THE CITY OF EDMONTON

PROJECT AGREEMENT
VALLEY LINE LRT – STAGE 1

Schedule 5 – D&C Performance Requirements

Part 2: Sustainable Urban Integration

VALLEY LINE PROJECT

SCHEDULE 5

D&C PERFORMANCE REQUIREMENTS

PART 2: SUI

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PART 2: SUSTAINABLE URBAN INTEGRATION (SUI)

SECTION 2-1 – GENERAL SUSTAINABLE URBAN INTEGRATION REQUIREMENTS

2-1.1 DEFINITION OF SUSTAINABLE URBAN INTEGRATION

A. For the purpose of this Agreement, Sustainable Urban Integration (SUI) means a focus on the mutually-supportive integration of the System into the urban context within which it exists.

B. SUI requirements are reflected in all aspects of the Design and Construction of the System and together provide a high quality, fully accessible, safe, efficient, visually integrated, and environmentally sustainable transportation network that:

1. maximizes Passengers' convenience;
2. supports the City's continuing economic prosperity;
3. serves and in turn is served by transit oriented land use policies; and
4. is consistent with the City Vision and Strategic Plan, as well as City Plans, including "The Way We Grow", "The Way We Green", and "The Way We Move".

C. A key SUI goal is to promote a range of planning and design opportunities that will support the overall sustainability and resilience of the City. The low-floor, urban-style LRT system has been selected to support an integrated approach to urban and sustainable planning, while recognizing the importance and value of creating vital, diverse, and pedestrian friendly environments with a strong sense of place.

2-1.2 SUSTAINABLE URBAN INTEGRATION COMPLIANCE

A. Without limiting the requirements of this Part 2 *[Sustainable Urban Integration]*, the Design and Construction of the System shall be consistent with the themes, colours, imagery and aesthetics as illustrated in the Design Guide, a copy of which is included in the Disclosed Data.

2-1.3 KEY VALUES

A. Design and Construction of the System shall ensure that the following key values are met:

1. Pedestrians First**:** Apply a 'Pedestrians First' approach that is safe, facilitates convenient access to the System, and creates a vibrant public realm.
2. Sustainable: Conserve and connect to the City parks within the Lands; support the City's goals of sustainability and resilience as set out in the City's environmental strategic plan "The Way We Green".
3. Integrated: Integrate the System into the existing environment and infrastructure using a holistic approach across all design disciplines.
4. Flexible and Adaptable: Incorporate design elements and systems that are flexible, adaptable, and capable of responding to future conditions.

2-1.4 SUI COMPONENTS

A. This Part 2 *[Sustainable Urban Integration]* of this Schedule is divided into the following sections:

1. General Sustainable Urban Integration Requirements;
2. Light Rail Vehicles (LRV);
3. Character Zones and Opportunity Areas;
4. Urban Realm;
5. Sustainability;

6. Lighting;
7. Public Art;
8. Branding;
9. Support Systems;
10. Stops and Stations;
11. Structures;
12. Davies Transit Centre;
13. Gerry Wright OMF; and
14. Landscape Architecture.

B. Design and construct the Infrastructure to optimize the user experience and to integrate into the urban context, such that each component presents a positive contribution to the built environment for the Infrastructure's users, neighbours, and passersby.

C. Given that each SUI component is located within a unique neighbourhood context, each component must respond to its context and shall incorporate and reflect the Character Zone and Opportunity Area the component is located in.

D. Design and construct the Infrastructure into the fewest possible visible elements to achieve a coherent and uncluttered appearance through the integration of systems such as street lighting, OCS and traffic signals, signage, and Passenger Interface Equipment.

SECTION 2-2– LIGHT RAIL VEHICLES

A. The LRVs shall be clearly recognizable as part of the ETS Transit Network, while also being separately identifiable as part of the Project.

B. The design of the LRVs shall be contemporary and shall integrate into the urban realm.

SECTION 2-3– CHARACTER ZONES AND OPPORTUNITY AREAS

2-3.1 INTRODUCTION

A. The urban look and feel of the areas through which the Infrastructure passes has been classified into five distinct Character Zones. Each Character Zone has unique hardscapes and softscapes, history, cultural influences, and community connections, which are to be reflected and incorporated into the design of the Infrastructure components located within the relevant Character Zone.

B. A Character Zone is further divided into one or more Opportunity Areas. Individual components of the Infrastructure shall respond to the context of the Opportunity Area and shall be uniform within an Opportunity Area.

C. This Section 2-3 *[Character Zones and Opportunity Areas]* outlines the Character Zones and sets out general requirements for each Opportunity Area. These general requirements are complemented with more specific requirements throughout this Part 2 *[Sustainable Urban Integration]* and other Parts of this Schedule.

D. In addition to responding to the Character Zone and Opportunity Area, specified components at Stops and Stations are also required to reflect specific themes established during the Public Involvement process ("***Stop PI Theme***"). The Stop PI Themes are outlined in Section 2-10.2 *[General Stop and Station Integration]* of this Schedule and illustrated in the Design Guide.

2-3.2 DOWNTOWN CHARACTER ZONE

A. The Downtown Character Zone extends from the Project limit on 102 Avenue to the end of 95 Street, north of the North Saskatchewan River Valley (NSRV).

B. The Downtown Character Zone is characterized by a variety of high-density uses ranging from commercial office to residential communities. The area is a mix of urban styles often relating to the incremental development of adjacent buildings. The architecture transitions from high-rise storefront office/commercial buildings (west area) to large public buildings (central area) to surface parking lots, low buildings and high-rise residential buildings (east area).

C. Walkway surface materials include standard, textured/scored concrete and colored paver walkways (and some crosswalks). These materials form a "patch-work quilt" associated with different time periods in urban development but do not reflect the devotion of a conscious effort to the treatment of the transition from one area to the next. In front of some buildings, notably Canada Place and Winspear Centre, the paving materials on private property plaza areas continue into the sidewalk and to the curb.

D. The Downtown Character Zone shall leverage the introduction of the Infrastructure to support a range of future redevelopment opportunities, particularly at large surface parking lots and other underutilized lots, while increasing pedestrian accessibility to, and connectivity between, a range of community amenities such as parks, churches and civic destinations. The design of the Infrastructure within this Character Zone shall preserve and enhance the existing heritage and community character. Landscaping shall introduce new Street Trees, rather than planting beds.

E. There are two (2) Opportunity Areas within the Downtown Character Zone:

1. Downtown Opportunity Area, including the 102 Street Stop and Churchill Stop, as well as the Churchill Connector; and

2. Quarters Opportunity Area, including the Quarters Stop.

2-3.2.1 Downtown Opportunity Area

A. The Downtown Opportunity Area extends from the limits of the Project on 102 Avenue to 97 Street.

B. The Downtown Opportunity Area is in the heart of Edmonton, sharing a high volume of pedestrian and cycling activity with road traffic. The Project, together with other major projects, such as the ICE District and the Royal Alberta Museum, are expected to act as catalysts for transformation and revitalization of the Downtown Opportunity Area.

C. The Downtown Opportunity Area shall:

1. include a Pedestrian Priority Zone (PPZ, see Section 2-4.2 *[Streetscape]* of this Schedule) along 102 Avenue to support increased pedestrian activity along 102 Avenue; and

2. provide a streetscape that supports keeping and enhancing event spaces on Sir Winston Churchill Square.

2-3.2.2 Quarters Opportunity Area

A. The Quarters Opportunity Area extends from 97 Street to the end of 95 Street north of the NSRV and is located immediately east of the Downtown Opportunity Area.

B. The Quarters Opportunity Area provides access into the Shared Use Path (SUP) network of the NSRV and offers views of the NSRV. The area is characterized by its vibrant Chinese community, heritage buildings and churches. In addition there is a large number of surface parking lots, and under-utilized industrial and commercial sites which represent areas for change. Mixed-use redevelopment and intensification opportunities are expected to focus around the Quarters Stop and 95 Street.

C. The Quarters Opportunity Area shall:

1. include a PPZ along 102 Avenue, to be continuous with the Downtown Opportunity Area PPZ, to support increased pedestrian activity along 102 Avenue;

2. provide enhanced pedestrian connections between the Infrastructure and existing communities and amenities; in particular, to Louise McKinney Riverfront Park and the NSRV at 95 Street, 95A Street, 96 Street, and 97 Street; and

3. support the Quarters Area Redevelopment Plan, including the Armature, which is a pedestrian-oriented street stretching four and a half (4.5) city blocks along 96 Street and crossing the LRT Corridor.

D. The design themes of the Armature shall continue through the Lands along 96 Street up to the curb returns on 102 Avenue, with the exception of the Trackway, which shall be the same as elsewhere throughout the Infrastructure.

2-3.3 RIVER VALLEY CHARACTER ZONE

A. The River Valley Character Zone is a key regional and local destination which extends from the north end of the North River Bank Tunnel Approach to the intersection of Connors Road with 95 Avenue and includes the community of Cloverdale, Louise McKinney Riverfront Park, the North Saskatchewan River, Henrietta Muir Edwards Park, the Muttart Conservatory, and Connors Hill.

B. The River Valley Character Zone is characterized by:

1. a mature and redeveloping residential building stock, 'small-town' commercial frontages, recreation trails and green spaces in Cloverdale;

2. the intersection of regional SUPs and connections; and

3. public parks and related open spaces that form part of Edmonton's river valley parks system, and include a combination of forested areas and manicured park settings.

C. The River Valley Character Zone contains four (4) related but distinct open space areas:

1. **Louise McKinney Riverfront Park:** This large urban park is an important destination and connection point for downtown and the river valley SUP system. The areas of the park affected by the Infrastructure include a naturalized slope at the top of the NSRV, a rose garden with a switch-back pathway, major Trail connections, and the Trans-Canada Trail, which includes a donor-recognition kiosk;

2. **Henrietta Muir Edwards Park:** The area of the park that is affected by the Infrastructure contains major SUPs and trail connections, and the River Queen boat launch. The park is connected to the Muttart Conservatory area via a footbridge over 98 Avenue;

3. **Muttart Conservatory:** The grounds around Muttart Conservatory feature ornamental planting beds, showcasing different species of plants selected and planted by volunteer groups and appreciated by Edmontonians and visitors. The Muttart Conservatory grounds also connect the Louise McKinney Riverfront Park and Henrietta Muir Edwards Park to Gallagher Park, the home of the annual Edmonton Folk Music Festival; and

4. **Connors Hill:** The slope north of Connors Road, which is covered with naturalized grasses and patches of forest vegetation, is used as a ski hill. The south side of Connors Road is covered with forest vegetation and provides connections to Mill Creek.

D. Within the River Valley Character Zone the Infrastructure shall be designed to integrate into the park settings and shall conform to the River Valley Landscape Drawings as set out in Section 2-14 *[Landscape Architecture]* of this Schedule.

E. There is one (1) Opportunity Area within the River Valley Character Zone – the Muttart Opportunity Area, which contains the Muttart Stop.

2-3.3.1 Muttart Opportunity Area

A. The Muttart Opportunity Area extends from 98 Avenue to the Muttart south access road.

B. The Muttart Opportunity Area shall contain a range of landscape and public realm improvements to support the character and functions of the park settings and to conserve its attractiveness as a local recreation area.

C. The Muttart Opportunity Area shall:

1. include a PPZ at the Muttart Stop, which supports connections to the Muttart Conservatory, to the Cloverdale neighbourhood and to Gallagher Park.

2-3.4 MILL CREEK CHARACTER ZONE

A. The Mill Creek Character Zone extends from the intersection of Connors Road and 95 Avenue to Argyll Road.

B. The Mill Creek Character Zone is characterized by:

1. a mixture of retail businesses and a variety of low-density residential housing;

2. surface parking lots and other underutilized sites suitable for redevelopment in the future;

3. views of and connections to the NSRV and the Mill Creek Ravine; the NSRV and the Mill Creek Ravine have strongly influenced the urban structure of the area, contributing to the development of a quiet and scenic residential setting; and

4. active open space that is currently underutilized due to limited SUPs and/or connectivity.

C. The Mill Creek Character Zone shall continue to support existing stable residential neighbourhoods, while supporting a greater range of community and retail uses as well as higher-density, mixed-use developments on infill sites adjacent to the Lands, while still being influenced by the NSRV and Mill Creek Ravine park-like settings.

D. There are three (3) Opportunity Areas within the Mill Creek Character Zone:

1. Strathearn Opportunity Area, including the Strathearn and Holyrood Stops;

2. Bonnie Doon Opportunity Area, including the Bonnie Doon Stop; and

3. Argyll Opportunity Area, including the Avonmore Stop.

2-3.4.1 Strathearn Opportunity Area

A. The Strathearn Opportunity Area extends from the intersection of Connors Road with 95 Avenue to the area immediately south of Holyrood Stop and is characterized by detached residential housing, mid-rise apartment buildings, schools and churches, all with good connections to nearby community facilities and amenities. It also contains dispersed neighbourhood-scale retail, ranging from strip malls to art galleries. Within the past 15 years, some higher density residential development at the corner of Connors Road and 95 Avenue has occurred.

B. Use pedestrian, landscape and related public realm improvements within the Strathearn Opportunity Area to support the development of transit oriented and walkable communities, particularly in proximity to Ecole Publique Gabrielle-Roy and other community facilities.

C. The Strathearn Opportunity Area shall:

1. provide a streetscape along 95 Avenue to support future Transit Oriented Development (TOD) on adjacent sites;

2. include a PPZ that increases connectivity between the Strathearn Stop, Ecole Publique Gabrielle-Roy, community facilities, and the surrounding neighbourhood;

3. provide a streetscape to support future redevelopment of the area;

4. improve sidewalk and SUP connections along the LRT Corridor to surrounding park spaces; and

5. include a PPZ surrounding the Holyrood Stop that:

   a. facilitates pedestrian crossings at 85 Street near the Holyrood Stop; and

   b. supports improved pedestrian access to the Holyrood Stop by increasing the number of pedestrian connections between 85 Street and 83 Street.

2-3.4.2 Bonnie Doon Opportunity Area

A. The Bonnie Doon Opportunity Area extends from the area immediately south of Holyrood Stop to 82 Avenue and stretches from a prominent traffic intersection (Connors Road/90 Avenue/83 Street/85 Street) to an expansive commercial corridor and a shopping mall.

B. Establish an improved pedestrian streetscape environment within the Bonnie Doon Opportunity Area, particularly at the surface parking lot of the Bonnie Doon Shopping Centre, to support future TOD adjacent to the Infrastructure, at the Connors Road/90 Avenue/83 Street/85 Street intersection, the major bus/LRT transfer point at the Bonnie Doon Shopping Centre and towards the Dermott District Park Renewal. Throughout this area, new Street Trees shall be planted to replace existing trees removed as a result of Construction.

C. The Bonnie Doon Opportunity Area shall:

   1. provide a streetscape that supports pedestrian oriented uses and frontage conditions (e.g. cafe spill out); and

   2. include a PPZ surrounding the Bonnie Doon Stop that:

      a. facilitates pedestrian crossings at the 82 Avenue/83 Street intersection and 84 Avenue/83 Street intersection; and

      b. supports pedestrian connections to the Dermott District Park Renewal.

2-3.4.3 Argyll Opportunity Area

A. The Argyll Opportunity Area extends from 82 Avenue to Argyll Road and consists mainly of stable, detached residential homes from the post-war era. It is bounded by the Mill Creek Ravine to the west. Introduction of the Infrastructure is expected to animate this area by helping improve walkability and connectivity to existing sidewalk and SUP networks.

B. The Argyll Opportunity Area shall:

   1. improve trails, sidewalks, SUPs and their connections within the Lands, supporting enhanced pedestrian connections to the Mill Creek Ravine; and

   2. include a PPZ around Avonmore Stop.

2-3.5 DAVIES INDUSTRIAL CHARACTER ZONE

A. The Davies Industrial Character Zone extends from Argyll Road to Whitemud Drive.

B. The Davies Industrial Character Zone is characterized by:

   1. a mix of low rise industrial and commercial office buildings of varying age and W.P. Wagner High School;

   2. a wide right-of-way along 75 Street with generous boulevards on each side of the Roadway; however it is anticipated that the Project will result in the width of these boulevard spaces being reduced;

3. existing landscape treatments, which are limited to small areas of private landscape installed in front of commercial buildings; many of the industrial properties are not landscaped;

4. the lack of a continuous SUP;

5. W.P. Wagner Park, which is an open space located between the CPR corridor and Wagner Road; this park is comprised of mown lawns and forest patches adjacent to W.P. Wagner High School; and

6. having been developed over Mill Creek, such that the flow of the creek is in a tunnel through the entire Davies Industrial Character Zone.

C. The Davies Industrial Character Zone shall continue to support a range of employment uses while targeting redevelopment opportunities at key locations. For example, a future TOD is envisioned on the Davies Site.

D. There is one Opportunity Area within the Davies Industrial Character Zone – the Wagner Opportunity Area, which contains Davies Station.

2-3.5.1 Wagner Opportunity Area

A. The Wagner Opportunity Area extends from W.P. Wagner Park to the CNR crossing at 75th Street and includes the Davies Site.

B. Davies Station will be located on the Davies Site, which sits between the two severed ends of the Mill Creek Ravine. W.P. Wagner High School is within walking distance of the Davies Station. The area immediately surrounding the Davies Station includes buildings that are largely vacant or under-occupied. The Trackway at Davies Station is elevated.

C. The Wagner Opportunity Area shall:

1. include a PPZ around Davies Station that will facilitate future connections to surrounding redevelopment opportunities, including industrial/employment TOD;

2. not preclude the re-establishment of an open flow of Mill Creek Ravine in the future;

3. support future TOD on the Davies Site;

4. include sidewalks and SUPs that improve pedestrian connections between Davies Station, W.P. Wagner Park, and W.P. Wagner High School to the west; and

5. provide new Street Trees adjacent to the SUP along 75 Street.

2-3.6 SOUTHEAST EDMONTON CHARACTER ZONE

A. The Southeast Edmonton Character Zone extends from Whitemud Drive to the Project limits east of Mill Woods Stop.

B. The Southeast Edmonton Character Zone is characterized by:

1. predominantly residential neighbourhoods, well-established parks, sidewalks and SUPs;

2. residential Property Fences (back yard) lining the perimeter of the Lands;

3. trail connections from the interior of residential neighbourhoods out into the Lands, but without a continuous SUP along either side of the Roadway; and

4. a wide Roadway cross-section with the landscaped boulevards and medians providing a park-like setting; the majority of the existing landscape on the west side of the Roadway shall be retained, except where SUP construction requires landscape removals.

C. Within the Southeast Edmonton Character Zone the Infrastructure shall be designed and constructed to reflect and support the character of the park-like setting and residential development, while allowing for intensification around the Mill Woods Town Centre. The Infrastructure shall be designed

and constructed to help improve the Character Zone's relationship to the Mill Creek and other open spaces, through improved pedestrian connections between residential neighbourhoods and parks, sidewalk and SUP networks and community amenity spaces. New boulevards and medians with a combination of trees, shrubs, and sod shall be designed and constructed to contribute to the park like setting of the Character Zone.

D. There are two Opportunity Areas within the Southeast Edmonton Character Zone:

1. Millbourne Opportunity Area, including the Millbourne/Woodvale Stop; and
2. Mill Woods Opportunity Area, including the Grey Nuns Stop and Mill Woods Stop.

2-3.6.1 Millbourne Opportunity Area

A. The Millbourne Opportunity Area extends from Whitemud Drive to 34 Avenue and is characterized by low-density residential neighbourhoods developed in the 1970's, abutting the Mill Woods Golf Course on the east side of 66 Street. The area includes a well-connected sidewalk and SUP system, linking the neighbourhoods to the broader open space network.

B. Design and construct the Infrastructure in the Millbourne Opportunity Area to strengthen pedestrian connections to the surrounding neighbourhoods.

C. The Millbourne Opportunity Area shall:

1. not preclude future pedestrian connections from 66 Street into the Mill Woods Golf Course;
2. include a PPZ surrounding the Millbourne/Woodvale Stop; and
3. enhance and expand the existing SUP network on the west side of 66 Street to the Millbourne/Woodvale Stop.

2-3.6.2 Mill Woods Opportunity Area

A. The Mill Woods Opportunity Area extends from 34 Avenue to the Project limits east of the Mill Woods Stop and is characterized by large shopping centres, open spaces and low-density residential developments. Large lots and an aging building stock offer opportunities for significant future TOD.

B. Design and construct the Infrastructure in the Mill Woods Opportunity Area to establish a context that supports the long term development of compact and walkable communities.

C. The Mill Woods Opportunity Area shall:

1. include a PPZ along 28 Avenue, to support pedestrian movement between the Mill Woods Stop and the surrounding neighbourhoods;
2. include a PPZ surrounding the Grey Nuns Stop;
3. include pedestrian connections from the adjacent neighbourhoods to the Grey Nuns Stop; and
4. include a streetscape that supports pedestrian oriented uses associated with future TOD of the existing low-rise professional/commercial buildings and surface parking lots surrounding the Grey Nuns Stop.

SECTION 2-4 – URBAN REALM

A. This Section 2-4*[Urban Realm]* sets out the urban realm requirements, which shall be used to design and construct the Infrastructure.

2-4.1 GENERAL REQUIREMENTS

A. The Infrastructure shall provide continuity of identity throughout the Lands and shall support the implementation of:

1. the City's Transit Oriented Development Guidelines;

2. the Quarters Area Redevelopment Plan;
3. the Dermott District Park Renewal;
4. the Mill Woods Station Area Redevelopment Plan; and
5. any other area and station area redevelopment plans within or adjacent to the Lands.

B. The use of berms, fences, or blank walls shall not be permitted at Stops.

2-4.2 STREETSCAPE

A. A streetscape includes all elements that constitute a cross-section of a street, including the building face and components such as landscaping, boulevards, roads, medians and sidewalks.

B. Pedestrian Priority Zones (PPZs) are delineated areas along the LRT Corridor where safe and comfortable pedestrian and bicycle movement is intended to be prioritized.

C. Provide a PPZ at the locations, and with extents, shown in the Design Guide. Within each PPZ:

1. landscaping shall be as set out in Section 2-14 *[Landscape Architecture]* of this Schedule;
2. lighting shall be as set out in Section 2-6.2K *[Right of Way Lighting]* of this Schedule; and
3. Platforms shall have one of the following finishes, reflecting the Character Zone, Opportunity Area and the Stop PI Theme:
   a. broom finished, saw cut scoring, earth toned integrally coloured cast-in-place concrete;
   b. tined finished, saw cut scoring, earth toned integrally coloured cast-in-place concrete;
   c. sandblast finished, saw cut scoring, earth toned integrally coloured cast-in-place concrete;
   d. concrete paving stone, earth toned colours; or
   e. stamped, saw cut scoring, earth toned integrally coloured cast-in-place concrete.

D. Pedestrian pathways, including Transit Centre platforms, within the Davies Site PPZ shall be enhanced and reflect the colour used for the Davies Station Platform concrete.

E. Embedded Trackways shall be integrally coloured cast-in-place concrete of a consistent colour and design, distinct from the adjacent Roadway, throughout the LRT Corridor.

F. Notwithstanding Section 2-4.2E *[Streetscape]*, Embedded Trackways at switch locations may be precast concrete matching the finish of the adjacent cast-in-place Trackway.

G. Sidewalks shall comply with the requirements in Section 3-2 *[Roadways, Sidewalks and Shared Use Paths]* of this Schedule and shall be non-coloured concrete unless otherwise specified.

2-4.3 CROSSING TREATMENTS

A. Provide refuge areas at the base of all Platform Access Points as shown in Figures 2-4.3.1 *[Crossing Treatment, Centre Platform Stop]* to Figure 2-4.3.5 *[Crossing Treatment, Mid-Block Platform Access]* and as follows:

1. provide bollards to create a pedestrian refuge area, arranged nominally as shown and as further set out in Section 2-4.5.2 *[Visual, Auditory and Tactile Cues]* of this Schedule; and
2. extend the same tactile attention indicator used on the Platforms down from the Platform edge, wrapping around the full extent of the refuge area, except in locations as specified in Section 2-4.3B.1 below.

B. Provide treatments of crosswalks within PPZ's, except for the crosswalks within the Davies Site, as follows:

1. provide at both edges of the crosswalk and at edges of refuge areas that are not intended to be crossed by pedestrians a white coloured concrete edge strip having the same width as the tactile attention indicator used at the associated Platform; and

2. between the white coloured concrete edges provide broom-finished or troweled cast-in-place concrete matching the colour of the Platform concrete of the nearest Stop, but contrasting the colour of the Trackway concrete.

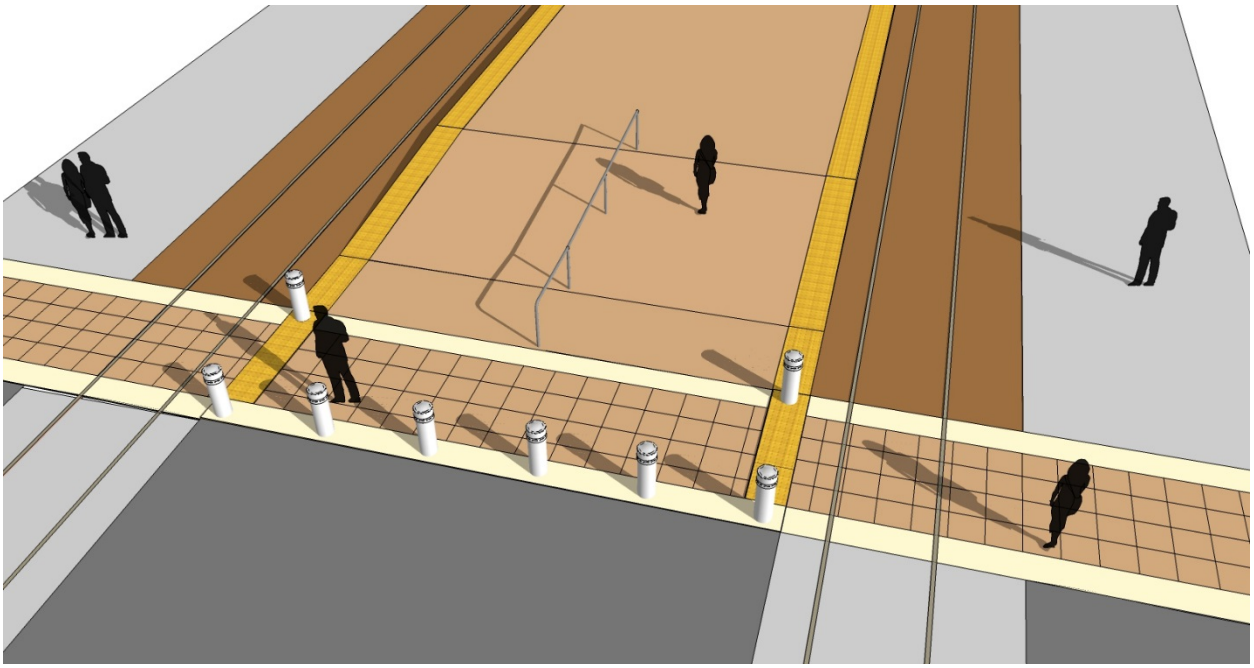


Figure 2-4.3.1: Crossing Treatment, Centre Platform Stop

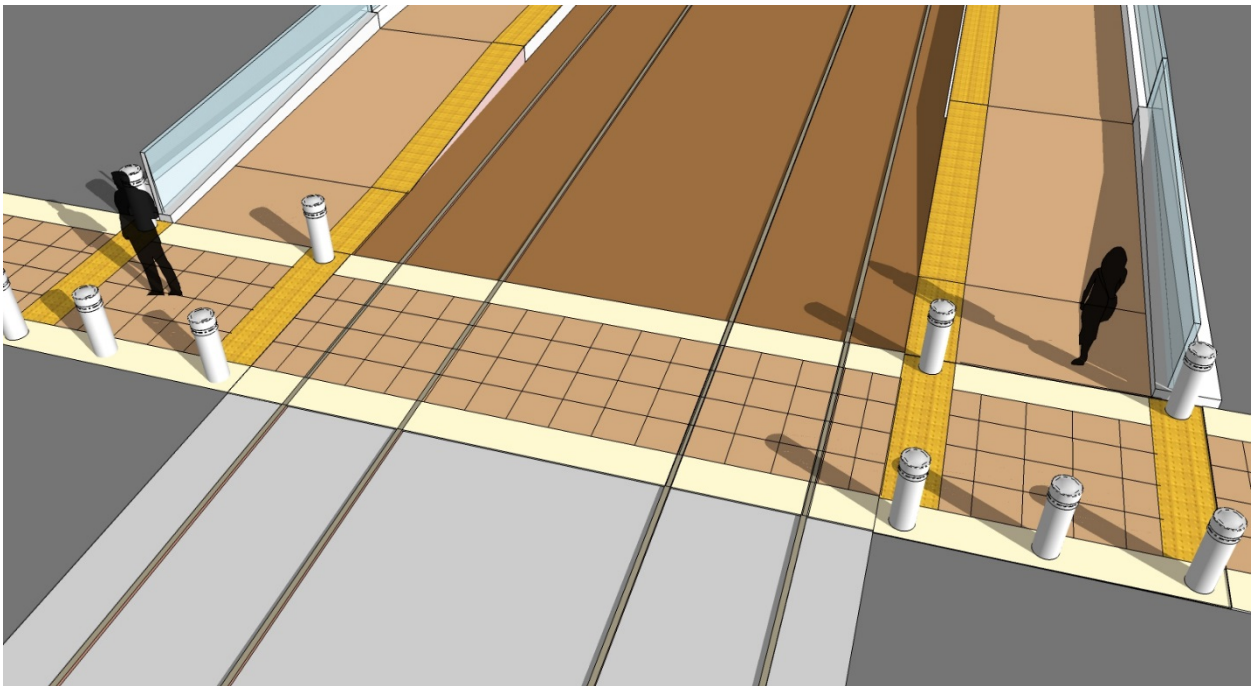


Figure 2-4.3.2: Crossing Treatment, Concurrent Side-Loading Platform Stop

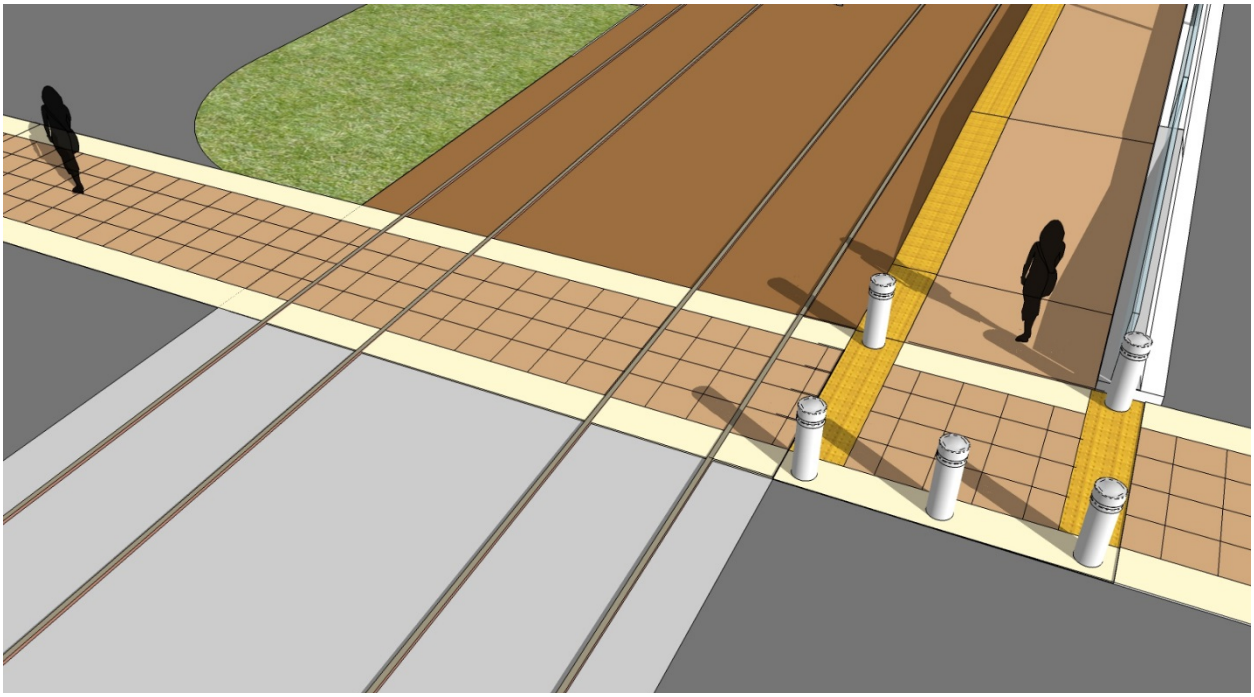


Figure 2-4.3.3: Crossing Treatment, Split Side-Loading Platform Stop adjacent to Roadway

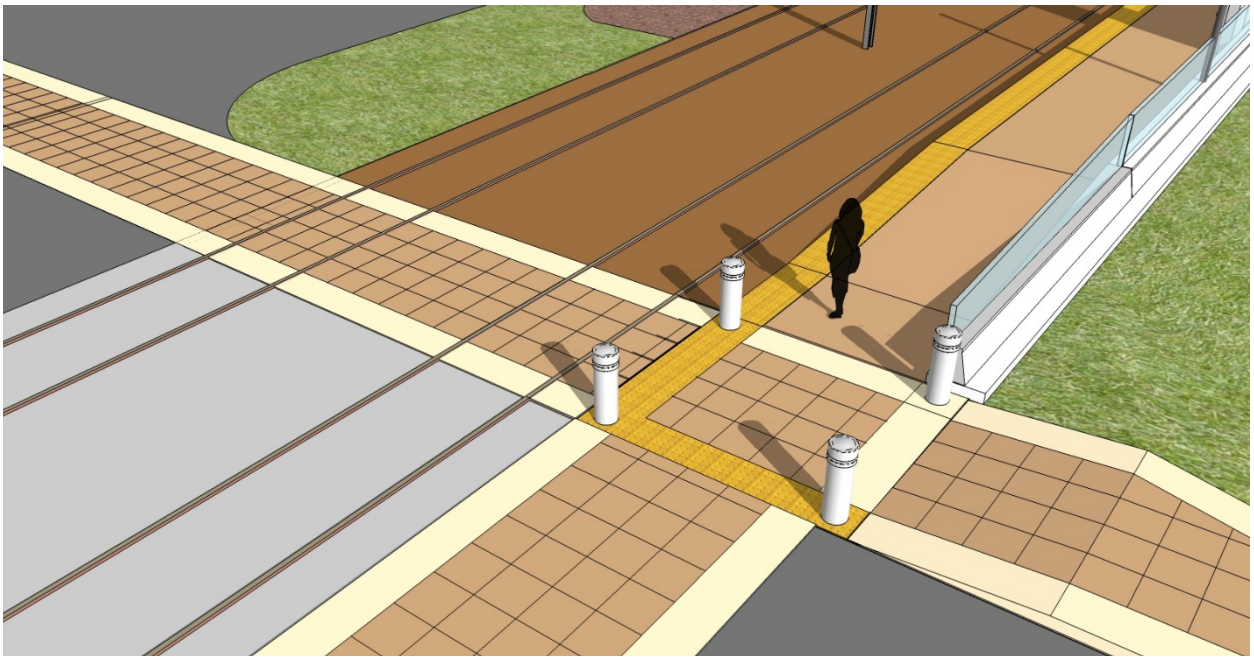


Figure 2-4.3.4: Crossing Treatment, Split Side-Loading Platform Stop adjacent to Landscape Area

Figure 2-4.3.5: Crossing Treatment, Mid-Block Platform Access

C. Crosswalks within the Davies Site shall be “zebra” style, using durable markings of colours with adequate contrast and consistent with the character of the Wager Opportunity Area.

2-4.4 AMENITY NODES

A. Provide concrete pads for pedestrian Amenity Nodes at the locations shown in Appendix 5-1A *[Project Description Drawings]* of this Schedule.

B. Concrete pads for the Amenity Nodes shall substantially comply with drawing # LA302 of the *Valley Line LRT Project Landscape Design and Construction Standards*, and shall be sized as shown in Figure 2-4.4 *[Amenity Node Geometry*].

C. Provide one (1) bench, one (1) waste receptacle, and one (1) bicycle rack at each Amenity Node; bench, waste receptacle and bicycle rack shall match the ones provided at one (1) of the two (2) adjacent Stops.

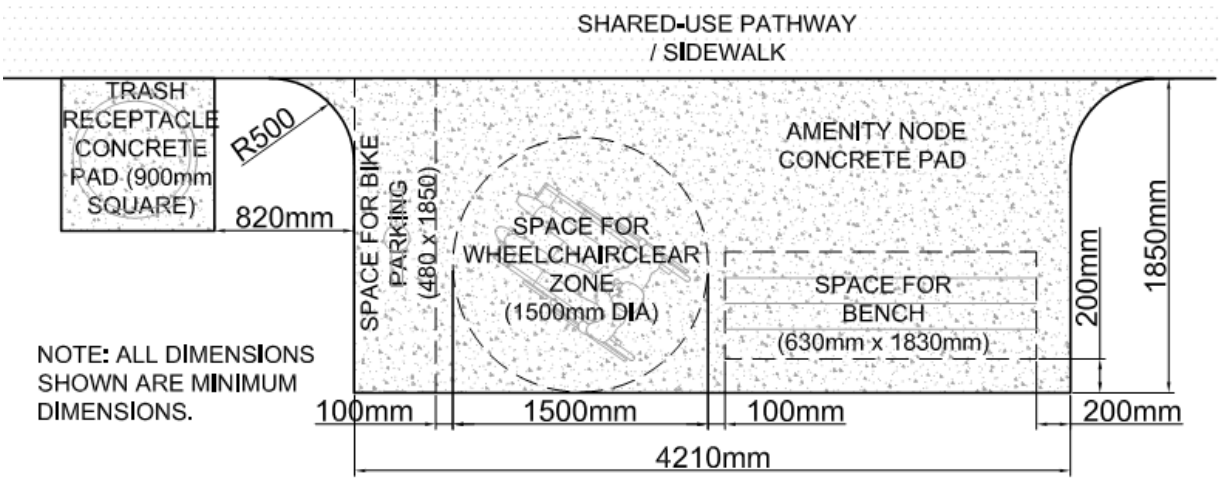


Figure 2-4.4 Amenity Node Geometry

2-4.5 SAFETY CUES, SEPARATIONS & BARRIERS

2-4.5.1 General

A. Provide the least intrusive means necessary to provide public safety based on the Safety and Security Certification Program.

