



# CITY OF WATERLOO ACCESSIBILITY STANDARDS

## FINAL ACCESSIBILITY STANDARDS

June 20, 2016



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## 1.0 INTRODUCTION

The City of Waterloo's 'Accessibility Standards' has been prepared to assist in implementing the accessibility requirements of Part IV.1 Design of Public Spaces Standards of [Ontario Regulation 191/11](#) (Integrated Accessibility Standards), under the **Accessibility for Ontarians with Disabilities Act 2005** (AODA). Developers and organizations are obligated to follow these standards in order to identify, remove and prevent barriers so that persons with disabilities can access and participate in activities within the community.

This document also includes standards outside the Design of Public Spaces Standards (DOPSS). In some instances the standards in this document exceed the requirements of the DOPSS. The City of Waterloo continues to promote a high level of accessibility and encourages developers and organizations to review and implement the practices that appear throughout this document.

### 1.0.1 Application

The standards in this document apply to both public and private developments involving new construction and or redevelopment where major changes are proposed. Where there are conflicts between the City of Waterloo's standards and any other Act or regulation, the highest level of accessibility requirements shall prevail.

Under the City of Waterloo's Site Plan Approval Process, this document will be utilized to ensure that plans have adequate provisions for accessibility, as authorized through the *Planning Act*. Upon acceptance of the drawings, it is required that the applicant enter into a Registered Site Plan Agreement with the City. This places an additional obligation for the developer to complete the project as per the requirements of the DOPSS. Please be advised that this document may not replicate all details of the DOPSS. Onus is on obligated organizations and their designers or developers to ensure they are aware of legislation applicable to their proposed development or redevelopment. The approved site plan shall be in full compliance prior to the City of Waterloo releasing Letters of Credits related to the development. For projects not requiring Site Plan Approval, the private sector shall make every effort to comply with these standards.


Within the Corporation of the City of Waterloo, these standards will be implemented for City owned or leased spaces undergoing new construction or redevelopment.

### 1.0.2 Regulation References

For more information on Accessibility Standards in Ontario, refer to the [Accessibility for Ontarians with Disabilities Act](#), 2005. The regulations can be viewed by visiting: [www.ontario.ca/e-laws](http://www.ontario.ca/e-laws).

For further information regarding the Design of Public Spaces Standards (DOPSS), refer to Ontario Regulation 191/11 by visiting: [www.e-laws.gov.on.ca/html/regs/english/elaws\\_regs\\_110191\\_e.htm](http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_110191_e.htm).





The Ontario Building Code was amended in January 2015 to include enhancements for accessibility in buildings. Learn more about the changes to the Ontario Building Code by visiting: <http://www.ontario.ca/laws/regulation/120332>.

For a full list of resources used to develop this document, refer to [Section 7.0 Acknowledgements](#).

### **1.0.3 Expectations for Complete Accessible Designs**

The intention of the City of Waterloo's Accessibility Standards is to maximize accessibility on a site. Property owners and their designers should consider the 'end users' of their sites to accommodate all people comfortably. Existing site conditions may allow for accessibility standards to be exceeded, which is encouraged. Alternately, existing site conditions may be restrictive in meeting some accessibility requirements. In these situations, standards that cannot be met shall be focused and limited. Supporting detail for standard(s) that are not compliant shall be well documented and provided to the City of Waterloo's Integrated Planning and Public Works Department. In such situations, the property owner shall implement suitable mitigation measures.

### **1.0.4 Conflict with other Acts and or Regulations**

The DOPSS recognize that conflict may arise between the regulation and other Acts or regulations, particularly related to minimizing effect on the environment, wildlife, and cultural heritage. The DOPSS offer exceptions in these specific instances to the following sections:

- Recreational Trails (referred to as *Park Trails* in this document);
- Beach Access Routes (referred to as *Water Access Routes* in this document); and
- *Exterior Paths of Travel*.

Acts or regulations where other exceptions may apply include the:

- Endangered Species Act;
- Ontario Heritage Act;
- Historic Sites and Monuments Act (Canada);
- Canada National Parks Act; and
- UNESCO's World Heritage List under the Convention Concerning the Protection of the World Cultural and National Heritage

### **1.0.5 Requirement to Consult**

During the planning phase of specific types of projects, some organizations are required to consult with the public and persons with disabilities. The types of projects that require consultation include:

- Recreational Trails (referred to as *Park Trails* in this document);
- Outdoor Play Spaces;
- *Exterior Paths of Travel – Rest Areas*; and

- 
- On-Street Parking Spaces.

The City is required to consult with their Accessibility Advisory Committee during the planning phase of any of the above listed projects. For municipal projects, City staff can contact the Grand River Accessibility Advisory Committee (GRAAC).

Obligated organizations shall initiate their own consultation. This may be achieved by hosting a public consultation meeting during the planning phase of a project and should include consultation with local agencies that have specialized knowledge of persons with disabilities. All consultation should be documented. Both municipalities and other organizations should pursue consultation early on in the design process to address potential concerns in anticipation of plan modifications.

The end users of the development should be taken into consideration when choosing local agencies to consult with. Be advised that GRAAC does not provide private consultation, but deals solely with municipal projects.

#### **1.0.6 Additional Resources**

Users should familiarize themselves with the Region of Waterloo's Accessibility Design Standards. The Region of Waterloo Accessibility Standards complements the City of Waterloo Accessibility Standards. Users may wish to refer to the Region of Waterloo's Accessibility Design Standards when designing:

- Midblock connections;
- Building interiors; and
- Construction access.

#### **1.0.7 Dimensions**

Throughout this document, the dimensions for specific accessibility requirements are given in millimeters (mm) or meters (m), under the metric system of units. Unless otherwise indicated, dimensions that are not marked as a "minimum" or a "maximum" are assumed to be absolute values. All dimensions for construction purposes are subject to conventional industry tolerances.

#### **1.0.8 Definitions**

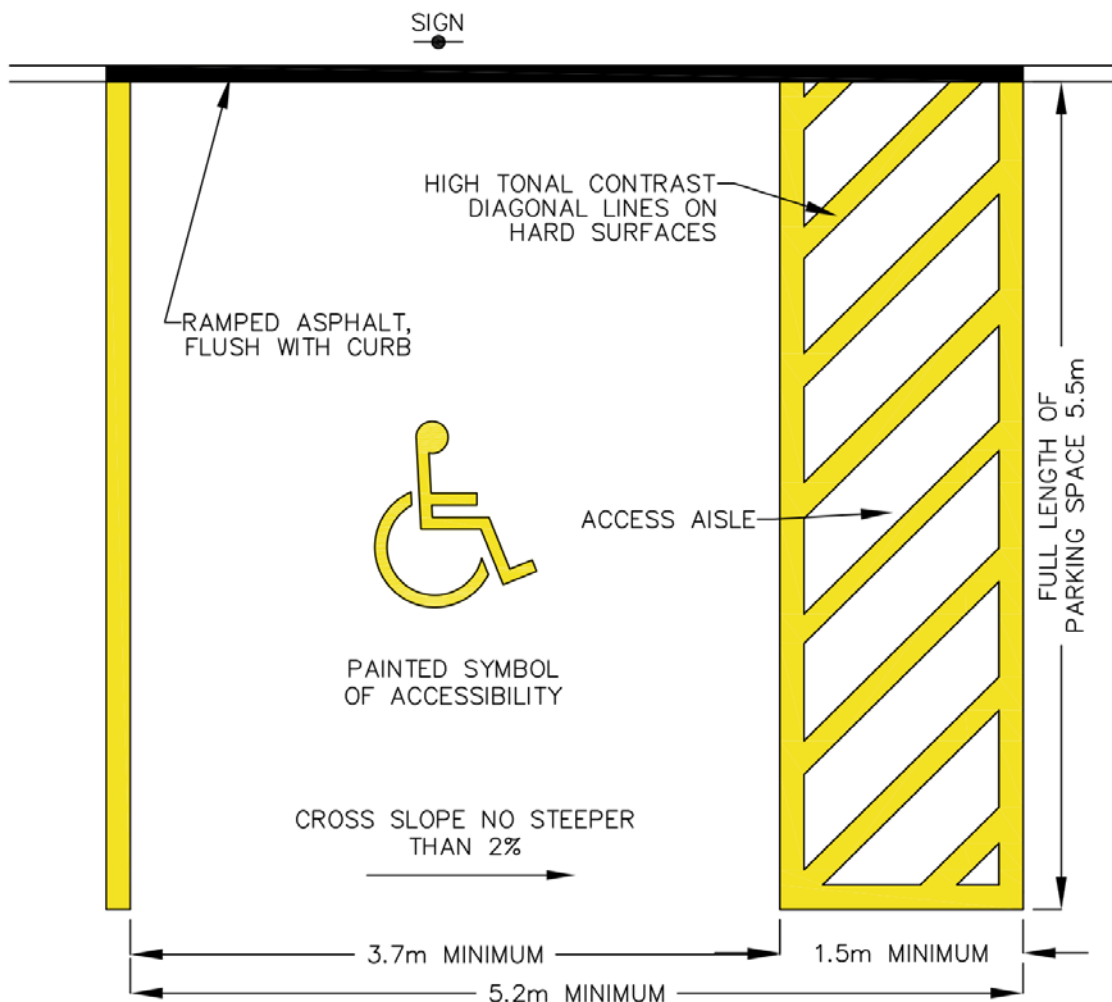
Users may encounter terminology in this document that may not be familiar or understood. Definitions for key words are provided in [Section 6.0](#) Glossary.

## 2.0 ACCESSIBLE PARKING TYPES

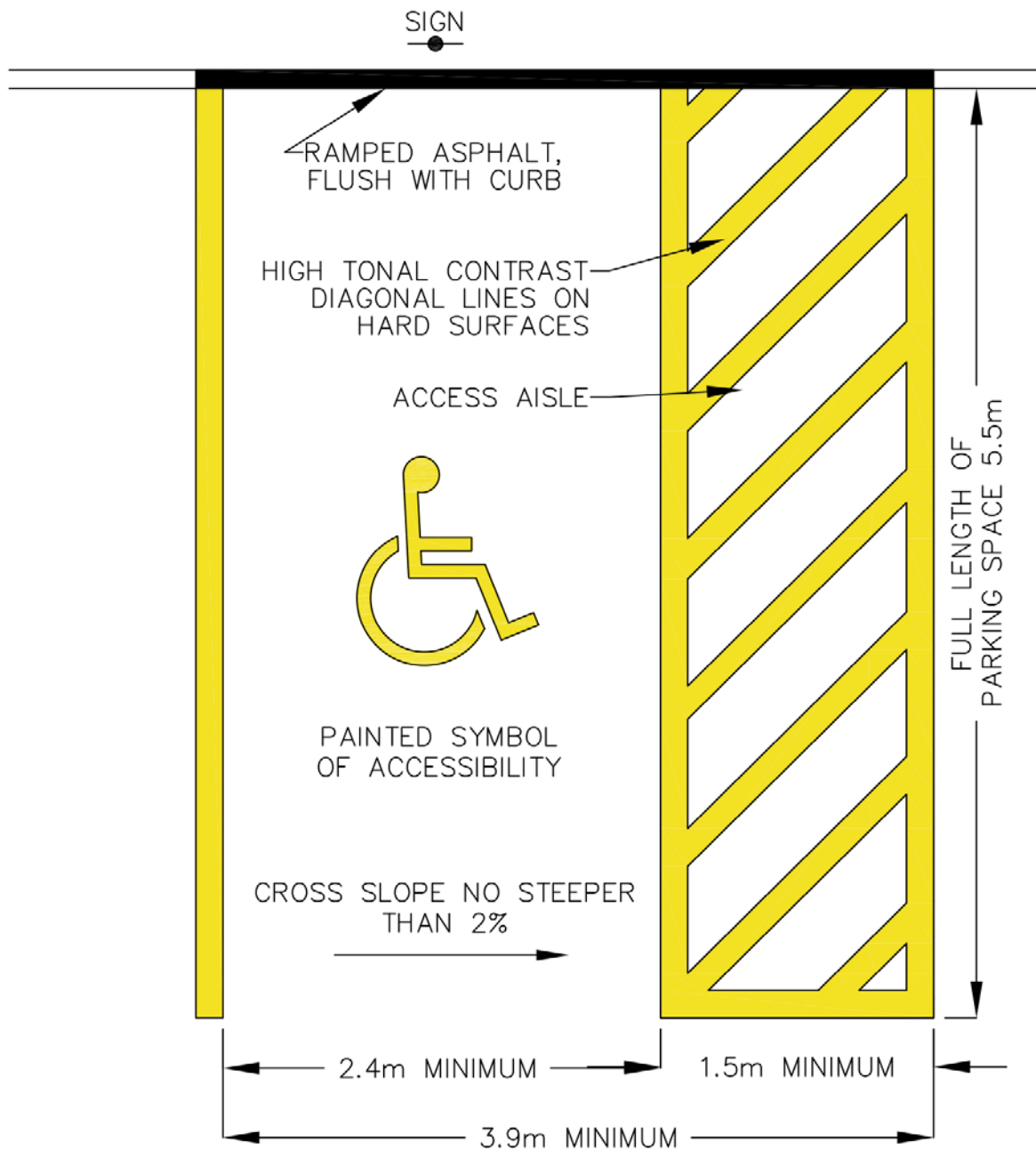
Accessible parking requirements apply to developments that are subject to Site Plan Control.

### 2.0.1 General Requirements

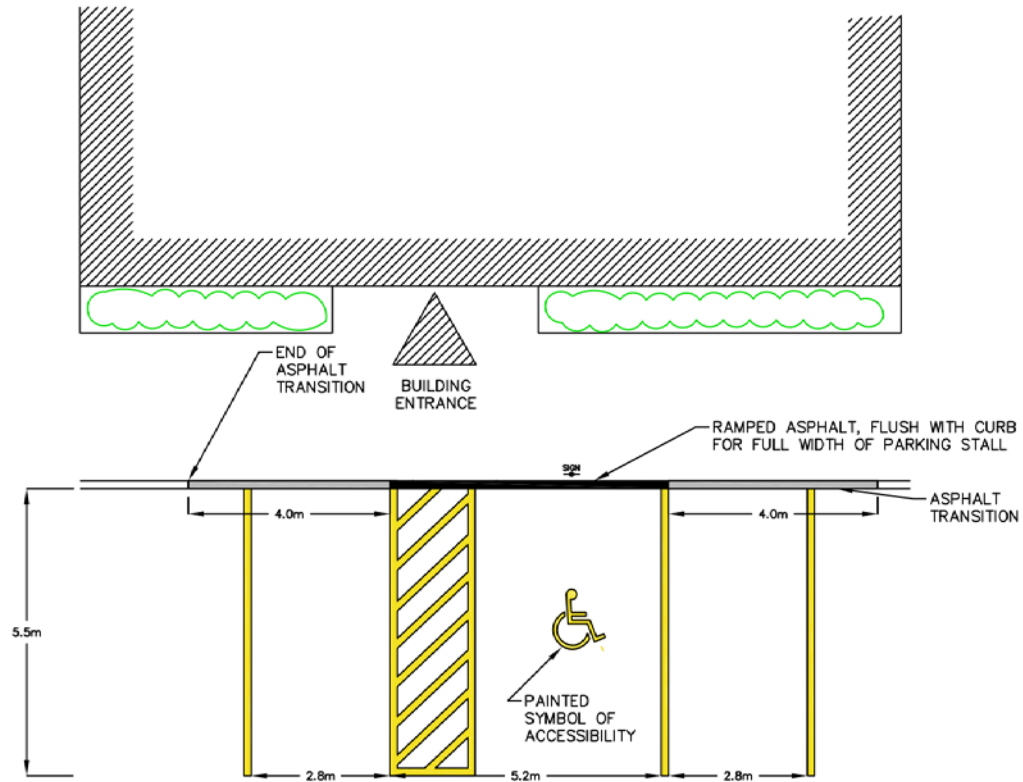
- a) *Off-street parking facilities* shall provide two types of *accessible parking*. These two types are called Type 'A' and Type 'B':
  - i. Type 'A' is a wider parking space with a minimum width of 5.2 metres and 5.5 metre length (**Figure 1**). This space includes a 1.5 metre wide *access aisle*. Type 'A' spaces are *van accessible*. These spaces are beneficial for people who use a mobility device and may require additional space for wheelchair ramps or lift devices.
  - ii. Type 'B' has a minimum width of 3.9 metres and 5.5 metre length (**Figure 2**). This space includes a 1.5 metre wide *access aisle*.



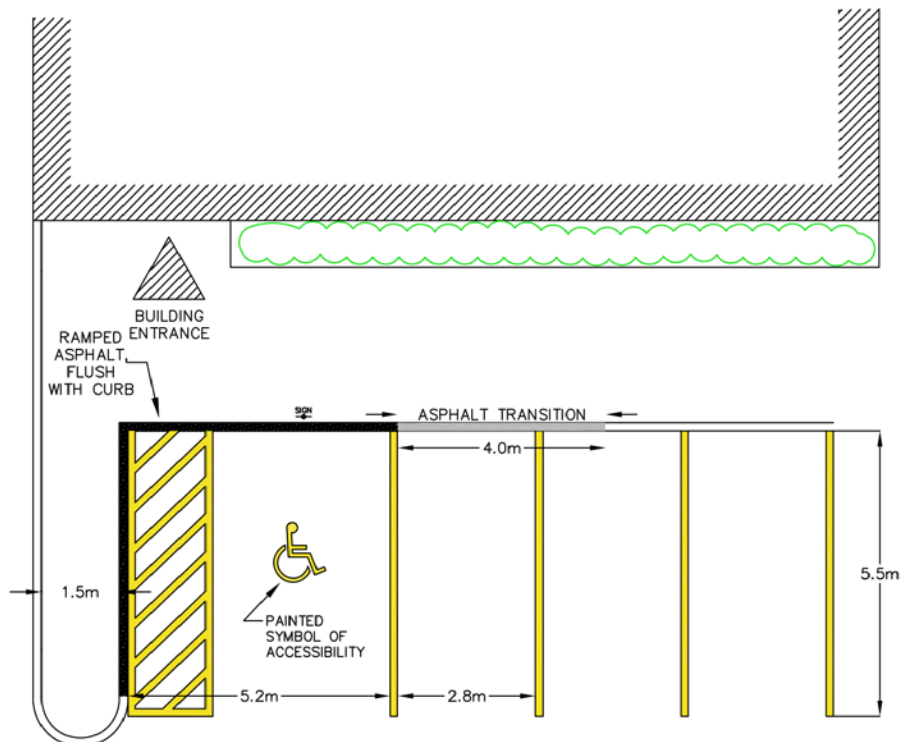
**Figure 1:** Type 'A' parking space specifications



**Figure 2:** Type 'B' parking space specifications



**Figure 3:** Example of a Type 'A' parking space with flush curb



**Figure 4:** Example of a Type 'A' corner parking space with flush curb

## 2.1 ACCESSIBLE PARKING SPACE REQUIREMENTS

Organizations are encouraged to exceed the minimum *accessible* parking space requirements, taking into consideration the needs of various users of the site(s).

