

### 3.1.3 CAMPUS SITEWORK

References:

- Refer to Section 3.4.4 – Sustainable Sites in the Design Manual for additional information regarding sustainable site development.
- [NYS DOT Manuals and Guides](https://www.dot.ny.gov/doing-business): <https://www.dot.ny.gov/doing-business>
- [MUTCD](https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/mutcd): <https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/mutcd>
- [NYS Supplement](https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/mutcd) (2010 or current version): <https://www.dot.ny.gov/divisions/operating/oom/transportation-systems/traffic-operations-section/mutcd>
- [Landscape Furnishings and Materials](http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Landscape_Furnishings_and_Materials): [http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Landscape\\_Furnishings\\_and\\_Materials](http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Landscape_Furnishings_and_Materials)
- [Campus Signage - Exterior Master Plan](http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Campus_Signage_-_Exterior_Master_Plan): [http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Campus\\_Signage\\_-\\_Exterior\\_Master\\_Plan](http://afsweb.clarkson.edu/projects/physplantwiki/index.php/Campus_Signage_-_Exterior_Master_Plan)
- [Banners and Lot Signs](http://afsweb.clarkson.edu/projects/physplantwiki/images/2/29/Banners_and_Lot_Signs_-_R2_-_11-09-2011_%283%29_Final.pdf): [http://afsweb.clarkson.edu/projects/physplantwiki/images/2/29/Banners\\_and\\_Lot\\_Signs\\_-\\_R2\\_-\\_11-09-2011\\_%283%29\\_Final.pdf](http://afsweb.clarkson.edu/projects/physplantwiki/images/2/29/Banners_and_Lot_Signs_-_R2_-_11-09-2011_%283%29_Final.pdf)
- [Yard Sign Standard](http://afsweb.clarkson.edu/projects/physplantwiki/images/4/42/Approved_yard_sign_spec_sheet.pdf): [http://afsweb.clarkson.edu/projects/physplantwiki/images/4/42/Approved\\_yard\\_sign\\_spec\\_sheet.pdf](http://afsweb.clarkson.edu/projects/physplantwiki/images/4/42/Approved_yard_sign_spec_sheet.pdf)

#### 3.1.3.1 Site Improvements

##### 3.1.3.1.1 Roadways

##### 3.1.3.1.1.1 Vehicular

The Design Team shall consult all pertinent Campus Master Plans to determine whether major vehicular travel ways are included within the limits of the project, and which roads are to be improved or constructed. Roadways shall be designed in accordance with all NYSDOT requirements, unless amended by the Facilities. Where such roads are onsite roadways maintained by Clarkson, they shall additionally meet the design criteria outlined below.

Except where further supplemented herein, the design of vehicular roadways must meet NYSDOT standards.

Clarkson University aims to achieve several main objectives in its system of vehicular roadways: mobility, compatibility and orientation. The goal of mobility refers to the maintenance of a connected network, with congestion minimized to the greatest extent possible. To achieve compatibility, the over-building of campus roadways should be avoided and vehicular roadways should maintain an appropriate scale for the

campus context. This also contributes to orientation, or the visitors' ability to navigate the campus through road design and wayfinding.

Specific design criteria for vehicular roadways are described below:

- Travel ways must be constructed of flexible pavement meeting NYSDOT pavement design criteria.
- Drainage shall be designed in accordance with the NYSDOT Drainage Manual.
- Striping and signage shall be in accordance with the current edition MUTCD and 2010 NYS Supplement or newer version.
- Street lighting shall utilize campus standards for fixtures, poles, bases and controls.
- Fire lanes shall conform to local (first responders) requirements for size, signage, striping, and surfacing.
- Truck turning movements must be verified at all proposed intersections or entrances to roads. WB-50 trucks must not enter opposing traffic lane on campus roads.
- Reduce the perceived width of roads with granite cobble or concrete paver borders. Highlights for traffic calming are encouraged.
- Refer to the Master Plan for minimum road cross sections.