B. Where separations and barriers are provided, they shall be consistent with an open, integrated, and high quality urban design.

C. All posts of separations and barriers shall be vertical.

D. Permitted types of safety cues, separations and barriers and their application are as described in Table 2-4.5.1 *[Safety Cues, Separations and Barriers]* as a function of their location.

Table 2-4.5.1: Safety Cues, Separations and Barriers

Application	Visual, Auditory, Tactile Cues	Safety Barriers				Intertrack Barriers
		Visual Delineators	Protection Railings	Fences	Collision Barriers	
Where a Roadway narrows	X					
Where On-track Vehicles share the LRT Corridor with other modes of movement	X					
Adjacent to Stops, to direct pedestrians to designated crossing areas	X					

Application	Visual, Auditory, Tactile Cues	Safety Barriers				Intertrack Barriers
		Visual Delineators	Protection Railings	Fences	Collision Barriers	
At Kiss 'n' Rides and pedestrian crossings	X					
Between Trackway and adjacent Roadway	X					
Where visual, auditory or tactile cues are deemed insufficient to provide required safety		X				
Adjacent to Stops, where visual cues are deemed insufficient to provide required safety		X				
Wherever public access is to be deterred			X			
On bridges, where cyclists and/or pedestrians are permitted and on top of retaining structures			X			
Where public access is prohibited and protection of property and equipment is required or where equipment presents a Hazard to public safety				X		
Where required by the Safety and Security Certification Program					X	
Quarters Tunnel						X
Elevated Guideways with through primary load carrying members between the Tracks						X

2-4.5.2 Visual, Auditory and Tactile Cues

A. Visual, auditory, and tactile cues communicate where persons should, and should not, access or cross the Trackway, Roadway, or bicycle lanes.

B. Permitted visual, auditory and tactile cues are:

1. differentiated and more prominent paving materials or patterns, such as tactile warnings, to identify where persons are permitted to access or cross the Trackway, Roadway or bicycle lanes;
2. visual and auditory signalization to communicate when it is safe for persons to cross the Trackway, Roadway or bicycle lanes;
3. curbs to separate Trackway from adjacent areas of the LRT Corridor; and
4. bollards as follows:
   a. colour aesthetically integrated into the overall design of the Stop or streetscape; and
   b. visible at night through incorporation of illumination.

2-4.5.3 Safety Barriers

A. Safety barriers discourage or prevent access to hazards at locations where less intrusive means are deemed to be insufficient by the Safety and Security Certification Program.

B. The following safety barriers are not permitted:

1. multiple bedstead barriers, consisting of steel pipe bent in an inverted U-shape with or without one or more horizontal steel pipe members at intermediate height; and
2. safety cages enclosing, or partially enclosing, the walking surface of pedestrian bridges or other pedestrian paths.

C. Safety barriers shall be one of the following two types:

1. **Visual Delineator**: designed to delineate a boundary between pedestrians or cyclists and hazards.
   a. Permitted visual delineators are:
      i. landscaped hedgerows;
      ii. bollards and chains, made of single-braided, grounded stainless steel or PVC rope, with PVC or fibreglass posts at least 2.4 metres on centre; and
      iii. post and cable fences, with a minimum 3 horizontal rows of vinyl coated cable, with maximum 1000 mm high posts.
2. **Physical Barrier**: designed as a physical obstacle between pedestrians or cyclists and hazards, sufficient to resist the applicable forces.
   a. Permitted physical barriers are:
      i. Protection Railings: refer to Section 2-4.5.3.2 *[Protection Railings]* of this Schedule;
      ii. fences: refer to Section 2-4.5.3.3 *[Fences]* of this Schedule; and
      iii. collision barriers: refer to Section 3-2.9 *[Road Appurtenances]* and Section 2-4.5.3.4 *[Collision Barriers]* of this Schedule.

2-4.5.3.2 Protection Railings

A. Protection Railings shall be visually light and integrate with the architecture of the Structure to which the Protection Railing is attached and to the surrounding context.

B. Protection Railings at ramps shall incorporate handrails.

C. Gates in Protection Railings shall incorporate the same aesthetic as the Protection Railing.

D. Except as otherwise specified in this Schedule, Protection Railings shall comply with Table 2-4.5.3.2 *[Protection Railings];* for the purpose of the table, the word “transparency” is defined as the percentage of opening size to total area when viewed in elevation.

E. All steel components of Protection Railings shall be galvanized except as otherwise specified in this Schedule.

F. Chain link mesh shall not form a component of Protection Railings.

G. Protection Railings shall be placed as near to the outside edge of a retaining wall as possible to prevent attempts to walk along the exterior side of the Protection Railing.

H. Elevated Guideways with a vertical distance between adjacent grade and the top of the Elevated Guideway greater than 1.2m shall have Protection Railings complying with all applicable occupational health and safety requirements and as follows:

1. consist of a horizontal steel tube at the top of the Protection Railing and horizontal cables evenly spaced between the top of the concrete curb and the steel tube, supported by curved steel plate ribs, as shown nominally in Figure 2-4.5.3.2 *[Elevated Guideway OH&S Protection Railing];*

2. have support posts spaced no less than 2.4 m on centre; and

3. have a transparency of at least 65% when viewed in elevation, where transparency is the percentage of opening size to total area using the height "H" shown in Figure 2-4.5.3.2 *[Elevated Guideway OH&S Protection Railing].*

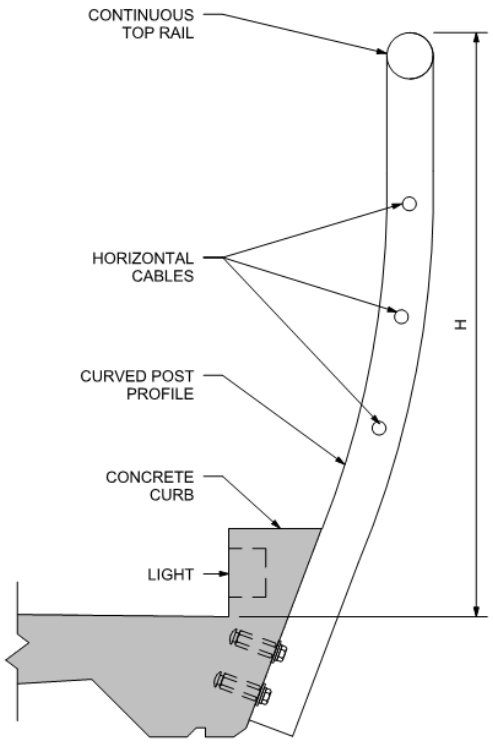


Figure 2-4.5.3.2: Elevated Guideway OH&S Protection Railing

Table 2-4.5.3.2: Protection Railings

Where Required	Technical Requirements	Aesthetic Requirements
Above a drop of 1.2m or greater, where the area above the drop is not designated for public use.	Fall arrest "Guardrail" per Alberta Occupational Health & Safety Code	Horizontal members shall be cables. Posts shall be steel plate with the short dimension viewed in elevation. Posts shall be spaced at a minimum of 2.4m. At end conditions, cables shall be tapered downwards to a common anchor point at a slope of 1 vertical : at least 4 horizontal. Minimum transparency: 95%
On SUPs where bicycle traffic is permitted above drops exceeding 0.6m.	Bicycle barrier per CAN/CSA S6	Posts shall be spaced at a minimum of 2.4m, unless expressly stated otherwise. Protection Railings shall be composed of solid steel bar, closed steel sections, or cables. Minimum transparency: 80%
Above drops exceeding 0.6 m on paths where pedestrian traffic is permitted, but bicycle traffic is not permitted.	Pedestrian barrier per CAN/CSA S6	Posts shall be spaced at a minimum of 2.4m. Protection Railings shall be composed of solid steel bar, closed steel sections, or cables. Minimum transparency: 80%

Where Required	Technical Requirements	Aesthetic Requirements
At the interface of Platforms adjacent to Roadways, or to bicycle lanes, where the Platform runs parallel to the Roadway or bicycle lane, except where: • a landscaped boulevard of at least 3 m is provided between the Platform and the Roadway or bicycle lane; or • where the Roadway is a service road and the Safety and Security Certification Program demonstrates that a Protection Railing is not required.	Guard per Alberta Building Code	Protection Railing shall be composed of solid steel bar or closed steel sections and glass and shall act as splash protection, i.e. be solid for the entire height of the Protection Railing. Minimum transparency: 90% All steel shall be stainless.

2-4.5.3.3 Fences

A. In keeping with the urban-integrated design vision for the Project, the use and extent of fences shall be minimized.

B. Chain link fence is not permitted, except for:

1. existing chain link fences removed during the course of Construction, which may be replaced with new chain link fence on a like-for-like basis to tie into existing chain link fence; and
2. fences on the Gerry Wright OMF Site, provided perimeter fences are screened with landscaping and fences within the Gerry Wright OMF are screened with landscaping, berms or buildings.

C. Barbed, razor, and similar wire fencing materials are not permitted, except where an existing fence having barbed, razor, or similar wire fencing materials is removed during the course of Construction, in which case the material shall be replaced with new materials on a like-for-like basis to tie into existing fencing.

D. Fences shall be either standalone ornamental welded wire mesh fencing or ornamental welded wire mesh fencing, integrated with barriers such as Roadway vehicle collision barriers where applicable and shall meet the following requirements:

1. have a transparency of at least 80% when viewed in elevation, where transparency is the percentage of opening size to total fence area for standalone fences and to the fence portion of fences integrated with barriers;
2. have only vertical and horizontal elements when viewed in elevation;
3. have fence posts consisting of closed structural sections, not exceeding 76 mm in width when viewed in elevation;
4. have wires no greater than 5 mm in diameter;
5. have a fence height measured from adjacent ground not exceeding 2.5 m;

6. have posts spaced no less than 2.3 m; and

7. be coloured black.

E. Notwithstanding Section 2-4.5.3.3D *[Fences]*, provide Property Fences in accordance with Section 1-2.2 *[Property Fences]* of this Schedule.

2-4.5.3.4 Collision Barriers

A. Where a Protection Railing specified in Section 2-4.5.3.2H *[Protection Railings]* is deemed to be insufficient and LRV collision barriers, other than the walls of trough girders and through primary load carrying members, are demonstrated to be necessary by the Safety and Security Certification Program, they shall:

1. consist of a horizontal steel top pipe supported by curved steel plate ribs nominally arranged as shown in Figure 2-4.5.3.4 *[LRV Collision Barrier]*;

2. have support posts spaced no less than 2.4m on centre; and

3. have a transparency of at least 50% when viewed in elevation, where transparency is the percentage of opening size to total area using the height "H" shown in Figure 2-4.5.3.4 *[LRV Collision Barrier].*

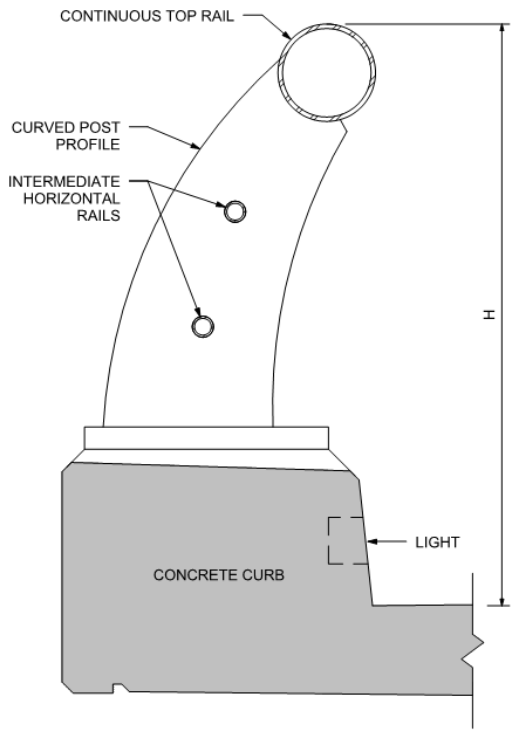


Figure 2-4.5.3.4: LRV Collision Barrier

B. Roadway vehicle collision barriers shall:

1. consist of smooth horizontal and vertical curves nominally consistent with the adjacent Roadway;

2. be concrete;

3. taper linearly in elevation at terminations; and

4. be designed in accordance with Section 3-2.9 *[Road Appurtenances]* and CAN/CSA S6.

2-4.5.4 Intertrack Barriers

A. Barriers between the Tracks are not permitted, except in the Quarters Tunnel and on Elevated Guideways with through primary load carrying members between the Tracks.

2-4.5.5 Other Separations

A. Except where demonstrated to be necessary by the Safety and Security Certification Program or as otherwise specified in this Schedule, no barriers, fences, or other physical separations between the Trackway and adjacent amenities, such as sidewalks, SUPs, Roadways, and landscaped areas, are permitted.

B. Except as otherwise specified in Table 2-4.5.3.2 *[Protection Railings],* no barriers, fences, or other physical separations between the Platform and adjacent amenities, such as sidewalks, SUPs and landscaped areas, are permitted.

2-4.6 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

A. This Section 2-4.6 *[Crime Prevention Through Environmental Design (CPTED)]* sets out the requirements for Crime Prevention Through Environmental Design (CPTED).

B. CPTED is a multidisciplinary approach to planning, design, and construction that deters criminal behaviour through natural access control (entry and exit points, fences), and boundaries (clear ownership, clearly marked private spaces) and natural surveillance (visibility, positive social activities).

C. The Design and Construction of the Infrastructure shall apply CPTED principles as set out in the City's *Design Guide for a Safer City* and as set out in the following sections.

2-4.6.1 Natural Access Control

A. Provide natural access control through use of architectural, landscaping, and structural elements to discourage access to areas for uses other than those intended, by:

1. designing indoor and outdoor spaces to discourage public access into dark and unmonitored areas;

2. providing visual cues and/or fences to prevent unauthorized pedestrian and vehicular access; and

3. using lighting to define pedestrian pathways at night.

2-4.6.2 Natural Boundaries

A. Provide territorial reinforcement through use of physical cues to identify and reinforce secure or restricted areas, by:

1. providing clearly marked transitional zones to acknowledge movement into a restricted space and clearly define the boundaries of the restricted space; and

2. using elements such as signage, landscaping, tactile surfaces, low walls, artwork, seating, and similar elements to define desired movement areas.

2-4.6.3 Natural Surveillance

A. Provide natural surveillance through use of features that maximize visibility of Platform areas, Stops and Stations, parking areas, pathways, building perimeters and building entrances, by:

1. designing site elements (landscaping, walls, bridges, tunnels, etc.) to eliminate or minimize hidden places or areas for concealment such as hidden corners, blind spots and bends that create places of concealment or limit choices;

2. maximizing transparency of transit shelters and elevators to allow observation of activity within and outside of the Structure;

3. designing building facades to achieve at least 50% transparency and use glazing to encourage passive surveillance of exterior areas;

4. avoiding recesses, alcoves and concealed areas suitable for hiding;

5. avoiding dead end corridors and areas having only one (1) exit;

6. placing services, such as TVMs, bicycle racks, and emergency phones in safe locations that are widely observable from other locations on the site;

7. locating areas, such as accessible parking, confined circulation systems (such as ramps, lifts, escalators and stairs) and gathering places, where they are easily observable;

8. creating spaces with large fields and long lines of vision;

9. maximizing natural lighting of areas during daylight hours; and

10. providing adequate night time lighting to minimize shadows and glare.

2-4.7 102 AVENUE SPECIAL REQUIREMENTS

A. The urban realm and streetscaping along 102 Avenue in the Downtown Character Zone shall conform to the drawings in Appendix 5-2A *[102 Avenue Streetscape Drawings]* of this Schedule and to the 102 Avenue Design Guide, a copy of which is included in the Disclosed Data, including:

1. paving materials:

a. sidewalk and Platform pavers, except for Churchill Stop north Platform: Unilock Umbriano Granada White™ or alternate acceptable to the City;

b. cycle track pavers: Unilock Umbriano Midnight Sky™ or alternate acceptable to the City;

c. delineation pavers between east- and westbound bicycle traffic, between east- and westbound traffic lanes, vehicular and cycle track stop bars and for the stop box lines on the west side of the intersection of 102 Avenue and 102 Street: Unilock Series 3000 Glacier™ or alternate acceptable to the City;

d. Roadway pavers: Unilock Umbriano French Grey™ or alternate acceptable to the City;

e. pavers for transverse bands: Unilock Series 3000 Black Granite™ or alternate acceptable to the City; pavers across the Trackway shall be mortared in place;

f. amenity zones at the sidewalk edges away from buildings: combination of pavers specified in Sections 2-4.7A.1.a to 2-4.7A.1.e above;

g. Trackway: Lafarge Artevia Executive Slate™ or alternate acceptable to the City;

h. delineation between cycle track and Roadway: curb and gutter according to drawing #5024 in the *Valley Line LRT Project Roadways Design and Construction Standards*, except at intersections up to and including the bollard farthest away from the intersection, where a 600 mm wide and 80 mm high upstand straight face curb, smoothly transitioning into the curb and gutter, shall be provided;

i. delineation between Roadway and Trackway: according to Section 3-2.4.5.A.2 *[Curb and Gutter]* of this Schedule;

j. delineation between Roadway and planted median: according to Section 3-2.4.5.A.2 *[Curb and Gutter]* of this Schedule, with a concrete verge of 0.6 m;

k. bicycle safe zone: concrete painted with nominally Pantone 354 and subject to Section 3-2.8.3.A *[Pavement Markings]* of this Schedule;

l. crosswalks, 4.0 m wide:

i. 500 mm wide concrete strips, using exclusively white cement for all cementitious materials or other means acceptable to the City to provide a “white” concrete, at both edges of crosswalk; and

ii. pavers specified in Section 2-4.7A.1.a between the white concrete strips with 1/3 offset pattern;

m. curb ramps: Unilock CNIB Grooved Directional Paving Slab™ or alternate acceptable to the City, grooved two sides with mid-slab groove and groove patterns in accordance with drawing #5510 of the *Valley Line LRT Project Roadways Design and Construction Standards*; texture and colour shall be the same as specified in Section 2-4.7A.1.a above.

n. supply and install all pavers in accordance with Section 02783 of the *Valley Line LRT Project Roadways Design and Construction Standards* and the manufacturer’s written instructions and specifications;

o. sidewalk pavers shall extend to building face, except where grade changes occur between the sidewalk and the building face, such as at stairs and ramps, in which case the sidewalk pavers shall only extend to start of the grade change;

p. pavers on sidewalks, extending 30 m from the building face down side streets, except at:

i. 100A Street, where pavers shall terminate 10 m south of the building face along 102 Avenue, aligning with the south edge of the crosswalk;

ii. east side of 100 Street north of 102 Avenue, where the surface treatment shall match the existing Sir Winston Churchill Square paving material, pattern and colouring;

iii. west side of 99 Street north of 102 Avenue, where the surface treatment shall match the existing Sir Winston Churchill Square paving material, pattern and colouring; and

iv. 96 Street, where the surface treatment shall be in accordance with Section 3-2.11.2.L *[102 Avenue / Downtown]* of this Schedule;

q. curbs, gutters and headers between sidewalk and cycle track, between sidewalk and Roadway, between cycle track and Roadway, and between Trackway and sidewalk: concrete, using exclusively white cement for all cementitious materials or other means acceptable to the City to provide a “white” concrete; and

r. curbs, gutters and headers between Roadway and Trackway: natural coloured concrete.

2. amenity vaults in the amenity zones:

a. amenity vaults shall:

i. be designed and constructed to be removed and reinstalled in one piece, including soils, planting, 300 mm width precast concrete curb, geofoam, concrete slab, and benches;

ii. include concealed attachments to receive lifting devices;

iii. include a 300 mm wide precast concrete curb exposed to Public View and made of concrete with a colour and finish matching the pavers specified in Section 2-4.7A.1.e above; and

iv. include drain holes;

b. provide Multiflow™ pipes or alternate acceptable to the City in washed rock wrapped in a geotextile and tied into the Minor Drainage system near the curb-side base of the amenity vaults;

c. integrate LED accent lighting, including power supply, into amenity vaults;

d. integrate benches as shown in in Appendix 5-2A *[102 Avenue Streetscape Drawings]* of this Schedule into amenity vaults;

3. OCS and light poles:

a. OCS shared use poles, Type 3 in accordance with Section 2-9.8.K.3 *[Overhead Catenary System]* of this Schedule, in-fill Roadway light poles and pedestrian light poles with light arms and fixtures consistent with the imagery shown in the Design Guide and as follows:

i. Roadway/Trackway light fixtures: Sterner Extruded Series EXEC-RT32™ or acceptable alternate; and

ii. pedestrian light fixtures: Sterner Extruded Series EXEC-RT21™ or acceptable alternate;

b. OCS and in-fill Roadway light poles shall only be placed:

i. on the north sidewalk and in the median space between the Trackway and the Roadway from 103 Street to 97 Street, lining up with a pedestrian light pole on the south sidewalk;

ii. on the south sidewalk and in the median space between the Trackway and the Roadway from 97 Street to 96 Street, keeping the rhythm established between 103 Street and 97 Street; and

iii. on top of the walls within the extents of the 102 Avenue Tunnel Approach, in accordance with Section 2-11.3D *[102 Avenue Tunnel Approach]* of this Schedule;

c. free-standing pedestrian light poles on the north and south sidewalks shall be placed every 10 m in the middle of the amenity vault wall away from the sidewalk.

i. Attachments of the pedestrian light poles to the base shall be designed and constructed such that pole verticality can be easily adjusted when required.

ii. Where an OCS pole is provided on a sidewalk, pedestrian lights shall be integrated with the shared-use OCS pole.

iii. Where no amenity vaults are provided, free standing pedestrian poles shall be provided in the same 10 m spacing rhythm.

d. Provide power to pedestrian street lights and LED amenity vault lighting from a flush mounted utility box between amenity vaults, with one (1) box supplying power to two (2) amenity vaults.

i. Power feed shall be provided from power lines running in the median between the Trackway and the Roadway and branching out nominally perpendicular to the line of OCS and in-fill Roadway light poles.

ii. Electrical connections to the amenity vaults shall be provided with disconnect capabilities.

iii. Utility box shall tie into paver pattern;

4. bike racks and bike corrals as shown in Appendix 5-2A *[102 Avenue Streetscape Drawings]* of this Schedule; bike racks will be supplied by the City;

5. cycle track at the same level as the south sidewalk, except at intersections, including the bicycle safe zone, where the cycle track shall be at the same level as the Roadway;

   a. the transition from Roadway level to sidewalk level shall occur from the bollard closest to the intersection to the bollard farthest from the intersection;

6. bollards, four (4) between the cycle track and the Roadway at each side of an intersection;

   a. bollards shall:

      i. be Sabacaucho X-Last Gorge Negra™ or alternate acceptable to the City;

      ii. be 1050mm high;

      iii. have a matte finish;

      iv. have reflective tape;

      v. have a lockable and removal base with inner cover;

      vi. be aligned with the transverse bands; and

      vii. be spaced at 2.5 m;

7. waste receptacles consistent with the receptacles provided at the Stops in the Downtown Character Zone and in the locations identified in Appendix 5-2A *[102 Avenue Streetscape Drawings]* of this Schedule;

8. Trackway extension to the west of friction buffers, if provided at the 102 Street Stop:

   a. the Trackway finish shall use the pavers specified in Section 2-4.7A.1.e above, except for the rail supports, which shall have the same finish as the Trackway east of the friction buffers; and

   b. no curb between the pedestrian zone and the Trackway shall be provided; and

9. mortared in-place pavers matching the sidewalk pavers replacing concrete infill panels at existing in-ground vaults and air intakes.

B. Between 97 Street and 95 Street:

   a. no amenity zones, amenity vaults, or planters need to be provided; and

   b. shared-use OCS poles, in-fill street light poles and pedestrian light poles shall be equally spaced and align with transverse bands.

C. The transition from the north sidewalk to the Trackway along 102 Avenue between 97 Street and 103 Street shall be flush between the sidewalk and the Trackway, except at the Stop locations with a combined Platform/sidewalk or where Project Co demonstrates that a step is necessary in order to achieve drainage requirements.

D. The top of concrete of the Embedded Trackway in the Downtown Character Zone shall be the same on either side of a rail.

SECTION 2-5– SUSTAINABILITY

A. Design the Infrastructure to support the overall sustainability and resilience of the City by:

1. minimizing noise, vibration, odour, and light trespass;

2. minimizing the heat island effect on sun-exposed areas;

3. using materials that have a low environmental impact, including rapidly renewable, recycled, and regional materials;

4. minimizing use of energy and water by the Infrastructure; and

5. minimizing Construction waste.

B. Building Structures shall implement sustainable design strategies, integrated with the form and function of the facility, including:

1. maximizing use of passive heating and cooling;

2. selection of surface finishes that provide visual continuity, acoustic damping and durability, including consideration of robust materials and systems in heavy pedestrian traffic locations and for severe environmental conditions;

3. complying with CSA S478 Guideline on Durability in Buildings; and

4. maximizing use of natural lighting of indoor spaces.

C. The south and west facing exposures of the Churchill Connector and of Davies Station shall incorporate passive temperature control strategies to minimize energy consumption.

D. At Davies Station, all irrigation shall be provided by capturing stormwater.

E. The use of the following materials and chemicals is not permitted:

1. asbestos;

2. lead;

3. mercury; and

4. petrochemical fertilizers and pesticides.

F. Surface coatings shall qualify to carry the EcoLogo in accordance with the *Environmental Choice Program Certification Criteria Document CCD-047 Architectural Surface Coatings*.

G. Provide the following minimum recycled content, calculated on a Project wide basis:

1. metals: 30%; and

2. masonry as specified in the *National Master Specification Division 4*: 20%.

H. Fly ash content of all concrete, averaged over the Project, shall be at least 20%.

SECTION 2-6– LIGHTING

2-6.1 GENERAL

A. Lighting shall comply with the *City of Edmonton Light Efficient Community Policy (C576)*, including the corresponding *City Procedure* and *Attachment 1*.

B. Lighting for major Structures, including Stations, Stops and Elevated Guideways, shall be integrated with the architectural and structural systems.

C. Architectural accent lighting shall highlight architectural, interior design and Public Art features, provide a sense of welcoming, and illuminate public spaces and shall make use of complementary colours.

D. Lighting designed for illuminating Passenger information shall be:

1. visually organized and integrated with wall or ceiling treatments;

2. selected to achieve optimal colour accuracy; and

3. concealed from Public View.

E. Light trespass from any Elevated Guideway, including the SUP of the Tawatinâ Bridge, into Louise McKinney Riverfront Park, Henrietta Muir Edwards Park, and W. P. Wagner Park shall be limited to illuminance values no greater than 0.5 horizontal and vertical lux at ground level at the boundary immediately beneath the outside edge of the Elevated Guideway, and no greater than 0.1 horizontal and vertical lux at ground level 3 m beyond this boundary. There shall be no lights fixed directly to the underside of any Elevated Guideways in Louise McKinney Riverfront Park, Henrietta Muir Edwards Park, or W.P. Wagner Park.

F. Provide accent lighting for the Tawatinâ Bridge, giving special attention to views from the Tawatinâ Bridge, from the riverbanks, from the top of the NSRV, and from beneath the Tawatinâ Bridge, to softly highlight the pylons, and cables of the Tawatinâ Bridge. The lighting scheme shall incorporate the lighting caps on the River Valley poles described in Section 2-9.8 *[Overhead Catenary System].*

G. The screening system of the 102 Avenue Tunnel Approach shall include accent lighting.

H. Lighting systems shall be designed so that the failure of any single luminaire or lighting circuit does not leave an area accessible to the public with less than half the minimum illumination levels specified in this Section 2-6 *[Lighting].*

I. The point-by-point method, utilizing computer generated calculations, shall be used to validate illumination levels and boundaries. The software used shall follow IESNA procedures. Calculation results shall include maximum, minimum, and average illumination levels along with the uniformity ratios and lighting power densities per ASHRAE 90.1. Calculations shall also include luminaire locations, mounting heights, wattage, lumens, color rendering index, color temperature, reflectance values, light loss factors, and photometric file used.

2-6.2 RIGHT OF WAY LIGHTING

A. This Section 2-6.2 *[Right of Way Lighting]* sets out the requirements for lighting along Roadways, Elevated Guideways, SUPs, and sidewalks throughout the Lands.

B. Except as otherwise specified in this Schedule, provide new lighting along all Roadways, sidewalks and SUPs, including the walkway from Muttart Stop to the Muttart Conservatory, in accordance with the *Valley Line Road and Walkway Lighting Construction and Material Standards*.

C. Except as otherwise specified in this Schedule, all light poles and all related lighting components, including LED luminaires, pole bases and breakaway bases, powder coat finishes, lighting control cabinets, lighting controller bases, photo cells, receptacles, and surge suppression shall comply with the *Valley Line Road and Walkway Lighting Construction and Material Standards*, a copy of which are included in the Disclosed Data.

1. All luminaires shall be LED.

D. Where shared-use poles “Type 3”, “Type 4”, or “Type 5” are used, pursuant to Table 2-9.8 *[OCS Pole Requirements]* of this Schedule, all in-fill Roadway and pedestrian lighting shall:

1. be provided with poles that are consistent in shape, colour and texture with the applicable shared-use pole; with pedestrian light poles having a constant diameter not exceeding 150 mm; and

2. include LED luminaires, lighting control cabinets, lighting controller bases, photo cells, receptacles, and surge suppression that comply with the *Valley Line Road and Walkway Lighting Construction and Material Standards*, a copy of which are included in the Disclosed Data.

E. Light standards along SUPs shall be installed with a clear distance of nominally 600mm between the light pole and the edge of the SUP.

F. Do not provide walkway light standards for SUPs lit by Roadway light standards, unless required illuminance cannot be achieved without additional walkway light standards.

G. Lighting of the SUP of the Tawatinâ Bridge and of the Kâhasinîskâk Bridge shall be achieved by means of LED lighting integrated with the Protection Railings.

H. Provide lighting on all Elevated Guideways and the Quarters Tunnel, including the 102 Avenue Tunnel Approach and the North River Bank Tunnel Approach, with illumination for safe evacuation of Passengers in case of an emergency in accordance with NFPA-130; lighting shall be integrated into the Structures and shall not be surface mounted, except in the Quarters Tunnel; on Elevated Guideways lighting shall be incorporated into the curbs as schematically shown in Figures 2-4.5.3.2 *[Elevated Guideway OH&S Protection Railing]* and Figure 2-4.5.3.4 *[LRV Collision Barrier].*

I. Maintain uniform spacing and luminance where lighting is provided on both sides of the Roadway.

J. Provide lighting in the Quarters Tunnel, the 102 Avenue Tunnel Approach, and the North River Bank Tunnel Approach, with transitional illumination to allow the Driver's adaptation between daylight to tunnel, and tunnel to daylight. The length of threshold/transition lighting shall be based on the Maximum Operating Speed and the corresponding safe stopping distance, and shall consider applicable recommended practices contained within ANSI/IES RP-22 *Tunnel Lighting*; lighting shall be integrated into the Structures and shall not be surface mounted, except in the Quarters Tunnel.

K. Provide the following maintained illuminance levels at ground of PPZ:

1. minimum average horizontal of 20 lux, with a uniformity ratio of 4:1 (average to minimum); and

2. minimum average vertical of 10 lux.

L. In addition to the requirements of Sections 2-6.2B to 2-6.2K, lighting in Louise McKinney Riverfront Park shall comply with the following:

1. Install NFM LP4300 pedestrian light standards in locations indicated on the River Valley Landscape Drawings.

   a. Light base construction shall be in compliance with drawing SEW-2200-01-AL-PE-504.

   b. Existing NFM LP4300 pedestrian light standards may be reused.

   c. New NFM LP4300 pedestrian light standards shall match existing NFM LP4300 pedestrian light standards, including overall quality, shape, materials, surface finishes, light fixtures, and illuminance levels.

2. Remove and store all existing bollard lights as identified on drawing SEW-2200-01-AL-PE-504. Bollard lights shall be reinstalled in locations indicated on River Valley Landscape Drawings. Provide bollards, as required, to match existing bollards.

M. In addition to the requirements of Sections 2-6.2B to 2-6.2K, provide walkway light standards:

1. in Henrietta Muir Edwards Park as shown in the River Valley Landscape Drawing SEW-2200-01-AL-PE-601; and

2. adjacent to the Muttart Stop as shown in the River Valley Landscape Drawing SEW-2200-01-AL-PE-608.

2-6.3 STOP AND STATION LIGHTING

A. This Section 2-6.3 *[Stop and Station Lighting]* sets out the requirements for lighting at Davies Station, the Churchill Connector and all Stops.

B. Lighting for Stops and Stations shall be visually integrated with Canopy structures and associated ceiling treatments at a consistent datum that implies a continuous visual surface and conceals the lighting infrastructure. All lighting systems shall be coordinated with architectural, landscaping, and signage designs.

C. Lighting fixture colour rendering temperature shall be consistent throughout the Infrastructure and shall be between 2,900K and 3,100K.

D. Lighting levels shall define and differentiate between task areas, decision and transition points, Platform edges and areas of potential hazard. Lighting design shall minimize glare and provide uniform distribution of illumination. Luminaires shall be selected, located, and aimed to accomplish their primary purpose while producing a minimum of objectionable glare and interference with task accuracy, vehicular traffic, and neighbouring areas.

E. Provide maintained horizontal illuminance levels at the Churchill Connector and Davies Station meeting the criteria listed in Table 2-6.3 *[Maintained Horizontal Illuminance Levels for Interior Spaces at the Churchill Connector and Davies Station]*.

Table 2-6.3 – Maintained Horizontal Illuminance Levels for Interior Spaces at the Churchill Connector and Davies Station

Location	Minimum Average (Lux)	Uniformity (Ave./Min.)	Emergency (Lux)
All Areas not Identified Below	200	3 : 1	10
Ticket/Information Kiosk	300	2.5 : 1	10
Stairs, Ramps, Escalators	200	2 : 1	10
Pedestrian Tunnels and Concourse	100	2.5 : 1	10
Designated Waiting Areas	220	3 : 1	10
Washrooms	300	3 : 1	10

F. Notwithstanding Section 2-6.2K.1 *[Right of Way Lighting]*, the maintained minimum average horizontal illuminance at ground level of Stop Platforms and at bicycle parking locations shall be 30 lux.

2-6.4 DAVIES TRANSIT CENTRE AND PARK'N'RIDE LIGHTING

A. This Section 2-6.4 *[Davies Transit Centre and Park'n'Ride Lighting]* sets out the requirements for lighting at the Davies Transit Centre and Davies Park'n'Ride.

B. Provide lighting systems at:

1. bus loading/unloading areas;
2. Passenger pick-up and drop-off areas (Kiss 'n' Rides);
3. entrances and exits;
4. the parking lot;
5. shelters and waiting areas; and
6. along pedestrian paths.

C. Locate luminaires in parking areas to reduce shadows between rows of automobiles.

D. In covered parking areas the vertical and horizontal luminance shall be such that columns, walls and curbs are clearly emphasized.

E. Provide automatic lighting control devices capable of reducing light levels or being shut off, based on pre-set schedules, occupancy sensors or available measured daylight.

F. Energize all lighting with Utility fed 600/347V AC, or 208/120V AC, 3 phase, 4 wire, 60 Hz.

G. Lighting fixtures shall be LED type with minimum IP65 rating.

SECTION 2-7– PUBLIC ART

A. The City will procure, supply, and subject to Section 2-7H, install all Public Art for the Project.

1. Project Co shall design and construct all supports, including embedded plates, hanging points and connections, for Public Art not integral to the artwork.