**Table 2.1.1:** Required Number of Accessible Parking Spaces for Off-Street Parking

Total Number of Parking Spaces Provided	Total Number of Accessible Parking Spaces Required	Required Type 'A' Spaces	Required Type 'B' Spaces	Percentage of Accessible Parking Spaces Required
1 - 12	1	1	0	1
13 - 25	1	1	0	4%
26 - 50	2	1	1	
51 - 75	3	1	2	
76 - 100	4	2	2	
101 - 133	5	2	3	3% + 1
134 - 166	6	3	3	
167 - 200	7	3	4	
201 - 250	7	3	4	2% + 2
251 - 300	8	4	4	
301 - 350	9	4	5	
351 - 400	10	5	5	
401 - 450	11	5	6	
451 - 500	12	6	6	
501 - 550	13	6	7	
551 - 600	14	7	7	
601 - 650	15	7	8	
651 - 700	16	8	8	
701 - 750	17	8	9	
751 - 800	18	9	9	
801 - 850	19	9	10	
851 - 900	20	10	10	
900 - 950	21	10	11	
951 - 1000	22	11	11	

- a) For more than 1000 parking spaces, 11 *accessible* parking spaces plus 1% of the total number of spaces (rounded up to the next whole number) are required. This means that for 1001 parking spaces, 22 total *accessible* parking spaces are required.



- b) Where an odd number of *accessible* parking spaces are required, the *accessible* parking spaces shall be divided equally between Type 'A' and Type 'B', with the additional parking space being Type 'A'.



## 2.2 ACCESSIBLE ON-STREET PARKING

The City of Waterloo provides and maintains on-street parking in the public right of way. The City is required to consult with the Grand River Accessibility Advisory Committee on the need, location and design of *accessible* on-street parking spaces. Other obligated organizations shall consult with the public and persons with disabilities when providing on-street parking. The Design of Public Spaces Standard does not provide criteria for the design and placement of *accessible* on-street parking.



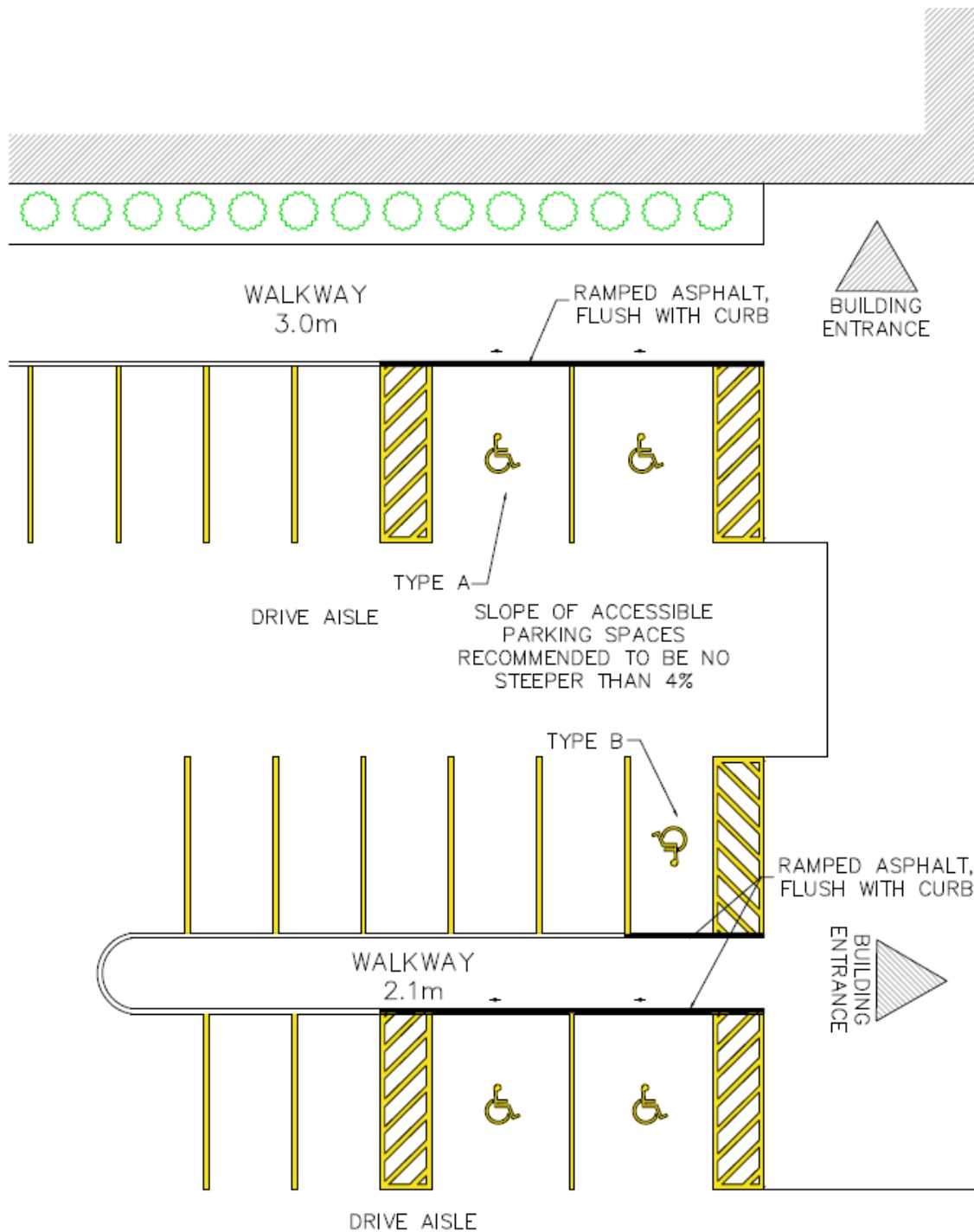
## 2.3 LOCATION OF ACCESSIBLE PARKING SPACES WITHIN SURFACE PARKING AREAS

### 2.3.1 General Requirements

- a) Accessible parking spaces shall be located in close proximity to an *accessible* building entrance (**Figure 5**).
  - i. The path of travel to the *accessible* parking space should not be located behind parked vehicles.
- b) Where there are multiple buildings on site or multiple points of entry to a building, such as commercial malls or shopping centres, *accessible* parking spaces shall be distributed throughout the development, in close proximity to building entrances (**Figure 6**). Where there are more than one parking facilities for a single building, ensure that the number and type of *accessible* parking spaces is calculated based on the total number of parking spaces required for each of the separate parking facilities.



**Figure 5:** Example of *accessible* parking spaces located in close proximity to the main entrance of a building



**Figure 6:** Example of distributed accessible parking spaces



## 2.4 ACCESSIBLE PARKING SPACES WITHIN A PARKING STRUCTURE

### 2.4.1 General Requirements

- a) Accessible parking spaces shall be located within close proximity to an *accessible* building entrance or be in close proximity to an elevator within a parking structure.
- b) Where separate parking structures do not serve a particular building, *accessible* parking spaces should be located near an *accessible* pedestrian entrance of the parking facility.
- c) Parking levels with *accessible* parking spaces shall have an *accessible* entrance and path of travel.
  - i. Place the majority of *accessible* parking spaces on the level of a parking structure with direct access to an *accessible* building entrance or parking structure exit. This allows people to access their parking space in extreme cases that an elevator breaks down or there is a power outage.
  - ii. The location of pillars or columns, mechanical venting, and the like, shall not obstruct parking spaces and travel paths.
- d) Type 'A' and Type 'B' spaces within the parking structure as set out in [Section 2.1 Accessible Parking Space Requirements](#), shall be provided.
  - i. A wider *access aisle* at unloading areas for a Type 'A' parking space may be necessary to give additional space for passenger loading.
- e) Provide required signage as set out in [Section 2.5 Signage for Accessible Parking Spaces](#).
  - i. Including signage that indicates which parking levels have *accessible* parking spaces and how many spaces are included on each level is encouraged.
  - ii. Clear *wayfinding* signage directing to *accessible* parking spaces should be included in the parking structure.

### 2.4.2 Surface

- a) Provide a level surface treatment. Where paved or concrete surfaces exist, *access aisles* shall be clearly marked.
  - i. *Slip resistant* markings should be included, especially if the surface area is painted. It is not recommended that the entire surface of the *accessible* parking space be painted as it may make the surface slippery when wet.

## 2.5 SIGNAGE FOR ACCESSIBLE PARKING SPACES

Each *accessible* parking space shall be identified with an accessible “permit only” parking sign as per the [Accessible Parking for Persons with Disabilities Regulation 581](#), under the *Highway Traffic Act*, 1990.

### 2.5.1 General Requirements

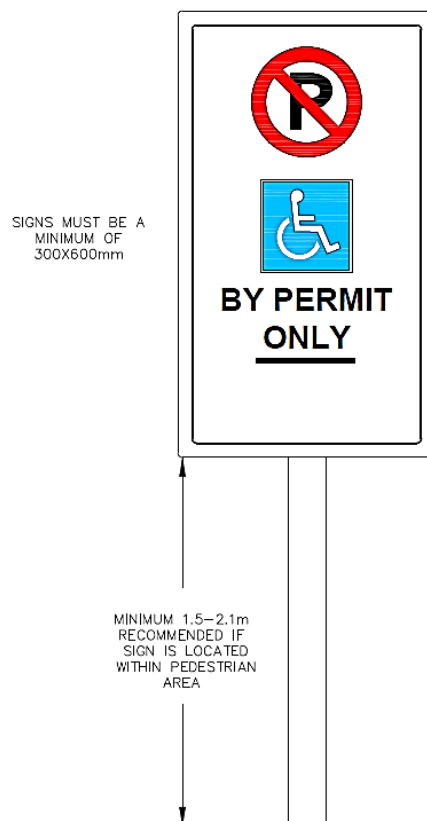
- a) Signs shall be a minimum of 300 millimetres wide by 600 millimetres high and may be mounted on a pole or wall.
- b) A minimum 1525 millimetres wide by 1525 millimetres deep pavement sign with the ‘International Symbol of Access’ shall be provided.
  - i. When necessary, provide directional signage in large parking areas or where an *accessible* parking space is not within clear view.
- c) Locate signage for an *accessible* parking space 1.5 to 2.0 metres above grade; 600 millimetres to 2.0 metres from a curb edge, or on a building face within 2.0 metres of the curb.
  - i. The location of electronic display monitor signs shall be consistent with the signage placement requirement. The monitor shall not provide any glare.
- d) Ensure that signage does not impede pedestrian routes.
- e) Signage can be obtained through Kitchener Utilities by contacting 519-741-2200, extension 4166.



**Figure 7:** Example of *accessible* parking space signage



**Figure 8:** Example of *accessible* parking spaces with required signage (mounted sign and the International Symbol of Access pavement sign)



**Figure 9:** Example of an *accessible* parking space sign



## 2.6 ACCESSIBLE PARKING APPURTENANCES

Best practices should be considered for *accessible* parking appurtenances (pay meters, charging stations, emergency poles, etc.)

### 2.6.1 Best Practices

- a) Appurtenances located within a surface parking area should be easily *accessible*.
- b) They should be located in close proximity to an *accessible* parking space and or have a clear path of travel leading to the equipment.
- c) They should be at a height that is reachable in a seated position.
- d) For pay meters, consider installing Pay Pass technology that allows users the option to tap a card instead of using a key pad.

## 2.7 ACCESSIBLE PASSENGER LOADING ZONES

Accessible passenger loading zones or drop-off areas should be provided for taxis and other vehicles used to transport people.

### 2.7.1 Size

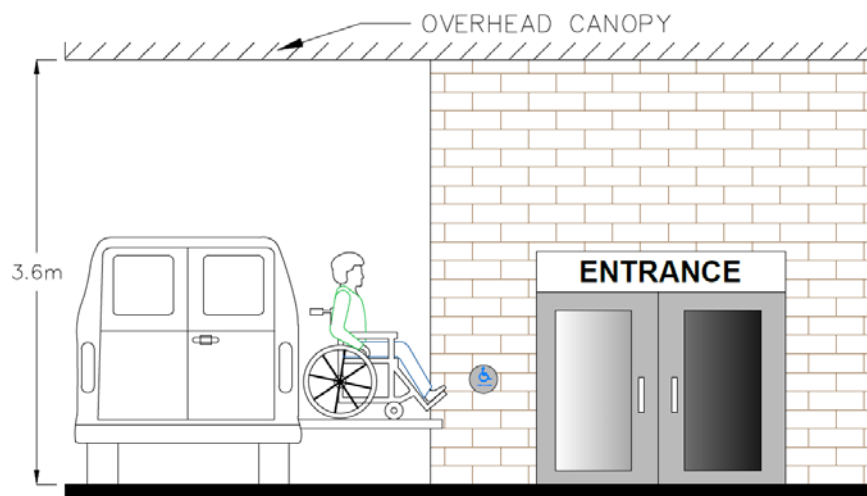
- a) Drop-off areas should be at least 7.4 metres wide and incorporate an aisle 2.44 metres wide to allow for maneuvering (**Figure 11**).
  - i. Where a turning circle or roundabout is part of an entrance drop-off area, turning movement for larger vans shall be accommodated.
- b) Provide a minimum *vertical clearance* of 3.6 metres at accessible passenger loading zones and along vehicle access routes (**Figure 10**).

### 2.7.2 Surface

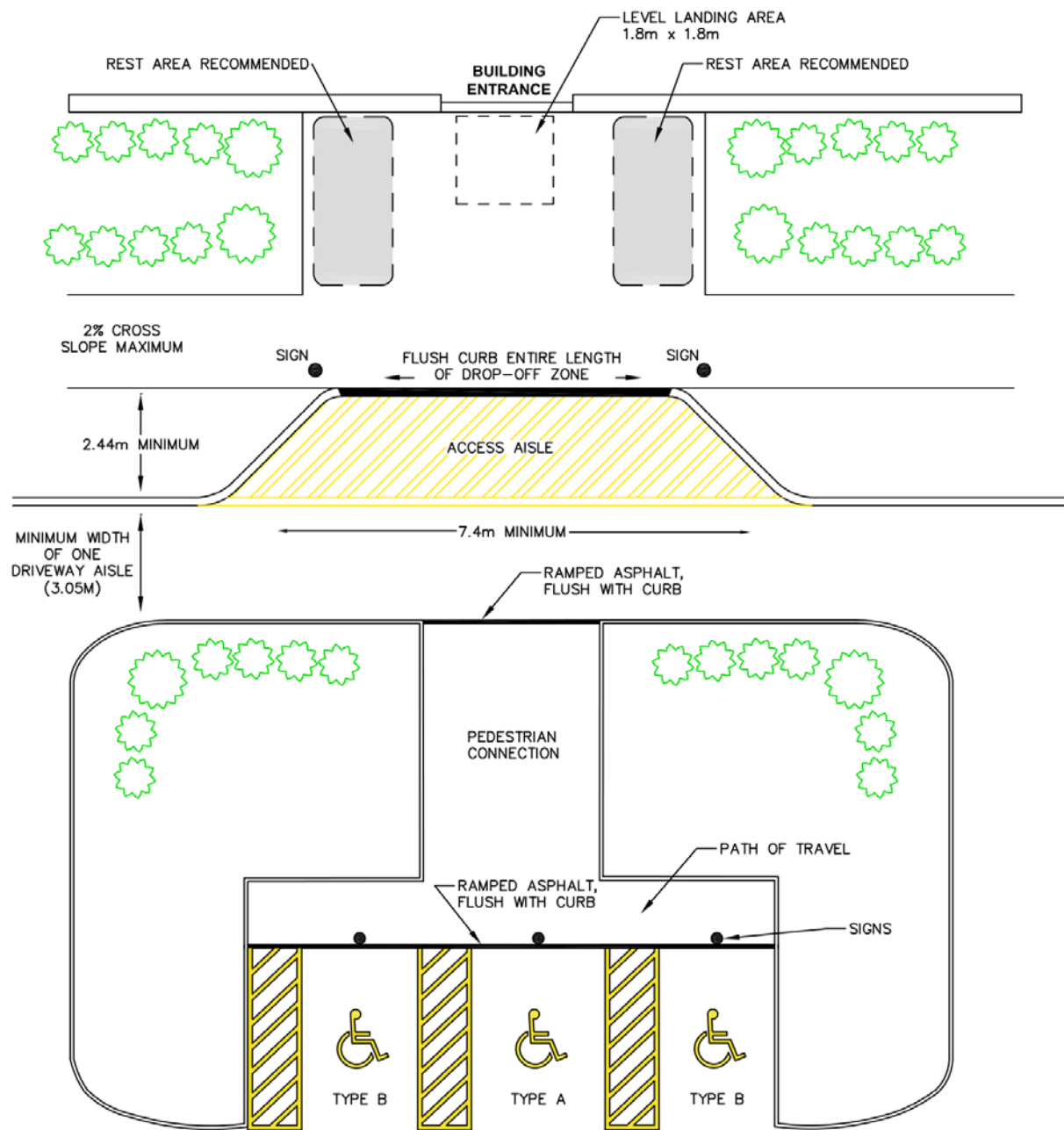
- a) Provide a level, non-slip, non-glare, textured hard surface having a slope between 1-3%.
- b) Provide a path of travel that is flush with the adjoining sidewalk.
  - i. Adjoining sidewalks should be clearly marked or identifiable with contrasting materials and colour.

### 2.7.3 Additional Requirements

- a) Where there are curbs between the *access aisle* and the vehicle pull-up space, appropriate *curb ramps* should be provided to facilitate circulation over paved surfaces as set out in [Section 3.2](#) Curb Ramps.
- b) A protected shelter or canopy with seating facilities is a recommended design feature at passenger loading zones.
- c) Signs should be installed to identify drop-off areas and prevent its misuse as a parking space.



**Figure 10:** Example of vertical clearance at passenger loading zones



**Figure 11:** Example of a passenger loading zone adjacent to a building entrance



## 3.0 EXTERIOR PATHS OF TRAVEL

*Exterior paths of travel* consist of sidewalks and walkways as well as associated elements including curbs, ramps, stairs, handrails and *landings*. They serve a functional purpose for pedestrian travel, whereas *park trails* serve a recreational purpose.