#### 3.1.3.1.1.2 Shuttles and Transit TBD

#### 3.1.3.1.1.3 Bicycle Routes

It is the goal of Clarkson University to provide a network of bicycle paths on the campus, supported by amenities such as secure storage and shower facilities, with connections to surrounding bicycle infrastructure (refer to NYSDOT for Bike Lanes on Public Roads and to the Village of Potsdam Trails Map for county trails). New routes shall be established to meet the demand, providing options for both commuting and recreation. It is important that bicycle routes are designed to minimize conflicts with pedestrians and motorized vehicles.

Off-road bicycle paths are shared with pedestrians, and for this reason they must also meet the design standards for the pedestrian system as described in this manual, as appropriate.

- Separate bicycle paths shall be 8' wide. Refer to detail 3.1-4 – Shared Use Trails.
- Additional paved width for bicycle routes is required for primary roadways in accordance with MUTCD. Lanes must be well-marked and safely separated from vehicular and pedestrian traffic where possible.

#### 3.1.3.1.2 Parking Lots

The following parking design guidelines refer to both surface lots and parking garage facilities. For additional information regarding campus parking systems, refer to the Clarkson University Master Plan. For accessibility guidelines related to parking, refer to Section 3.6 in the Design Manual.

Clarkson University follows two main guiding principles in regard to its Campus parking system:

- Design facilities consistent with the Campus Master Plan's safety, ecological, and aesthetic goals.
  - Provide safe and convenient entrance/exit points.
  - Minimize traffic, pedestrian and bicycle conflicts.
  - Respect and preserve aesthetic and ecological resources.
  - Develop facility scale and appearance consistent with campus architectural aesthetic
  - Maximize opportunities to share parking resources among various users (employees, residents, visitors and event attendees).
  - Proposed parking equipment shall be compatible with existing system or replace existing system to make compatible.
- Use innovative parking management and policies to reduce demand and improve operations.
  - Deploy management systems to track facility use.
  - Install modern and innovative signage to manage traffic flow and wayfinding.
  - Use information technology to advise drivers regarding facility use and alternative options.

In addition to these guiding principles, sustainability is a high priority for Clarkson University; all new parking areas and facilities shall be designed to minimize their financial and environmental impact. It is also important that parking facilities are both flexible and efficient, serving as many users as possible through aggressive parking management measures. Refer to Section 3.4.4 – Sustainable Sites in the Design Manual for additional information regarding sustainability guidelines.

The following standards apply to the design of new parking areas on any Clarkson University Campus:

- The number of parking spaces to be provided within the project is to be determined in consultation with Clarkson's Facilities Office.
- Typical perpendicular parking space shall be 8.5' x 18'. Any space less than a minimum width of 8'-0" will be considered a compact space. Compact spaces shall represent no more than 20% of any designated parking area. Compact spaces must be marked with signage and have a painted end line. The only allowable encroachment into this space is a light pole base at front corner of space.
- Avoid angled parking spaces; when necessary, angle = 60 degrees.
- Service Vehicles: Provide a parking space of 9'-0" x 18'-0" minimum for service vehicles. Parking for service vehicles must be considered, reviewed, and approved by Clarkson for all building projects.
- Surface Lots: Construct surface parking lots using flexible pavement. The maximum slope in any direction in a parking lot shall be 5%. Surface parking lots shall have minimum 22'-0" travel isles
- Loading Areas: All projects must review the loading area with Clarkson's Facilities Office. Delivery truck loading spaces shall be minimum 12'-0" wide. Truck routes to a loading dock must be confirmed using WB-50 truck turning templates or computer software. List types and sizes of waste and recycling

receptacles (compactors – with or without sanitizers; co-minglers for recycling; typical trash receptacles – steel fluted 30 gal; typical 48 gal recycling bins).

- Landscaping within the project limits shall consider and avoid conflicts with vehicle overhangs, mirror overhangs and snow plowing and removal requirements.
- Consider medians and parking spaces of concrete pavers to reduce large expanses of asphalt.
- Use granite cobbles or cobble-like concrete pavers in contrasting gray or tan tones for edges of parking spaces and parking space delineators.
- Refer to detail 3.1-18, Parking Bay/Travel Way.

