



Streetscape Manual, Built Form Standards, & Conceptual Design for St. George's Square

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City of Guelph
March 2014

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Study Overview

Introduction - Section 1.0

The City of Guelph has retained a consulting team led by Brook McIlroy, in association with Unterman McPhail Associates and McCormick Rankin Corporation (MMM Group), to assist Planning Services in updating the Downtown Private and Public Realm Manuals. These updates incorporate current best urban design practices, aligns with the Downtown Secondary Plan (2012), and incorporates stakeholder and public input.

The documents, which have been re-titled the Downtown “Streetscape Manual”, “Built Form Standards”, and “Concept Design for St. George’s Square”, provide design direction for private development and City-run projects in

the Downtown, including road reconstruction. Special attention has been given to the long-term revitalization of St. George’s Square and the efficient operational management of the public realm.

These revised documents provide design direction to private investment and new development in the Downtown. The Built Form Standards also provide policy direction for future updates to the City’s Zoning By-law in implementing the Downtown Secondary Plan. In addition, the Built Form standards incorporate a complete Heritage Conservation Analysis of the Downtown.



Study Area



The Streetscape Manual and Built Form Standards address all lands within the boundary of Downtown Guelph, as identified within the Downtown Secondary Plan (2012). The precise boundaries of the study area are delineated in the map below.

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Background

Building on an impressive body of work to reinvigorate downtown

As a primary location for intensification, Downtown Guelph has the capacity and the historic character to develop into a unique cultural and tourist destination and expand its role as a local economic driver.

To guide intensification the City has carried out a Local Growth Management study, completed a major re-writing of its Official Plan (Council-adopted in June, 2012) and prepared a Downtown Secondary Plan (DSP) for the City's Urban Growth Centre (Council-adopted in May, 2012). The City is moving forward with the implementation of these documents.

In its lead-up to the DSP, the City of Guelph completed a number of background documents,

in particular the Urban Design Action Plan (2009). These documents are summarized in the DSP, undertaken by Urban Strategies.

The Downtown Private and Public Realm Manual updates (this study) have been coordinated with several initiatives, including:

- Baker Street Main Library and Redevelopment Plan;
- Downtown Parking Strategy;
- Downtown Guelph Implementation Strategy / Business Plan (Downtown Assessment);
- Guelph Urban Forest Management Plan and Tree Technical Manual; and
- Public art commission for the Market Square / Civic Precinct Area.



Public & Stakeholder Consultation Summary

Engaging local stakeholders and the community in discussions about the future of downtown Guelph

A comprehensive public and stakeholder consultation exercise was conducted by City Staff and the consultants during the development of these reports. The study team host three public meetings, conducted numerous internal and external stakeholder interviews and posted update information on the City of Guelph website.

The first public meeting, a visioning workshop was held in May 2013. The second public meeting, to review and interactively discuss streetscape options, was held in June 2013. The final public meeting, focusing on St. George's Square, was conducted in October 2013. All of the public events held were well attended and valuable feedback was incorporated into the final reports.

The study team made considerable efforts to reach out to external stakeholders including the DGBA, the Chamber of Commerce, business owners on St. George's Square, utility providers, emergency services, the University of Guelph, cultural organizations, community and social services, faith organizations and historical societies. External stakeholders were interviewed early in the project process to ensure the study team gained a detailed understanding of their perspective and priorities. As the study progressed, and with City Staff acting as liaison, external stakeholders were kept informed about study progress and additional meetings were conducted as requested. Much of the feedback received was incorporated into the final reports.

Throughout the preparation of this report a number of internal City departments were consulted, including:

- Planning, Building, Engineering and Environment (Engineering)
- Finance and Enterprise (Downtown Renewal)
- Community and Social Services (Culture)
- Operations, Transit & Emergency Services (Traffic and Parking, Public Works, Transit Services)

In addition, a staff Technical Committee and General Manager Committee from different departments is preparing and reviewing the materials produced.



St. George's Square public workshop at City Hall in October 2013

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Analysis

Existing Conditions

The Streetscape Manual and Built Form Standards address all lands within the boundary of Downtown Guelph, as identified within the Downtown Secondary Plan (2012).

Downtown Guelph is a major destination, serving as the centre for civic and religious institutions, offices, tourism, retail and entertainment, commercial and social services, and a range of cultural facilities.

Its major streets establish a compact and tightly knit urban fabric with buildings that reflect a human scale, organized around their topography, making them easy to understand and orient. Its intimate public spaces, which include St. George's

Square, reinforce a sense of civic identity. Its natural amenities, including the Speed River and John Galt Park offer a break in the urban fabric and escape from city life. Its cultural attractions, including the River Run Centre and the Sleeman Centre, play an important role in community life. Its significant inventory of beautiful Victoria Era buildings, cultural heritage features, and collection of significant landmarks including Old City Hall and the Church of Our Lady Immaculate, showcase Guelph's unique heritage, and enviable cultural and civic identity.



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Future Conditions

Through the implementation of the Streetscape Manual, Built Form Standards, and the St. George's Square Concept Plan an opportunity exists to strengthen Downtown Guelph as the historic core of the city, and as a centre for commerce and culture. To accomplish this, population growth must be accommodated through residential intensification, allowing the downtown to evolve into a unique cultural and tourist destination that will increasingly serve as an attractive place to live, work, and play. New buildings and spaces will reflect a human scale, guided by Built Form

Standards which will enhance the public and private realm. Heritage conservation areas will help protect the City's historic buildings, and new development will enhance cultural heritage through respectful and complementary design measures.

Guelph's downtown streets are mixed in character, architectural quality and intensity. Enhanced public and private open spaces, pedestrian connections and linkages, continuous street trees and beautiful sunlit pedestrian areas will improve quality of life in Downtown Guelph.



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Streetscape Manual

Section 2.0

Section 2.0 Streetscape Manual represents a comprehensive update to the City's Public Realm Plan and Streetscape Manual (2001). This update introduces current best urban design practices, aligns street design with The Downtown Secondary Plan (2012), expands the use of the flexible typology, and incorporates stakeholder and public input.

The Streetscape Manual explores in detail each street classification for downtown including: flexible streets, primary, secondary, and local streets as well as pedestrian mews (with an emphasis on streets which are planned for reconstruction in the short-term).

The Streetscape Manual updates the city's streetscape standards, including those for street furniture, street lighting, street trees, dimensioning, and material finishes. A detailed series of Design Guidelines offer guidance to City staff when undertaking detailed design exercises.

Finally, the Streetscape Manual discusses Implementation considerations, order of magnitude costings and presents a series of sample technical details which can be used as a template to redesign downtown's streets.



Built Form Standards

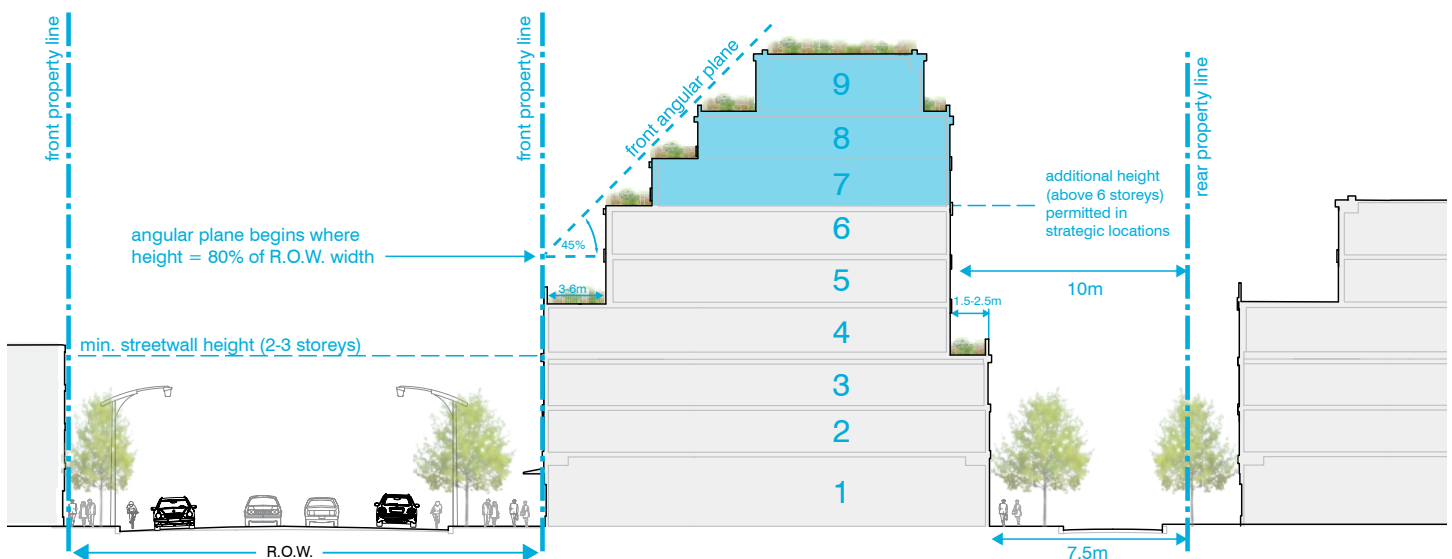
Section 3.0

Section 3.0 Built Form Standards represents an update to the City's previous Private Realm Manual (2001). This update also introduces current best urban design practices, aligns street design with The Downtown Secondary Plan (2012), and incorporates stakeholder and public input.

The Built Form Standards characterize the historic core of the City of Guelph in relation to its cultural heritage resources. This occurred through a Heritage Conservation Analysis undertaken by Unterman McPhail and Associates. The Built Form Standards provide clear direction for renovations and additions to heritage resources as well as new buildings and renovations and additions to contemporary buildings. The standards address the introduction of development within the

historic core of Downtown Guelph, as well as the area south of the CN Rail Tracks. The Built Form Standards provide direction pertaining to both site and building design, addressing such characteristics as building height, form, massing, orientation, setbacks, setbacks, angular planes, ground floor conditions, mix of uses, entrance design, material use, awning and canopy design, cornice and parapet design, and signage and lighting design.

Through the implementation process, the Built Form Standards provide direction for Zoning By-law Amendments, other policy and process amendments, and parameters for the evaluation of Downtown Community Improvement Plan applications.



Conceptual Design for St. George's Square

Section 4.0

The Conceptual Design Plan for St. George's Square has been developed, in conjunction with the updated Streetscape Design Manual and Built Form Standards, to guide the redesign and redevelopment of St. George's Square.

The Conceptual Design outlines six guiding principles, objectives of the Plan, a description of the concept, an illustrated plan and rendered perspective, design guidelines, and a summary of resulting impacts on pedestrians, transit, traffic, and operations.

The report provides an overview of the implementation strategy associated with the redesign and redevelopment of St. George's Square. The Implementation Strategy includes an overview, a phasing strategy which considers both short and long-term strategies, and a summary of proposed order of magnitude costing.



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Document Application

How to use the four report sections

The document is intended to assist City Staff, land owners, developers, and the public by providing clear tools to guide the design of key streets, intersections, open spaces, and buildings within Downtown Guelph.

The document outlines best urban design practices in streetscape and built form design, and includes guidelines that may be implemented through future revisions to the Zoning By-law. As the best practices outlined in this document become common practice, they will evolve.

The illustrative examples shown in the Streetscape Manual correspond to a set of design tools which are intended to guide the detailed design of key streets, intersections and open spaces. However, the illustrative examples shown in the Built Form

Standards provide examples of how the standards can be applied, and are not intended to exclude other interpretations that meet the intent of the standards.

Through the Zoning By-law review process, updates and recommendations will be made that have the opportunity to influence or supersede these guidelines.

For ease of use, this report has been divided into four main sections. Each section should be distributed separately or together to suit the user, as required. The four report sections are:

- 1.0 Introduction
- 2.0 Streetscape Manual
- 3.0 Built Form Guidelines
- 4.0 Conceptual Design for St. George's Square



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Streetscape Manual

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Introduction



View of Macdonell Street from the Church of Our Lady Immaculate

Overview & Background

The Streetscape Manual will guide the City's infrastructure and public realm renewal program, ensuring an integrated approach with other key downtown Implementation Strategies.

The Streetscape Design Manual is based on best principles (Downtown Secondary Plan) and best practices to provide a framework for well-designed, pedestrian scale streets in downtown Guelph. With intensification, the public realm's

role in downtown requires a fundamental shift away from a focus on vehicle movement to one that supports businesses and provides modal equality for all users – including pedestrians, cyclists, transit, and private and commercial vehicles.

Implementation of the Streetscape Manual

A strategy to implement streetscape design criteria

The Manual

The Streetscape Manual includes an integrated set of street design criteria for specific downtown streets. The criteria respond to the area specific context; however, as redevelopment of the private realm occurs, some criteria may require modification to integrate with the evolving downtown fabric.

Some design criteria may be appropriate for new zoning, while others are best used as guidelines to complement zoning requirements.

Implementation

Due to the complexity and scope of planned reconstruction efforts, prolonged (but temporary) disruption should be anticipated and planned for. Construction should be staged wherever possible to minimize impacts to residents and businesses in downtown. A detailed discussion regarding implementation can be found in section 2.4.

Street Classifications

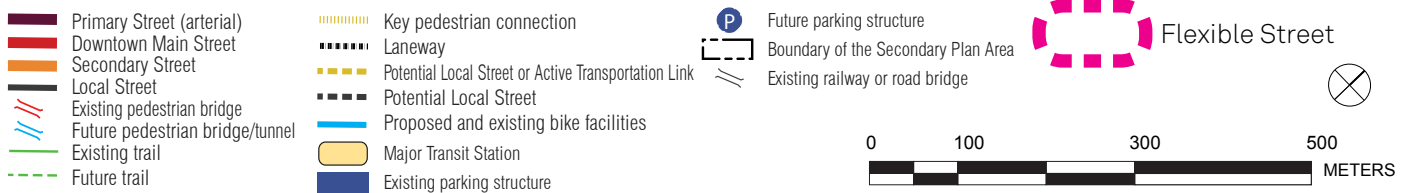
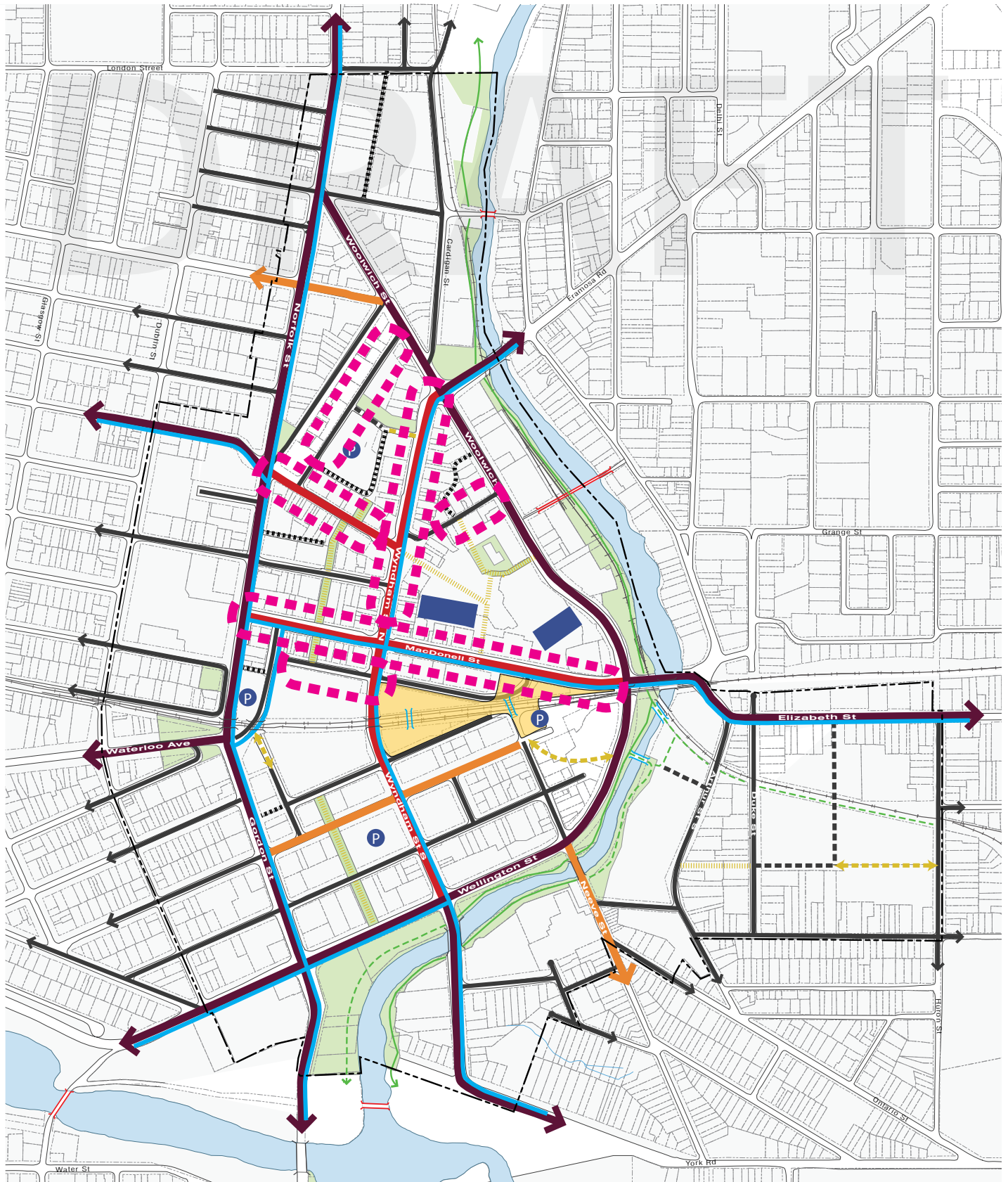
A system to compare downtown streets

The Downtown Secondary Plan includes a classification system for downtown's street network. The classification system assigns characteristics to five distinct street typologies – Primary Street, Downtown Main Street, Secondary Street, Local Street and Laneway. The DSP classification system did not, however, contemplate the flexible street typology so an

augmented version of the classification table is presented below.

This streetscape manual builds upon the criteria developed in the initial classification system to define the 'tool kit of parts' necessary to reconstruct and renew downtown Guelph's street network.

Street Type	Primary Street	Downtown Main Street (Flexible Street)	Secondary Street	Local Street	Laneway
Street Names	Gordon, Norfolk, Wellington, Woolwich, Eramosa, Elizabeth, York, Waterloo, Paisley, Macdonell (east of Wellington), Wyndham (south of Wellington)	Wyndham (north of Wellington), Quebec, Macdonell (west of Wellington), Baker Street	Neeve, Fountain, Suffolk	All others	n/a
Right-of-Way width	24m - 30m	20m - 30m	18m+	17m - 21m	7m - 12m
Planned Setbacks	Vary (0-5m)	0	Vary (0-5m)	Vary (0-6m)	1-2m
Travel Lanes	2-4	2	2	2	1-2
Transit Priority Street	Yes	Yes	No	No	No
Parking	Yes, except on Wellington between Gordon and Wyndham	Yes, both sides	Yes, both sides	Yes, minimum one side	No
Pedestrian Realm (suggested minimums)	Min. 2m sidewalk	Min. 6m (Wyndham & Macdonell) Min. 4m (Quebec)	Min. 2m side-walks	1.5 - 2m side-walks	Shared roadway
Dedicated Bicycle Facilities	Yes	Wyndham & Macdonell	No	No	No



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Prioritization

All modes of transportation have equal priority

The past half century in downtown Guelph has been dominated by the personal vehicle. Streets have been altered from their original 19th century form to accommodate the safe and efficient movement of the motor vehicle.

With renewal comes opportunity to re-balance the allocation of space within the street right-of-way. Flattening the prioritization hierarchy will better prioritize pedestrians, cyclists and transit users in downtown. On constrained streets in particular, where there are competing demands for space, pedestrians should be given equal priority to the

demands of vehicles. A reduction in speed on all downtown streets is an equally critical evolution. As Carden Street has demonstrated, slowing vehicles - especially on flexible streets - benefits all road users.

By adopting an equitable approach to the allocation of space within the right-of-way - often called a 'Complete Streets' approach - downtown's streets will be best positioned to respond to the demands of an newly intensified core and support the principles of the Downtown Secondary Plan.



All modes of transportation should be planned for within the street right-of-way



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Downtown as Place

Downtown Guelph is being transformed

More people, jobs, buildings and activities are being strategically attracted to permanently increase and grow the this historic urban centre and change its dynamic.

Downtown Guelph's public realm projects need to be focused on creating space for everyone. Design decisions need to support all forms of access and constantly improve linkages in order to leverage present and future assets for maximum effect.

The public realm decisions in Downtown need to support local business while celebrating and

building on Guelph's unique community identity.

Creating a place where people want to meet, watch the scene and interact with a wide range of people reinforces that the place is itself part of the destination. This is a fundamental goal of the economic development strategy for Downtown.

Giving the public space of Downtown Guelph a strong identity coupled with a clear facilitating role reduces the risk of creating isolated initiatives and supports the collective productivity of the area.



The conceptual redesign of St. George's Square creates space for everyone to use and enjoy

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Two distinct street models have been developed for downtown Guelph. The first, a flexible street model, represents an innovative new approach for adaptive streets. The second, a traditional model, is updated in both form and function to support intensification.

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Streetscape Approach



Rue Saint Catherine, Montreal



Shared Street, Quebec City



Market Street, Toronto



King Street, Kitchener



Carden Street, Guelph



Shared Retail Street, United Kingdom

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Flexible Streets

Curbless streets seamlessly transform segregation of pedestrians and vehicles to a more integrated and flexible street

Flexible Streets slow vehicles and intentionally blur the boundary between pedestrian and vehicle space, allowing the boulevard and roadway to read as one space and adapt to a variety of conditions. In contrast to traditional streets - which utilize a conventional raised curb and gutter - flexible streets place all users and elements of the street at the same level, allowing for unrestricted movement between roadway and boulevard zones. Flexible Streets also increase safety for pedestrians and cyclists as they inherently require that vehicles move slowly through them.,

As intensification occurs in Guelph, the character of downtown will change as more people choose to visit, work and live there. Flexible streets offer numerous advantages over traditional streets, as they:

- Increase pedestrian safety when all modes of transportation move at a similar speed
- Are planned with design speed equaling operating speed (30 km/h recommended)
- Are adaptable to the many functions of the street (e.g. day-to-day use vs. events)
- Provide safe travel options for all modes (modal equality) including pedestrians, transit, cyclists and automobiles
- Balance high quality public spaces with the requirements of the transportation network
- Reinforce a Sense of Place and enhance the

unique identity of downtown Guelph

- Create new places for play, rest and gathering within the municipal right-of-way
- The barrier-free street profile promotes active lifestyles for people of all ages and ability levels
- Seamlessly transform into a social/gathering space during events
- Promote traffic flow (e.g. less dependence on traffic lights) while slowing vehicles down through an integrated blend of traffic-calming measures, including:
 - Gateways to denote the beginning/end of shared space
 - Curbless Boulevards: so all users are at the same level
 - Side Friction – narrow the perceived width of the street through on-street parking, and pedestrian amenities (lighting, benches, bollards, planting, etc.)
- Supports the vision and guiding principles of the Downtown Secondary Plan

Key downtown streets identified to transition to a flexible street model are Macdonell Street, Wyndham Street (north of Carden), Quebec Street, Douglas Street, Baker Street, and Carden Street. These streets will create a network of unique and highly programmable public spaces for the City and local community.

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Wyndham Street

Redefining Guelph's main streets with a curbless, asymmetrical design to provide flexibility and adaptability



Wyndham Street, north of Carden, is classified in the DSP as a **Downtown Main Street** as it is a principle commercial street in downtown. It should therefore be a pedestrian and transit priority street with wide boulevards, on-street parking and accommodation for cycling.

Wyndham Street is wide, with a 30m right-of-way, which offers opportunity to greatly enhance the public realm. The flexible street approach is a particularly good fit for Wyndham Street as it affords the many benefits discussed in the introductory section. Wyndham also forms a key link between Market Square and St. George's

Square so is typically busy with pedestrians and will likely be closed for use during events.