B. Public Art meeting the descriptions provided in Table 2-7 *[Public Art],* and more specifically described in the applicable Draft Public Art Call, will be integrated into the Project at the locations described in Table 2-7 *[Public Art].*

Table 2-7– Public Art

Location	Description	Draft Public Art Call Reference	Earliest Installation after Effective Date	Minimum Installation Window (Note1)	Concept Design Provided by City at the latest before Earliest Installation Date
Tawatinâ Bridge	Hanging from underside of bridge girder	TB	30 months	60 Business Days	23 months
	OR				
	Sculptures attached to North River Pier		30 months	60 Business Days	23 months
Davies Station	Hanging from underside of Elevated Guideway in Transit Centre island zone	DS	30 months	60 Business Days	23 months
	OR				
	Wrapping of piers in Transit Centre island zone		30 months	75 Business Days	23 months
	OR				
	Art glass along glazed Station elevations at stairwell/and/or in Station area along Platform		36 months	to be defined by Project Co	29 months

Location	Description	Draft Public Art Call Reference	Earliest Installation after Effective Date	Minimum Installation Window (Note1)	Concept Design Provided by City at the latest before Earliest Installation Date
Churchill Connector	Attached to roof of Churchill Connector sub-vestibule OR Suspended from ceiling of main Churchill Connector pavilion	CC	30 months 30 months	40 Business Days 75 Business Days	23 months 23 months
Davies Elevated Guideway Ramp at 83 Street	Ramp side walls – integrated precast panel design OR Ramp side walls – art applied in situ to precast panels	DR	30 months 30 months	to be defined by Project Co 60 Business Days	23 months 23 months
102 Street Stop	Art glass integrated into Stop Shelter glazing	SG-1	30 months	to be defined by Project Co	23 months
Strathearn Stop		SG-2	30 months	to be defined by Project Co	23 months
Holyrood Stop		SG-3	30 months	to be defined by Project Co	23 months
Bonnie Doon Stop		SG-4	30 months	to be defined by Project Co	23 months
Mill Woods Stop		SG-5	30 months	to be defined by Project Co	23 months
Quarters Stop	Cultural identity and storytelling attached to Stop Canopy roofs	CR-1	24 months	20 Business Days	18 months
Muttart Stop		CR-2	24 months	20 Business Days	18 months
Avonmore Stop		CR-3	24 months	20 Business Days	18 months
Millbourne/Woodvale Stop		CR-4	24 months	20 Business Days	18 months

Location	Description	Draft Public Art Call Reference	Earliest Installation after Effective Date	Minimum Installation Window (Note1)	Concept Design Provided by City at the latest before Earliest Installation Date
Grey Nuns Stop		CR-5	24 months	20 Business Days	18 months
Every Above Ground Utility Complex	Art panels attached to perimeter walls of all above-grade Utility Complexes, designed by Edmonton's Culturally Diverse Artists	UC	20 months	15 Business Days	14 months
Muttart Stop	1 bicycle rack located adjacent to standard bicycle racks	BR	20 months	10 Business Days	14 months
Strathearn Stop	1 bicycle rack located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Holyrood Stop	1 bicycle rack located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Bonnie Doon Stop	2 bicycle racks located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Avonmore Stop	1 bicycle rack located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Davies Station	2 bicycle racks located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Millbourne/Woodvale Stop	1 bicycle rack located adjacent to standard bicycle racks		20 months	10 Business Days	14 months
Grey Nuns Stop	1 bicycle rack located adjacent to standard bicycle racks		20 months	10 Business Days	14 months

Note1: The minimum installation window is the minimum continuous period of time to be allocated in the Public Art Integration Schedule for each Public Art installation.

C. Art bicycle racks will be in addition to the bicycle racks specified in Section 3-2.7 *[Bicycle Parking]* and Section 3-3.3.4 *[Davies Station Bicycle Parking]* of this Schedule.

D. Design and construct the Infrastructure such that it can be safely operated, in compliance with all other requirements set out in this Schedule and the requirements set out in Schedule 7 *[O&M Performance Requirements]*, notwithstanding:

1. any delay in delivery, damage to, incompatibility of, or other unavailability of, any Public Art; and

2. vandalism or other damage to any Public Art, requiring removal and repair or replacement thereof.

For clarity, pursuant to this Section, Project Co shall provide for example standard glass at the Shelters and Davies Station if the applicable Public Art glass is not available to be installed during the applicable installation window.

E. Design the Infrastructure such that any Public Art can be readily accessed, maintained and removed without adverse impact to the Availability of the System.

F. The City will manage and administer its Public Art contracts and manage:

1. all communications with the artists in accordance with Schedule 12 *[Public Communications and Public Engagement]*; and

2. the scheduling and delivery of the Public Art in accordance with Section 4 *[Public Art Integration Schedule]* of Schedule 3 *[Construction Schedule]* and Table 2-7 *[Public Art].*

G. The City will provide Project Co with a concept design for each work of Public Art. The concept design will:

1. be provided for the applicable work of Public Art by the date specified in Table 2-7 *[Public Art];* and

2. include all the information required to be submitted by the artist as set out in the applicable Draft Public Art Call.

H. Project Co shall install the following Public Art:

1. Glazing and glass panels:

a. The City will deliver glazing and glass panels containing Public Art as follows:

i. fully fabricated and assembled in accordance with Project Co's specifications;

ii. to a location specified by Project Co within a radius of 50km from the installation location; and

iii. at the earliest ten (10) Business Days before and at the latest on the delivery date specified by Project Co in the initial Public Art Integration Schedule.

2. The precast panels with integrated Public Art at the Davies Elevated Guideway Ramp at 83 Street.

3. Any other Public Art requested by the City provided that:

a. installation cost for each work of Public Art will be determined through a Change.

b. the Construction Schedule and Public Art Integration Schedule will not be subject to change.

I. For Public Art installed by the City, provide the City with unimpeded and uninterrupted access to the relevant Infrastructure for the Public Art installation window of the applicable Public Art installation as set out in the Public Art Integration Schedule.

J. Upon reasonable request, Project Co shall cause the SUI Leader and other relevant Project Co Persons, to meet with the City's Representative and other City Persons to coordinate the installation and integration of the Public Art into the Infrastructure.

K. To the extent necessary to facilitate the proper integration of Public Art into the Project, Project Co shall, upon reasonable request, provide the City with:

1. access to electronic dwg format files showing the then current state of applicable designs;

2. specifications of materials that Public Art is attached to;

3. access parameters for Public Art locations; and

4. any other information required by the City to provide the Public Art.

L. Project Co shall submit within fifteen (15) days of the Effective Date:

1. all the drawings and images included in the Draft Public Art Calls, updated to reflect Project Co's design, in pdf or jpg format; and

2. any updates to the text in the Draft Public Art Calls, reflecting Project Co's design.

SECTION 2-8– BRANDING

A. The City will maintain responsibility for ETS branding across the ETS Transit Network, including the Valley Line LRT.

B. Project Co shall develop unique Valley Line specific branding, which:

1. must not detract from and shall complement the existing system-wide ETS branding;

2. shall distinguish the Valley Line from the existing ETS Transit Network;

3. must be easily recognizable;

4. must prominently utilize the Valley Line green Pantone 355; and

5. shall be advanced in consultation with the City through Interim Design reviews in accordance with Section 6.8 *[Interim Design Reviews]* of Schedule 4 *[Design and Construction Protocols]*.

C. The Valley Line brand shall support the unique identity of the line through its application on such elements as the LRVs, Stops and Stations, the Valley Line website, communications and engagement materials, and employee uniforms.

SECTION 2-9– SUPPORT SYSTEMS

2-9.1 GENERAL

A. All systems shall be visually integrated into the overall design.

2-9.2 ELECTRICAL BOXES

A. Electrical boxes, such as outlet, pull, or junction boxes, shall be flush mounted and their form and colour shall be integrated into the architecture of the surface they are mounted to.

2-9.3 CONDUIT AND CABLES

A. All conduit and cables at Stops, Davies Station, Churchill Connector, any shelters, Utility Complex screening walls, and Transportation Structure shall be concealed within structural elements or behind wall and ceiling finishes.

2-9.4 WAYSIDE EQUIPMENT ENCLOSURES

A. Wayside Equipment Enclosures shall be designed to integrate into the site context and the Character Zone they are located in.

B. Wayside Equipment Enclosures shall co-locate as many system components as possible to minimize the number of discrete enclosures.

2-9.5 DUCT BANKS

A. Duct banks shall not be visually exposed.

2-9.6 DRAINAGE

A. Longitudinal drainage pipes mounted to Structures and exposed to Public View are not permitted.

B. Drainage up to a 1:5 year storm event shall not outfall onto or drain at-grade across any pedestrian areas.

C. Drains on Elevated Guideways shall be hidden from view from ground level and shall receive a finish that causes them to blend into the structure when viewed from the Elevated Guideway.

D. Drainage downspouts shall be concealed by means of:

1. recesses set back into the smaller width dimension at the face of concrete piers or columns, such that drain pipes are concealed when the pier/column is viewed when looking along the long axis of the superstructure; the colour of the downspouts shall be consistent with the colour of the concrete at the applicable pier/column;

2. running through hollow section columns; or

3. integration into the hangers of the Tawatinâ Bridge SUP.

E. Drainage elements, such as gutters, eaves troughs and rainwater leaders, shall be concealed or integrated into the overall design of the structure.

2-9.7 STANDPIPES

A. Standpipes, where required on Elevated Guideways, shall be concealed by means of:

1. recesses set back into the smaller width dimension at the face of concrete pier columns, such that standpipes are concealed when the column is viewed when looking along the long axis of the superstructure; and

2. running standpipes longitudinally within the superstructure box girder.

B. Standpipes for the Davies Station shall be concealed by means of Utility chaseways, except where access to the standpipe is required by code.

C. Standpipes for the Quarters Tunnel shall not be exposed to Public View, except where access to the standpipe is required by code or when viewed from a Train.

2-9.8 OVERHEAD CATENARY SYSTEM

A. Where the System employs an Overhead Catenary System (OCS), the SUI elements of the OCS shall comply with the requirements set out in this Section 2-9.8 *[Overhead Catenary System].*

B. All OCS structures and associated equipment shall be of lightweight mechanical and structural design.

C. The OCS shall use either a single contact wire or a low profile catenary system, where the contact and messenger wires are not more than 750mm apart.

D. OCS poles shall be mounted between the Tracks, except where clearance constraints do not permit installation between the Tracks. Where installation between the Tracks is not possible due to clearance constraints, OCS poles shall be side mounted.

E. Where OCS poles are side mounted, they shall be combined with lighting and traffic light poles; on 102 Avenue between 97 Street and 102 Street the catenary wires and the traffic lights shall be suspended from wires spanning between the OCS poles.

F. Wires, except for contact wires, messenger wires and wires spanning between two poles, services, conduit, cables, and balance-weights shall be internally concealed in poles and support arms.

G. Subject to Section 4 *[Land Matters]* of the Agreement*,* building fixings may be used instead of poles in order to reduce street clutter.

H. OCS poles shall be free standing, except that a guy and foundation may be used for termination poles not located:

   1. in areas of pedestrian traffic; or

   2. within the Downtown Character Zone.

I. Dead-end masses for guy foundations shall be buried below grade.

J. The spacing of OCS poles on Elevated Guideways shall be:

   1. coordinated such that the nearest OCS pole to a pier or abutment aligns nominally with that pier or abutment when viewed in elevation; and

   2. nominally equal between two adjacent piers or between a pier and an abutment.

K. OCS poles shall be one of the following five types:

   1. **Type 1: Infrastructure Typical** – for use at locations where Type 2, Type 3, Type 4, Type 5 poles are not used;

   2. **Type 2: River Valley Pole** – for use at all locations in the River Valley Character Zone;

   3. **Type 3: Downtown Shared-use Pole** – all side-mounted OCS poles for use in the Downtown Character Zone;

   4. **Type 4: Urban Shared-use Pole –** all side-mounted OCS poles for use outside the Downtown Character Zone; and

   5. **Type 5: Urban Shared-use Pole –** for use:

      a. anywhere along the LRT Corridor as determined by Project Co, except where Type 2 or Type 3 OCS poles are required; and

b. at all locations along:

i. 95 Ave between the intersection at Connors Road and the intersection at 85 St; and

ii. 83 St between the intersection at 81 Ave and the intersection at 77 Ave.

L. The features of each OCS pole type shall be as described in Table 2-9.8 *[OCS Pole Requirements].*

Table 2-9.8: OCS Pole Requirements

OCS Type	Pole Height	Street Lighting	Pedestrian Lighting	Pole Cap	Accent Light	Pole Base Cover	Neighbor-hood Banner Support
Type 1: Infrastructure Typical Pole (centre mounted)	typical	not applicable	not applicable	Standard Dome	not required	not required	not required
Type 2: River Valley Pole (centre mounted)	extended	not applicable	not applicable	Accent Lighting	required	required	not required
Type 3: Downtown Shared-Use Pole (side-mounted)	shared-use	included	included (if required)	Custom	not required	not required	required
Type 4: Urban Shared-Use Pole (side-mounted)	shared-use	included	included (if required)	Standard Dome	not required	not required	not required
Type 5: Urban Shared-Use Pole (centre-mounted)	shared-use	included	included (if required)	Standard Dome	not required	not required	not required

M. All OCS poles shall:

1. be galvanized closed steel section;
2. be circular;
3. have a taper from ground up resulting in a reduction in radius of nominally 6mm per metre, except for balance weight anchor poles, which may be straight;
4. have either a typical, extended, or shared-use pole height as specified in Table 2-9.8 *[OCS Pole Requirements]* and as follows:
   a. the typical pole height shall be as functionally required for center-running OCS support arms;
   b. the extended pole height shall be an additional 2.5 m above the height of the typical pole; and
   c. the shared-use pole height shall be as functionally required by OCS, lighting, and traffic light requirements, with all poles of the shared-use type within an Opportunity Area having the same height; and

5. have the same diameter, except for balance weight anchor poles which may have a different diameter.

N. Pole access panels shall be located near the base of the pole and with the bottom of the access panel not being higher than 300mm from the base of the pole.

O. Where the OCS pole is surrounded by hardscaping, such as sidewalks and Platforms:

1. the top of the pole foundation shall be within +/- 5mm of the level of the surrounding hardscaping anywhere around the pole foundation; or

2. shall be sufficiently recessed so that hardscaping extends to the pole base and:

a. no cracks or ledges occur in the hardscaping; and

b. differential settlements within 1 m of the pole are smaller than 5mm.

P. Where OCS pole base covers are required according to Table 2-9.8 *[OCS Pole Requirements]* the covers shall:

1. match the shape shown in Figure 2-9.8 *[OCS Pole Architectural Features];*

2. extend nominally 900mm above the base plate of the pole or nominally 60mm above the top edge of the pole access panel, whichever is greater; and

3. have a radius at the outer edge of the top of the cover nominally 50mm greater than the radius of the pole at the height of the top of the cover.

Q. OCS pole base covers are not required on poles located on a Platform.

R. OCS poles shall have either a standard dome, a custom or an accent lighting pole cap, as specified in Table 2-9.8 *[OCS Pole Requirements].*

S. OCS pole caps shall be as shown in Figure 2-9.8 *[OCS Pole Architectural Features]:*

1. accent lighting pole caps shall be cylindrical, and offset from the pole diameter to allow space to accommodate an LED accent light meeting the following requirements:

a. LED accent lighting shall be bright enough to visibly wash 1.5m of the pole surface below, under typical night urban light levels

b. LED accent lighting pocket shall be deep enough that the LED light source is not visible from any radius greater than 2m from the pole base

2. custom pole caps shall be the same as the accent lighting pole caps, except that no LED accent light needs to be provided.

T. OCS pole base covers and pole caps shall match the material, colour, and finish of the OCS pole.

U. OCS support arms shall be the same across the System.

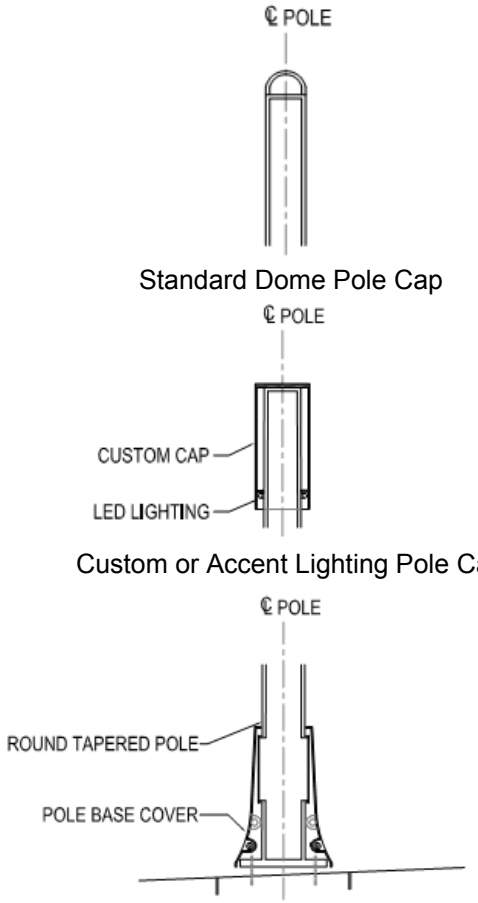


Figure 2-9.8: OCS Pole Architectural Features

V. In the Downtown Character Zone, provide neighbourhood banner supports for all OCS and in-fill Roadway light poles not adjacent to a Roadway, and to all pedestrian light poles that are in line transversely to the LRT Corridor with an OCS or in-fill Roadway light pole. The banner supports shall:

    1. be integrated with the pedestrian light arms, where provided, or provided by an arm consistent in shape and size with the pedestrian light arms, at the same height as pedestrian light arms; and

    2. provide a lower demountable banner support to accommodate banners with a maximum size of 1.40m wide and 2.15m long and:

        a. be at least 3.0m above the grade around the pole;

        b. be adjustable such that a minimum banner length of 1.35m can be accommodated; and

        c. provide fasteners that are concealed and comply with all other SUI principles regarding shared use and integration of components.

W. OCS protection screening, where demonstrated to be necessary by the Safety and Security Certification Program, shall be visually light, simple, and integrate aesthetically with the Structure to which the screening is affixed.

2-9.9 UTILITY COMPLEXES

A. This Section 2-9.9 [Utility Complexes] sets out the SUI requirements for Utility Complexes.

B. If any Utility Complexes are required within the NSRV, they shall only be located as follows:

1. above-grade on 95 Street, at the location shown in Appendix 5-1A *[Project Description Drawings]* of this Schedule, or below-grade fully integrated with the North River Bank Cut and Cover Tunnel between the two Tracks with opaque openings in the portal head wall (the "***95 Street Utility Complex***"); and

2. above-grade, close to the Muttart Stop, at the location shown in Appendix 5-1A *[Project Description Drawings]* of this Schedule (the "***Muttart Utility Complex***").

C. Above-grade Utility Complexes shall be provided with perimeter walls on all sides of the Utility Complex to ensure their integration with the applicable Character Zone and Opportunity Area.

D. Utility Complex perimeter walls shall be of a constant height along the entire perimeter, except for the 95 Street Utility Complex and the Muttart Utility Complex, which may have varying perimeter wall heights.

E. Utility Complex perimeter walls shall be positioned to minimize the Utility Complex's visual presence.

F. All Utility Complex perimeter walls shall have an exterior cladding of brick; the colour of the brick cladding shall be selected to integrate into the applicable Character Zone.

G. Openings in Utility Complex perimeter walls, such as doors, shall have a wood finish on the publically visible face; the colour of the wood finish shall be selected to integrate with the brick colour and the surrounding area.

H. Utility Complex perimeter walls shall extend at least 600mm above the highest point of all Infrastructure within the perimeter walls.

I. In addition to the requirements of the previous sections, the above-grade 95 Street Utility Complex and the Muttart Utility Complex, if provided, shall have a roof covering the area encompassed by the perimeter walls.

J. If the Muttart Utility Complex is part of the System, its perimeter walls and roof shall use nominally the same materials, colours, textures, and roof shape as the Muttart Storage Building, and shall be oriented to complement the Muttart Storage Building.

K. The material and colour of the roof of the above-grade 95 Street Utility Complex shall reflect the park-like context of the site.

L. Fixed mounted engine generators, if provided, shall be completely enclosed in a weatherproof/sound attenuated enclosure, with critical grade silencing suitable for residential installation, and in compliance with NEMA/IEC enclosure/environmental protection standards.

M. If a Utility Complex is required between the intersection of 66 Street and 31 Avenue and the intersection of 55 Street and 28 Avenue, it shall be located south of the Mill Woods Stop at the location shown in Appendix 5-1A *[Project Description Drawings]* of this Schedule.

N. If the above-grade 95 Street Utility Complex is part of the System, all aspects of its Design and Construction shall comply with the requirements for zone RA8 as set out in the City of Edmonton Zoning Bylaw 12800.

2-9.10 VEHICLE ARRESTORS

A. Where vehicle arrestors are required pursuant to Section 3-1.3.7 *[Vehicle Overrun Protection]* of this Schedule, they shall respond to, and be integrated with, the site context and the Character Zone.

SECTION 2-10– STOPS AND STATIONS

2-10.1 INTRODUCTION

A. Section 2-10.2 *[General Stop and Station Integration]* of this Schedule sets out the general SUI requirements applicable to all Stops and Stations, including the design elements that may be varied between Stops. Section 2-10.3 *[Stop Specific Requirements]* of this Schedule sets out additional SUI requirements that are specific to individual Stops and Stations.

2-10.2 GENERAL STOP AND STATION INTEGRATION

2-10.2.1 Design Context

A. The Stops and Stations, together with the LRV, are the primary interfaces between the public and the System. Accordingly, each Stop and Station shall be designed to optimize the user experience and integrate into its urban context, such that it presents a positive contribution to the built environment for Passengers, as well as neighbours, and passersby.

B. As further specified in this Section 2-10.2 *[General Stop and Station Integration]*, each Stop and Station shall:

1. be “pedestrian first” and include intuitive wayfinding and provisions for a comfortable user experience, taking into account Edmonton’s winter climate;

2. include the Canopy type specified in Table 2-10.2.3 *[Stop PI Theme and Canopy Type for each Stop and Station]*;

3. include customized Platform elements and decorative finishes to provide a coordinated Stop aesthetic in order to express the applicable Stop PI Theme set out in Table 2-10.2.3 *[Stop PI Theme and Canopy Type for each Stop and Station];*

4. be consistent with the Stop PI Themes;

5. achieve a coherent and uncluttered appearance through the integration of all infrastructure, including signage and Passenger Interface Equipment, into the fewest possible visible elements;

6. have a composed and tightly coordinated arrangement of all Platform elements; and

7. have elements, such as stairs, escalators, seating, Ticket Vending Machines and waste and recycling receptacles, placed in locations that direct and aid Passengers in accessing and travelling through the Stop or Station.

C. The Stop PI Themes are as follows:

1. **Contemporary Park:** Home to natural features such as parks, trails, SUPs and other recreational amenities, these areas tend to be dominated by landscaping, with low-density residential developments set back from the street, thus contributing to the park-like setting. Contemporary Park design shall be consistent with the naturalistic and rustic character of the area.

2. **Transitional/Traditional:** Functioning as an interface between the Contemporary Park and Contemporary Urban theme areas, these areas are characterized by low-density suburban developments in landscaped settings, with pockets of marginally higher activity and mixed use at

major intersections. Transitional/Traditional designs shall address the hybrid nature of such areas in a cohesive manner.

3. **Contemporary Urban:** Characterized by high-density and a mix of uses and given their location, Contemporary Urban Stops and Stations will experience higher levels of regular usage and activity. Contemporary Urban design shall reflect a modern high-use setting.

2-10.2.2 Design Constants and Variables

A. The design of each Stop and Station shall include a combination of elements that are constant across all Stops and Stations, and elements that are customized to reflect the relevant Stop PI Theme. Only the elements set out in Section 5-2.4 *[Stop Design Variables]* of this Schedule may be varied between Stops. Design variable Stop elements as follows:

1. varying all elements identified as variable is not compulsory; however, Stop PI Theme-responsive design variation is required;

2. Stop PI Themes shall be clearly differentiated from one another; and

3. all Stops with the same Stop PI Theme shall be similar, and identifiable as being of the same Stop PI Theme.

2-10.2.3 Canopies

A. Each Platform shall include Canopies meeting the requirements of Section 5-2.8.6 *[Canopies]* of this Schedule.

B. Stop Canopies shall be of either “Urban” or “Neighbourhood” style, as specified in Table 2-10.2.3 *[Stop PI Theme and Canopy Type for each Stop and Station].*

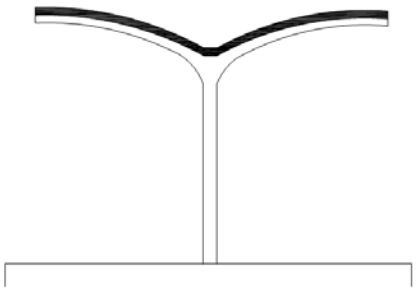
C. The Davies Station Canopy shall be as shown in Figure 2-10.2.3 *[Stop and Station Canopies].*

Table 2-10.2.3: Stop PI Theme and Canopy Type for each Stop and Station

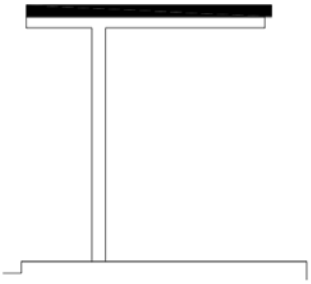
Stop/Station	Stop PI Theme	Canopy Type
102 Street	Contemporary Urban	Urban
Churchill	Contemporary Urban	Urban
Quarters	Contemporary Urban	Urban
Muttart	Contemporary Park	Neighbourhood
Strathearn	Transitional/Traditional	Neighbourhood
Holyrood	Transitional/Traditional	Neighbourhood
Bonnie Doon	Transitional/Traditional	Neighbourhood
Avonmore	Transitional/Traditional	Neighbourhood
Davies	Contemporary Urban	Special Case
Millbourne/Woodvale	Contemporary Park	Neighbourhood

Stop/Station	Stop PI Theme	Canopy Type
Grey Nuns	Contemporary Park	Neighbourhood
Mill Woods	Contemporary Park	Neighbourhood

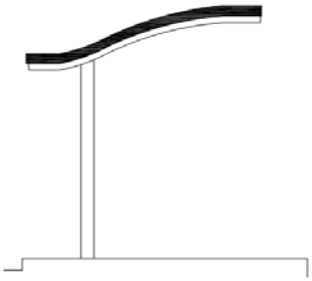
D. The indicative profile of each Canopy type is shown in Figure 2-10.2.3 *[Stop and Station Canopies].*



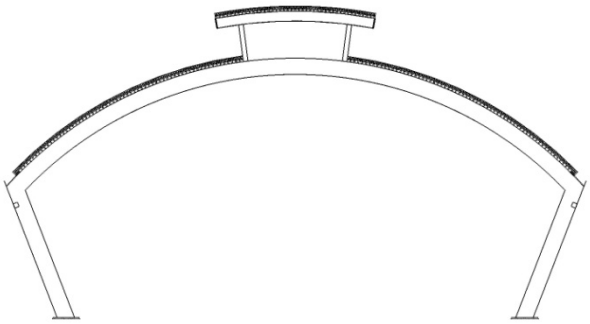
Neighbourhood Canopy at Mill Woods Stop



Urban Canopy



Typical Neighbourhood Canopy



Davies Station Canopy

Figure 2-10.2.3: Stop and Station Canopies

E. All Canopies, with the exception of the Davies Station Canopy, shall:

1. be supported by a single row of steel columns spaced at a minimum of 3000mm on centre, with cantilevering steel beams at each column location:

   a. the Mill Woods Stop Canopies shall be nominally aligned with the midpoint of the short plan dimension of the Platform. The steel beams shall be cantilevered symmetrically to either side at each column location; and

   b. neighbourhood Canopies on side-loading Stop Platforms shall have a single steel beam cantilevering at each column; column location shall be at the non-Track side edge of the Platform;

2. have the same cross section shape for all columns and beams;

3. have a uniform finish on all Canopy structural members within a given Stop PI Theme; and

4. be composed of structural members that allow for concealed service runs.

2-10.2.3.1 Neighbourhood Canopy

A. Neighbourhood Canopies shall:

1. have a metal roofing system designed to accommodate water shedding to integrated gutters and rain water leaders;

2. have a soffit made entirely out of wood with a colour consistent with the colour of other wood elements at the Stop;

3. have no visible connections between the wood soffit and the steel structure;

4. have a curved profile when viewed in section as shown in Figure 2-10.2.3 *[Stop and Station Canopies];* and

5. provide up-lighting to softly and evenly illuminate the wood soffit at night.

2-10.2.3.2 Urban Canopy

A. Urban Canopies shall:

1. be nominally flat, as indicated in Figure 2-10.2.3 *[Stop and Station Canopies],* with a roof slope away from the Track edge of no more than 2%;

2. have a mullion-less structural silicone glazing roof connected to the steel beam structure by point-connected fittings;

3. accommodate water shedding to integrated gutters and rain water leaders; and

4. include tinting, etching, or fritting glazing treatments to achieve a nominal translucency of 50% light transmission.

2-10.2.4 Enclosed Shelters

A. Each Stop Platform shall include enclosed Shelters meeting the requirements of Section 5-2.8.7 *[Shelters]* of this Schedule.

B. Glass for vertical glazing panels may incorporate decorative applications associated with the Character Zone, Opportunity Area or Stop PI Theme provided such applications comply with CPTED requirements.

2-10.2.5 Seating

A. Provide seating on each Stop Platform in accordance with Section 5-2.8.8 *[Seating]* and the Stop PI Theme except that seating in Shelters shall be complementary to the Shelter design.

2-10.2.6 Leaning Rails

A. Provide leaning rails on each Stop Platform in accordance with Section 5-2.8.9 *[Leaning Rails].*

B. The form and colour of leaning rails shall complement the form and colour of the seating provided on the same Platform.

2-10.2.7 Waste and Recycling Receptacles

A. Provide waste and recycling receptacles on each Stop Platform in accordance with Section 5-2.8.10 *[Waste and Recycling Receptacles]* of this Schedule and the Stop PI Theme.

2-10.2.8 Protection Railings

A. Protection Railings shall meet the requirements of Section 2-4.5.3 *[Safety Barriers].*

B. Protection Railings and other obstructions are not permitted between a Platform and a sidewalk or SUP.

2-10.2.9 Platform Paving Material

A. The finish of Platform paving materials shall comply with the requirements of Section 2-4.2 *[Streetscape].*

B. The Platform paving material may be customized by use of scoring, colouring, or stamping in order to express the applicable Stop PI Theme, Character Zone and Opportunity Area.

2-10.2.10 Bicycle Racks

A. Bicycle racks shall be free standing, U-shaped galvanized or stainless steel circular tubes, with the top of the rack at roughly 750 mm above ground. One (1) rack shall accommodate two (2) bicycles.

2-10.3 STOP SPECIFIC REQUIREMENTS

2-10.3.1 102 Street Stop

A. The 102 Street Stop is the downtown terminus for the System.

B. Crosswalks and sidewalks at the 102 Street Stop will serve high volumes of transit users and pedestrians, which combined with the constrained width in this part of the LRT Corridor places a high priority on the free-flow of pedestrian movement and on the quality of the urban streetscape.

C. If the 102 Street Stop has side-loading Platforms:

1. the south Platform of the 102 Street Stop shall be a typical side Platform;

2. the north Platform of the 102 Street Stop shall be integrated with the existing north sidewalk adjacent to the south facade of City Centre Mall and as follows:

   a. all OCS and lighting poles and structural support for Canopies and Passenger Interface Equipment shall be coordinated with existing building elements, either by relating new columns and poles to existing columns in the City Centre Mall facade, or, subject to Section 4 *[Land Matters]* of the Project Agreement*,* by fixing the Canopy structure to the existing building; and

   b. Structures, furnishings, poles, and other Stop elements on the north Platform shall be positioned so as to:

      i. maximize the Pedestrian Clear Width;

      ii. maintain accessibility to all existing entrances to City Centre Mall;

      iii. compositionally relate to façade features of the City Centre Mall; and

      iv. not compromise Platform functionality.

2-10.3.2 Churchill Stop

A. The Churchill Stop is part of the Sir Winston Churchill Square complex that includes the Churchill Connector.

B. Crosswalks and sidewalks at the Churchill Stop will serve high volumes of transit users and pedestrians, which combined with the constrained width in this part of the LRT Corridor places a high priority on the free-flow of pedestrian movement and on the quality of the urban streetscape.

C. The Churchill Stop shall be integrated with the existing fabric of Sir Winston Churchill Square, including the existing South Pavilion adjacent to the Stop, and with the Churchill Connector.

D. The north Platform of the Churchill Stop shall be integrated with the existing north sidewalk and the Sir Winston Churchill Square plaza and as follows:

1. All OCS and lighting poles and structural supports for the Canopy and Passenger Interface Equipment shall be coordinated with existing building elements, either by relating new columns and poles to existing columns of the South Pavilion or, subject to Section 4 *[Land Matters]* of the Agreement, by fixing the Canopy structure to the existing building.

2. The existing Sir Winston Churchill Square paving material, pattern and colouring shall be retained and extended across the north Platform to the start of the tactile attention indicator.

3. Structures, furnishings, poles, and other Stop elements on the north Platform shall be positioned so as to:

   a. maximize the Pedestrian Clear Width;

   b. maintain accessibility to all existing entrances to the South Pavilion and new entrances to the Churchill Connector;

   c. compositionally relate to façade features of the South Pavilion; and

   d. not compromise Platform functionality.

E. The south Platform of the Churchill Stop shall be a typical side Platform.

2-10.3.3 Churchill Connector

A. The Churchill Connector is located at the south-east corner of Sir Winston Churchill Square, which is one of the most prominent spaces in Edmonton for festivals and community activities; as such, the massing of the Churchill Connector shall be designed and constructed to keep the Sir Winston Churchill Square as open as possible.

B. The Churchill Connector shall:

1. provide a transit user experience that is safe, convenient, and comfortable at any hour the Churchill Connector is accessible to the public and in all weather;

2. create a seamless, Barrier-Free connection between:

   a. the Churchill Stop and the Existing Churchill Station;

   b. the Churchill Stop and Sir Winston Churchill Square; and

   c. the Existing Churchill Station and Sir Winston Churchill Square.

3. achieve a formal, architectural cohesion with the adjacent and abutting South Pavilion as both an extension of, and counterpoint to, that building: as an extension, through similarities in plan and section geometries; and as a counterpoint, through relatively greater amounts of glazing and overall transparency; and

4. integrate and coordinate the at- and below-grade enclosures and circulation elements with the existing fabric of Sir Winston Churchill Square in a manner that reinforces the key architectural, landscape, and urban design qualities of that space in terms of materials and organizing geometries.

C. The form, scale, materials, and overall quality of the Churchill Connector shall be complementary to the existing buildings of Sir Winston Churchill Square including: City Hall, the nearby clock tower, "story poles", and other nearby heritage and donor elements.

D. The above grade structures of the Churchill Connector (the Churchill Connector sub-vestibule and the main Churchill Connector pavilion, each as described in Section 5-2.13 *[Churchill Connector]* of this Schedule*)* shall use exterior window vision glazing, providing the highest levels of transparency and lowest levels of reflectance achievable:

1. to allow ready and convenient passive or natural surveillance of the Churchill Connector by facility users and passersby through unimpeded visibility into and out of the Churchill Connector under all lighting conditions;

2. to provide a visually open connection between the Churchill Stop north Platform and Sir Winston Churchill Square; and

3. to achieve year-round day lighting, on average, for at least 15% of the below-grade vestibule floor area to a minimum light level of 3 lux when measured 1500 mm above the vestibule floor at the solar noon azimuth.

2-10.3.4 Quarters Stop

A. The Quarters Stop is located within the area covered by the City's Quarters Area Redevelopment Plan.

B. The constrained width of the LRT Corridor at the Quarters Stop places a high priority on the free-flow of pedestrian movement and on the quality of the urban streetscape, particularly on the south Platform.

C. The north Platform of the Quarters Stop shall be a typical side Platform.

D. The south Platform of the Quarters Stop shall be integrated with the existing south sidewalk and as follows:

1. all OCS and lighting poles and structural supports for Canopies and Passenger Interface Equipment on the south Platform shall be coordinated with existing building elements, by relating new columns and poles to the existing building façade; and

2. Structures, furnishings, poles, and other Stop elements on the south Platform shall be positioned so as to:

   a. maximize the Pedestrian Clear Width;

   b. maintain accessibility to all existing entrances to the existing adjacent building;

   c. compositionally relate to façade features of the existing adjacent building; and

   d. not compromise Platform functionality.

2-10.3.5 Davies Station, Transit Centre, and Park'n'Ride

A. Davies Station is a three-storey structure encompassing approximately 1,200 m^2 of enclosed space on three (3) levels, with the Platform(s) on the top level.

B. Davies Station is integrated with the Davies Transit Centre and Davies Park'n'Ride.

C. The design of Davies Station shall optimize pedestrian flow within the Station, but shall also take into account pedestrian flows for two (2) future grade-separated pedestrian walkways tying into the L2 Mezzanine level and linking Davies Station to future TOD on both sides of the Trackway.

D. The design of the Platform level at Davies Station shall be open with minimal sight-line obstructions along the Platform(s).

E. The design of Davies Station shall incorporate architectural features that visually reinforce Passenger egress points and vertical circulation systems, from within the Station and from the exterior.

F. Davies Station's architecture shall incorporate curved "floating" roof motifs, in accordance with Figure 2-10.3.5 *[Davies Station Canopy]*, intersected by the transparent glass enclosure of the Station.

G. The Canopy shall nominally be as shown in Figure 2-10.3.5 *[Davies Station Canopy]* and shall comply with the following:

1. steel arch ribs, spaced at a minimum of 5000 mm on centre, shall provide the primary structural support of the Canopy;

2. at a minimum the underside of the steel arch ribs shall be exposed to view and all exposed to view surfaces of the steel arch ribs shall be AESS closed sections and be considered "feature" or "showcase" elements;

3. the arch ribs shall have a maximum radius of 12.5m;

4. a symmetrical clerestory for natural light penetration shall be provided along the full length of the Platform;

5. the clerestory shall be supported by closed steel sections, which in turn shall be supported on the arch ribs;

6. the roof deck shall consist entirely of structural heavy timber construction and shall:

   a. span without additional supports between or over the arch ribs;

   b. span without additional supports between or over the clerestory supports;

   c. be exposed to form the entire soffit between each arch rib and the clerestory supports; and

   d. be constructed in accordance with Section 5-2.11.2 *[Heavy Timber Construction]* of this Schedule; and

7. the full circumference of the Canopy shall be enclosed, except for the clerestory, the ends of the Canopy perpendicular to the Track, and as set out in Section 5-2.12.6.3 *[General Station Requirements]* of this Schedule.