### 3.0.1 Size

- a) Sidewalks and walkways shall be a minimum width of 1.5 metres.
  - i. Providing a path of travel wide enough to accommodate two-way travel, especially for persons using mobility devices, is encouraged.
- b) When parking spaces are perpendicular to one side of a sidewalk, the minimum sidewalk width shall be 1.8 metres.
- c) Where there is a *curb ramp* on the path of travel, the minimum clear width may be reduced to 1.2 metres to accommodate the flared sides and base ramp features of the *curb ramp* design (**Figure 12**).



**Figure 12:** Drop curb with *tactile* surfacing located at an intersection

- d) Provide a minimum *vertical clearance* of 2.3 metres above the path of travel.
- e) Obstructions such as vending machines, bike racks, utilities, mail boxes, planters, planting beds, etc., shall not encroach on to or obstruct the minimum path of travel.
- f) For entry points to sidewalks or walkways, provide a minimum clear opening of 850 millimetres.
- g) Provide a *cane-detectable* railing or other barrier with a leading edge where *vertical clearance* is less than 2.1 metres along a portion of an exterior path.

### 3.0.2 Slope

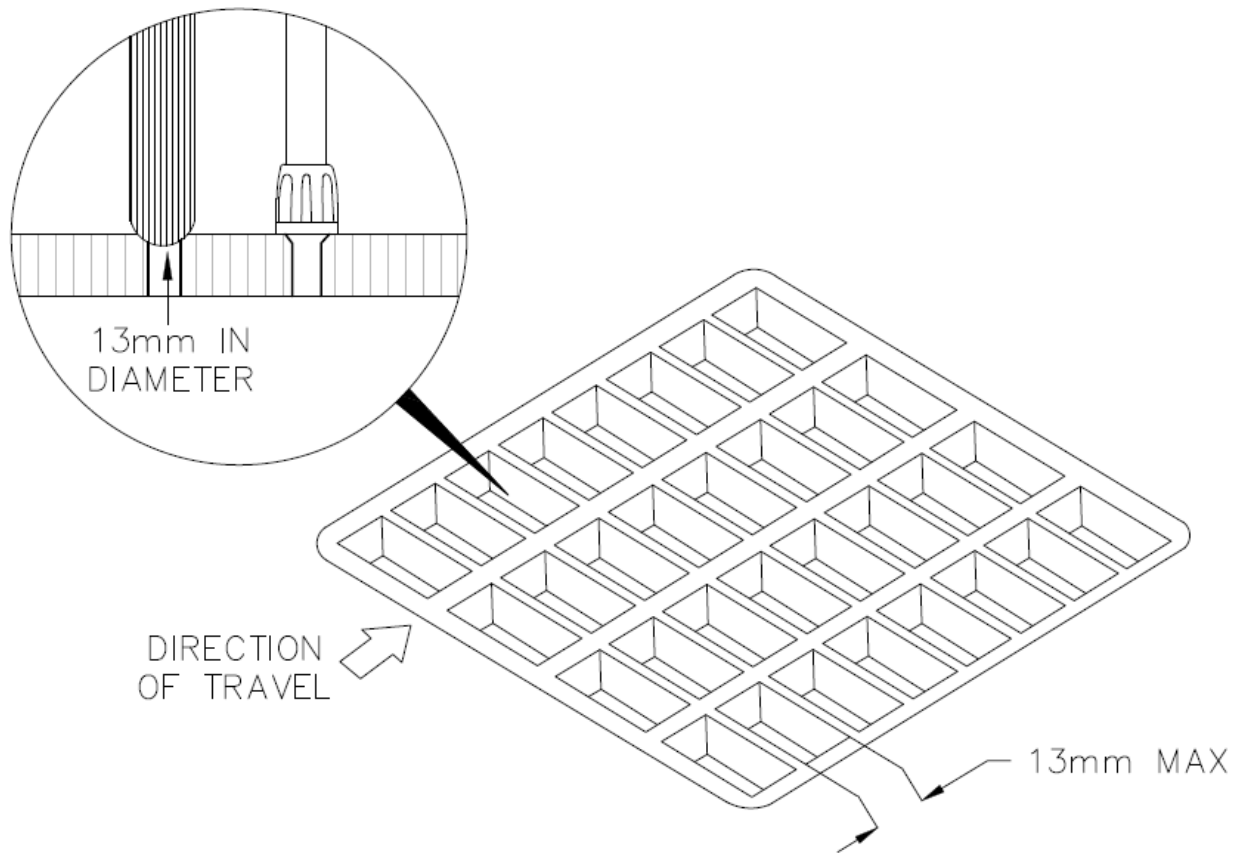
- a) *Running slopes* shall be a maximum of 5%. Where natural terrain results in *roadways* that are steeper than 5%, the slope of the sidewalk can match the *roadway* but shall not exceed it.
- b) *Cross slopes* shall be a maximum of 4%.
- c) Where there is a change in level along a path of travel, a requirement for *bevels*, *slopes*, *curb ramps* and *ramps* is necessary at different degrees of level change. The greater the change, the gentler the slope shall be.

**Table 3.0.3:** Requirements for Slopes on Exterior Paths of Travel

Change in Level (Height)	Slope Requirements
1 to 5 millimetres	No <i>bevel</i> required
6 to 13 millimetres	Shall be <i>beveled</i> with a maximum of 50% (for every 1 unit of height, at least two units of length)
14 to 74 millimetres	<i>Running slope</i> not steeper than 12.5% or provide a <i>curb ramp</i> (as per <a href="#">Section 3.2</a> Curb Ramps)
75 to 200 millimetres	<i>Running slope</i> not steeper than 10% or provide a <i>curb ramp</i> (as per <a href="#">Section 3.2</a> Curb Ramps)
More than 200 millimetres	Provide a ramp (as per <a href="#">Section 3.1</a> Exterior Ramps)

### 3.0.4 Surface

- a) Provide a firm, stable and non-slip surface.
- b) Where an exterior path has openings in its surface, the openings shall not have a diameter of more than 13 millimetres (**Figure 13**).
- c) Elongated openings shall be orientated approximately perpendicular to the direction of travel.



**Figure 13:** Surface openings diameter, which includes vent grates, tree gates, grated stairs/landings, etc.

## 3.1 EXTERIOR RAMPS

A ramp is required in circumstances where there is a gradient greater than 5% along a pedestrian route. Ramps provide a dedicated path for persons with limited mobility and improve maneuverability since they are equipped with handrails.

**NOTE:** Refer to [Section 3.5](#) Handrails, for handrail requirements.

### 3.1.1 Location

- a) Locate ramps as close as possible to the most direct path of travel.
- b) Locate ramps in safe, well lit locations and free of overhead projection hazards.
- c) Where the location of the ramp is not readily evident from the main access route, provide a sign incorporating the international symbol of accessibility and a directional arrow indicating the location.

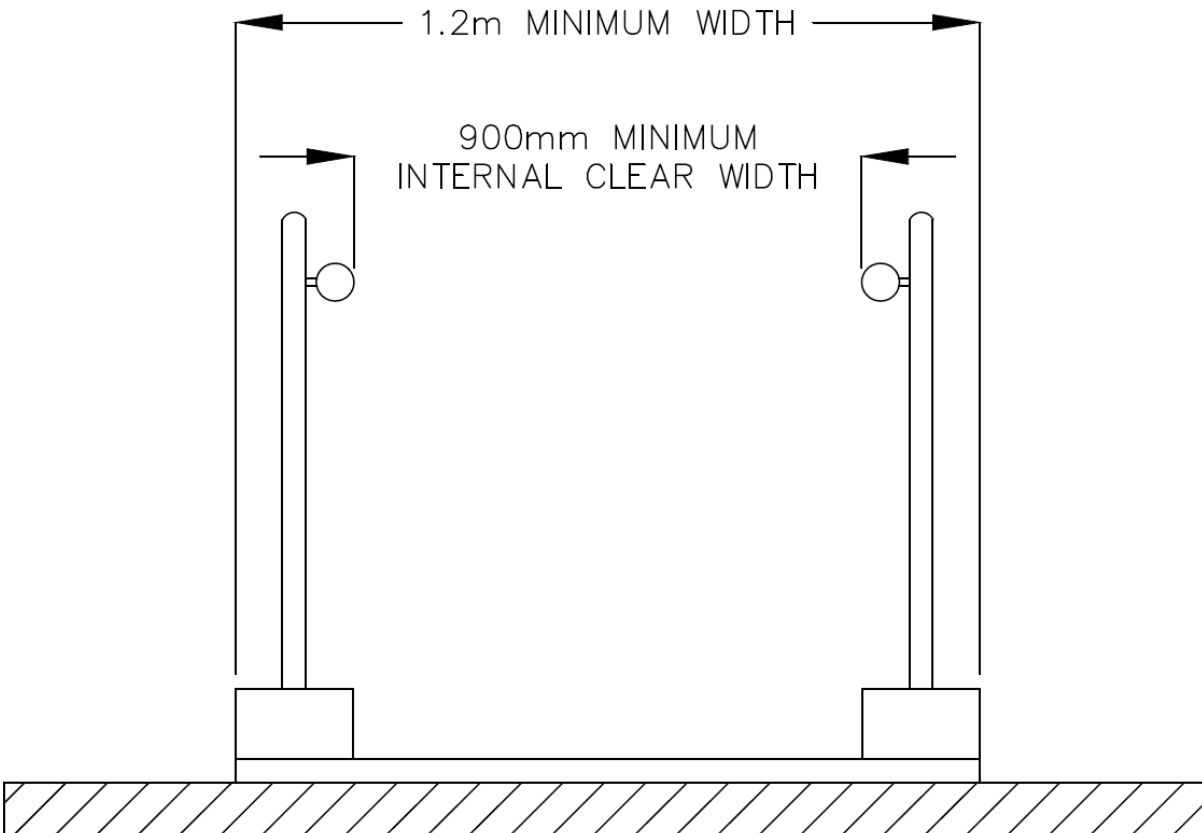


**Figure 14:** Example of a ramp with appropriate handrails and slope levels

### 3.1.2 Size

- a) Ramps shall be a minimum width of 1.2 metres wide with a minimum internal clear width of 900 millimetres between handrails (**Figure 15**). An internal clear width of 1100mm is encouraged as a best practice.
- b) Provide a *landing* at the top and bottom of the ramp at least 1.8 metres wide by 1.8 metres long.
- c) If a door is provided, the *landing* shall be extended at least 600 millimetres beyond the latch of the door opening.
- d) Provide a minimum *vertical clearance* of 2.3 metres.
  - i. Avoid obstructions encroaching onto ramps (e.g., overhanging shrubs, trees, etc.)

- Refer to **Figure 16 & 17** for a visual representation of the above requirements.



**Figure 15:** Example of ramp width specifications

### 3.1.3 Slope

- Slopes shall be a maximum of 6%.

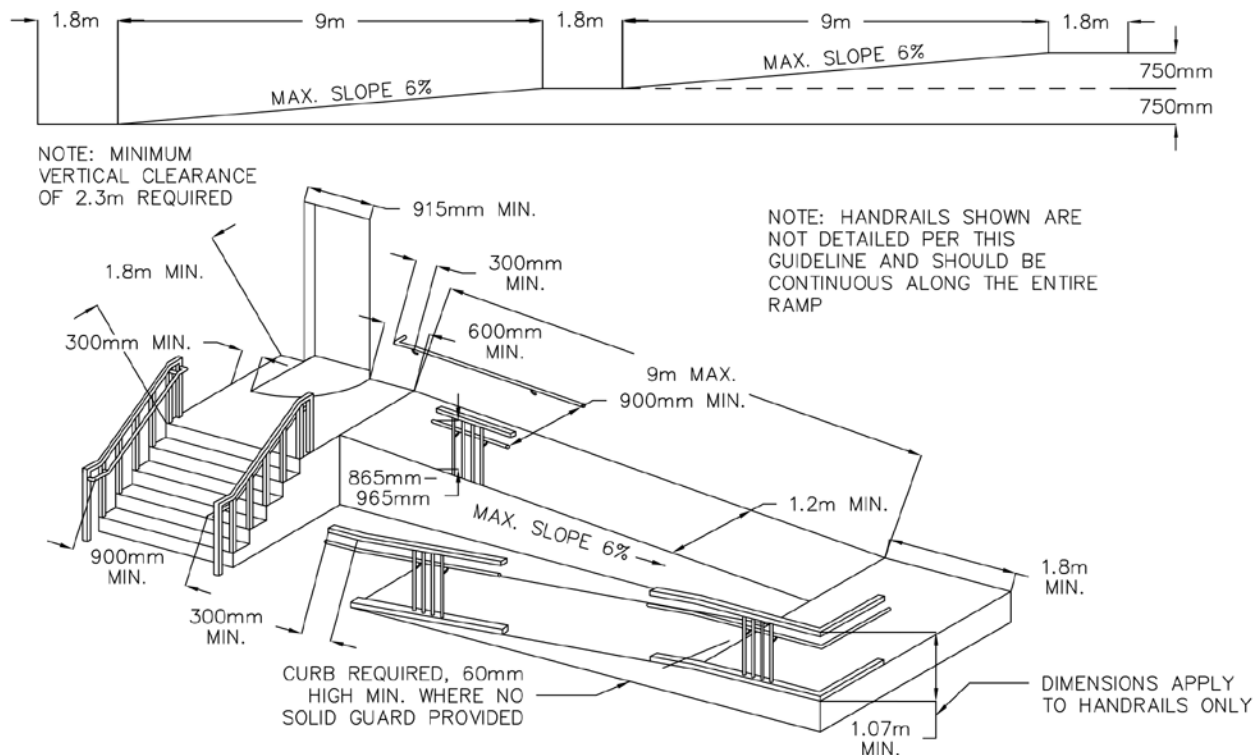
### 3.1.4 Surface

- Provide a firm, stable, non-slip, non-glare surface of poured in place concrete (preferred), asphalt, or wood. Do not include aggregate or ridges which allow water or ice accumulation.
  - Poured in place concrete ramps should have a broom finish which is perpendicular to the path of travel.
- Ramp surfaces shall have no opening that will permit the passage of a sphere more than 13 millimetres in diameter.
- Provide colour and texture contrast at the top and bottom of ramps.

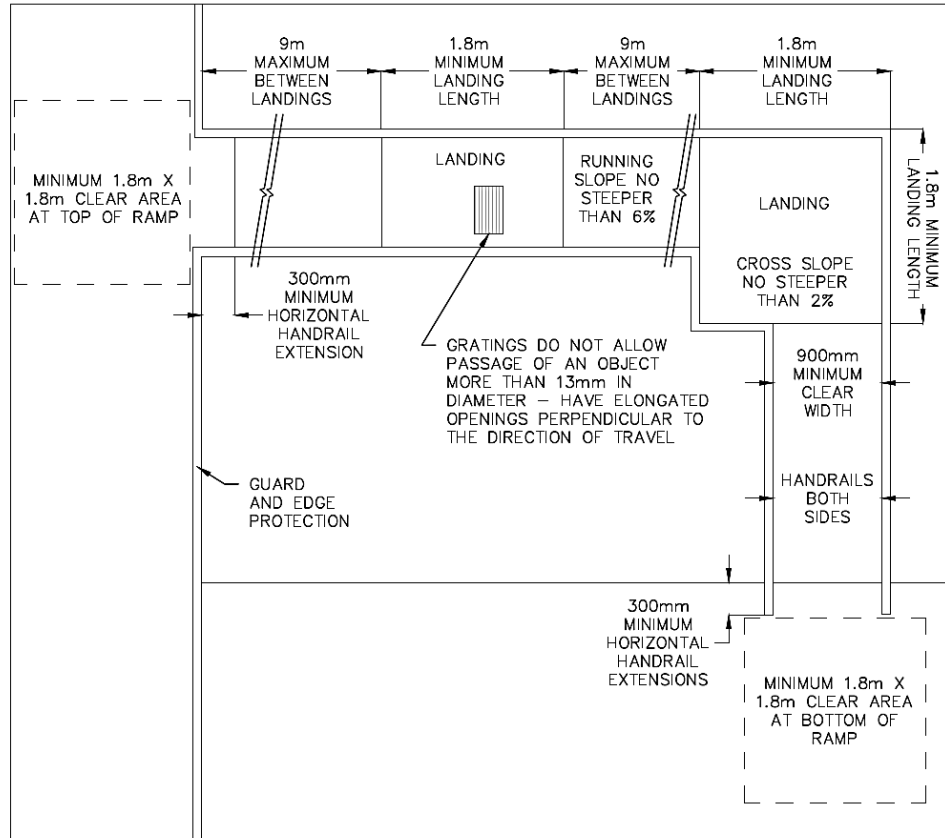
### 3.1.5 Additional Requirements

- The ramp shall have a wall or guard on both sides and where the guard is provided, it shall:
  - be no less than 1.07 metres measured vertically to the top of the guard from the ramp surface; and

- ii. be designed so that no element, attachment or opening located between 140 millimetres and 900 millimetres above the ramp will facilitate climbing.
- b) The ramp shall have *edge protection* that is provided:
  - i. with a curb at least 50 millimetres high on any side of the ramp where no solid enclosure or solid guard is provided; or
  - ii. with railings or other barriers that extend within 50 millimetres of the finished ramp surface.
- c) The ramp shall be provided with *landings* that meet the following requirements:
  - i. Landings shall be provided,
    - at the top and bottom of the ramp;
    - where there is an abrupt change in direction of the ramp; and
    - at horizontal intervals not greater than 9.0 metres apart.
  - ii. Landings shall be a minimum of 1.8 metres long and at least the same width as the ramp for an *in-line ramp*.
  - iii. Landings shall have a *cross slope* that is not steeper than 2%.



**Figure 16:** Example of ramp design specifications



**Figure 17:** Overhead view of exterior ramp specifications



## 3.2 CURB RAMPS

A *curb ramp* is a ramp that cuts through a curb or that is built up to a curb (**Figure 18**). *Curb ramps* provide persons with limited mobility a safe way to negotiate elevation. It also provides appropriate warning of the transition for persons with visual disabilities.

### 3.2.1 General Requirements

- a) *Curb ramps* shall have a minimum clear width of 1.5 metres, exclusive of any flared sides and shall align with the direction of travel.
- b) The *running slope* of a *curb ramp* shall,
  - i. be a maximum of 12.5%, where elevation is less than 75 millimetres; and
  - ii. be a maximum of 10%, where elevation is between 75 and 200 millimetres.
- c) *Curb ramps* shall be stable, firm and *slip resistant*.
- d) The maximum *cross slope* of a *curb ramp* shall be no more than 2%.
- e) The maximum slope on the flared side of a *curb ramp* shall be no more than 10%.
- f) Where a *curb ramp* is provided at a pedestrian crossing, it shall have *tactile walking surface indicators* that,
  - i. have raised *tactile profiles* (**Figure 19**);
  - ii. have a high *tonal contrast* with the adjacent surface;
  - iii. are located at the bottom of the *curb ramp*;
  - iv. are set back between 150 millimetres and 200 millimetres from the curb edge;
  - v. extend the full width of the *curb ramp*; and
  - vi. are a minimum of 610 millimetres in depth.