In order to balance the need for parking with the desire for generous boulevards, Wyndham street is asymmetrical. It has angled parking on the west side of the street and parallel parking on the east. The angled parking side of the street has a narrower boulevard (because angled parking takes up more space) but the boulevard remains generous at over six meters. The parallel parking side of the street has a generous boulevard with a Marketing Zone over four meters, which will allow businesses to take advantage of the warm

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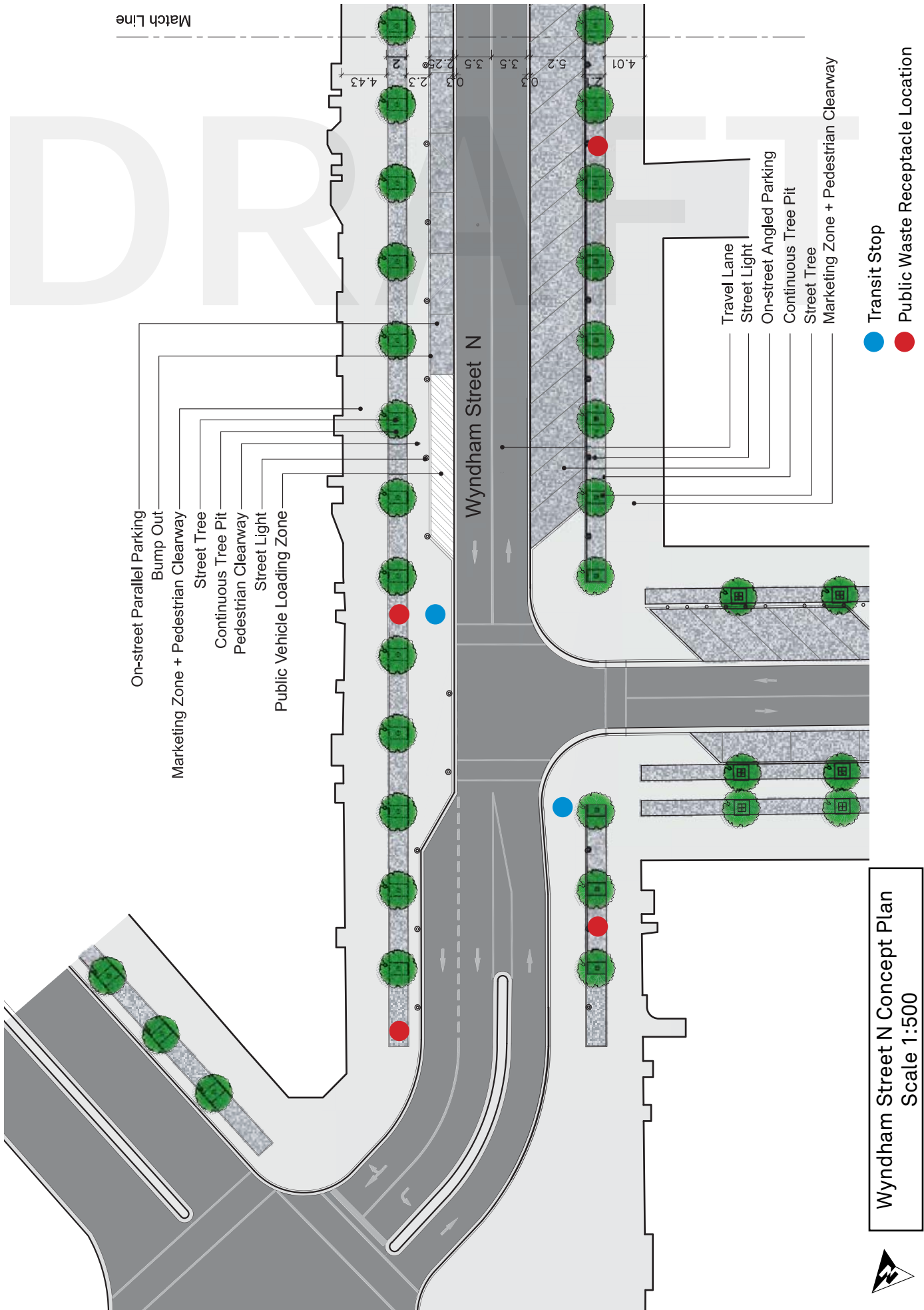


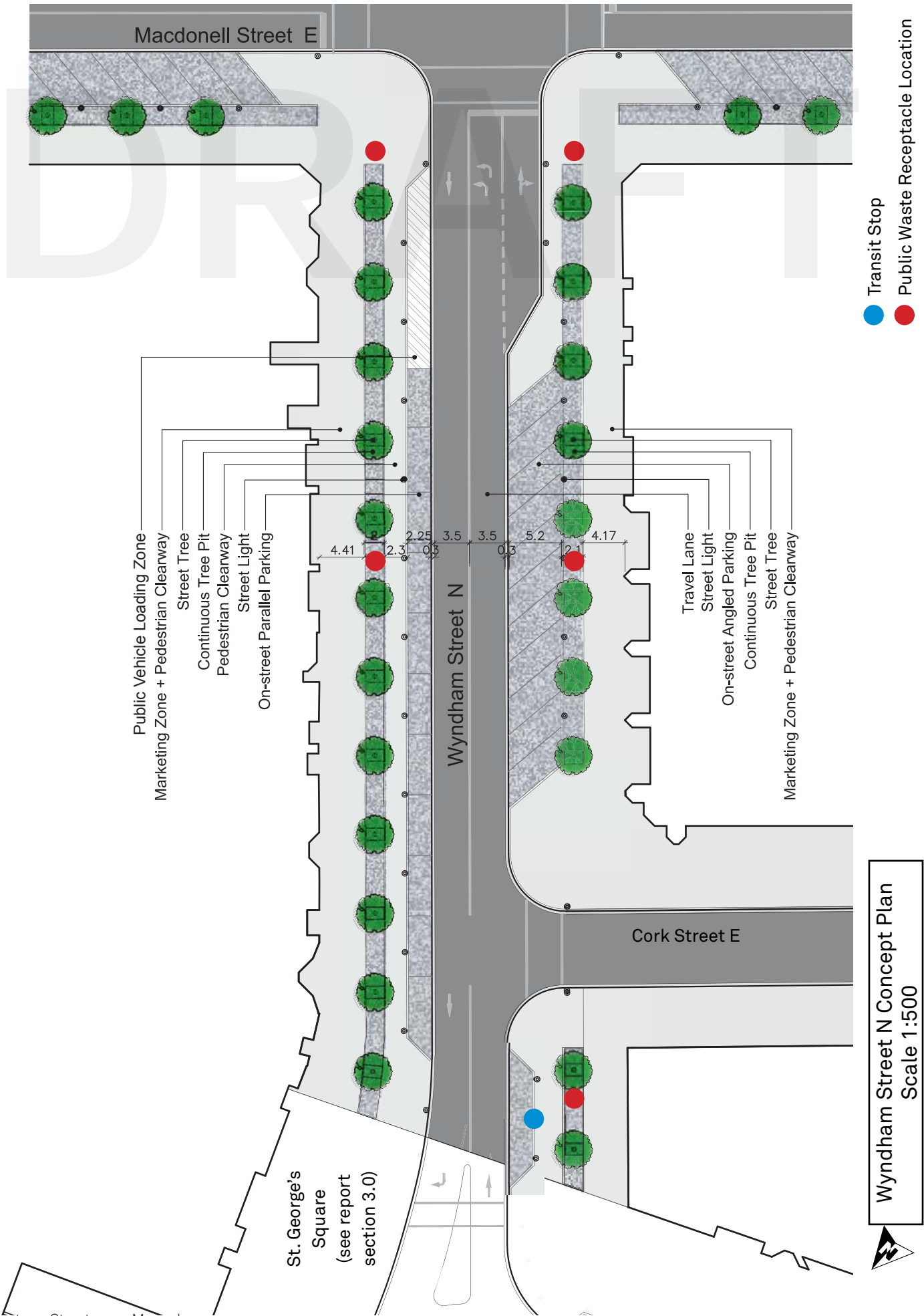
afternoon sun. Both sides of the street prioritize space for street trees and site furnishings as well as a clearly denoted pedestrian clearway. Precast concrete unit paving is used for on-street parking stalls to not only differentiate it from the asphalt roadway, but also to better blend the transition between the boulevard and roadway. Permeable unit paving should be used where practical, in a matching colour and pattern, in the Planting and Furnishing Zone to allow stormwater to passively irrigate street trees.

A bicycle sharrow is included on Wyndham as the intent is to slow traffic enough so that cyclists and vehicles will be moving at similar speeds.

Wyndham will become a signature street in downtown Guelph, offering opportunity for day-to-day and event users to seamlessly use the street as public space.

The following Concept Plan illustrates how the sample section shown here would apply to Wyndham Street.







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Macdonell Street

Redefining Guelph's main streets with a curbless, asymmetrical design to provide flexibility and adaptability



Macdonell Street is also classified in the DSP as a **Downtown Main Street** as it is a principle commercial street in downtown. It should therefore be a pedestrian and transit priority street with wide boulevards, on-street parking and accommodation for cycling.

The flexible street approach is again a good fit for Macdonell Street as it affords the many benefits previously discussed in the introductory section. Macdonell is again wide - at 30m - and it forms a key east-west link in the City.

Macdonell is also an asymmetrical street. It has angled parking on the north side of the street and parallel parking on the south. The south side of the street, with parallel parking and a generous boulevard, will allow businesses to take advantage of the afternoon sun (as the street is not aligned to true east-west).

Both sides of the street again prioritize space for street trees and site furnishings as well as a clearly denoted pedestrian clearway. Precast concrete unit paving is used for on-street parking stalls to not only differentiate it from the asphalt

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roadway, but also to better blend the transition the boulevard to the roadway. Permeable unit paving, in a matching colour and pattern, is also used in the Planting and Furnishing Zone to allow stormwater to passively irrigate street trees.

A bicycle sharrow is included on Macdonell as the intent is to slow traffic enough so that cyclists and vehicles will be moving at similar speeds.

To ensure that heavily used transit routes are not impeded by slower moving bicycles, dedicated on-street bicycles lanes should be included on

Macdonell in two locations: from Wilson Street to Norfolk street (up the hill) and from Carden Street to Woolwich/Wellington. Additionally, at the either end of Macdonell the center turning lanes should be retained to accommodate left-turning vehicles and transit operations.

As Macdonell is anchored by an important view to the Church of Our Lady, the following page depicts a unique feature for the street to take advantage of this signature view.

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Macdonell Street

Framing Guelph's signature view to the Church of Our Lady



Note: layout shown is conceptual

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The defining vista in downtown Guelph is of the Church of Our Lady, perched above Macdonell Street. This “postcard moment” is a memorable view in downtown. In Macdonell’s current configuration, there is not a comfortable place to take-in this signature view nor is there anything on the street to frame the view. Redesign of Macdonell provides the opportunity to create a place where this unique view can be better and safely appreciated.

A pedestrian refuge in the centre of Macdonell, east of Wilson Street, will create a place to linger and opportunity to admire the view. Accordingly, the beautification of Macdonell will provide an excellent view from the church.

The refuge:

- Provides a ‘moment’ or safe refuge area to appreciate the view up and down Macdonell
- Is approximately 15m long by 5m wide
- Includes a raised decorative planter on one or both ends to denote and soften the transition from roadway to refuge
- Includes planting displays in a raised planter that should will not obscure the view when standing in the refuge. Seasonal annual displays would be ideal.
- Incorporates unit paving as the surface paving material both in the refuge and over the street (to connect the refuge to the boulevard)
- Uses the same materials from the streetscape palette, for seamless continuity
- Is flush to the road and protected from traffic using bollards and raised planters
- Incorporates seating
- Is maintained to ensure year-round accessibility

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Quebec Street

A key retail spine in downtown redesigned to seamlessly connect to St. George's Square and future development on Baker Street



Quebec Street is also classified in the DSP as a ***Downtown Main Street*** as it is the third principle commercial street in downtown. It should therefore be a pedestrian priority street with wide boulevards, on-street parking and accommodation for cycling.

At 20m right-of-way width, Quebec Street is much narrower than both Wyndham and Macdonell so the boulevards are more compact and some elements are excluded for lack of space.

The flexible street approach is again a good fit for Quebec Street as it affords the many benefits previously discussed in the introductory section. Quebec Street forms a key link to both St. George's Square and Baker Street, which will soon transform into a key node in downtown.

In contrast to other flexible streets, Quebec Street is symmetrically designed, with parallel parking on both sides of the street. A dedicated street tree and furnishing zone has been excluded to

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Marketing Zone	Pedestrian Clearway		Parking + Bump-outs with Trees		Shared Travel Lane	Shared Travel Lane	Parking + Bump-outs with Trees	Pedestrian Clearway	Marketing Zone
1.10 m	2.00 m		2.3 m		3.5 m	3.5 m	2.3 m	2.00 m	1.75
		0.8 m Edge zone		0.3 m Trench drain			0.3 m Trench drain	0.6 m Edge zone	
Boulevard			Parking		Roadway		Parking		Boulevard

maximize the pedestrian clearway/marketing zone to support commercial activity. Street trees can, however, be planted where bump-outs occur, either mid-block or at intersections.

A challenge for detailed design on Quebec Street will be the grade differential from the north side (higher) to the south side (lower) of the street. Most likely, a simple uniform slope from finished floor to finished floor will be acceptable (as the current solution utilizing additional curbs is not compatible with a curbless street).

An additional consideration on Quebec Street are the numerous driveway entrances. These should be retained where necessary and a bump-out with street tree provided abutting each entrance, where possible.

At the west end of Quebec Street, where it meets Norfolk Street, the existing left-turn lane should be retained to accommodate heavy turning movements.

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Douglas Street

An intimate, shared street with a memorable view



Douglas Street is a special place in downtown as its character and scale is altogether different from any other street. It is anchored by a view of St. George's Anglican Church's prominent spire at one end and by St. George's Square at the other.

By applying the Flexible Street Approach to Douglas, a European style shared street emerges that will afford businesses new opportunity to flourish. As it will remain a one-way street that does not have any significant transportation function, Douglas could be closed during summer evenings to allow restaurant patios and other businesses to spill out on the street.

Building setbacks vary considerably on Douglas so its right-of-way width varies correspondingly (averaging to approximately 10m).

In place of an asphalt road, unit paving will be used from building face to building face, creating a seamless, unified character. Trench drains along the length of the street complete this approach. Parking is retained on one side of the street and sidewalk widths vary, outside the line of bollards, as building setbacks vary.



Unit paving in the road creates a seamless look



A 'Pixelated' paving pattern creates identity



View looking east along Woolwich Street.

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Traditional Streets

An improved network of streets to ensure balanced mobility throughout downtown

The traditional street model for remaining downtown streets has been reconsidered to better serve priority modes of transportation and support business function. Traditional street designs are primarily differentiated from flexible streets in that they offer a conventional raised curb and gutter system. They will be improved over the existing examples by offering:

- Optimum planting conditions for street trees to ensure health and longevity
- A consistent palette of materials and elements
- A balance of space allocation to multiple modes of transportation
- Conformance with the Municipality's Facility Accessibility Design Manual (FADM)
- Wider boulevards and dedicated on-street parking on retail streets to support commercial function

Primary Street Sample Section

Primary Streets are major roads that provide access to and through downtown for all modes of transportation

Compared with other street classifications, Primary Streets are the typology which focuses most on vehicular movement - both to and through downtown. With widths varying from 24m - 30m, Primary Streets are generous but they must accommodate up to four travel lanes, a cycling facility and pedestrian amenities so demand for space within the right-of-way is significant.

Primary Streets in downtown are:

- Gordon Street
- Norfolk Street
- Wellington Street
- Woolwich Street
- Eramosa Road
- Macdonell Street east of Wellington
- Wyndham Street south of Wellington
- York Road
- Elizabeth Street
- Paisley Street
- Waterloo Avenue

Travel Lanes

Primary streets have either two or four travel lanes. Sections are provided to illustrate the ideal mid-block condition for both options.

Parking

With the exception of Wellington between Gordon and Wyndham, off-peak parking should be included on all Primary Streets with four lanes.

Cycling

A dedicated cycling facility should also be included as required by the Downtown Secondary Plan and Guelph Cycling Master Plan. Options for on-street bike lanes and a cycle track are shown in the sample sections. The Ontario Traffic Manual Book 18 should be used to guide detailed design of the chosen cycling facility for a road segment.

Boulevard

Wide sidewalks are a necessity on Primary Streets to ensure pedestrians are comfortable and also to support businesses, where they front onto the street. Street trees growing conditions should be optimized using either silva cells or open pit planters.

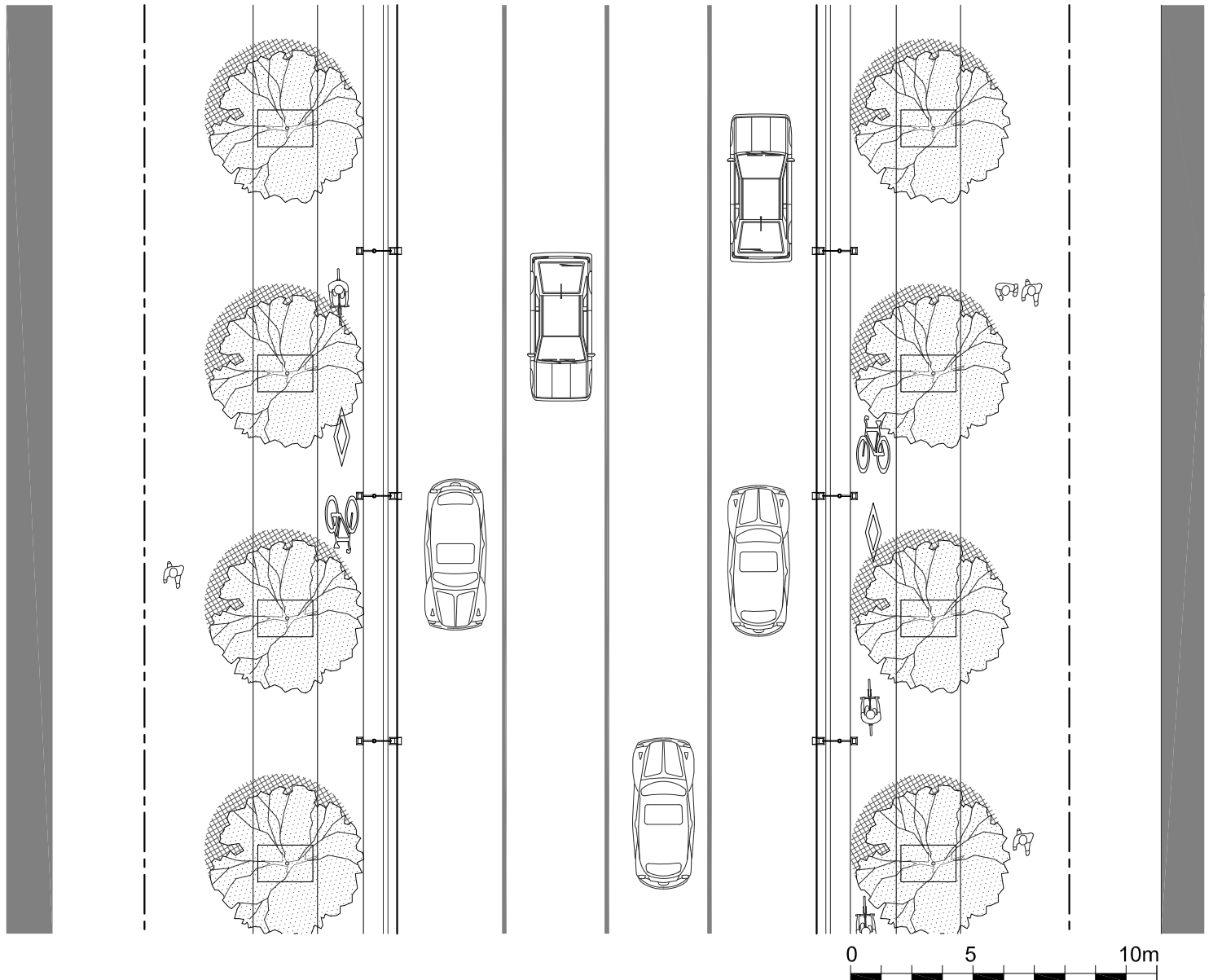
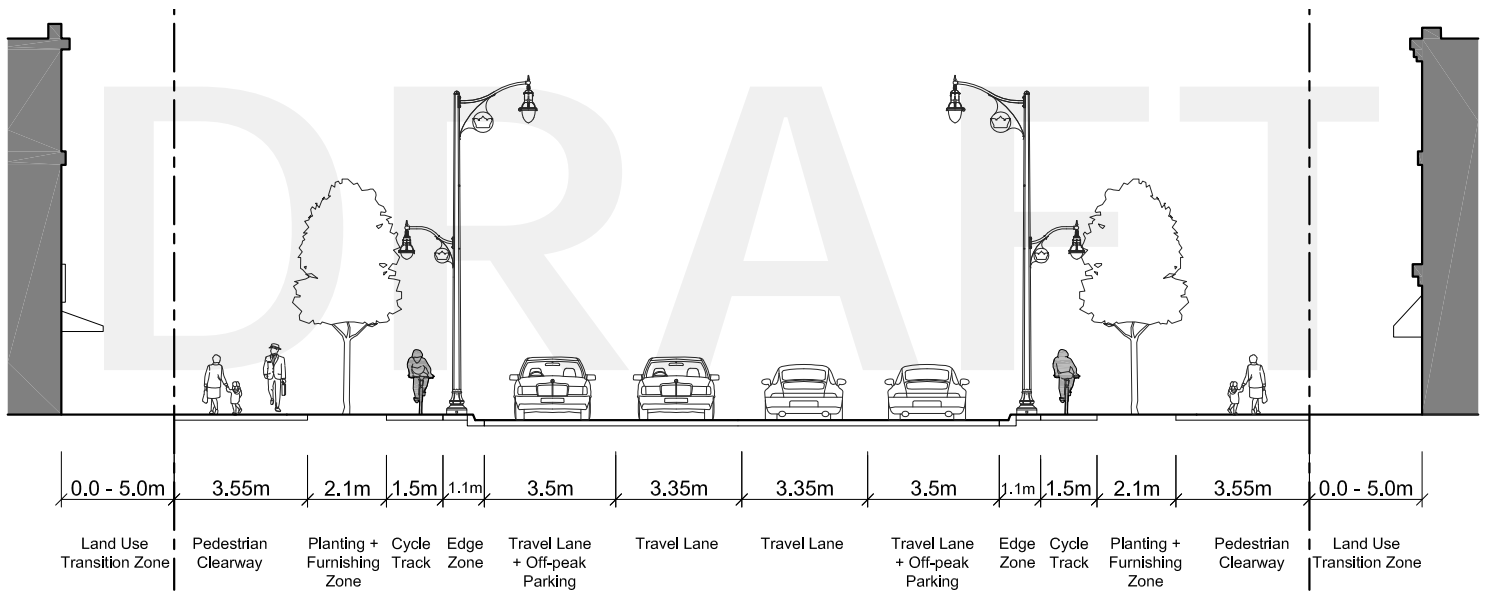
The following sample sections illustrate Primary Streets in the following conditions:

- Four travel lanes, 30.2m ROW
- Two travel lanes, 30.2m ROW
- Wellington Street Sample Section

A Wellington Street sample section is included as it is an important street in downtown that will front new development (see DSP 11.1.5.1.5). This sample section can be used along with the streetscape guidelines (section 2.3) and technical details (section 2.5) to develop a functional/concept plan during detailed design.

Streetscape guidelines (Section 2.3) and pertinent technical details (Section 2.5) can be used to develop a functional/concept plan for a Primary Street.

Primary Street Sample Section - Four Lanes & Cycle Track- 30.2m R.O.W.

