Reference Appendix for Gardening Maintenance Schedule and Individual Maintenance Reports for each location.**



3.3 OPENSACE AND LAWNS

The word campus is derived from the Latin word for ‘field’ and campus imagery often is portrayed as a collection of buildings with large green common spaces framed with large trees. The open lawn spaces of UNB’s Fredericton campus such as the lawn below the Student Union Building and the sloped lawn in front of Sir Howard Douglas Hall with high canopy shade trees are iconic to the imagery of the university.

Many of the greenspaces on campus are large open lawns which allow for various events, gathering and programming. These lawn areas also allow for unorganized recreation to occur on campus. These lawn spaces should be protected as openspace.

Other lawn spaces towards the campus periphery or at the edge of natural wooded areas are less ceremonial and formal in nature and should be considered as areas where reduced mowing would allow for a managed meadow.

New areas of development on campus should address the extent of lawn and the intended level of maintenance required during the design process. If the lawn areas are intended to be mown, slopes should be graded at less than 3:1. Grading should round the tops and bottoms of slopes rather than angular changes in grade. These areas are often impacted negatively by mowing. Lawn areas should be graded to eliminate standing water and wet areas, with the exception of bioswales and rain gardens.

Where lawn extends to the building facade, a maintenance edge should be installed.

Swales should be designed to facilitate mowing and buildings not surrounded by planting beds should have a designated maintenance strip installed. (Diagram 15)

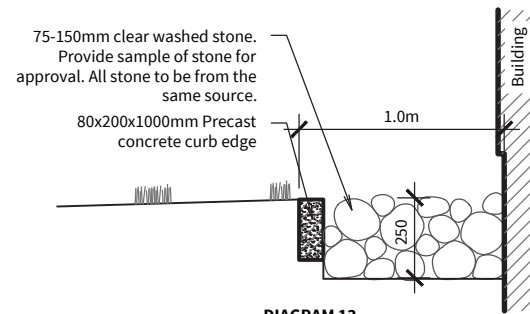


DIAGRAM 13

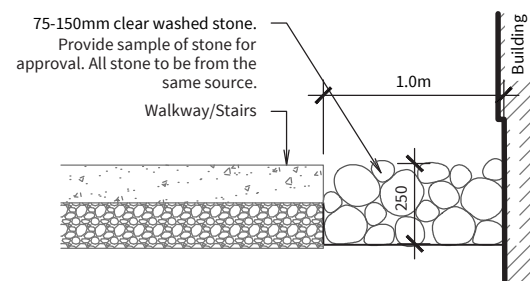


DIAGRAM 14

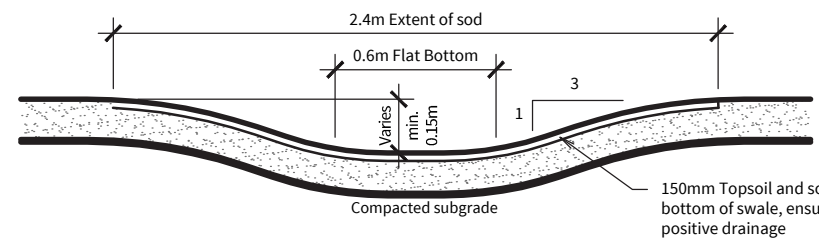




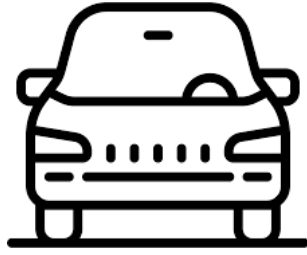
DIAGRAM 15



Iconic Sir Howard Douglas Hall set into the picturesque campus landscape.



-  Approximate Lawn Areas
-  Approximate Campus Boundary



3.4 PARKING

While parking is not a 'landscape zone' in the traditional sense, parking areas are significant within the campus landscape. These spaces contribute to stormwater runoff and heat island effect.

3.4.1 Greening

Parking area greening is predominately located about the perimeter and within parking islands. Shade trees around the perimeter are encouraged to increase shade and reduce heat island effect. When trees are planted around the parking edges, they should be setback to allow for sufficient snow storage. Species should be selected for salt tolerance. Shrubs may be used as a parking screening to minimize the visual impact. When shrubs are used for screening, mature height should be considered ensuring clear sightlines are maintained for safety and security. Ornamental grasses are an alternative to shrubs that can provide for screening that can withstand salt and snow.

Islands within parking areas should be curbed and sized to provide space for trees and shrubs.

3.4.2 Managing Run-off

As larger hardsurface, parking areas contribute to increase stormwater run-off which must be managed. The incorporation of bioswales around the perimeter or adjacent designated areas for retention and detention support UNB's commitment to sustainable design.



Provide shade trees and screening of campus parking areas.



3.5 SIDEWALKS, WALKWAYS AND PATHS

Pedestrian circulation is one of the primary method of campus movement and the connections are part of the campus infrastructure. Establishing and maintaining a network of sidewalks and walkways that are accessible to students, staff and visitors that provides for clear and direct circulation between various parts of campus is paramount. UNB Facilities has prepared a sidewalk master plan with annual upgrades to ensure that walkways and sidewalks are in top condition.

3.5.1 Materials and Finishes

Primary pedestrian paths on campus, including sidewalks, should be a brushed concrete. The width of the walkway should be determined by the amount of anticipated foot traffic. Sidewalks and paths should be a minimum 1.8-2.0m in width and larger in key areas on campus where there are larger volumes of pedestrian movement.

Walkways that are located within courtyards or as entrance plazas to building may be a decorative material such as precast concrete unit pavers, or stamped concrete. (Diagram 16)

Stonedust walkways may be used for secondary walkways and in naturalized sections of the campus. (Diagram 18)

Turfstone or open-grid pavers may be used to allow for access areas that are not intended for public use. (Diagram 17)

3.5.2 Considerations

All walkways should be graded for positive drainage to eliminate puddling and ice. There should be an apron on each side of walkways and paths when in a landscape zone to allow for snow removal and improved drainage.

Where sidewalks meet vehicle crossings and roll downs, visual detection products should be installed.

Walkways should be designed at an accessible grade with a maximum 5% without a railing, maximum 8% with a railing and landings.

Snow removal and stockpiling of snow should be done in a manner so as not to contribute to drainage problems during melting.

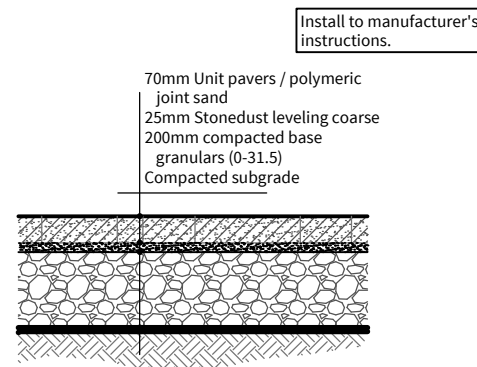


DIAGRAM 16

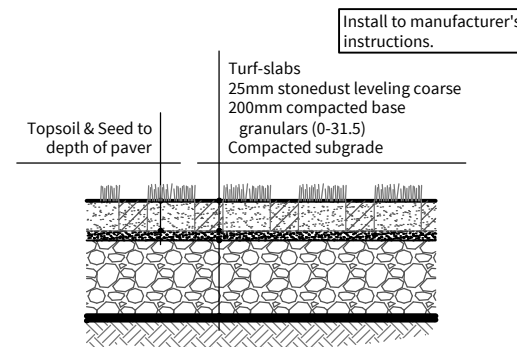


DIAGRAM 17

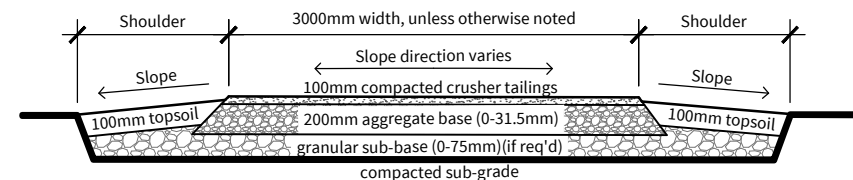
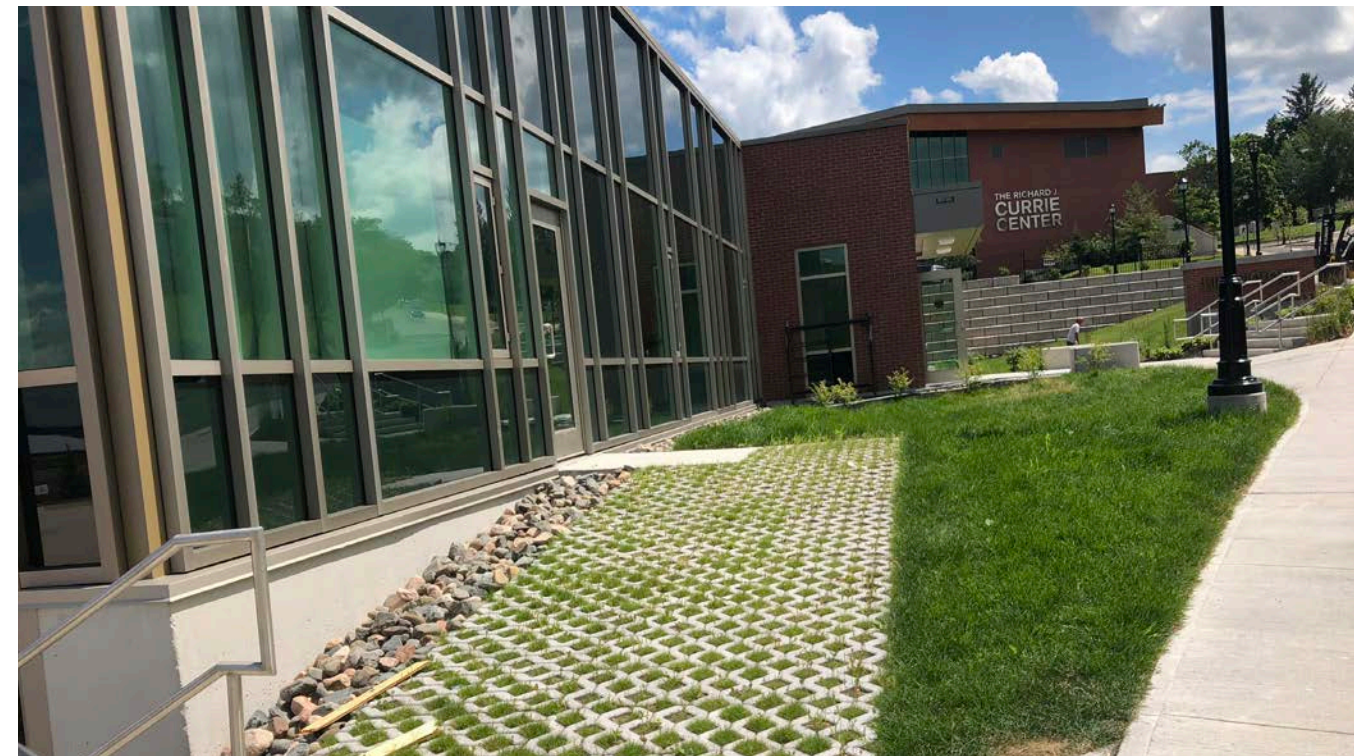