#### 3.1.3.1.3 Pedestrian System

The pedestrian system throughout Clarkson's campuses is comprised of walkways, trails and foot bridges. It is the goal of Clarkson University for its pedestrian system to improve orientation on the campus, improve accessibility, address conflicts with other modes of transportation (cars, service vehicles, and bicycles), and connect campus neighborhoods with transit services and parking facilities. There should be a clear hierarchy within the pedestrian system, helping to create a legible and identifiable means of travel on and around the campus.

Each Clarkson campus has its own unique character, which is reflected not only in their physical facilities but also in the material and texture of the landscape. Concrete paving on the Hill, Beacon Institute and Downtown campuses shall have the following characteristics or otherwise specified by Clarkson:

- Hill Campus: Specify naturally buff-colored concrete, or include a color admixture, avoiding cool-gray toned concrete.
- Beacon Institute Campus: Intermix concrete and unit pavers, incorporating the same tones as indicated above for pavers on this campus. Avoid strong yellow or brown tones.
- Downtown Campus: Specify concrete with tan or beige tones.

Sustainability is an important priority for Clarkson University and the Design Team shall apply sustainable strategies in the development of the landscape. Refer to Section 3.4.4 – Sustainable Sites for additional information regarding permeable surfaces and stormwater management.

For information regarding accessibility for pedestrian walkways, refer to Section 3.6 – Accessibility Standards in the Design Manual. For product and construction information, refer to Chapter 4, Division 32 – Exterior Improvements.

Sidewalk widths (included below) are measured as clear widths.

##### 3.1.3.1.3.1 Pedestrian System Accessories

- If benches are provided along walks, refer to detail **TBD**.
- If trash and/or recycling receptacles are provided along walks, refer to detail **TBD**.
- Where railings are necessary, they shall be provided and shall meet detail **TBD**.

- All walkway plans must include a lighting and signage plan. Consult with the Clarkson Facilities Office for specific requirements of these plans.

#### 3.1.3.1.3.2 Primary Walkways

Primary walks are those that comprise the major corridors of pedestrian movement within a campus at Clarkson University. For the location and orientation of the primary walks, refer to the Master Plan.

Primary walks have the following characteristics:

- Primary walkways shall be 12 feet wide.
- At the intersection of primary walks with each other a patterned paver and concrete pattern as shown in detail 3.1-12 shall be used.
- Utilize borders along the outer edges of walkways to reduce the perceived width. Apply border material to special landings, intersections and crossings.

For additional information regarding paving materials and construction, refer to Chapter 4, Division 32 – Exterior Improvements.

#### 3.1.3.1.3.3 Secondary Walkways

Secondary walks fall directly below primary walks in the hierarchy of the campus pedestrian system. For the location and orientation of secondary walks, refer to the Transportation Master Plan.

- Secondary walkways shall be 8 to 10 feet wide..

#### 3.1.3.1.3.4 Tertiary Walkways

Tertiary walkways are any smaller, supplemental walks that fall below primary walkways in the hierarchy of the pedestrian system.

- Tertiary walkways shall be 6 feet wide.

#### 3.1.3.1.3.5 Crosswalks

- Provide curb cut ramps wherever a walkway intersects a raised curb or enters a vehicular travel way.
- At street intersections, these ramps will be provided at each curb return.
- Street crossings shall be designed to be perpendicular to the street and the ramps positioned appropriately.
- Crosswalks of streets from 0-10% may be approved by Clarkson University.
- Pave crosswalks with granite colored brick or cobble-shaped smooth concrete pavers.
- Pave crosswalk borders and areas between crosswalks at intersections with large granite cobbles or cobble-like, granite-colored concrete pavers for traffic calming and to provide a finished look.
- Consider raised crosswalks when pedestrian traffic is high.

## 3.1.3.1.3.6 Trails TBD

## 3.1.3.1.3.7 Foot Bridges

Foot bridges should be designed in a clean, modern style decked with pressure-treated lumber or, if possible, sustainably harvested wood for longevity. The railings should be steel or wood with steel cable slats. The structure of the bridge can be steel or sustainably harvested treated yellow pine stained to match the wood. Piers and decks can be wood with concrete piers.