H. Concrete, glass, wood and steel shall provide the Station's primary architectural finishes.

I. OCS poles are not permitted in Davies Station.

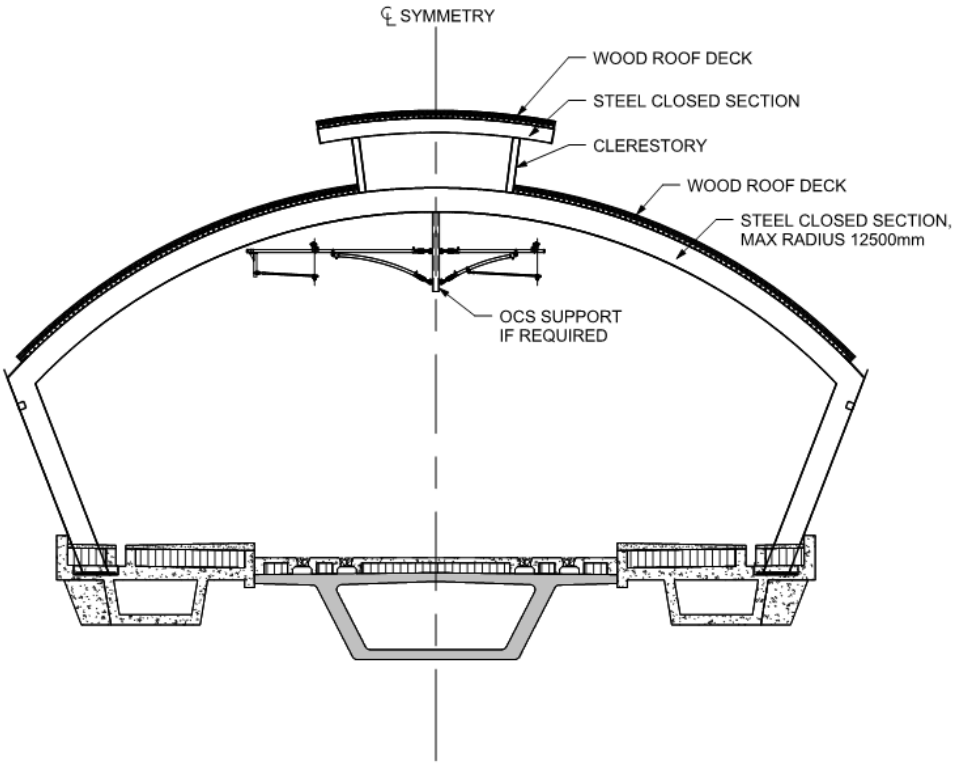


Figure 2-10.3.5: Davies Station Canopy

J. All amenities, such as waste and recycling receptacles and benches shall be integrated with the overall design of the Davies Station and be consistent in quality to the amenities at the Stops.

K. The shelters on the Davies Transit Centre platforms and all amenities, such as waste and recycling receptacles, benches, and bicycle racks, on the Davies Site shall be integrated with the overall site context and be consistent in quality to the shelters and amenities at the Stops.

SECTION 2-11– STRUCTURES

2-11.1 GENERAL

A. The overall configuration of each Building Structure and Transportation Structure shall reflect a simple elegance without the use of applied decoration.

B. Details, wall textures, and colour shall incorporate and reflect the applicable Character Zone and Opportunity Area within which the Building Structure and Transportation Structure is located.

C. Elements, such as Protection Railings, reveals and shadow lines shall be consistent and flow together to provide visual continuity, particularly at transitions between Structures and at terminations.

D. Transitions in superstructure width shall either occur gradually with a slope of 1 short dimension to at least 4 long dimensions or be integrated into the design of the pier or, where permitted, the straddle bent.

E. Transitions in superstructure depth shall:

1. maintain the continuity of the line formed by the topmost element at the Structure's edge (either girder or barrier), and the bottommost element at the Structure's edge (girder soffit) and shall

have a slope of 1 short dimension to at least 4 long dimensions in elevation of the topmost and bottommost lines; or

2. be integrated into the design of the pier or, where permitted, the straddle bent.

F. Staining, including corrosion staining, of exposed to view concrete surfaces shall not be permitted.

G. Provide curtain walls at Elevated Guideway and bridge abutment locations to cover the entire area from:

1. the front of the abutment seat to;

a. the abutment backwall, for Structures without a Ramp; and

b. the low point of the Ramp, for Structures with a Ramp;

2. from bottom of the abutment seat to top of the abutment seat, when viewed perpendicular to the Elevated Guideway or bridge; and

3. from the top of the abutment seat to the underside of deck when viewed parallel to the Elevated Guideway or bridge.

H. Any above-grade portions of the Trackway and/or the SUP along Connors Road shall be screened by a curtain wall with the outside face of the curtain wall being within 500 mm of the edge of the Structure.

I. If bearings are exposed to view when the Elevated Guideway or bridge is viewed in elevation, the top of adjacent bearing pedestals shall be at nominally equal height to each other.

J. The line formed by the soffit of an Elevated Guideway or a bridge, when viewed in elevation, shall be visually continuous, with no steps.

K. Open box girder ends are not permitted.

L. Deck overhangs on Elevated Guideways shall be integrated into the deck Structure and shall transition smoothly along the deck edge by use of tapers in plan, as shown in Figure 2-11.1 *[Elevated Guideway Deck Overhang].*

1. Structural reinforcements if required at deck overhangs shall be incorporated into the overall design of the Elevated Guideway.

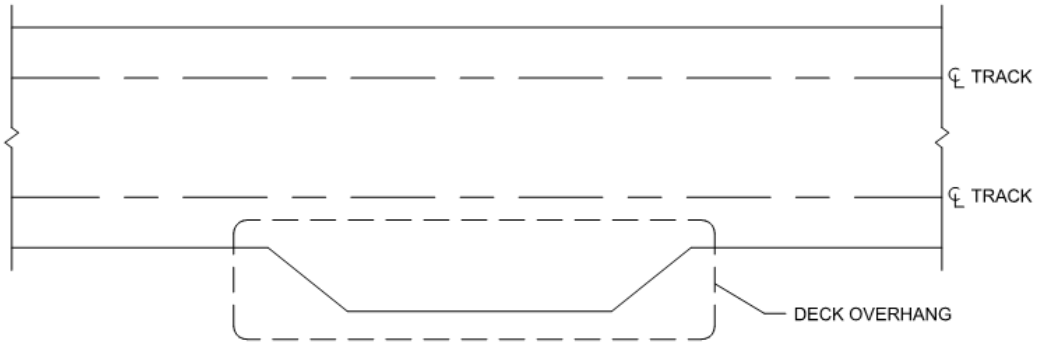


Figure 2-11.1 : Elevated Guideway Deck Overhang

M. Straddle bents are not permitted, except within the length of the Platforms at the Davies Station. For the purpose of this Agreement, a straddle bent shall mean any girder support consisting of two or more pier columns capped by a beam which in turn supports the superstructure girder.

N. The height of the Ramps:

1. immediately north of the Muttart Stop shall be no more than 6 m measured from adjacent grade to top of rail; and

2. at both ends of the Davies Elevated Guideway shall be no more than 5 m measured from adjacent grade to top of rail.

O. The exposed clear distance between grade and the soffit of an Elevated Guideway or bridge shall be at least 1.5m.

P. For concrete box girders, provide radiused corners at the visible web to soffit and web to deck intersections with a minimum radius of 100mm.

Q. Emergency egress/maintenance pathways on Elevated Guideways shall be integrated into the deck cross-section; pathways overhanging the outside of girders are not permitted.

R. If the design contains any Elevated Guideways, including piers, in addition to the Tawatinâ Bridge, the South River Valley Elevated Guideway, the Davies Elevated Guideway and the Whitemud Drive LRT Bridge, their form and materiality shall be consistent with the Davies Elevated Guideway.

S. Dampers, if required anywhere to control vibrations, shall be fully concealed.

T. Noise shields, if required on Elevated Guideways, shall be fully integrated with the Protection Railing or collision barrier, as applicable.

U. For Elevated Guideways, the elevation difference from the top of the lowest rail to the top of the Protection Railing, the collision barrier, or the superstructure for Structures with through primary load carrying members, shall not exceed 1260mm.

2-11.2 FINISH OF EXPOSED STRUCTURE SURFACES

2-11.2.1 Concrete Finish

2-11.2.1.1 General

A. For the purpose of this Section 2-11.2.1 *[Concrete Finish],* "***Architectural Concrete***" means all exposed to view concrete surfaces of Building Structures.

B. Architectural Concrete shall comply with Section 2-11.2.1.2 *[Architectural Concrete]* of this Schedule.

C. Exposed to view concrete finishes for Transportation Structures shall comply with Section 4-4.4.21 *[Concrete Surface]* of this Schedule.

D. Notwithstanding Sections 2-11.2.1.1A to C, top surfaces of sidewalks, Platforms, and Trackways shall comply with the requirements set out in Section 2-4.2 *[Streetscape].*

2-11.2.1.2 Architectural Concrete

A. Architectural Concrete shall comply with ACI 303R Guide to Cast-in-Place Architectural Concrete Practice.

B. Architectural Concrete shall as a minimum:

1. have dense concrete finishes, free of deficiencies as set out in Section 4-4.4.20 *[Concrete Deficiencies or Early Handover Deficiencies]* of this Schedule, such as deep or extreme honeycombing, inconsistencies in plane, cold joint lines and loss of fines;

2. be uniform in colour;

3. exhibit sharp, accurate definition at corners, generally free of chipped or spalled areas;

4. have plane surfaces without protuberances, indentations, ridges or bulges; and

5. comply with the tolerances specified in ACI 347 *Guide for Formwork of Concrete*:

   a. use Class A for surfaces within 3600mm proximity of pedestrians;

   b. use Class B for surfaces between 3600mm and 6000mm of pedestrians; and

   c. use Class C for finishes more than 6000mm away from pedestrians, and for rough or textured formwork or surface treatments at any height.

C. Finish tops of walls, horizontal offsets and similar unformed surfaces adjacent to formed Architectural Concrete surfaces trowelled smooth or with pattern and texture matching adjacent surfaces.

D. Form ties for Architectural Concrete shall as a minimum:

1. be spaced regularly; and

2. use tapered tie cone spreaders that, when removed, will leave holes not larger than 25mm in diameter on concrete surface.

2-11.2.2 Architectural Concrete Unit Masonry

A. For the purpose of this Section 2-11.2.2 *[Architectural Concrete Unit Masonry]* "***Architectural Concrete Unit Masonry***" means all modular concrete masonry units that are exposed to Public View.

B. Architectural Concrete Unit Masonry shall as a minimum:

1. use masonry units having uniform texture and colour, or having a uniform blend within a chosen colour range;

2. use mortar of uniform quality and colour; and

3. be free of staining.

2-11.2.3 Architecturally Exposed Structural Steel

A. For the purpose of this Section 2-11.2.3 *[Architecturally Exposed Structural Steel],* Architecturally Exposed Structural Steel (AESS) means all exposed to view steel finishes of Building Structures and exposed to view steel finishes for Transportation Structures located up to six (6) metres from any area designated for pedestrian access.

B. AESS shall comply with the *Canadian Institute of Steel Construction Code of Standard Practice for Structural Steel, Appendix I*:

1. All exposed to view steel finishes in Building Structures located up to six (6) metres from any area designated for pedestrian access shall be considered "feature" or "showcase" elements.

C. At all Stops, Davies Station, and the Churchill Connector bolted connection joints for AESS shall generally occur at concealed locations. Where the design requires an unconcealed connection:

1. use architectural connections, such as acorn headed bolts and nuts, of consistent size and shape covering bolt threads completely; and

2. align exposed nut and bolt heads, turned to the same position within the actual connection and aligned across groups of connections.

D. Notwithstanding Section 2-11.2.3C *[Architecturally Exposed Structural Steel]*, provide concealed connections for all timber and structural wood panel connections joining to steel.

E. Prepare AESS surfaces receiving a painted finish in accordance with the *CISC Code of Standard Practice for Structural Steel* and apply coatings consisting of zinc rich epoxy primers, epoxy intermediate coats, and durable polyurethane or acrylic modified polysiloxane finish coats.

F. Stainless AESS shall comply with the *International Molybdenum Association and the Nickel Institute* requirements for specifying, selecting and fabricating austenitic stainless steel sheet, bar or castings meeting ASTM material standards and:

1. shall be Type 316;

2. notwithstanding this Section 2-11.2.3F.1, may be Type 316L for welded connections; and

3. shall have finishes that are consistent with the requirements set out in Sections 2-11.2.3B to 2-11.2.3E of this Schedule.

2-11.3 102 AVENUE TUNNEL APPROACH

A. This Section 2-11.3 *[102 Avenue Tunnel Approach]* sets out the SUI requirements for the 102 Avenue Tunnel Approach. The 102 Avenue Tunnel Approach includes the following features, some of which are shown in Figure 2-11.3 *[102 Avenue Tunnel Approach]:*

1. walls;

2. screening system;

3. Protection Railings;

4. OCS, if required;

5. shared-use poles, if required; and

6. a Chinese gate.

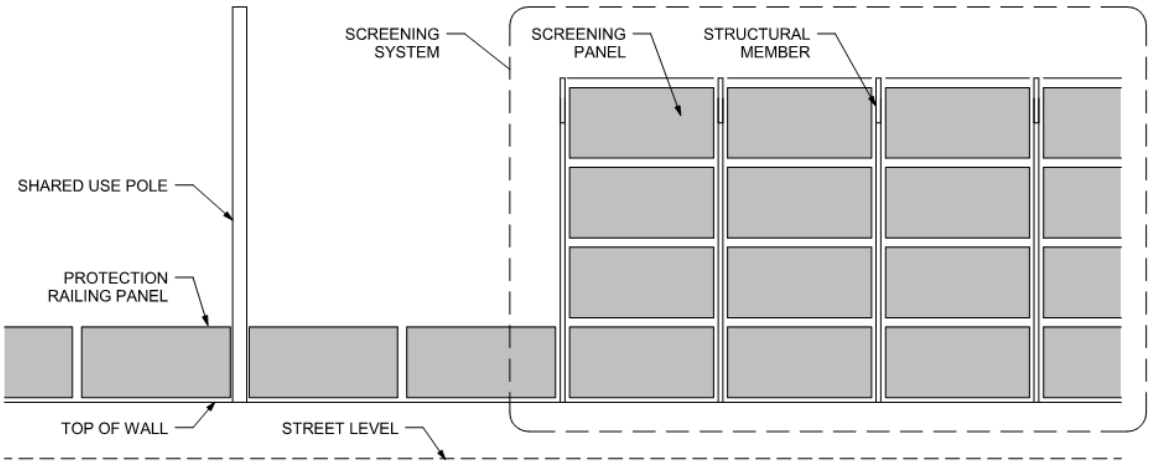


Figure 2-11.3 : 102 Avenue Tunnel Approach

B. The 102 Avenue Tunnel Approach is an integral part of the overall architectural treatment of the section of the Infrastructure that passes through the Quarters Opportunity Area.

C. The 102 Avenue Tunnel Approach shall have a unique design theme that reflects the Chinese heritage of the area.

D. Walls of the 102 Avenue Tunnel Approach that extend above street level shall meet the following requirements:

1. the top of wall elevation, measured perpendicular to the Trackway, for walls on either side of the Trackway shall be identical;

2. the top of wall elevation for walls on either side of the Trackway shall be nominally 600mm above adjacent grade at the east and west terminations; a straight line between the two terminations shall form the top of the walls;

3. the top of the east wall shall be identical to the top of the walls on either side of the Trackway at their east terminations;

4. the top surface shall be detailed to provide visually simple connections for shared use poles, supports for the screening system and Protection Railing supports;

5. if an OCS is required within the length of the screening structure it shall be mounted to the roof of the screening system; and

6. if an OCS is required outside the length of the screening system, shared use poles shall be mounted to the top of the wall.

E. The architectural treatment of the 102 Avenue Tunnel Approach shall:

1. be composed of elements that are integrated into and coordinated with the structure of the 102 Avenue Tunnel Approach;

2. screen lines of sight to the Quarters Tunnel portal opening from adjacent buildings and sidewalks from above, as well as from the north and south sides by means of a screening system;

3. maximize visibility through the screening system viewed from street level, perpendicular to the sidewalk; and

4. not incorporate any black or white coloured elements.

F. Provide a screening system that includes:

1. screening panels; and

2. structural members.

G. The screening system shall:

1. extend at least 40m from the Quarters Tunnel portal opening to the west;

2. have a minimum height sufficient to comply with On-track Vehicle envelope requirements set out in Section 7-1.6.2 *[Vehicle Envelopes]* of this Schedule*;*

3. have structural members that:

a. minimize the visible profile width on the outer faces (toward the street / sidewalk);

b. provide for a visually simple connection between the structural members and the portal screening panels; and

c. are regularly spaced; and

4. have screening panels that:

a. are between 60% and 80% transparent in elevation, where transparency is the percentage of opening size to total area of a panel;

b. are similar on both sides of the Trackway; the overhead screening panels shall be of similar design, material, form, and colour as the screening panels used on both sides of the Trackway; and

c. have a pattern geometry design based on a Chinese lattice.

H. Protection Railings along the 102 Avenue Tunnel Approach shall:

1. be of constant height measured from top of walls;

2. be integrated into the screening panels, wherever a screening system is provided;

3. match the Protection Railings integrated into the screening panels, where no screening system is provided; and

4. be a “Guard” per the Alberta Building Code.

I. Provide a Chinese gate at the edge of the Quarters Tunnel portal opening composed of:

1. a planter, integrated with the east 102 Avenue Tunnel Approach wall, allowing for sufficient width and soil depth for a landscaping hedge designed to deter access to the east wall Protection Railing;

2. a vertical structure spanning the portal edge and supporting a themed traditional Chinese sloped tile roof, of a height that shall not extend more than 2m above the top of the screening system; and

3. a display space of at least 3.5m wide by 1m high for decorative Chinese characters on the east face; Chinese characters will be supplied by the City and installed by Project Co; total maximum weight of characters will be 200kg.

2-11.4 NORTH RIVER BANK TUNNEL APPROACH

A. This Section 2-11.4 *[North River Bank Tunnel Approach]* sets out the SUI requirements for the North River Bank Tunnel Approach.

B. Respecting the natural setting of the NSRV, the North River Bank Tunnel Approach shall be as minimalist as possible, with a minimal visual impact on the natural setting of Louise McKinney Riverfront Park.

C. Walls shall be concrete, of a colour that is consistent with that of the concrete structures of the Tawatinâ Bridge and the South River Valley Elevated Guideway.

D. The top of the walls shall closely follow the natural slope of the adjoining grade, and shall not protrude more than 200mm above the adjoining grade.

E. The walls on both sides of the Trackway shall be parallel to the horizontal alignment of the closest Track, except at the North River Bank Tunnel Approach Access Road, where walls shall be parallel to the road.

F. If fences at the North River Bank Tunnel Approach are required based on the Safety and Security Certification Program, they shall be partially screened with naturalized landscaping in accordance with Section 2-14 *[Landscape Architecture]**.***

G. A consistent architectural language shall be present between the elements of the North River Bank Tunnel Approach, the Tawatinâ Bridge and the South River Valley Elevated Guideway.

2-11.5 TAWATINÂ BRIDGE

2-11.5.1 Design Context

A. This Section 2-11.5 *[Tawatinâ Bridge]* sets out the SUI requirements for the Tawatinâ Bridge.

B. The location of the Tawatinâ Bridge makes it one of the most highly visible pieces of urban infrastructure in the NSRV, as it can be viewed for long distances from both the north and south banks of the NSRV. The Tawatinâ Bridge will be directly experienced by Passengers, by pedestrians and cyclists using the SUP system, by passersby in vehicles and by boaters on the North Saskatchewan River.

2-11.5.2 General Requirements

A. The Tawatinâ Bridge shall be an extradosed bridge with a slender superstructure profile substantially supported by the cables connecting the superstructure to the two (2) pylons forming part of the North River Pier.

B. The piers and superstructure of the Tawatinâ Bridge shall be concrete of matching colour.

2-11.5.3 Piers

A. The cross-section of the north pier in the North Saskatchewan River (the "***North River Pier***") shall be as shown in Figure 2-11.5.3.A *[Tawatinâ Bridge North River Pier Section].*

B. The elevation of the North River Pier shall be as shown in Figure 2-11.5.3.B *[Tawatinâ Bridge North River Pier Elevation].*

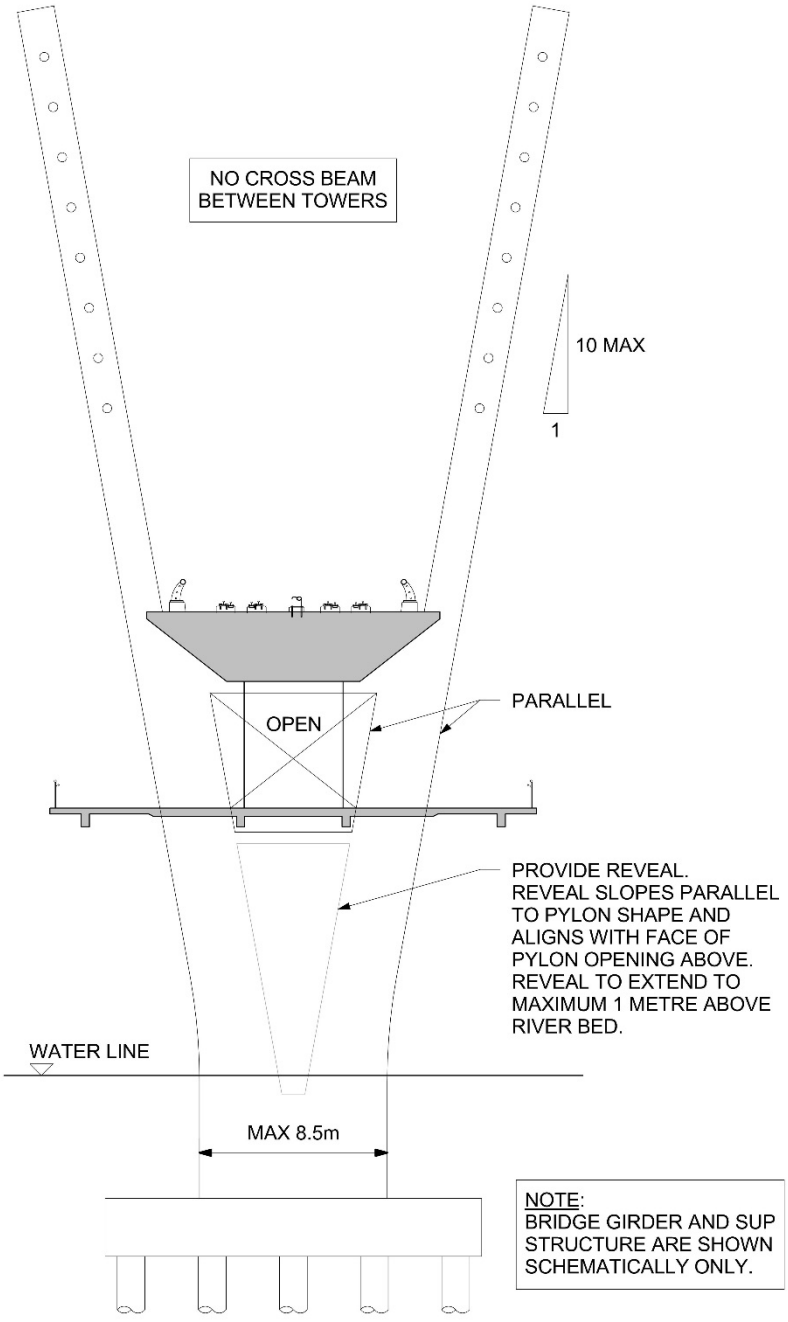


Figure 2-11.5.3.A: Tawatinâ Bridge North River Pier Section

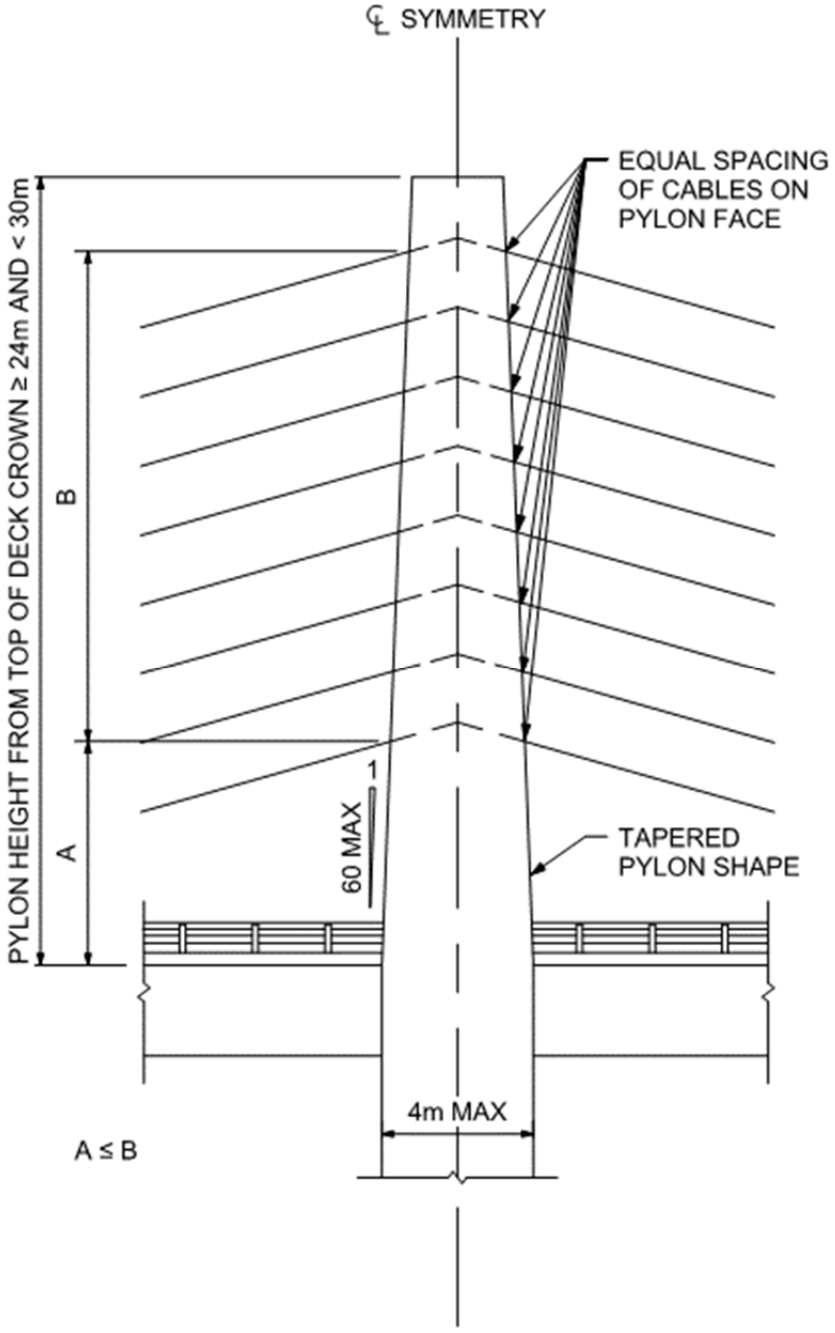


Figure 2-11.5.3.B: Tawatinâ Bridge North River Pier Elevation

C. The south pier in the North Saskatchewan River (the "***South River Pier***") shall have an identical shape as the North River Pier up to the superstructure.

D. The North River Pier and South River Pier shall each appear as a single mass below the SUP when viewed parallel to the Tawatinâ Bridge.

E. An opening shall be provided through each river pier to permit the SUP to pass through on a straight horizontal alignment as shown in Figure 2-11.5.3.A *[Tawatinâ Bridge North River Pier Section].*

F. The maximum width of the base of the river piers, when viewed in section, shall be 8.5m immediately above the pile cap.

G. A reveal as shown in Figure 2-11.5.3.A *[Tawatinâ Bridge North River Pier Section]* shall be provided on the north and south faces of the North River Pier and the South River Pier; the bottom of the reveal shall be below the water line corresponding to a flow of 250 m^3/s.

H. In section view, the river piers, including the pylons, shall taper out from an elevation within 2.0 m of the bottom of the reveal to the top of the pier; taper shall be consistent and shall be 1 horizontal to maximum 10 vertical.

I. Above the deck of the Elevated Guideway, the North River Pier shall consist of two (2) pylons; there shall be no structural member above the elevation of the Elevated Guideway deck connecting the two (2) pylons.

J. Cables shall be arranged in elevation such that the spacing between all cables is nominally equal:

    1. at the pylon face; and

    2. at the anchorages on the superstructure.

K. The distance between the highest cable intersection point at the pylon face and the lowest cable intersection point at the pylon face shall not be less than the distance between the lowest cable intersection point at the pylon face and the top of deck crown.

L. The distance from the centreline of the North River Pier to the intersection of the lowest cable with the top of the superstructure deck shall be at least the smaller of 28 m or 3 times the dimension shown as “A” in Figure 2-11.5.3.B *[Tawatinâ Bridge North River Pier Elevation]*.

M. There shall be at least five (5) and at most ten (10) cables on each side of each pylon tower.

N. Cables must not cross a vertical plane drawn through the outermost rails.

O. The angle between the cables and pylons, when viewed in elevation, must be equal on either side of the pylon.

P. Pylon heights, measured from the top of deck, shall be a minimum of 24m and a maximum of 30m.

Q. Pylons shall taper in elevation, becoming narrowest at the top:

    1. The taper shall begin nominally at the deck of the Elevated Guideway.

    2. The taper shall be 1 horizontal to maximum 60 vertical.

    3. The width of the pylons viewed in elevation shall be no more than 4 m at the deck of the Elevated Guideway.

R. Exposed anchors on the pylons are not permitted.

S. Means of access up the pylons shall be integrated with the pylon design and shall be as unobtrusive as practical. Fall arrest cages are prohibited.

2-11.5.4 Tawatinâ Bridge Superstructure

A. The Elevated Guideway portion of the Tawatinâ Bridge shall be a single concrete box girder with:

1. a constant depth girder with a maximum depth of 3.5m from the top of deck to soffit of girder; or

2. a variable depth girder with a maximum depth of 4.0m from the top of deck to soffit of girder at each of the two river piers, tapering to a maximum depth of:

   a. 3.0m from the top of deck to soffit of girder at mid-span between the two river piers; and

   b. 3.0m from the top of deck to soffit of girder by the mid-point of the spans north of the North River Pier and south of the South River Pier.

B. Deck overhangs are permitted, provided that:

   1. they are continuous along the entire Tawatinâ Bridge with a constant overhang width, except that the width may be increased at the cable anchorages, provided that (see Figure 2-11.5.4.A *[Tawatinâ Bridge Overhangs at Cable Anchorages]*):

      a. the overhang width is constant between the first and the last cable on each side of the pylons;

      b. the transition from the general overhang to the overhang at the cables is one (1) wide to at least seven (7) long; and

      c. radii of at least the long dimension resulting from the requirement specified in Section 2-11.5.4.B.1.b *[Tawatinâ Bridge Superstructure]* are provided at the end of the transitions; and

   2. no external ribs or diaphragms, except at pier locations, are used.

C. The shape of the cross-section shall include a solid soffit above the SUP and sloped outside faces with a taper of 1 horizontal to maximum 2 vertical.

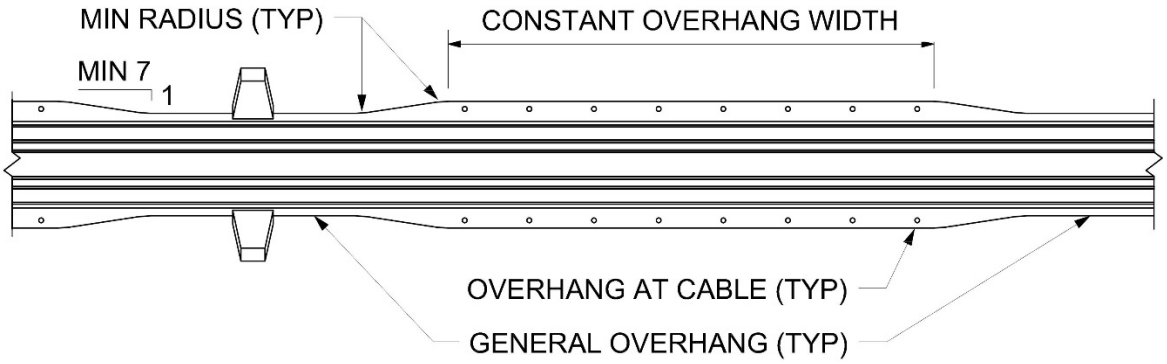


Figure 2-11.5.4.A: Tawatinâ Bridge Overhangs at Cable Anchorages (dimensions in mm)

2-11.5.5 Tawatinâ Bridge SUP

A. Provide an SUP, suspended below the Tawatinâ Bridge, by means of structural steel hangers.

B. All structural steel used for the SUP shall be of the same colour.

C. The functional width of the SUP shall be a minimum of 7.8m, as shown in Figure 2-11.5.2 *[Tawatinâ Bridge SUP]* and as follows:

   1. The middle portion of the Tawatinâ Bridge SUP shall be either asphalt, consistent in appearance to the existing SUPs adjacent to the bridge in Henrietta Muir Edwards Park and Louise McKinney Riverfront Park, or concrete and shall be at least 3.0m wide.

2. The outside portions of the Tawatinâ Bridge SUP shall be wood planks of size, colour and texture consistent with that of the Existing Cloverdale Footbridge and shall be a minimum of 1.8m wide.

3. Provide a clear distance from the edge of the middle portion to the hangers of at least 0.6m on each side; this clear distance shall use wood planks as specified in this Section 2-11.5.5C.2 *[Tawatinâ Bridge SUP]* as the surface finish.

4. The top surface of the SUP shall have no steps, curbs or ledges.

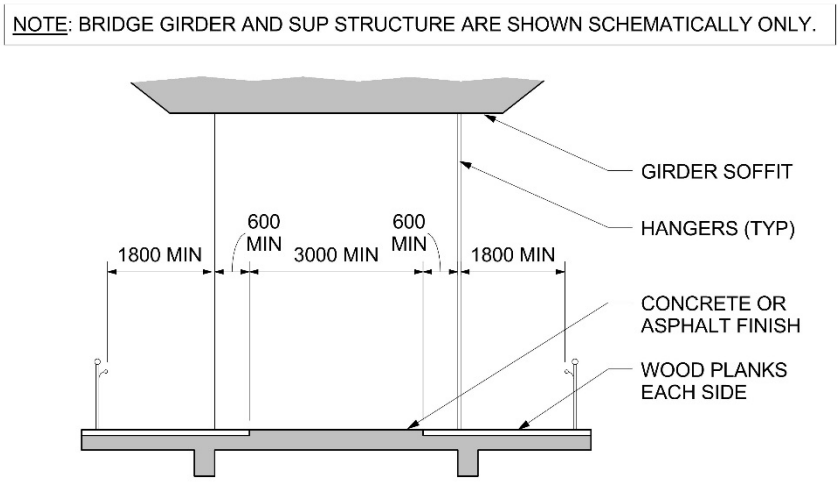


Figure 2-11.5.5.A: Tawatinâ Bridge SUP (dimensions in mm)

D. The relationship between the central SUP and the outside pedestrian walking paths is defined in Figure 2-11.5.5.B *[Tawatinâ Bridge North and South River Pier Lookout Areas]:*

1. The cross section shall be applied typically along the entire length of the SUP.

2. At the two river piers, the central SUP shall pass through the piers and the horizontal alignment of the outside pedestrian walking paths shall shift outwards around the piers on both sides to form lookout areas as follows:

   a. In plan view, the horizontal alignment shift shall be achieved by use of smooth curves beginning and ending a minimum of 20m from the face of the piers.

   b. In addition to the pedestrian walking path width of at least 1.8 m, a seating area of at least 7m^2 shall be provided at each lookout area on the up- and downstream sides of the pier.

   c. Each lookout area shall be furnished with seating for a minimum of eight (8) persons. Seating shall include seat, back, end arms, and arms between each seat.

   d. Seating shall provide unobstructed views of the downtown skyline and of the North Saskatchewan River, except that Protection Railings are permitted to be in views from seats.

   e. Furnishings shall be of durable materials which complement the bridge aesthetic and the theme, form, and material of furnishings in Louise McKinney Riverfront Park and Henrietta Muir Edwards Park.

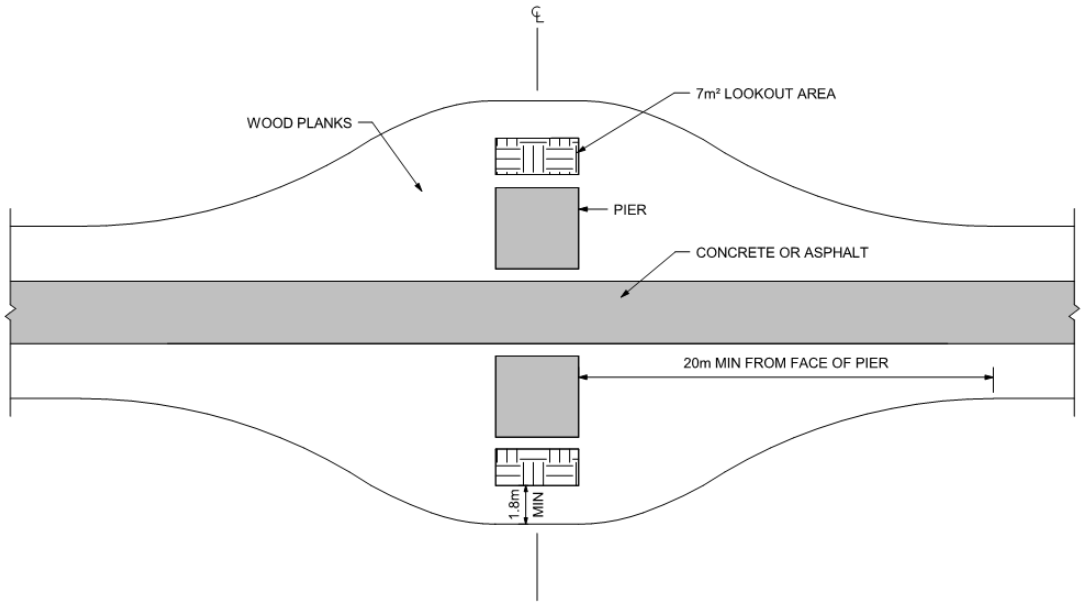


Figure 2-11.5.5.B: Tawatinâ Bridge North and South River Pier Lookout Areas

E. Hangers for the Tawatinâ Bridge SUP:

1. shall have a minimum spacing such that the aspect ratio of hanger spacing to height from Tawatinâ Bridge SUP to soffit of the Elevated Guideway girder is at least 1 horizontal to 1 vertical when viewed in elevation;

2. may consist of no more than two (2) straight tension elements with a clear distance between the elements of no more than 350mm, except that a smaller clear distance may be used for a length of 450mm at each end of a hanger; and

3. shall have a hanger spacing nominally consistent between:

   a. the first hanger adjacent to the north abutment of the Tawatinâ Bridge SUP and the North River Pier;

   b. the North River Pier and South River Pier; and

   c. the South River Pier and the first hanger adjacent to the south abutment of the Tawatinâ Bridge SUP.