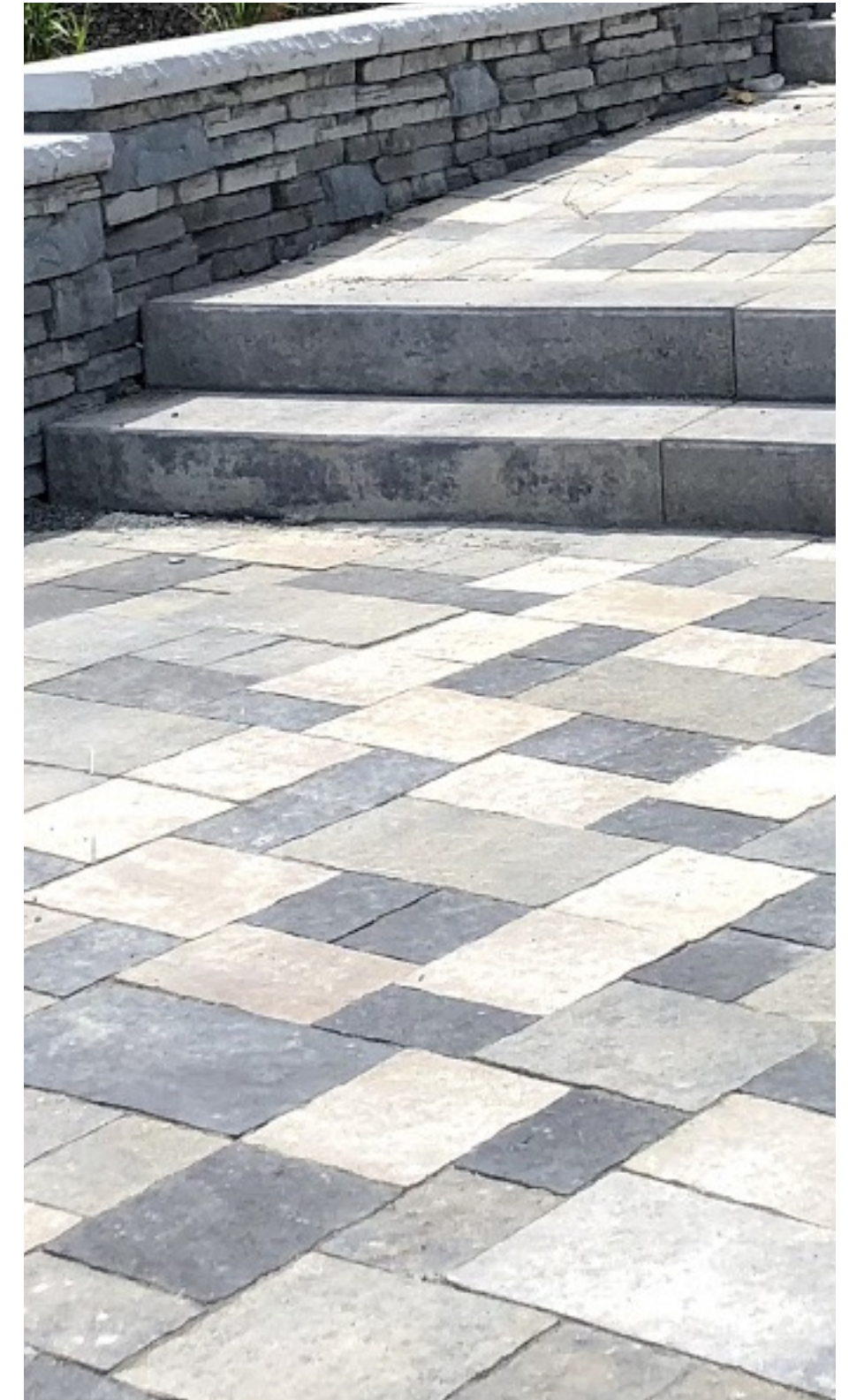
DIAGRAM 18



Example of generous width concrete walkway through key areas of campus.



Example of open-grid pavers at Kinesiology Building where access is intended for exiting only and not a primary building entrance.



Examples where decorative pre-cast concrete pavers have been used within plazas and courtyards on campus giving emphasis to the spaces.



3.6 SITE FURNISHINGS

Amenities such as site furnishings are a significant part of the campus infrastructure for functionality, use and enjoyment. Site furnishings are integral to the campus character and experience and come with maintenance requirements that must be accounted for within the campus maintenance plan.

UNB's Fredericton campus bridges the heritage features of the historic campus with the present day and this is an important attribute when selecting site furnishings. Newer buildings on campus have chosen to use traditional materials and blend them with contemporary design. Currently the campus has an array of exterior furniture styles. In recent years there has been a shift to streamline the furnishings to a standard palette. This typical suite of furnishings is outlined herein with the intent that older non-consistent styles be phased out as replacements or repairs are required. Consistency in furniture styles unifies the amenities campus wide.

3.6.1 Inventory

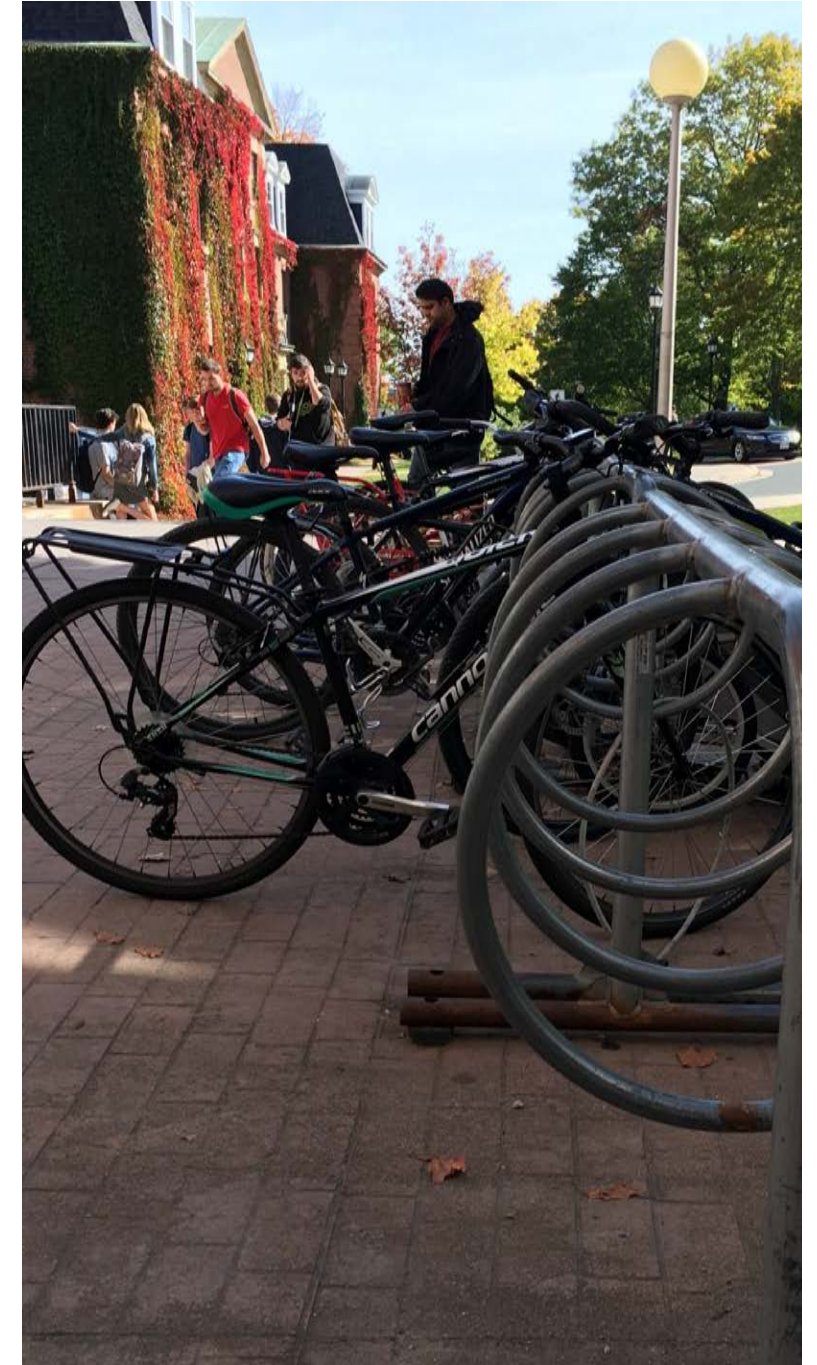
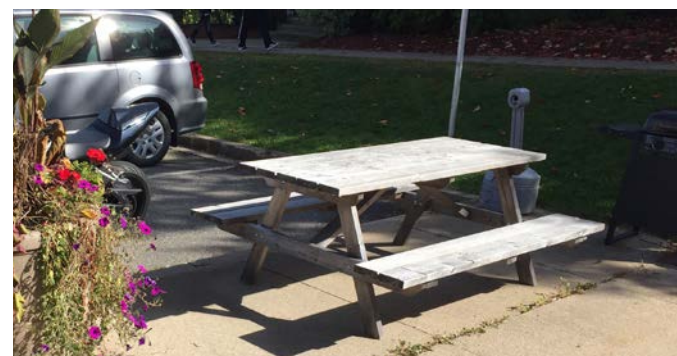
The campus has an inventory of site furnishings styles and locations including benches, waste receptacles, phones, bike racks, picnic tables, seating (non bench), shelters, planter pots, etc. This inventory is intended to be updated on a regular basis as furnishings are replaced, removed or relocated as a means to track the furniture.