## 3.1.3.1.3.8 Plazas and Stairs

- For large areas of paving, provide a mixture of paving colors, textures, patterns and materials to create a lively, attractive space. Granite colored concrete pavers, local granite cobbles, or brick must be used for plazas and terraces. For materials, refer to Chapter 4, Division 32 – Exterior Improvements.
- Use gray cobble pavers to highlight or border brick plazas. Use light gray, granite colored concrete pavers in simple shapes for plaza paving. Important plazas may utilize gray granite paving in bands. Gray concrete pavers in a running bond brick pattern may be used in prominent plazas as a contrast to granite.
- For stairs, use light colored concrete. In special areas, where budget allows, use light gray granite.

## 3.1.3.1.4 Site Development

## 3.1.3.1.4.1 Site Furnishings

For specific product information regarding site furnishings, refer to Chapter 4, Division 12 – Site Furnishings.

It is the goal of Clarkson University to achieve consistency among all campuses in the materiality and aesthetic of its site furnishings, while at the same time reducing materials cost. Furnishings have been selected based on affordability, low maintenance, sustainable principles and aesthetic appearance. A single palette of site amenities is recommended for all campuses; within each campus, however, furnishings and materials are specific to the corresponding landscape character zone. For a description of landscape character zones, refer to Section 3.1.3.1.5 – Landscaping .

The Clarkson offices of Campus Planning, Facilities Management and Parking and Transportation will have input in the final selections and location of site furnishings.

- Provide ash urns near designated seating areas and outdoor smoking areas.
- Lighting styles must be consistent within each landscape character zone. For lighting recommendations, refer to Chapter 4, Division 26 – Electrical.
- Install roadway bollards whenever the need exists to prevent non-university vehicles from entering authorized areas or to prevent vehicular traffic onto sidewalks while still maintaining service and emergency access. When roadways need to be separated from normal vehicular traffic, use a collapsible traffic bollard operated by a standard hydrant wrench.

## 3.1.3.1.4.2 Fences and Gates

- Fencing, where required, shall conform to Clarkson’s standards. Uncoated chain link, wood and PVC shall not be used. Permitted fencing is limited to five general types, to be applied per the chart below.

	Arch. Metal Fence	Split Rail Fence	Coated Chain Link Fence	Low Stone Wall	Pest Control Fence
<b>Academic Zone</b>	X			X	X
<b>Athletic Zone</b>			X		X
<b>Campus Entryway</b>				X	
<b>Maintenance Zone</b>			X		
<b>Natural Zone</b>		X			
<b>Parking Zone</b>		X			
<b>Residential Zone</b>				X	X

3.1.3.1.4.3 Exterior Signage

- All transportation-related signage shall conform to the [MUTCD and NYS Supplement](https://www.dot.ny.gov/publications): <https://www.dot.ny.gov/publications>.
- All signage must comply with the Clarkson Signage Master Plan. Contact Clarkson’s Environmental Graphics Designer to coordinate signage.

3.1.3.1.4.4 Retaining Walls

- Retaining walls, when constructed as an extension of the building, must use Masonry facing to match the building. Other retaining walls shall be modular stacking.
- Design site walls to fit within the context of nearby structures and the environment.
- Timber retaining walls are not permitted unless Clarkson grants specific authorization.
- Concrete retaining walls require prior Clarkson approval, especially as it relates to color pattern and overall design. Form liners shall be required at a minimum.

3.1.3.1.5 Landscaping

The following goals and objectives will be considered in the design of open space on any Clarkson University campus:

- Use open space to help link the campuses with a consistent visual character
- Enhance the appearance of the campus through the selection of consistent, aesthetically-pleasing, affordable and low-maintenance plantings, hardscape and site furnishings
- Enable planners and facilities management personnel to quickly select from a range of materials known to be compatible with the campus landscape
- Refer to character zones to determine the placement of specific groups of materials
- Apply principles of sustainability to the selection of materials

While elements of the landscape should have aesthetic continuity with regard to the style of paving, materials, and plantings, the design shall also be tailored to its specific zone of use. The majority of space within the Clarkson University campus system falls within one of four landscape character zones, or a combination of character zones, described below. Specific planting guidelines for each zone are included in 3.1.3.1.5.2 Plantings.