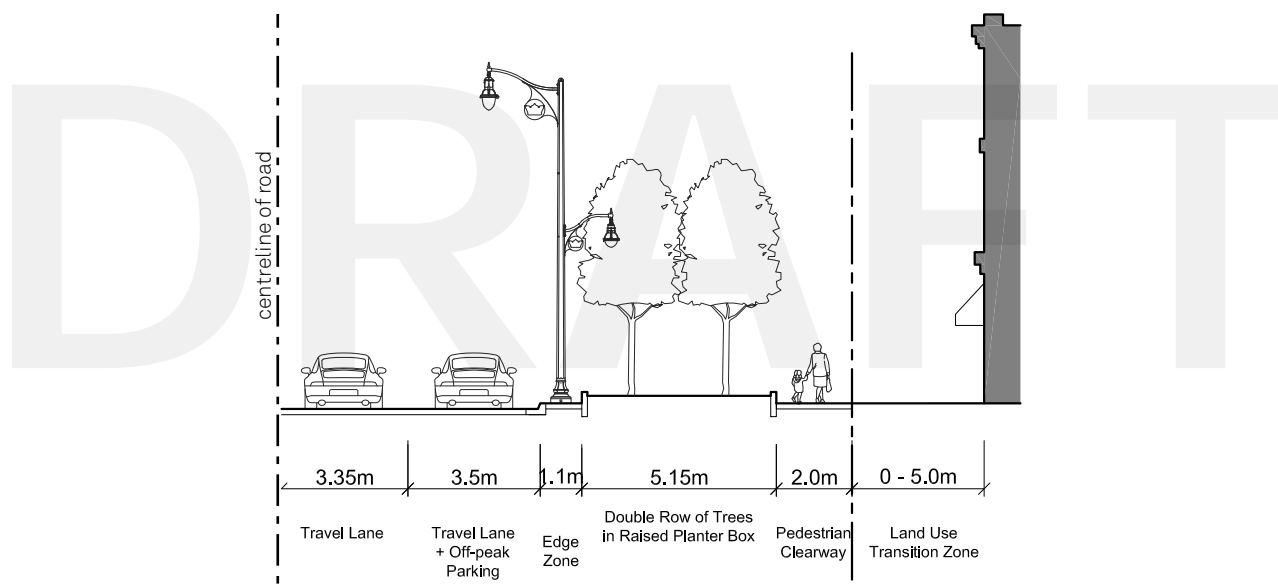


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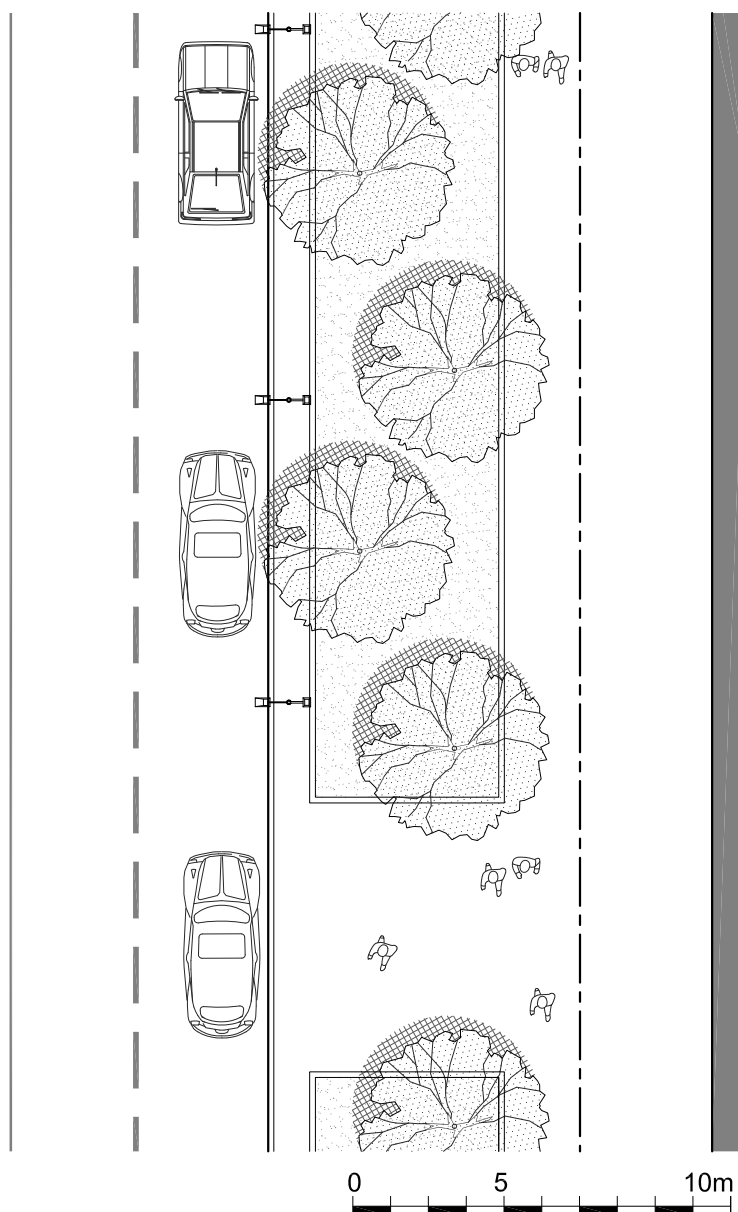


Uni-directional cycle tracks on Wellington Street, similar to the example shown here in Chicago, will provide cyclists with a high quality, protected route through downtown

Primary Street Sample Section for North Side of Wellington Street - 30.2m R.O.W.



As per policy 11.1.5.1.5 of the DSP,
an enhanced pedestrian zone is proposed along Wellington west of Wyndham



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Secondary Street Sample Section

Secondary Streets are key streets providing access to and through downtown and incorporate on-street parking

Secondary Streets focus less on vehicular movement and more of providing important elements for other users of the public realm. With widths varying widely from 18m - 30m, Secondary Streets can be both narrow and generous. Being limited to two travel lanes in all iterations affords opportunity provide generous boulevard amenities such as wide sidewalks and comfortable tree planting zones.

Secondary Streets in downtown are:

- London Road
- Suffolk Street
- Fountain Street east of Gordon
- Neeve Street south of Wellington

Travel Lanes

Secondary streets have two travel lanes.

Parking

Parking on both sides of the street should be included on all Secondary Streets.

Cycling

No dedicated cycling facility is included by default for Secondary Streets, however a buffered bike lane (1.5m lane + 0.5m buffer) can be considered for 30m ROW streets. If no dedicated bike lane is provided, sharrows could be clearly marked in travel lanes to denote that it is a shared facility.

Boulevard

Wide sidewalks are a necessity on Secondary Streets to ensure pedestrians are comfortable and also to support businesses, where they front onto the street. Street trees growing conditions should be optimized using either silva cells or open pit planters.

The following sample section illustrate a Secondary Street in the following conditions:

- Two travel lanes, 30m ROW

Streetscape guidelines (Section 2.3) and pertinent technical details (Section 2.5) can be used to develop a functional/concept plan for a Secondary Street.

Street Layout Dimensions (m):

Zone	Width (m)
Marketing Zone	3.3
Pedestrian Clearway	2.0
Planting + Furnishing Zone	2.7
Edge On-Street Parking + Bump Outs	1.1
Travel Lane	2.4
Travel Lane	3.5
Travel Lane	3.5
On-Street Parking + Bump Outs	2.4
Edge On-Street Parking + Bump Outs	1.1
Planting + Furnishing Zone	2.7
Pedestrian Clearway	2.0
Marketing Zone	3.3

Planting Zones:

- Hardscape Tree Planters:** Includes the first Planting + Furnishing Zone (2.7m) and the first Edge On-Street Parking + Bump Outs (1.1m).
- Raised Tree Planters:** Includes the second Edge On-Street Parking + Bump Outs (1.1m) and the second Planting + Furnishing Zone (2.7m).



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Local Street Sample Section

Local Street are intended to provide access to development and facilitate circulation by all modes downtown

Local Streets are residential in character and generally are used to serve existing residential character areas or to facilitate circulation around downtown. With widths varying from 17m - 21m, Local Streets are narrow and therefore have limited ability for dedicated elements.

Local Streets in downtown are:

- all other streets not listed as either Primary, Secondary or Flexible streets

Travel Lanes

Local streets have two travel lanes.

Parking

Parking may occur on one or both sides of the street.

Cycling

No dedicated cycling facility is included by default for Local Streets.

Boulevard

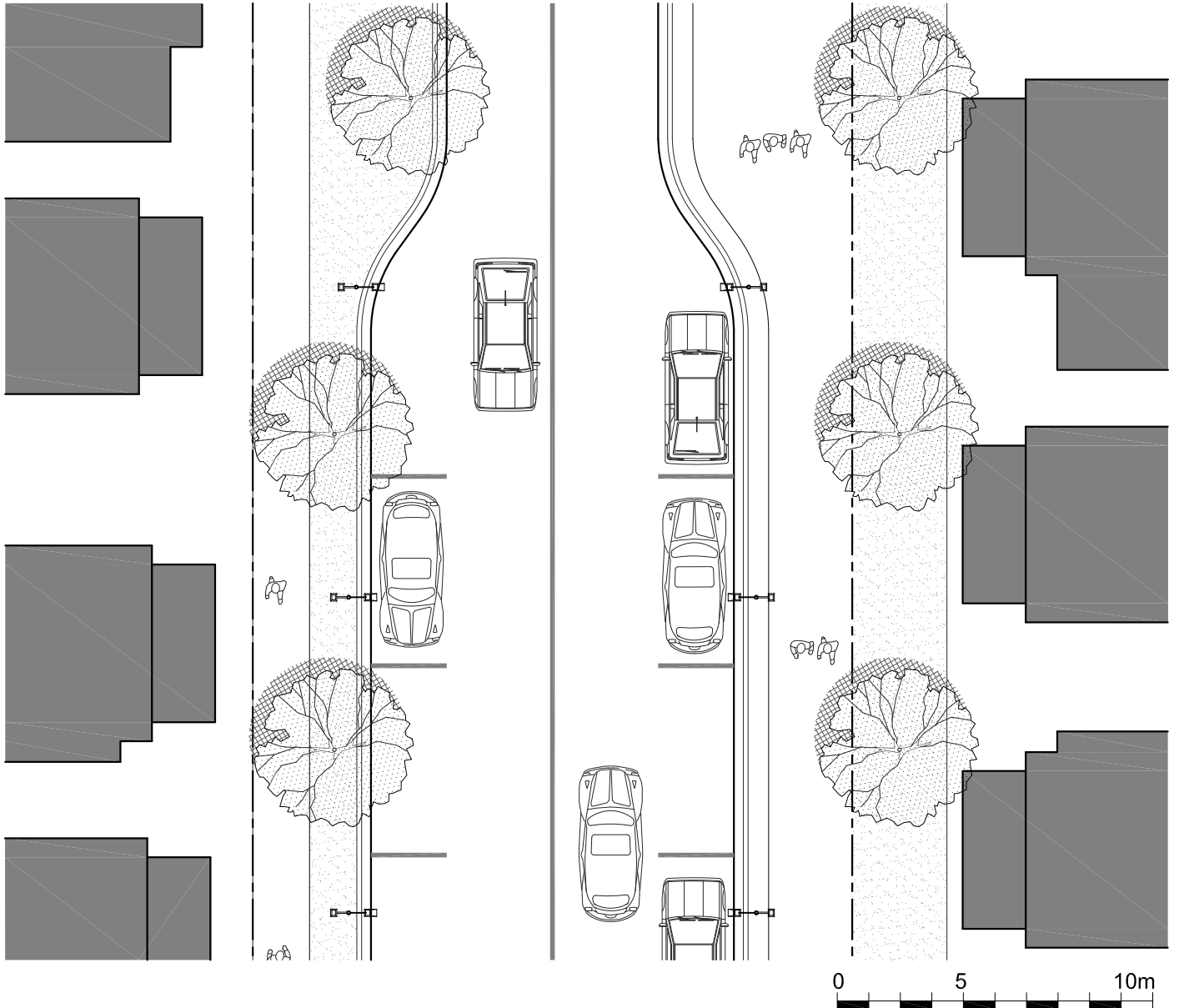
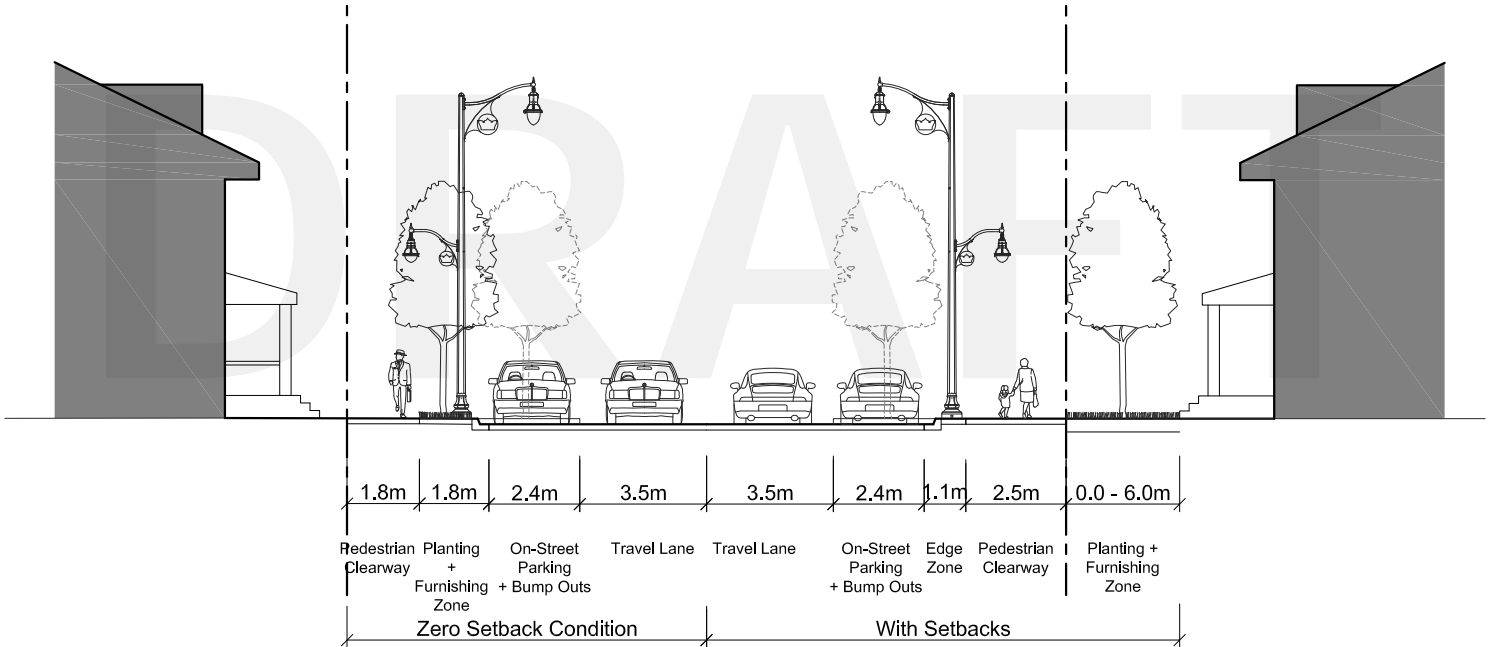
As local streets in the downtown study area are all close to the centre, they should include wide sidewalks and street trees wherever possible. Sidewalks should be a minimum of 2.0m and a sodded boulevard with street trees should be included on both sides of the street to support the low-density residential character of local streets. In constrained conditions, street trees can be planted using soil cells, open pit planters or both.

The following sample section illustrate a Local Street in the following conditions:

- Two travel lanes, 19m ROW

Streetscape guidelines (Section 2.3) and pertinent technical details (Section 2.5) can be used to develop a functional/concept plan for a Local Street.

Local Street Sample Section - 19m R.O.W.



Pedestrian Mew Sample Section

Pedestrian mews provide wayfinding options and reinforce the walkability of Downtown

Through the development process, the City will establish a network of mid-block pedestrian mews (conceptually identified in the DSP) to enhance pedestrian connectivity downtown and to function as generous, linear pedestrian-oriented spaces for passive enjoyment. Mews should be primarily designed for the comfort and safety of pedestrians and shall have a minimum width of nine (9) metres and may comprise public and/or private land but shall be publicly accessible.

Few mews exist in downtown today but they will increase in number and importance with intensification. Existing mews should be reconstructed in association with the streets that they adjoin to provide safe and evident connections and continuity in materials throughout downtown.

Travel Lanes

Mews are not accessible to vehicular traffic so have no travel lanes. A minimum 3.0m pedestrian clearway should be provided in every mew.

Parking

As vehicles are not permitted in mews, parking is not possible.

Cycling

No dedicated cycling facility is provided on mews but they are intended to be used by cyclists. Signs permitting cycling and warning pedestrians that a cyclist may use the route should be installed.

Design Considerations

Mews will generally be nine meters in width and have be subdivided into three three meter corridors, each having a distinct function.

The centre corridor is the designated pedestrian clearway and should be detailed with FADM conformance in mind.

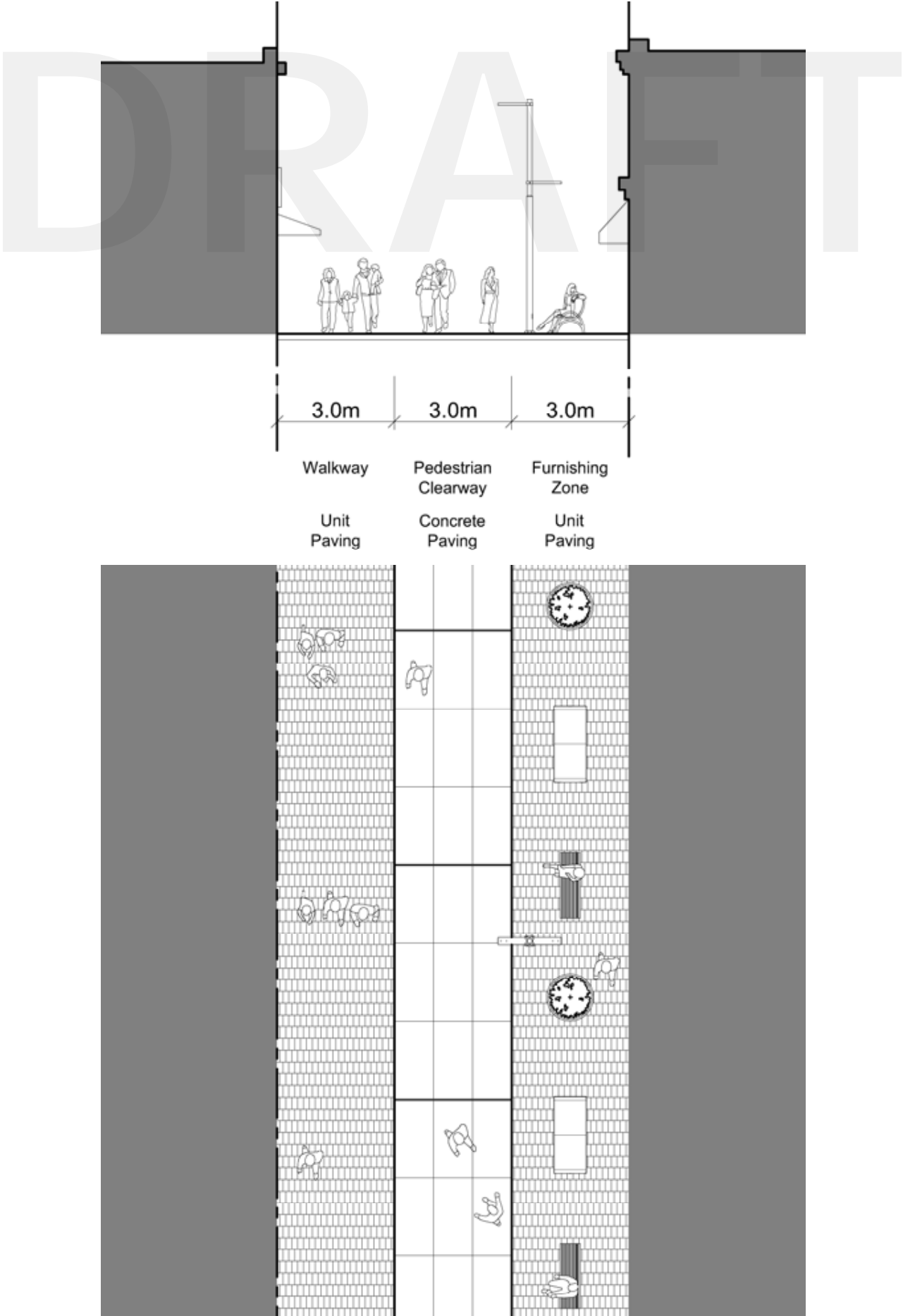
One outside corridor serves as the designated furnishing zone and should include pedestrian-scaled lighting, benches, litter/recycling receptacles, secure bicycle storage, and other public amenities.

The opposite outside corridor is a multi-purpose space that can be considered additional pedestrian/cyclist circulation space or a marketing zone for the use of retailers, depending on the context. This area can also act as a temporary snow storage zone in winter.

The pedestrian clearway should be paved in brushed concrete and the two outside corridors should be paved using unit pavers to match street boulevards (page 46). Areas of unit paving could be permeable to capture and infiltrate storm water, alleviating the need for a traditional stormwater system in mews.

It is important that all mews conform to CPTED principles and are well lit so that they feel safe.

Mew Sample Section - 9m R.O.W.



Wellington/Woolwich/Macdonnell Intersection

Rationalizing a confusing intersection to enhance walkability and legibility

This important intersection in downtown is at the crossroads of old and new. At the corner of Woolwich and Macdonnell, a large condominium tower is being constructed (with a second to follow across the road). Additionally, a large development is planned immediately across the Speed River. Consequently, this intersection will gain importance as many new residents will travel through it - using all forms of transportation - to access downtown.

In its existing configuration, pedestrians and cyclists are not given equal priority to vehicles. This exercise sought to rationalize the intersection design to widen boulevards, provide parking adjacent to new development and better prioritize active modes of transportation. The suggested changes can be summarized as follows:

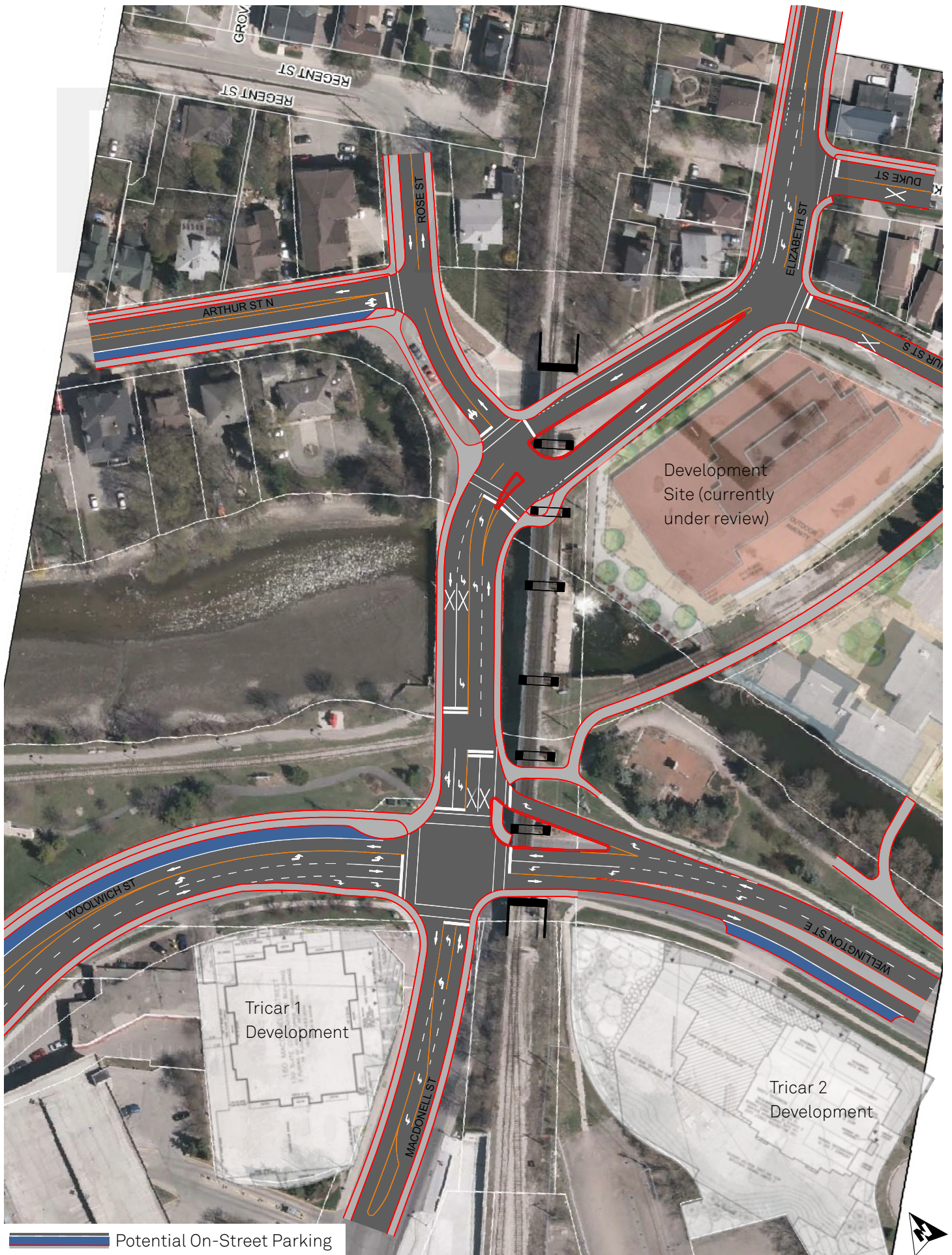
On the west side of the bridge the intent was to provide a cross section to better serve the current traffic volumes and traffic patterns and to potentially create additional on-street parking. Woolwich Street northbound lanes were reduced from two lanes to one thru lane and on-street parking. Southbound the overall pavement width was reduced resulting in two thru lanes which tapers out to create a dedicated left and right turn lane and one thru lane at the intersection. A thru lane was removed in each direction on Wellington Street East south of Macdonnell Street creating a narrower paved width and/or the potential for additional on-street parking southbound. The dedicated right turn lane for eastbound traffic across the bridge remains in place due

to restrictions from the railway bridge pier. On Macdonnell Street West of the intersection the cross section was reduced to provide one thru lane in each direction with auxiliary lanes as required.