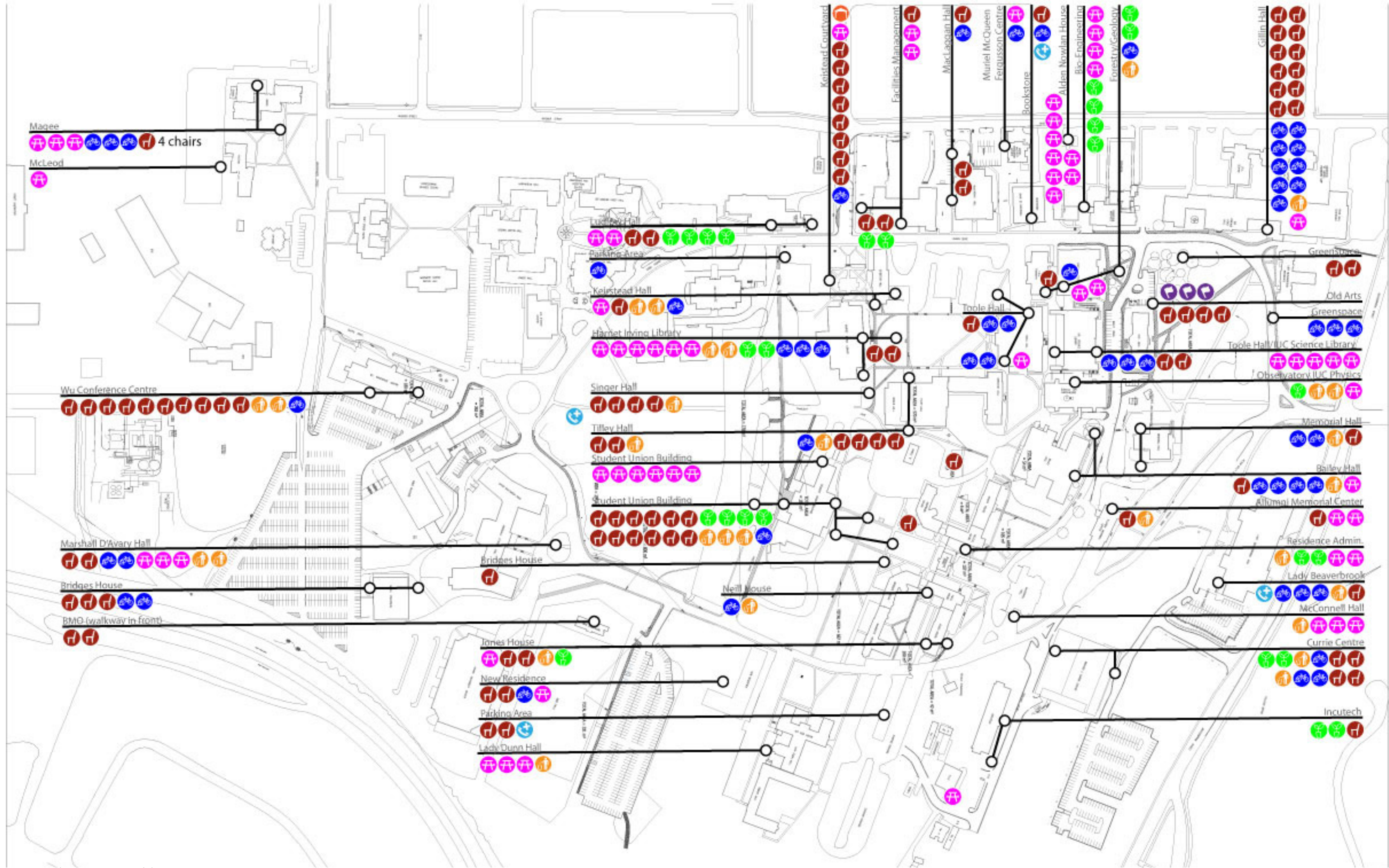
The inventory will inform where furnishings are required and desired and be used to determine future placements.

3.6.2 Seating

Seating on campus is comprised of benches, seats and picnic tables. There are currently a number of bench styles found on campus however there one preferred style which is a black metal bench.

- Where to locate (general) - In areas with sun and areas with shade, in areas that have a view within the campus or out





toward the St. John River, set back for sufficient leg room in front of the bench, in proximity to main building entrances or areas for small groups or individuals.

- Anchoring - Benches should be securely anchored and placed on solid ground or a concrete pad.
- Accessibility - Bench placement should allow for sufficient space at the end of a bench for wheelchair or walking apparatus.
- Commemorative/Memorial - The campus has a memorial program in place where individuals looking to provide a bench can contribute.

UNB Preferred Bench Style and Model

Ribbon Bench - Zinc HD galvanized powder coated steel frame, 6' in length. Manufactured by Waste Wise Products Inc. www.wastewiseproducts.com

UNB Preferred Picnic Table Style and Model

Plaza Hexagon Picnic Table, 'cedar' top and black base. Manufactured by Waste Wise Products Inc. www.wastewiseproducts.com



Example of preferred bench style and picnic table style.

3.6.3 Waste Collection

The University of New Brunswick has adopted a recycling program on campus and as a result exterior receptacles for waste shall provide for green, blue and clear options.

As with benches, these guidelines recommend a style and size for the general areas of campus in an effort to standardize site furnishings.

Location - Locate near building entrances and in areas of gathering however effort should be made to not locate adjacent to benches or seating. Receptacles should be easily accessible for maintenance.

Cigarette - Moving away from providing these on campus however in areas where required they should be placed at the minimum designated distance from primary building entrances/exits until phased out.

3.4.4 Planters and Pots

Planters provide the opportunity for seasonal interest around campus. When planting beds and gardens are not possible or desirable planters allow for accent pieces. Planters are also located around campus with edible plants therefore providing an aesthetic and/or functional amenity to the campus.

Planters should be located in high traffic areas such as building entrances, placed as a way to define a space or to deter vehicle traffic and in proximity to where people like to gather or sit. Self watering planters are preferred.

Ongoing maintenance will be required for planters and as a result it is desirable to have a designated group or individual responsible for monitoring. For example, if there is a desire for more edible container gardens around campus, the group responsible for the community garden may be responsible for maintaining and monitoring.

3.4.5 Bike Racks and Repair Stations

Encouraging active transportation to campus and on campus is



Example of preferred waste receptacle style.



Examples of planters on campus.

facilitated through the provision of bike racks, shelters or lockers and repair stations conveniently located. An assessment of existing bike rack use will be completed to determine whether additional racks are required in specific locations and in some instances will inform where new racks may be needed.

Bike racks and lockers should be located in proximity to the main entrance of buildings and may be grouped in a central location when covered. Repair stations should be provided at larger bicycle parking areas on campus.

Bike Repair Station, Fixit as manufactured by Dero
Post mounted bike repair station capable of mounting and providing tools to repair one (1) bike at a time.

Components:

- .1 Manual Air pump (1).
- .2 Bike mounting arm capable of holding one (1) bike.
- .3 Standard tool repair kit:
 - .1 Philips screwdriver.
 - .2 Flat head screwdriver.
 - .3 2.5, 3, 4, 5, 6, 8mm Allen wrenches.
 - .4 8, 9, 10, 11, 15, 32mm Box wrenches.
 - .5 Headset wrench (1).
 - .6 Pedal wrench (1).
 - .7 Tire levers: two (2).
- .4 Tools are to be tethered to frame using 4mm steel cable

Dimensions: Main Body: 15x5mm tube., Bike Mount: 38mm sch. 40 pipe, 6mm plate

Finish: Black in Colour.

Bike Wash Mounting Bracket
Commercial grade.
Dimensions: 400-500mm in length.

Mounting: Wall mounted style.

Bike Washing Station Hose Bracket
Commercial grade hose bracket capable of holding 7.0m long, 19mm DIA hose (hose by others).
Dimensions: Height: 350-500mm., Width: 350-500mm., Depth: 150mm max.
Mounting: Post mounted.
Finish: Black in colour.

3.6.6 Rain Collection Barrels

Rain collection barrels should be located within the community garden area.



Example of preferred bike rack.



Example of bike shelter, storage and repair station.

3.6.7 Fences

Fences, railing and guard rails all provide a necessary function on campus for particular uses. Decorative fencing in high profile areas should be Oasis Series 2000/5000 Model 2901/5601 or Iron Eagle American Eagle model, black in colour.

Fencing of a practical nature, not in a prominent location, such as the community garden, or as screening for garbage areas, may be chain link or vinyl coated chain link.

3.6.8 Bollards

Removable bollards may be installed in areas where traffic is not desired on a regular basis but for maintenance or service reasons may be desirable on occasion. Bollards may also be used to define a space between vehicles and pedestrians.

Suggested bollard style is the MTB100 Series Bollard as manufactured by Maglin. Bollards shall be constructed H.S. steel tube. Decorative top and base as cast aluminum. Forged steel eye bolts are optional. All steel components to be protected with E-Coat Rust Proofing. Installation should be in accordance with manufacturer's specifications as appropriate for the application, i.e permanent or removable.



Example of preferred decorative fence style.



Suggested bollard style, photo source Maglin.



3.6 RETAINING WALLS AND SEAT WALLS

There are two main styles of retaining walls on campus each with a different intent. The large precast concrete block retaining wall is used for high retaining situations. A smaller decorative block is used for small planter walls and seat walls.

Retaining walls should be installed in accordance with manufacturer's specifications.



London Boulder Stone Retaining wall .



Low decorative wall and seatwall, 'Rivercrest' Garden Wall, as manufactured by Unilock, colour in 'Coastal Slate' with cap block.





3.7 LIGHTING

The UNB campus has a primary light fixture that is used rather consistently throughout the campus landscape and the intention is that this fixture become the standard. The fixture is a traditional style fixture that suits both the heritage and contemporary aspects of the Fredericton Campus.

New fixtures should be coordinated the under direction of an electrical engineer, for spacing with optimum light levels. When located in proximity to walkways and buildings ensure that glare and light trespass are controlled and light is directed to the desired ground plain.



Preferred light standard.