**Figure 18:** Example of a *curb ramp* located at a cross-walk





**Figure 19:** Example of a *tactile* warning surface



## 3.3 DEPRESSED CURB

A *depressed curb* is a portion of curb along a pedestrian route that is lowered to the level of the adjacent *roadway* and is usually found at intersections. A *depressed curb* improves the usability of sidewalks and walkways for all pedestrians.

### 3.3.1 General Requirements

- a) *Depressed curbs* shall have a maximum *running slope* of 5%.
- b) *Depressed curbs* shall be aligned with the direction of travel.
- c) Where a *depressed curb* is provided at a pedestrian crossing, it shall have *tactile* walking surface indicators that:
  - i. have raised *tactile* profiles;
  - ii. have high *tonal contrast* with the adjacent surface;
  - iii. are located at the bottom portion of the *depressed curb* that is flush with the *roadway*;
  - iv. are set back between 150 millimetres and 200 millimetres from the curb edge; and
  - v. are a minimum of 610 millimetres in depth.



## 3.4 EXTERIOR STAIRS

Exterior stairs or stairs that connect to *exterior paths of travel* are often required to accommodate elevation changes. Stairs along pedestrian routes should be designed to accommodate persons with limited mobility and provide a safe path for pedestrian circulation.

**NOTE:** Refer to [Section 3.5](#) Handrails, for handrail requirements.

### 3.4.1 Location

- a) Locate stairs near the most direct *accessible* path of travel.
- b) Locate stairs perpendicular to the pedestrian direction of travel.
- c) Locate stairs in safe and well lit locations.

### 3.4.2 Size

- a) Provide a minimum clear width of 900 millimetres.
- b) Treads and risers shall have a uniform rise and run throughout a flight of steps. Rise shall be a minimum of 125 millimetres and maximum of 180 millimetres. Run shall be a minimum of 280 millimetres and a maximum of 355 millimetres.
- c) Flight of steps should not exceed 1.5 metres in height without a *landing*.
- d) Provide a *vertical clearance* of 2.3 metres.
  - Refer to **Figure 21 & 22** for a visual representation of the above requirements.

### 3.4.3 Slope

- a) A cross-slope of 1% is recommended to ensure that steps are well drained and do not allow icing.

### 3.4.4 Surface

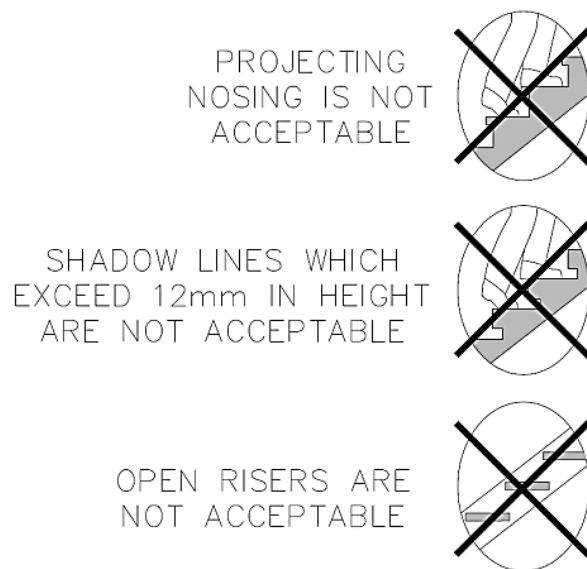
- a) Provide a level non-slip, non-glare and textured hard surface. Do not include exposed aggregate or ridges which allow water or ice accumulation.
- b) Provide poured in place concrete (preferred), wood or concrete pavers. Poured in place concrete steps should have a broom finish which is perpendicular to the path of travel.
- c) Provide colour and texture contrast at the top and bottom of flights of stairs and on stair *nosings*. Use a colour/lightness contrasted strip, a maximum of 50 millimetres deep on the leading edge on the tread and vertical face of the *nosing*. Steps shall be illuminated to a minimum level of 1.0 *foot candles*.

### 3.4.5 Anti-Slip Nosing Strips and Tactile Surface Indicators

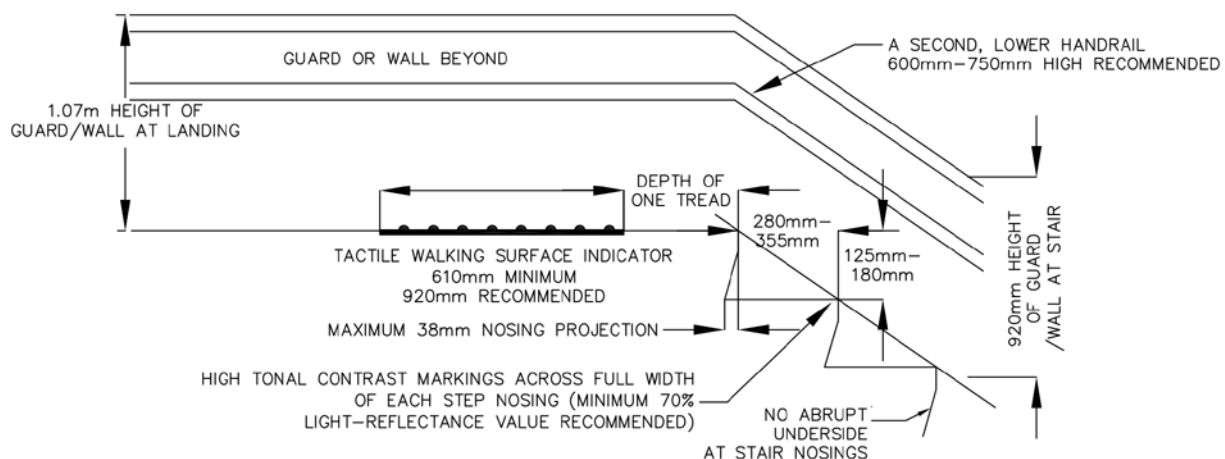
- a) Provide contrasting colours on the *nosing* of steps to assist persons with visual impairments.
- b) *Nosing* should not project. If a *shadow line* is proposed for decorative purposes, it should not have a height exceeding 12 millimetres.
- c) Provide a *nosing* radius or curvature between 6 and 13 millimetres.
- d) A guard shall be provided that is a minimum of 920 millimetres, measured vertically to the top of the guard from a line drawn through the outside edges of the stair *nosings* and 1.07 metres around the *landings*. It is required on each side of a stairway where the

difference in elevation between ground level and the top of the stair is more than 600 millimetres. Where there is a wall, a guard is not required on that side.

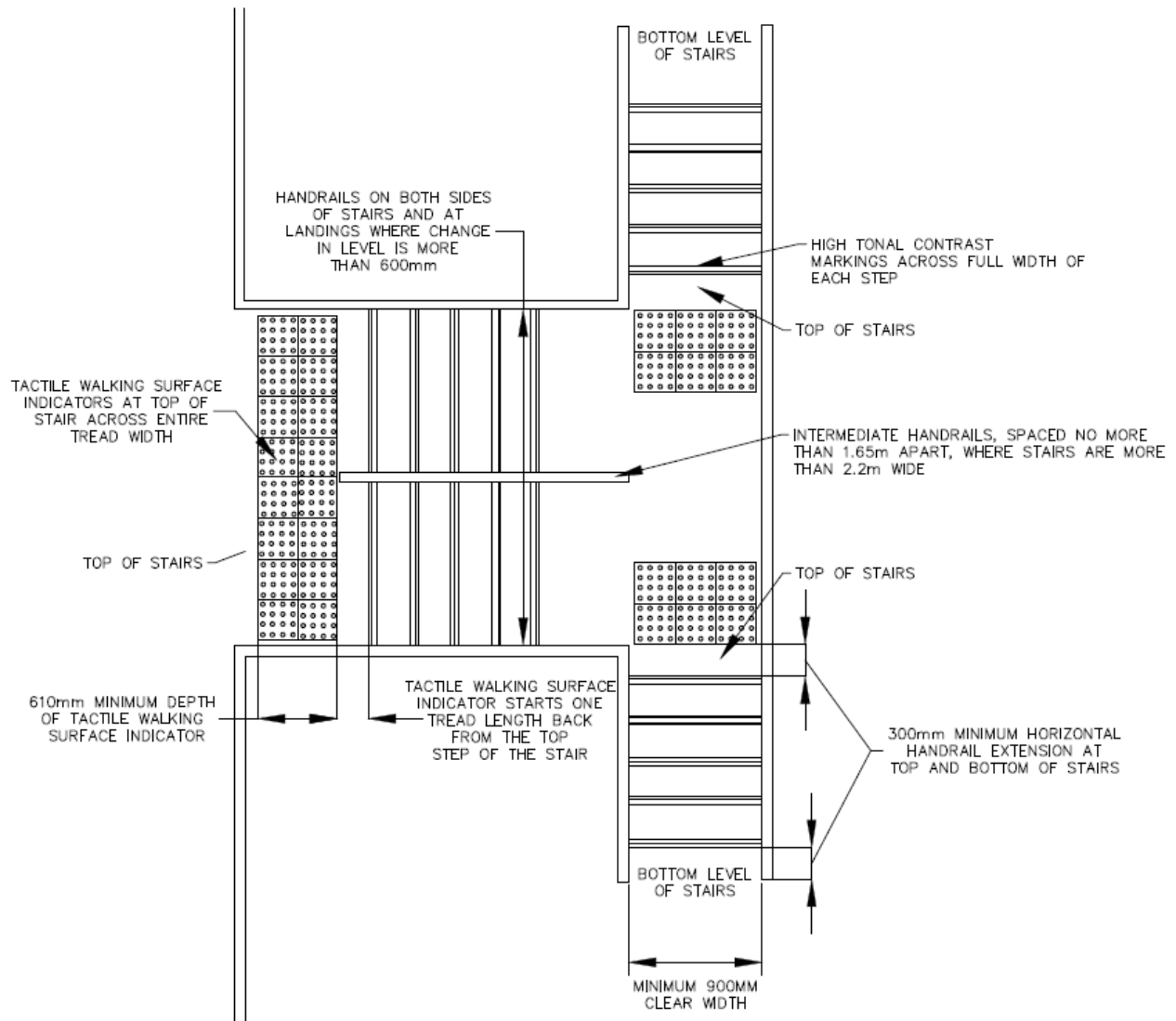
- e) Stairs shall have closed risers.
- f) Stairs shall be equipped with *tactile* walking surface indicators that are built in or applied to the walking surface, and shall,
  - i. have raised *tactile* profiles;
  - ii. have a high *tonal contrast* with the adjacent surface;
  - iii. be located at the top of all flights of stairs; and
  - iv. extend the full tread width to a minimum depth of 610 millimetres commencing one tread depth from the edge of the stair.



**Figure 20:** Example of unacceptable exterior stair features



**Figure 21:** Example of exterior stair design



**Figure 22:** Overhead view of exterior stair design specifications

## 3.5 HANDRAILS

Handrails on ramps and stairs provide assistance and stability and function as a safety mechanism; they shall be designed to accommodate height differences and withstand the weight of a wide range of users.

### 3.5.1 Location

- a) Handrails should be provided on both sides of ramps and stairs.
- b) Gradients of less than 5% do not require handrails. Handrails are required at elevation changes of 600 millimetres or greater.
- c) Where a ramp or stairway is more than 2.2 metres in width, one or more intermediate handrails which are continuous between *landings* shall be provided and located so that there is no more than 1.65 metres between handrails.



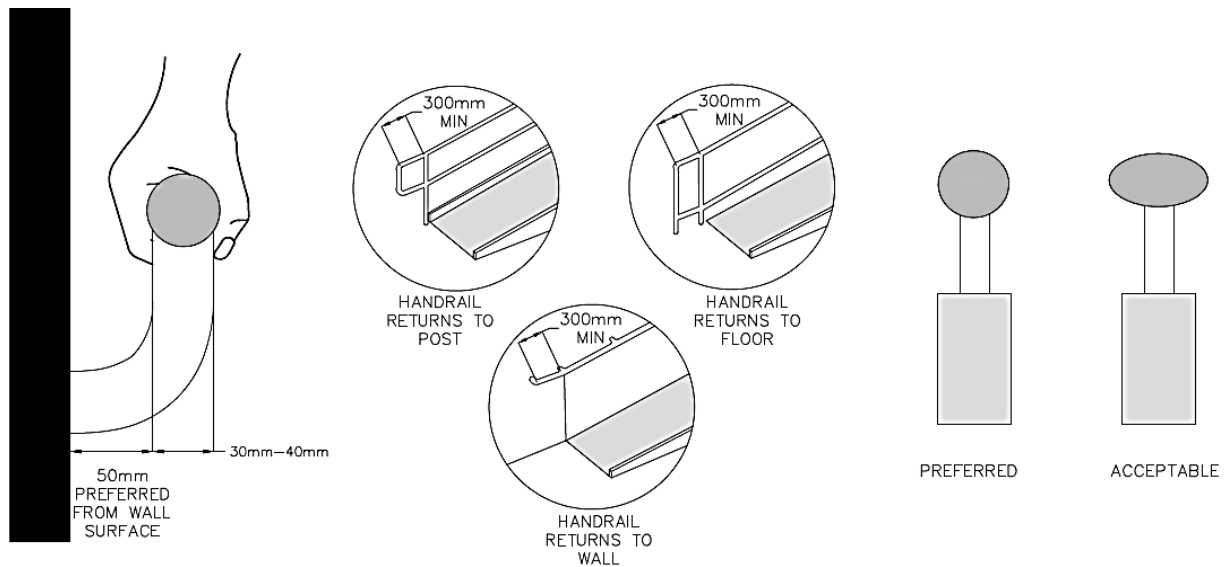
**Figure 23:** Example of handrails along stairs, meeting technical specifications

### 3.5.2 Size

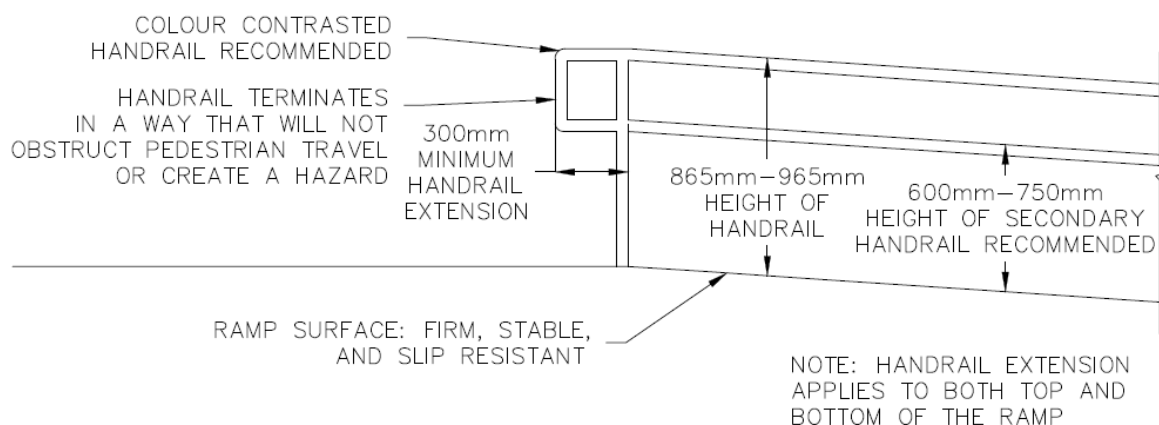
- a) Handrails shall be provided at a height between 865 millimetres and 965 millimetres as measured vertically from a line drawn through the surface of the ramp or stairway.
- b) Handrails shall be continuously graspable along their entire length and have circular cross-section with an outside diameter between 30 and 40 millimetres. Alternatively, handrails shall have a non-circular shape with a graspable portion that has a perimeter between 100 and 155 millimetres with the largest cross-sectional dimension a maximum of 57 millimetres. Avoid square edges.
- c) Provide a minimum clearance of 50 millimetres between every handrail and wall to which it is fastened.
- d) Extend handrail horizontally a minimum 300 millimetres beyond the top and bottom of the ramp or stairway and curve to the wall or post.
- e) A minimum clearance of 900 millimetres is required between handrails.
- f) Terminate handrails in a manner which will not obstruct pedestrian travel or create a hazard. It is recommended that a continuous handrail terminate by returning the ends

into the wall. Where there is no wall, the rail should terminate in the ground to provide an effective surface for cane detectability.

- g) Frequently used ramps or stairs shall have a second lower set of handrails with a recommended height between 600 and 750 millimetres.
  - i. In instances where ramps or stairs are used extensively by children, a double set of handrails is encouraged.
- h) Handrails and their supports shall withstand the loading values obtained from the non-concurrent application of a concentrated load a minimum of 0.9 kilonewtons (kN) applied at any point and in any direction for all handrails and a uniform load a minimum of 0.7 kN per metre applied in any direction to the handrail.
- Refer to **Figure 24 & 25** for a visual representation of the above requirements.



**Figure 24: Handrail specifications**



**Figure 25: Handrail specifications**



## 3.6 ENTRANCES

Entrances should be safe, *accessible* and easy to use and shall allow for unrestricted access in and out of the building.

### 3.6.1 Location

- a) Locate *accessible* entrances in prominent locations which are easy to find and sheltered from outside elements.
  - i. In retrofit situations, at least one *accessible* entrance, preferably the main entrance, should be provided.
- b) Locate *accessible* main entrances near designated parking spaces and passenger loading zones.
- c) Grade level fire doors and exits shall be *accessible* and connect directly with *accessible* exteriors, as well as interior circulation routes.

### 3.6.2 Size

- a) Door openings should have a minimum clearance width of 815 millimetres with the door in the open position. No obstructions may intrude into the minimum clearance width.
- b) *Thresholds* are discouraged. If required, a *threshold* should be colour/brightness contrasted and be a maximum of 13 millimetres in height.
- c) Where pairs of doors are utilized, at least one door panel should provide a clear opening of 860 millimetres.
- d) In buildings where there is a significant amount of glazing at grade, it is recommended that door frames be colour differentiated to aid in locating the entrance.
- e) Clear glass doors, walls and sidelights at the entrances shall have a 100 millimetre wide contrasting colour strip mounted continuously 1.35 to 1.5 metres above the floor.
- f) Two doors in series (such as in vestibules) shall have a minimum 1.5 metre clear distance between the open doors.

### 3.6.3 Surface

- a) Provide textured floor surface on both sides of doorways to help alert people with visual impairments.
- b) Loose floor mats that can cause a tripping hazard or impede wheelchair use, are not permitted within a path of travel.