Across the bridge, the two thru lanes in each direction were revised to accommodate a single thru lane in each direction and dedicated left turn lanes to coordinate with the revised lane configurations at the intersections on each side. The existing intersection on the east side of the bridge is not very well defined with a large wide open asphalt area. The goal here was to emphasize the Macdonnell Street to Elizabeth Street route and discourage the Arthur Street cut-through traffic into the residential neighbourhood.

The Macdonnell Street to Elizabeth Street route was developed as free flowing with larger curve radii (with the actual driving areas reduced) creating a much cleaner driving pattern through this section. The tee intersection created at Rose Street will lessen the free flow movement towards Arthur Street that currently exists.

Through detailed design this concept should be further refined by City Staff and a consulting Engineer in advance of implementation. In particular, the deck of the bridge should be examined to consider widening the sidewalks. Further study should also consider the potential lengthening of the storage lane for the westbound lefthand turn lane between Macdonnell and Wellington.



DRAFT

A coordinated system of streetscape materials and elements will establish an identity for downtown Guelph. The guidelines define parameters to consider with redevelopment in the public realm. Application of the guidelines will vary by streetscape and physical site characteristics. They are provided as a guide and should be applied using best practical and professional judgment.

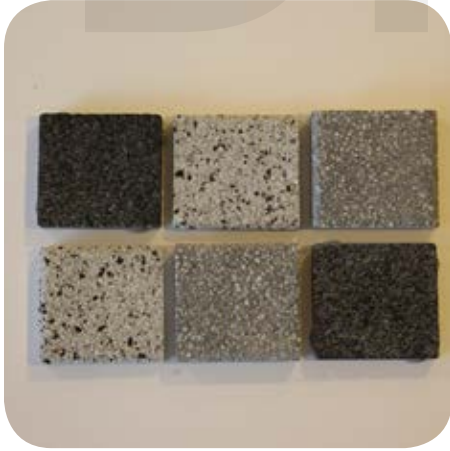
DRAFT 2.3

Streetscape Guidelines

Material Palette

Flexible & Traditional Streets

Permeable Precast Concrete Unit Pavers



Permeable precast concrete unit pavers for street tree & furnishing zone where above a tree pit. Optional use in on-street parking lane.

Product: Eco-Prioria

Manufacturer: Unilock

Finish: Series 3000

Colour & Pattern: Grey 1, Grey 2, Grey 3. Random mix for 'pixelated' look

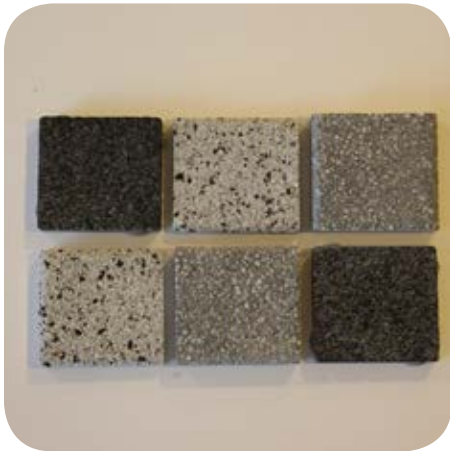
Paver Size: 12cm x 24cm x 8cm (5" x 10") - 100%

Alternate equal acceptable: Yes (must be exact match)

Maintenance Implications: Semi-annual cleaning of joints.

Notes: see drawings UP1 and UP2 for pattern information

Precast Concrete Unit Pavers (non-permeable)



Traditional precast concrete unit pavers for on-street parking lane and street tree and furnishing zone where not above a tree pit.

Product/Finish: Series 3000

Manufacturer: Unilock

Colour & Pattern: Grey 1, Grey 2, Grey 3. Random mix for 'pixelated' look

Paver Size: 15cm x 30cm x 7cm (6" x 12") - 100%

Alternate equal acceptable: Yes (must be exact match)

Maintenance Implications: Top-up of jointing sand as needed

Notes: see drawings UP1 and UP2 for pattern information

Brushed Concrete Paving



Cast-in-place concrete paving with a brushed concrete will form the accessible route on all streets to meet AODA requirements.

Product: Cast-in-place concrete paving

Finish: Light broom finish

Details: saw cut control joints; no tooling at edges or joints; sealed expansion joints

Maintenance Implications: none

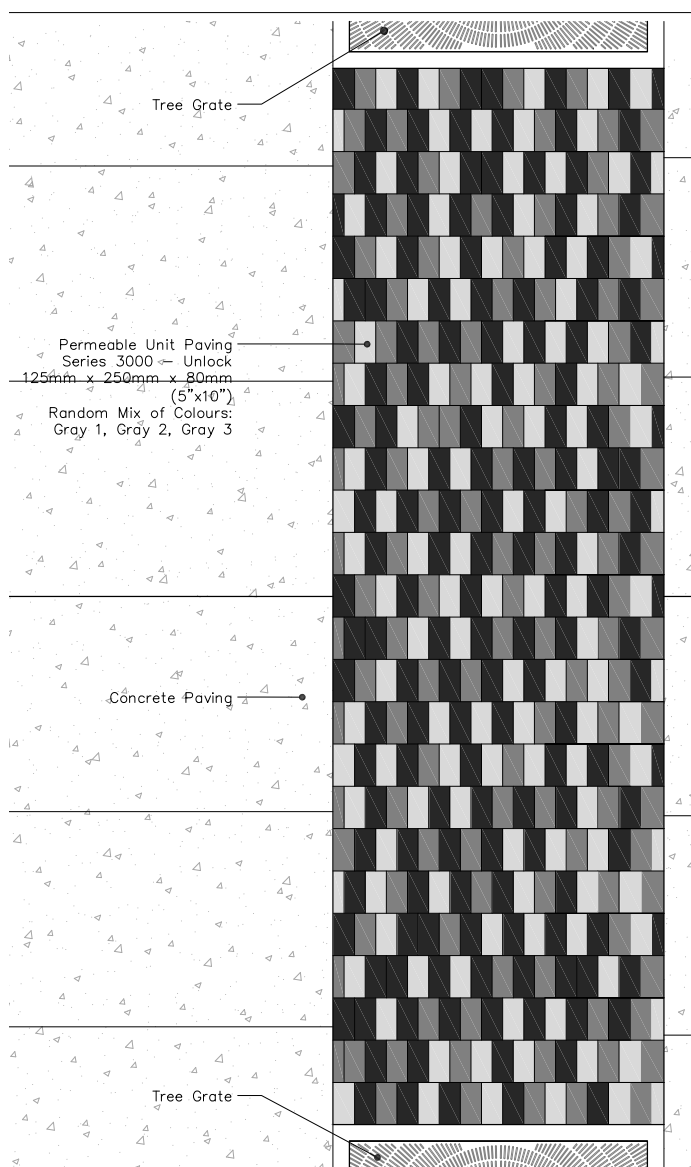
Unit Paving Pattern

A 'pixelated' pattern of uniformly sized pavers

A 'pixelated' unit paving pattern, using a colour palette of three neutral greys, will add visual interest to the street and boulevard. When applied to all streets over time, the pattern provide material continuity and identity throughout the centre. This pattern has the added benefit of easy reconstitution after disturbance.

Areas of unit paving occur in three places: the planting and furnishing zone on flexible and traditional streets; the on-street parking lane for flexible streets; and on Douglas Street.

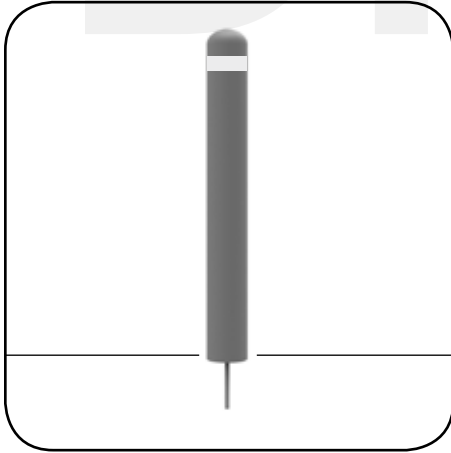
Drawings UP1 and UP2 in the Streetscape Details (Section 2.5) provide further detail on the unit paving pattern.



Site Furnishings Palette

Flexible & Traditional Streets

Bollard



Powdercoated galvanized steel bollard to delineate the divide between roadway and boulevard on flexible streets.

Product: Maglin

Manufacturer: MTB500-B2 or MTB500-B1

Colour: Slate FineTex

Finish: Powdercoat with white reflective tape strip near top

Installation Method: Base Type 2 - threaded rod set into concrete or Base Type 1 - direct bury into concrete

Alternate equal acceptable: Yes

Maintenance Implications: replace when damaged or finish compromised

Notes: see drawings F1-F8 for placement details

Bike Ring



Stainless steel bike ring suitable to lock up two bicycles.

Product: Bola

Manufacturer: landscapeforms

Colour/Finish: Stainless Steel

Installation Method: direct bury

Alternate equal acceptable: Yes

Maintenance Implications: monitor for compromised finish

Notes: see section 2.5 - Streetscape Details - for placement details & reference OTM Book 18 for spacing.

Tree Grate



A durable, low maintenance tree grate that conforms to accessibility standards.

Product: Kiva

Manufacturer: Urban Accessories

Colour: Raw Cast Iron

Size: Varies (see details) with larger opening of 600mm dia. min.

Alternate equal acceptable: Yes

Maintenance Implications: periodic cleaning under tree grate

Notes: removable panel for access to electrical hand-well for seasonal lighting

Site Furnishings Palette

Flexible & Traditional Streets

Backed Bench



A slim profile coupled with a strong cast aluminum structure and wood slat seat and back make the neoliviano bench versatile seating for public spaces.

Product: neoliviano

Manufacturer: landscapeforms

Size: 69" length

Finish: Jarrah wood back & seat

Installation Method: surface mount

Alternate equal acceptable: Yes

Maintenance Implications: seasonal inspection for damage

Backless Bench



A slim profile coupled with a strong cast aluminum structure and wood slat seat and back make the neoliviano bench versatile seating for public spaces.

Product: neoliviano

Manufacturer: landscapeforms

Size: 69" length

Finish: Jarrah wood back & seat

Installation Method: surface mount

Alternate equal acceptable: Yes

Maintenance Implications: seasonal inspection for damage

Chair



Chairs oriented into 'social seating' arrangements to create places to relax and for conversation

Product: neoliviano chair

Manufacturer: landscapeforms

Size: 24" chair

Finish: Jarrah wood back & seat

Installation Method: surface mount

Alternate equal acceptable: Yes

Maintenance Implications: seasonal inspection for damage

Notes: see drawing F7 for placement detail

Site Furnishings Palette

Flexible & Traditional Streets

Detectable Warning Surface



Cast iron detectable warning plates are extremely durable and easy to install.

Product: Detectable warning plate

Manufacturer: Neenah Foundry

Colour: Raw Cast Iron

Size: 24" width. Length & radius varies with location.

Alternate equal acceptable: Yes

Maintenance Implications: seasonal inspection for damage

Notes: see drawing F8 for placement detail

Planter



Glass fiber reinforced concrete planter.

Product: newport

Manufacturer: Barkman

Colour: Flagstone

Shape: Round

Size: 4'-0" diameter. 3'-0" height.

Alternate equal acceptable: Yes

Maintenance Implications: seasonal inspection for damage

Notes: Place in tree planting and furnishing zone as per construction details Section 2.5

Litter & Recycling Container



A simple, attractive litter/recycling container that is compatible with the automated collection system used by Solid Waste Management must be selected for use in downtown. A final selection will be made in the future after a period of testing and analysis of various options.

Containers should be dark gray in colour to match other site furnishings and be differentiated by placard or applied vinyl stickers (keeping in mind best practices for achieving waste diversion targets). When a unit is selected, its placement in the boulevard should be studied to ensure it does not impede pedestrians and is accessible to collection equipment and users. Units should be cleaned and inspected regularly and replaced when damaged.



Pedestrian Clearway

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

The pedestrian clearway is a key portion of the boulevard that is dedicated to pedestrians. It is typically located directly adjacent to the building frontage, property line or setback, depending on the street classifications.

Objectives

The pedestrian clearway is the main space for pedestrian movement. All downtown streets should include the pedestrian clearway to achieve goals of creating complete, walkable communities. In active urban areas the pedestrian clearway should be as wide as possible within the boulevard. It must also meet accessibility standards and should remain clear of obstructions, horizontally and vertically, at all times.

Guidelines

- Pedestrian clearway should be designed to meet the City of Guelph Facility Accessibility Design Manual (FADM) standards and must remain unobstructed both horizontally and vertically
- When pedestrian movement is prioritized, a continuous public sidewalk should be provided on both sides of the street, unless an alternate pedestrian route such as an accessible multi-use trail is provided
- Pedestrian clearways are recommended to be a minimum of 1.83 metres in width, with wider sidewalks adjacent to shops, institutions and public areas
- The sidewalk should be constructed of brushed concrete with saw-cut control joints. No tooling of any joints.

- Where crossings over intersections occur, clearways should be continuous and marked with materials that provide visual contrast from the roadbed
- Overhead signage and canopies should not be located any lower than 2.5 metres above the clearway
- Tree branches should be trimmed so they are not lower than 2.0 metres above the clearway
- Signage boards, seating and retail spill-out spaces are not permitted within the pedestrian clearway
- Heated sidewalks may be utilized for some downtown streets. Provide the necessary accommodations where required



Pedestrian clearways maintain space for pedestrian movement, ensuring streets are walkable.

Marketing Zone

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

The marketing zone is located between the pedestrian clearway and the building frontage or property line.

Objectives

The marketing zone demarcates the transition from public to private realm and can serve different uses depending on the adjacent land use and street classification. It is particularly important in urban areas, where street-related retail and pedestrian activity is common and encouraged. This zone should be designed to add to the character and activity of the street by introducing the potential for patios and spill-out retail to the street.

Guidelines

- In retail areas, the marketing zone may contain private seating areas, planters, signage, and temporary retail displays
- Elements from this zone should not impede the pedestrian clearway in any manner
- The marketing zone may be within the public right-of-way or on the adjacent private property (within a setback)
- If located in the public right-of-way, permanent elements may be installed with City approval
- Overhanging signage (preferably perpendicular) can be installed if it does not interfere with pedestrian travel and meets local signage regulations
- In areas with retail at grade, a wider Land Use Transition Zone should be provided to accommodate opportunities for spill-out retail and active at-grade uses

- Consider developing and implementing supporting by-laws to: A) delegate responsibility for cleaning of patio areas to owners; and B) ensure that patios are seasonally removed and reinstalled by owner.



Marketing zones provide a dedicated place for outdoor retail, patios and other furnishings.

Site Furnishing (Planting & Furnishing Zone)

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

The Planting and Furnishing Zone is located between the sidewalk and the edge zone, and provides a location site furnishings (and street trees).

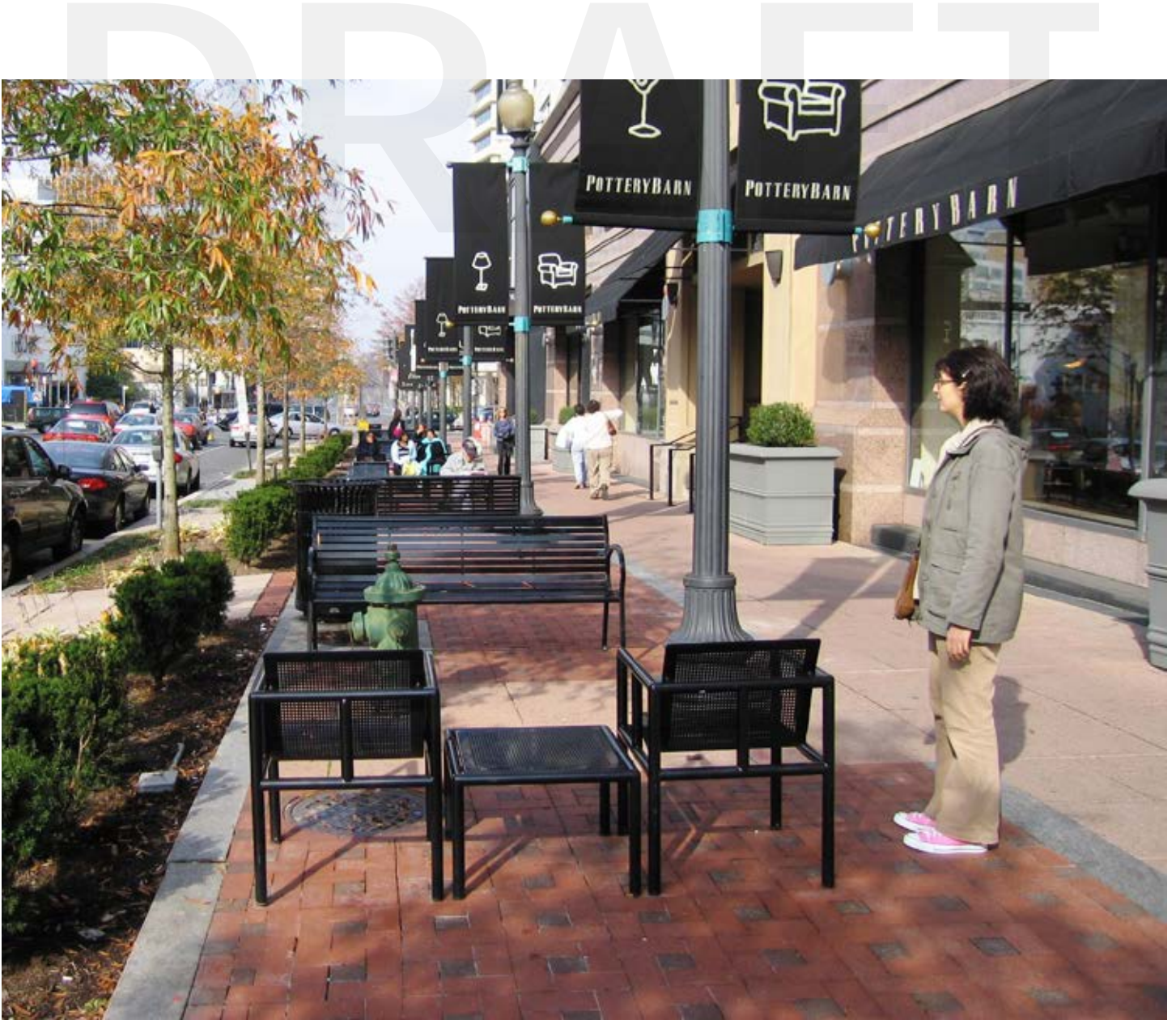
Objectives

The Planting and Furnishing Zone provides space for street amenities that activate the street and are easily accessible to pedestrians.

Guidelines

- Street furniture, street trees and public wayfinding signage should be located within this zone
- Site furnishings should be centred in the available space
- No part of the furniture or signage elements should impede travel within the adjacent pedestrian clearway, including bicycles parked at bicycle racks
- Benches should face towards buildings (not towards the street)
- Site furnishing placement/orientation should comply with FADM standards
- Social seating arrangements, where pairs of chairs face each other, foster social interaction and should be utilized at least once in each block, preferably in bump-outs
- Bike rings should be installed along the entire length of a block to provide convenient bicycle parking opportunities for businesses
- Bike rings should be installed in groupings where space permits
- Decorative planters should be installed at the beginning/end of the planting & furnishing zone and in bump-outs
- Decorative planters should be planted with attractive annual (or perennial) plant material and changed (or maintained) seasonally
- Litter/Recycling receptacles must remain in their designated locations spot. Staff should be trained and container locations should be audited regularly to ensure bins are in the appropriate location and do not wander
- Litter, recycling and organics containers must be grouped together as per WDO best management practices.
- Site furnishings should be inspected bi-annually for damage and repaired or replaced as required
- 'Pay & Display' type parking meters should be located in this zone and face the street





Site furnishings can be arranged to foster social interaction.



Tree Planting (Planting & Furnishing Zone)

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

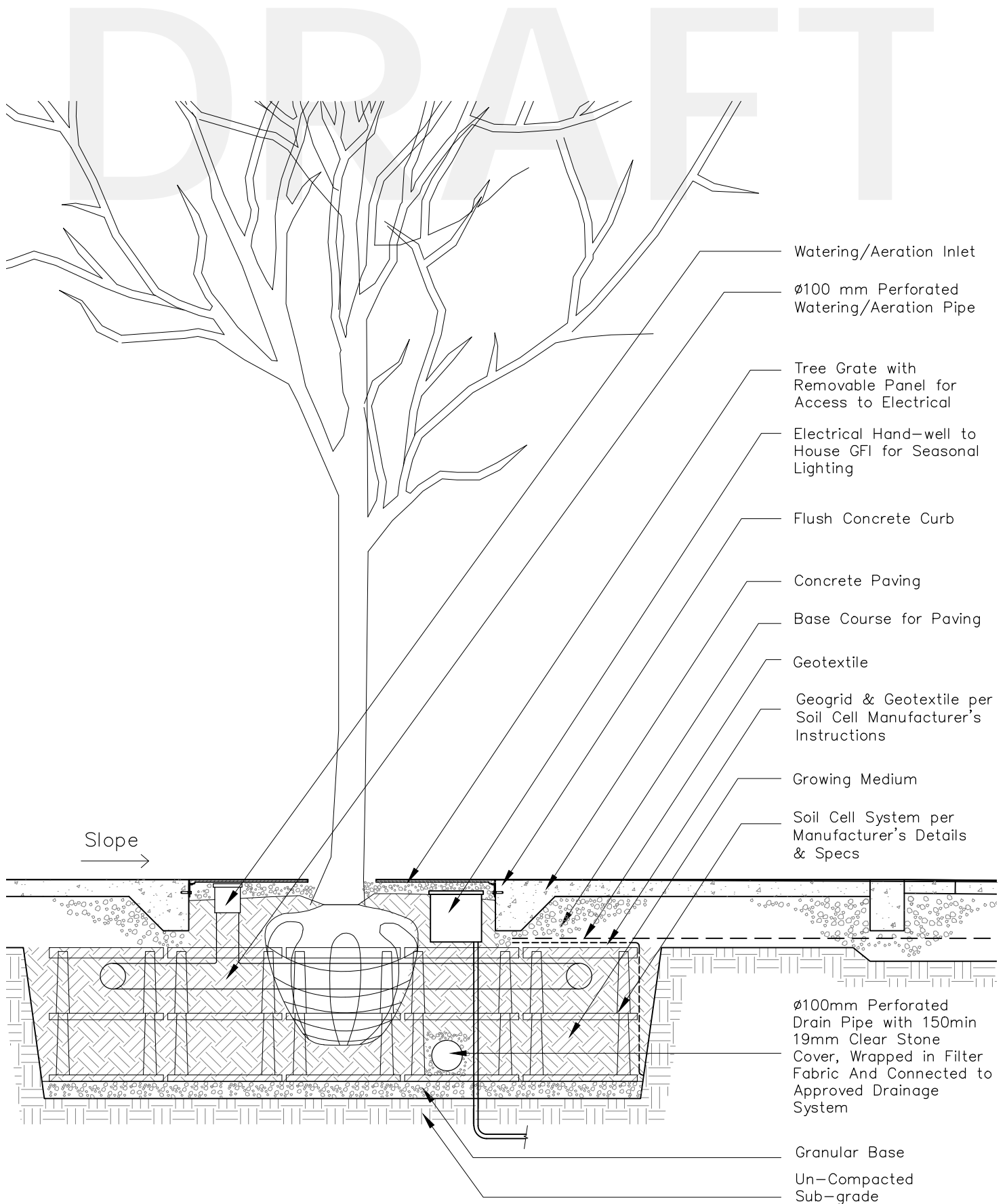
The Planting and Furnishing Zone is located between the sidewalk and the edge zone, and provides a location for street trees (and site furnishings) and provides an additional buffer between vehicles and pedestrians.

Objectives

The Planting and Furnishing Zone provides space to create optimal growing conditions for street trees to ensure a healthy and robust urban forest that provides shade and adds to the character of the street.