#### *Academic Zone*

The academic zones contain all educational buildings, as well as the cultural, recreational, and administration facilities. Landscapes within the academic zone tend to be formal and geometric. Plantings are typically used as accents for the buildings and hardscape as opposed to stand-alone designs. Because these landscapes represent the “face” of the university, it stands to reason that this zone should receive the most maintenance and exhibit a formal character.

#### *Residential Zone*

The Residential Zones contain vegetation patterns that are looser in their organization due to the fact that the building geometries and placements are not as rigid. However, the larger-scale and newer dormitories have begun to take on the feel of academic buildings. The Beacon Institute has a very limited residential component and Downtown Campuses do not contain residential zones.

#### *Natural Zone (Clarkson Pond, RPAs, and Woodland Clusters)*

Both the Hill and Beacon Institute Campuses have Natural Zones, which are overlays of woodland vegetation on top of the Academic and Residential Zones. They exist as small clumps of trees, riparian corridors, RPA’s or woodland edges. The primary defining characteristic of natural areas is that they contain more undisturbed vegetation than built features.

#### *Parking Zone*

Parking zones exist solely for the purposes of parking vehicles.

##### 3.1.3.1.5.1 Irrigation Systems

Irrigation is generally avoided on Clarkson University campuses. The planting guidelines, which call for hardy and drought-resistant species, are intended to reduce reliance on irrigation. When irrigation is necessary, sustainable practices such as rainwater cisterns or stormwater ponds are preferred. Refer to Section 3.4 – Environmental Standards for additional information regarding irrigation and stormwater management.

For guidelines related to new and replacement irrigation systems, refer to Chapter 4, Division 32 – Exterior Improvements.

##### 3.1.3.1.5.2 Plantings

- New plantings must be selected to meet most of the following criteria:
  - Aesthetic quality consistent with the delineated campus character zones
  - Native to the NYS Coastal physiographic region
  - Hardy and drought-resistant



- Limited fruit litter
- Available in local or regional nurseries
- The majority of new plants must be native or cultivars of native plants. No more than 10% of new plants may be non-invasive exotics that are hardy, drought-tolerant and suitable for their specific site conditions. If non-native species are installed, ensure that they are non-invasive and hardy to the Hill USDA Hardiness Zone and can tolerate dry soil conditions.
- Minimize traditional turf lawn; use only as necessary for public gathering and recreation spaces.
- Consider permeable paving where pedestrians will utilize the area, or converting the area into a planting bed that is self-sustaining or requires minimal maintenance.
- Consider alternatives to traditional turf lawn, such as no-mow or low-growing turf.
- Utilize thick plantings of low shrubs, possibly supplemented with small protective fences, to encourage pedestrians to stay on the sidewalks.
- Ensure variety in plantings (textures, colors and scents). Avoid using the same species of plant in multiple locations to enhance visual interest and limit species-specific diseases.
- Avoid locating highly-scented trees or shrubs near seating areas as they may attract bees and insects.
- When new buildings are designed, retain as much natural vegetation and woodland as possible. Integrate wooded areas in between the buildings.
- Avoid placing plantings that are salt-sensitive adjacent to streets and sidewalks.

#### *Academic Zone Planting Guidelines*

- New plantings shall respond to the shape and form of adjacent buildings, retaining the formal geometries present in the zone.
- Accent plantings not associated with buildings shall be formal in arrangement and utilize rectilinear, radial, triangular, or other formal patterns.

#### *Residential Zone Planting Guidelines*

- Use plantings to make residential areas welcoming to students. Naturalistic, radial, curvilinear, and “organic” designs tend to be more peaceful and relaxing than geometric patterns. Group plants in threes or fours, but in no particular arrangement.
- Use a hierarchy of vegetation to reduce the scale of larger dormitory buildings. Begin with a tall shade tree, and then layer ornamental trees and shrubs to avoid students feeling as though the buildings were over-powering them. Avoid installing only low shrubs next to multi-story buildings.
- Provide shaded areas for students to utilize as outdoor studying, eating, or relaxing space. In these areas, avoid installing plants that have thorns or high levels of fruit litter (e.g. acorns or large seed pods) that would make sitting on the ground or a blanket uncomfortable.