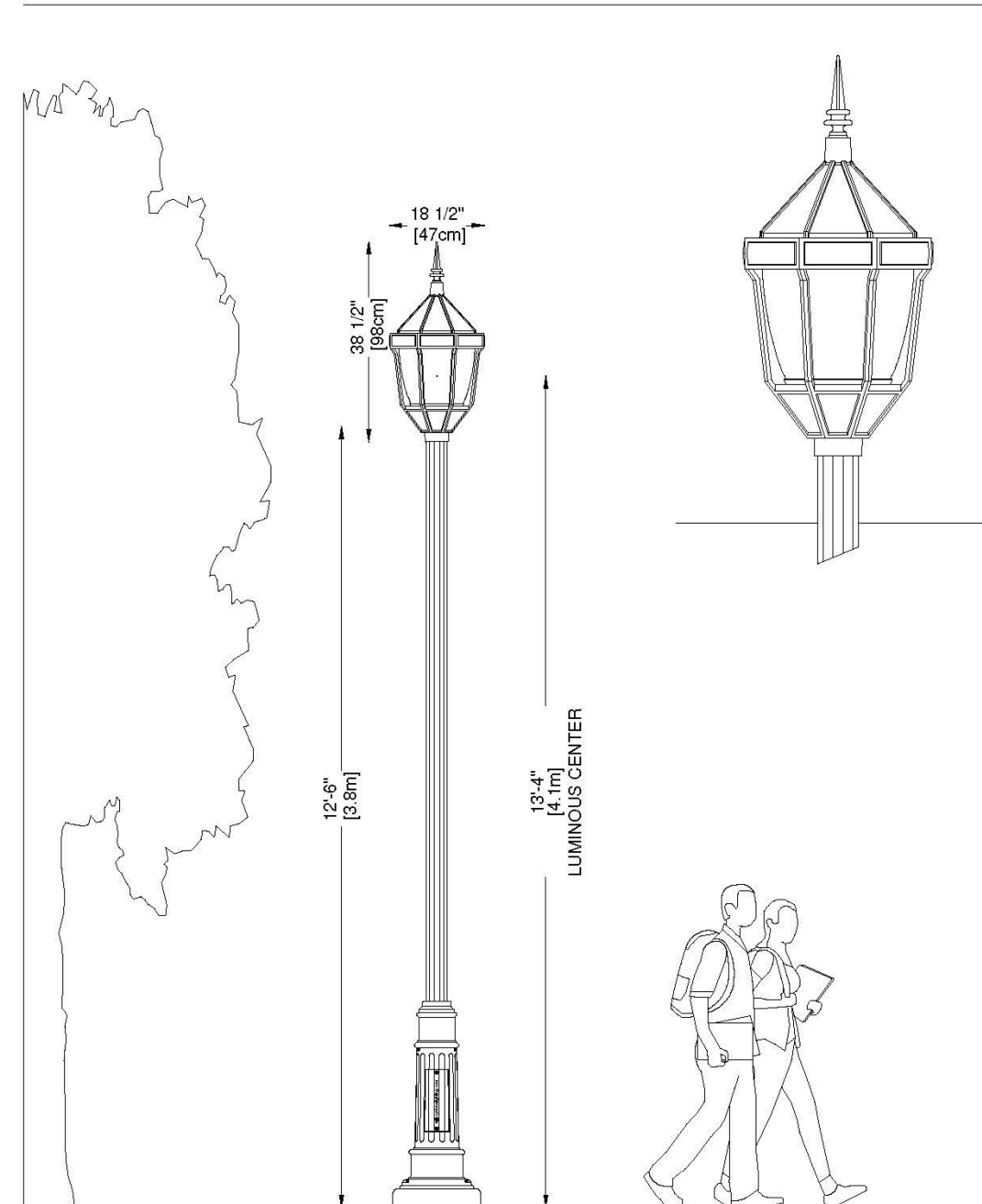


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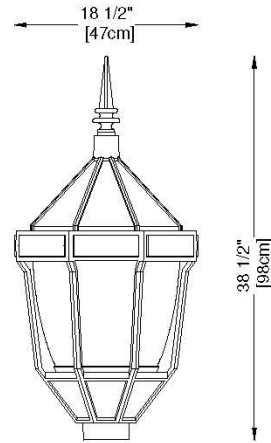
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Date : 16/05/2016 Page : 1/3
Designer : viacampo

Project : University of new Brunswick (UNB)

Order: SQ_018550

Type: A Luminaire : CY2601-VS3AP-SKY-5-68W-4K-120-F7AP-RAL9005TX

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Luminaire components

Head module: Octagonal shape. A heavy cast aluminum hood with a cast aluminum finial, top an injection-molded acrylic, POND finish 75% diffusing (VS3AP) vessel. UV polymer resistant. The vessel is mechanically assembled with an aluminum die-cast ring on the locking system.

Opening system: A quarter-turn locking mechanism with constant pressure points allowing a tool-free access inside the luminaire, to the driver tray. Made with cast aluminum parts and sealed with a gasket compression system. The luminaire offers an IP66 weatherproof protection.

Cone module: Driver housing made of an aluminum extrusion. Tool-free installation with a stainless steel captive retaining latch. Certification, maintenance and luminaire codification labels are located on the cone.

Fitter module: Cast aluminum alloy 356 fitter complete with eight (8) arms and a band. Secured on pole with 3 set screws 5/16-18 UNC. Slip-fits on a 4"(10cm) outside diameter x 3" (7cm) long tenon.

Optical/electrical components

LED: 68 watts, 4000K (White), Super high flux output and high luminance, design for high current operation. LED board is mechanically mounted on heatsink for easy replacement. Minimum color rendering index (CRI) 70. Correlated color temperature (CCT) 4000 Kelvin.

Optic: IES type V (SKY-5). The optic's collimator is made of segmented facets to obtain a higher uniformity with a maximum pole spacing. Complete with heat sink radiator to keep the LED temperature down and increase their longevity.

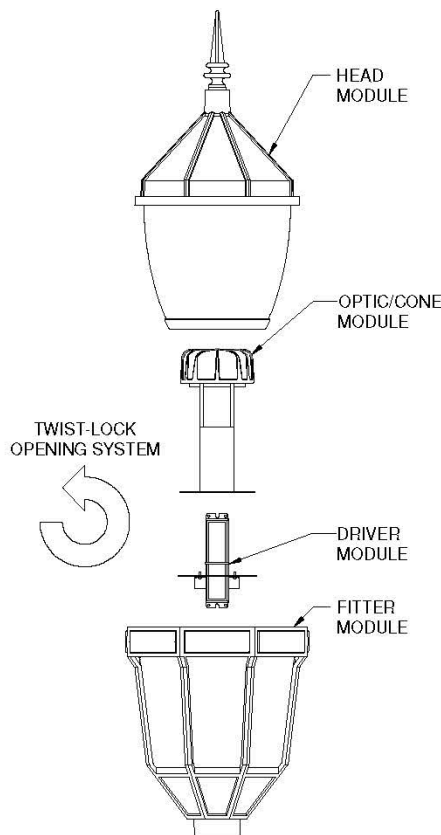
Heatsink: Die cast aluminium alloy has been thermally tested for maximum efficacy.

Driver module: Auto-adjustable 120-277VAC Class I driver. Primary voltage at 120 volts. 50/60 Hz. THD max 20%. ROHS compliant. Assembled on a tool-free removable tray with quick connectors resisting up to 221°F (105°C). High power factor of 90%. Minimum starting temperature: -40°F (-40°C). Maximum operating temperature: 130°F (55°C). Overheat protection: Output current is reduced to 150mA if internal driver temperature (Tcase) exceeds 185°F (85°C). Complete with a 3-Pole 10KV surge protector for Line-Ground, Line-Neutral and Neutral-Ground according to IEEE/ANSI C62.41.2 C High.

Generals/Options

Wiring/hardware: Type TEW 14-7. 12" (30cm) minimum exceeding from luminaire. All electrical connections between modules are made with quick-disconnect connectors. All exposed hardware is stainless steel. Silicone gasketing are applied.

Color: RAL9005 (Jet black) / Finish: textured (TX) or smooth (SM) . Application of a polyester powder coat of paint. (5 mils /127 microns). The finish meets the ASTM G7, B117 and D1654 requirements relative to salt spray and humidity resistance. **Cyclone recommends the textured finish for this product.**



EPA : 3.11 ft² Weight: 37 Lbs / 17 Kg

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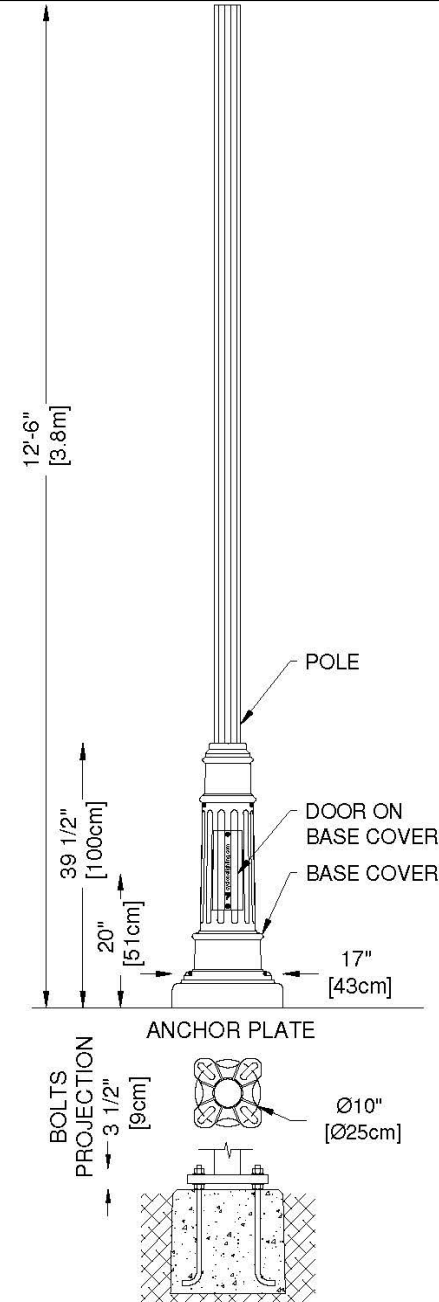
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Date : 16/05/2016 Page : 2/3
Designer : viacampo

Project : University of new Brunswick (UNB)

Order: SQ_018550

Type: A Pole : PD12-12'-6"-SA-BD41-RAL9005TX

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Pole components

Pole: Round reinforced, fluted shape (12 flutes). Made from a 4"(10cm)Ø, 6005-T5 aluminum alloy tubing. The pole is welded to both the top and the bottom of a reinforced anchor plate.

Access door: Covering a 2"x5" (5cmx12cm) opening with a sealing joint. Giving access to the copper ground lug.

Decorative cover: Round shape. A two-piece cover made of cast aluminum alloy 356, mechanically secured together with an access door covering a 4"x11" (10cmx28cm) opening with a sealing joint.

Bolt circle : 10" (25cm)Ø. Available from 7" to 11 1/2"(18cm to 29cm)Ø.