Guidelines

- The planting and furnishing zone can be hardscaped or softscaped. Urban roads typically are hardscaped but may include a mix of hardscaped and softscaped areas. Local streets can be softscaped with a grassed boulevard
- Permeable paving should be used above all soil trenches to passively irrigate trees, allowing for water and oxygen to reach tree roots
- In hardscape areas, trees should be planted in either:
 - Closed tree pits with tree grates and continuous soil trenches utilizing soil cells and permeable paving
 - Open tree pits which form continuous soil trenches
- Every medium stature tree should be provided with a minimum of 18 cubic metres of quality soil with direct access to an additional 18 cubic metres through shared root space
- Medium stature trees should have access to a total minimum of 36 cubic meters of soil. Large stature trees should have access to a total minimum of 50 cubic meters of soil
- In softscape areas trees should be planted in a continuous boulevard soil trench with access to additional soil volume within and outside the right-of-way. Break-out zones should be provided under sidewalks and multi-use paths to allow tree roots access to adjacent soils without damaging infrastructure
- Tree opening size must be maximized to ensure there is adequate room for trees to mature.
- Growing medium quality and volume are a critical component to growing healthy, mature trees. Soil to support trees must exhibit physical, chemical and biological properties suitable for tree growth
- Do not use metal tree guards. Instead, use a molded plastic to protect tree trunks for the first two years of growth. Mesh should then be removed
- Coordination with utility providers is important to maximize tree pit size and to minimize root and crown pruning during utility maintenance
- Utilities should not be placed in the tree pit, but placed in a joint utility trench next to a tree pit
- A detailed Tree Technical Manual should be developed to guide tree planting and maintenance practices in downtown. The guide should address: tree pit details, tree species, nursery stock quality standards, planting methods, soils, monitoring & maintenance practices
- On streets where full reconstruction is planned, existing street trees will likely need to be removed and replaced. Special exceptions should be made for trees with considerable cultural or heritage value (to be determined during detailed design)



Edge Zone

Primary Street

Main Street / Flexible

Secondary Street

Local Street

Laneway / Mew

The Edge Zone is located adjacent to the curb, between the roadway and the Planting and Furnishing Zone. It acts as a buffer between the roadway and the boulevard.

Objectives

The objective of the Edge Zone is to provide a safety buffer against car doors and mirrors and to accommodate road signage and utility posts. This zone also plays an important role in road maintenance, especially for snow storage in winter.

Guidelines

- Depending on the street classification and the boulevard elements, overlap between the Edge Zone and the Planting and Furnishing Zone may be considered
- The edge zone can be considered to have overlap with the site furnishing zone if deemed appropriate and the right-of-way is constrained
- The edge zone should not overlap with cycling facilities
- The edge zone should be constructed of durable a material that is appropriate for snow storage
- If an edge zone is included in the roadway, designers can potentially reduce the overall width of the shoulder but the combined dimension of the shoulder and edge zone should not be less then the recommended dimension of the shoulder
- Road signs, lighting, utility poles and appropriate below ground utilities can be located within the edge zone



Edge zones provide a safety buffer against car doors and mirrors and accommodate road signage.

Cycle Track

Primary Street

Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Cycle tracks are off-street bicycle facilities that provide additional safety and comfort for cyclists over on-street bike lanes or shared facilities. They are located within the boulevard, are vertically separated from vehicle traffic, and are designated for the exclusive use of cyclists.

Objectives

The purpose of cycle tracks is to provide additional safety for cyclists riding on busy roads. As a result of their separated design, they appeal to a wider range of cyclists, including those who are not comfortable riding in mixed traffic, and they provide safer cycling conditions on wide, busy roads. They are also intended to reduce the risk of bike-vehicle conflicts such as 'dooring'.

Guidelines

- Physically separated cycle tracks should be demarcated using a curb, bollards, street parking, a gutter or another physical barrier
- Cycle tracks should be uni-directional. Care should be taken when considering the impact on intersection design. Where possible, signal replacement at intersections along potential cycle track upgrade routes should consider including components for future bike signals.
- Cycle tracks should be clearly demarcated with bicycle symbols and directional arrows
- Where a cycle track is located next to a sidewalk in constrained conditions, paint or distinctive surface treatments should be used to differentiate between facilities
- Ensure that there are sufficient sight lines at intersections
- Consider appropriate design treatments for pedestrian crossings and transit facilities where cycle track crosses

- Access points (or driveways) along a road with a cycle track should be eliminated or amalgamated wherever possible to avoid conflict with the cycle track
- Where cycle tracks cross driveways and intersections, they should be continuous
- Cycle tracks should be considered as a future upgrade to the on-street bike lanes on Gordon and Norfolk Streets
- Refer to OTM Book 18 - Bike Facilities for detailed design guidance



Cycle tracks provide additional safety for cyclists riding on busy roads.

Low-Impact Development

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Low-Impact Development (LID) is an approach to managing stormwater run-off at the source by replicating natural watershed functions. It uses simple, cost-effective landscape elements to capture, detain and treat stormwater where it falls.

Objectives

LID involves the use of landscape features to manage rainfall at the source and protect and enhance water quality by replicating the function of natural watersheds. LID options will not be appropriate in all cases, but should be considered on a project-by-project basis for both new and existing streets. They play a critical role in improving water retention and should be designed to protect the quality of the City's groundwater and watersheds. They can also be designed to enhance the streetscape, protect animal habitats and provide additional landscaped space in the boulevard that is both functional and aesthetic. When LIDs are implemented in the road ROW, other municipalities generally experience reduced operations and maintenance costs when compared with traditional stormwater management systems.

Guidelines

- Incorporate LID practices where possible, as appropriate to road typology. LID options include:
 - Bioretention planters, units or curb extensions
 - Bio-swales or drainage swales
 - Permeable paving
 - Soil cells
 - Perforated pipe systems
- Ensure appropriate monitoring and

maintenance regimes are established

- Where possible, replace unnecessarily paved areas with permeable materials
- Do not use permeable materials in the pedestrian clearway as they are generally not AODA compliant
- Use salt tolerant, indigenous shrubs and grasses
- Where possible, water should pass through engineered filter media and include an underdrain which conveys the filtered stormwater to a storm drain system or other suitable surface outlet
- LIDs should not interfere with sight lines at intersections



LIDs can be designed to enhance the streetscape, protect animal habitats, and provide additional landscaping.

Transit Facilities

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

Transit facilities include all of the amenities associated with provision of transit, including seating, shelters, waste receptacles, lighting and route information. They should be located in the Planting and Site Furnishing Zone or in bump outs / curb extensions, where applicable.

Objectives

Safe and comfortable transit facilities are critical to encouraging transit ridership. The design of transit facilities should emphasize connections with alternative modes of movement to provide seamless and convenient transfers from one mode to another. Well-designed transit facilities that are barrier-free and do not interfere with the pedestrian clearway will also minimize user conflicts and facilitate convenient pedestrian access.

Guidelines

- Transit stops & shelters should be compliant with FADM standards and provide shelter for weather protection, seating, waste receptacles, lighting, and route information, especially in high pedestrian areas. Where adjacent to street lighting, lighting on shelters is not required.
- Sidewalks will connect directly to transit shelters to encourage active transit use and to ensure safety and convenience
- Transit stops will have barrier-free access (compliant with FADM standards) and be located in a way that does not interfere with pedestrian movement
- On Flexible Streets, a raised six inch curb must be installed at transit stops to accommodate a bus ramp
- Where possible, and unless there is a very wide boulevard, shelters should be placed behind sidewalks as this improves safety and visibility. In cases where shelters cannot be accommodated behind sidewalks, stand-alone shelters should be located on the inner boulevard, adjacent to the curb, to improve visual connections between the shelter and the approaching transit vehicle.
- Protect sight lines in the location and design of transit facilities
- Transit stops should be located near building entrances and given priority over parallel parking lanes where constraints exist
- Provide concrete pads in the waiting and loading areas of transit stops. The pads should be flush with the sidewalk to provide accessibility to passengers using wheelchairs, and textured to provide tactile directional cues for visually impaired riders
- Use transit shelters that have transparent walls to improve pedestrian safety and provide visual connection between waiting transit users and approaching transit vehicles
- Shelter openings preferably should face the sidewalk, especially if the shelter is between the road and the sidewalk. This reduces the road splash and snow clearing problems.
- Far-side stops (after an intersection) are encouraged to enhance safety and efficiency by reducing time spent waiting for traffic signals
- Tree planting should be provided adjacent to the shelter to provide shade, a wind break, and an attractive environment
- Run-off from shelter roofs should be directed to adjacent tree pits, landscapes or bio-swales
- Refer to the City of Guelph's transit design guidelines for detailed design information

Pedestrian Lighting

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Decorative lighting may be installed in addition to standard lighting fixtures to enhance pedestrian experience and safety. Lighting features should be located in the Planting and Street Furnishing Zone, and installed on light poles or directly on buildings.

Objectives

Decorative lighting plays a key role in animating streets and sidewalks, enhancing safety, and emphasizing streetscape character. Its design should reflect its context and the surrounding cultural environment. Lighting can also be used to highlight special features like heritage buildings, character areas or landscaping and public art features.

Guidelines

- Design and location should consider sustainability and the impacts of light pollution (i.e. -"dark sky" compliant), including: energy efficiency LED lamping; directional lighting that reduces wasted energy and reduces glare; induction lighting; solar power; and, street reflectors and sensors (to help regulate brightness and when lights turn on and off)
- Downcast pedestrian-scale lighting should be provided in urban areas and at key intersections
- Decorative lighting can be located within the Landscape and Site Furnishing Zone or within the Land-Use Transition Zone if affixed directly to buildings
- Consideration should be given to providing additional or feature pedestrian-scale lighting in areas with a high volume of pedestrian activity

- Consolidate road and pedestrian lighting onto one pole, where possible, to minimize visual clutter. Similarly, attach a light arm/luminaire to hydro poles where appropriate.
- Downcast, pedestrian-scaled lighting enhances safety and visibility on streets. At gateways and focal points, lighting can be used to accent special features, such as heritage properties, landscaping and signage
- The location of pedestrian lighting must adhere to utility standards
- Refer to the lighting section of this report (section 2.5) for detailed guidelines on light levels and placement on the street



Pedestrian scaled lighting animates the boulevard

Bump-Outs

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

A bump-out is a widening of the boulevard and narrowing of the roadway in a strategic location. Bump-outs can be installed at intersections or mid-block, and can be used to accommodate transit facilities, site furnishings, signage, and landscaping, or to segment runs of on-street parking.

Objectives

Bump-outs allocate additional space to pedestrians, which is particularly beneficial in areas where there are high volumes of pedestrian traffic. The primary objective is to calm vehicle traffic, increase visibility of pedestrians and provide shorter crossing distances. They can also create places to socialize and gather, or for locating streetscape amenities.

Guidelines

- Bump-outs may include seating, bike parking, trees, transit stops, raised planters, etc. to increase available space for through-movement in the pedestrian clearway
- The width should be slightly less than the width of the parking lane. A typical width is 2.0m for a 2.4m parking lane.
- Should only be implemented on streets with on-street parking
- Locate at existing / planned mid-block pedestrian crossings
- Bump-outs should be located to maximize pedestrian space and minimize crossing distances
- Bump-outs should not encroach on cyclists space where applicable

- They should be designed to not impede a driver's view of pedestrians
- Consider maintenance requirements when designing (i.e. street sweeping and snow removal)
- Consider access to street furniture that is compliant with FADM standards
- Give consideration to the conveyance of gutter drainage and major storm overland flow when detailing the design of the bump-out
- Bump-outs are ideal locations for Low Impact Development (LID) initiatives such as bio-swales
- Bump-outs will require a higher level of maintenance commitment, if utilized



Bump-outs allocate additional space to pedestrians.

On-Street Bike Lanes

Primary Street

Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Roadway cycling facilities include conventional bike lanes and buffered bike lanes. On-street bike lanes are located between the outside travel lane and the edge zone.

Objectives

The City of Guelph plans to provide a comprehensive cycling network to encourage cycling as a viable and safe mode of transportation. Although cycling is permitted on all City streets, the objective of cycling facilities is to formalize space on the street for bicycles and to provide a safer and more efficient multi-modal transportation network, especially where there is a significant speed differential between cyclist and vehicles. The type of cycling facility that is appropriate depends on several factors, including traffic volume and street classification.

Guidelines

- Conventional bike lanes are reserved exclusively for cyclists on the street using the diamond symbol
- In most cases, on-street bike lanes are not compatible with streets that have off-peak on-street parking
- Parking or stopping is not permitted in cycling facilities
- Bike lanes should be clearly demarcated with bicycle symbols
- Use signs and symbol markings for cycling facilities as per the Transportation Association of Canada (TAC) Bikeway Traffic Control Guidelines for Canada and OTM Book 5, 11 & 18
-

Additional guidance on the design of cycling facilities can be found in:

- Ontario Bikeways Planning and Design Guidelines (OTM Book 18)
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide
- Consultations with Transportation Engineering staff to confirm current best practices



Cycling facilities formalize space for bicycles and provide a safer, more efficient transportation network.

Public Art

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Public art is art that is temporary or permanent, accessible to the public and enhances or provides interest to the public realm. It can also educate or bring awareness to a special aspect of the area or the community. Artwork can be functional or integrated into a planned public works project, such as sidewalk inlays. Other pieces are stand alone and represent an element or character of the place. Public art can bring awareness to unique context and heritage or to highlight landmarks, views and vistas.

Objectives

Public art should be incorporated where possible to beautify, improve and provide interest to the public realm. Public artwork should be located in areas that do not interfere with the pedestrian clearway or vehicular traffic.



Public art should be used to beautify, improve and provide interest to the public realm.

Guidelines

- Recommended public art locations include sites of cultural significance or high-use areas such as public parks, plazas, street intersections, walkways, trails, courtyards, gardens and institutional or public building sites
- Public art is encouraged to be functional
- Public art should be limited near forms of traffic control (e.g. stop signs) in order to minimized driver distractions
- Public art should be site specific
- Public art should add to the identity and profile of the community
- Public artwork should be durable and easily maintained
- Public art should be physically and visually accessible, barrier free and incorporate universal design principles. For example, public art is encouraged to incorporate Braille on interpretive materials and include touchable or interactive elements whenever possible



Public art should be located so as not to interfere with the pedestrian clearway or traffic.

Public Vehicle Loading Zones

Primary Street
Main Street / Flexible
Secondary Street

Local Street
 Laneway / Mew

Public Vehicle Loading Zones (PVLZ) support business function and facilitate economic growth in downtown by providing conveniently located areas for the exclusive use of commercial delivery vehicles.

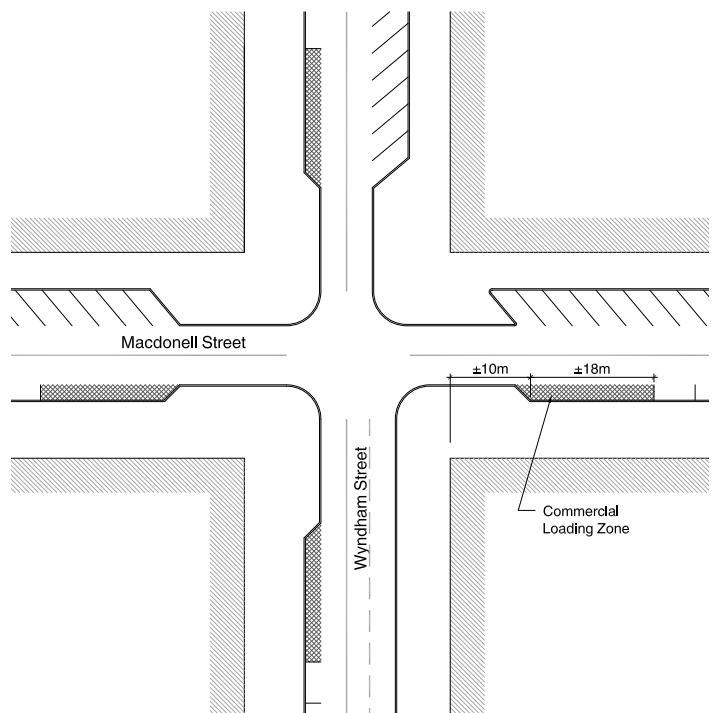
Objectives

PVLZs should be strategically located to provide reliable, convenient and proximate access for supply and delivery vehicles serving downtown businesses during normal business operating hours.

Guidelines

- Provided PVLZs at strategically located locations throughout downtown
- PVLZs may be either:
 - Permanently dedicated zones; or
 - Time Restricted - from 7am to 6pm, Monday through Saturday - and revert back to on-street parking stalls during non-restricted times
- No business should be more than one block away from a PVLZ, where possible, and where laneways are not a viable alternative
- Licensed commercial vehicles may stop in PVLZs for up to 15 minutes to load or unload material

- Licensed commercial vehicles may use an empty metered space for free at any time
- Locate in-line with dedicated parallel on-street parking
- PVLZs are not compatible with angled on-street parking
- Locate immediately adjacent to intersections. If located mid-block, PVLZs should be adjacent to a bump-out
- Signage should clearly denote ends of the zone as well as any restrictions
- The road surface at permanently dedicated PVLZs should be painted to denote its extent
- PVLZs should be located on Macdonell and Wyndham as a priority (as the number of lanes will be reduced on these streets from four to two, thus precluding the current practice of trucks stopping in the middle of the street)



Potential PVLZ locations shown on a sample intersection

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PVLZs should be strategically located.



Signage should be used to identify the location of PVLZs

Maintenance

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

The life cycle and maintenance of a street are key concerns for road designers, affecting long-term cost, environmental sustainability and the perceived quality of a place. It is important not to compromise the long-term longevity and quality of materials, planting and furnishings to save on short-term costs. Correspondingly, maintenance practices must adapt to new conditions.

Objectives

Maintenance requirements should be considered when deciding the placement and design of landscaping, curbs and boulevard elements to avoid accidental damages. Snow clearing is particularly important to ensure safe access for users of the road and sidewalks.

Guidelines

- Snow should be removed promptly from downtown streets and not be allowed to accumulate and block access to and from the boulevard
- Consider the spatial needs of snow maintenance activities when designing the boulevard and roadway
- Where snow removal is not possible or not deemed necessary (on some Primary Streets, for example), consider providing wider edge zones and / or planting zones
- Priority should be given to the clearing of snow from curb ramps at all intersections and to bike lanes/cycle tracks
- Develop appropriate policies and management practices to address conflicts between on-street parking and snow clearing / street cleaning
- Consider the maintenance of utilities and maintaining traffic flow when designing

roadway widths, etc

- Consider maintenance of street trees and plantings in order to meet City urban forestry standards
- Design bull-noses of medians to be contoured, to reduce the risk of maintenance vehicles damaging the curb
- Consider street sweeping equipment operations when designing streets (bump-outs and curb extensions in particular)
- Develop an appropriate inspection and repair program for all boulevard elements
- Install skateboard deterrents on site furnishings as required
- Flexible Streets use a variety of high quality materials and will require a higher-order of maintenance
- Bollards on flexible streets can be removable or fixed, dependent on the location



Maintenance requirements should be considered when deciding the placement and design of boulevard features.

Utilities

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

The provision of utilities by means of designating utility corridors is one of the primary roles of the public road allowance. Underground and above ground utilities can have major impacts on the design and function of a roadway.

As downtown Guelph is a historic city centre, there are complex legacy infrastructure conditions that require careful consideration when contemplating change. Additionally, many key streets in downtown will be changing from four travel lanes to two, thus necessitating the relocation of key utility infrastructure.

Objectives

The overarching objective is to bury all utilities in downtown Guelph. Accordingly, utilities need to be located in a manner that is safe and efficient. Coordinating utilities and boulevard elements is essential to ensure that adequate access is provided for repairs and services, to minimize disruptions to the boulevard and roadway, and to ensure the safety of maintenance personnel. However, strategies should also be adopted to create a relatively compact edge of road condition.

Guidelines

- Consider joint utility trenches and other strategies to achieve narrower overall edge of road dimensions
- Consideration should be given to maximizing the service life of all infrastructure in the ROW, as well as minimizing life cycle costs by means of coordination and the completion of an integrated planning and design process with all ROW utility stakeholders
- Standards for the placement and location of utilities must be observed, but the design of these spaces should pro-actively consider coordination, impact on the public realm and long-term service life
- Coordinate the scheduling of public, and private utilities capital works programs
- Implement damage prevention programs
- Document and retain as-built records of all constructed infrastructure
- Bury hydro facilities, services and utilities where practical, in order to minimize their visual impact
- Overhead clearance requirements are a function of site condition and may vary along an alignment. Ensure that the overhead clearance zone is in accordance with CSA Standard C22.3 No.1-06 Overhead Systems
- Minimize the visibility of utility accessories, such as utility boxes. This can be achieved by placing accessories in inconspicuous places, and/or by screening them with plantings or by obscuring them with public art initiatives. Ensure such screening does not interfere with access to the accessories. Utility providers should also be encouraged to consider innovative methods of containing utilities and determining locations for large utility equipment and utility cluster sites
- Coordinate landscape plans with service/utility plans to minimize long-term conflicts with tree roots and branches
- Consider subsurface or trenchless technology installation rather than tree removal to address conflicts with underground utilities
- Accommodate Direct Energy (DE) infrastructure as required in detailed design
- Provide the necessary accommodation for heated sidewalks, where determined appropriate

Intersection Guidelines

Keep it Compact

The overarching principle for intersection design in urban areas is to keep them as compact as possible to better prioritize pedestrian movement. Intersections are shared spaces, and should be designed to ensure that users are aware of one another and move predictably in order to reduce the number and severity of collisions.



Existing intersections can be improved by better balancing the needs of all road users

Curb Extensions at Intersections

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Curb Extensions or bump outs extend the line of the curb into the roadway, reducing the width and perceived width of the street at intersections.

Objectives

Curb extensions should be considered in intersection design to reduce crossing distances and promote comfort and safety for pedestrians. Curb extensions also have a passive traffic calming effect, provide space for on-street parking and allow for buses to provide curbside pickup.

Guidelines

- The width should be slightly less than the width of the parking lane. A typical width is 2.0m for a 2.4m parking lane.
- Should only be implemented on streets with on-street parking
- At intersections, curb extensions may use special paving or an edging treatment to distinguish the space as a plaza space separate from the through travel area
- Locate in front of fire hydrants to facilitate improved access to hydrant by emergency services
- Locate at downstream side of catch basin to improve local drainage conditions if function includes mid-block crossing
- Provides opportunities for landscaping and wayfinding signage

- Consider need to warn vehicles of curb extension. Consider planting street trees on the bulb out to provide a vertical element, better visibility, and better sense of enclosure. As an option, bio-swales should be considered in addition to the tree.
- Consider maintenance requirements when designing (i.e. street sweeping and snow removal)
- Give consideration to the conveyance of gutter drainage and major storm overland flow when detailing the design of the curb extension



Curb extensions should be considered in intersection design to reduce crossing distance.

Curb Return Radius

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Curb returns guide vehicles in turning corners and separate vehicular traffic from pedestrian areas at intersections. The curb return radius impacts the function of the intersection, with tighter curb returns being better for pedestrians, and longer returns being better for large trucks and buses.

Objectives

The curb return radius should be reduced to the greatest extent possible to increase walkability and pedestrian safety. A tighter curb return results in safer intersection / crosswalk design, slows right turning vehicles at the crosswalk location, improves the visibility between motorists, pedestrians and cyclists, reduces crossing distances and prevents high speed turns. Larger curb return radii may be considered on Primary Streets only with higher right turn truck movements to address the potential conflict between pedestrians and the rear wheels of the trucks.

Guidelines

- The designer should keep in mind that the effective turning radius will be larger than the specified curb radii when considering the effect of parking and cycling lanes in the roadway cross-section. For example a 3.0 m radius could be implemented where on-road parking and a bike lane is provided along the road.
- Truck routes and movement of larger vehicles need to be considered at the early stages to better understand what intersections can have a reduced radius and where the larger vehicle routes need to be considered.
- Where there is significant pedestrian activity and where moderate traffic volumes with a

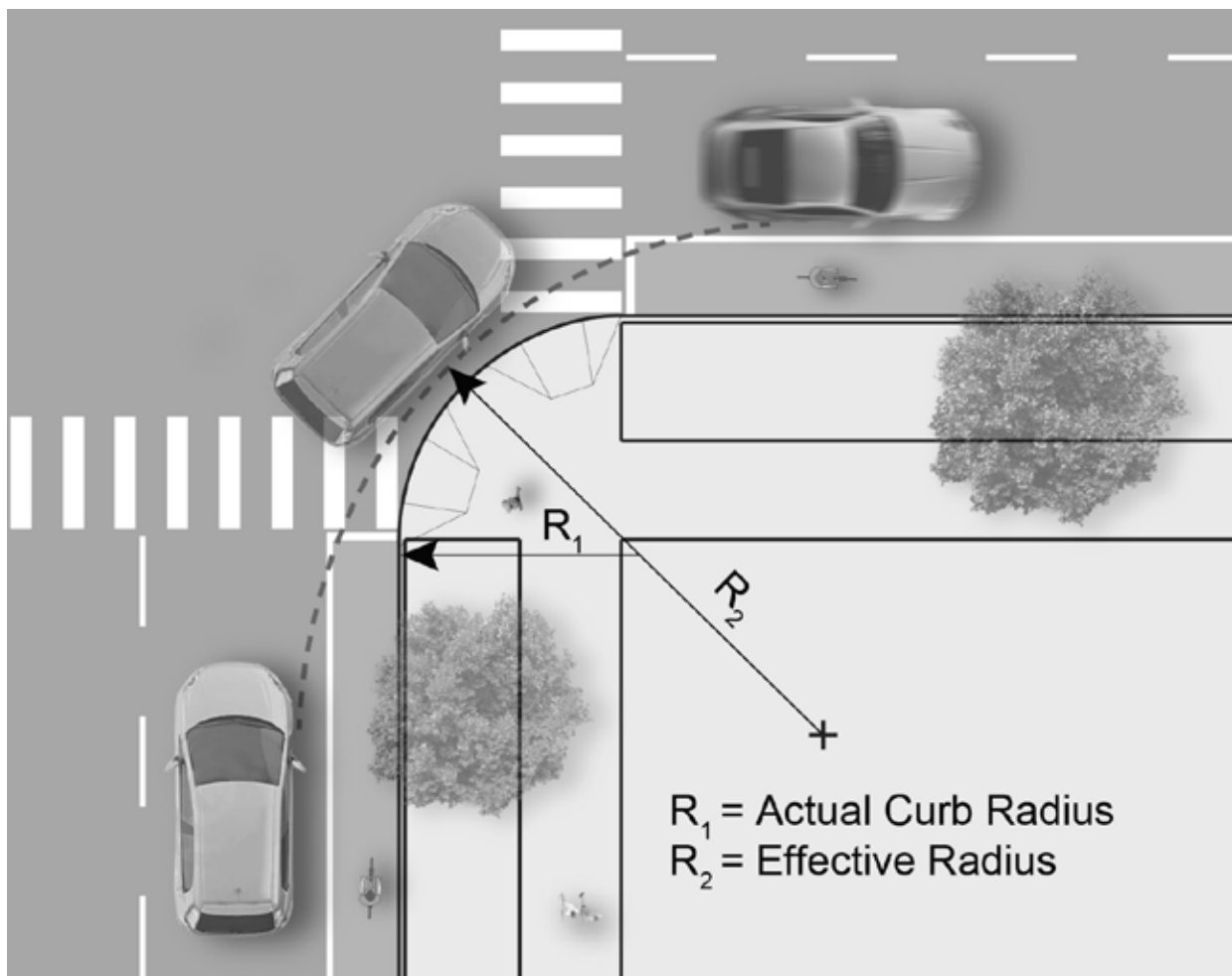
large percentage of passenger vehicles, a curb radii of 4.0m to 5.0m should be considered. If transit operations require right turns and encroachment into opposing lanes cannot be addressed through recessed stop bars and no right turn on red, then larger curb radii of 5.0m to 7.5m should be considered.