*Natural Zone Planting Guidelines*

- Small clumps of woodland vegetation and “leftover” spaces adjacent to wooded areas can serve as seating or outdoor classroom areas. Install a limited number of benches or tables, or leave grassy spaces open for picnicking.
- Retain all existing natural zone plantings unless the stand of vegetation is threatened by disease or a large number of plants are dead or dying.
- Consider creating new natural zones on campus in open spaces that are not regularly used by students, faculty, staff, or visitors. In addition to creating more tree canopy for environmental and aesthetic reasons, new natural areas could present donor opportunities (e.g. named groves, listings of tree donors in University publications, Master Gardener community service hours for installation, etc.).

*Parking Zone Planting Guidelines*

- Install trees that are known to work well in urban settings.
- Ensure that new tree installations will not interfere with existing lighting.
- Avoid overplanting shrubs on planting islands and medians so that grounds crews will have a place to pile plowed snow. Design parking lot planting so that open ground remains to accept snow piles.
- Use evergreen plantings or densely-planted deciduous trees to screen parking lots from view. Stagger two planting rows for maximum screening.
- Ensure that new parking lots have interior planting islands and medians in which to plant trees. A standard practice is to have no more than ten or twenty spaces in a row without a planted island.
- While it is the goal of the university to achieve visual consistency among all campuses, the landscape design must be sensitive to its unique context. The difference in physical size may be the most obvious distinction, but other qualities set the campuses apart as well.

## 3.1.3.1.5.3 Hill Campus

Because the Hill campus is the most developed and largest of the three campuses, it has the most diverse spaces and vegetation. There are greater opportunities for a variety of formal planting arrangements, naturalistic groupings, and simple designs:

- Consider portions of the campus as arboretum-like spaces. Designate the Clarkson Pond area as a place to receive unique and memorial plantings. The space need not be a strict catalog of plants, but can serve as an attractive collection of interesting vegetation.
- Promote sculpture zones, where pieces of art could be displayed. These could be the arboretum-like spaces with interpretive signage or themed botanic gardens.

## 3.1.3.1.5.4 Beacon Institute Campus

The most notable landscape feature of the Beacon Institute Campus is the presence of woods and a wetland to the north of the campus, and it is the Clarkson's intent to preserve and showcase these natural features. To this end, in addition to the general planting guidelines, the following strategies apply:

- Keep plantings around drainages and waterways naturalistic and informal.
- Make use of the wetland and woods as a planting design concept. Have the woodland plants and natural aesthetic flow into the campus and then become more formal around the buildings. An alternate option is to keep plantings in the "front" of the buildings (along Clarkson Circle) formal and urban, while the rear of the buildings has a more natural aesthetic that blends with the woods and wetland.

#### 3.1.3.1.5.5 Downtown Campus

The Downtown Campus has a unique urban character compared with the Hill so a somewhat different approach to landscape design is appropriate:

- Native plant selections are not as important on this campus.
- Select plant species that will grow in urban conditions (i.e. compacted, poor-quality soil and small spaces).
- Consider utilizing moveable planters to hold annuals, perennials or shrubs.

#### 3.1.3.1.5.6 Landscape Buffers

Buffers are to be established at Clarkson Hill at the perimeters of the campus to screen adjacent uses and roads and within the Academic Zones on campus near university buildings to establish a forest ecosystem (i.e. limited reforestation). Buffers are to be provided at Clarkson Beacon Institute for both forest establishment and forest supplementation specific for their soil and microclimate. These buffers will provide a range of species composition, growth rate and succession for a typical native NYS forest aesthetic. All buffers shall require little or no maintenance, and shall not require permanent irrigation (except as needed during initial planting seasons to establish plant material). All existing dead or hazardous trees shall be removed prior to planting in order to preserve the existing vegetation that will remain.

### 3.1.3.2 Site Civil/Mechanical Utilities

The Design Team is responsible for coordinating with utility providers. Utility design, unless specifically addressed here, will conform to the design requirements of the utility that will ultimately have maintenance responsibility for that utility.