Anchor bolts : Supplied by Cyclone: 3/4" x 20"(17+3) Fully galvanized anchor bolts c/w nuts & washers for levelling.

Generals/Options

Hardware: All exposed hardware is stainless steel. EPDM and/or silicone gasketing is applied

Color: RAL9005 (Jet black) / Finish: textured (TX) or smooth (SM) . Application of a polyester powder coat of paint. (5 mils /127 microns). The finish meets the ASTM G7, B117 and D1654 requirements relative to salt spray and humidity resistance. **Cyclone recommends the textured finish for this product.**

Any accessories, added or modified that are not described on this approval drawing will automatically void the warranty unless a written consent is given by Cyclone Lighting.

Stamp/Approval
Name : _____ Date : _____

File : CY2601 - SQ_018550 - UNIVERSITY OF NEW BRUNSWICK (UNB).DOC
Date : 16/05/2016 Page : 3/3
Designer : viacampo



A

APPENDICIES

Garden Maintenance Plan *

Planting Bed Reference Guide *

Water Service Plan

Sanitary Servicing Plan

** Both reports provided by Facilities and are intended to be used as a reference and updated each year.*

The following section has been provided by XXXXXXX and is an outline of required maintenance for the various areas of the campus. (2019)

Gardening Maintenance Schedule

Spring

- Remove die back from lower limbs of all trees and any dead branches found
- Spring tree and shrub fertilization
- Rose bush pruning
- Begin spring cleanup of shrub beds if weather permits(snow melted)
- Rake and fluff beds to allow oxygen into shrubs and plants
- Work at snow removal damage and perform any weeding required
- Remove any tree suckers and vines from shrubs

The hanging baskets for the gates and Presidents need to be taken to Scotts and the summer flowers decided upon for planters and started in the greenhouse to be ready for graduation. The flower pots require a minimum of two weeks in the greenhouse. The pots needs to be filled with ProMix BX as a growing medium.

May

- Shrub pruning of new growth (as needed)
- Install fresh mulch and remove old if required (old, too high, etc.)
- Inspect trees, shrubs and plants for Insects and disease and treat if needed
- Begin spring flower installation mid to end of month
- Begin edging beds in high visibility areas
- Pruning of shrubs as needed, good time to shape evergreens (cedars, etc.)

Special focus needs to be towards the Graduation location and the route the students will march. Also this is the time of year to establish the schedule of events for the President's House.

Summer

June

- Finish flower installation and begin to monitor tulips for possible die back and dead head as required
- Water, fertilize, weed and deadhead flowers and tulips as needed
- Pruning of shrubs as needed
- Continue to monitor shrubs for Insects and disease, treat if required
- Edging of shrub beds and continued weeding of the beds
- Continue to visually inspect trees while performing work
- Vegetation Management of areas such as electrical fences, patios, etc. needs to begin

July

- Bed trimming, weeding and continued care of shrubs
- Water, fertilize and deadhead flowers and tulips as needed (tulips should be done soon)
- Shrub pruning as required, control growth
- Edging of shrub beds and continued weeding of the beds and vegetation management

August

- Bed trimming, weeding and edging
- Shrub pruning as required, avoid evergreens in excess heat
- Water, fertilize and deadhead flowers as needed

- Soil samples taken where required growth issues associated with soil conditions
- Check shrubs, trees and plants for disease and insects

Fall

September

- Bed trimming, weeding and edging
- Fertilize any shrubs and trees that are struggling
- Water, fertilize and deadhead flowers as needed
- Form a list of branches that need pruned from trees once leaves off
- Transfer any plants that need be split or are crowded
- Time to get the fall Mums and fall baskets ordered and put up

The Presidents house needs to have the fall theme flowers and plants done up for the hanging baskets.

October

- Fall shrub pruning and shaping as temperature cools down
- Begin the installation of annuals such as Tulips or other flowers
- Begin pruning of trees and leaf clean up in beds
- Beds can be weeded and edged

Begin to monitor the temperature to ensure the self-watering pots do not freeze.

November

- Shrub pruning and deadheading of perennials
- The self-watering pots need picked up and emptied before they freeze
- Begin winter pruning and final pruning for shape
- Final chance to deal with weeds, post emergent weeds control
- Wrap any shrubs or cover as needed or identified

The self-watering pots need to be emptied of soil, washed out and stored in a manner that water cannot accumulate and cause freeze damage to them.

All the hanging baskets need to be emptied and cleaned up so they are ready for spring.

Winter

December thru March

- Perform possible winter pruning, monitor for winter damage(depends on snow load)
- Tree removal once the ground is frozen in a low snow winter
- Snow removal and other duties

Edging takes more time than people realize to be done properly and there is a substantial amount of edgings to be hauled away. Ideally it would be done early in the spring however realistically it is something that we end up doing throughout the season.

This plan does not take into account the time restraints that a late spring can cause, there could be adjustments required also depending on staffing level and the weather. For instance the damage from snow removal in the area around the main gate must be fixed prior to routine bed maintenance elsewhere.

Possible plan additions

There needs to be an emphasis on the need for continuity of the people performing this work.

A schedule of trees that need to be kept in the watering rotation could be derived from this plan along with any that require the liquid tree fertilize. Newly planted shrubs could also benefit from a watering schedule as quite often there is no continuity when the watering is rotated amongst people.

The tulips and the care program needs to be decided

Gardening to maintain this level of care will require at the very least two fulltime people with assistance with weeding as there is no time to weed. We should look at keeping student type help on in the fall to deal with weeding and other issues such as whipping that ends up taking considerable time around the shrub beds.

Beds that need to go:

The bed to the right hand side leaving campus at the Montgomery street gate, constant unavoidable snow removal damage.

The two beds at the bottom of the SUB suffer snow removal damage, winter activities damages (snow boards, etc) and reflective heat damage from the glass windows.

The beds at McCleod house either need to go or be reinstated, they are overgrown, crowded and tired. We have tried thinning and transplanting but the end result is still not what we want to see.

College Hill Daycare

- Edge and weed shrub beds and the building sign
- Need to add some color to the sign and the building as its for KIDS
- Repair winter snow removal damage
- The building perimeter and the fence needs to be whipped more often

Pruning of Shrubs

This area does not have much for shrubbery beyond the two large Cedars that are located on either side of the walk leading into the building. They need to be kept trimmed and the size controlled.

Care of perennials

There are Lilies and a few other perennial plants in these shrub beds. They require dead heading late fall or early spring. There are 2 clumps of Lilies near the globe shaped Cedars that need to be moved out from the cedars some as they are being crowded and not doing as well as they could.

Tree Care

There are two fairly new trees, Ohio Buckeyes, inside the fenced area that should be fertilized and could stand some mild corrective pruning. The Apple tree in the back needs to have the canopy raised and some pruning done. The dead cedar tree in the back needs to be removed early in the spring. The remainder of the trees along the fence need to be kept trimmed back from the fence.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

DKT

- Edge and weed all beds (round bed in front)
- The patio area and kitchen entrances need to be kept free of vegetation

Round bed in front

The Purple leaf sand cherries need to be pruned so they are not crowding the potential and encourage upward growth. The Lupines need to be dead headed before they become unsightly. The large tree style shrubs need to be trimmed for shape and size while removing any dead wood.

Joy Kidd front entrance

The cedars and junipers need to be trimmed and ensure that openings are left to allow access of the lawn mowers. Several trees need to have their respective canopies raised for the lawn mowers.

Joy Kidd side entrance

The beds need to be weeded and edged. The Junipers need to be pruned down and remove the brown wood from them. The Hostas and Lilies need to be thinned out some and relocated next to the kitchen entrance as it is simply a large mulch bed. Any Burdock needs to be completely removed. The area with the 4 large exhaust fans needs to have pruning performed to eliminate the constant damage from the Zoom Boom when doing the quarterly inspection of the fans.

Facilities Management (Shrubs are in excellent shape)

- Edge and weed Shrub beds along with building sign
- Fertilize new tree planted to left of walk leading into building
- Repair winter snow removal damage
- Repair and reinstall bricks and border in the front area with benches (this area should be sprayed on a schedule beginning in the spring)
- The building perimeter and the loading dock area needs to be on a spray schedule to control the growth of vegetation and weeds(vegetation management program)

Pruning of Shrubs

The shrubs should be maintained at a height level with the window sills across the front of the building. The shrubs need to be pruned to keep the current size and spacing while working towards lowering the burning bush some to allow for the dogwoods to become higher as they are in the back. Structural pruning of the burning bush, purple leaf sand cherries and dogwoods will be important for the longevity of the shrub bed. The purple leaf sand cherries are fine and only require pruning to maintain health and desired shape. The hydrangeas need to be cut back every fall to promote healthy growth with no dead wood visible. The ornamental tree in the shrub bed (drafting area) needs to be kept free of suckers and current size and shape maintained.

Care of perennials

The perennials are growing nicely with some minor crowding (Shrubs have grown and causing some crowding). Transplanting within the shrub beds will provide more space for the plants or transferring some perennials to a different location.

Tree Care

There is a large maple on the corner towards Singer that needs a limb removed. The tree next to building (outside Craig window area) need to have the roots covered with soil and grass seed put down or sod to protect trees and lawn mowers. These trees should also be fertilized to help them overcome the stress relating to the root system from the excavation required to repair tunnel top.

Note: With regular maintenance and care these shrub beds will last until a change of scenery is desired.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Aitken Center

The Dogwoods need pruned to eliminate limbs that are growing on the ground. The side entrance needs the lawn repaired. The cedar trees need pruned to raise their canopies and to remove and dead or decaying wood. There also are some tree shoots that need to be removed around the building.

Burden Academy

- The white birch trees need to have the suckers pruned off them
- The cedar rail fence will need to fixed up as it has fallen down in a few places
- Any fallen rocks around the foundation perimeter need to be piled back up
- Pruning around the building and surrounding structure is required

Note

There are no shrub beds in this area that require any care. There are only trees that need to be pruned occasionally to stop the growth of limbs over Burden Academy and the surrounding structures.

Carleton Hall

- Edge and weed around the building sign
- Repair and reinstall the bricks to retaining wall (2) from winter snow removal damage
- Look at fixing the lawn around the building side and up to the main entrance

Pruning and care of Shrub bed

There is only one shrub bed at Carleton and it is located at the top of the steps coming from IUC. The Sumacs need to be pruned back as they are hanging over the walkway and should they get much larger they will begin to break and die off. This can be accomplished with some major corrective pruning. There is a ground cover at in this bed that needs to have the dead and grey tips pruned out. There are some very beautiful pink Spiraea that need to have the dead wood removed to encourage more new growth.