- To avoid oversized curb radii, determining the appropriate design vehicle is important. The curb radii should be designed to accommodate the largest vehicle type that will frequently turn the corner. This approach assumes that the occasional large vehicle can encroach into the opposing travel lane. Selecting a curb radii that is too small where right turns by buses or larger trucks are frequent can jeopardize safety and degrade the curb. This is the conflict that a design engineer must consider when selecting curb radii that is sensitive to context. In some cases the placement of bollards at curbside could be considered as an additional level of safety for pedestrians.
- Generally a curb radius of 7.5m to 9.0m will accommodate most turns on a Primary Street, particularly with roads with less than 5% trucks. A curb radius of 7.5m and a parking lane should permit a single unit truck to turn without encroachment.
- It is acceptable that large vehicles will encroach entirely into adjacent same direction travel lanes. If encroachment into the opposing lane is required then the stop line for opposed traffic should be recessed farther from the intersection. Trucks will in some cases encroach into the second lane in a 4 lane condition however not into an oncoming traffic lane. It should be decided at the early stages of the project what vehicles each intersection

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is designed for and implemented accordingly.

- For intersections on Primary Streets, where there is a significant amount of larger vehicles, the designer should consider the following:
 - Identify the design turning vehicle for the intersection
 - Selecting curb radii to suit the turning needs of the design turning vehicle
 - Evaluate the benefit of tapered or compound circular radii
- Transit Supportive considerations:
 - Maintain the minimum curb radii required to accommodate turning vehicles, in order to reduce their speed and minimize crossing distances for pedestrians
- Cycle Facility considerations
 - Changes to curb radii should have a neutral impact on the operation of cycling facilities.



Sight Triangles

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Sight triangles are an important component of all intersection designs. Their purpose is to ensure sufficient sight distance is provided for the driver of a vehicle to perceive potential conflicts and carry out the necessary action to avoid the conflict and negotiate the intersection safely.

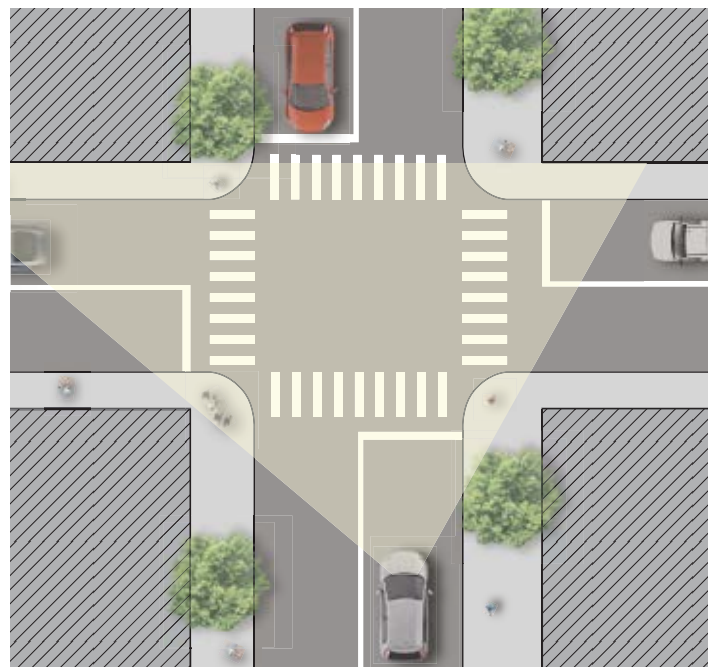
Objectives

The goal of sight triangles is to provide clear visibility between motorists, pedestrians and cyclists, and to enhance the walkability of the community. The implementation of a properly designed sight triangle will mitigate the risk of potential conflicts between all modes of travel and increase public safety.

Guidelines

- Site triangles should be considered with the desired operating speed of the street in mind
- Ensure there is adequate space for a refuge area adjacent to the crosswalk by removing / relocating obstructions to facilitate the clear and unobstructed view of on-coming vehicles. As for trees, this means a clear trunk height of no less than 2.4m above grade and for ground cover, no more than 0.45m above grade.
- During the planning stages, ensure that vegetation is set-back from the crosswalk and that there is sufficient space for snow storage during the winter months
- Ensure the area within the sight triangle area is well lit
- The area within the site triangle as defined in Section 2.3.3.2, Sight Triangles, of the TAC Geometric Design Manual, should be free of obstructions that block a motorist's view of potentially conflicting vehicles, pedestrians and cyclists entering the travel lanes

- However, many existing buildings in downtown Guelph have 0m setbacks, so daylight triangles will not be possible
- If the sight triangle for the desired operating speed and intersection control is obstructed, every effort should be made to eliminate or move the obstruction or mitigate the obstruction (for example, install curb extensions to improve visibility of crossing pedestrians)
- To improve sight lines restrict parking near intersections, properly trim vegetation, move stop lines back from crosswalks and use curb extensions
- Plant material (shrubs, perennials, grasses, etc.) and street furniture within the sight triangle should be no taller than 0.45m



Crosswalk Treatment

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Crosswalks assist pedestrians in safely crossing streets by signifying the crossing point for vehicles approaching an intersection. The design of a crosswalk can greatly influence a crossing's safety and effectiveness.

Objectives

Crosswalks at controlled intersections on the urban street typologies should be designed to minimize the distance travelled by pedestrians. On wider intersections, a refuge area on a median should be provided to increase pedestrian safety. The markings of crosswalks on all street typologies should be consistent wherever possible to eliminate uncertainty for users.

Guidelines

- Crosswalks must be controlled, easily understood, clearly visible, and incorporate realistic crossing opportunities for pedestrians
- Crosswalks should be oriented at 90 degrees to the curb for shortest crossing distance
- Crosswalks should incorporate unique pavement treatments or markings that can alert drivers and indicate pedestrian priority
- Pavement treatments or markings must be durable and long-wearing so they remain highly visible for many years
- Introduce zebra markings at crosswalks for increase visibility
- Do not locate CB's in crosswalk / do not locate crosswalks on CB's



Zebra markings at crosswalk enhance visibility

Right / Left Turning Lanes

Primary Street
Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Right / left turn lanes are auxiliary lanes that dedicate space to vehicles making turning movements, removing them from through-lanes.

Objectives

The goal of turn lanes is to contribute to an efficient transportation network by providing additional motor vehicle capacity and speed at intersections, and increasing the level of service for motorists. This increase in level of service is often at the expense of other modes of transportation.

Guidelines

- Auxiliary right-turn-only lanes should be implemented only where absolutely necessary as they increase pedestrian travel time for the crossing of the intersection. The curb lane should be a shared through-right turn lane for all other streets
- Left turn lanes are permissible for all classifications. Where required the should be limited to a single left turn lane
- At existing signalized intersections, left-turn lane warrant is based on signalized motor vehicle capacity analysis
- Determine the lane configuration at intersections during detail design



Cycling Facilities at Intersections

Primary Street

Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

Cycling facilities at intersections may include lane delineations, turning facilities, signage, signalization and markings.

Appropriate bike facilities through intersections depends on the type of adjacent bike facility and street classification.

Objectives

It is a goal of the City to promote the safe and comfortable year round operation of cycling routes through design, signage, enforcement and maintenance and in doing so encourage people to cycle more often for both utilitarian and recreation / health purposes. Bike facilities are the means to accomplishing this goal. As one of the most common areas of conflict between cyclists and other modes of movement, intersections need to be designed such that the interaction of motorists, cyclists and pedestrians is consistent, predictable and safe.

Guidelines

- Bicycle lane delineations, turning paths, pavement symbols, signage and road surface should always be clearly visible to both cyclists and motorists. Visibility is especially important at intersections where various modes of transportation interact and cyclists are most likely to get into accidents.
- Conflict between cyclists and other modes of travel should be kept at a minimum by separating uses, having cyclists travel in the same direction as automobile traffic and providing appropriate bicycle lane widths with sufficient space for encounters, passing and evasive maneuvers.
- Bike lane at uncontrolled intersections: bike

lane stripes should not be extended through a pedestrian crosswalk or any street intersection (with the exception of dashed lines which is optional through some intersections).

- Bike lane at controlled intersections: bike lane stripe should end at stop line or crosswalk with right turning traffic bike lane. Bike lanes should not be striped through controlled intersections, except with dashed lines through some complex intersections (optional).
- Bike lane at intersection with right turn lane: Bicyclists going straight ahead shall be to the left of right turning traffic.
- Bike lane at intersection with left turn lane: When bike lanes are marked for left turn movements, the bike lane stripe should be to the right of left turning vehicles or a bike box should be used.
- Refer to TAC & OTM Book 18 for detailed guidance on intersection cycling facility design



Bike Boxes

Primary Street

Main Street / Flexible
Secondary Street

Local Street
Laneway / Mew

A bike box is used at intersections with dedicated bike lanes or a cycle track to designate a space for cyclists to wait at a red light. Cyclists stop in front of motorists and can proceed through the intersection first when the light turns green. Right turns on red lights are not permitted in these intersections, unless a sign is posted with an exception. Bike boxes are often green areas on the road containing a white bicycle symbol. A section of green bicycle lane often precedes the box.

Objectives

The intent of bike boxes is to increase cyclist visibility at intersections and give cyclists and advance when turning left. Bike boxes also improve motorist behaviour and reduce the risk of “right hook” collisions after a green signal.

Guidelines

- Bike boxes are green areas on the road containing a white bicycle symbol. A section of green bicycle lane often precedes the box.
- Should be implemented on roads with designated cycling facilities and significant volumes of cyclists.
- Implementation should include a public education program to educate residents and visitors on the proper usage of bike boxes at intersections



Bike boxes increase cyclist visibility, improve motorist behaviour and reduce the risk of “right hook” collisions after a green signal.

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Implementation & Costing

Implementation

Implementation of streetscape improvements across downtown Guelph will be a complex task that will require collaboration between many internal and external stakeholders

Phasing & Integration

Capital planning will determine the order in which streets are reconstructed in downtown but prior to allocating capital funds, an integrated strategy for renewal should prioritize projects based on need and benefit within the context of an intensifying and evolving downtown. Building on the Downtown Secondary Plan, the Downtown Assessment, and other key reports that speak to the future of downtown, an integrated strategy will allow City staff to better understand the planned future context. It is also important to modify the strategy to respond to evolving development, especially for streets that are 'south of the tracks' to ensure Guelph can continue to attract developers and new residents.

Detailed Design

This manual presents a preferred concept for the each street classification, as well as a detailed series of design guidelines. The street concepts are, however, general in nature and will require expertise to translate into functional layouts prior to implementation. A detailed design exercise for each street must therefore be undertaken to translate concepts and guidelines to fit the unique conditions of each street in downtown.

Environmental Assessments

The Class Environmental Assessment (EA) process requires that, for large infrastructure projects, the City identify and mitigate impacts to all aspects of the environment. Through the Municipal Engineers Association (MEA), all EAs in Ontario must adhere to the standards of the Municipal Class Environmental Assessment (Class EA), in which there are four classes: Schedule A, A+, B & C.

At project initiation and in conjunction with the initial stages of detailed design, City staff must determine firstly, if the project will require a Class EA and, secondly, in what class the assessment should be undertake.

Mitigating Construction Impacts

Complete reconstruction of downtown streets will have a considerable impact on businesses. During detailed design, strategies to mitigate impacts should be explored with business owners. Internal and external stakeholders should be given a clear understanding of the merits and drawbacks of alternative approaches and discussion should include information about costing (as considerable premiums can apply to accelerated or alternative construction methods). Ultimately, City Staff will need to make the final decision on the preferred method of construction staging.

Coordination with Utility Providers

It is critical to coordinate road reconstruction with utility providers. Wherever possible, infrastructure in the right-of-way must be renewed concurrent with street reconstruction to minimize disruption to businesses and residents. It is highly undesirable for a utility provider to renew their infrastructure after road reconstruction as this will damage newly installed streetscape elements and anger businesses owners and residents. Planning must occur early and often with utility providers to ensure that construction efforts are coordinated and efficient.

Accessibility Considerations

During detailed design, and as noted in the guidelines section, all streets should be compliant with the latest FADM standards to ensure

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universal accessibility. Opportunities to reduce or eliminate variances from sidewalk elevation to a businesses finished floor elevations should also be examined during the detailed design phase. This may be accomplished by designing grades in the streetscape to suit existing conditions or by partnering with property owners to modify business entrances.

Maintenance & Operations

With the concepts presented in this manual, will come increased maintenance and operations obligations. A commitment to enhanced maintenance practices must be made in concert with the decision to proceed with new street typologies. New regimes must be established to maintain street elements to protect the City's investment in an improved public realm. Flexible Streets, in particular, use a variety of high-quality materials and will require a higher-order of maintenance activities over and above traditional streets. Additionally, dedicated cycling facilities (bike lanes and cycle tracks) must be maintained with the same priority as the roadway.

When streets are renewed, it is recommended for City staff prepare an "operating and maintenance" manual that itemizes the projects materials and design details.

In addition to enhanced maintenance and operations activities, City staff should also develop a systematic monitoring system to track life cycles, state of repair and seasonal activities for downtown's streets.

The Maintenance guideline (pg 68) includes a more detailed discussion of maintenance and

operations considerations.

Solid Waste

The City's automated collection method for waste collection in downtown will pose significant challenges in Guelph's constrained street right-of-ways. Suggestions for placement have been made in the streetscape details section of this report but a more detailed analysis of demand, placement, collection method, and system efficiency should be undertaken to optimize the operation.

Training & Outreach

It is important to educate the public on the benefits and operational considerations for flexible streets as well as upgraded features of traditional streets. City Staff should develop programs to educate the public about:

- how to use flexible streets (as a pedestrian, as a cyclist, and as a motorist)
- the sustainable features of flexible streets and their benefit (permeable paving, stormwater collection, durable materials, healthy street trees & passive irrigation)
- how to use new cycling infrastructure (bike lanes, cycle tracks, bike boxes, etc.)
- the benefits of a walkable downtown (to further justify/rationalize decreasing number of travel lanes and widening of boulevard on key streets)



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Costing

Planning for reconstruction

The City's current 10 Year Capital Forecast for roads, stormwater management, water and wastewater includes funds for infrastructure/road reconstruction in the historic Downtown (i.e. approximately \$18.5 million—not including the Arthur Street Trunk Sewer work). The preliminary costing provided confirms that the capital forecast generally contains sufficient funds to construct the streetscape standard envisioned, including the proposed flexible street approach, for key streets (i.e. Quebec Street, Baker Street, Wilson Street, MacDonell Street and Douglas Street) but the eligibility to fund the streetscape elements from the current proposed funding sources will need to be confirmed.

Outside the historic core, the Streetscape Manual represents an additional investment in the public realm for enhancements to future downtown road reconstruction projects. For example, the Manual represents enhanced standards around

street tree planting (as per the Urban Forest Management Plan), street furniture (e.g. bike parking) and other streetscape details. In addition to the costing completed to date, funding sources will need to be reviewed in order to determine the possible cost implications.

As projects approach implementation, initial costing should be updated. Order of magnitude costing (Class 'D') should be prepared for each road segment or phase on a per meter basis to confirm planned capital funding adequacy. As each enters detailed design, order of magnitude costing should be upgraded to detailed costing (Class 'C') to better understand hard costs and soft costs (such as consultant fees and construction staging premiums). Following Class 'C' costing, the City and/or design consultant should prepare Class 'B' and Class 'A' estimates as they progress through the phases of design.

DRAFT 2.5

Streetscape Details

DRAFT



Streetscape Details

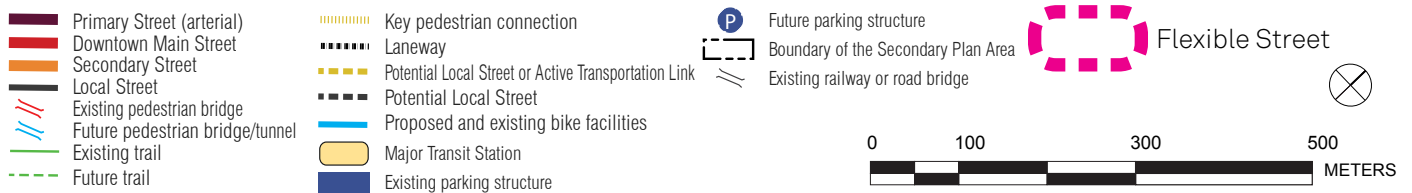
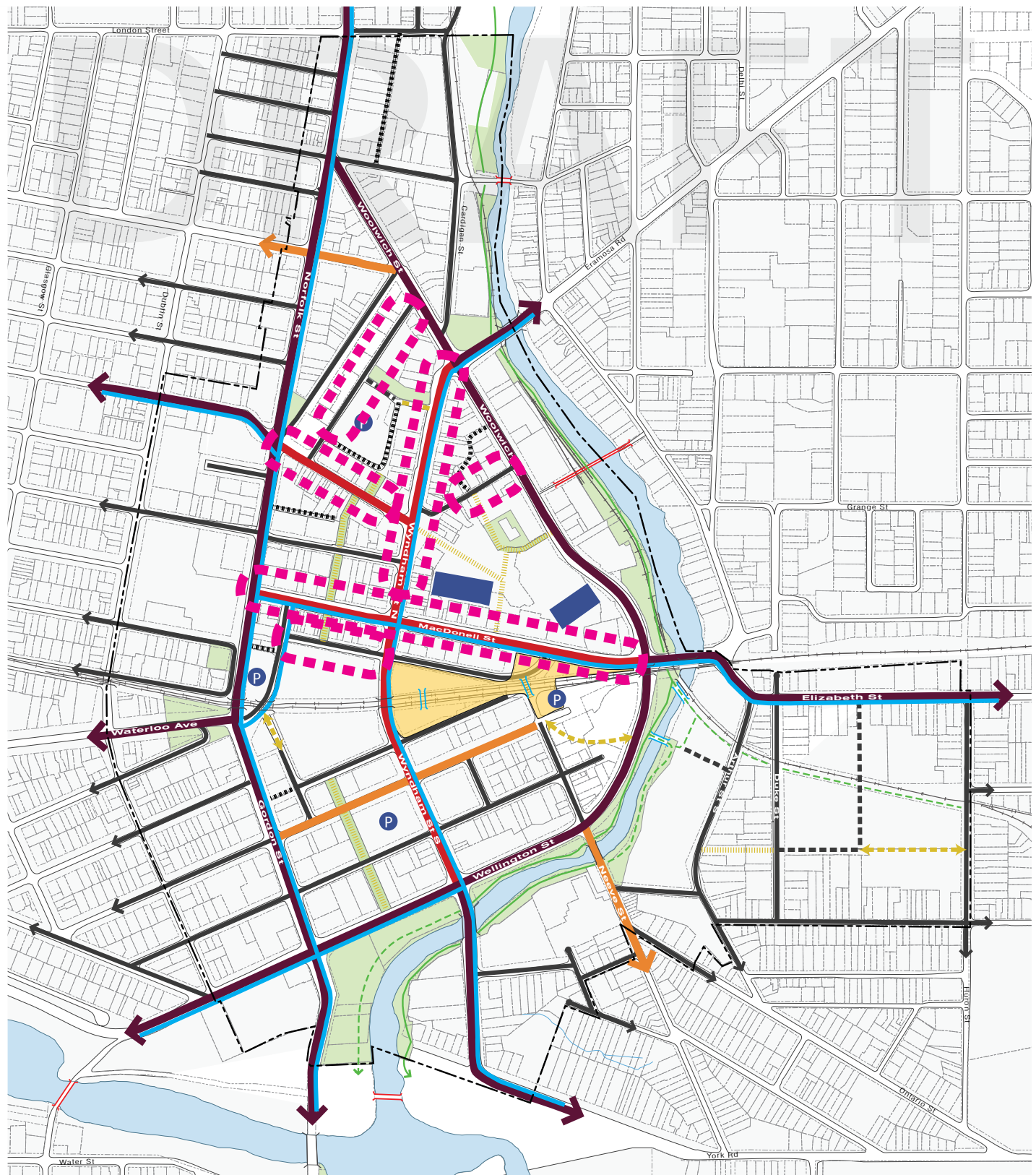
A coordinated suite of design details will ensure continuity of materials and configuration throughout downtown

The collection of streetscape details contained in this section illustrate key street concepts using representative boulevard segments for each street classification. These details are a starting point with which a detailed streetscape plan (functional layout) can be developed.