### 3.6.4 Door Hardware

- a) Doors shall have level hardware, pull handles, push plates, or exit bars. Pull handles and push plates should be mounted between 900 millimetres and 1.1 metres from grade.
  - i. Door hardware should consist of levers or pulls, but never rounded knobs or thumb-latch handles.
- b) Door locks should be mounted between 760 millimetres and 1.065 metres high.

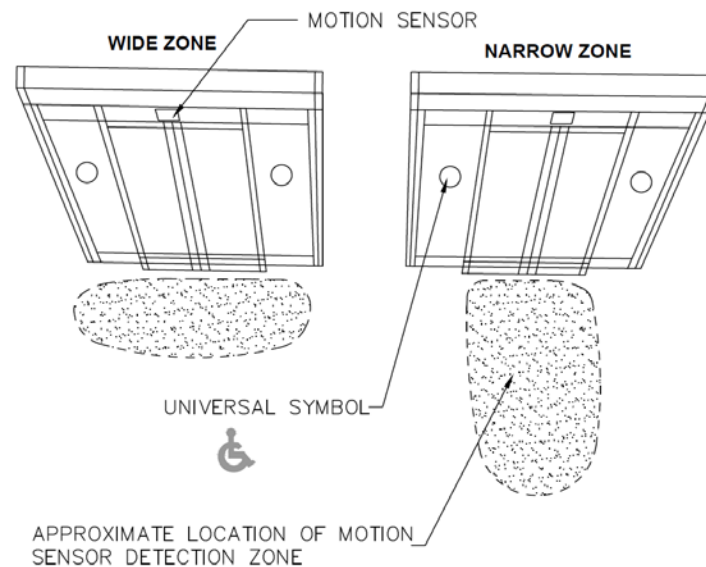


## 3.7 ENTRANCE OPERATIONS

Entrance operators are recommended along *accessible* routes to accommodate people that may have difficulty operating manual doors. At main entrances and at other *accessible* entrances, automatic door openers or assisted door openers on both the exterior entrance and the related vestibule doors should be provided.

### 3.7.1 General Requirements

- a) Motion sensors are the preferred automatic door activators. They should be timed to keep the door(s) fully open until the area is cleared.
  - i. Motion sensors should be adjusted to fit the use. Wide zones should be used where there is side traffic; narrow zones should be used for direct approaches or swing doors (**Figure 26**).



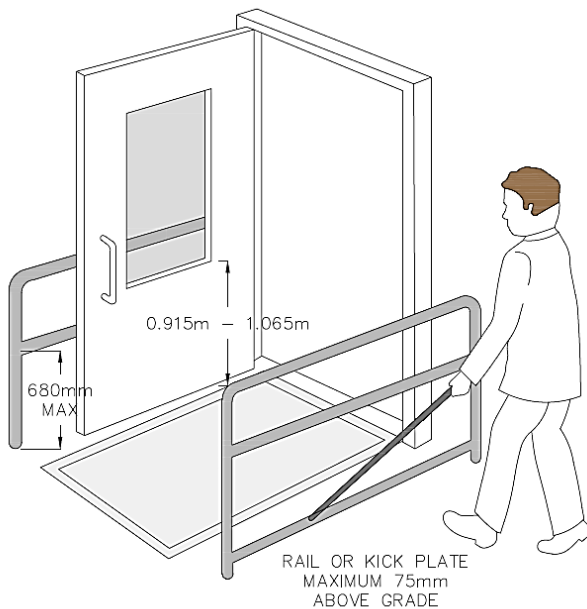
**Figure 26:** Example of motion sensor detector zones

- b) When motion sensors cannot be accommodated, push buttons should be placed 900 millimetres to 1.1 metres above grade on a wall, post or handrail in a manner that does not create pedestrian or door conflicts.
- c) Push buttons should be square or round plates, at least 150 millimetres in diameter, or 50 millimetres by 100 millimetres when rectangular, with maximum colour contrast from the surrounding area for good visibility.
  - i. Providing a *vertical bar actuator* that can be easily reached or tapped by a hand, arm, crutch, cane, wheelchair footrest or other mobility devices is encouraged when a motion sensor option is not available.
- d) Where push buttons are used on double (side by side) doors, swinging or sliding, the push buttons should be on the side of travel.
- e) Push bars should be easily locatable by vision or touch and be a minimum of 600 millimetres to 1.5 metres in front of the door.

- f) Any exterior door not equipped with an automatic operator shall require a maximum force of 38 newtons (N) to open. Door closers shall take a minimum of 3 seconds to close from a 70 degree position.
  - i. Automatic doors should also be of lightweight construction and should be easy to open in the event of a power failure. All automatic doors should be integrated into an emergency backup power system.
- g) Where a revolving door is used, an adjacent *accessible* swinging door shall be provided.
- h) Activate automatic swing or sliding doors with a motion sensor, pressure plate or push button.
  - i. Allow 15 seconds minimum before closing from an open position.
  - ii. Where there are double sets of doors, such as in vestibules, the second door should be opened using a time delay.

### 3.7.2 Automatic Swing Doors

- a) Automatic swing doors require guardrails on both sides. Guardrails should have a second rail a maximum of 680 millimetres above grade and a rail or kick plate a maximum of 75 millimetres above grade (**Figure 27 & 28**). Guardrails are to be colour contrasted to the surrounding area.
- b) Automatic swing doors which have automatic swing door sensing devices also require guard rails. The sensing devices stop and or slow door movements when there is a pedestrian in the path of the swing door.
- c) Pressure plates should extend beyond the full swing of swinging doors in a manner which does not require people using wheelchairs or scooters to back up.



**Figure 27:** Example of required guards at an outswing



**Figure 28:** Example of an automatic swing door with a bollard mounted push plate and guard rail



### 3.7.3 Additional Requirements

- a) Avoid large expanses of clear and unmarked glass near entrances. Mark glass doors with a colour/brightness contrasted and continuous strip 100 millimetres wide and 1.35 to 1.5 metres from the finished floor.
- b) Grade level fire doors and exits shall be *accessible* and connect with exterior and interior *accessible* routes.
- c) Provide transitional *illumination* between exterior and interior lighting conditions for both day and night use. Avoid any sudden drop in *illumination* level and sharp contrast in light and shadow.
- d) Doors and door frames should be colour brightness-contrasted from surroundings. Door edges and jambs should not be excessively sharp.
- e) Ensure optimal maneuvering clearance is available in front of all doors.

### 3.7.4 Card Access and Security Systems

Where card access and security systems are required to enter particular facilities or spaces, the system selected should be suitable for use by persons with varying disabilities, including persons with limited manual dexterity, visual disabilities or difficulty with reaching (e.g., limited upper body movement).

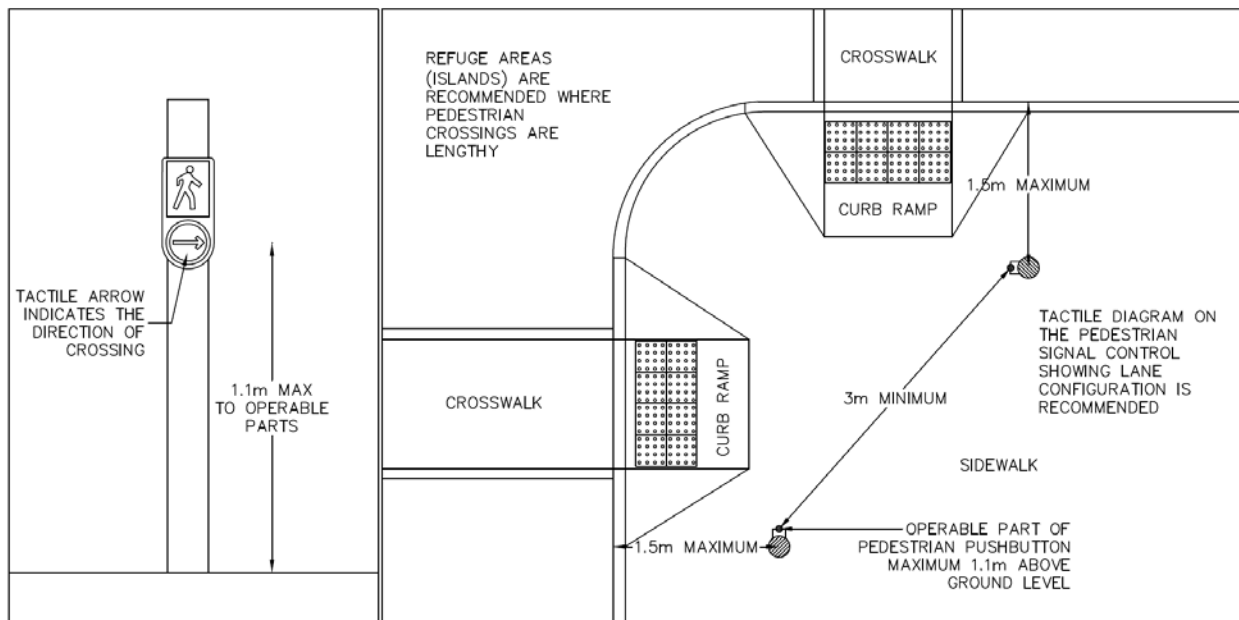
- a) Card entry systems should be wall/post mounted, between 900 millimetres and 1.1 metres from the floor measured from the centre of the control card entry system.
- b) Where keypads or other encoded entry/exit systems are used, the buttons should be raised, mounted on a bright coloured background and include raised numerals or letters in a constant array.
- c) Where keypad systems are door or jamb mounted, there should be enough space (free of the door swing), to allow people using a *mobility aid* to approach and use the keypad and the door safely.
- d) Card systems selected should have cards that are easy to use by persons with visual limitations, either by using a distinct colour or texture on one side, or by using raised numbers, letters and braille to ensure easy orientation and use.
- e) In entrances equipped with a security system, both visual and audible signals shall be used to indicate when the door is opening and closing.

## 3.8 PEDESTRIAN SIGNALS AT STREET CROSSINGS

Pedestrian signals at street crossings are installed and maintained by the Region of Waterloo. The Region of Waterloo's Standards for Pedestrian Signals shall apply. In the instance that the City of Waterloo installs their own signals, the following minimum requirements shall be met.

### 3.8.1 General Requirements

- a) Pedestrian signals shall provide the following:
  - i. a locator tone that is distinct from a walk indicator tone;
  - ii. *tactile* arrows that align with the direction of crossing;
  - iii. manual and automatic activation features; and
  - iv. audible and *vibro-tactile* walk indicators.
- b) Pedestrian signals shall be installed within 1.5 metres of the edge of the curb and shall be mounted at a maximum of 1.1 metres above ground level.
- c) Where two *accessible* pedestrian signal assemblies are installed on the same corner, they must be a minimum of 3.0 metres apart.
- d) Where the above requirements cannot be met because of site constraints or existing infrastructure, two *accessible* pedestrian signal assemblies can be installed on a single post with a verbal announcement that clearly states which crossing is active.



**Figure 29:** Example of accessible pedestrian signals



## 4.0 AMENITIES AND RECREATION AREAS

### 4.1 PARK TRAILS

*Park trails*, also referred to as pathways, are intended for transportation, recreation and leisurely use.

#### 4.1.1 Requirement to Consult

Obligated organizations shall consult with the public and persons with disabilities on the following:

- a) Trail slopes;
- b) Need for and location of ramps on the trail;
- c) Need for, location and design of:
  - i. *Rest Areas*;
  - ii. *Passing Areas*;
  - iii. *Viewing Areas*;
  - iv. *Amenities* on the trail; and
  - v. Any other relevant features.

#### 4.1.2 Size


- a) Trails and pathways shall be a minimum width of 3.0 metres to accommodate a wide range of users, and may be wider depending on frequency of use and maintenance access requirements.
- b) Maintain a minimum *vertical clearance* of 2.3 metres above all sections of trail.
- c) Where low vegetation abuts a trail edge, maintain minimum horizontal clearance of 1.0 metres on either side of the trail.

#### 4.1.3 Slope

- a) The maximum slope is 5%.
- b) Slopes are to be between 0.5 to 5% wherever possible with a *cross slope* between 0.5 to 2%, depending on surface material.

#### 4.1.4 Surface

- a) Provide a firm, stable, non-slip and non-glare trail surface that allows for appropriate surface water runoff. Acceptable materials include:
  - i. Asphalt;
  - ii. Limestone screening;
  - iii. Concrete with broom finish or other textured non-slip surface; and
  - iv. Wood decking perpendicular to the path of travel with spacing no more than 13 millimetres.
- b) Where a trail has openings in its surface, the openings shall not allow passage of an object that has a diameter of more than 13 millimetres.
  - i. Elongated openings shall be orientated approximately perpendicular to the direction of travel.

- 
- c) Provide colour/*tonal contrast* and texture to define trail edges and intersections, changes in grades or direction, entrances to buildings, road intersections and *curb ramps*.
  - d) Surfaces of trails and pathways shall be designed to accommodate maintenance and small emergency vehicles.

#### 4.1.5 Additional Requirements

- a) Refer to [Section 4.2](#) Rest Areas, for *rest area* locations along recreational trails.
- b) See Standard Detail [Regulatory Signage Detail](#), for specifications on trail heads signage.
- c) Changes in trail direction shall have a minimum radius of 4.5 metres.
- d) *Rest areas*, light poles, signage and other elements shall not impede the path of travel.
  - i. Providing trail *amenities* along trails or pathways, including benches, refuse and recycling receptacles and bike racks are encouraged.
  - ii. In areas where high levels of use are anticipated in the evening, lighting may be required by the City.
- e) Where a trail is constructed adjacent to water or a drop-off grade, the trail shall have *edge protection*, unless there is a protective barrier that runs along the edge. If *edge protection* is required, the top of the *edge protection* shall be at least 50 millimetres above the trail surface and shall be designed so as not to impede the drainage of the trail surface.
- f) For entry points to the trail where a gate, bollard, or other entrance design is in place, provide a clear opening of at least 1.48 metres in width.
  - i. Generally, City of Waterloo trails are a minimum of 3.0 metres wide, so intersections of trails will exceed this minimum.
- g) Major *roadways* or trail intersections shall have a transitional node area with a 150 millimetres by 150 millimetres by 3.0 metres chamfered pressure treated post and park sign installed beside (rather than impeding) the path of travel.
- h) Trail heads shall have signage with high *tonal contrast* to its background and sans serif font.
- i) Trail heads signage shall provide the following information:
  - i. The length of the trail;
  - ii. The type of trail surface;
  - iii. The average and the minimum trail width;
  - iv. The average and maximum *running slope* and *cross slope*:
    - Using text to describe *running slopes*, such as ‘flat’ or ‘steep’, instead of percentages is encouraged.
  - v. The location or list of *amenities*, where provided.
    - Information such as the distance to various destinations is encouraged.
    - Where other media, such as park websites or brochures, are used to provide information about the trail, the media shall provide the same information as listed above.

#### 4.1.6 Bollard Gates

- a) See Standard Details [Trail Access Node](#) and [Permanent & Temporary Bollard Detail](#), for specifications on nodes and bollard gates.

- b) Provide a bollard gate for trails or pathways abutting sidewalks, roadways, areas of potential vehicular access and major trail intersections.
- c) Bollard gates shall be set back from the edge of the curb and or sidewalk.
- d) Swing gates are to be installed on the right-hand side of the entry at least 2.5 metres from the sidewalk edge or 6.0 metres from the curb edge.
- e) Provide opening in gates at least 1.48 metres wide.
- f) Small trees may be incorporated on either side of the bollard gate spaced at 3.0 metres on centre at the maximum distance.
- g) Reflective tape shall be applied to each bollard gate and post.
- Refer to **Figure 30** for a visual representation of the above requirements.



**Figure 30:** Example of a *park trail* with a bollard gate

#### **4.1.7 Curb Treatment**

- a) Pathways shall be centered on the *curb cut* where a pathway abuts a *roadway*.
- b) *Curb cuts* shall be a minimum of 3.0 metres wide with a concrete or asphalt apron.

#### **4.1.8 Buffering**

- a) Provide a minimum of 3.0 metres between any trail and property lines or the top bank of an adjacent open space.
  - i. The installation of a living fence, including trees and shrubs, along the trail is encouraged.





## 4.2 REST AREAS

*Rest areas* are dedicated level areas that may consist of benches or level ground which people use to rest or wait. They may be found along *exterior paths of travel*, adjacent to bus stops, in drop-off areas and community playgrounds.

### 4.2.1 Requirement to Consult

Obligated organizations shall consult with the public and persons with disabilities. The City of Waterloo is required to consult with the Grand River Accessibility Advisory Committee on the design and placement of *rest areas* along the *exterior path of travel*.

### 4.2.2 General Requirements

- a) Municipally owned *rest areas* shall be a minimum of 3.52 metres long by 1.2 to 1.35 metres wide. See Standard Detail [Accessible Resting Area and Bench Detail](#), for specifications. *Rest area* dimensions for non-municipal projects will be reviewed on a case-by-case basis.
  - b) Provide a space 1.0 to 1.5 metres long by 1.2 to 1.35 metres wide beside the bench to be used for mobility devices, strollers, *service animals*, and the like.
  - c) Locate resting area directly abutting the *exterior path of travel*. The path of travel shall remain unobstructed.
    - i. Locating *rest areas* near children's play areas, park entrances, sports fields, along trails, near washroom facilities, in passive recreational areas, and at points of interest or viewpoints is encouraged.
  - d) *Rest areas* should be located at regular intervals:
    - i. 75-100 metres along paths of travel;
    - ii. At drop-off areas, bus stops or similar rest or wait areas;
    - iii. At the top and or bottom of sloped trails that are 5% or greater; and or
    - iv. At mid-points, on *landings* of a sloped trail length of 50.0 metres or less, or at multiple points, on *landings* of a sloped trail greater than 50.0 metres in length.
  - e) Explore opportunities to provide shade for *rest areas*.
  - f) Refuse and recycling receptacles should be provided at a minimum distance of 5.0 metres from *rest areas*.
  - g) *Edge protection* should be provided for *rest areas* located near water features. A minimum 50 millimetres high curb is recommended. An alternate edge barrier may include a handrail.
- Refer to **Figure 3 I** for a visual representation of the above requirements.