Tree Care

Across from Carleton there are several large Oak trees that need only minor pruning as they appear very healthy. They do however drop a fair amount of small branches and acorns that need raked up in the early spring. Beside the main entrance there is a large cedar that is not all that cosmetically appealing and could be considered for possible removal.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Harriet Irving Library (an area that is very visible)

- The patio area needs more vegetation management as does the building perimeter
- Edge around the building and weed beds
- This an area with Tulips, all along the front two beds.
- The newly planted Crimson King needs to be fertilized
- The large Stone Plague needs straightened up some

Pruning of Shrubs

This an area that does not have any shrubs that require pruning beyond the two Service Berries near the accessible parking area. These shrubs need to be kept pruned to safe level for eye contact with sidewalk plows and lawn mowers as this is a very high traffic area (Likely we should transplant them elsewhere and sod this small area for safety and less mulch).

Care of Perennials

The perennials at the HIL consist of Lilies and Hostas. Both are quite crowded and could stand to be thinned out. This should wait till fall as the Tulips in this area need to be left fairly undisturbed early in the spring. These two perennials require very little maintenance and care beyond dead heading spring or fall depending the work load and conditions. Any perennials that we transplant could be used to rejuvenate the area between Tilley hall and Annex C.

Tree Care

The very large Poplar near the sign to the building on the corner of McCauley and Pacey needs to be monitored as it has some limbs that appear to be in a state of decay. This species of tree tends to rot from the top down so this is likely an indication of the overall condition of this large tree. The other trees behind the HIL along Pacey drive all need to be pruned with the Zoom Boom as they have a large amount of decaying limbs. The Crimson King in front of the HIL needs to be fertilized and kept on the watering schedule for this year as it was newly planted late in the summer.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. Due to not wanting to disturb the Tulips the Lilies and Hostas should be thinned and transplanted in the fall. As mentioned this would make for a nice project to rejuvenate the area between Tilley and Annex C. This property could stand to have some annual flower beds added or more flower pots around it. We did put some tulips across the front that will help with some added color beyond the mulch and perennials. Also the Tulips will need to be dealt with as soon as they begin to die off. There are two ways to deal with them. The first option is to dig up each individual bulb and to store them in a cool dry place till they would be replanted in the fall. This is quite time consuming and without more people will slow up the care and maintenance of other shrub beds. The second option with the tulips is to simply cut them back once they begin to die and let the other perennials become the focal point of the two beds.

Law School (Shrubs are very healthy and crowded)

- Edge and weed the shrubs beds
- Repair winter plow damage
- Spray for weeds around electrical area and building perimeter (this should be on a schedule with other areas)
- There is some crowding of the Hostas along the patio that needs dealt with

Pruning of Shrubs

The Dogwoods and Spirea are okay for size and shape presently. They will need to be pruned for any winter damage and general esthetics. The Sedums will only need to be dead headed if this was not done in the fall. There are two Junipers that need to be removed with the Backhoe and replaced with some of the Hostas that are in need of being thinned out along the patio. There are several shoots in the beds that need to be removed annually (this from the surrounding trees). The Lilies need to be thinned out next to the stairs heading to sidewalk. They could be moved to the location of three Junipers near the Main entrance to Law School.

The Burning Bush are all very healthy and the shape and size only needs to be maintained and corrective pruning done to repair any winter damage

Care of Perennials

The perennials are all very healthy with the exception of two evergreens that need to be fertilized. This is another area that soil sampling could be very helpful in maintaining plant health long term. There are 8 Lilies that are being shaded by the Burning Bush, the Lilies could easily be relocated on the property at Law School. The same thinning and onsite relocation can be applied to the Hostas along the patio.

Tree Care

The large spruce trees have some dead/dying branches that can be pruned out with the pole saw. The Tam-aracks need to have the canopy raised at the same time. Around the back of the building and the side adjacent to Burden Academy there are several limbs touching the building and hanging over the driveway that need to be trimmed back.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

There is also the re occurring wash out across from Facilities that should be re sloped in an attempt to eliminate this washout when heavy rains occur. This could be done as soon as the ground is dry then sod will have a chance to grow and take a hold early in the season.

The patio is an area that requires vegetation management early on in the season to halt the growth of weeds up thru the patio and surrounding areas.

Keirstead Hall and the New Courtyard

- Weed, prune and edge the Rose beds on upper side of building
- Fertilize the newly planted tree across from Facilities
- Repair the winter damage on lower side (lawn) from snow removal
- The patio area on the lower side needs some attention.

Pruning of Shrubs

The upper side of Keirstead hall has some very large and mature Hews (5) that need to be kept pruned and trimmed to a uniform level. They should not be trimmed during periods of extreme heat. The shrubs on the rear or lower side of the building are relatively new and suffer tremendous snow damage. They need pruned to remove winter damage and then maintained to a desirable shape and size. There is a dead Daffodil Willow that needs to be removed and replaced.

The roses on the property need to be pruned while keeping in mind that roses grow best with 4-5 main stems that are kept in a vase shape. Additionally any dead or decaying wood needs to be pruned out. While pruning any suckers should also be removed.

Care of Perennials

There are only perennials in the lower bed, they require dead heading spring or fall depending on the workload.

Tree Care

The hill behind Keirstead hall is home to several different trees including White Birch and Maples. They require some dead and decaying wood pruned out with the pole pruners. This should be done ideally before or after any leaf growth.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials while pruning shrubs as needed. The edging can be performed at this time as well (time constriction will affect edging). Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

The New Courtyard

- This is an area that should be fertilized very early in the growing season as the soil provides a very poor growing medium.
- Edge and weed the beds
- Give this area a very thorough spring cleaning
- There are tulips (annuals) present in this area, planted among the beds

Pruning of Shrubs

The shrubs in this area should be maintained at the current shape and size as it fits well with the surrounding stone work and Gazebo. The only shrubs that could be encouraged to grow larger are the burning bush. The Roses need to be pruned with current practices for roses. There are other shrubs that need pruned to encourage healthy growth (forgot to make note of the species)

Care of Perennials

There are Lillies planted between the Burning bush and Perennial Grasses that are struggling (perhaps some fertilizer will help) and possibly will have to be removed and replaced. The perennial grasses should be cut back early

in the spring to allow for the maximum amount of new growth. They historically are left till spring as it provides something to look at thru the winter.

There are numerous Tulips planted in this area that will begin to die back in late June to late July. At this time they must be cared for.

Tree Care

There are several ornamental trees such as crab apple trees and others that all require the canopies pruned to allow for pedestrian traffic to pass thru the courtyard. The newly planted tree adjacent to the Hill should be fertilized and any required pruning performed. There are tree stakes on these that should come off.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program.

General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Also in these beds the Tulips will need to be dealt with as soon as they begin to die off. There are two ways to deal with them. The first option is to dig up each individual bulb and to store them in a cool dry place till they would be replanted in the fall. This is quite time consuming and without more people will slow up the care and maintenance of other shrub beds. The second option with the tulips is to simply cut them back once they begin to die and let the other perennials become the focal point of the two beds

MacLaggan Hall (New Shrub beds in 2015)

- Edge and weed the two shrub beds in front of building
- Repair the continual snow removal damage to front of building
- Repair the constant winter damage to the front. Care needs to be given to the walks leading into this building as there are very large amounts of students using the lecture theaters in MacLaggan.
- Freshen up the benches that are next to Facilities (very weedy and un kept)

Pruning of Shrubs

The shrubs in the two beds are relatively young and are growing well. Mild pruning to keep the current shapes and heights is ideal. The Dogwoods and the Burning grow very fast so they should be pruned more aggressive than the others. They should never be allowed to get any higher than the bottom of the windows along the front. There is a small clump of roses in the bed to the right of the main entrance, these are from the original shrub beds and have significant meaning to the Faculty.

Care of Perennials

The perennials are doing nice with no crowding as they are relatively young. This will need to be monitored on an annual basis as the beds grow and mature. Beyond normal dead heading in the fall and clean up in the spring they should be maintenance free.

Also the shrub bed of perennials across from MacLaggan is very crowded and needs thinned out. The bed is full of Day Lilies and Sedums.

Tree Care

The trees are in desperate need of care, mainly due to proximity of the tunnel system which does favor the healthy sustained growth of a tree. The Zoom Boom will be required to prune the rot and decay out of the 2-3 large maple trees. Moving forward there needs to be more planning put into trees species planted close to the tunnels. The reason being is that the heat underground with the roots causes issues with dormancy of the branches above ground.

Behind the building along Windsor Street there is one tree left that is red Norway maple that requires some liquid fertilizer in an attempt to promote a more vigorous growth. This is a poor location for a tree due to the constant piling of snow and salt from the City plows and our snow removal.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Main Gate on Kings College (Tulips are planted here)

- Edge both shrubs and flower beds in an attempt to create two beds identical in shape and size
- Take note of any growth of the tulips and be careful not to damage while raking mulch
- Prune the purple leaf sand cherries to the same size, this could take a couple pruning's
- Prune the Spirea for shape
- Weed both shrub beds, do not mistake tulips for weeds

Pruning of shrubs

The shrubs should be pruned to maintain a symmetrical appearance from one shrub bed to the other (as nature and winter damage permits). The height of the gates should be a determining factor when selecting the desired shape and size of the purple leaf sand cherries that are in the corners of the beds. The other perennials that will need some pruning are the small spirea, a uniform shape is the main goal.

Care of perennials

The perennials will likely require some fertilizer as the tulips will be competing in these two small beds for nutrients. As the tulips grow there could be a need to cut back the perennials, more specifically the day lilies to allow for the tulips to become the show case of these beds.

Tree Care

The trees associated with these beds are the Oaks along Kings College. General pruning should be done in the spring. The canopies all need raised some as the limbs are hanging over the road some. Simultaneously any corrective or esthetic pruning should be done.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Also in these beds the Tulips will need to be dealt with as soon as they begin to die off. There are two ways to deal with them. The first option is to dig up each individual bulb and to store them in a cool dry place till they would be replanted in the fall. This is quite time consuming and without more people will slow up the care and maintenance of other shrub beds. The second option with the tulips is to simply cut them back once they begin to die and let the other perennials become the focal point of the two beds

Marshall D'avary (Area has been under steady construction for 3 years)

- Edge and weed shrub beds and signs
- Repair damage to retaining wall for accessible parking at rear
- Repair winter snow removal damage
- Clean up fenced area for daycare

Education Entrance

The Dogwoods need pruned to expose the potential. There is a large tree style shrub on the left (AUC side) that needs removed or pruned to a height of 5'. There are Hostas on the right that are crowded and 2-3 should be moved to the empty space on the left.