2-11.6 SOUTH RIVER VALLEY ELEVATED GUIDEWAY

2-11.6.1 Design Context

A. This Section 2-11.6 *[South River Valley Elevated Guideway]* sets out the SUI requirements for the South River Valley Elevated Guideway and the 98 Avenue Bridge.

B. The form and materiality of the superstructure of the South River Valley Elevated Guideway shall be consistent with the Tawatinâ Bridge or the Davies Elevated Guideway superstructures.

C. The depth of the superstructure of the South River Valley Elevated Guideway and the 98 Avenue Bridge shall be constant from the second pier on the south bank of the NSR to the Ramp immediately north of the Muttart Stop; a transition in superstructure depth is permitted south of the first pier on the south bank of the NSR.

D. Notwithstanding Sections 2-11.6.1B and 2-11.6.1C, to the extent that vertical alignment constraints over 98 Avenue require a shallower depth from top of rail to the girder soffit than the South River Valley Elevated Guideway:

   1. a through girder structure may be used over 98 Avenue, including a maximum of 40 m to the north of the north curb of 98 Avenue and up to the Ramp immediately north of the Muttart Stop; and

   2. the change in form shall be screened and smoothed by architectural transition details.

E. The visual mass of the Ramp immediately north of the Muttart Stop shall be minimized by use of screening strategies such as landscaped earth, tree screening, and texturing of the Ramp walls at a scale appropriate for vehicles and park users.

F. The south abutment (transition from bridge Structure to Ramp) shall have a vertical face perpendicular to the Track.

G. Piers through Henrietta Muir Edwards Park shall be:

   1. spaced no closer than 35m, measured along the centreline of the Elevated Guideway alignment, except for the span immediately north of 98 Avenue, which shall be no shorter than 30m; and

   2. consistent with the Tawatinâ Bridge piers or the Davies Elevated Guideway piers.

2-11.7 KÂHASINÎSKÂK BRIDGE

2-11.7.1 Design Context

A. This Section 2-11.7 *[Kâhasinîskâk Bridge]* sets out the SUI requirements for the Kâhasinîskâk Bridge.

B. The Kâhasinîskâk Bridge is located in a sensitive urban parkland context within the NSRV. The Structure shall demonstrate clean lines and simple elegance, appearing slender and uncomplicated in elevation with a minimal visual mass, enabling it to blend into the NSRV context.

2-11.7.2 Form, Material, Colour and Texture

A. Superstructure

   1. The superstructure of the Kâhasinîskâk Bridge shall be a single closed section girder meeting the cross-sectional requirements of Figure 2-11.7.2 *[Kâhasinîskâk Bridge Superstructure Section].*

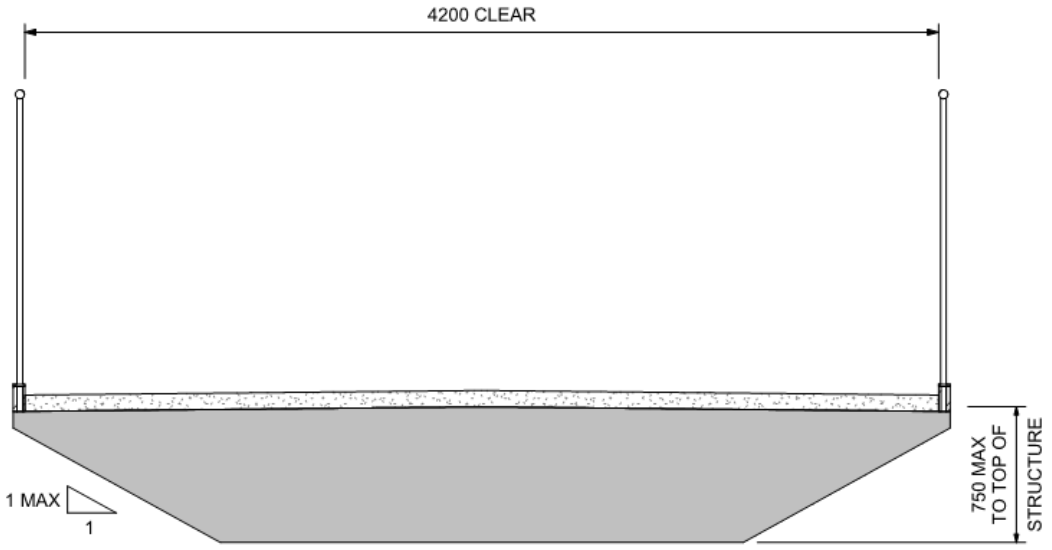


Figure 2-11.7.2: Kâhasinîskâk Bridge Superstructure Section (dimensions in mm)

2. The minimum clear width of the SUP shall be 4.2m.

3. The maximum depth of the superstructure girder shall be 750mm from top of deck crown to girder soffit.

4. The shape of the cross-section shall include sloped outside faces with a taper of 1 horizontal to maximum 1 vertical.

5. The centre of the south abutment shall be located between 5m and 15m to the east of the centre of the abutment of the Existing Connors Road Footbridge.

6. The alignment of the superstructure shall be skewed a minimum of 30^{o}, measured clockwise from north, in plan view.

7. The profile of the superstructure shall be curved, with a maximum radius of 700m.

8. Steel to steel bolted connections shall be concealed from view.

9. In addition to the requirements for Protection Railings set out in Section 2-4.5.3.2 *[Protection Railings],* the following shall apply:

   a. all vertical members of Protection Railings shall have the same uniform cross-section and shall be spaced equally; and

   b. no horizontal members between the top of deck and the top of the Protection Railing are permitted.

B. Substructure:

1. Should a pier be required to support the Kâhasinîskâk Bridge, the width of the pier in elevation shall be minimized such that it does not project a sense of massiveness.

2. The scale of exposed abutment surfaces shall be minimized by using earth fill slopes.

3. Should retaining structures be required, the abutments shall be visually and physically integrated with the retaining structures.

C. Demonstrate through detailed design provided with the Final Design of the Kâhasinîskâk Bridge that the SUP system north of the Kâhasinîskâk Bridge can be reconfigured so that there is at least one (1) continuous SUP, having a maximum grade of 5%, connecting the north end of the Kâhasinîskâk Bridge with the intersection of 96 Avenue and 96A Street. Construction of any portion of the reconfigured SUP system located outside the Lands will be done by others.

2-11.8 WILDLIFE UNDERPASS STRUCTURE AT CONNORS ROAD

A. The Wildlife Underpass Structure at Connors Road shall integrate:

1. seamlessly with other Structures adjacent to the Wildlife Underpass Structure, if applicable; and

2. into and be respectful of the site context in the NSRV.

2-11.9 DAVIES ELEVATED GUIDEWAY

2-11.9.1 Design Context

A. This Section 2-11.9 *[Davies Elevated Guideway]* sets out the SUI requirements for the Davies Elevated Guideway.

B. The Davies Elevated Guideway passes through a mix of mature developments; from north to south, the Track becomes elevated in a single-family residential neighbourhood adjacent to the Mill Creek Ravine, over Argyll Road, a commercial/industrial development and the CPR tracks, through W.P. Wagner Park, to the Davies Station, over 75 Street and the CNR tracks, before returning to grade north of McIntyre Road.

2-11.9.2 General Requirements

A. The Davies Elevated Guideway shall be a slender, modern-appearing structure with clean lines and minimal visual complexity.

B. The colour of the Davies Elevated Guideway and its piers shall be nominally consistent with the colour of the Tawatinâ Bridge.

C. The exposed to view area under the Elevated Guideway at 83 Street shall be cast-in-place sidewalk concrete.

D. The exposed to view area under the Elevated Guideway at 75 Street shall use landscape and hardscape suitable for the site and environment.

2-11.9.3 Piers

A. Piers shall be spaced no closer than 20m, measured along the centerline of the Elevated Guideway alignment.

B. Except for the piers through Davies Station, which shall be circular, the pier geometry of the Davies Elevated Guideway shall comply with Figure 2-11.9A *[Davies Elevated Guideway Section – Box Girder*] and Figure 2-11.9B *[Davies Elevated Guideway Section – Trough Girder]*:

1. the top portion of the pier shall be nominally 4.7m high with a sloped face and as follows:

a. for piers that are shorter than the constant triangular shape, the bottom of the triangular shape shall be cut off at grade;

b. the top portion shall include a triangular opening, with the opening faces parallel to the sides and top of the pier, respectively;

c. the dimension from the top of the opening to the top of pier shall not exceed 1m;

d. the thickness of the two inclined pier shafts viewed in section shall not exceed 0.9m; and

e. the width at the top of the pier viewed in section shall not exceed 4.5m; and

2. the lower portion of the pier shall be of variable length as required by the overall height of the pier and:

a. shall be tapered at 1 horizontal and between 12 and 15 vertical (dimension "T" in Figure 2-11.9A *[Davies Elevated Guideway Section – Box Girder]* and Figure 2-11.9B *[Davies Elevated Guideway Section – Trough Girder]*), with the width of the transition between the top and lower portions viewed in section (dimension "W" in Figure 2-11.9A and Figure 2-11.9B) not exceeding 2.0m; or

b. shall be tapered at 1 horizontal and 15 vertical (dimension "T" in Figure 2-11.9A *[Davies Elevated Guideway Section – Box Girder]* and Figure 2-11.9B *[Davies Elevated Guideway Section – Trough Girder]*), with the width of the transition between the top and lower portions viewed in section (dimension "W" in Figure 2-11.9A and Figure 2-11.9B) not exceeding 2.2m.

3. Provide full height recesses on the elevation face of piers to conceal down-pipes for drainage, standpipes, and any other Utilities.

2-11.9.4 Superstructure

A. The cross-section of the superstructure shall meet the requirements of Figure 2-11.9A *[Davies Elevated Guideway Section – Box Girder]* or of Figure 2-11.9B *[Davies Elevated Guideway Section – Trough Girder].*

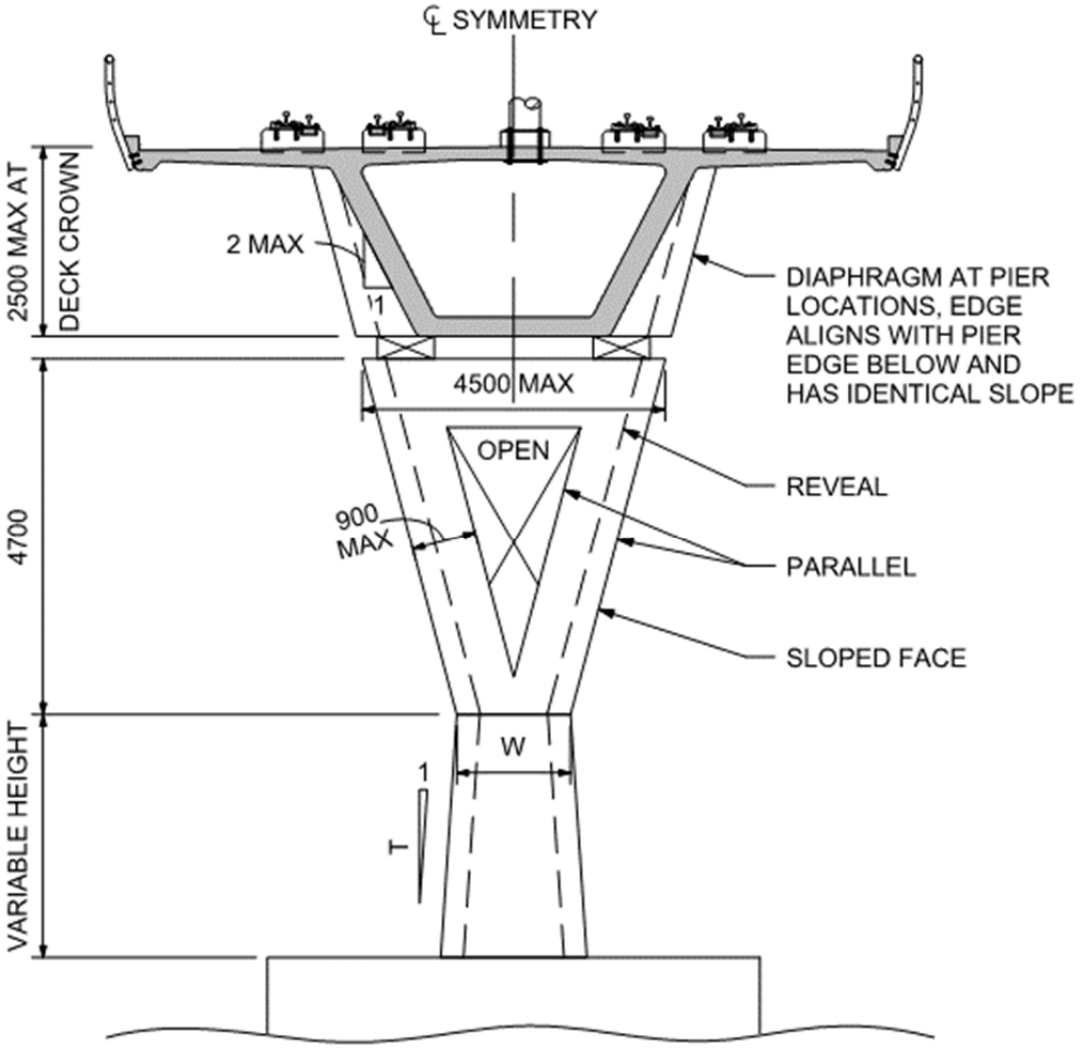


Figure 2-11.9A: Davies Elevated Guideway Section – Box Girder (dimensions in mm)

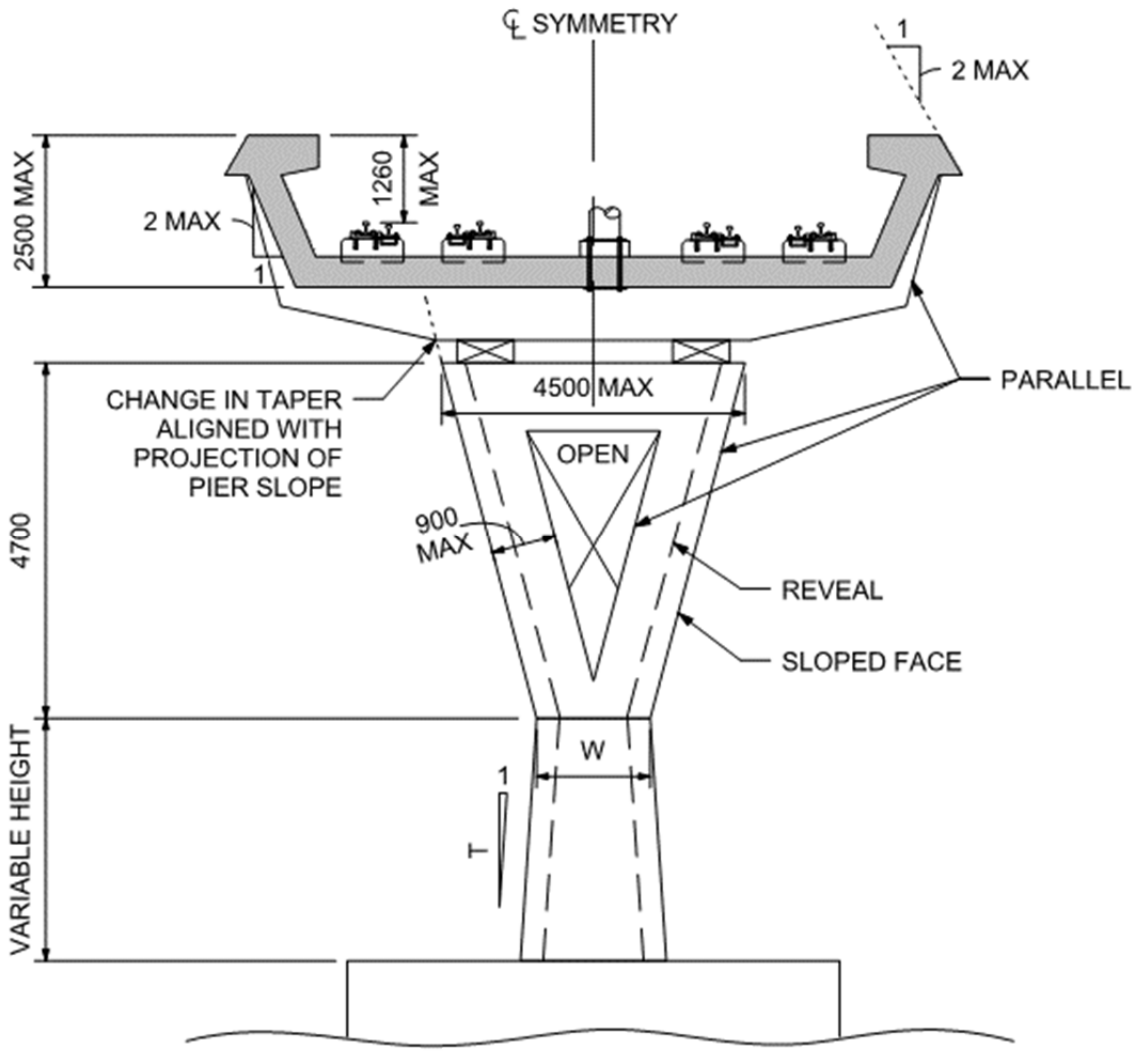


Figure 2-11.9B: Davies Elevated Guideway Section – Trough Girder (dimensions in mm)

B. The girder cross-section shall use the same type and be of constant depth from the 83 Street abutment to the beginning of the Davies Station Platform and from the end of the Davies Station Platform to the 75 Street abutment, and shall be no more than 2.5m from girder soffit to the top of the superstructure.

C. Notwithstanding Section 2-11.9.B *[Davies Elevated Guideway]*, if no pier is placed between the east and west curbs of 75 Street, a variable depth girder is permitted, provided that:

1. the depth from girder soffit to the top of the superstructure at the two piers immediately east and west of 75 Street shall be no more than 4.5m;

2. the depth from girder soffit to the top of the superstructure at mid-span between the two piers immediately east and west of 75 Street shall be no more than 2.5m;

3. the depth from girder soffit to the top of the superstructure at the two piers adjacent to the two piers immediately east and west of 75 Street and for the remainder of the Davies Elevated Guideway shall be no more than 2.5m; and

4. the cross-section shall be a single concrete box girder if a box girder is used on the other portions of the Davies Elevated Guideway or a concrete trough girder if a trough girder is used on the other portions of the Davies Elevated Guideway, with webs for both types of girders having an inclination of 1 horizontal to maximum 4 vertical.

D. The visual depth, seen in elevation, from the top to the bottom of the top flanges shall be constant over the length of the Davies Elevated Guideway, including the Ramps.

E. The lines of the top and bottom of the top flanges, as seen in elevation, shall be visually continuous at the junction of the superstructure with the abutment and down the entire length of the Ramps.

F. The superstructure of the Davies Elevated Guideway shall be:

1. a single concrete box girder with:

a. the top of the superstructure taken as the deck crown;

b. webs having an inclination of 1 horizontal to maximum 2 vertical; and

c. girder diaphragms at pier locations, aligning with the pier edges when viewed both in section and in elevation and having the same slope as the top portions of the piers; or

2. a trough girder with:

a. the top of the superstructure taken as the highest point of the top flanges;

b. webs having an inclination of 1 horizontal to maximum 2 vertical;

c. girder diaphragms at pier locations:

i. aligning with the pier edges when viewed in elevation;

ii. having the same slope as the top portions of the piers; and

iii. having a change in taper that lines up with the projection of the pier edges when viewed in section; and

d. top flanges that have:

i. a slope of the outside edge of 1 horizontal to maximum 2 vertical; and

ii. an overhang creating a distinct shadow line.

G. If exposed to Public View, the soffits of the Platform girders and Elevated Guideway superstructure at the Davies Station shall be consistent with and mimic the proportions of the other Davies Elevated Guideway superstructure girders.

2-11.9.5 Ramps

A. The outside face of the Ramp walls shall be:

1. vertical; and

2. at least 500mm inset from the outside edge of deck curb, with the deck curb matching the deck curb of the rest of the Davies Elevated Guideway, as shown in Figure 2-11.9C *[Davies Elevated Guideway Partial Ramp Section].*

B. The Ramp walls along 83 Street shall be precast concrete panels with no horizontal joints (i.e., panel size shall be full Ramp height).

C. The abutments (transition from bridge Structure to Ramp) shall have a vertical face perpendicular to the Track.

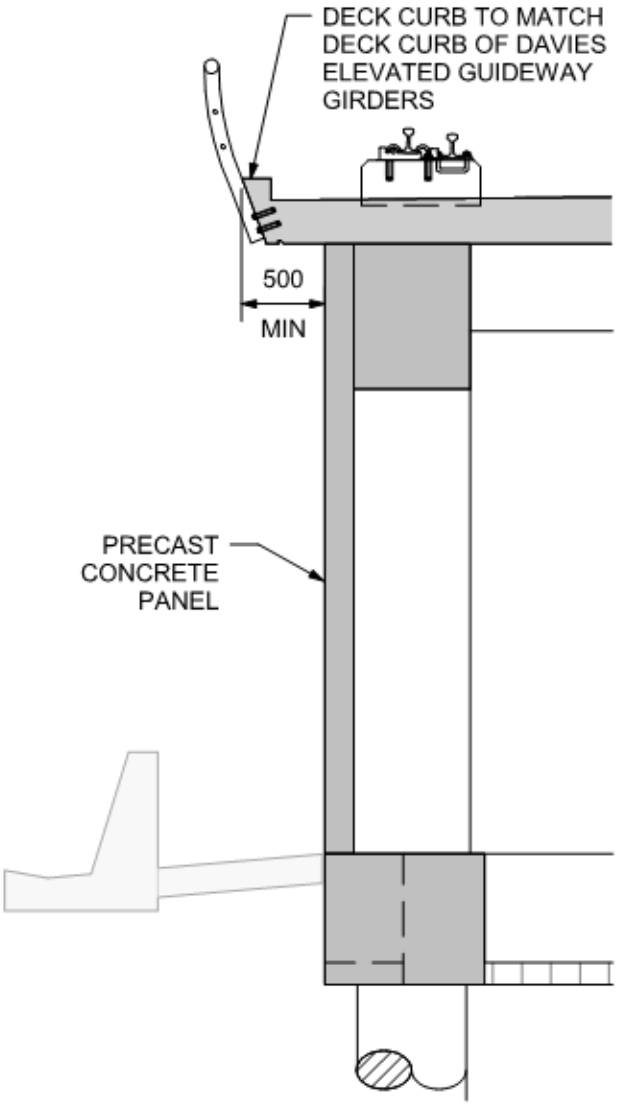


Figure 2-11.9C: Davies Elevated Guideway Partial Ramp Section

2-11.10 WHITEMUD DRIVE LRT BRIDGE

A. This Section 2-11.10 *[Whitemud Drive LRT Bridge]* sets out the SUI requirements for the Whitemud Drive LRT Bridge.

B. The aesthetic features of the Whitemud Drive LRT Bridge shall be nominally consistent with the Existing Whitemud Drive Bridge.

C. The form of the pier shall be nominally consistent with the shape of the Existing Whitemud Drive Bridge pier, including the outwards-sloping tapers in elevation and section views from bottom to top, and a point of inflection at the same elevation as the Existing Whitemud Drive Bridge pier, above which the taper flares out at a greater rate.

D. The Whitemud Drive LRT Bridge shall be concrete.

E. The colour of the superstructure, pier, and abutments shall match, and this colour shall be nominally consistent with the colour of the Existing Whitemud Drive Bridge.

F. The shape of the superstructure cross-section shall include a solid soffit above Whitemud Drive.

G. The east face of the Whitemud Drive LRT Bridge superstructure shall have nominally the same shape as the east face of the Existing Whitemud Drive Bridge.

H. Notwithstanding Sections 2-11.10B and 2-11.10G *[Whitemud Drive LRT Bridge]*, the shape of the Whitemud Drive LRT Bridge may be consistent with the shape of the South River Valley Elevated Guideway and Davies Elevated Guideway.

I. Notwithstanding Section 2-11.1U *[General]* the elevation difference from the top of the lowest rail to the top of the Protection Railing, the collision barrier, or the superstructure for Structures with through primary load carrying members may exceed 1260mm for the Whitemud LRT Bridge.

2-11.11 WHITEMUD DRIVE PEDESTRIAN BRIDGE

A. This Section 2-11.11 *[Whitemud Drive Pedestrian Bridge]* sets out the SUI requirements for the Whitemud Drive Pedestrian Bridge.

B. The Whitemud Drive Pedestrian Bridge replaces the existing sidewalk on the west side of the Existing Whitemud Drive Bridge.

C. The aesthetic features of the Whitemud Drive Pedestrian Bridge shall be nominally consistent with the Existing Whitemud Drive Bridge.

D. The form of the pier shall be nominally consistent with the shape of the Existing Whitemud Drive Bridge pier, including outwards-sloping tapers in elevation and section viewed from bottom to top, and a point of inflection at the same elevation as the Existing Whitemud Drive Bridge pier, above which the taper flares out at a greater rate.

E. The Whitemud Drive Pedestrian Bridge shall be concrete.

F. The colour of the superstructure, pier, and abutments shall match, and this colour shall be nominally consistent with the colour of the Existing Whitemud Drive Bridge.

G. The superstructure may have an overhanging deck.

H. The shape of the superstructure cross-section shall include a solid soffit above Whitemud Drive.

I. The west face of the superstructure shall have a taper of one (1) horizontal to maximum two (2) vertical.

J. The clear width of the Whitemud Drive Pedestrian Bridge shall be a minimum of 4.2m.

2-11.12 WALLS

2-11.12.1 General

A. This Section 2-11.12 *[Walls]* sets out the SUI requirements for all walls forming part of the Infrastructure, including retaining walls, abutment walls, Ramp walls, Noise Attenuation Walls, and landscaping walls.

B. Wall form, material, colour and texture shall integrate into and be reflective of the applicable site context.

C. Overall wall configuration shall reflect simple elegance.

D. The length and height of walls shall be minimized by use of slopes and landscaped terraces.

E. Protection Railings on walls shall have post spacing coordinated with the aesthetic of the wall.

F. Corrugated steel walls are not permitted.

G. The base of all walls shall be buried at least 300mm below adjacent finished grade.

H. If pilasters form a component of a wall:

1. spacing of pilasters shall be uniform; and

2. a transition from the wall face to the pilaster face shall be provided.

2-11.12.2 Alignment and Geometry

A. Retaining walls shall not be located to create a barrier to pedestrian or cyclist connections between upper and lower grades.

B. Walls shall follow horizontal and vertical curves to match the upper grade without abrupt angular changes.

C. Notwithstanding Section 2-11.12.2B *[Alignment and Geometry]*, the top of modular walls, such as Noise Attenuation Walls and modular block walls, may be stepped; the horizontal measurement between steps shall be in constant proportion to the vertical change and shall not be steeper than 1 vertical to 6 horizontal; the absolute height change at a discrete step in wall height shall not exceed 300mm.

D. Top of barriers and fences on walls shall be parallel to the top of wall; for stepped walls, the top of barriers and fences shall not have a step, and the top of the barrier or fence at each step location shall be a constant height above the top of wall as shown in Figure 2-11.12.2 *[Stepped Walls].*

E. Retaining walls shall not protrude more than 200mm above the adjoining grade.

F. Align walls in continuous horizontal curves related to adjacent Roadways, Trackways, and landforms.

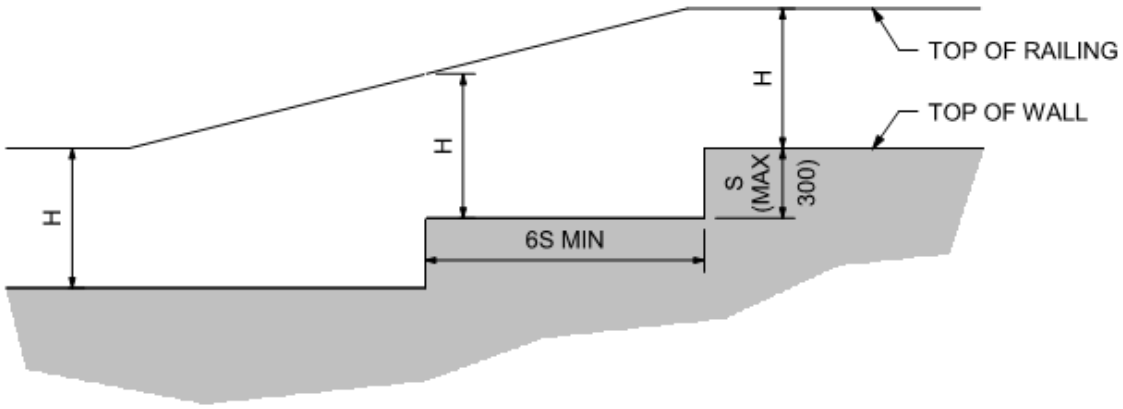


Figure 2-11.12.2: Stepped Walls

2-11.12.3 Texture

A. Wall finish shall be:

1. concrete;
2. wood;
3. stone; or
4. masonry.

B. Primary support members may be steel.

C. Wall finishes and support members shall have no lustre.

D. Design scale and content of wall textures in response to the proximity and speed of the observer.

E. Continuous walls shall have a consistent aesthetic theme and character.

F. Patterning of walls shall emphasize horizontal flow and reduce the perceived height of the wall.

G. Walls higher than 1.2m and longer than 20m shall be designed to create visual interest and to reduce the visual mass of the wall by using one of the following strategies:

1. continuous horizontal elements that undulate along the wall face to create a flowing pattern;
2. a pattern of regularly repeating elements that create a rhythmic progression along the wall.

H. Freestanding walls shall be textured on both sides, with each side responding to its adjacent context.

I. Locate construction joints in exposed concrete surfaces to minimize visual intrusion.

J. Conceal construction joints in exposed concrete surfaces by use of reveals or other architectural details.

SECTION 2-12 – DAVIES TRANSIT CENTRE

2-12.1 TRANSIT SHELTERS AND SEATING

A. Provide at least two (2) transit shelters, each with a roof and walls on three sides, on the Davies Transit Centre island outside the Davies Station, such that:

1. each transit shelter shall be at least 60m^2 in plan;

2. each transit shelter shall have:

   a. seating for at least twelve (12) persons, with each seat having back and arm rests; and

   b. space for two (2) Reference Wheelchairs; and

3. transit shelters and seating shall complement the architecture of Davies Station.

B. Provide at least two (2) transit shelters, each with a roof and walls on three sides, on each side bus passenger platform for a total of four (4), such that:

1. each transit shelter shall be at least 4.0m long and 1.5m wide;

2. each transit shelter shall have seating for at least three (3) persons, with each seat having back and arm rests;

3. transit shelters shall complement the architecture of Davies Station; and

4. transit shelters on the same platform shall be placed at least 50m, but no more than 70m apart.

C. The side walls of the planting beds specified in Section 2-14.8.2.3 *[Area Specific Requirements]* shall be designed and constructed to provide seating along all walls; seating does not require back or arm rests.

D. In addition to the seating in the transit shelters, provide at least two (2) seating areas on each side bus passenger platform for a total of four (4), such that:

1. each seating area shall accommodate at least four (4) persons;

2. seating shall have back and arm rests; and

3. seating on the same platform shall be spaced at least 50m, but no more than 70m apart.

2-12.2 CLOCK TOWER

A. Provide a Clock Tower complying with Section 5-2.8.12 *[Clock Tower]* of this Schedule placed adjacent to the north curb of the bus access off 75 Street, with the following alterations and details to the Clock Tower:

1. do not include the line name panel;

2. write “Davies Transit Centre” in the stop name panel; and

3. orient the high side of the Clock Tower to the west.

SECTION 2-13 – GERRY WRIGHT OMF

A. The Gerry Wright OMF Site is in a prominent location adjacent to a city-wide expressway (Whitemud Drive) and a major arterial street (75 Street).

B. The Gerry Wright OMF shall be a campus with a common identity and a modern, forward-thinking design that makes a positive contribution to the Valley Line and the ETS brand, particularly when viewed from Whitemud Drive and 75 Street, and integrates into the Davies Industrial Character Zone.

C. The design of the Gerry Wright OMF shall:

1. use landscape, berming and building massing to screen open material storage and soften the industrial function of the site; and

2. locate the edges that front onto Whitemud Drive, 75 Street, and 51 Avenue such that perimeter physical barriers, fences and walls, and buildings integrate with the Davies Industrial Character Zone.

D. If a staff halt is provided on the Mainline Track near the Gerry Wright OMF:

1. the finish of all platforms shall be the same as the finish of the Davies Station Platform(s);

2. if provided, seating, waste and recycling receptacles and leaning rails shall be the same as the seating, waste and recycling bins and leaning rails provided at Davies Station;

3. if provided, any other amenities, such as canopies, shelters, lighting poles and Passenger Interface Equipment shall be consistent with such other amenities provided at either Avonmore Stop or Millbourne/Woodvale Stop; and

4. if provided, Protection Railings shall comply with Section 2-10.2.8 *[Protection Railings]* of this Schedule.

SECTION 2-14 – LANDSCAPE ARCHITECTURE

2-14.1 INTRODUCTION

A. This Section 2-14 *[Landscape Architecture]* sets out the requirements for landscaping throughout the LRT Corridor including:

1. landscape design standards;

2. landscape planting areas;

3. required planting setbacks;

4. Character Zone landscape requirements;

5. Utility Complex landscape requirements;

6. Stormwater Management Facilities landscape requirements;

7. isolated landscape disturbance;

8. tree retention, relocations, removals and protection;

9. landscape soils and amendments;

10. Structural Soil Cells;

11. landscape sub-drainage system;

12. mulches;

13. weed liner;

14. tree root barrier;

15. planting bed edging

16. irrigation; and

17. plant material.

B. The landscape architecture goals are to:

1. reinstate the functional performance of existing natural areas and landscaped areas adjacent to the LRT Corridor that are impacted during Construction;

2. provide a positive experience for neighboring residents, pedestrians, cyclists, drivers, and Passengers;

3. provide a recognizably higher level of landscape architecture than that of typical arterial Roadway corridors in the City;

4. integrate the System into existing neighborhoods;

5. form an integral and fundamental component of the Infrastructure and maximize the integration of existing and planted trees along the LRT Corridor;

6. support the City's SUP network by providing support amenities for pedestrians and Passengers; and

7. maximize the number of trees retained and planted along the Corridor by supporting and integrating the landscape architecture with the Infrastructure design.

2-14.2 LANDSCAPE ARCHITECTURE DESIGN STANDARDS

A. All landscape architectural design and layout within the Infrastructure shall comply with the guidelines and standards in the following documents in the order of hierarchy as list below, unless specifically indicated otherwise:

1. landscape design components shall comply with this Section 2-14 *[Landscape Architecture]*; and

2. landscape design components shall comply with the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

B. In addition to Section 2-14.2.A *[Landscape Architecture Design Standards]* of this Schedule, landscape design components shall at least comply with the applicable zoning requirements of the City of Edmonton Zoning Bylaw 12800.

2-14.3 LANDSCAPE PLANTING AREAS

2-14.3.1 Landscape Planting Area Definitions

A. Figure 2-14.3.1 *[Illustrated Landscape Area Definitions]* illustrates and defines the various landscape planting areas along the LRT Corridor. These area definitions are used throughout this Section 2-14 *[Landscape Architecture]*.