### 4.2.3 Benches

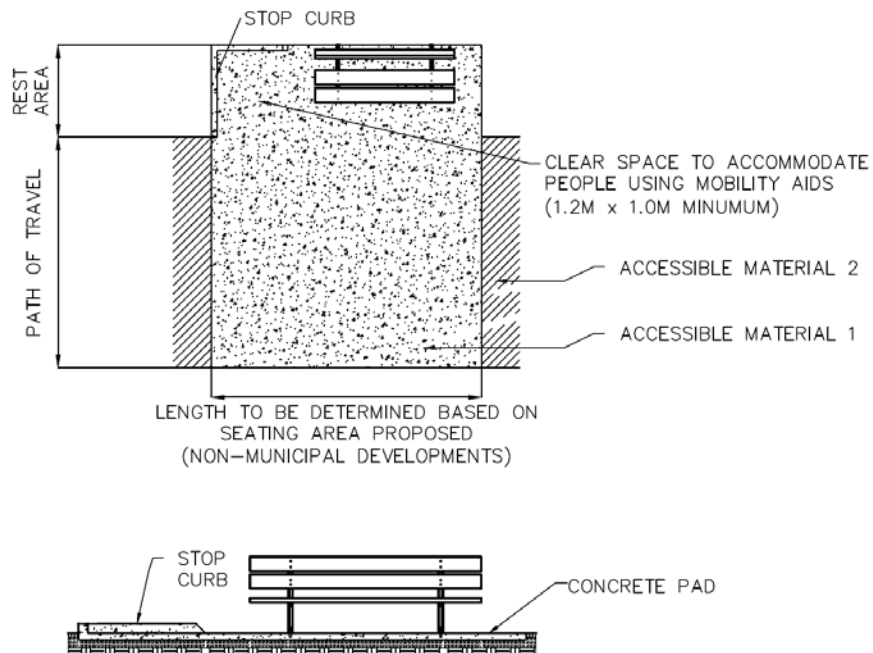
- a) When provided, benches should be a minimum length of 1.2 metres.
  - i. Having benches with armrests and backrests to assist people with difficulty sitting and rising is encouraged.
  - ii. Avoid having armrests on bench ends to allow persons in a wheelchair to transfer to the bench. Seat heights between 450 millimetres and 500 millimetres are most ideal for transfers.



- b) The area in front of the bench and the *rest area* shall be provided in a different material to distinguish from the path of travel.
  - i. Opportunities to distinguish the *rest areas* are encouraged, including ground texture, tone or signage.
- c) Benches shall be located on concrete pads with the back of the bench aligned with the back of the concrete pad.
- d) Benches shall be stable and fixed to the ground surface.



**Figure 31:** Example of a *rest area* located along a path of travel



**Figure 32:** Example of an *accessible rest area*



## 4.3 TRAIL SWITCHBACKS

A *trail switchback* is a section of trail that goes up a steep hill in a zigzag pattern instead of a straight line. A switchback's intent is to make it easier and safer for trail users to ascend or descend a slope. The zigzag pattern keeps the trail at a consistent gradient of less than 5%, thereby protecting the hill and trail from excessive erosion and facilitating its use by trail patrons.

### 4.3.1 General Requirements

- a) *Trail switchbacks* shall be a minimum clear width of 3.0 metres.
- b) Maintain a minimum *vertical clearance* of 2.3 metres and a minimum horizontal clearance of 1.0 metres on either side of the trail.
- c) Provide a maximum *running slope* of 5%.
- d) Provide *landings* for rest at maximum 9.0 metre intervals.
- e) The *landings* shall meet the following requirements:
  - i. *Landings* shall be provided:
    - At the top and bottom of the ramp/slope; and
    - Where there is an abrupt change in direction of the ramp/slope.
  - ii. *Landings* are to be a minimum 3.0 metres wide by 2.4 metres long and at least the same width of the ramp for an *in-line ramp*.
  - iii. *Landings* shall have a *cross slope* between 0.5 to 2%.
  - iv. *Landings* that incorporate a *rest area* with a bench shall be designed larger in order to accommodate all elements and allow for unobstructed trail access.
- f) Surface treatment shall be asphalt. Alternative materials may be considered on a case-by-case basis.
  - i. Incorporating and retaining existing vegetation in the design and location of switchbacks is encouraged. Undisturbed areas shall be left in good condition.
- g) Change in direction of the switchback shall have a minimum radius of 4.5 metres.
- h) Surface runoff shall be managed.
- i) Before installing *trail switchbacks*, evaluate the possibility of alternative routes that may eliminate the need for a switchback, as switchbacks can present maintenance challenges.
  - Refer to **Figure 33** for a visual representation of the above requirements.

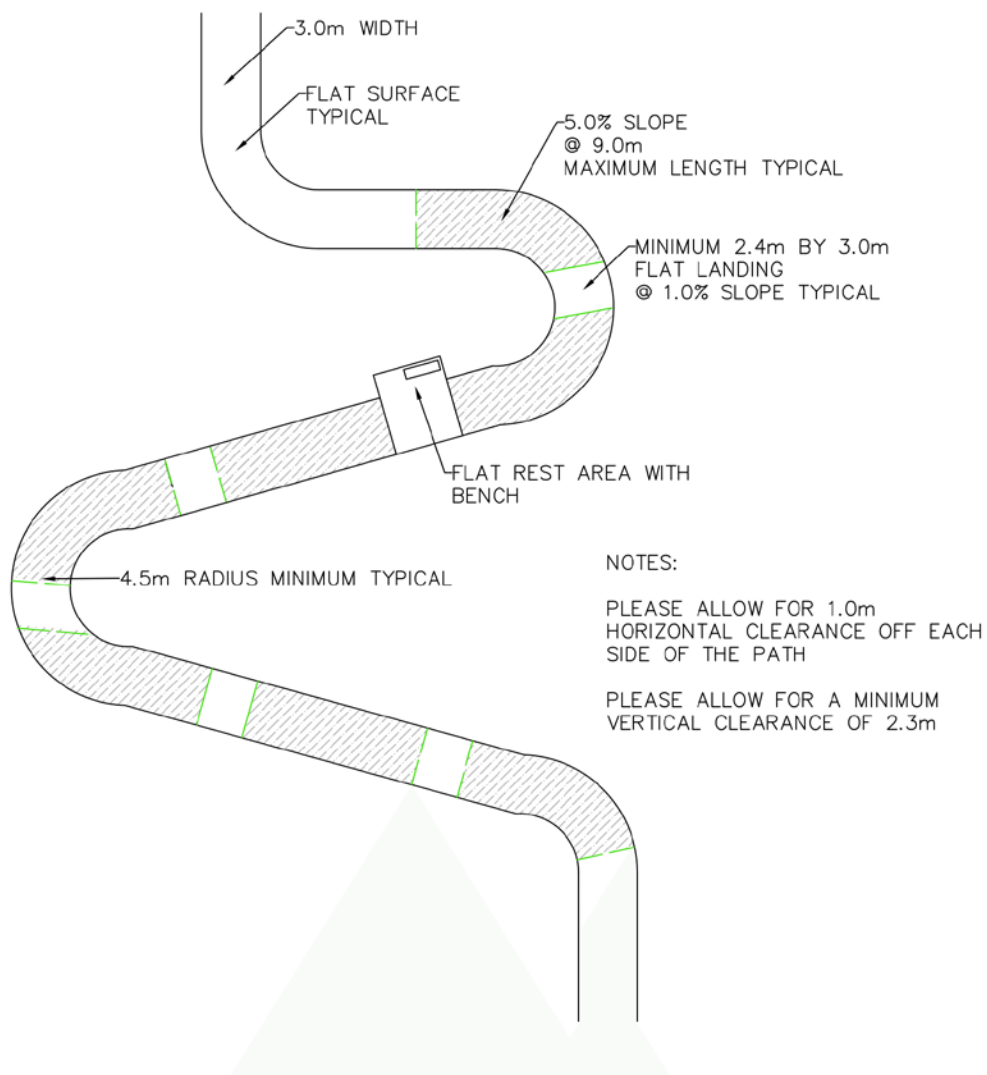
### 4.3.2 Mitigation Measures for Non-Compliant Slopes

In situations where the switchback ascends/descends a long trail on a slope that exceeds the maximum of 5%, the following mitigation measures are recommended and may be applied individually or in combination as suitable for the circumstance:

- a) Appropriate trail signage is installed to notify trail users of the steep trail:
  - i. At entry points to trail; and
  - ii. On trail, prior to approaching steep slope.
- b) Maximum slope is 8%.
- c) Provide a 2.4 metre long *landing* every 9.0 metres of trail for trails with slopes between 5 to 8%.
- d) Installation of *rest areas*:



- i. At the top and base of the slope; and
- ii. Abutting the recreational trail at regular intervals.
  - A single *rest area* provided at mid-point of slope, on a *landing*, if the total length of the trail slope is 50.0 metres or less.
  - Multiple *rest areas* provided on *landings*, as appropriate for distance and slope, if the total length of trail slope is greater than 50.0 metres.
- e) *Landings* with *rest areas* shall be large enough to accommodate the bench and space beside it. Refer to [Section 4.2.3 Benches](#), for technical details.
- f) Provide a vertical rail element, which can be used to lean against on the *landing* where a *rest area* is not provided. Refer to [Section 3.5 Handrails](#), for technical details.



**Figure 33:** Example of a trail switchback

## 4.4 BOARDWALKS

Boardwalks are generally described as planked structures that are built close to the ground or over wet soil or water.

### NOTE:

- Grand River Conservation Authority's permission may be required prior to implementing boardwalks.
- The following section also applies to boardwalks on *park trails* and boardwalks on water access points.

#### 4.4.1 Size

- a) Boardwalks shall be a minimum width of 1.8 metres.
- b) Provide and maintain a minimum *vertical clearance* of 2.3 metres above the boardwalk.



**Figure 34:** Example of a boardwalk with appropriate surface treatment

#### 4.4.3 Surface

- a) Provide a firm and stable surface treatment.
  - i. *Slip resistant* surfaces are encouraged.
- b) Where a boardwalk has openings in its surface, the openings shall not allow passage of an object that has a diameter of more than 13 millimetres.
- c) Elongated openings should be orientated approximately perpendicular to the direction of travel.

#### 4.4.4 Additional Requirements

- a) Boardwalks shall have *edge protection* that is a minimum of 50 millimetres in height.
- b) For slopes greater than 5%, refer to [Section 3.1](#) Exterior Ramps.



## 4.5 WATER ACCESS POINTS

*Water access routes* provide access from *off-street parking facilities*, *exterior paths of travel* and amenity features to an area of water, such as a beach or river edge, that is intended for recreational use. *Water access routes* usually consist of materials such as concrete, wood boards, well-compacted crushed gravel or may be a temporary laid-out manufactured product such as mats, to improve travel over sand.

**NOTE:** Grand River Conservation Authority's permission may be required prior to implementing *water access routes*.

### 4.5.1 General Requirements

- a) *Water access routes* shall have a minimum clear width and opening entrance of 1.8 metres.
  - i. Install permanent solutions to avoid the need of storing temporary solutions.
- b) Provide a minimum *vertical clearance* of 2.3 metres above a *water access route*.
- c) Entrances to *water access routes* shall be maintained clear of obstructions such as trees or rocks.
- d) For slopes greater than 5%, refer to [Section 3.1](#) Exterior Ramps.
- e) For water access points with boardwalks, [Section 4.4](#) Boardwalks, shall apply.

### 4.5.3 Slope

- a) Constructed and not natural:
  - i. *Water access routes* shall have a maximum *cross slope* of 2%.
  - ii. Provide a maximum 50% *bevel* at changes in level between 6 millimetres and 13 millimetres.
  - iii. Provide a maximum *running slope* of 10% at changes in level between 14 and 200 millimetres.
  - iv. Provide a ramp where there are changes in level greater than 200 millimetres as per requirements set out in [Section 3.1](#) Exterior Ramps.
    - Provide *landings* or level stopping places, where possible, along sloped routes longer than 30.0 metres.
- b) Non-constructed and natural:
  - i. The maximum *cross slope* shall be the minimum slope required for functional drainage.
    - Using gentle *cross slopes* to provide an even surface is encouraged.
  - ii. *Water access routes* shall have a maximum *running slope* of 8%.

### 4.5.4 Surface

- a) Provide a minimum *vertical clearance* of 2.3 metres above the *water access route*.
- b) Provide a firm and stable surface treatment.
  - i. Providing *slip resistant* surfaces is encouraged.
- c) Where a *water access route* has openings in its surface, the openings shall not allow passage of an object that has a diameter of more than 13 millimetres.
- d) Elongated openings should be orientated approximately perpendicular to the direction of travel.



## 4.6 OUTDOOR PUBLIC EATING AREAS

Outdoor public eating areas consist of tables in public areas intended for public use as a place to consume food (**Figure 35, 36 & 37**). These areas are generally found in public parks, on hospital grounds and on post-secondary campuses. Owners of privately-owned sites may wish to incorporate these standards to better serve their customers and end-users. Other spaces where outdoor eating areas may be found include seniors' facilities, privately-owned public spaces developed as part of an apartment or condominium, and outdoor patios at restaurants.

### 4.6.1 Requirement to Consult

There is no requirement to consult, except in the case where it may become part of consultation through other projects that are required to consult as per [Ontario Regulation 191/11](#).

### 4.6.2 General Requirements

- a) Provide *accessible* tables at a minimum of 20% of the total tables provided, but never less than one.
  - i. Organizations are encouraged to exceed the minimum *accessible* table requirement, taking into consideration the needs of all users of their sites.
- b) Provide knee and toe clearance underneath the table.
  - i. Providing knee space of at least 750 millimetres wide by 680 millimetres high by 250 millimetres deep is encouraged.
  - ii. Providing toe clearance of at least 750 millimetres wide by 230 millimetres high by 230 millimetres deep is encouraged.
- c) The bottom edge of the table top shall be no lower than 680 millimetres above ground level.
- d) Locating *accessible* tables within 30.0 metres of *accessible* washroom facilities, concessions and viewpoints is encouraged.
- e) Tables should be stable and fixed to the ground surface.

### 4.6.3 Surfaces

- a) Ground surfaces leading to and under tables shall be level, firm and well-drained. A maximum surface slope of 2% is encouraged as a best practice.
  - i. Use *slip resistant* surfaces such as textured-finish or non-slip aggregate concrete, asphalt, or well-compacted, crushed limestone screenings.
- b) Provide *clear ground space* around *accessible* tables to allow unimpeded access.
- c) Provide at least 1.5 metres of unobstructed ground space around tables, or at least 2.0 metres when tables are placed side-by-side is encouraged. *Accessible* paths, comprised of a level, firm and well-drained surface, should be provided from parking spaces to outdoor eating areas and to other facilities such as washrooms, concessions, or water fountains.

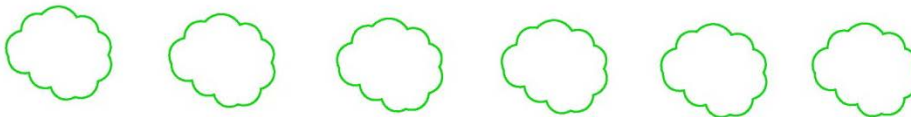
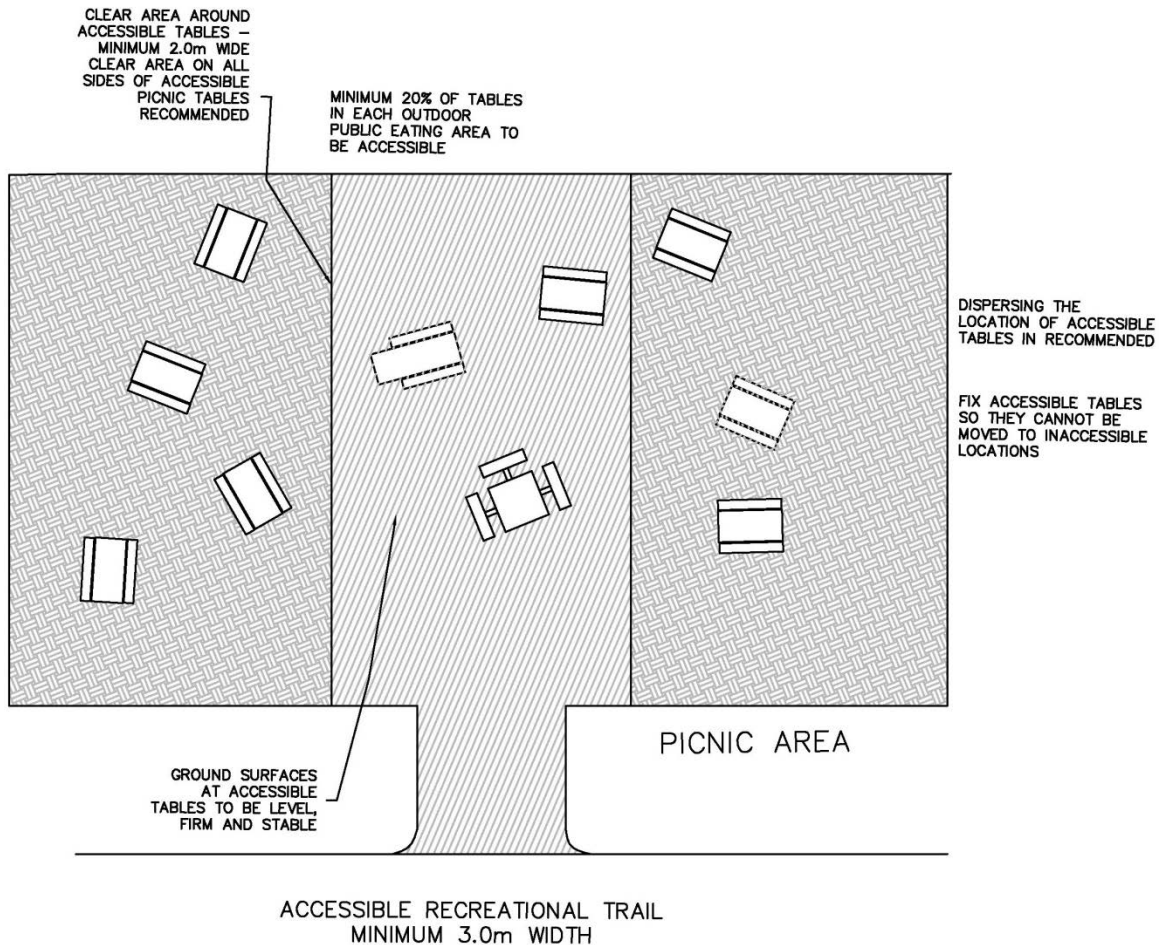




outdoor seating area



**Figure 36:** Example of an accessible outdoor seating area



**Figure 37:** Example of an accessible outdoor public eating area

## 4.7 OUTDOOR PLAY AREAS

*Outdoor play areas* typically provide play opportunities and experiences for people. These areas include play equipment, such as swings, jungle gyms, splash pads or features such as logs, rocks, sand or water.

### 4.7.1 Requirement to Consult

Obligated organizations shall consult with the public and persons with disabilities. The City of Waterloo is required to consult with the Grand River Accessibility Advisory Committee on the play area needs of persons with various disabilities.