#### 3.1.3.2.1 Water

##### 3.1.3.2.1.1 Water Services - All Campuses

All domestic water services, including fire hydrants, shall conform to the local water supply agency. Below are the links to appropriate supplier/utility. It is the responsibility of the designer to notify Clarkson Land Development if the link does not work.

3.1.3.2.1.2 [Downtown Campus](http://vi.potsdam.ny.us/content/Departments/View/9): <http://vi.potsdam.ny.us/content/Departments/View/9>

3.1.3.2.1.3 [Hill Campus](http://www.Hillva.gov/publicworks/pfm.asp): [www.Hillva.gov/publicworks/pfm.asp](http://www.Hillva.gov/publicworks/pfm.asp)

3.1.3.2.2 Sanitary Sewer

3.1.3.2.2.1 Sanitary Sewer - All Campuses

- All Sanitary Sewer mains 8” and larger shall conform to the local sewer collection agency. Below are the links to appropriate agencies. It is the responsibility of the designer to notify Clarkson Land Development if the link does not work.
- Sanitary Sewer laterals shall be in conformance with local requirements and VUSBC.
- Sewer laterals shall include a detectable marking tape if not laid in a straight line from cleanout at the building to the sewer manhole.
- The building cleanout shall be located outside of the building, approximately 5’ from the outside wall, but in conformance with the Plumbing Code.
- Cleanout shall not be located within a sidewalk or within 5’ of a building entrance or exit.
- All cleanouts shall be made of brass, set flush with the surface, in a concrete ring.

3.1.3.2.2.2 [Downtown Campus](http://vi.potsdam.ny.us/content/Departments/View/5): <http://vi.potsdam.ny.us/content/Departments/View/5>

3.1.3.2.2.3 [Hill Campus](http://vi.potsdam.ny.us/content/Departments/View/5): <http://vi.potsdam.ny.us/content/Departments/View/5>

3.1.3.2.3 Storm Sewer

3.1.3.2.3.1 Collection

At a minimum the design shall meet the requirements of the [NYSDOT Drainage Manual](https://www.dot.ny.gov/doing-business) (<https://www.dot.ny.gov/doing-business>) and [Road and Bridge Standards. NYSDOT Manuals and Guides](https://www.dot.ny.gov/doing-business) (<https://www.dot.ny.gov/doing-business>).

3.1.3.2.3.2 Storm Water Management/Best Management Practices

- All aspects of the Stormwater Management and Best Management Practices (SWM/BMP’s) for any project must comply with the Clarkson MS4 permit and the University Master Plan, current version. At a minimum the SWM/BMP’s will meet the requirements of the NYS Stormwater Management Handbook.
- The project site outfall (s) must be shown as adequate (by computations) down to already established storm structures (ponds).
- Drainage from roofs must:
  - Be connected to storm system (not day-lighted) unless it drains directly into a defined channel/swale.
  - Provide cleanout for roof drains at building and at change in direction, vertical or horizontal.

3.1.3.2.4 Fuel Distribution

3.1.3.2.4.1 Fuel Distribution – All Campuses

The designer will verify the availability of gas service to the site. If gas service is available to the site, the designer will verify the university's need for gas service to the facility. If gas service is needed, the designer will work with the utility provider to insure that the site layout will accommodate the extension of gas service lines and appurtenances to the facility. The servicing utility will be provided with all necessary site information to allow them to design their service lines and appurtenances to the site.

### **3.1.3.3 Site Electrical Utilities**

#### **3.1.3.3.1 Electrical Distribution**

##### **3.1.3.3.1.1 Primary Service – Hill East Campus**

Clarkson's primary electrical distribution consists of 13.2kV - 3 phase underground electrical lines, fed from a 13.2kV substation and distributed to buildings in the campus via manholes and 15kV underground ductbanks.