How to Use the Section

1. Start with the *Street Index Map* to find your street or segment (page 88) and note the details that apply to your street (page 89)
2. Refer to the Streetscape Approach (section 2.2) of this manual for your street classification to develop an initial section for your street
3. Develop your section into a functional plan using applicable streetscape details (section 2.5) and Design Guidelines (section 2.3)

Street Index Map



Details

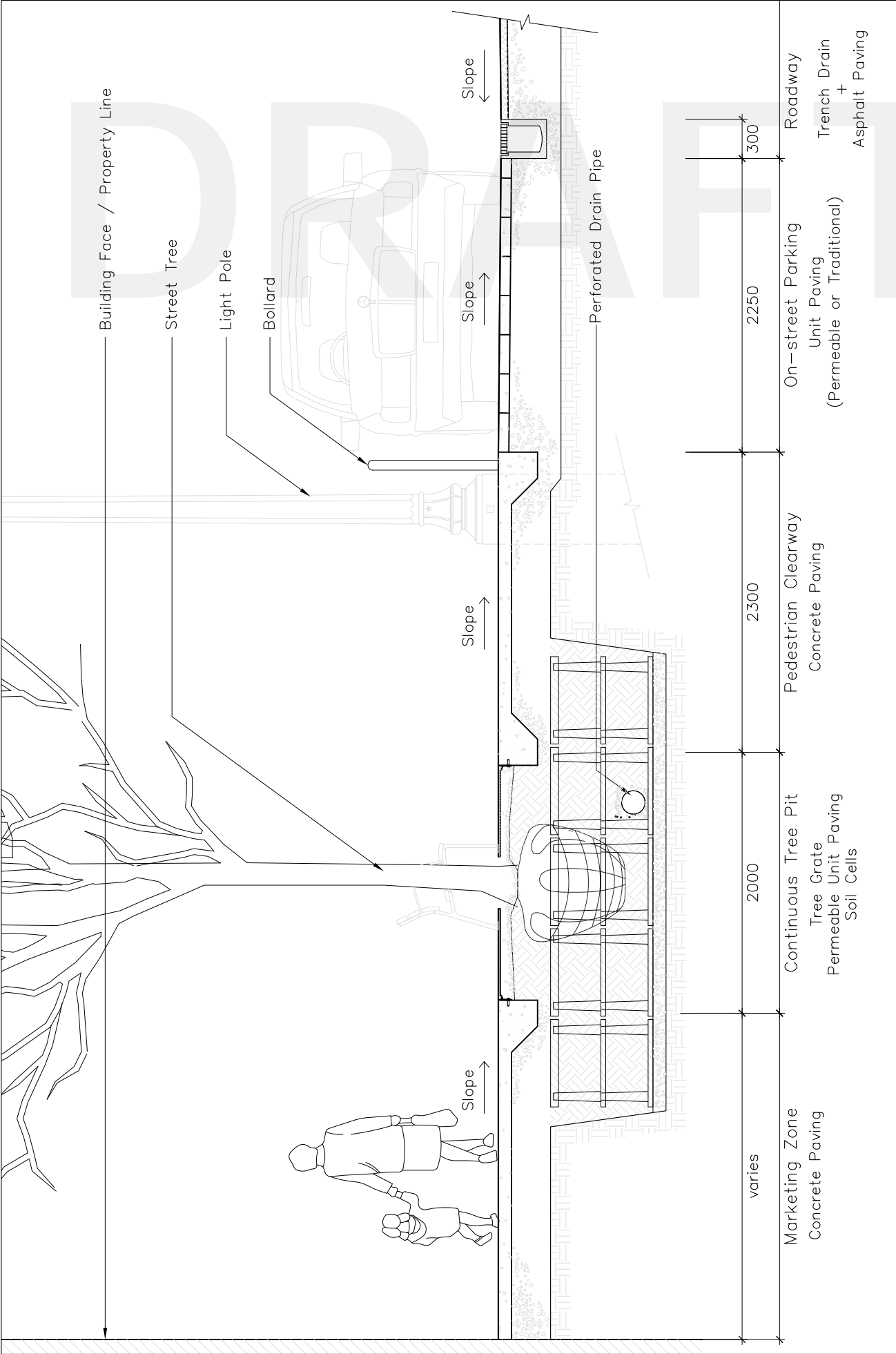
Details in this Section

flexible	F1 - Sample Street Plan - Wyndham + Macdonell - Boulevard and Parallel Parking F2 - Sample Street Section - Wyndham + Macdonell - Boulevard and Parallel Parking F3 - Sample Street Plan - Wyndham + Macdonell - Boulevard and Angled Parking F4 - Sample Street Section - Wyndham + Macdonell - Boulevard and Angled Parking F5 - Sample Street Plan - Quebec - Boulevard and Parallel Parking F6 - Sample Street Section - Quebec - Boulevard and Parallel Parking F7 - Social Seating Arrangement F8 - Sample Street Corner Plan - Wyndham + Macdonell
primary	P1 - Sample Street Plan - Primary Street P2 - Sample Street Section - Primary Street P3 - Sample Street Plan - Primary Street - Open Pit P4 - Sample Street Section - Primary Street - Open Pit
secondary	S1 - Sample Street Plan - Secondary Street S2 - Sample Street Section - Secondary Street S3 - Sample Street Plan - Secondary Street - Bump Out S4 - Sample Street Section - Secondary Street - Bump Out S5 - Sample Street Plan - Secondary Street - Open Tree Pit S6 - Sample Street Section - Secondary Street - Open Tree Pit
local	L1 - Sample Street Plan - Local Street L2 - Sample Street Section - Local Street L3 - Sample Street Plan - Local Street - Sod Boulevard L4 - Sample Street Section - Local Street - Sod Boulevard L5 - Sample Street Plan - Local Street - Bump Out - Hardscape Boulevard L6 - Sample Street Plan - Local Street - Bump Out - Sod Boulevard L7 - Sample Street Section - Local Street - Bump Out - Hardscape Boulevard
other	T1 - Sample Tree Pit Section with Soil Cells UP1 - Paving Pattern - Permeable Unit Paving - Planting + Furnishing Zone UP2 - Paving Pattern - Permeable Unit Paving - Planting + On-street Parking

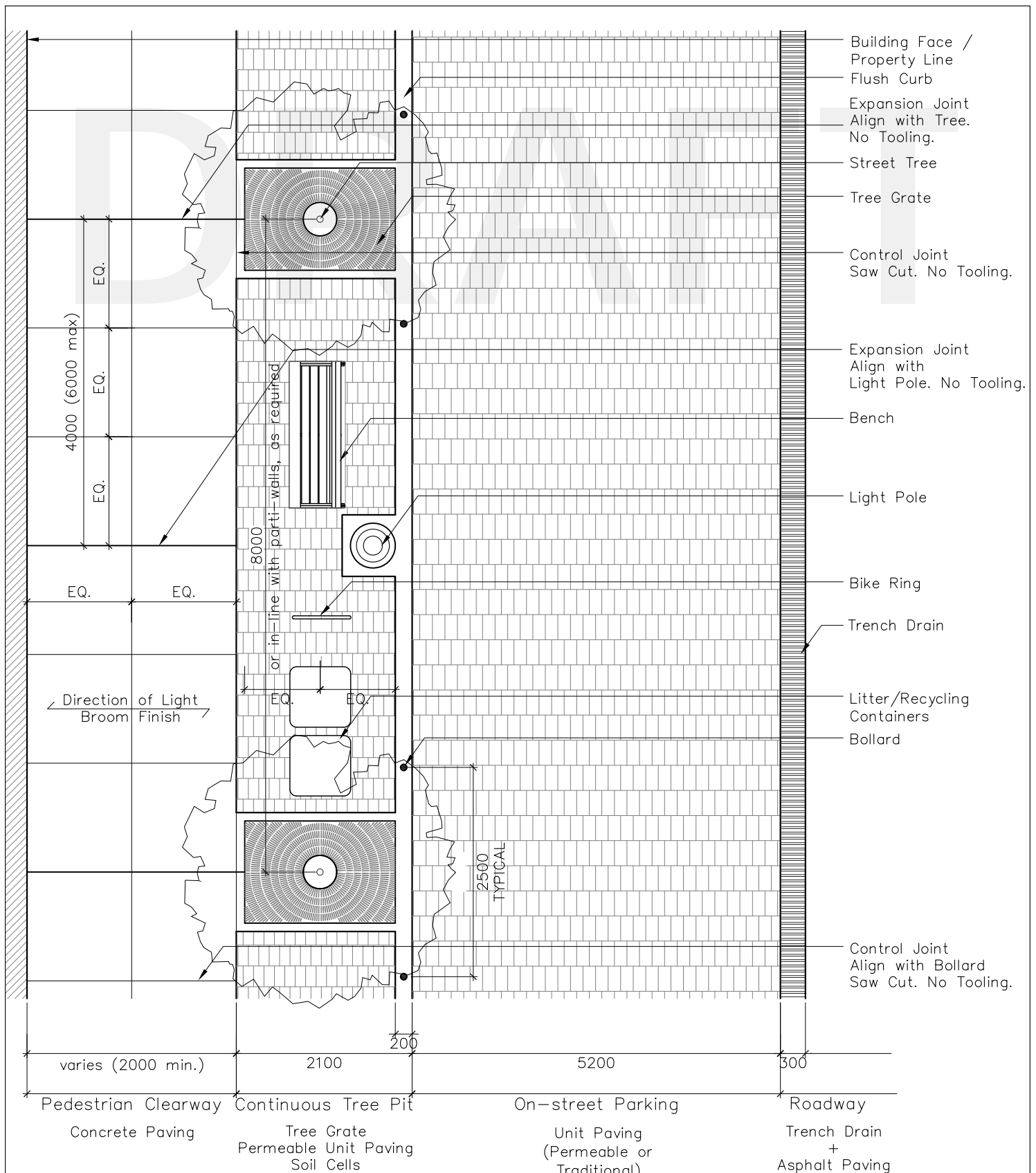


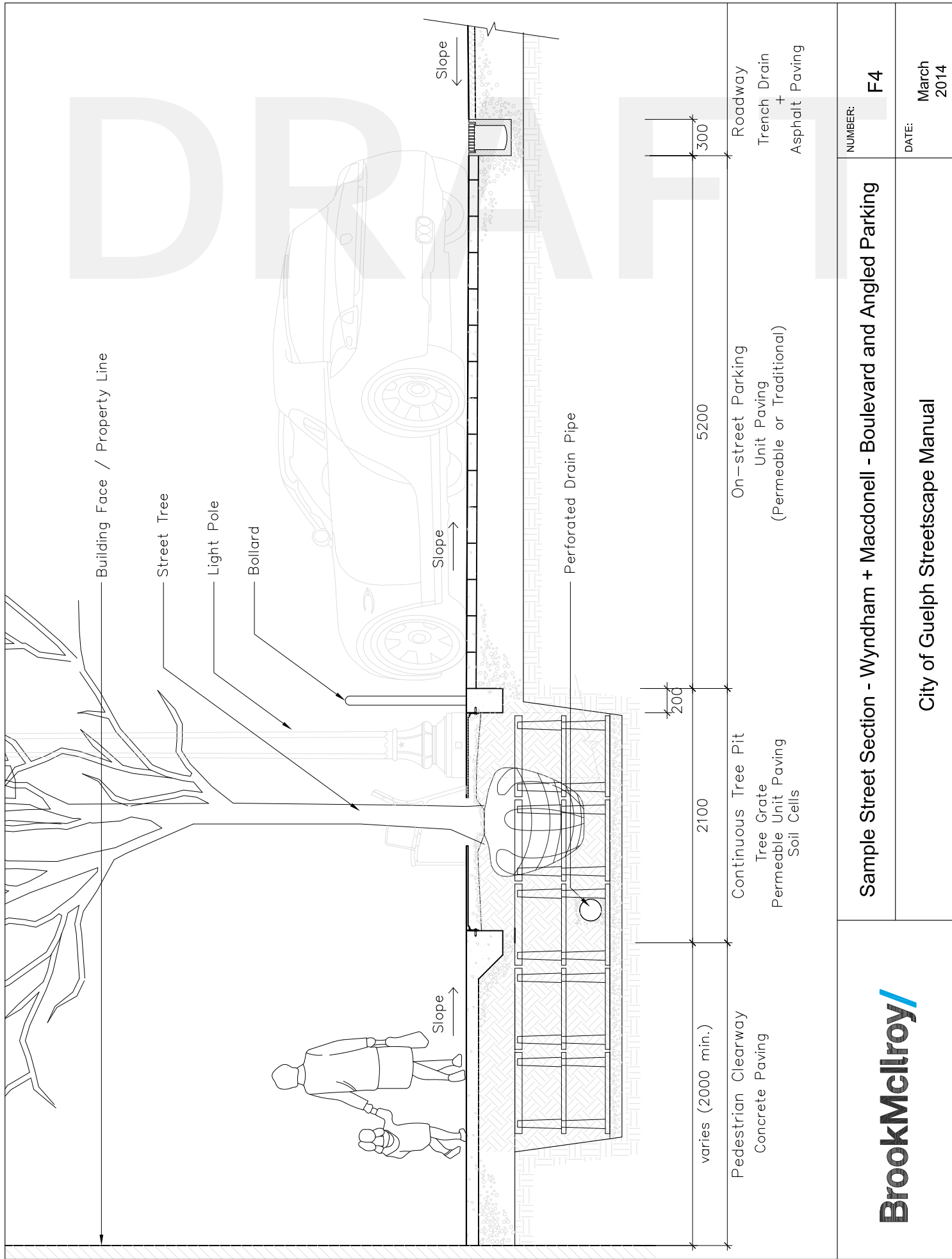
City of Guelph Streetscape Manual

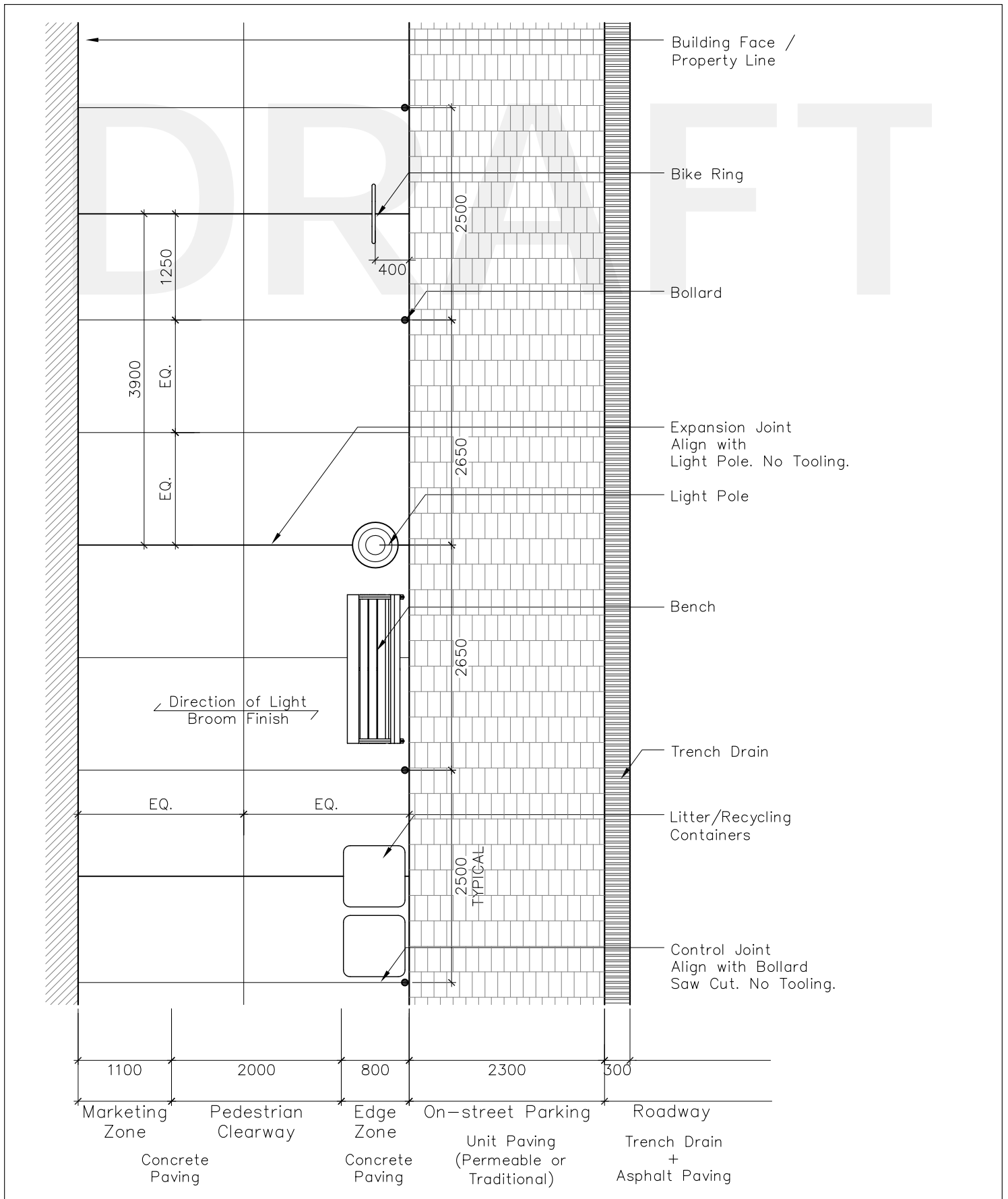
March
2014

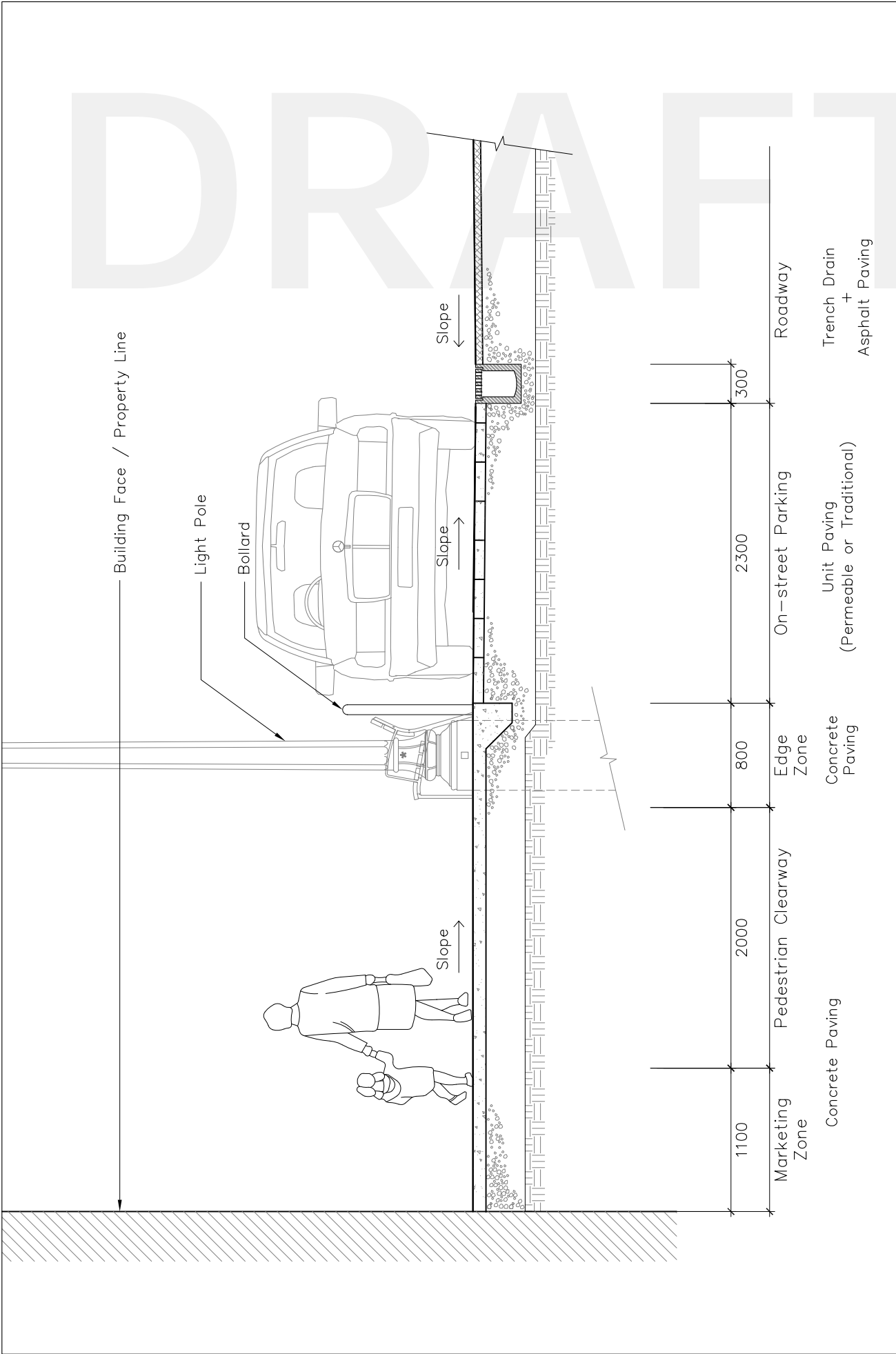



BrookMcIlroy	Sample Street Section - Wyndham + Macdonell Boulevard and Parallel Parking	
	NUMBER:	F2
City of Guelph Streetscape Manual		DATE: March 2014