### 4.7.2 General Requirements

- a) Provide at least one *accessible seating* area for the play area.
- b) Incorporate into the design of outdoor play spaces, accessibility features, such as sensory and active play components, for use and enjoyment by all users.
  - i. Including elements that stimulate all senses such as water features, sand play areas, scented plantings and wind chimes is encouraged (**Figure 38**).
  - ii. Integrate *accessible* play components into play areas to promote inclusivity (**Figure 39**).
  - iii. Include ramps and or transfer systems to some of the elevated play components (**Figure 40**).



**Figure 38:** Example of an *accessible* play element with musical features

- c) Sufficient clearance shall be provided to permit the ability to move through, in and around outdoor play spaces.
- d) Appropriate height, knee clearances, and reach ranges shall be provided for associated *amenities* including tables and water fountains.





### 4.7.3 Play Material Surfaces

- a) Ground surfaces of outdoor play spaces shall be stable and have cushioning abilities for injury prevention.
  - i. The City of Waterloo's standard play surface material is engineered wood fibre.
  - ii. Non-municipal projects may consider using alternate play surface materials with cushioning abilities in accordance with the Canadian Standards Association requirements for children's play spaces. These may include materials such as synthetic poured-in-place, synthetic tiles, engineered wood fibres and certain types of rubber mulch and sand.

### 4.7.4 Additional Requirements

- a) Provide an *accessible* entrance between *roadways* and outdoor play spaces.
  - i. Provide an *accessible* path of travel to other facilities such as *accessible* washrooms, concessions, water fountains or viewing points with adequate *rest areas* and shade opportunities on route is encouraged.
- b) Provide *accessible* pathways with widths a minimum of:
  - i. 3.0 metres for municipal projects.
    - The material to be used is asphalt or concrete and in specific instances, limestone screening.
  - ii. 1.5 metres for non-municipal projects, however, a 1.8 metre minimum is encouraged if more area is available.
    - Materials shall be *slip resistant* such as surfaces that do not soften with heat or moisture, including textured concrete.
- c) Pathways should be free of joints that may cause tripping. If necessary, joints should be flush and as short as possible.
- d) Ground surfaces leading to outdoor play spaces shall be level, firm and well-drained. Minimize change in elevation from exterior paths to interior surfaces through *depressed curbs* and concrete slopes for example.
- e) Play equipment design, manufacture/construction, installation, maintenance, and inspection practices shall be consistent with the **Canadian Standards Association CAN/CSA Z614-14 (or latest revision)** for Children's Play Spaces.

### 4.7.5 Additional Resources:

- a) Children's Playspaces and Equipment that are Accessible to Persons with Disabilities - **Annex H, (CAN/CSA-Z614-14)** by the Canadian Standards Association
- b) Let's Play: Creating Inclusive Play Spaces for Children with Physical Disabilities by Rick Hansen Foundation



**Figure 39:** Example of a wheel chair *accessible* play element



**Figure 40:** Example of a play structure with an *accessible* ramp



## 5.0 OBTAINING SERVICES IN PUBLIC SPACES

Customer service elements in spaces that are frequented by the general public, including indoor and outdoor spaces shall be *accessible*. These elements include newly constructed service counters, fixed queuing guides, and newly constructed or redeveloped waiting areas.

### 5.0.1 Service Counters

- a) At least one service counter shall accommodate a *mobility aid* for each type of service provided.
- b) Where a single queuing line serves a single or multiple counters, each service counter shall accommodate a *mobility aid*.
- c) *Accessible* service counters shall be clearly identified with signage, where there are multiple queuing lines and service counters.
- d) *Accessible* service counters countertop height shall be usable by persons using a *mobility aid*.
  - i. Providing a maximum countertop height of 865 millimetres above the ground is encouraged.
- e) Sufficient knee clearance shall be provided where a forward approach to the counter is required.
  - i. Providing knee space of at least 750 millimetres wide by 680 millimetres high by 250 millimetres deep is encouraged.
- f) The floor space in front of the counter shall be clear to accommodate a *mobility aid*.

### 5.0.2 Fixed Queuing Guides

- a) Sufficient width to allow for the passage of *mobility aids* shall be provided.
- b) Clear floor area shall be provided to permit *mobility aids* to turn where queuing lines change direction.
- c) Fixed queuing guides shall be *cane-detectable*.

### 5.0.3 Waiting areas

- a) Where seating is fixed to the floor, a minimum of 3% of the seating shall be *accessible*, but never less than one.
  - i. *Accessible seating* is a space in the seating area where an individual using a *mobility aid* can wait.

## 6.0 GLOSSARY

**Access Aisle:** part of an *accessible* parking space used to provide room for people to enter and exit their vehicles. They are usually identified by diagonal stripes on hard surface treatments.

**Accessible:** a site, building, and its facilities that can be approached, entered, and used by all people, including those with physical, sensory, cognitive, or other disabilities. When this access connects all elements and spaces of a building with no obstructions, it is known as "barrier free access".

**Accessible Seating:** an element, such as a bench, where people using a *mobility aid* may wait or rest.

**Amenities:** includes items that provide conveniences or services to the public, such as drinking fountains, benches, garbage receptacles and outdoor elements for people to eat, play, rest or travel upon.

**Benched Asphalt:** also referred to as ramped asphalt, is asphalt that is ramped flush with an adjacent curb or walkway (**Figure 4I**).



**Figure 4I:** Example of *benched asphalt* flush with curb along *accessible* parking spaces


**Bevel:** a small slope that helps people identify an elevation change.

**Cane-detectable:** any object or a change in surface texture that falls within the range of a cane.

**Clear Ground Space:** an area of a ground surface which is not obstructed by any elements.

**Cross Slope:** the slope of a surface that is perpendicular to the direction of travel.





**Curb Cut:** see *curb ramp*.

**Curb Ramp:** a ramp that is cut through a curb or that is built up to a curb.

**Depressed Curb:** a seamless gradual slope at transitions to the *roadway* surface. This curb is usually found at intersections.

**Edge Protection:** an element along the edge of a walkway or pathway which limits the likelihood of someone walking, falling or wheeling off the path.

**Exterior Paths of Travel:** means sidewalks and walkways as well as associated elements including curbs, ramps, stairs, handrails, *landings* and automatic entrances. They serve a functional purpose for pedestrian travel, whereas *park trails* serve a recreational purpose.

**Foot Candle:** the measurement of light intensity.

**Illumination:** the intensity of light, as measured in lux. Luminance is the physical measure of stimulus which produces the sensation of luminosity (brightness) in terms of the light emitted in a given direction (usually towards the observer) by unit area of a self-luminous or transmitting or reflecting surface.

**In-Line Ramp:** a ramp that does not change directions.

**Landing:** a level area at the top of a staircase or between one flight of stairs and another.

**Mobility Aid:** devices used to facilitate the transport of a person with a disability.


**Nosing:** a rounded edge of a step or molding.

**Off-street Parking:** a space used for vehicles located on private property rather than on a public *roadway*.

**Off-street Parking Facilities:** means a facility used for vehicular parking other than on-street parking. It is intended for parking by the public including, but not limited to, residents, employees, customers or visitors to which the parking is serving, whether or not the payment of a fee is charged.

**Outdoor Play Area:** a space that provides play opportunities and experiences for people. These areas include play equipment, such as swings, jungle gyms, splash pads or features such as logs, rocks, sand or water.

**Rest Area:** a dedicated level area found along trails and *exterior paths of travel* that is intended for public use, allowing people to sit and rest.



**Roadway:** a highway used by the general public for the passage of vehicles. It includes common and public highways, streets, avenues, parkways, driveways, or any other highway defined under the *Highway Traffic Act*, R.S.O. 1990.

**Running Slope:** the slope of a surface that is parallel to the direction of travel.

**Service Animal:** an animal that is trained to do work or perform tasks for the benefit of persons with disabilities.

**Shadow Lines:** shadows formed from *nosing*, which visually mark riser locations.

**Slip Resistant:** the frictional force opposing movement of an object across a surface, usually with reference to the sole or heel of a shoe on a floor.

**Tactile:** an object that can be perceived using the sense of touch. A *tactile* walkable surface indicator is a standardized surface detectable underfoot or by a cane, to assist people with low vision or blindness by altering or guiding them.

**Thresholds:** a strip of wood, metal, or stone forming the base of a doorway and crossed when entering a building.

**Tonal Contrast:** the difference in the light reflectance between two adjacent surfaces.

**Trail Switchback:** a zigzag trail for travelling on steep hills.

**Park Trails:** also referred to as recreational trails, *park trails* include recreational facilities and non-vehicular traffic routes that provide for a variety of recreational and leisurely experiences.

**Vertical Bar Actuator:** a low-profile articulation bar that is used in place of traditional round or square push plates to activate automatic door operators. The bar is placed at 12.7 centimeters (5 inches) maximum above the ground and can be activated by the push of a hand, crutch, cane, or wheelchair footplate.

**Vertical Clearance:** also referred to as overhead clearance, it is the vertical distance between a surface and any obstruction above it.

**Water Access Routes:** routes that are constructed and are intended for pedestrian use. They provide access from *off-street parking facilities*, *park trails*, *exterior paths of travel* and *amenities* to an area of water, such as a beach, that is intended for recreational use by the public.

**Wayfinding:** ways in which people orient and navigate themselves within spaces and through a series of destinations.



## 7.0 ACKNOWLEDGEMENTS

- Barrier Free Guidelines (Waterloo Council Report DS-08-69) (November 17, 2008)
- City of Pitt Meadows's Universal Design Guidelines for Outdoor Spaces (2010)
- City of Toronto's Accessibility Design Guidelines (2004)
- City of Toronto's Multi-Use Trail Design Guidelines (2014)
- City of Waterloo's Development Engineering Manual (2013)
- City of Waterloo's Landscape Development Manual (2008)
- Global Alliance on Accessible Technologies and Environments' Illustrated Technical Guide to the Accessibility Standards for the Design of Public Spaces (N.D)
- Guidelines for Barrier-Free Design of Ontario Government Facilities (2014)
- Kevin Lynch's The Image of the City (1960)
- O. Reg. 191/11: Integrated Accessibility Standards, under Accessibility for Ontarians with Disabilities Act, 2005, S.O. 2005, c.11
- O. Reg. 332/12, amended by 191/14: Building Code, under Building Code Act, 1992, S.O. 1992, c. 23
- Parks and Recreation Ontario's Pathways to Recreation Guidebook (2014)
- Province of Alberta's Barrier-Free Design Guide (Safety Codes Council) (2008)
- Region of Waterloo's Accessibility Design Standards (2015)
- Registered Graphic Designers of Ontario's Accessibility: A Practical Handbook on Accessible Graphic Design (2010)
- R.R.O. 1990, Reg. 581: Accessible Parking for Persons with Disabilities, under Highway Traffic Act, R.S.O. 1990, c. H.8
- SPH Planning & Consulting Limited

## 8.0 PHOTO ACKNOWLEDGEMENTS

All photographs within this document were taken by staff from the City of Waterloo, unless otherwise stated.

Figure		
5	Example of <i>accessible</i> parking spaces located in close proximity to the main entrance of a building	Delta Hotel, Waterloo ON
7	Example of <i>accessible</i> parking space signage	Y-Library, Waterloo ON
8	Example of <i>accessible</i> parking spaces with required signage (mounted sign and the International Symbol of Access pavement sign)	Waterloo City Centre, Waterloo ON
12	Drop curb with <i>tactile</i> surfacing located at an intersection	Weber & Victoria Street, Kitchener ON
14	Example of a ramp with appropriate handrails and slope levels	Waterloo Corporate Campus, Waterloo ON
18	Example of a <i>curb ramp</i> located at a cross-walk	Waterloo Corporate Campus, Waterloo ON
19	Example of a <i>tactile</i> warning surface	Ring Road, University of Waterloo, Waterloo ON
23	Example of handrails along stairs, meeting technical specifications	Waterloo Corporate Campus, Waterloo ON
28	Example of an automatic swing door with a bollard mounted push plate and guard rail	Waterloo City Centre, Waterloo ON
30	Example of a <i>park trail</i> with a bollard gate	Vista Hills Park, Waterloo ON
31	Example of a <i>rest area</i> located along a path of travel	Vista Hills Park, Waterloo ON
34	Example of a boardwalk with appropriate surface treatment	Doon Creek Natural Area, linkage between Knox Court and Robert Ferrie Drive, Kitchener, ON
35	Example of an <i>accessible</i> outdoor seating area	Pennsylvania Welcome Centre in Tioga, Pennsylvania, USA
36	Example of an <i>accessible</i> outdoor seating area	McLennan Park, Kitchener ON
38	Example of an <i>accessible</i> play element with musical features	McLennan Park, Kitchener ON
39	Example of a wheel chair <i>accessible</i> play element	Waterloo Park, Waterloo ON
40	Example of a play structure with an <i>accessible</i> ramp	Victoria Park, Kitchener ON
41	Example of <i>benched asphalt</i> flush with curb along <i>accessible</i> parking spaces	Plaza at Highland and Ira Needles, Kitchener, ON





## 9.0 APPENDICES

### Appendix 9A: Slope Conversions

Percent	Ratio
1%	1:100
2%	1:50
3%	1:33
4%	1:25
5%	1:20
6.6%	1:15
8%	1:12.5
8.3%	1:12
10%	1:10
12.5%	1:8
17%	1:6
20%	1:5
33%	1:3
50%	1:2

## Appendix 9B: Examples of Best Practices

Incorporating best practices is highly encouraged and will assist in making the City a more inclusive environment for all people to enjoy. The following list acts as an example of a few best practices that help to optimize the accessibility of various sites.

*Vertical bar actuator* adjacent to a door, allowing users to open the door using *mobility aids* for example.

**Location:** Waterloo City Centre, Waterloo ON



Flush surfacing located along *accessible parking spaces*.

**Location:** Balsillie School of International Affairs, Waterloo ON



*Tactile* surface treatment along the entire length of a dropped curb.

**Location:** Erb Street and Peppler Street pedestrian crossing, Waterloo ON



Smooth transitioning slope from sidewalk leading to an entrance.

**Location:** 392 Albert Street, Waterloo ON



VIEW FROM  
SIDEWALK

VIEW FROM  
ENTRANCE



Boardwalk ramp with access to viewing deck.  
**Location:** Awenda Provincial Park, Tiny ON



Play swing options.  
**Location:** Waterloo Park, Waterloo ON



Inclusive interactive audio-learning play element.  
**Location:** Victoria Park, Kitchener ON



Inclusive interactive audio-learning play element.  
**Location:** McLennan Park, Kitchener ON





Smooth slope transition from parking lot to outdoor play space.

**Location:** Milton Community Park, Milton ON



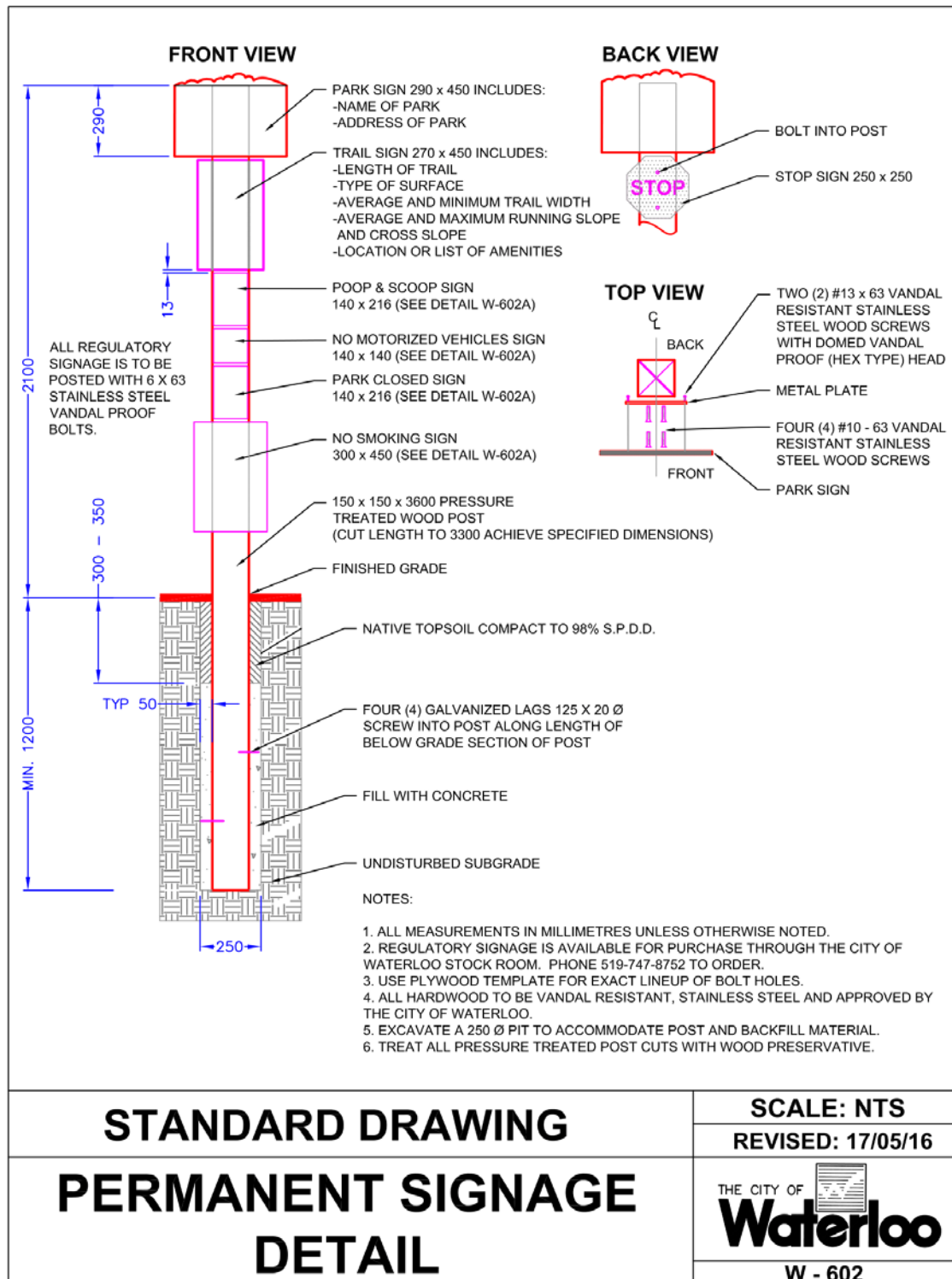
Parking pay meter and pathway entrance located adjacent an *accessible* parking space.