- The infrastructure design of the primary electrical distribution shall be comprised of the following:
  - Design of new manholes in the vicinity of new building grounds.
  - Design of new 13.2kV underground ductbanks (conduits encased in concrete) from manhole to the building.
  - Design of service entrance ductbank and location of main electrical room.
  - Design of main single-ended substation consisting of 13.2kV loadbreak switch, dry type transformer, and 480/277V or 208/120V secondary switchgear all located in main electrical room.
- To accomplish the above, the Design Team shall submit information of project electrical loads and location of electrical service entrance to Clarkson's Facilities Management.
- Information related to the specific manhole to be connected to and available fault current shall be provided by Clarkson's Facilities Management.

3.1.3.3.1.2 [Downtown Campus](https://www1.nationalgridus.com/StateLandingNY): <https://www1.nationalgridus.com/StateLandingNY>

3.1.3.3.1.3 [Hill Campus](https://www1.nationalgridus.com/StateLandingNY): <https://www1.nationalgridus.com/StateLandingNY>

##### **3.1.3.3.2 Site Lighting**

- Lighting styles shall be consistent within each landscape character zone. For lighting recommendations, refer to Chapter 4, Division 26 – Electrical. The chart below designates the minimum and average recommended lighting levels for various outdoor spaces.

Exterior Space Location	Foot Candle Minimum	Foot Candle Average	Notes
Temporary Site Lighting	1	1.5	For security purposes, and only in areas required for the purpose.
Roadways	1.2	1.5	Where roadways are immediately adjacent to a walkway, the walkway lights can be combined with the roadway lights, so long as the lighting levels of the walkways are maintained at their minimum level as indicated herein.
Walkways			For pedestrian safety.
Crossing Streets	4	4.5	
Adjacent to Parking Lots	2	2.5	
Adjacent to Roads	1.8	2	
Interior of Campus	1.5	1.8	
Interior of Campus in Large Open Areas	1	1.2	
Plazas	5	5.5	
Landscape Areas Adjacent to Walkways	1.5	1.8	
Parking Lots	2	2.5	
Parking Decks	5	5	
Loading Docks	8	10	
Building Entrances	6	6.5	
Underpasses/Contained Areas	10	12	For pedestrian and general campus safety.
Heavily shadowed areas around buildings	3	5	For security purposes.
Sports/Recreation Fields	TBD	TBD	Based on NCAA guidelines, must conform to the above within 5 feet of the field edge.

3.1.3.3.3 Site Communications and Security

3.1.3.3.3.1 Communications

The Clarkson Campus is provided with communication manholes and handholes throughout the campus from which IT, A/V, and security utility cables are routed to each building’s main Telecom room. Refer to Chapter 4, Division 27 and for additional information regarding communications.

- All cables shall run in underground ductbanks (PVC conduits in concrete encasement) from existing or new manholes or handholes to main Telecom room.
- Provide new manholes and handholes with cover locking means for systems security.
- Design service entrance to prevent water infiltration and conflicts with other utilities.
- Provide at least one IDF closet on each floor of the building with 2-4” conduits to main Telecom room. Conduits shall have 2 bends maximum.
- All communication work shall be coordinated with and approved by Clarkson OIT/NET.

## 3.1.3.3.2 IT

For additional information regarding IT systems, refer to the separate IT Design Guidelines.

- Provide IT drawings and spec Section 27 tailored to all infrastructure work for each project.
- Required shutdown of existing network systems must be scheduled during the Christmas holiday.
- Ensure that security is provided to all telecom rooms.
- Provide all IT equipment and A/C systems with emergency power.
- Provide record drawings to Clarkson OIT/NET.
- IT rooms must be separate from security rooms.
- The preferred phone system shall be VOIP.
- Show cable trays on all contractor coordinated drawings.
- Establish ADA Standards for phone and data and include in contract documents.
- Extend all conduits from wall jacks to the corridor.
- Include inside and outside wireless systems in the design.
- Provide all IT rooms with sprinklers.
- Design/include temporary IT systems in all renovation projects.

## 3.1.3.3.3 Security

- All doors inside shall have a key pass to meet the NYS state law.
- Card access system is preferred.
- Omni locks are being phased out on Clarkson campuses.
- Security closets shall have swipe card access.
- Provide wireless locks for low use spaces.
- Explore EVI contactless card technology for door systems.
- Standardize padlocks to secure outbuildings and athletic equipment.
- Standardize CCTV systems for security systems on campus.