Shrub Bed in corner

This area is a maintenance nightmare. The Junipers need to be pruned and the brown wood removed or even removed as this would provide a better growing opportunity for the Hostas and Potentilla to grow. There are 2 large Burning bush that could be relocated in the bed to improve the esthetics of the bed. The Pink Spirea needs to be fertilized.

NOTE: This area needs to be on the list of shrub beds to be reinstated.

Main Entrance

The Lilies are very crowded and the bed needs weeded and edged.

Traffic Circle

There are 2 Hostas crowding the Rhododendron that could be transplanted to the empty space near the bike rack. The Rhododendron needs to be fertilized and some pruning performed only for damaged wood. The White birch tree has some suckers that need to be removed and there are dead limbs up 8-10 feet that need pruned out.

Daycare Area

The shrubs and perennial only require minimal pruning in this area with a focus on the safety of small children, as in the height of possible eye injuries. The Blue spruce need to be shaped along the fence.

McGee and McCloud (need to consider reducing the amount of shrub beds here)

- Edge and weed Shrub beds and around the rock
- Fertilize the new and the struggling trees
- Repair winter snow removal damage
- The area around the kitchen and the cellular tower area needs to be on a vegetation management program

Pruning of Shrubs

There is a rose bed near the light pole between the two buildings that needs to be pruned for size and to open up the roses some as they are becoming bushy looking. The Barberry around the patio area needs pruned for shape. The Burning bush near the main entrance to McCloud need pruned to remove dead wood, the size is okay currently and should be allowed to grow some as long as they do not affect the sidewalk.

The two shrub beds in front of McLeod are very over grown and could be put to lawn Should they remain, we could remove everything except for the Spiraea and the Roses along with some of the Dogwoods in one of the beds. With an extensive pruning and fertilizer we could aim for better growth the following year.

Care of Perennials

The perennials in the area with the retaining wall and patio area are being overtaken by weeds and the growth of Lupins. With the removal of the weeds and Lupins they should be fine and will only require minimal care moving forward.

The perennials in the bed located at the main entrance to McCloud need to be moved or pruned some along with the cedars to expose the memorial plaque in the bed.

Tree Care

There are some newly planted trees that need to be fertilized and any corrective pruning performed. Near the service entrance (Franks old apt) there is a tree that has been planted too close to the wall and should be removed, if possible we could transplant but like better to butt prune. Several trees need to have their canopies raised to allow for better passage of the mowers. The large cedar near the patio area needs to be maintained free of growth and shoots at the base. There are three pine style trees on the lawn that could be removed and the area simply mowed. They are in a poor location due to the proximity of overhead power lines.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

McKenzie House (Extremely Visible, needs more curb appeal)

- Edge and weed shrub beds
- Repair winter snow removal damage
- Crab Apple tree needs fertilized and staked

Pruning of Shrubs

There are Dogwoods and Purple Leaf Sand cherries that require pruning for shape and structure, the size is ideal for the location. The Junipers along the front parking area require the brown and dead pruned out of them and trimmed during the growing season. The roses need some fairly extensive pruning to regain the shape and structure that is required in this location while removing any dead wood.

Care of Perennials

This would be an ideal spot for any of the Hostas and Lilies that the plan indicates removing in other locations due to crowding.

Tree Care

The Crab Apple tree need to be fertilized and staked for a growing season to assist with better growth. There are a mixture of trees along the two sides of this building that require mild pruning for any dead or decaying limbs. The area around the Don's apartment needs to have the canopies of a few trees raised for lines of sight.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

National Research Council

- Edge and weed all shrub beds and tree bases (lots to edge)
- Add crusher dust or pavement to the bus stop area
- The building perimeter (beach rock) and around the large generator needs to put on spray program (vegetation management)
- The ground covers require weeding to remove all grass and weeds

Pruning of Shrubs

The shrubs in front of the building near the main entrance all require pruning to control the growth and to keep a uniform height equal to the bottoms of the windows. While pruning space needs to be created for the Lilies, or move them to more open areas in the beds at NRC. The perennial ground covers need to have any brown, grey or damaged spots pruned out. The Hydrangeas need pruned back some from the ground cover. Also the vines need to be removed around the loading dock as every year we get a memo to pull them down. The solution could be as simple as adding them to the spray program (vegetation management program).

Care of perennials

The perennials on the front of the building are growing nicely and will continue to look nice with proper care and pruning. This is an area that snow plowing piles could cause damage to the shrubs. The rear of the building requires more work with the Hydrangeas and the ground cover. Fertilizing the ground cover would be helpful to its growth and color.

Tree Care

Several of the trees need to have their canopies raised as they are hanging over shrub beds and in the way for lawn mowing. The trees in the front form a type of shrub bed with mulch that could be removed to help cut back on the amount of mulch used. The large Pine shrub in the shrub bed with the building sign needs to be pruned to a uniform height and to allow for visibility of the sign.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs. This is a property that requires a lot of vegetation management and should be on a regular program from whipping around the curbs and building perimeter to spraying of patios and beach rock.

New Residence

- Edge and weed as required
- Prune the Junipers back that are crowding the walks
- Light pruning is all that is required

Richard J Currie Center

Note: This area will require routine maintenance until the construction of the new building is complete.

- Weed and edge the shrub bed along the weight room window
- Remove grass on the backside and put to mulch (area with 3 lights)
- All remaining shrubs require pruning to maintain current size and shape

Singer Hall (This was newly done in 2015)

- Edge and weed shrub beds along with the building sign
- Fertilize all the newly planted shrubs to give them a boost
- Repair and reinstall bricks from the retaining wall
- Clean up and weed the area with the 2 benches and trash receptacle

Pruning of Shrubs

As these are all fairly new shrubs they will only require minimal pruning to correct and winter damage or to remove dead wood. While pruning space consideration should be kept in mind along with the desired height in the future. This is more important with the Burning bush and the Hydrangea as they tend to grow quite fast.

***My though is to work at keeping the entire area the size and shape that they currently are including the shrubs along the top of the retaining wall across from the entrance

Care of Perennials

The perennials will need to be monitored over time and when they get to a size that is not desirable they will need to split and transplanted. Beyond that they will require the normal dead heading and repair from winter damage from snow removal as they are adjacent to the sidewalk.

Tree Care

There is Red maple to the right of the entrance that needs to have a dominant leader established along with some corrective pruning. In that area there is also a cherry tree that is considered a fruit tree as they are edible. This fruit tree needs to be pruned to encourage more fruit production (part of the edible food planter thought, but actually sustainable).

CC Jones (Needs more added to front, very high student traffic area)

- Edge and weed shrub beds along with the building sign
- Repair winter snow removal damage
- Repair and re install brick from retaining wall
- Raise canopy of White Birch and Maples on sidewalks

Pruning of Shrubs

The bed behind the building has a large rock that needs to be exposed in the bed. The Junipers and roses need to be pruned back. The Juniper might have to be removed as it has become very large and an extensive pruning could result in an unsightly shrub. **Should plan to remove the Junipers completely as snow removal is hard on them** the roses will naturally take the place in the bed.

The large Burning Bushes need pruned to allow for more airflow thru them and the bottom 2-3 look at raising the canopy on them. The Purple leaf Sand cherries require minimal pruning as they should be encouraged to grow some. The cluster of Spiraea need to have more growing space created for them and the dead wood removed also. Likely the pruning or removal already mentioned of the Juniper and pruning of other perennials will provide the required space for the cluster of Spiraea. This will be determined on site as work is performed.

The front of the building has some Junipers that needs to be trimmed and this will allow for better growth of the Lilies.

Care of Perennials

The perennials will only require normal care spring and fall once the adequate space has been created. Transplanting or adding some perennials to the two beds on each side of the front steps would add to the esthetics. Tree Care

The trees along the sidewalks all need to have their canopies raised and some minor pruning performed at this time. Behind the building on the grass area there are some struggling Norway Maples. They have had some extensive pruning already to remove dead and decaying wood, continued pruning along with liquid fertilizer should help them.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

South Gym

Electrical box area

The Purple leaf sand cherries and the Dogwoods needs to be kept pruned to ensure the electrical box stay concealed. This could be edged along with the adjacent building sign that needs weeded.

Back of Building

Repair the retaining wall that is a result of snow removal damage. There are 3 very large burning bush that required shaped in a globular fashion. The large Dogwoods could be transferred to the area with the 2 Red maples and the bench. There are Lilies in the same bed that would look better if relocated within the area. The area with the benches needs new crusher dust and the addition of fabric first.

Sub and Pacey Drive (Very visual area that should be a high priority)

- Edge and weed all shrub beds in this area, not all border grass
- Repair any winter snow removal damage, especially the Bus Stop
- Fertilize the ground cover in an attempt to make it more vibrant
- The area outside of Becky's window is in dire need of some assistance along with the patio that is weedy outside of the Atrium
- **The area in front of the Sub with the Butt Stop needs beautification(either Sod or some perennials)
- The perimeter of the Sub needs more attention in the vegetation management area as it house several food service providers and has two kitchen loading docks

Pruning of Shrubs

As this is a large spread out visual area the dead and brown along with any winter damage needs to be pruned out early in the season. The ground cover along the retaining wall on Pacey as with the ground cover adjacent to the Sub parking lot could need to be removed depending on the extend of the snow and salt damage. The Junipers in front of the Sub outside of Becky's Window need to be pruned back as they are crowding the Burning Bush. The shrubbery along the wall of the Topless Tunnel needs to be kept pruned to control the growth while keeping the wall behind it in mind. Behind the Sub the Vera gated Leaf Dogwoods will require minimal pruning along with the other species in these two beds as they are struggling (in part from constant damage from winter snow carnival and the reflection of Sun off the windows). This is an area where crowded perennials from other parts of campus could be relocated, species such as Hosta or Lilies are more tolerant to this type of shrub bed location that receives direct salt and snow removal issues.

Care of Perennials

The Large beds in front of the Sub and across the street all have Lilies that need thinned out due to crowding. All of the Lilies including the Tiger Lilies can be used around the Sub to make up for bare areas or to replace poor performing shrubs and perennials. The bed next to the pine tree in front of the Sub has a large clump of Perennial grass that has become quite large and crowded from the Lilies that with some care could be a very beautiful bed (The mulch needs lowered here). The Barberry style perennials adjacent to the black iron fence need fertilized to encourage more growth.