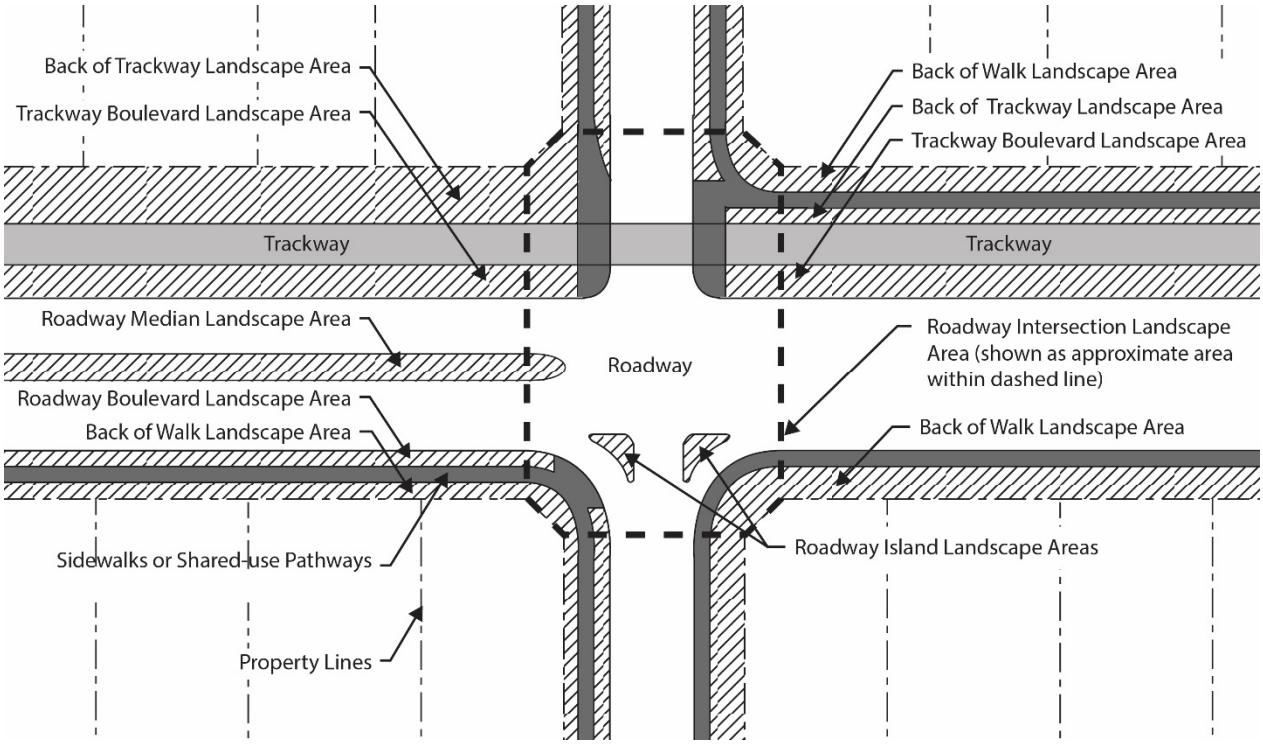


Figure 2-14.3.1: Illustrated Landscape Area Definitions

2-14.3.2 General Planting Requirements for Landscape Planting Areas

A. Table 2-14.3.2 *[Spatial Requirements for Planting]* shows the general spatial requirements for different landscape treatments in Roadway Boulevard Landscape Areas, Roadway Median Landscape Areas and Trackway Boulevard Landscape Areas along the LRT Corridor. Area specific landscape requirements for Roadway Boulevard Landscape Areas, Roadway Median Landscape Areas and Trackway Boulevard Landscape Areas in each Character Zone are set out in Section 2-14.5 *[Downtown Character Zone Landscape Requirements]* to Section 2-14.9 *[South East Edmonton Character Zone Landscape Requirements].* Dimensions specified in Sections 2-14.5 *[Downtown Character Zone Landscape Requirements]* to 2-14.9 *[South East Edmonton Character Zone Landscape Requirements]* of this Schedule shall supersede dimensions specified in Table 2-14.3.2 *[Spatial Requirements for Planting]* of this Schedule.

Table 2-14.3.2: Spatial Requirements for Planting

Boulevard/Median Width	Planting Options	Notes
Roadway Boulevard Landscape Areas		
≥ 2.6 m width	Shrub bed and Street Tree, including concrete verge (0.6m width) along the back of curb	All measurements from the face of curb.
≥ 2.6 m width	Street Trees in sod	All measurements from the face of curb.

Boulevard/Median Width	Planting Options	Notes
2.0- 2.49 m width	Shrub bed, including concrete verge (0.6m width) along the back of curb	All measurements from the face of curb.
1.5 - 2.49 m width	Sod only	All measurements from the face of curb.
< 1.5 m width	None	All measurements from the face of curb.
Trackway Boulevard Landscape Areas		
≥ 6 m or 2 m + ½ width of Canopy Tree at maturity, whichever is greater	Shrub bed with Canopy Trees, including concrete verge (0.6m width)	See Section 2-14.22.7 *[Tree, Shrub and Perennial Plant Spacing and Sizing]* for typical tree spacing at tree maturity.
≥ 4.0 m	Shrub bed with groups of Columnar Trees, including concrete verge (0.6m width)	All measurements from the face of curb.
≥ 2.0 m	Shrub bed, including concrete verge (0.6m width)	All measurements from the face of curb.
< 2.0 m width	None	All measurements from the face of curb.
Roadway Median and Island Landscape Areas		
≥ 4.0 m for arterial. ≥ 3.0 m for local and collectors	Shrub bed including Street Trees, concrete verges (0.6m width) on both sides of median/island	All measurements from the face of curb.
≥ 2.5 m width	Shrub bed width including concrete verges on both sides of median/island (0.6m width)	All measurements from the face of curb.
2.0 m to 2.49 m width	Sod only	All measurements from the face of curb.

Boulevard/Median Width	Planting Options	Notes
< 2.0 m width	None	All measurements from the face of curb.

B. Street Trees shall not be provided at intersections, crosswalks, or driveways, where sightlines are determined to be impeded in accordance with the Safety and Security Certification Program.

C. Street Trees do not need to be provided where Utility setbacks are parallel to and in conflict with the potential line of trees.

D. Notwithstanding Section 2-14.3.2.C *[General Planting Requirements for Landscape Planting Areas]* of this Schedule, street lighting power lines shall be relocated to accommodate Street Tree planting.

2-14.3.3 Street Tree Planting in Roadway Boulevard Landscape Areas

A. Provide Street Trees in all Roadway Boulevard Landscape Areas as identified in Table 2-14.3.2 *[Spatial Requirements for Planting]* and according to the following requirements:

1. Provide Street Trees as part of all Roadway Boulevard Landscape Areas except where:

   a. an existing tree is located, in which case the Street Tree patterning shall accommodate the existing tree; or

   b. the required setback to Utility crossings, driveways, walkways or structure prevents tree planting; in which case individual tree spacing shall be adjusted by up to 3m to accommodate setbacks; where two or more setback conflicts overlap or occur along a section of the LRT Corridor, a maximum of one Street Tree may be omitted from the affected section.

2. Street Trees in the Roadway Boulevard Landscape Area shall be:

   a. Canopy Trees;

   b. planted in a continuous row along the full length of the Roadway Boulevard Landscape Area; and

   c. spaced according to the mature tree canopy sizes listed in Table 2-14.22.3 *[Tree Species for Landscaping]*.

2-14.3.4 Street Tree Planting in the Back of Walk Landscape Area

A. Provide Street Trees in the Back of Walk Landscape Area according to the following requirements:

1. Provide Street Trees in the Back of Walk Landscape Area only where Street Trees cannot be planted in the adjacent Roadway Boulevard Landscape Area :

   a. from the intersection of Connor's Road and Cloverdale Road to the intersection of Argyll Road and 83 Street.

   b. from the intersection of Wagner Road and Davies Road to the intersection of 28th Avenue and Hewes Way.

2. Provide Street Trees in the Back of Walk Landscape Area except where:

a. an existing tree is located in the applicable Back of Walk Landscape Area, in which case, Street Tree patterning shall be adjusted to accommodate the existing tree;

b. the required setback to Utility crossings, driveways, walkways or structure prevents tree planting. Individual tree spacing shall be adjusted by up to 3m to accommodate setbacks. Where multiple setback conflicts overlap or occur concurrently along a section of the LRT Corridor, a maximum of one (1) Street Tree may be omitted from the affected section; or

c. the Back of Walk Landscape Area width is less than 1.5m, with the width measured from back of walk to adjacent property line.

3. Street Trees in the Back of Walk Landscape Area shall be:

a. Canopy Trees;

b. planted in a continuous row; and

c. spaced according to the mature tree canopy sizes listed in Table 2-14.22.3 *[Tree Species for Landscaping].*

2-14.3.5 Street Tree Planting in the Roadway Median and Island Landscape Area

A. Provide Street Trees in the Roadway Median Landscape Area and Island Landscape Area as identified in Table 2-14.3.2 *[Spatial Requirements for Planting]* and according to the following requirements:

1. Street Trees in the Roadway Median Landscape Area and Island Landscape Area shall be provided except where:

a. an existing tree is located in the applicable Roadway Median Landscape Area or Island Landscape Area, in which case Street Tree patterning shall be adjusted to accommodate the existing tree; or

b. the required setback to Utility crossings, driveways, walkways or structure prevents tree planting. Individual tree spacing shall be adjusted by up to 3m to accommodate setbacks. Where multiple setback conflicts overlap or occur concurrently along a section of the LRT Corridor, a maximum of one Street Tree may be omitted from the affected section.

2. Street Trees in the Roadway Median Landscape Area and Island Landscape Area shall be:

a. Canopy Trees;

b. planted in a continuous row along the full length of the Roadway Median Landscape Area; and

c. spaced according to the mature tree canopy sizes listed in Table 2-14.22.3 *[Tree Species for Landscaping]*.

2-14.3.6 Street Tree Planting in the Trackway Boulevard Landscape Area

A. Provide Street Trees in the Trackway Boulevard Landscape Area as identified in Table 2-14.3.2 *[Spatial Requirements for Planting]* and according to the following requirements:

1. Provide Street Trees within all Trackway Boulevard Landscape Area except where:

a. an existing street tree is located in the applicable Trackway Boulevard Landscape Area, in which case, in which case Street Tree patterning shall be adjusted to accommodate the existing tree;

b. the required setback to Utility crossings, driveways, walkways or structure prevents tree planting. Individual tree spacing shall be adjusted by up to 3m to accommodate setbacks. Where multiple setback conflicts overlap or occur concurrently along a section of the LRT Corridor, a maximum of one Street Tree may be omitted from the affected section.

2. Street Trees in the Trackway Boulevard Landscape Area shall be as per Section 2-14.4 *[Required Planting Setbacks]* and as follows:

a. Provide Canopy Trees in Trackway Boulevard Landscape Areas of widths able to accommodate Canopy Trees, except that Columnar Trees shall be provided where Canopy Trees cannot be accommodated within the Trackway Boulevard Landscape Area width.

b. Canopy Trees shall be planted in a continuous row along the full length of the Trackway Boulevard Landscape Area and spaced according to the mature tree canopy sizes listed in Table 2-14.22.3 *[Tree Species for Landscaping*].

c. Columnar Trees shall be planted in groups of at least three (3) trees, with trees being spaced according to the mature tree canopy sizes listed in Table 2-14.22.3 *[Tree Species for Landscaping]*. The spaces between Columnar Tree groups shall be no more than 10m.

2-14.3.7 Pedestrian Priority Zones

A. The landscape design in all PPZs shall be distinct and recognizably different from other landscape areas in the adjacent LRT Corridor, highlighting the Stop and immediately adjacent intersection(s). Landscape design differentiation shall be created by modifications in planting patterning, layout design, or foliage and flower colour. Plantings shall provide the effect of colour and texture through all 4 seasons.

2-14.4 REQUIRED PLANTING SETBACKS

A. Utility setbacks shall be in accordance with *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

B. Provide tree setbacks to Roadways, Trackway, SUPs and sidewalks in accordance with Table 2-14.4 *[Tree Setback Amendment].*

Table 2-14.4: Tree Setback Amendment

Scenario	Tree Setbacks
Roadway boulevard curbs	2.0m from centre of tree trunk to face of curb
Roadway median curbs	2.0m from centre of tree trunk to face of curb
Downtown Roadway curbs	1.5m from centre of tree trunk to face of curb
Edge of walkways	Deciduous: 1.0m to centre of tree trunk, if no root barrier is provided 0.5m to centre of tree trunk, if root barrier is provided Coniferous: 2m from edge of tree canopy at maturity.
Dynamic Envelope	For Canopy Trees: At least half the width of Canopy

Scenario	Tree Setbacks
	Tree at maturity. For Columnar Trees: At least 2m or half the width of the Columnar Tree at maturity, whichever is greater. Dimensions of tree at maturity are according to Table 2-14.22.3 *[Tree Species for Landscaping]*.

C. Shrubs and perennials shall be setback so that the mature edge of shrubs/perennials will not overhang the adjacent walkway concrete verge or other hard paving surfaces.

D. Shrubs and perennials shall be setback a minimum 500mm between mature edge of shrubs/perennials and planting bed edge where shrub beds are adjacent to turf areas.

E. Shrubs and perennials shall be setback a minimum 600mm between mature edge of shrubs/perennials and the planting bed edge where shrub beds are adjacent to an SUP.

F. Coniferous trees shall be setback a minimum of 2m from edge of mature tree canopy to pedestrian areas and walkways.

G. Root barrier shall be installed along Roadways and asphalt and concrete pedestrian surfaces, including paths, sidewalks and SUP, located within 10m of existing Populus trees (poplars and aspens) other than Populus tremula var. erecta.

H. Populus trees, except Swedish Columnar Aspen, with aggressive root systems that have been known to cause pavement damage shall be setback a minimum of 10m from any asphalt or concrete pedestrian surface. Alternately, trees with aggressive root systems may be located a minimum of 3m from any asphalt or concrete pedestrian surface if root barrier is installed along the hard surface.

2-14.5 DOWNTOWN CHARACTER ZONE LANDSCAPE REQUIREMENTS

2-14.5.1 Design Intent

A. The landscaping in the Downtown Character Zone shall be simple and contemporary and as follows:

1. The planting scheme shall focus on promoting healthy and long-lasting Street Trees along the LRT Corridor.

2. Colourful mass-planted shrub and/or perennial beds shall be used to highlight PPZ and Stops.

3. Perennials are permitted to be planted.

2-14.5.2 Area Specific Requirements

A. Provide Street Trees and shrub beds in the patterns, types and locations identified in Appendix 5-2A *[102 Avenue Streetscape Drawings]* of this Schedule and as identified in Table 2-14.5.2 *[102 Avenue Streetscape Plant List]*.

Table 2-14.5.2: 102 Avenue Streetscape Plant List

Canopy Trees	
Ulmus Americana:	American Elm
Shrubs	

Juniperus horizontalis	Horizontal juniper cultivars
Symphoricarpos sp	Snowberry
Viburnum opulus 'nana'	Compact Cranberries
Perennials	
Artemesia schmidtiana 'Silver Mound':	Silver Mound Artemesia
Hemerocallis sp.	Daylily
Iris pallida 'variegata'	Variegated Sweet Iris
Iris sibirica	Siberian Iris Cultivars
Perennial Ornamental Grasses	
Calamagrostis x acutiflora	Feather Reed Grass Cultivars
Festuca glauca	Blue Fescue Cultivars
Helictotricon sempervirens	Blue Oat Grass

2-14.6 RIVER VALLEY CHARACTER ZONE LANDSCAPE REQUIREMENTS

2-14.6.1 North Riverbank / Louise McKinney Riverfront Park

2-14.6.1.1 Location

A. Section 2-14.6.1 *[North Riverbank / Louise McKinney Riverfront Park]* sets out landscape requirements for the area from the south end of 95 Street north of the North Saskatchewan River to the north bank of the North Saskatchewan River.

2-14.6.1.2 Design Intent

A. Reinstate the landscape of Louise McKinney Riverfront Park and the adjacent natural surroundings with landscaping modifications to integrate the LRT Corridor into NSRV.

B. Provide Naturalization in areas indicated on River Valley Landscape Drawings and as described in Schedule 10 *[Environmental Performance Requirements]*.

2-14.6.1.3 Area Specific Requirements

A. Landscape and park elements within the River Valley Character Zone shall conform to the River Valley Landscape Drawings.

B. The following outlines some specific landscape elements and requirements shown on the River Valley Landscape Drawings:

1. Reinstate the World Walk as indicated on River Valley Landscape Drawings, such that:

   a. the World Walk shall be accessible (maximum 5% slope) and accommodate vehicles with a minimum outside turning diameter of 6.7m;

   b. the World Walk shall be graded and constructed in a manner that allows for the future construction of two (2) stairways by others, including landings, as indicated on the River Valley Landscape Drawings; and

   c. permanent elements, other than the World Walk, planting beds, perennials and shrubs shall not be constructed within the areas indicated on the River Valley Landscape Drawings for the potential future stairway.

2. Trail connections shall be installed in locations indicated on River Valley Landscape Drawings. SUPs shall not be located within 4m of any Elevated Guideway pier or wall.

3. Grade and construct the river bank in a manner that allows for future construction by others of the riverfront promenade, including the accessible pathway connecting the SUP to the future riverfront promenade, as indicated on the River Valley Landscape Drawings. Vertical clearance requirements above the future Trail shall comply with clearance requirements for SUPs outlined in Part 3 *[Civil]* of this Schedule.

4. Provide a wildlife underpass as shown on the River Valley Landscape Drawings and as set out in Schedule 10 *[Environmental Performance Requirements]*.

5. Provide compost filled, 5mil woven HDPE geotextile sock, 300mm diameter installed in locations on River Valley Landscape Drawings to prevent migration of mulch or soils down slopes in accordance with manufacturer's specifications for erosion control.

6. Rose, shrub and perennial beds shall be installed as shown on the River Valley Landscape Drawings.

7. Individual trees shall be planted in locations indicated on River Valley Landscape Drawings.

8. Site furnishings in Louise McKinney Riverfront Park:

   a. Existing site furnishings will be removed by the City. Provide notice to the City at least ninety (90) days before commencing Construction in the applicable NSRV Segment.

   b. Provide concrete furnishing pads in locations indicated on River Valley Landscape Drawings. Concrete furnishing pad sizes shall match existing unless indicated otherwise on River Valley Landscape Drawings. Furnishing pads shall be constructed as shown to Detail 1 on SEW-2200-01-AL-PE-604.

   c. Provide two (2) seating areas along World Walk in the locations shown on River Valley Landscape Drawings SEW-2200-01-AL-PE-504. Concrete finishes and architectural detailing shall be as per SEW-2200-01-AL-PE-500 and SEW-2200-01-AL-PE-505. Furnishings will be supplied and installed by others.

9. TransCanada Trail Kiosk:

   a. Create detailed drawings true to the existing structure, including existing electrical and light fixtures, prior to kiosk demolition with sufficient detail to allow construction of a new Kiosk that is identical in every respect to the existing Trans Canada Trail kiosk and submit drawings and photo documentation of existing structure to the City at least thirty-five (35) days prior to kiosk demolition.

   b. Provide at least thirty-five (35) days advance notice prior to required removal of the TransCanada Trail Kiosk. The City will remove the name plaque panels within the thirty-five (35) day period.

   c. Demolish and dispose of the existing Trans Canada Trail kiosk.

   d. Construct a new Trans Canada Trail kiosk in strict compliance with the submitted drawings (refer to Section 2-14.6.1.3B.9.a above) in the location identified on drawing SEW-2200-01-AL-PE-504.

10. Provide the retaining wall, concrete foundation and all concrete structural components adjacent to the Trans Canada Trail kiosk in the location indicated in SEW-2200-01-AL-PE-504 and SEW-2200-01-AL-PE-505. Retaining wall finishes and architectural detailing shall be as per SEW-2200-01-AL-PE-505. Concrete pads and plazas shall comply with drawing #LA302 of the *Valley Line LRT Project Landscape Design and Construction Standards*.

11. Provide a seating area with a retaining wall in location indicated on SEW-2200-01-AL-PE-504 and detailed on SEW-2200-01-AL-PE-505. Retaining wall and seating area concrete finishes and architectural detailing shall be as per SEW-2200-01-AL-PE-505.

12. Ensure that all existing irrigation sources and systems, including quick couplers, are reinstated to full operation.

13. Ensure that supply and connections to irrigation systems outside of the Lands are not interrupted.

14. Reinstate modular retaining wall along SUP identified as Item 2 in SEW-2200-01-AL-PE-505. Wall shall not be higher than existing wall.

15. Provide hard, dense, durable field riprap with no cracks (including a primary (+/-300 mm dia.) and bedding layer (+/- 200mm dia.) under the Tawatinâ Bridge in sun/rain shadow areas as identified on SEW-2200-01-AL-PE-500.

C. Provide soft landscape screening that integrates with and conceals the retaining walls along the North River Bank Tunnel Approach Access Road.

1. Engineered, vegetated retaining wall systems are permitted.

2. Non-native, non-invasive plant materials are permitted to screen the retaining walls, provided they are planted within 2.5m of the retaining structure and will not encroach within the growth of native plant material in adjacent areas.

2-14.6.2 South Riverbank / Henrietta Muir Edwards Park

2-14.6.2.1 Location

A. Section 2-14.6.2 *[South Riverbank / Henrietta Muir Edwards Park]* sets out landscape requirements for the area from the south bank of the North Saskatchewan River to 98 Avenue.

2-14.6.2.2 Design Intent

A. Reinstate the landscape of Henrietta Muir Edwards Park and the adjacent natural surroundings with landscaping modifications that integrate the LRT Corridor into the NSRV.

B. Provide Native Forest Restoration and Naturalization in areas indicated on River Valley Landscape Drawings and as described in Schedule 10 *[Environmental Performance Requirements].*

2-14.6.2.3 Area Specific Requirements

A. Landscape and park elements shall conform to the River Valley Landscape Drawings.

B. The following outlines some specific landscape elements and requirements shown on the River Valley Landscape Drawings:

1. Remove the 'Capital City Recreation Park' sign and aggregate base.

2. Remove and dispose of the existing Henrietta Muir Edwards Park sign base.

   a. The City will remove the sign, above the base. Provide notice to the City at least ninety (90) days before removing base.

3. Remove and replace existing drinking fountain with new Haws Model 3377FR (black colour) to fully functioning condition. Water fountain shall be installed with a pneumatic freeze-resistant valve installed below the frost line as per manufacturer specification. Water fountain shall be centered on a square 1.5m concrete pad in location shown on SEW-2200-01-AL-PE-604.

4. Obelisk

   a. Remove existing concrete obelisk pile and base.

   b. Construct a new obelisk base in the location identified on drawing SEW-2200-01-AL-PE-604 and as specified on drawing SEW-2200-01-AL-PE-614.

   c. The City will remove and store the obelisk. Provide notice to the City at least ninety (90) days before removing base.

5. Provide 2m wide crushed limestone (75mm depth, 10 minus material) pathways ensuring proper subgrade and surface compaction to facilitate easy wheel chair access in location shown on River Valley Landscape Drawings. Geotextile shall be installed between subgrade and crushed limestone to prevent material migration.

6. Provide at least thirty-five (35) days advance notice prior to required removal of trash receptacles and benches. The City will remove and store the existing trash receptacles and benches.

7. Provide two (2) trash receptacle concrete pads in locations shown and detailed on drawing SEW-2200-01-AL-PE-604.

8. Provide five (5) concrete bench pads and one (1) double bench pad in locations shown and detailed on drawing SEW-2200-01-AL-PE-604.

9. Provide Trails in locations indicated on River Valley Landscape Drawings. Trails shall not be located within 4m of any Elevated Guideway pier or wall. Trails shall be accessible (maximum 5% slope) and accommodate vehicles with a minimum outside turning diameter of 6.7m.

10. Provide a wildlife underpass beneath the Tawatinâ Bridge as shown on the River Valley Landscape Drawings and Schedule 10 *[Environmental Performance Requirements*]. Provide a 1 m wide granular pathway on the wildlife bench as indicated on SEW-2200-01-AL-PE-601 and the drawing #5170 of the *Valley Line LRT Project Landscape Design and Construction Standards*. The granular pathway shall tie into existing granular pathway with smooth transitions and maximum 5% grade.

11. Provide hard, dense, durable field stone riprap with no cracks (including a primary (+/-300 mm dia.) and bedding layer (+/- 200 mm dia.) and boulders (+/- 1000 mm L/W/H) under the Elevated Guideway in sun/rain shadow areas. Boulders shall be incorporated into the landscape planting design. Riprap areas and boulder quantities as identified on drawing SEW-2200-01-AL-PE-601 are given for design information.

12. Remove and dispose of the existing picnic shelter, concrete paver walkway, plaza and picnic sites, including furnishing identified on drawing SEW-2200-01-AL-601.

13. Provide decorative concrete plazas identified on drawing SEW-2200-01-AL-601 and conforming to the following requirements:

   a. Plaza shall be constructed as shown on SEW-2200-01-AL-PE-603. Project Co shall be responsible for design of control joints and construction joints.

   b. The smaller circular concrete plaza shall be integrally coloured with Lafarge Artevia™ Executive Ledgestone or alternate acceptable to the City. The larger organic shaped plaza area shall be integrally coloured with Lafarge Artevia™ Executive Brownstone or alternate acceptable to the City.

   c. Plaza shall include tree planting openings (1800mm x 1800mm dimensions) as indicated on River Valley Landscape Drawings. Tree planting design must meet requirements for soil volumes in Section 2-14.14.2. *[Soil Volume Requirements for Trees].* Sub-drainage system for

tree planting, if required, shall daylight into adjacent landscape areas, hidden from Public View and without creating erosion issues.

14. Provide sod and 200mm depth topsoil as identified on drawing SEW-2200-01-AL-PE-605, 606.

15. Provide trees, shrubs and perennial plantings including bed preparation, planting soils, and mulch, as identified on drawing SEW-2200-01-AL-PE-601, 605, 606.

2-14.6.3 Muttart Conservatory and Surrounding Area

2-14.6.3.1 Location

A. Section 2-14.6.3 *[Muttart Conservatory and Surrounding Area]* sets out landscape requirements for the area from 98 Avenue to the Muttart south access road.

2-14.6.3.2 Design Intent

A. Reinstate the landscape of Muttart Conservatory and the adjacent park surroundings with landscape modifications as are necessary to integrate the LRT Corridor into the NSRV.

B. Provide landscaping that visually integrates and highlights the connection between Muttart Stop and Muttart Conservatory.

2-14.6.3.3 Area Specific Requirements

A. Landscape and park elements shall conform to the River Valley Landscape Drawings.

B. The following outlines some specific landscape elements and requirements shown on the River Valley Landscape Drawings:

1. Remove and dispose of the existing Muttart Conservatory sign piles and base. Provide notice to the City at least ninety (90) days before removing piles and base. No permanent structures shall be built in the location of future Muttart Sign shown on the River Valley Landscape Drawings.

2. Remove and dispose of the 3m wide by 6m long park pedestrian bridge, including foundations.

3. Provide a steel girder and concrete slab pedestrian bridge (the "***Muttart Pedestrian Bridge***"), including abutments and foundations, as identified on drawings SEW-2200-01-AL-PE-611. The bridge shall include the following design elements and requirements:

   a. Bridge shall be 8m in length with a 3.1m wide clear pedestrian walking surface.

   b. Bridge shall be designed for pedestrian loading and maintenance vehicle loading complying with CAN / CSA S6 loading requirements.

   c. The pedestrian walking surface shall be concrete and shall have a slip-resistant finish.

   d. Metal handrails with a minimum of four (4) integrated metal logo inset panels shall be provided and integrated into the design.

   e. All steelwork shall:

      i. be coated with a black gloss colour;

      ii. be cleaned and prepared prior to application of coatings;

      iii. first be coated with durable primers or undercoat system and then coated with either an electrostatically applied coating or a two-part epoxy paint;

iv. not use powdercoating; and

v. come with a manufacturer warranty of at least ten (10) years on coatings, which shall be transferred to the City concurrently with the issuance of the applicable Early Handover Completion Certificate.

f. Provide colour samples of black gloss coating for acceptance by the City in accordance with Schedule 2 *[Submittal Review Procedure]*.

g. Bridge camber radius shall be between 88m and 92m.

4. Provide a decorative concrete plaza in location identified on drawing SEW-2200-01-AL-608, meeting the following requirements:

   a. Concrete finishes and architectural detailing of plaza shall comply with SEW-2200-01-AL-PE-611. Project Co shall be responsible for design of control joints and construction joints.

   b. Provide consistent, heavily sandblasted concrete flat work within 1m of retaining wall identified on River Valley Landscape Drawing SEW-2200-01-AL-PE-608.

5. Provide two (2) concrete walls adjacent to the decorative concrete plaza as indicated on SEW-2200-01-AL-PE-608. Concrete finishes and architectural detailing of plaza shall comply with SEW-2200-01-AL-PE-611.

6. Provide (1) trash receptacle concrete pad (900 mm x 900 mm dimensions), as located on drawing SEW-2200-01-AL-PE-610.

7. Provide trees, shrubs and perennial plantings as identified on drawing SEW-2200-01-AL-PE-608, 612,613 including bed preparation, planting soils, and mulch.

8. Provide bicycle racks in location identified on drawing SEW-2200-01-AL-PE-611. Refer to Section 3-2.7 *[Bicycle Parking]* of this Schedule for required bicycle rack quantities.

9. Cap abandoned existing irrigation lines and reinstate existing landscape irrigation impacted by Construction. Impacted irrigation heads, valves and spigots shall be relocated, as per SEW-2200-01-AL-PE-610 to accommodate new landscape design. Project Co shall be responsible for the design of irrigation lines and connections, consistent with the existing irrigation lines and connections. A new irrigation spigot, including hardware and piping, shall be provided in locations identified on drawing SEW-2200-01-AL-PE-608.

10. Ensure that supply and connections to irrigation systems outside of the Lands are not interrupted.

11. Provide hard, dense, durable field stone riprap with no cracks (including a primary (+/-300mm dia.) and bedding layer (+/- 200mm dia.) and boulders (+/- 1000 mm L/W/H) under the Elevated Guideway in sun/rain shadow areas. Boulders shall be incorporated into the landscape planting design under Elevated Guideway. Riprap areas and boulder quantities shall be as identified on drawing SEW-2200-01-AL-PE-608.

12. Provide Trails in locations indicated on River Valley Landscape Drawings. Trails shall not be located within 4m of any Elevated Guideway pier or wall. Trails shall be accessible (maximum 5% slope) and accommodate vehicles with a minimum outside turning diameter of 8m.

13. Provide sod and 200 mm depth top soil as identified on drawing SEW-2200-01-AL-PE-608.

14. Provide twelve (12) Muttart screening panels, six (6) large and six (6) small, as per drawing SEW-2200-01-AL-PE-610. Muttart screening panels shall include sections of varied perforated aluminum veneer that conceal the structural frame on the front and sides. The design shall

incorporate flexible nylon / vinyl banner support arms for City of Edmonton seasonal banners. Nylon / vinyl banner design and supply will be by others.

2-14.6.4 Connors Road

2-14.6.4.1 Location

A. Section 2-14.6.4 *[Connors Road]* sets out landscape requirements for the area from the Muttart south access road to the intersection of Connors Road and Cloverdale Hill.

2-14.6.4.2 Design Intent

A. Reinstate the landscape within Connors Hill and the adjacent natural surroundings with landscape design modifications as are necessary to integrate the LRT Corridor into the NSRV.

2-14.6.4.3 Area Specific Requirements

A. Provide Naturalization and Native Forest Restoration in accordance with Schedule *10 [Environmental Performance Requirements].*

2-14.7 MILL CREEK CHARACTER ZONE LANDSCAPE REQUIREMENTS

2-14.7.1 95 Avenue

2-14.7.1.1 Location

A. Section 2-14.7.1 *[95 Avenue]* sets out landscape requirements for the area from the intersection of Connors Road and Cloverdale Hill to the intersection of 95 Avenue and 85 Street.

2-14.7.1.2 Design Intent

A. The landscaping shall reflect the aesthetics of adjacent residential landscapes by using detailed pedestrian-scale planting designs rather than large mass planting of monocultures.

B. Perennials are permitted to be planted in areas along 95 Avenue as noted in Section 2-14.7.1.3 *[Area Specific Requirements].*

2-14.7.1.3 Area Specific Requirements

A. Along Connors Road from Cloverdale Hill to Donnell Road:

1. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences along north side of Roadway are provided.

2. Provide sod and Street Trees along north side of Roadway in Back of Walk Landscape Area.

3. Provide shrubs/perennials in planting beds along north side of Roadway in Roadway Boulevard Landscape Area.

4. Provide shrubs/perennials in planting beds along north side of Roadway in Trackway Boulevard Landscape Area.

B. Along 95 Avenue between Donnell Road and 90 Street:

1. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along the north side of the Roadway are provided at SE30 to SE32.

2. Provide sod and Street Trees along north side of Roadway in Back of Walk Landscape Area.

3. Provide shrubs/perennials in planting beds along north side of Roadway in Roadway Boulevard Landscape Area.

4. Provide shrubs/perennials in planting beds in Trackway Boulevard Landscape Areas.

5. Provide sod and Street Trees along south side of Roadway in minimum 1.4m width Back of Walk Landscape Area.

6. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences along south side of Roadway are provided at SE35 and SE37.

C. Along 95 Avenue from 90 Street to 89 Street:

1. Provide sod and Street Trees along north side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs/perennials in planting beds in Trackway Boulevard Landscape Areas.

3. Provide sod and Street Trees along south side of Roadway in Back of Walk Landscape Area.

D. Along 95 Avenue from 89 Street to 87 Street:

1. Provide shrubs/perennials in planting beds in Trackway Boulevard Landscape Areas.

2. Provide shrubs/perennials in planting beds and Street Trees along south side of Roadway in Back of Walk Landscape Area.

E. Along 95 Avenue from 87 Street to 85 Street:

1. Provide sod along south side of Roadway in Back of Walk Landscape Area.

2. Provide Street Trees along the south side of the Roadway in Back of Walk Landscape Area at SE44 and SE35.

2-14.7.1.4 Intersection Specific Requirements

The following provides the landscape requirements for intersections along 95 Avenue. Intersections not listed below are to receive the same treatment as per the area specific landscape requirements listed above in Section 2-14.7.1.3 *[Area Specific Requirements].*

A. 95 Avenue and 92 Street:

1. In the southwest corner of the intersection, provide a minimum 24m² planting bed with shrubs/perennials.

B. 95 Avenue and 91 Street:

1. In the southwest corner of the intersection, provide a minimum 20m² planting bed with shrubs/perennials.

2. In the southeast corner of the intersection, provide a minimum 35m² planting bed with shrubs/perennials.

C. 95 Avenue and 90 Street:

1. In the northeast corner of the intersection, provide a minimum 40m² planting bed with shrubs/perennials.

D. 95 Avenue and 87 Street:

1. In the northeast corner of the intersection, provide a minimum 40m² planting bed with shrubs/perennials.

2. In the northwest corner of the intersection, provide a minimum 40m² planting bed with shrubs/perennials.

3. In the southeast corner of the intersection, provide a minimum 15m² planting bed with shrubs/perennials.

E. 95 Avenue and 86 Street:

1. In the northeast corner of the intersection, provide a minimum 30m² planting bed with shrubs/perennials.

2. In the northwest corner of the intersection, provide a minimum 35m² planting bed with shrubs/perennials.

3. In the southeast corner of the intersection, provide a minimum 15m² planting bed with shrubs/perennials.

4. In the southwest corner of the intersection, provide a minimum 15m² planting bed with shrubs/perennials.

2-14.7.2 85 Street and 83 Street

2-14.7.2.1 Location

A. Section 2-14.7.2 *[85 Street and 83 Street]* sets out landscape requirements for the area from the intersection of 95 Avenue and 85 Street to the intersection of 83 Street and Argyll Road.

2-14.7.2.2 Design Intent

A. The landscaping shall focus on repetitive, colourful blocks of mass-planted shrubs.

B. Large displays of colourful shrubs shall be used to highlight the area around the Bonnie Doon Shopping Centre.

2-14.7.2.3 Area Specific Requirements

A. Along 85 Street from 95 Avenue to Connors Road/90 Avenue:

1. Provide shrubs in shrub beds and Columnar Trees, installed at least 1.5m from face of roadway curb, in Trackway Boulevard Landscape Areas with a width of at least 3.5m and shrubs in shrub beds in Trackway Boulevard Landscape Areas with a width smaller than 3.5m.

2. Provide shrubs in shrub beds and Columnar Trees in Back of Trackway Landscape Areas.

3. Provide shrubs in shrub beds in Roadway Median Landscape Areas.

4. Provide shrubs in shrub beds along west side of Roadway in Roadway Boulevard Landscape Areas.

5. Provide sod and Street Trees along west side of Roadway in Back of Walk Landscape Area.

6. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along west side of Roadway are provided at SE44 and SE45.

B. Along 83 Street from Connors Road/90 Avenue to the Future Bonnie Doon Intersection:

1. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds along east side of Roadway in Back of Trackway Landscape Area.

C. Along 83 Street from the Future Bonnie Doon Intersection to 84 Avenue:

1. Provide sod along east side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Areas.

3. Provide shrubs in shrub beds and Columnar Trees along west side of Roadway in Trackway Boulevard Landscape Area.

4. Provide shrubs in shrub beds and Columnar Trees along west side of Roadway in Back of Trackway Landscape Area immediately south of the Future Bonnie Doon Intersection.

5. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Back of Walk Landscape Area.

D. Along 83 Street from 84 Avenue to Whyte (82) Avenue:

1. Provide sod along east side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Trackway Boulevard Landscape Area.

3. Provide Street Trees in tree grates in walk between Bonnie Doon Stop and Roadway.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Back of Walk Landscape Area.

5. Provide Street Trees along east side of Roadway in Back of Walk Landscape Area, except at SE54.

E. Along 83 Street from Whyte (82) Avenue to 81 Avenue:

1. Provide sod and Street Trees along east side of Roadway in Back of Walk Landscape Area, and shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along east side of Roadway are provided at SE56.

2. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Back of Walk Landscape Area.

3. Provide sod and Street Trees along west side of Roadway in Back of Walk Landscape Area.

4. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences along west side of Roadway are provided.

5. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along west side of Roadway are provided at SE57.

F. Along 83 Street from 81 Avenue to 76 Avenue:

1. Provide sod and Street Trees along east side of Roadway in Back of Walk Landscape Area, and shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along east side of Roadway are provided at SE64, SE65 and SE105.

