

**Grounds Services**

**Facilities Management**

Niagara Region

1812 Sir Isaac Brock Way

St. Catharines, ON

L2S 3A1 Canada

brocku.ca

March 17, 2020

Grounds and Landscape Development Design Standards

For Project Delivery and Maintenance Initiatives

These standards have been developed as guiding principles for developing and evaluating new landscape installations as well as to guide improvements to existing landscape features on campus. The intent is to help ensure that the best possible landscape is developed with the most practical implications for ongoing maintenance balanced with improving the esthetics of the campus landscape. Landscaping can be quite complex and this is not intended to limit creativity but to allow the grounds crew the best possible opportunity to maintain the landscapes as they were originally intended and designed. The list has been developed from the past experiences of projects and maintenance activities on and off campus. These standards include all outdoor space meant to be occupied or viewed by campus visitors.

**General**

1. Campus Plan to be considered.
2. FADS (Facilities Accessibility Design Standards
3. CEPTED (Crime Prevention Through Environmental Design)
4. LEEDS (if applicable)
5. Facilities Management, Grounds Maintenance Levels.
6. Pedestrian circulation impacts/changes.
7. Impacts to adjacent areas/meeting up with adjacent areas.
8. Site lines at corners to be sufficient for safety.
9. Wind breaks, tunnels, traps and corners.
10. Planting needs to occur in the appropriate planting seasons (spring and early fall).
11. No pesticides are to be utilized.
12. Installation specifications need to be comprehensive (and specific to the project) and utilize currently accepted horticulture techniques and practices. Maintenance of extensive landscapes should be considered and appropriately articulated for a 3 year (grow in/establishment) period.
13. Trees will be protected and those that are approved for removal will be replaced equally based on caliper size of trees removed preferably within the new landscape area or elsewhere on campus.
14. Designer needs to visit the site prior to beginning the design and should meet with Manager, Grounds Services.
15. Downspouts from building to spill away from walks, plaza areas, entrances, in front of emergency phones etc.

**Maintenance Requirements & Impacts**

1. Maintenance must be considered for any installation such that existing resources (unless identified in project) will be adequate for initial, on-going and long term maintenance requirements.

**Plant Material, Soil, Mulch, Beds**

1. The right plant for the site conditions, environment and maintenance considerations.
2. Native plant material to be used close to natural areas. Non-invasive exotics to be considered after native material.
3. Plant choices to be approved by Manager, Grounds Services.
4. Top soil to be specified such that good quality loam is used for optimum plant health over the life of the plant. Topsoil depth to be 12” of soil minimum is desired. Turf areas may have less (8”) if sub-soil is sufficient. Bed areas will have more - 16” minimum depth. Topsoil testing and samples testing to be provided prior to soil arriving on site.
5. Sub-surface to be broken up in areas that are compacted (either currently or by construction). Sub surface grade to be approved prior to placing topsoil.
6. Mulch must be specified such that good quality mulch is used. Shredded Cedar works well on campus providing a good weed barrier, longevity and it stays in place with the wind experienced.
7. No non-organic mulch/ground cover/surface treatment is NOT to be used.
8. Bed width must be greater than 6’.
9. Planted median strips/boulevards must be greater than 6’ in width.
10. Parking lot medians to be 20’ wide to provide enough soil mass for tree health and space for snow loading from plowing.
11. Tight corners in bed shape to be avoided.
12. Surface run off and drainage needs to be accommodated. Run off from up slope onto hard surfaces needs to be diverted before running across pavement to prevent ice in winter.

**Mowing & Snow Clearing Considerations**

1. Responsibility for watering and mowing new sod/seed needs to be clearly defined in tender documents.
2. Grades will be such that mowing can occur safely and easily.
3. Items in the landscape will be placed such at a 6’ mower deck minimum will be easily able to maneuver.
4. Snow clearing will be provided by equipment that is driven; this needs to be considered in the design. There is no capacity for hand clearing of snow.
5. Snow loading/piling areas for plowing needs to be designed into the landscape.
6. Grades at perimeters of roads, walks and lots need level space for snow loading Grading up does not allow piling space.

**Irrigation**

1. When required, irrigation will be automated and tied in with the Building Automation System for control.
2. If system is supplied with gray water, a back-up option needs to be provided for when the gray water source is exhausted.
3. Hose Hose bibs to be provided in strategic locations for access (minimum, one per face of building).
4. Sub Sub-surface systems are not acceptable.
5. IriiIrrigation responsibility for sod, trees and plants needs to be specified for the whole establishment period (for large trees this can be several years).

**Pavements**

1. Walks and entrances need to be generous in size to permit groups of people traversing the campus.
2. Minimum Walkway width is 6ft/2 m. This is the minimum; most areas will require wider walks than this. Clearance around the walk is required for plowing equipment (posts, signs, electric charge stations etc).
3. Walks are to be concrete. Concrete is to be poured prior to August 31 so it has some time to cure before salt use in winter.
4. Depth of base and thickness of concrete to be sufficient for snow plow equipment and delivery vehicle traffic.
5. Grades and edges of walks must meet FADS.
6. Any walk or plaza wider than 6ft must incorporate slope and curb/or gutter to catch and direct run off.
7. All entrances areas/exits for buildings will have a generously sized ice-melt system. Each area to be independently controlled. Systems with good slope work better.
8. Any emergency exit doors will have a hard surfaced route from the building to another pavement surface.
9. No outdoor stairs.
10. Any building over-hang will have a hard surface below.
11. Tight corners are to be avoided.
12. No ‘bull noses’ are to be used in parking lots. Corners of curbs to be rounded.
13. Ontario Provincial Standards for Curb and gutter are to be used. No barrier curbs.
14. No curb face sidewalks (space is needed for roadway snow loading).
15. Curbed areas require access recessed point for mowing equipment.
16. Boulevard strips less than 6ft will be hard (decorative) concrete.
17. Concrete finish and saw cutting is to be designed and planned in appropriate patterns and sizes.
18. Concrete edges are not troweled last. Generally a light broom finish is to be used. This is to differentiate the concrete from a municipal look.
19. Sleeves to be provided under hard surfaces for future consideration (3 - one for irrigation, one for electrical, one for IT).

**Landscape Amenities/Furnishing**

1. Durable, vandal resistant and skate board resistant.
2. Outdoor seating to be considered.
3. Recycling and Garbage containers to be considered.
4. Provision of Bike racks with a hard surface area to be considered.
5. Smoking area should be considered. Include shelter, butt container, recycle & garbage container, seating and hard surface. Placement consistent with smoking policy.
6. Bollards not to be designed into the landscape. The landscape to be designed such that bollards are not needed.
7. Lighting needs to be considered. No bollard lighting.

**Existing Site/Tree Preservation/Construction**

1. Existing trees to be protected and preserved in accordance with ISA Standards (International Association of Arboriculture).
2. Construction area to be delineated/fenced and adhered to.
3. Restoration of all areas disturbed will be required, including soil compaction relief.

**Electrical**

1. Electrical receptacles to be provided in strategic locations (minimum, one per face of building). Consideration for the need for ‘event power’ should be taken.