**Location:** Sunnyside Park, Toronto ON

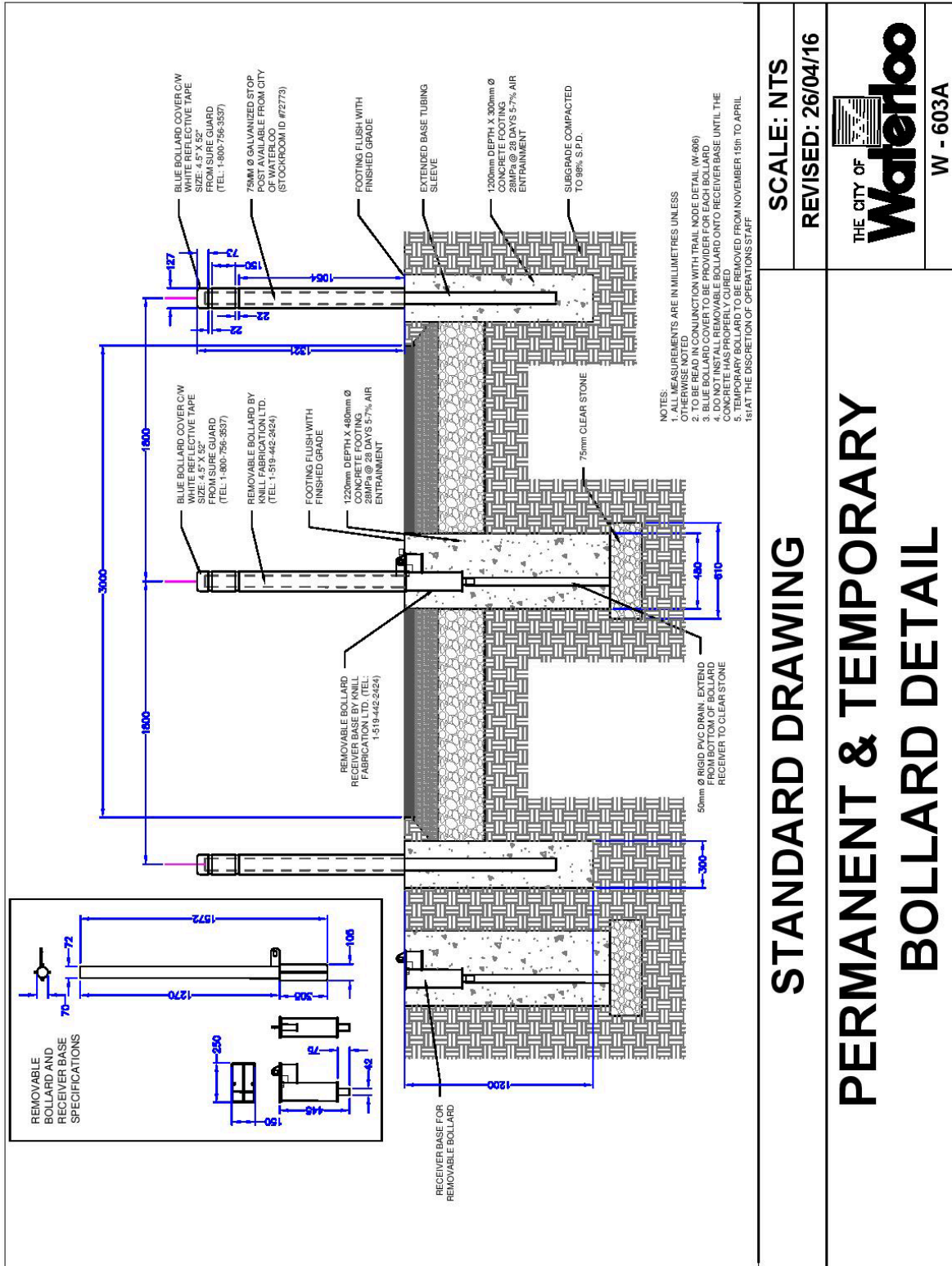


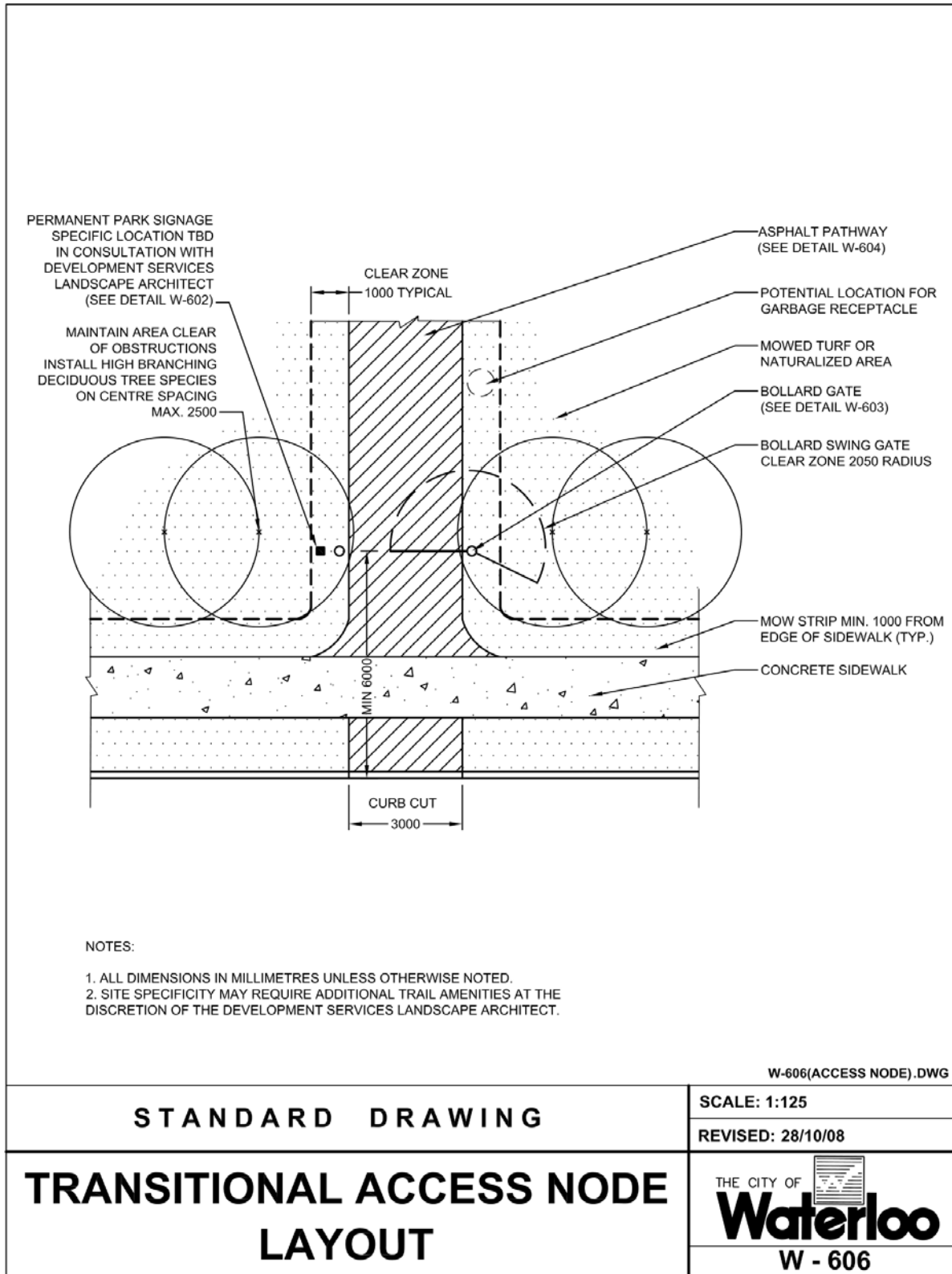


## 10.0 STANDARD DETAILS

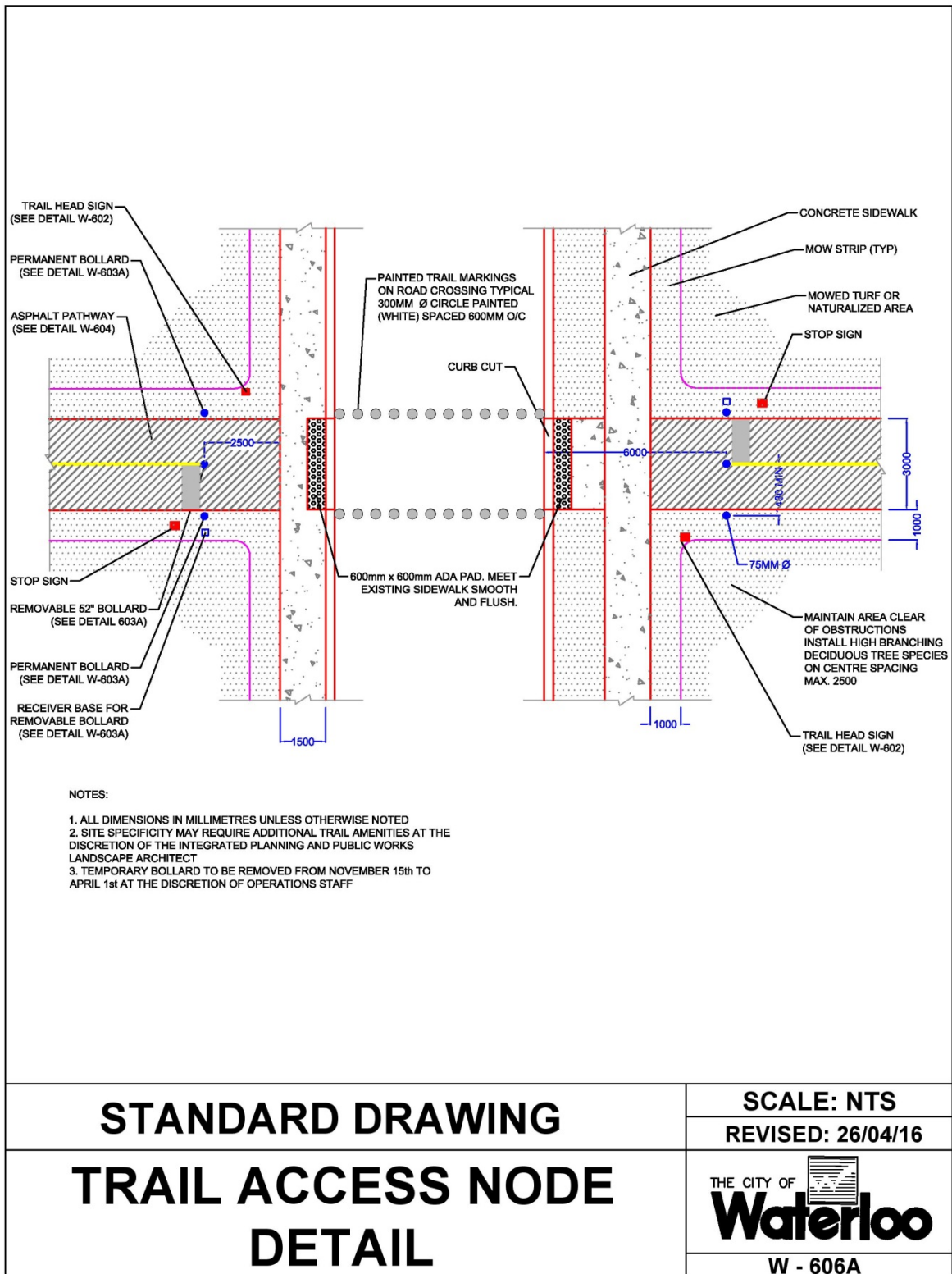


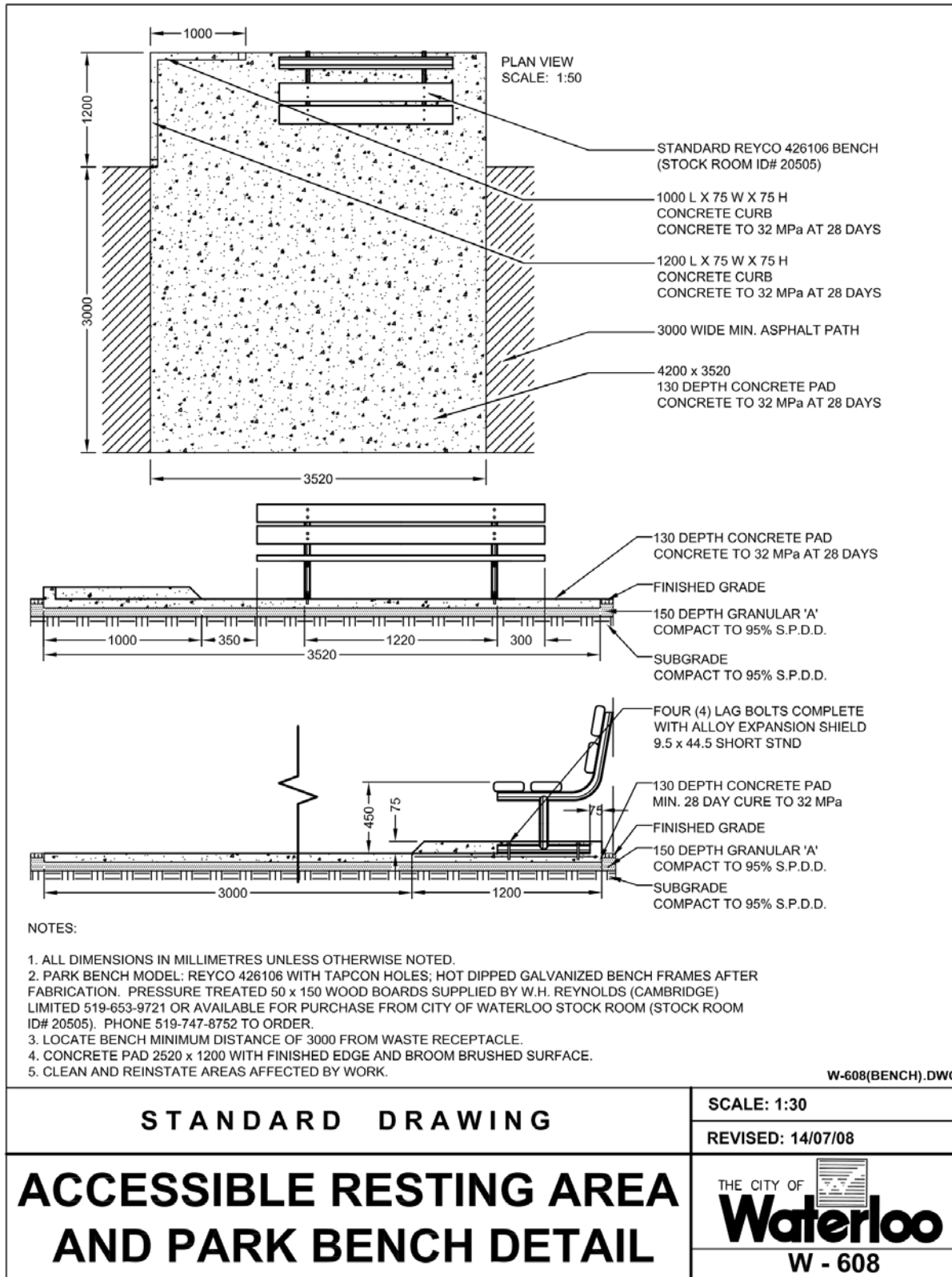


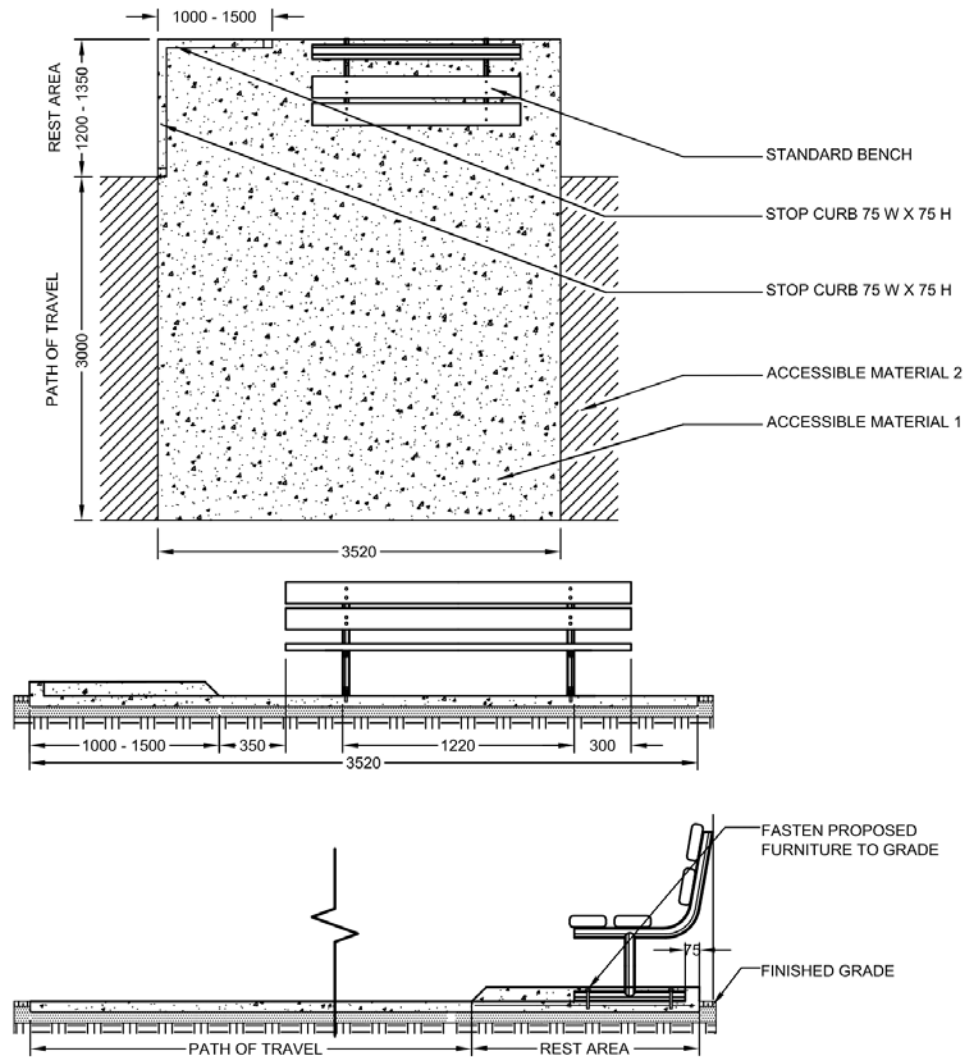












NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. CONCRETE PAD 2520 x 1200 WITH FINISHED EDGE AND BROOM BRUSHED SURFACE.
3. CLEAN AND REINSTATE AREAS AFFECTED BY WORK.

## STANDARD DRAWING

# ACCESSIBLE RESTING AREA & BENCH DETAIL

SCALE: NTS

REVISED: 17/05/16



W - 608A