2. Provide shrubs in shrub beds in Trackway Boulevard Landscape Areas.

3. Provide shrubs in shrub beds along west side of Roadway in Roadway Boulevard Landscape Areas between 77 Avenue and 76 Avenue.

4. Provide sod and Street Trees along west side of Roadway in Back of Walk Landscape Area between the lane south of 78 Avenue and 76 Avenue.

5. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along west side of Roadway are provided at SE58, SE59, SE60, SE61, SE62, and SE63.

G. Along 83 Street from 76 Avenue to Argyll Road:

1. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along east side of Roadway are provided at SE70 and SE71.

2. Provide sod and Street Trees along east side of Roadway in Back of Walk Landscape Area.

3. Provide shrubs in shrub beds along east side of Roadway in Roadway Boulevard Landscape Area.

4. Provide shrubs in shrub beds and Columnar Trees in Trackway Boulevard Landscape Areas and according to Figure 2-14.7.2.3 *[Trackway Boulevard Landscape Area in Avonmore]*:

   a. Columnar Trees shall be grouped parallel to the Trackway with the total width of the group not exceeding 6 m at mature canopy diameter.

   b. At least two rows of shrubs shall be provided between groups of Columnar Trees.

   c. The concrete verge between the groups of Columnar Trees shall be at least 1.45 m for a length of 15 m and shall have smooth transitions with radii of not less than 1.0 m from the standard verges to the wider verges.

5. Provide shrubs in shrub beds along west side of Roadway in Roadway Boulevard Landscape Area.

6. Provide sod and Street Trees along west side of Roadway in Back of Walk Landscape Area.

7. Provide shrubs in a minimum 4m wide shrub bed along property line, where Property Fences or Noise Attenuation Walls along west side of Roadway are provided at SE66 and SE67.

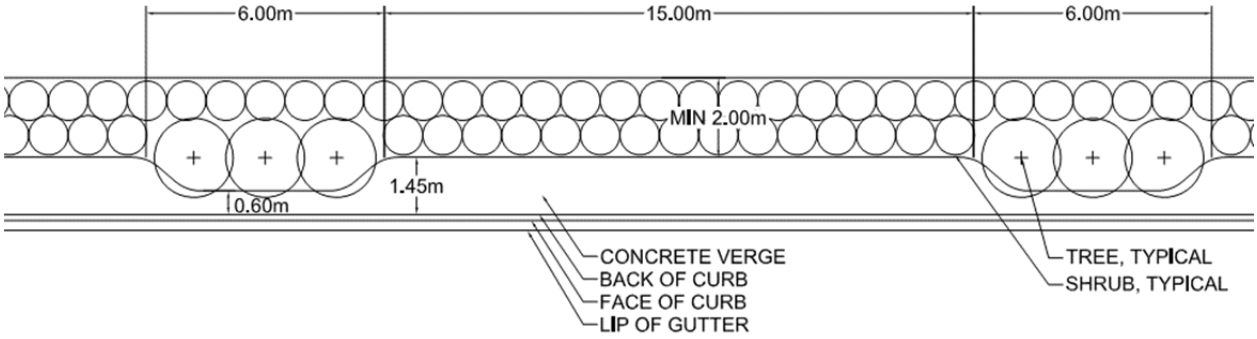


Figure 2-14.7.2.3: Trackway Boulevard Landscape Area in Avonmore

2-14.7.2.4 Intersection Specific Requirements

The following provides the landscape requirements for intersections along 85 Street and 83 Street. Intersections not listed below are to receive the same treatment as per the area specific landscape requirements listed above in Section 2-14.7.2.3 *[Area Specific Requirements].*

A. 85 Street and 95 Avenue:

1. In the northeast corner of the intersection, provide a minimum 75m² planting bed with shrubs and a minimum one (1) Canopy Tree.

2. In the northwest corner of the intersection, provide a minimum 190m² planting bed with shrubs and a minimum four (4) Canopy Trees.

3. In the southeast corner of the intersection, provide a minimum 25m² planting bed with shrubs.

4. In the southwest corner of the intersection, provide a minimum 200m² planting bed with shrubs and a minimum four (4) Canopy Trees.

B. 85 Street and 93 Avenue (northern intersection):

1. In the northwest corner of the intersection, provide a minimum 45m² planting bed with shrubs.

2. In the southwest corner of the intersection, provide a minimum 20m² planting bed with shrubs.

C. 85 Street and 93 Avenue (southern intersection):

1. Provide minimum 12m wide shrub bed east of Holyrood Stop in Back of Walk Landscape Area.

2. Provide minimum 4m wide shrub bed in Back of Walk Landscape Area along 93 Avenue east of Holyrood Stop.

D. 85 Street/83 Street and Connors Road/90 Avenue:

1. In the northeast corner of the intersection (85 Street and 90 Avenue), provide a minimum 450m² planting bed with shrubs and a minimum thirteen (13) Canopy Trees.

2. In the northwest corner of the intersection (85 Street and Connors Road), provide a minimum 330m² planting bed with shrubs and a minimum five (5) Canopy Trees.

3. In the southeast corner of the intersection (83 Street and 90 Avenue), provide a minimum 570m² planting bed with shrubs and a minimum ten (10) Canopy Trees and five (5) coniferous trees.

4. In the southwest corner of the intersection (85 Street and 83 Street), provide a minimum 570m² planting bed with shrubs and a minimum six (6) Canopy Trees.

5. In intersection medians/islands, provide minimum combined total of 570m² planting bed with shrubs and a minimum eight (8) Canopy Trees and ten (10) coniferous trees.

E. 83 Street and Future Bonnie Doon Intersection:

1. In the northwest corner of the intersection, provide a minimum 18m² planting bed with shrubs.

F. 83 Street and 86 Avenue:

1. In the northeast corner of the intersection, provide a minimum 25m² planting bed with shrubs.

2. In the southeast corner of the intersection, provide a minimum 25m² planting bed with shrubs.

G. 83 Street and 84 Avenue:

1. In the northeast corner of the intersection, provide a minimum 60m² planting bed with shrubs.

2. In the southeast corner of the intersection, provide a minimum 65m² planting bed with shrubs.

H. 83 Street and Whyte (82) Avenue:

1. In the northwest corner of the intersection, provide a minimum 220m² planting bed with shrubs and a minimum three (3) Canopy Trees or coniferous trees.

2. In the southeast corner of the intersection, provide a minimum 225m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

3. In the southwest corner of the intersection, provide a minimum 215m² planting bed with shrubs and a minimum four (4) Canopy Trees or coniferous trees.

4. In intersection medians, provide a minimum combined total of 125m² planting bed with shrubs.

I. 83 Street and 81 Avenue, 80 Avenue, 79 Avenue, 77 Avenue and 78 Avenue Intersections:

1. At all corners of the intersections, provide a minimum 20 m² planting bed with shrubs.

J. 83 Street and 76 Avenue:

1. In the northeast corner of the intersection, provide a minimum 60m² planting bed with shrubs.

2. In the northwest corner of the intersection, provide a minimum 20m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 60m² planting bed with shrubs.

K. 83 Street and 73 Avenue:

1. In the northeast corner of the intersection, provide a minimum 60m² planting bed with shrubs.

2. In the northwest corner of the intersection, provide a minimum 65m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 50m² planting bed with shrubs.

4. In the southwest corner of the intersection, provide a minimum 65m² planting bed with shrubs.

L. 83 Street and 71 Avenue:

1. In the northwest corner of the intersection, provide a minimum 75m² planting bed with shrubs.

2. In the southwest corner of the intersection, provide a minimum 70m² planting bed with shrubs.

M. Intersection between 71 Avenue and 69A Avenue with 83 Street:

1. In the northeast corner of the intersection, provide a minimum 60m² planting bed with shrubs.

2. In the southeast corner of the intersection, provide a minimum 30m² planting bed with shrubs.

N. 83 Street and 69A Avenue:

1. In the northwest corner of the intersection, provide a minimum 30m² planting bed with shrubs.

2. In the southwest corner of the intersection, provide a minimum 60m² planting bed with shrubs.

O. 83 Street and Argyll Road:

1. In the northwest corner of the intersection, provide a minimum 240m² planting bed with shrubs.

2. Along the south side of the intersection, provide a minimum six (6) Canopy Trees.

2-14.7.2.5 Area Specific Requirements

A. The intersection of 85 Street and 90 Avenue/Connors Road shall be:

1. landscaped to highlight the intersection with large mass planting of perennials and shrubs on the northwest, northeast and southeast corners; and

2. shall be sodded and planted with planting beds of trees and shrubs, where traffic islands south of Connors Road/90 Avenue are provided.

B. All landscape areas between the Trackway and the Bonnie Doon Shopping Centre shall be landscaped with tree and shrub planting beds.

2-14.8 DAVIES INDUSTRIAL CHARACTER ZONE LANDSCAPE REQUIREMENTS

2-14.8.1 Wagner Road

2-14.8.1.1 Location

A. Section 2-14.8.1 *[Wagner Road]* sets out landscape requirements for W.P. Wagner Park and the area along Wagner Road.

2-14.8.1.2 Design Intent

A. Landscaping shall be contemporary with a bold geometric design of mass-planted colourful shrub planting blocks. Shrub planting block pattern shall run at a 30 to 45 degree angle to Roadway. Landscaping and shrub planting block pattern shall continue into the perimeter of the Davies Site.

B. Landscaping shall reinstate W.P. Wagner Park landscaping with modifications as are necessary to integrate the Davies Elevated Guideway into SE 402.

2-14.8.1.3 Area Specific Landscape Requirements

A. W.P. Wagner Park Site:

1. Provide Naturalization and Native Forest Restoration in accordance with Schedule 10 *[Environmental Performance Requirements].*

2. Provide grass seed in all other disturbed landscape areas.

3. Provide minimum 20m² of Naturalization landscaping near the base of all Elevated Guideway downspouts:

a. Direct runoff from Davies Elevated Guideway downspouts into landscape areas to provide moisture to plant material.

b. Runoff shall not be directed into Native Forest Restoration Areas.

B. Along Wagner Road from W.P. Wagner Park to Davies Road:

1. Provide sod and Street Trees along north side of Roadway in Back of Walk Landscape Area.

C. Along Wagner Road from Davies Road to 75 Street:

1. Provide shrubs in shrub beds and Street Trees along south side of Roadway in Roadway Boulevard Landscape Area.

2-14.8.2 Davies Site

2-14.8.2.1 Location

A. Section 2-14.8.2 *[Davies Site]* sets out landscape requirements for the Davies Site.

2-14.8.2.2 Design Intent

A. The landscaping shall provide a pedestrian focused landscape that highlights pedestrian movement corridors, shades parking and pedestrian areas, and mitigates stormwater.

B. Perimeter landscaping shall be contemporary with a bold geometric design of mass-planted colourful shrub planting blocks. Shrub planting block pattern shall run at a 30 to 45 degree angle to Roadway. Landscape shrub planting block pattern used along 75 Street and Wagner Road shall continue into site setback (perimeter) landscaping.

C. Perennials are permitted to be planted within Davies Site.

D. In addition to Section 2-14.2B *[Landscape Architecture Design Standards]* of this Schedule, landscape components within the Davies Site shall at least comply with the requirements for Public Utility Zone of the City of Edmonton Zoning Bylaw 12800.

2-14.8.2.3 Area Specific Requirements

A. At least 80% of the surface area of outdoor pedestrian waiting areas and walkways shall have tree canopy coverage at tree maturity.

B. Pedestrian areas of the Davies Transit Centre passenger loading platforms, except for the central passenger loading platform, shall have at least 80% tree canopy coverage at maturity.

C. Areas directly under the Davies Elevated Guideway shall not be included in the calculation of the surface areas referred to in Sections 2-14.8.2.3.A and B *[Area Specific Requirements]* above.

D. Trees within parking areas must have a minimum 8m diameter mature canopy.

E. A minimum of 100m² of planting beds shall be provided within Davies Transit Centre pedestrian island. These planting beds shall be provided with irrigation from the Davies Station down spouts. Notwithstanding Section 2-14.21B *[Irrigation]*, the irrigation system for these planting beds shall not be discontinued prior to Handback.

2-14.8.3 75th Street

2-14.8.3.1 Location

A. Section 2-14.8.3 *[75th Street]* sets out landscape requirements for the area along 75 Street.

2-14.8.3.2 Design Intent

A. Landscaping shall be contemporary with a bold geometric design of mass-planted colourful shrub planting blocks. Shrub planting block pattern shall run at a 30 to 45 degree angle to Roadway.

B. Landscaping and shrub planting block pattern shall continue into the perimeter of the Davies Site and the Gerry Wright OMF Site.

2-14.8.3.3 Area Specific Requirements

A. Along 75 Street from Wagner Road to CNR Crossing:

1. Provide sod and Street Trees along east side of Roadway in Roadway Boulevard Landscape Area north of the Davies Elevated Guideway. Provide shrubs in shrub beds, Columnar Trees and a minimum of six (6) coniferous trees in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

5. Provide shrubs in shrub beds along west side of Roadway in Back of Walk Landscape Area.

B. Along 75 Street from CNR Crossing to C.W. Carry access:

1. Provide sod and coniferous trees, in groups of five (5) with groups spaced 20m apart, along east side of Roadway in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

5. Provide sod along west side of Roadway in Back of Walk Landscape Area.

C. Along 75 Street from C.W. Carry access to McIntyre Road:

1. Provide sod and coniferous trees, in groups of five (5) with groups spaced 20m apart, along east side of Roadway in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Columnar Trees along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

5. Provide sod along west side of Roadway in Back of Walk Landscape Area.

D. Along 75 Street from McIntyre Road to Roper Road:

1. Provide shrubs in shrub beds and Columnar Trees along east side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide sod and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

5. Provide shrubs in shrub beds along west side of Roadway in Back of Walk Landscape Area.

E. Along 75 Street from Roper Road to 51 Avenue:

1. Provide sod along east side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds and Columnar Trees along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide sod along and Street Trees west side of Roadway in Roadway Boulevard Landscape Area.

5. Provide shrubs in shrub beds along west side of Roadway in Back of Walk Landscape Area.

F. Along 75 Street from 51 Avenue to Whitemud Drive:

1. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Trackway Boulevard Landscape Area.

2. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

3. Provide sod and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

4. Provide shrubs in shrub beds along west side of Roadway in Back of Walk Landscape Area.

2-14.8.3.4 Intersection Specific Requirements

The following provides the landscape requirements for intersections along 75 Street. Intersections not listed below shall comply with the requirements of Section 2-14.8.3.3 *[Area Specific Requirements]*.

A. 75 Street and Wagner Road:

1. In the northeast corner of the intersection, provide a minimum 95m² planting bed with shrubs.

2. In the northwest corner of the intersection, provide a minimum 80m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 55m² planting bed with shrubs.

B. 75 Street and McIntyre Road:

1. In the northeast corner of the intersection, provide a minimum 105m² planting bed with shrubs.

2. In the northwest corner of the intersection, provide a minimum 80m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 95m² planting bed with shrubs.

4. In the southwest corner of the intersection, provide a minimum 135m² planting bed with shrubs.

C. 75 Street and Roper Road:

1. In the northeast corner of the intersection, provide a minimum 540m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

2. In the northwest corner of the intersection, provide a minimum 20m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 265m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

4. In the southwest corner of the intersection, provide a minimum 310m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

5. In intersection medians, provide a minimum combined total of 500m² planting bed with shrubs.

D. 75 Street/ 66 Street and Whitemud Drive:

1. In the northwest corner of the intersection, provide a minimum 285m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

2. In the southeast corner of the intersection, provide a minimum 330m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

3. In intersection medians, provide a minimum combined total of 330m² planting bed with shrubs.

2-14.8.4 Gerry Wright OMF Site

2-14.8.4.1 Location

A. Section 2-14.8.4 *[Gerry Wright OMF Site]* sets out landscape requirements for the Gerry Wright OMF Site.

2-14.8.4.2 Design Intent

A. The landscaping shall provide a pedestrian focused landscape that highlights pedestrian movement corridors, shades parking and pedestrian areas, and mitigates stormwater.

B. The landscaping shall screen views of the Gerry Wright OMF working and storage areas from adjacent Roadways and properties.

C. Perimeter landscaping along 75 Street shall be contemporary with a bold geometric design of mass-planted colourful shrub planting blocks. Shrub planting block pattern shall run at a 30 to 45 degree angle to Roadway. Landscape shrub planting block pattern used along 75 Street shall continue into site setback (perimeter) landscaping.

D. Perennials are permitted to be planted within the Gerry Wright OMF Site.

2-14.9 SOUTH EAST EDMONTON CHARACTER ZONE LANDSCAPE REQUIREMENTS

2-14.9.1 66 Street and 28 Avenue

2-14.9.1.1 Location

A. Section 2-14.9.1 *[66 Street and 28 Avenue]* sets out landscape requirements for the areas along 66 Street and 28 Avenue.

2-14.9.1.2 Design Intent

A. Landscape design shall be simple with trees and large blocks of mass-planted colourful shrubs.

2-14.9.1.3 Area Specific Landscape Requirements

A. Along 66 Street from Whitemud Drive to 38 Avenue:

1. Provide shrubs in shrub beds and Street Trees or deciduous ornamental trees along east side of Roadway in Back of Trackway Landscape Area.

2. Provide minimum five (5) coniferous trees or deciduous ornamental trees north of pedestrian Track crossing at 41 Avenue along east side of Roadway in Back of Trackway Landscape Area.

3. Provide sod and Columnar Trees along east side of Roadway in Back of Walk Landscape Area.

4. Provide shrubs in shrub beds and Columnar Trees, installed at least 1.5m from face of Roadway curb, in Trackway Boulevard Landscape Areas with a width of at least 3.5m and shrubs in shrub beds in Trackway Boulevard Landscape Areas with a width smaller than 3.5m.

5. Provide shrubs in shrub beds and Street Trees, in Roadway Median Landscape Areas with a width of at least 3.5m, and shrubs in shrub beds in Roadway Median Landscape Areas with a width smaller than 3.5m.

6. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

B. Along 66 Street from 38 Avenue to 34 Avenue:

1. Provide shrubs in shrub beds and Columnar Trees along east side of Roadway in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Street Trees (Columnar Trees in areas with reduced width) along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Areas.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

C. Along 66 Street from 34 Avenue to 31 Avenue:

1. Provide shrubs in shrub beds along east side of Roadway in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Street Trees (Columnar Trees in areas with reduced width) along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

D. Along 66 from 31 Avenue to 28 Avenue:

1. Provide shrubs in shrub beds and Street Trees along east side of Roadway in Back of Trackway Landscape Area.

2. Provide shrubs in shrub beds and Columnar Trees along east side of Roadway in Trackway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Street Trees in Roadway Median Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along west side of Roadway in Roadway Boulevard Landscape Area.

E. Along 28 Avenue from 66 Street to the commercial access road between 66 Street and Hewes Way:

1. Provide sod along north side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds along north side of Roadway in Roadway Boulevard Landscape Area.

3. Provide shrubs in shrub beds and Columnar Trees along south side of Roadway in Trackway Boulevard Landscape Area.

4. Provide shrubs in shrub beds and Street Trees along south side of Roadway in Back of Walk Landscape Area.

F. Along 28 Avenue from the commercial access road between 66 Street and Hewes Way to Hewes Way:

1. Provide sod and Street Trees along north side of Roadway in Back of Walk Landscape Area.

2. Provide shrubs in shrub beds along north side of Roadway in Roadway Boulevard Landscape Area.

3. Provide shrubs in shrub beds along south side of Roadway in Trackway Boulevard Landscape Area.

4. Provide sod and Street Trees along south side of Roadway in Back of Walk Landscape Area.

G. Along 28 Avenue from Hewes Way to Lands boundary:

1. Provide sod in northernmost Roadway Median Landscape Area.

2. Provide shrubs in shrub beds and Street Trees in southernmost Roadway Median Landscape Area.

2-14.9.1.4 Intersection Landscape Requirements

The following provides the landscape requirements for intersections along 66 Street and 28 Avenue. Intersections not listed below shall comply with the requirements of Section 2-14.9.1.3 *[Area Specific Landscape Requirements]*.

A. 66 Street and 38 Avenue:

1. In the northeast corner of the intersection, provide a minimum 560m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

2. In the northwest corner of the intersection, provide a minimum 60m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 615m² planting bed with shrubs and a minimum nine (9) Canopy Trees or coniferous trees.

4. In the southwest corner of the intersection, provide a minimum 65m² planting bed with shrubs.

5. In intersection medians, provide a minimum combined total of 165m² planting bed with shrubs.

B. 66 Street and 34 Avenue:

1. In the northeast corner of the intersection, provide a minimum 375m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

2. In the northwest corner of the intersection, provide a minimum 370m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

3. In the southeast corner of the intersection, provide a minimum 550m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

4. In the southwest corner of the intersection, provide a minimum 320m² planting bed with shrubs and a minimum three (3) Canopy Trees.

C. 66 Street and 31 Avenue:

1. In the northeast corner of the intersection, provide a minimum 50m² planting bed with shrubs

2. In the northwest corner of the intersection, provide a minimum 115m² planting bed with shrubs.

3. In the southeast corner of the intersection, provide a minimum 70m² planting bed with shrubs.

4. In the southwest corner of the intersection, provide a minimum 110m² planting bed with shrubs.

D. 66 Street and 28 Avenue:

1. In the northeast corner of the intersection, provide a minimum 440m² planting bed with shrubs and a minimum five (5) Canopy Trees or coniferous trees.

2. In the northwest corner of the intersection, provide a minimum 440m² planting bed with shrubs and a minimum seven (7) Canopy Trees or coniferous trees.

3. In the southeast corner of the intersection, provide a minimum 990m² planting bed with shrubs and a minimum ten (10) Canopy Trees or coniferous trees.

4. In intersection medians, provide a minimum combined total of 125m² planting bed with shrubs.

E. 28 Avenue and Hewes Way:

1. In the northeast corner of the intersection, provide a minimum 75m² planting bed with shrubs.

2. In the northwest corner of the intersection, provide a minimum 18m² planting bed with shrubs.

3. In the southwest corner of the intersection, provide a minimum 155m² planting bed with shrubs.

2-14.9.1.5 Area Specific Requirements

A. If the existing landscape beds located in the Back of Walk Landscape Area along the west side of 66 Street are disturbed or modified by Construction, they shall be replaced by new planting beds with a similar scale of plant material. Replacement beds shall equal or exceed the area of the disturbed or modified beds.

2-14.10 UTILITY COMPLEX SITE LANDSCAPING

2-14.10.1 Location

A. Section 2-14.10 *[Utility Complex Site Landscaping]* sets out landscaping requirements for each above ground Utility Complex site.

2-14.10.2 Design Intent

A. The landscape shall visually integrate the Utility Complex into the adjacent neighbourhood character by screening the Utility Complex building and screening wall including parking areas from the adjacent residences and other land uses.

B. The landscape design aesthetic and materials shall correspond to the area in which it is situated in accordance with the information provided in Section 2-14.5 *[Downtown Character Zone Landscape Requirement]* to Section 2-14.9 *[South East Edmonton Character Zones Landscape Requirement*].

C. The landscaping shall accommodate building Operations, Maintenance and accesses.

D. Openings, such as doors and louvres, need not be screened by landscape.

E. Public Art shall not be screened by landscaping.

2-14.10.3 Landscape Screening Requirements

A. Landscape screening shall be provided on all sides of above grade Utility Complexes.

B. The landscape screening type used on each side of the Utility Complex Building shall be according to the adjacent land use as per the following Figure 2-14.10 *[Landscape Screening Types]* and Table 2-14.10 *[Landscape Screening Requirements]*.

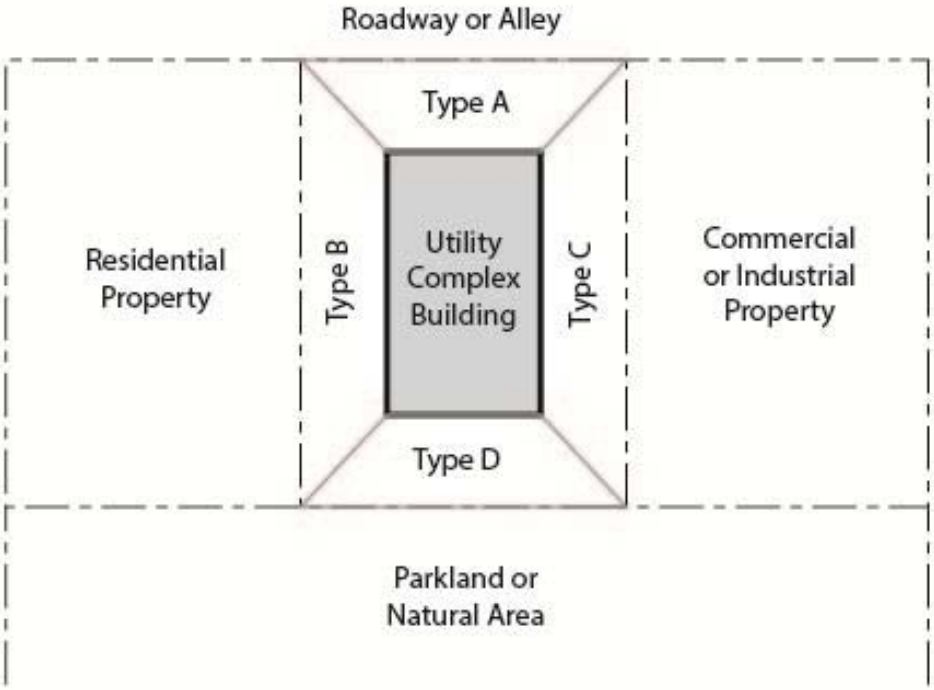


Figure 2-14.10: Landscape Screening Types

Table 2-14.10: Landscape Screening Requirements

Screening Type	Minimum Requirement
Type A Location: The side of the Utility Complex site adjacent to Roadway or alley; All sides	Planting beds shall be provided at the base of the Utility Complex building, except where openings or Public Art are located. Landscape planting beds shall be a minimum 2m wide. At plant maturity, landscaping shall screen a minimum of 75% of each building face, not

Screening Type	Minimum Requirement
of the Davies Site Utility Complex.	including openings and Public Art. If a fence is located adjacent to Roadway, it shall be screened with a landscape planting area located between the fence and property line.
Type B Location: The side of the Utility Complex adjacent to a residential property.	A solid Property Fence (drawing #5205 of the *Valley Line LRT Project Landscape Design and Construction Standards*) and a continuous row of Columnar Trees, spaced according to mature canopy diameter, shall be installed between the adjacent residential property line and the Utility Complex. Planting beds (minimum 2m wide) with trees and shrubs shall be provided at the base of the Utility Complex building. The combination of fencing and landscaping, at plant maturity, shall screen a minimum of 90% of the building face, not including openings and Public Art.
Type C Location: The side of the Utility Complex site adjacent to a commercial or industrial property.	A continuous row of trees spaced according tree canopy diameter at maturity shall be installed between the adjacent commercial or industrial property line and the Utility Complex. Planting beds (minimum 2m wide) shall be provided at the base of the Utility Complex building. Landscaping shall screen a minimum of 50% of each building face, not including openings and Public Art.
Type D Location: The side of the Utility Complex site adjacent to parkland or a natural area.	Planting beds of trees and shrubs shall be provided at the base of the Utility Complex building, except where openings or Public Art are provided. Native plant material suitable to location shall be used. Landscape planting beds shall screen a minimum of 75% of each building face, not including openings and Public Art. Native trees shall be provided adjacent to structure to screen at least 75% of the views from adjacent buildings and Roadways down into the Utility Complex site.

C. Utility Complex landscaping shall use a mixture of maximum 75% deciduous and minimum 25% coniferous plantings.

2-14.10.4 Muttart and 95 Ave Utility Complex Landscaping

A. Notwithstanding Sections 2-14.10.1 *[Location],* 2-14.10.2 *[Design Intent]*, and 2-14.10.3 *[Landscape Screening Requirements]*, landscaping at:

1. the above-grade 95 Street Utility Complex, if part of the System, shall comply with the applicable zoning requirements; and

2. the Muttart Utility Complex, if part of the System, shall be one (1) tree for each 25 m^2 of landscape area at grade and one (1) shrub for each 15 m^2 of landscape area at grade, except where openings or Public Art would be blocked.

   a. The landscape area at grade shall be defined as the area between the Utility Complex perimeter walls and a 5m offset away from the Utility Complex perimeter walls.

   b. Native plant material suitable to the location of the Muttart Utility Complex shall be used.

   c. The landscape shall visually integrate the Utility Complex into the River Valley Character Zone and the adjacent Muttart Storage Building design.

2-14.11 STORMWATER MANAGEMENT FACILITIES LANDSCAPE REQUIREMENTS

A. Stormwater Management Facilities shall be vegetated with a combination of trees, shrubs, forbs and grasses. A minimum of one (1) tree and twenty (20) shrubs shall be provided for every 100m² of a Stormwater Management Facility, calculated using the area above the normal water level.

B. Plant materials for Stormwater Management Facilities shall be selected to meet the functions required by the Stormwater Management Facility, including mitigation of erosion in the Stormwater Management Facility.

C. A continuous row of emergent plant materials or Live Soils shall be installed along the lines defined by the water level at one (1) horizontal metre above and below the normal water line to prevent erosion during establishment.

2-14.12 ISOLATED LANDSCAPE DISTURBANCE

A. Areas of isolated landscape disturbance, meaning disturbed landscape areas that are not otherwise identified in the Agreement, shall be restored to conditions present at the time of the start of construction of the applicable Work Package, subject to the following:

   1. Existing maintained turf shall be restored with sod on minimum 200mm topsoil.

   2. Existing naturalized turf (unmown turf in City parkland) shall be restored with native seed mix on 200mm topsoil. Native seed mix to be determined as part of the Native Forest Restoration Plan and the Naturalization Plan as required in Schedule 10 *[Environmental Performance Requirements].*

2-14.13 TREE RETENTION, RELOCATION, REMOVAL AND PROTECTION

A. This Section 2-14.13 *[Tree Retention, Relocation, Removal and Protection]* sets out the tree retention, relocation, removal, and protection (TRRRP) requirements for the Project.

B. Within 60 days of the Effective Date, Project Co shall submit a TRRRP Plan that:

   1. incorporates the Tree Valuation Inventory tables included in the Proposal Extracts and includes the following information for all existing trees within the Lands:

      a. table 1:

         i. tree Identification Number;

         ii. tree species;

         iii. Dbh - caliper diameter at breast height;

         iv. assessment value;

v. Relocation Candidate;

vi. Preservation Tree;

vii. Project Co's selections for removal / relocation; and

b. table 2:

i. Forested Area;

ii. assessment value unit rate;

iii. existing area; and

iv. Project Co's selections for areas of removal;

2. identifies the physical locations of all existing trees and Forested Areas using the Tree Valuation Inventory drawings included in the Proposal Extracts, which:

a. identify whether each tree or Forested Area or portion thereof will be retained and protected, relocated or removed; and

b. match the Tree Valuation Inventory tables described in Section 2-14.13B.1 *[Tree Retention, Relocation, Removal and Protection]*;

3. identifies the mitigation strategies employed to ensure the health and longevity of all Protected Trees; and

4. complies with the Valley Line LRT Landscape Design Standards included in Disclosed Data.

C. The sum of the assessment value of trees and Forested Areas identified for relocation or removal in the TRRRP Plan submitted within sixty (60) days of the Effective Date shall equal the Target Tree Compensation Value.

D. Prior to the start of Construction of any applicable Work Package, Project Co shall:

1. provide a letter confirming the then current TRRRP Plan is accurate for the applicable Work Package; or

2. submit an updated TRRRP Plan for the applicable Work Package, which shall identify all revisions to the selections of "removal" or "relocation" in the Tree Valuation Inventory tables and a reference to the applicable Final Design.

The Tree Removal Adjustment will be calculated in accordance with Section 16.3.4 *[Tree Removal Adjustment]* of Schedule 16 *[Payment Mechanism]*, based on the Final Tree Reconciliation Report.

E. Project Co shall submit an annual tree reconciliation report, on the anniversary of the Effective Date, which includes:

1. compiled modifications to the TRRRP Plan for the year since the last Effective Date anniversary;

2. a list of tree removals and relocations completed since the last Effective Date anniversary and a cumulative total value of tree removals based on the value of trees established in the Tree Valuation Inventory since the Effective Date;

3. all Tree Management Logs since the last Effective Date anniversary; and

4. all Tree Risk Assessments since the last Effective Date anniversary.

F. Project Co shall submit no later than twenty (20) Business Days before the Service Commencement Date a Final Tree Reconciliation Report, which shall be confirmed by the Independent Certifier and include:

1. all modifications to the TRRRP Plan since the Effective Date;

2. a record of tree removals and relocations completed during the Construction of the Project; and

3. a record of the aggregate value of tree removals and tree relocations based on the Tree Valuation Inventory tables.

G. The Tree Valuation Inventory identifies existing Commemorative Trees within the Lands, which when removed or relocated shall be replaced with a new tree of the same species planted within 10m of its original location. Replacement trees shall be 60mm caliper deciduous or 3m high coniferous/ evergreen at time of planting.

2-14.13.1 Tree Retention

A. The Tree Valuation Inventory identifies Preservation Trees within the Lands that must not be removed and shall be protected in accordance with Section 2-14.13.3 *[Tree Protection in Critical Root Zones].*

2-14.13.2 Tree Relocations

A. The Tree Valuation Inventory identifies existing trees within the Lands that are Relocation Candidates.

B. Relocation Candidates may be relocated in accordance with the following tree relocation procedures:

1. Tree relocations will be conducted by the City only.

2. With reference to the then current TRRRP Plan:

   a. submit a drawing identifying all trees requiring relocation; and

   b. tag and mark all trees requiring relocation on site with their associated Tree Identification Number.

3. The City will relocate tagged Relocation Candidate(s) based on the following:

   a. Subject to Section 2-14.13.2B.3.d *[Tree Relocations]*, tree relocations shall only occur between May 1 and October 15.

   b. A maximum of thirty (30) tagged Relocation Candidates will be relocated within thirty (30) Business Days after receipt of the submission identified in Section 2-14.13.2B.2.a *[Tree Relocations]*.

   c. If the Work Package identifies more than thirty (30) tagged Relocation Candidates, an additional five (5) Business Days for each additional fifteen (15) tagged Relocation Candidates or fraction thereof will be required.

   d. Relocations shall comply with applicable Law and all requirements in Schedule 10 *[Environmental Performance Requirements]* that may limit the relocation period (e.g. nesting birds).

   e. Relocations for separate Work Packages shall not run concurrently.

2-14.13.2.1 Tree and Vegetation Removal Procedures

A. Conform with the following tree and vegetation removal procedure requirements, except in Native Forest Restoration Areas and Naturalization Areas, which are dealt with in Schedule 10 *[Environmental Performance Requirements]:*

   1. All removals shall be carried out by an Arborist.

   2. All tree stumps shall be removed, grubbed, or ground down a minimum of 300mm below grade.

2-14.13.3 Tree Protection in Critical Root Zones

A. The Critical Root Zones of all Protected Trees shall be protected from compaction and damage to tree trunks, canopy and root systems. Figure 2-14.13.3 *[Critical Root Zones]* illustrates the Critical Root Zones A, B and C, which shall be determined as follows:

   1. Critical Root Zone A is calculated as half the diameter of the existing tree canopy (dripline).

   2. Critical Root Zone B is calculated as equal to the diameter of the existing tree canopy (dripline).

   3. Critical Root Zone C is calculated as twice the diameter of the existing tree canopy (dripline).

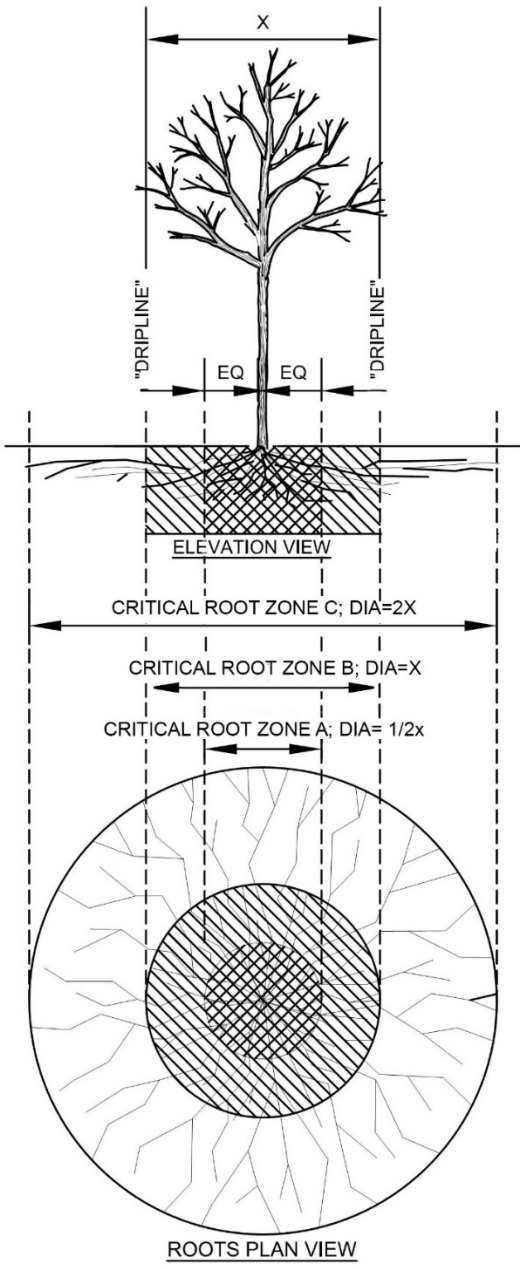


Figure 2-14.13.3: Critical Root Zones

B. Critical Root Zones A and B shall be protected with a 1800mm high temporary metal construction fence installed and pinned in place along the outer perimeter of Critical Root Zone B prior to any construction within 100m of the tree. Except where Critical Zone B:

   1. overlaps an active lane of traffic. In this case, the perimeter fence shall be installed within 500mm of the back of curb; or

   2. overlaps an active walkway or SUP. In this case, the perimeter fence shall be installed 300mm from the edge of a sidewalk or 600mm from the edge of an SUP.