Tree Care

There is a Maple and a Common Hackberry on the grassy hill near the Omni Office that require pruning and fertilizer. The Mountain Ash across from them would produce a more vibrant orange in the summer with some fertilizer as well. Across from the Sub the canopy needs to be raised for the lawnmowers. The two wooded areas

around the Sub have a few trees that need to be monitored as they are getting closer to the point of removal. Also there are some branches that could be pruned in the larger Pines and Cedars in the Cellar Pub exhaust fan area. This would also facilitate the Zoom Boom in accessing the exhaust fans when required. The Ponderosa style Pine in front of the Sub needs to be monitored as it is still leaning from the effects of hurricane Arthur. The size will need to be controlled as this is more of a location for a manicured tree than one that is simply allowed to grow on its own.

The Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. This area will require very little fall pruning beyond the Burning bush.

Some thought could be put towards eliminating the shrub beds at each end of the gravel parking area as they suffer continued heavy winter damage and are very high maintenance for weed control. They could be put to Sod along with the top of the retaining wall parking area, this would reduce our mulch consumption and labor requirements for weed control.

This area should be mostly perennials due to the potential for vandalism of woody type shrubs from intoxicated bar goers.

Another issue behind the back of the Sub is the two benches that the concrete pad they sit on does not accommodate a person's feet. Directly below them there is a new memorial bench that needs to have sod added around it (possibly could already be done).

Tilley Hall and Poets Corner

- Edge and weed Shrub beds along with the building sign
- Fertilize the two trees and Junipers outside the entrance to Arts Faculty
- Repair snow removal damage near Tilley main entrance
- Ensure Poets Corner gets done when at Tilley

Pruning of Shrubs

Tilley Main Entrance

The roses need pruned for esthetics and health. These are roses that were originally planted as a Staff/Faculty initiative that got left to grow wild. We modified this area to the right (going in) of the main entrance in 2015. The Dogwoods need pruned for width and to encourage some upward growth, this is required for all the Dogwoods associated with Tilley Hall. Among the Lilacs there are several shoots that need pulled to allow for better growth of the Lilacs. There are small type of Spiraea that need pruned for shape more than anything, located in front of the Lilacs. There is a large Hydrangea near the steps leading up to Singer Hall that needs to have its growth controlled as it is growing into a spruce tree, prune for shape and size.

Tilley Arts Entrance

There are some fairly nice mature Junipers in this area that require the brown and dead pruned out of them. There are some Sedums that require more space, this can be achieved by pruning back the Dogwoods and the Junipers that are the source of the crowding. While pruning the Dogwoods keep in mind that we should encourage upward growth and width. There is a Hydrangea that require some attention possibly in the form of fertilizer and pruning.

Care of Perennials

There are Hostas in this area that require some space created for them, possibly they will have to be relocated in the existing beds or moved to another site. Besides that the Hostas will require minimal care beyond dead heading. The Sedums require being cut back late fall or early spring. There are some Lilies at the upper shrub bed with the roses that have a fair amount of yellow in them, should this still be an issue in the spring it will need pruned out and the plants fertilized

Poets Corner

This is an area that requires continual vegetation management in among the stone work and likely should be placed on a vegetation management program. There are several hews along the top perimeter of the stonework and in the middle row as well that require being trimmed to a controlled uniform height. These shrubs also serve as deterrent for people not to fall over the wall so they should always be at least 2' high. The perennials in the middle of the landscape tend to over taken by couch grass, better weeding of the bed early in the season should correct this issue. Also at the base of the monument there is an annuak bed that requires flowers added to it each year and should be done my mid-June.

Tree Care

The two trees at the Tilley entrance to the Faculty of Arts need to be edged and weeded along with some fertilizer applied. There is a Red Maple and an Ohio buckeye that should both be doing much better than they are. The other trees are more mature on the lawn towards the Carleton side entrance, the Spruce needs the canopy raised while the large hardwood needs some pole pruning. On Poets Hill there are two very large hardwood trees that have some decaying branches up high and will require the Zoom Boom. There is also a Crabbe Apple tree in this area that needs some pruning and the canopy raised. Directly across from Poets Corner there is a large Manitoba maple that has dead and decaying branches removes, the pole pruner will do.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall

any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

There are several Lupines growing wild in this area, they are very beautiful when in bloom however when they die off they are ugly and have an extensive root system. They tend to spread very fast via wind pollination, so we likely should either start removing them of ensure that we prune them down once they are no longer in flower.

Toole Hall and Jacobs Yard

- Edge and weed shrub beds
- Repair winter snow removal damage along walks
- The building perimeter and the loading dock need to be on a vegetation management program

Pruning of Shrubs

There are a few Dogwoods in this area that are growing fairly well, there are some shoots that need to be removed from in around their base. They do have some dead wood that needs to be removed with pruning. There is also some mature Junipers and Cedars that with some fertilizer along some properly timed trimming would thrive and look really nice.

The large triangular bed at the side of the building facing Bailey has 4 shrubs/small trees that were relocated as a result of the construction at the RJCC. Should they survive, they will need to be pruned for shape and size while keeping in mind that they cannot grow onto the sidewalk.

Care of Perennials

In these beds there are Lilies that have to be moved out some (around 1') as the mature Junipers and cedars are towering over them. We could also transfer some of the Lilies from the crowded bed across from MacLaggan hall to this area and it would enhance the area nicely.

There is also a bed of perennials located on the side of the building facing Forestry, mostly Lilies and Sedums that require very little care beyond dead heading late fall or early spring. There is a small white colored plant that could be removed as it has been dying off slowly. This bed tends to get very weedy so perhaps it should be weeded earlier in the season.

Tree Care

There is a newly planted tree to the left of the front entrance of Toole Hall that needs to be edged and the base weeded. Minor corrective pruning could also be done to avoid undesirable growth in the future. There are also some small Blue spruce trees to the right of the entrance that in need of pruning to remove damaged and dead branches.

On the opposite side of the building facing Old Arts there are two large cedars that need to be trimmed and some shoots removed

Traffic Circle Top of Campus (extremely visible)

- Edge and weed the shrub bed insuring its as circular as possible
- Repair winter snow removal damage
- Consider replacing the damaged tree towards D'Avary
- Spiraea are full of weeds, affecting the growth

Pruning of Shrubs

These shrubs mainly required some pruning to create space as they are becoming quite crowded, mainly from the Junipers. All of the shrubs including the Dogwoods have dead wood that should be pruned out. While pruning the Junipers can stand to have to the most taken off them to create space for the Spiraea and the perennials. The Dogwoods need to be kept at manageable height and ensure they are not blocking the line of sight for vehicles that are driving around the traffic circle. The Junipers must be pruned at a time when there is not a heat wave.

Care of Perennials

There some Lilies that could be relocated to the base of the Cedar tree near the tunnel hatch. This would help with the crowding issue while adding the esthetics of the area.

Tree Care

There is Maple tree that over the years has suffered a great deal of snow removal damage, unless the snow can go elsewhere there should be no tree in this area. The Cedar tree is growing nicely and needs to have the canopy in a manner that traffic will be able to see pedestrians at all times. This applies to this entire area, visibility thru the traffic circle is extremely important.

Plan

In the spring this bed should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs. There are several shoots growing in the shrub bed that need removed as soon as they appear.

Wu Center and Montgomery Street Gates (Tulips)

- Edge and weed Shrub beds along with the Main Gate
- Fertilize the newly planted trees in this area
- Repair and reinstall any damage to the brick work around the building
- The building perimeter and the loading dock area including the fenced electrical area needs to be on a vegetation management program

Pruning of Shrubs

The Junipers at the located along the side entrance should be removed to as they are struggling from the salt, this would let the Burning bush become the focal point of this side of the entrance walkway. The Burning bush can be pruned to a uniform shape and size.

**The shrubs and perennials that are located in the back where the courtyard was created will have to be monitored and the plan modified as time goes on. This is an area that was not properly planted and appears unkept without tremendous effort. In 2016, we began to change this area to make it easier to maintain and more esthetically pleasing. Several plants were removed and Tulips added, all in consultation with Kim Bishop.

The shrub beds in the area of the Main Gates all will require pruning to fix damage from snow removal. There are Purple Leaf Sand Cherries that require pruning on the bed closest to STU. **This is a bed that should be considered for removal due to the requirement to plow snow into this spot and it causes continuous damage to the shrubs and lawn. **

The shrubs in the area of the passenger drop off area are mainly a type of small Spiraea that require the dead wood pruned out of them on a regular basis. There are also a couple of shrubs on the bed on the side hill that are struggling and should be fertilized early in the spring and any corrective pruning performed at this time. Five of the Spiraea are dead and need to be replaced as soon as the weather allows.

Care of Perennials

This area has a large amount of perennials, including the grasses that are all growing very well. They do however require some thinning out to create more space, they are too close and it is getting crowded. Some of the plants could be relocated on site as we have begun to this in the new courtyard area behind the Wu Center. In the passenger drop off area there is a bed of all Hostas that could have two of them removed and placed in the location of the 5 dead Spiraea.

With such a large number of perennials it is important to get the dead heading synchronized in the spring to allow for the Grasses to remain a focal point thru the winter and early spring.

Tree Care

There are two large Oaks in the new courtyard area that are struggling due to having their roots exposed and damaged during the construction phase of the courtyard (they likely will not survive long term). The wooded area with several trees adjacent to Montgomery Street require minimal pruning beyond the removal of several suckers that are growing at various levels on the trees. There is one tree on the corner of Duffy and Montgomery that belongs to city with several suckers that are affecting the line of sight for motorist leaving campus that should be removed.

All of the newly planted trees around the Wu Center should be fertilized and any corrective pruning performed. This includes trees planted by Projects as well.

Plan

In the spring these beds should be raked and fluffed while dealing with any winter damage and remove dead heads from perennials. The edging can be performed at this time as well. Mulch should be applied at a depth of 2 inches as soon as it becomes available. Soil samples could be considered as part of a very intensive plant care program. General plant and shrub maintenance to be performed 2-3 times throughout the season with a focus on esthetics and plant health. In the fall any major structural pruning to deal with crowding and shape can be done along with significant changes to the height of shrubs.

Also in these beds the Tulips will need to be dealt with as soon as they begin to die off. There are two ways to deal with them. The first option is to dig up each individual bulb and to store them in a cool dry place till they would be replanted in the fall. This is quite time consuming and without more people will slow up the care and maintenance of other shrub beds. The second option with the tulips is to simply cut them back once they begin to die and let the other perennials become the focal point of the beds.