C. A sign with yellow background and minimum size of 300mm x 500mm shall be mounted on each tree protection fence. The signs shall include:

1. a diagram illustrating the tree protection zone as per Figure 2-14.13.3 [Critical Root Zones];

2. contact information, including phone number, for the Arborist who is responsible for modifications to tree protection fence and tree damage evaluation;

3. Tree Identification Number and Tree Compensation Value for each tree within the temporary construction fence; and

4. the following text: “This fence protects the trees within its perimeter. This fence shall not be removed or adjusted.”

D. The following activities are not allowed in Critical Root Zone A:

1. stockpiling of materials, refuse or debris;

2. storage of chemicals;

3. staging area or storage of equipment;

4. use as haul road or construction access area;

5. trenching;

6. raising or lowering existing grade; or

7. root pruning.

E. The following activities are not allowed in Critical Root Zone B:

1. stockpiling of refuse, debris or materials;

2. storage of chemicals;

3. staging area or storage of equipment;

4. use as haul road or construction access area, except when:

   a. using an existing concrete or pavement surface that is designed to support required loading; or

   b. using steel plates or timbers to support required loading and prevent soil compaction;

5. trenching or excavation, except when the following conditions are met:

   a. less than one-third (1/3) of Critical Root Zone B will be disturbed;

6. raising or lowering existing grade, except when:

   a. grade is raised or lowered less than 100 mm from existing grade; or

   b. less than one-third of Critical Root Zone C is raised or lowered more than 100 mm from existing grade; or

7. root pruning.

F. The following activities are not allowed in Critical Root Zone C:

1. stockpiling of refuse, debris or materials that may be harmful to the health of the tree;

2. stockpiling of any material for more than four (4) weeks;

3. storage of chemicals;

4. staging area or storage of equipment;

5. use as haul road or construction access area, except when:

   a. using an existing concrete or pavement surface that is designed to support the required loading; or

   b. using steel plates, timbers or minimum 200 mm depth shredded wood mulch to support required loading and prevent soil compaction;

6. trenching or excavation, except:

   a. when less than two-thirds (2/3) of Critical Root Zone C will be disturbed;

7. raising or lowering existing grade, except when:

   a. grade is raised or lowered less than 100 mm from existing grade; or

   b. less than two-thirds (2/3) of Critical Root Zone C is raised or lowered more than 100 mm from existing grade.

G. Work within Critical Root Zone A shall be conducted in the following manner:

   1. At a minimum, while work is occurring within Critical Root Zone A, a layer of 200 mm depth shredded wood mulch on geotextile fabric shall be installed over Critical Root Zone A.

   2. Equipment and activities within Critical Root Zone A must not compact soil or have a tire or track pressure exceeding 42kPa, with maximum axle loads below 5.5 tonnes. Driving on soils that are wetter than their plastic limit, as defined in ASTM Standard D 4318, is not permitted.

H. Work within Critical Root Zone B shall be conducted in the following manner:

   1. Equipment and activities within Critical Root Zone B must not compact soil or have a tire or track pressure exceeding 42kPa, with maximum axle loads below 5.5 tonnes. Driving on soils that are wetter than their plastic limit, as defined in ASTM Standard D 4318, is not permitted.

I. Record the date, description and details of all tree protection procedures and measures in Critical Root Zones in the Tree Management Log.

2-14.13.4 Root Management Procedures

A. Prior to construction, identify tree roots within Critical Root Zone C that will require root pruning to accommodate construction activities, such as excavation and trenching.

   1. Provide the City with a five (5) month window to root prune trees identified by Project Co.

B. If roots of Protected Trees are encountered in Critical Root Zone C during Construction, they shall be dealt with as follows:

   1. Any roots between 10mm and 50mm in diameter damaged during Construction shall be exposed to sound tissue and cleanly cut with a saw or pruning shears.

2. Any roots over 50mm in diameter damaged or encountered during Construction shall be dealt with according to the following procedure:

   a. The Arborist shall evaluate the root to determine the resulting level of damage to the overall tree if the root is cut.

   b. The Arborist shall review the Tree Management Log to ensure that severing the root will not cause cumulative tree damage equal to or greater than 30%.

   c. The Arborist shall determine whether these roots need to be cut or avoided.

   d. If the root is to be cut, Project Co shall notify the City at least forty-eight (48) hours prior to providing a five (5) Business Day window to prune the root.

      i. The City will perform root pruning work.

   e. The Arborist shall record the following information in the Tree Management Log:

      i. date of when root was encountered;

      ii. construction procedures and/or circumstances leading to the root being encountered;

      iii. level of anticipated tree damage, shown as percentage of entire tree including tree trunk, canopy and root system, if root is cut; and

      iv. decision made regarding cutting or avoiding the root.

C. If roots of Preservation Trees are encountered in Critical Root Zone C during Construction, they shall be dealt with as follows:

   1. Any roots between 10mm and 50mm in diameter damaged during Construction shall be exposed to sound tissue and cleanly cut with a saw or pruning shears.

   2. If any roots greater than 50mm in diameter are encountered, Project Co shall notify the City at least forty-eight (48) hours prior to providing a five (5) Business Day window for the City to evaluate the root.

   3. At the discretion of the City, the City may prune the root or require Project Co to avoid the root during Construction.

D. Tree roots exposed in Critical Root Zones A, B or C during Construction shall:

   1. be covered in layers of wet burlap;

   2. be monitored daily by the Arborist with respect to tree health and burlap moisture level;

   3. be maintained by soaking the burlap at a minimum every three (3) days.

E. Record the date, description and details of all root pruning procedures in the Tree Management Log.

2-14.13.5 Branch Management Procedures

A. Prior to Construction, identify tree branches that will require pruning to accommodate construction access and other construction activities, and provide the City with a five (5) month window to prune trees identified by Project Co.

B. During Construction, if additional branches of Protection Trees require pruning to accommodate access or other construction activities, notify the City forty-eight (48) hours prior to providing a five (5) Business Day window for the City to complete pruning activities.

C. Subject to the provisions of this Section 2-14.13.5B *[Branch Management Procedures]* and at the discretion of the City, the City may prune the branch of a Preservation Tree or require Project Co to avoid damaging the branch of a Preservation Tree.

D. Project Co shall be responsible for ensuring that the pruning windows in this Section 2-14.13.5A, B and C *[Branch Management Procedures]* comply with the following seasonal requirements:

1. Elms shall only be pruned between October 1 and March 31.

2. Deciduous trees, not including maples and birches, shall only be pruned between October 1 and May 1.

3. Coniferous trees, maples and birches shall only be pruned between June 1 and July 31.

4. Shrub pruning and minor tree branch pruning, except for elms, may be conducted in any season.

E. Record the date, description and details of all pruning procedures in the Tree Management Log.

2-14.13.6 Procedures for Trees Damaged During Construction

A. Damage to trees is defined as any injury or physical damage occurring to a Protected Tree's trunk, canopy or root system. This includes damage from:

1. Construction activities; and

2. root or branch pruning, as identified by Project Co, to accommodate construction or access, regardless of who conducted the pruning.

B. Damage to any part of a Protected Tree, including roots, trunk and canopy, shall be evaluated by the Arborist within twenty-four (24) hours of damage incident. Depending on the level of damage to the tree, the following procedures shall occur:

1. The Arborist shall conduct a Tree Risk Assessment and include a detailed Tree Risk Assessment report in the Tree Management Log. The Tree Risk Assessment report shall include photo documentation with, at a minimum:

   a. an image of the entire tree; and

   b. images of the damaged areas of the tree, including a ruler or tape measure to indicate scale.

2. All tree work shall be carried out in compliance with *ANSI Z133 – for Arboricultural Operations – Safety Requirements*.

3. Project Co shall provide detailed written recommendations to rectify tree damage based on the Tree Risk Assessment.

4. If damage to a Protected Tree is less than 30% of the entire tree, including tree trunk, canopy and root system the following procedures shall apply:

   a. The Arborist shall determine, based on records in the Tree Management Log, whether cumulative damage to the tree during Construction has resulted in total damage equal or greater than 30% of the entire tree, including tree trunk, canopy and root system.

      i. If cumulative damage is equal or greater than 30%, procedures listed in Section 2-14.13.6B.5 *[Procedures for Trees Damaged During Construction]* shall apply.

   b. The Arborist shall evaluate and record the following information in the Tree Management Log:

i. species;

ii. date of damage incident;

iii. construction procedures and/or circumstances causing the damage;

iv. level of damage, shown as percentage of entire tree, including tree trunk, canopy and root system; and

v. methods used to rectify damage and any additional measures required to protect the tree from further damage.

c. The Arborist shall determine and perform tree damage correction measures within six (6) Business Days of the damage incident.

5. If damage to a Protected Tree is equal to or greater than 30% of the entire tree, including tree trunk, canopy and root system the following procedures shall apply:

a. Notify the City of the damage incident within forty-eight (48) hours of damage incident.

b. The Arborist shall evaluate and record the following information in the Tree Management Log:

i. species;

ii. date of damage incident;

iii. construction procedures and/or circumstances causing the damage; and

iv. level of damage, shown as percentage of entire tree, including tree trunk, canopy and root system.

c. Provide the City with uninterrupted access to the tree for a four (4) Business Day window commencing immediately after notifying the City of the damage incident. During this window, the City will perform tree damage correction measures and post Construction care. If the City determines that the damage to a Protected Tree requires its removal, then that tree shall be deemed removed in the calculation of the Actual Tree Compensation Value.

2-14.14 LANDSCAPE SOILS AND AMENDMENTS

2-14.14.1 General Soil Requirements

A. All imported, salvaged and stockpiled soils used for landscaping shall conform to the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

B. The terms “Class B Topsoil” and “Topsoil B” as defined within the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data, shall be considered synonymous.

C. “Class B” Topsoil as defined in the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data, shall be obtained from sources outside of City-designated stockpiles, except that “Class B” Topsoil may be obtained from City-designated stockpiles with the City’s consent, which may be granted or withheld in the City’s discretion.

D. Methods for salvaging, stockpiling, filling and backfilling topsoil shall conform to Schedule 10 *[Environmental Performance Requirements]* and the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

2-14.14.2 Soil Volume Requirements for Trees

A. All Street Trees shall be planted in a minimum 2m wide and 450mm deep planting trench.

   1. Trench shall be continuous along the entire row of trees except where interrupted by sidewalks, driveways, utilities or Roadway accesses.

   2. Tree planting trench shall extend a minimum of 4m beyond the last tree in the row.

B. Trees planted in areas surrounded by hard surface materials, including parking islands, concrete plazas and walkways, shall be provided with minimum planting soil volumes as per the following formula:

   1. Two (2) cubic metres of soil shall be provided for every one (1) metre of the tree's mature canopy diameter.

C. The use of structural soils, meaning engineered granular soils compacted to support heavy loading, shall not be permitted.

D. Structural Soil Cells are permitted to be used as a means to achieve the minimum soil volumes where support for heavy loading is required.

2-14.14.3 Tree Planting Soil

A. All Street Tree planting trenches shall be constructed with the City of Edmonton standard "Class B Topsoil".

   1. In areas with combined tree planting trenches and shrub and perennial planting beds, the soil used shall be "No. 1 Mix" top soil mixture.

B. Minimum planting soil depth for all tree planting shall be 450mm.

C. Provide endo / ecto mycorrhiza for all trees as per supplier's instructions for quantities, storage and installation methods.

   1. Mycorrhiza shall be approved by the *Canadian Food Inspection Agency* and registered in Canada.

2-14.14.4 Soils for Structural Soil Cells

A. Soil mixtures used in Structural Soil Cells shall be designed to support the long term vitality of trees where the Structural Soil Cells are used in tree planting.

B. Soil mixtures used in Structural Soil Cells shall be designed to support stormwater management functions where they are used as Stormwater Management Facilities.

C. Minimum planting soil depth for all tree planting within Structural Soil Cells shall be 450mm.

2-14.14.5 Perennial and Shrub Planting Bed Soil

A. All shrub and perennial planting beds shall be constructed with City of Edmonton standard "No. 1 Mix" topsoil mixture.

B. All perennial and shrub planting beds shall be constructed with a minimum planting soil depth of 450mm.

C. Provide endo / ecto mycorrhiza for all shrubs and perennials as per supplier's instructions.

1. Mycorrhiza shall be approved by the *Canadian Food Inspection Agency* and registered in Canada.

D. All rose bed soils shall to be amended with natural soil additives that are proven to increase the viability and longevity of the roses, such as compost and mycorrhizae,

2-14.14.6 Sod and Seed Planting Soil

A. All seeded or sodded areas shall be constructed with City of Edmonton standard "Class B Topsoil".

B. All seed and sod areas shall be constructed with a minimum topsoil depth of 200mm.

2-14.14.7 Native Forest Restoration Soils

A. Soils and depth of soils to be used in Native Forest Restoration Areas shall be determined as part of the Native Forest Restoration Plan and the Naturalization Plan as required in Schedule 10 *[Environmental Performance Requirements].*

2-14.14.8 Stormwater Management Facilities Planting Soil

A. Landscape areas within Stormwater Management Facilities, such as ponds, wetlands and bioswales, shall be constructed with the City of Edmonton standard "No. 1 Mix" topsoil mixture or alternative soil mixtures that aid in the establishment of vegetation and the function of the Stormwater Management Facilities.

B. Minimum depth of planting soil for vegetated areas of Stormwater Management Facilities shall be as follows:

1. 200mm for areas with grass seed or sod; or

2. 450mm for areas with trees, shrubs or perennials.

C. Live Soils may be utilized within Stormwater Management Facilities, provided the following procedures are followed:

1. Project Co shall provide documentation of soil origin, analysis, change in use of source land, and acceptance of removal by Alberta Environment and the local governance body having jurisdiction at the location of the Live Soils removal.

2. Live Soils shall be excavated from existing wetlands as follows:

   a. only the top 300mm of soil and organic material shall be used;

   b. stockpiles shall be clearly identified as Live Soils; and

   c. stockpiles shall not be contaminated by any soils or organic materials that are not part of the existing wetland from which the Live Soils are excavated.

3. Live Soils may be stockpiled up to five (5) years prior to installation in a Stormwater Management Facility.

4. Live Soils shall be installed as the top layer of soil between the lines defined by the water level at one horizontal metre above and below the normal water line.

2-14.14.9 Compost

A. All compost shall meet or exceed the *Canadian Council of Ministers of the Environment - Guidelines for Compost Quality - Category A*.

B. Compost shall not replace more than 50% of peat moss in City of Edmonton standard “No 1 Mix”.

2-14.15 Structural Soil Cells

A. Provide a detailed technical maintenance and operations plan for all Structural Soil Cell systems and components within the Infrastructure.

B. Structural Soil Cell system components shall:

1. have been manufactured and on the market for a minimum of ten (10) years;

2. have a minimum twenty (20) year manufacturer’s warranty on system and components:

   a. Warranty shall be issued in the City’s name by the manufacturer;

3. include inlets, including sediment basins for Structural Soil Cells used as Stormwater Management Facilities;

4. include an under-drainage system and outlets for Structural Soil Cells used as Stormwater Management Facilities or for tree trenches;

5. be integrated into the Structural Soil Cell system design and be integrated with the streetscape design requirements for Structural Soil Cell maintenance structures, such as access locations and sediment catch basins;

6. be designed for freeze and thaw cycle, if used for Stormwater Management Facilities; and

7. mitigate buildup of road salts and walkway de-icing agents within planting soils if system is being used for Stormwater Management Facilities.

C. Coordination and written agreements with Utility Companies shall be required if franchise Utilities cross through or are located within Structural Soil Cells.

D. All Structural Soil Cells shall be registered as buried Utilities with the City and Alberta-One-Call.

2-14.16 LANDSCAPE SUB-DRAINAGE SYSTEM

A. A sub-drainage system shall be required for planting areas, including Street Tree trenches, if subsoil drainage is inadequate to maintain long term plant health and longevity.

B. Sub-drainage system design shall conform to the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

2-14.17 MULCHES

A. All tree, shrub and perennial planting area mulches shall conform to the *Valley Line LRT Project Landscape Design and Construction Standards, Section 02914*, a copy of which is included in the Disclosed Data.

B. All trees shall be installed with minimum 100mm depth mulch extending a minimum 400mm beyond the tree root ball.

C. Native Forest Restoration Areas and Naturalization Areas shall not use mulch, except as specified in Schedule 10 *[Environmental Performance Requirements].*

2-14.18 WEED LINER

A. Weed liners (i.e. weed barrier fabric) shall not be installed in any perennial or shrub planting beds or tree planting trenches or pits.

2-14.19 TREE ROOT BARRIER

A. Where tree root barriers are required:

1. Tree root barrier shall be minimum 600mm depth.

2. Tree root barrier material and construction shall have a minimum of twenty (20) years manufacturer's warranty.

   a. Warranty shall be issued in the City's name by the manufacturer.

3. Tree root barrier shall be installed in a manner that prevents lift of the system from frost or root heaving.

2-14.20 PLANTING BED EDGING

A. All planting beds adjacent to turf shall have a well-defined edge as per drawing #LA109 of the *Valley Line LRT Project Landscape Design and Construction Standards,* a copy of which is included in the Disclosed Data.

B. Alternative edging, such as aluminum edger, shall be subject to City review and may be accepted or rejected by the City in its discretion on a case-by-case basis.

1. PVC edging is not permitted.

2. Edging shall be designed and installed in a manner that prevents it from being pushed out of the soil by frost heaving.

2-14.21 IRRIGATION

A. Permanent irrigation systems are not permitted in landscape areas, except in following circumstances:

1. all existing irrigation system impacted by Construction shall be reinstated;

2. irrigation systems shall be provided where indicated on the River Valley Landscape Drawings; and

3. irrigation systems are permitted in Excluded Areas.

B. Within Excluded Areas, all irrigation shall be discontinued prior to Handback. This shall include:

1. tapering-off plant irrigation a minimum of five (5) years prior to decommissioning irrigation to ensure plant survival;

2. discontinuing water service;

3. capping irrigation lines;

4. removing all at-grade and above-ground irrigation structures, not including irrigation lines; and

5. providing locations and information for all remaining below-ground irrigation lines and infrastructure on a drawing.

2-14.22 PLANT MATERIAL

A. Section 2-14.22 *[Plant Material]* provides requirements regarding plant material.

2-14.22.1 General Plant Selection Requirements

A. Plant material selection shall conform to the following requirements:

1. Maximum mature height of shrubs and perennials in boulevards and medians shall be 1.2m.

2. Aggressive groundcover species shall only be permitted if they are fully isolated and contained within Roadway Median Landscape Areas and Roadway Island Landscape Areas and will not cause damage to adjacent pavement surfaces.

3. Trees with fruits or seeds that can stain pavement or create Hazards shall not overhang pavement areas, including sidewalks, SUPs, pedestrian areas, and parking lots.

B. Except as noted otherwise in Section 2-14.4 *[Required Planting Setbacks]*, perennial and/or shrub beds must be fully planted in a manner that the planting beds will have 100% shrub/perennial or coniferous tree coverage when the plants reach maturity.

C. Mass plantings shall provide continued visual interest without introducing visual clutter or monotony.

1. The size and diversity of mass plantings shall reflect the context and Character Zone in which they are planted.

2. Mass plantings adjacent to pedestrian routes shall be medium in size, whereas mass plantings adjacent to Roadways and Trackways, but not adjacent to pedestrian routes, shall be larger in size.

3. Adjacent pedestrian and Roadway/Trackway focused mass plantings shall be complementary of each other, maintaining a sense of visual continuity despite a differentiation in massing size.

2-14.22.2 Plant Material Supply Source

A. All plant stock shall meet the requirements of *Canadian Standards for Nursery Stock,* published by the *Canadian Nursery Landscape Association (CNLA)*.

1. Quality and source shall comply with the CNLA metric guide referring to size, development and rootball of plant material.

2. Measure plants when branches are in their natural position.

3. All trees and shrubs shall be of No.1 Grade quality.

B. All plant material shall be grown in Zones 5 or lower according to *Plant Hardiness Zones in Canada*, published by *Agriculture and Agri-Food Canada*.

1. Indoor greenhouse grown plant material shall be hardened off for at least one (1) growing season prior to installation.

C. Native Forest Restoration and Naturalization plant sourcing requirements shall be developed as part of the Native Forest Restoration Plan and the Naturalization Plan as required in Schedule 10 *[Environmental Performance Requirements].*

2-14.22.3 Tree Species Selection

A. All project trees for landscape areas not including Native Forest Restoration Areas, Naturalization Areas and Stormwater Management Facilities, shall be selected from Table 2-14.22.3 *[Tree Species for Landscaping].*

Table 2-14.22.3: Tree Species for Landscaping

Scientific Name	Common Name	Tree Canopy Width at Maturity (m)
Canopy Trees		
Fraxinus pennsylvanica 'Patmore'	Patmore Green Ash	8
Fraxinus pennsylvanica 'Bergeson'	Bergeson Green Ash	8
Fraxinus pennsylvanica 'Prairie Spire'	Prairie Spire Green Ash	8
Fraxinus pennsylvanica	Green Ash (seedless varieties only)	8
Malus x adstringens ‘Durleo’	Gladiator Crabapple	3
Quercus macrocarpa	Bur Oak	8
Tilia americana	American Linden	8
Tilia cordata	Littleleaf Linden	10
Tilia x flavescens 'Dropmore'	Dropmore Linden	8
Ulmus americana	American Elm	10
Ulmus americana 'Brandon'	Brandon Elm	8
Deciduous Ornamental Trees		
Acer ginnala	Amur Maple	4
Betula papyrifera var. papyrifera	Paper Birch (only in naturalized parks)	8
Crataegus x mordenensis 'Snowbird'	Snowbird Hawthorn	5
Crataegus x mordenensis 'Toba'	Toba Hawthorn	4
Malus x adstringens (multiple varierties)	Ornamental Flowering Crabapple	5
Prunus maackii	Amur Cherry	8
Prunus virginiana ‘Schubert’	Schubert Chokecherry	8
Populus x jaackii`Northwest'	Northwest Poplar (naturalized parks)	10
Sorbus americana	American Mountain Ash	6
Sorbus decora	Showy Mountain Ash	4
Syringa reticulata’ ‘Ivory Silk’	Ivory Silk Tree Lilac	5
Tilia cordata	Little-leaf Linden	10
Tilia x flavescens	Dropmore Linden	8
Ornamental Coniferous Trees		
Abies balsamea	Balsam Fir	4
Larix laricina	Tamarack	8
Larix sibirica	Siberian Larch	8
Picea abies	Norway Spruce	8
Picea glauca	White Spruce	8
Picea glauca var. densata	Black Hills Spruce	9
Picea pungens	Colorado Spruce	8
Pinus banksiana	Jack Pine	4
Pinus cembra	Swiss Stone Pine	4
Pinus contortus var. latifolia	Lodgepole Pine	4

Scientific Name	Common Name	Tree Canopy Width at Maturity (m)
Pinus nigra	Austrian Pine	8
Pinus ponderosa	Ponderosa Pine	10
Pinus sylvestris	Scots Pine	8
Pseudotsuga menziesii	Douglas Fir	8
Columnar Trees		
Amelanchier x grandifolia	Autumn Brilliance Serviceberry	4
Caragana arborescens 'Sutherland'	Sutherland Caragana	3
Malus x baccata 'Columnaris'	Rosthern Crabapple	3
Malus x 'Jefspire'	Purple Spire Crabapple	3
Malus x 'Dreamweaver'	Dreamweaver Crabapple	1
Picea pugens fastigiata	Columnar Colorado Spruce	3
Picea pungens Hoopsii	Hoopsi Colourado Spruce	4
Populus tremula var. erecta	Swedish Columnar Aspen	2
Sorbus aucuparia 'Fastigiata'	Pyramidal Mountain Ash	4
Sorbus aucuparia 'Rossica'	Russian Mountain Ash	4

B. Ensure that all selected plant material is appropriate for the planting application, site conditions, and local climatic conditions.

C. Tree planting plans shall incorporate visual interest for the winter season. Winter interest may be introduced in a variety of ways, including use of:

1. coniferous/evergreen plant materials; and/or

2. plant materials that retain colourful or high texture foliage, fruit or stems and branching that contrast with the snow in the winter season.

2-14.22.4 Tree Species Diversity

A. Coniferous/Deciduous tree mix shall be 60/40 respectively within open spaces, not including Roadway Boulevard Landscape Areas, Roadway Median Landscape Areas, Roadway Island Landscape Areas, Trackway Boulevard Landscape Areas and parking lots.

B. To provide Street Tree diversity, Street Tree species shall be consistent for each block and shall alternate between each Roadway traffic intersection along the LRT Corridor, see Figure 2-14.22.4 *[Street Tree Species Diversity].*

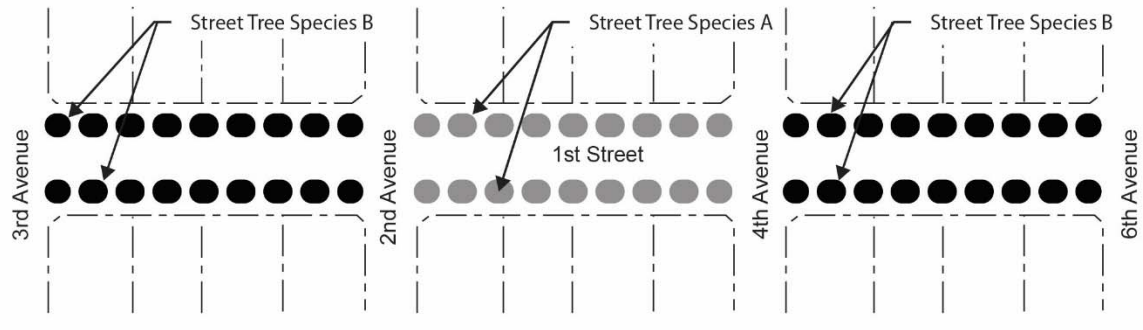


Figure 2-14.22.4: Street Tree Species Diversity

2-14.22.5 Stormwater Management Plant Species Selection

A. Plant material below the 1:5 year water line of Stormwater Management Facilities shall be selected from the *City of Edmonton LID_BMP Design Criteria: Appendix A –Recommended Vegetation for LID-BMP Facilities in Edmonton*.

B. All plant material for Stormwater Management Facilities shall conform to the following requirements:

1. all plant material in Stormwater Management Facilities shall have a minimum cold tolerance of Zone 3a according to *Plant Hardiness Zones in Canada*, published by *Agriculture and Agri-Food Canada*, and shall have proven success in the Edmonton region for a minimum of ten (10) years;

2. all plant material in Stormwater Management Facilities shall have the ability to withstand forty-eight (48) hours of storm water inundation with no noticeable decline in health;

3. plant material shall be low-maintenance, including pruning, once established;

4. all plant species located within Stormwater Management Facilities shall be non-invasive and harmless to local ecosystems;

5. plant material used in Stormwater Management Facilities in the NSRV and W.P. Wagner Park shall be native species or cultivars of native species;

6. plant material for Stormwater Management Facilities shall be selected according to the anticipated moisture levels and site conditions; and

7. plant materials shall not interfere with the stormwater management functions of the Stormwater Management Facilities.

C. Plant spacing shall be as per the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

2-14.22.6 Shrub and Perennial Species Selection

A. All project shrubs and perennials for landscape areas, not including Native Forest Restoration Areas and Naturalization Areas, and Stormwater Management Facilities, shall be selected from the following Table 2-14.22.6 *[Shrub and Perennial Species for Landscape Areas]*

Table 2-14.22.6: Shrub and Perennial Species for Landscape Areas

Scientific Name	Common Name
Evergreen Shrubs	
Abies balsamea ‘nana’	Dwarf Balsam Fir
Abies balsamea ‘Montgomery Spruce’	Montgomery Blue Spruce
Juniperus chinensis; Juniperus horizontalis; Juniperus procumbens; Juniperus sabina; Juniperus communis	Horizontal juniper cultivars
Picea abies nidiformis	Nest Spruce
Picea abies pumila	Dwarf Norway Spruce
Picea abies ‘Little Gem”	Little Gem Spruce
Microbiota decussata	Russian Cypress
Picea pungens ‘globosa’	Globe Blue Spruce
Deciduous Shrubs	

Scientific Name	Common Name
Amelanchier alnifolia	Saskatoon
Caragana frutex 'globosa'	Globe Caragana
Caragana pygmaea	Pygmy Caragana
Cornus alba; Cornus stolonifera; Cornus sericea	Dogwood Cultivars
Elaeagnus commutata	Wolf Willow
Shepherdia canadensis	Buffaloberry
Berberis thunbergia sp.	Barberry Cultivars
Diervilla lonicera	Bush Honeysuckle
Euonymus alatus	Winged Burning Bush
Euonymus nana 'Turkestanica'	Turkestan Burning Bush
Hydrangea arborescens 'Anabelle'	Anabelle Hydrangea
Hydrangea paniculata 'Grandiflora'	Pee Gee Hydrangea
Lonicera caerulea; Lonicera x xylosteroides 'Miniglobe"; Lonicera x xylosteroides 'Emerald Mound'	Honeysuckle Shrub Cultivars
Philadelphus sp.	Mockorange Cultivars
Physocarpus opulifolius	Ninebark Cultivars
Prunus triloba 'Multiplex'	Double Flowering Plum
Potentila fruticosa	Potentilla Cultivars
Ribes alpinum	Alpine Current
Rosa acicularis; Rosa woodsii var. woodsii	Native Wild Roses
Rosa rugosa; Rosa (Explorer series); Rosa (Morden series); Rosa rubrifolia; Rosa sp.	Hardy Roses
Salix brachycarpa; Salix purpurea	Willow Shrubs
Sambucus nigra; Sambucus racemosa	Elderberry
Sorbaria sorbifolia	False Spiraea
Spiraea betulifolia; Spiraea x bumalda; Spiraea japonica; Spiraea sp.	Spiraea Cultivars
Syringa x prestonae; Syringa meyerii; Syringa patula; Syringa (Fairytale series)	Lilacs (Non-Suckering Varieties
Symphoricarpos sp.	Snowberry
Viburnum opulus 'nana'; Viburnum trilobum; Viburnum opulus var. americanum	Cranberries
Perennials	
Aconitum sp.	Monkshood Cultivars
Arctostaphylos uva-ursi	Kinnikinnick
Artemesia schmidtiana 'Silver Mound'	Silver Mound Artemesia
Aruncus dioicus	Goatsbeard Cultivars
Campanula carpatica	Carpathian Bellflower Cultivars
Campanula poscharskyana	Serbian Bellflower Cultivars

Scientific Name	Common Name
Chrysanthemum (Morden hybrids)	Morden Chrysanthemum Cultivars
Cimicifuga racemosa	American Bugbane Cultivars
Echinacea purpurea	Purple Coneflower Cultivars
Eupatorium maculatum	Joe Pye Weed
Filipendula rubra	Queen Of The Prairie Cultivars
Geranium sp.	Cranesbill Cultivars
Heliopsis helianthoides	False Sunflower Cultivars
Hemerocallis sp.	Daylily Cultivars
Hosta sp.	Hosta Cultivars
Iris pallida 'variegata'	Variegated Sweet Iris
Iris sibirica	Siberian Iris Cultivars Cultivars
Liatris spicata	Gayfeather Cultivars
Nepeta x faassenii	Catmint Cultivars
Paeonia sp.	Peony Cultivars
Perovskia atriplicifolia	Russian Sage Cultivars
Phlox paniculata	Garden Phlox Cultivars
Pulmonaria sp.	Lungwort Cultivars
Rudbeckia hirta	Rudbeckia Coneflower Cultivars
Salvia sp. (upright cultivars)	Blue Sage Cultivars
Sedum sp. (upright cultivars)	Tall Stonecrop Cultivars
Solidago canadensis	Golden Rod Cultivars
Trollius sp.	Globeflower Cultivars
Veronica spicata	Spike Speedwell Cultivars
Perennial Groundcovers	
Ajuga reptans	Bugleweed Cultivars
Artemesia stelleriana	Silver Brocade Artemesia
Bergenia cordifolia	Elephant Ears
Cerastium tomentosum	Snow-In-Summer
Convallaria majalis	Lily-Of-The-Valley
Dianthus deltoides	Maiden Pinks Cultivars
Geranium macrorrhyzum	Big-Root Cranesbill Cultivars
Lamastrium galeobodon 'Herman's Pride'	Yellow Archangel
Lamium maculatum	Silver Deadnettle Cultivars
Phlox subulata	Moss Phlox Cultivars
Sedum kamtschaticum	Russian Stonecrop Cultivars
Sedum spurium	Dragon's Blood Stonecrop
Stachys byzantina	Lamb's Ears Cultivars
Thymus praecox	Creeping Thyme
Thymus psuedolanginosis	Wooly Thyme

Scientific Name	Common Name
Perennial Ornamental Grasses	
Calamagrostis x acutiflora	Feather Reed Grass Cultivars
Deschampsia cespitosa	Tufted Hair Grass Cultivars
Festuca glauca	Blue Fescue Cultivars
Helictotricon sempervirens	Blue Oat Grass
Phalaris arundinacea	Variegated Ribbon Grass
Vines/Climbing Plants	
Actinidia kolomikta	Arctic Kiwi Vine
Clematis tangutica	Golden Clematis
Clematis alpina	Alpine Clematis Cultivars
Humulus lupulus	Hops
Lonicera x brownii	Vine Honeysuckle
Lonicera dioica	Glaucous Honeysuckle Cultivars
Parthenocissus quinquefolia	Virigia Creeper And Englemann Ivy
Rosa sp. (Explorer series)	Hardy Climbing Rose Cultivars

B. Ensure that all selected plant material is appropriate for the planting application, site conditions, and local climatic conditions.

C. Shrub and perennial planting plans shall incorporate visual interest throughout all seasons including the winter season. Winter interest may be introduced in a variety of ways, including use of:

1. coniferous/evergreen plant materials;

2. shrubs and perennials that remain upright and protrude through snow-cover in the winter season; and/or

3. plant materials that retain colourful foliage, fruit or stems that contrast with the snow in the winter season.

2-14.22.7 Tree, Shrub and Perennial Plant Spacing and Sizing

A. All trees shall be spaced according to the tree canopy width at maturity as set out in Table 2-14.22.3 *[Tree Species for Landscaping].*

B. All shrubs and perennials, not including the ones in Native Forest Restoration Areas and Naturalization Areas and Stormwater Management Facilities, shall be spaced according to mature plant widths as per *Alberta Yards and Gardens: What to Grow (by Alberta Agriculture Food & Rural Development)*.

1. If plant species is not listed in *Alberta Yards and Gardens: What to Grow*, plants shall be spaced according to the mature width listed in an alternate reputable horticultural information resource.

C. All deciduous trees, not including the ones in Native Forest Restoration Areas and Naturalization Areas, must be between 60mm and 75mm caliper at time of planting.

D. All deciduous trees, not including columnar varieties or those planted in Native Forest Restoration Areas and Naturalization Areas, shall be free of branches from the base to a point not less than 60% of the tree height or 1.5m above ground.

    1. Trees that overhang walkways, pedestrian areas, and Roadways shall be free of branches from the base to a height of at least 2.5m.

E. All coniferous trees, except the ones in Native Forest Restoration Areas and Naturalization Areas, must be between 2.5m and 3.0m height at time of planting.

F. At a minimum, all shrubs shall be a minimum CNLA #1 container and 300mm height for upright shrubs and 300mm width for groundcover shrubs, except the ones in Native Forest Restoration Areas and Naturalization Areas.

    1. Recently transplanted or poorly rooted plant stock are not permitted.

G. At a minimum, all perennials shall be at least two (2) year old stock and shall be well-rooted in a minimum CNLA #1 container, except the ones in Native Forest Restoration Areas and Naturalization Areas.

    1. Recently transplanted or poorly rooted plant stock are not permitted.

H. Individual tree spacing may be modified within +/-3m of the tree canopy size at tree maturity where required to accommodate:

    1. car door swings in areas with defined parallel parking stalls;

    2. Utility crossings, accesses, Structures and vaults;

    3. sightlines near driveways, pedestrian crossings, and intersections; or

    4. existing trees.

2-14.22.8 Native Forest Restoration and Naturalization Plant Species Selection, Spacing, and Sizing

A. Plant species selection, spacing, and sizing for Native Forest Restoration Areas and Naturalization Areas shall be selected as part of the Native Forest Restoration Plan and the Naturalization Plan as required in Schedule 10 *[Environmental Performance Requirements].*

2-14.22.9 Seeding and Sodding

A. All seeding and sodding shall be as per the *Valley Line LRT Project Landscape Design and Construction Standards*, a copy of which is included in the Disclosed Data.

B. All turf areas shall be sodded, except the following turf areas, which may be seeded:

    1. W.P. Wagner Park;

    2. Native Forest Restoration Areas and Naturalization Areas as per Schedule 10 *[Environmental Performance Requirements];*

    3. as noted in the River Valley Landscape Drawings; and

    4. any other Lands with the NSRV.

C. Seeded areas within W.P. Wagner Park and NSRV parkland shall use a native seed mix suitable to open space applications, as determined by the Restoration Specialist as per Schedule 10 *[Environmental Performance Requirements].*

D. Seed mixes used within Native Forest Restoration Areas, Naturalization Areas and the NSRV shall be determined as part of the Native Forest Restoration Plan and the Naturalization Plan in Schedule 10 *[Environmental Performance Requirements].*

APPENDIX 5-2A

102 Avenue Streetscape Drawings