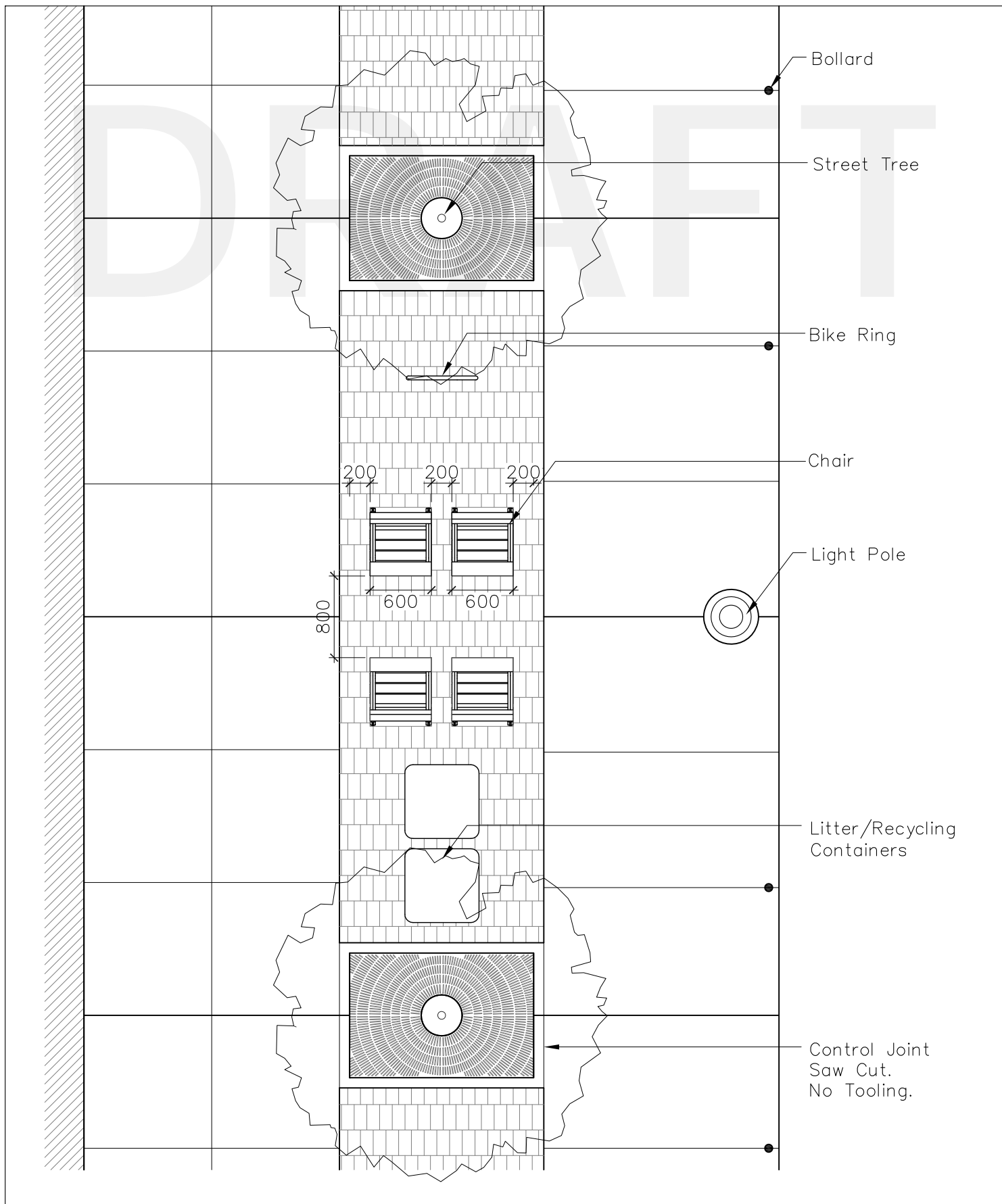


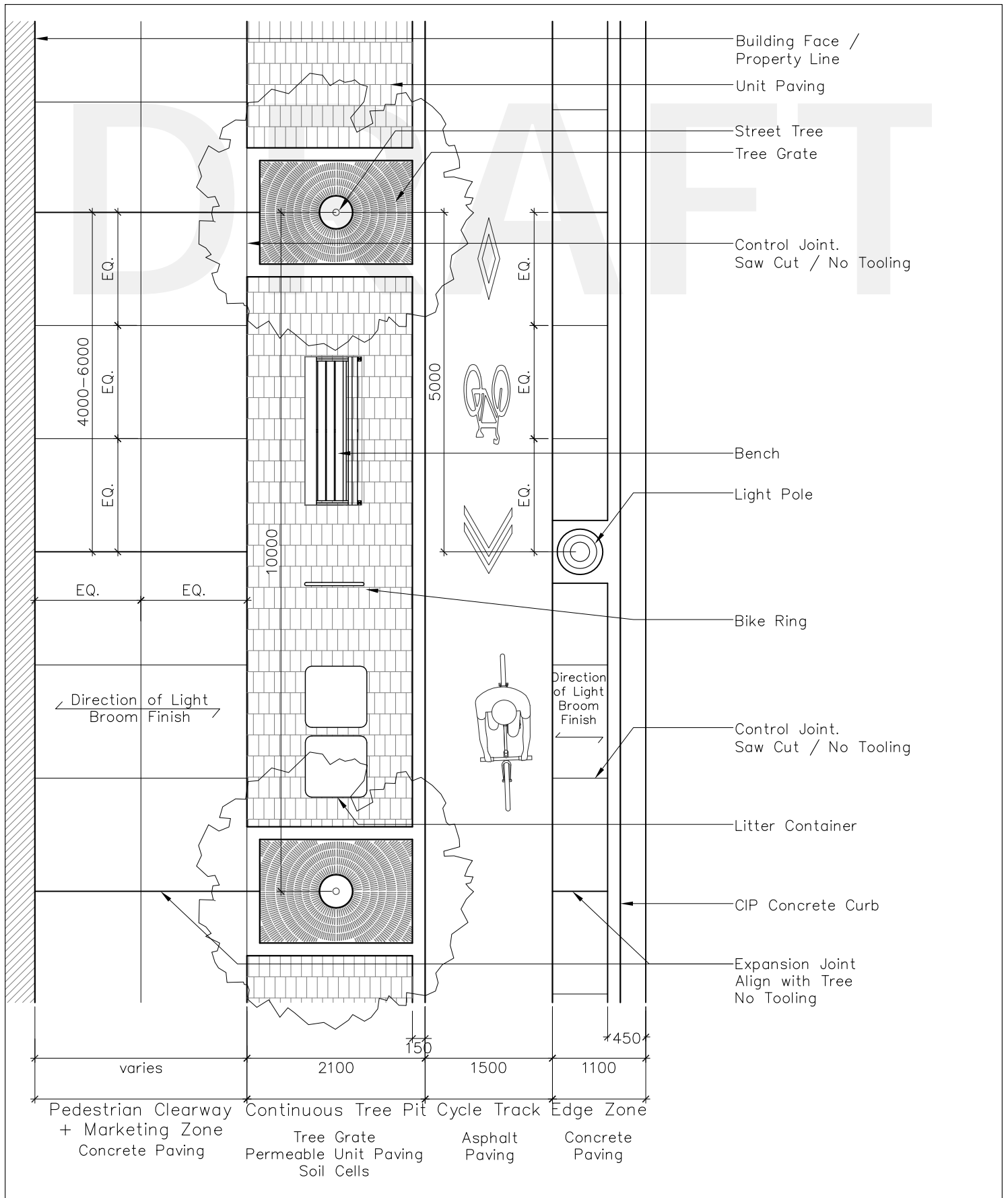


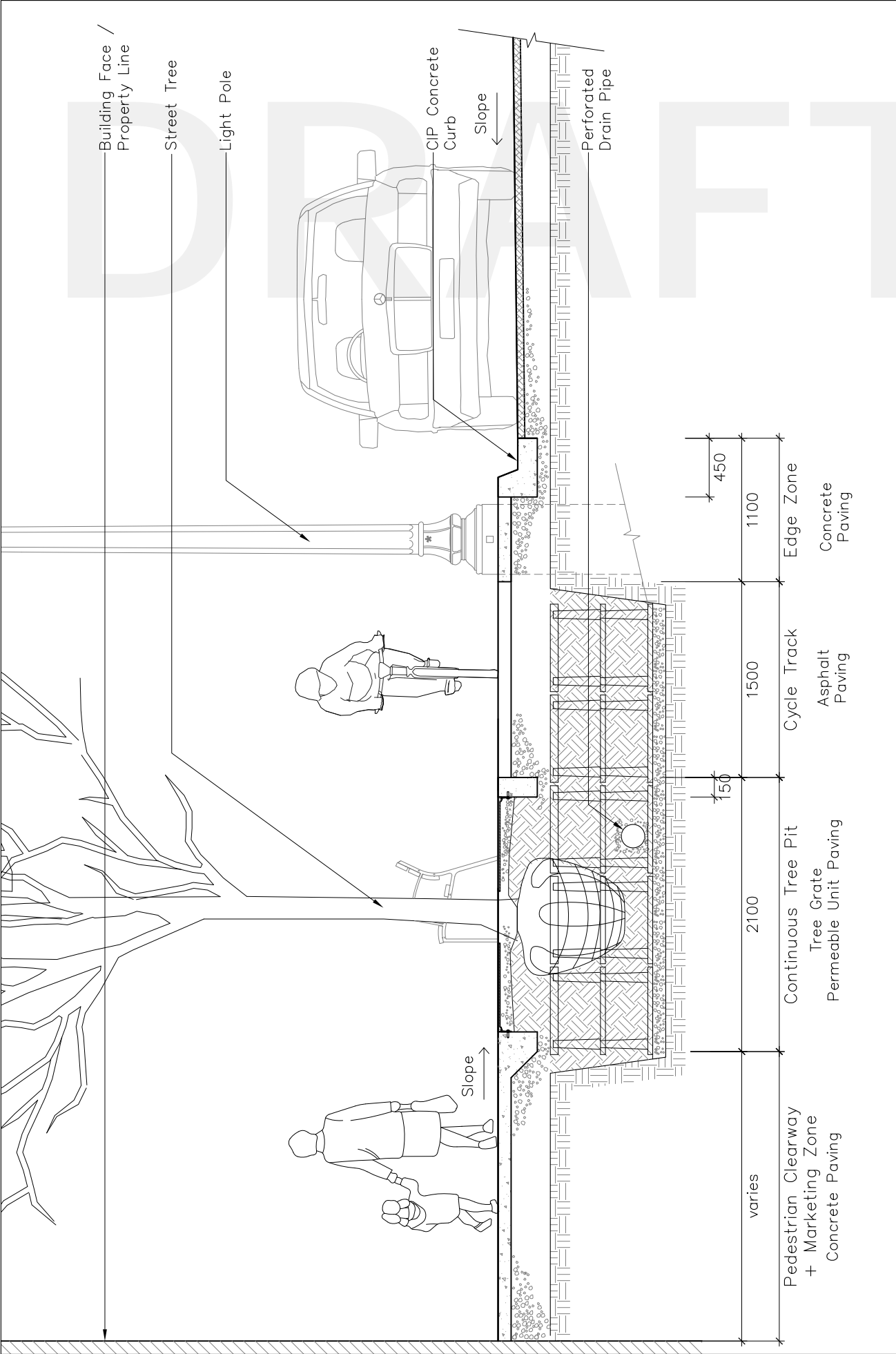




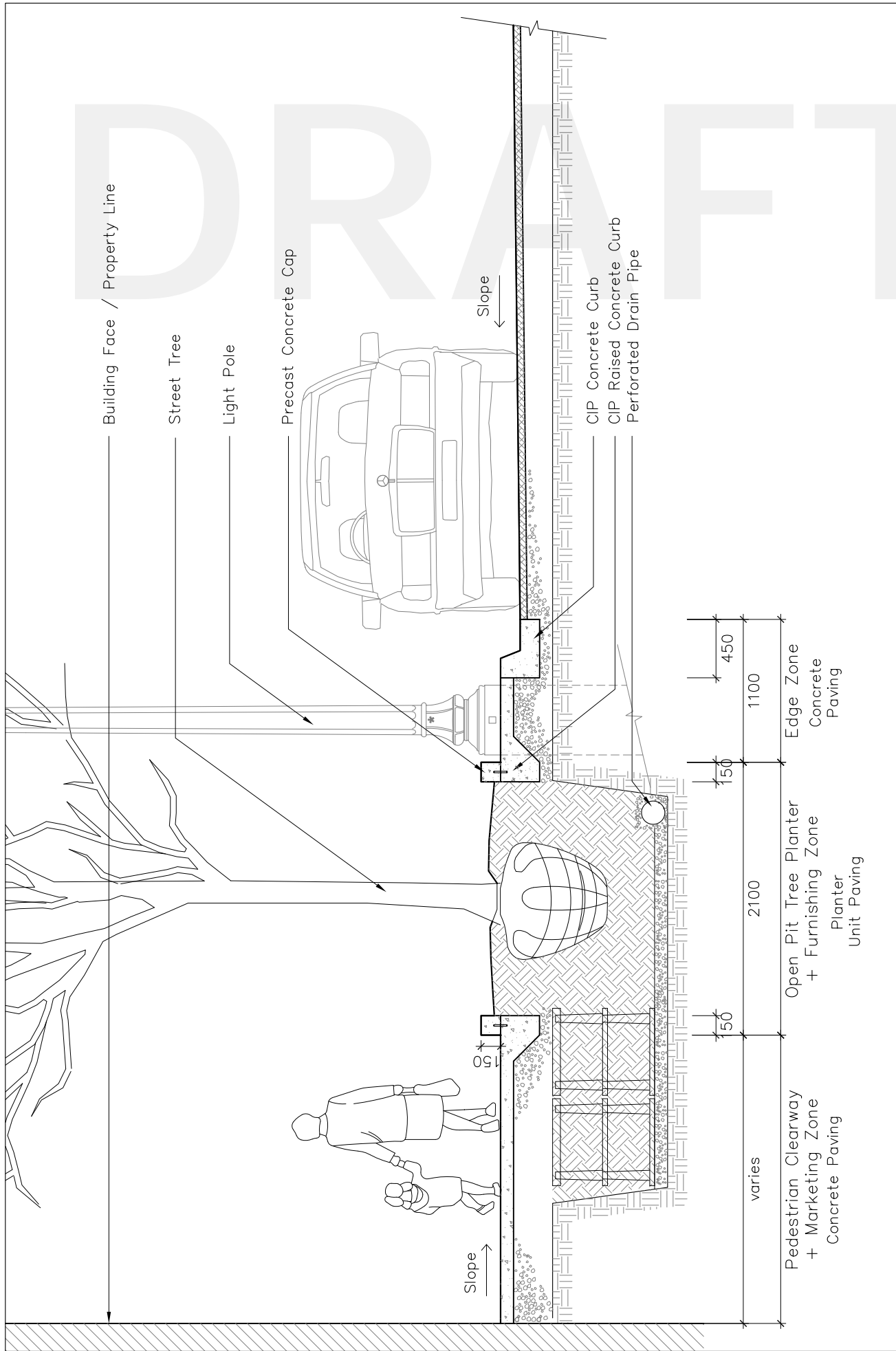
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	City of Guelph Streetscape Manual		DATE: March 2014



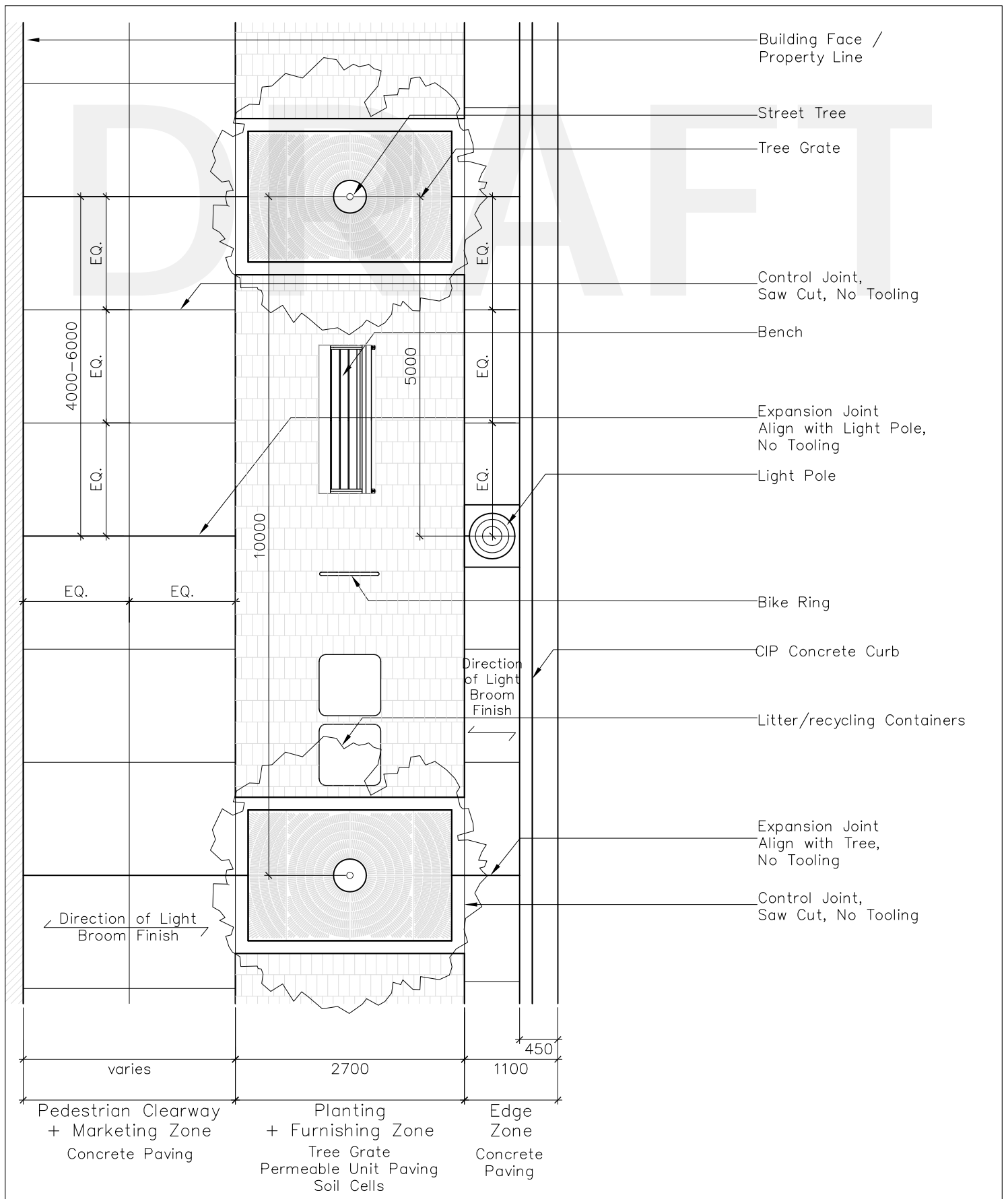





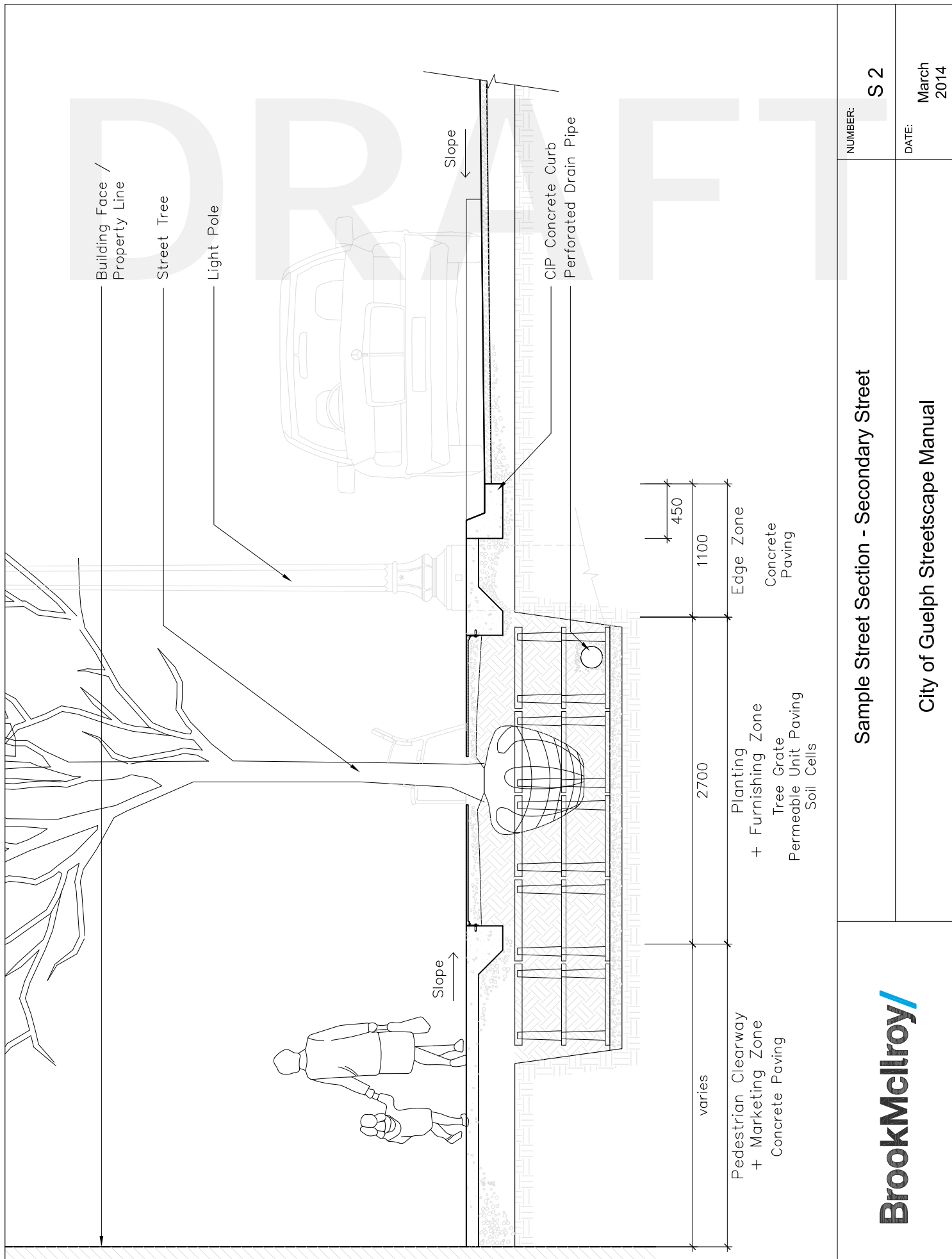
Sample Street Section - Primary Street		NUMBER: P2
City of Guelph Streetscape Manual		DATE: March 2014



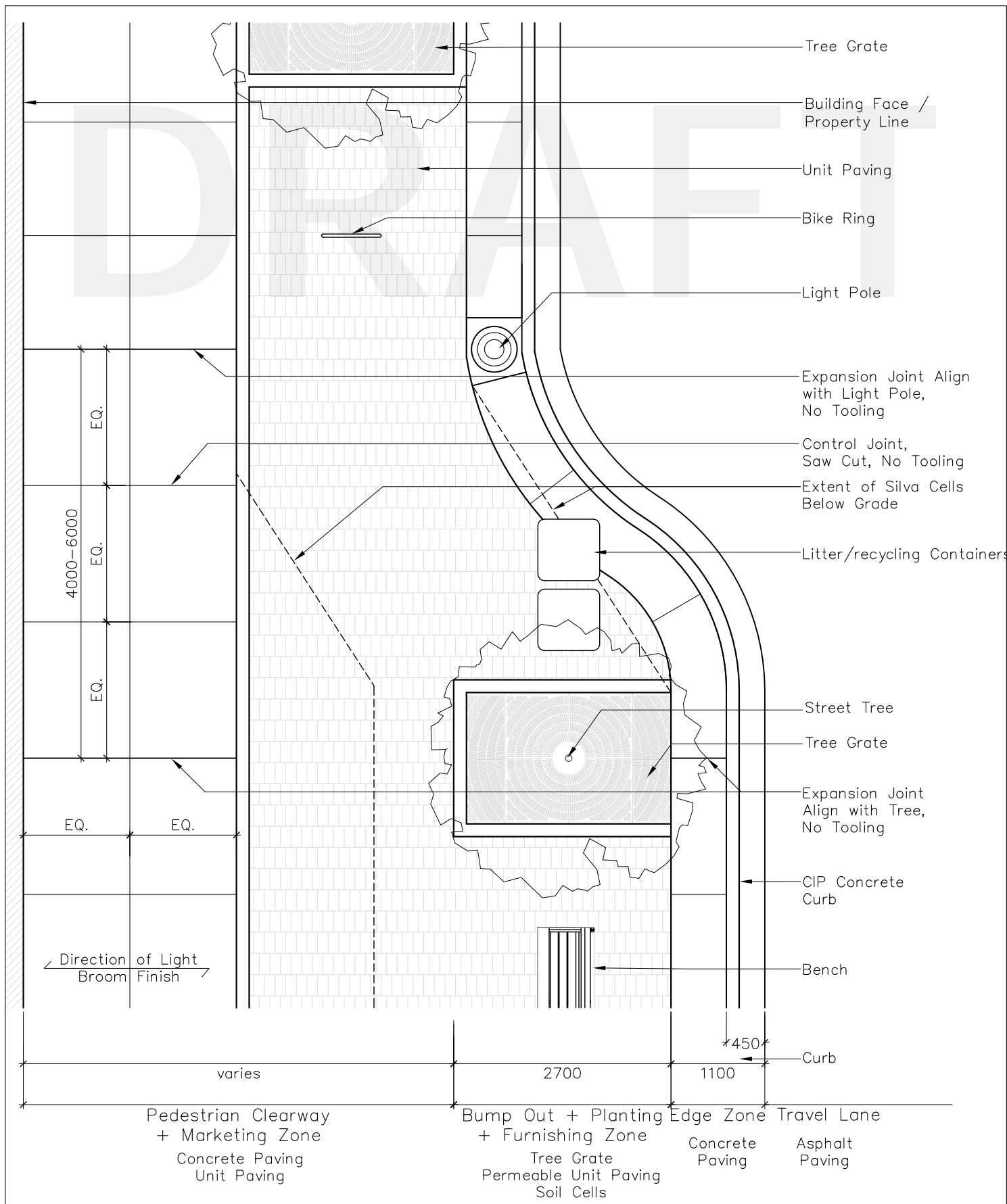
BrookMcIlroy	Sample Street Section - Primary Street Open Tree Pit		NUMBER: P4
	City of Guelph Streetscape Manual		DATE: March 2014




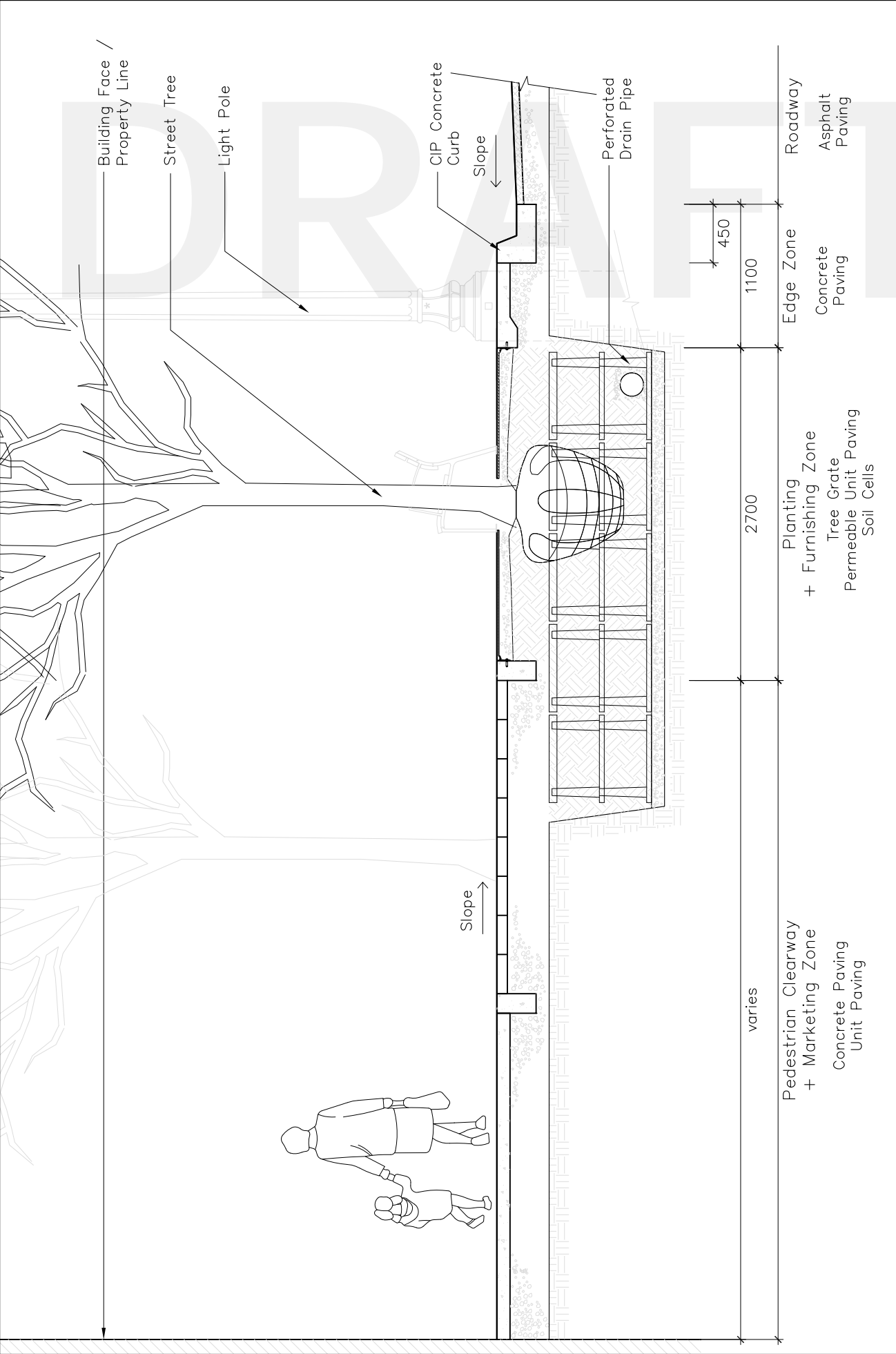
	Sample Street Plan - Secondary Street	NUMBER: S 1
	City of Guelph Streetscape Manual	DATE: March 2014



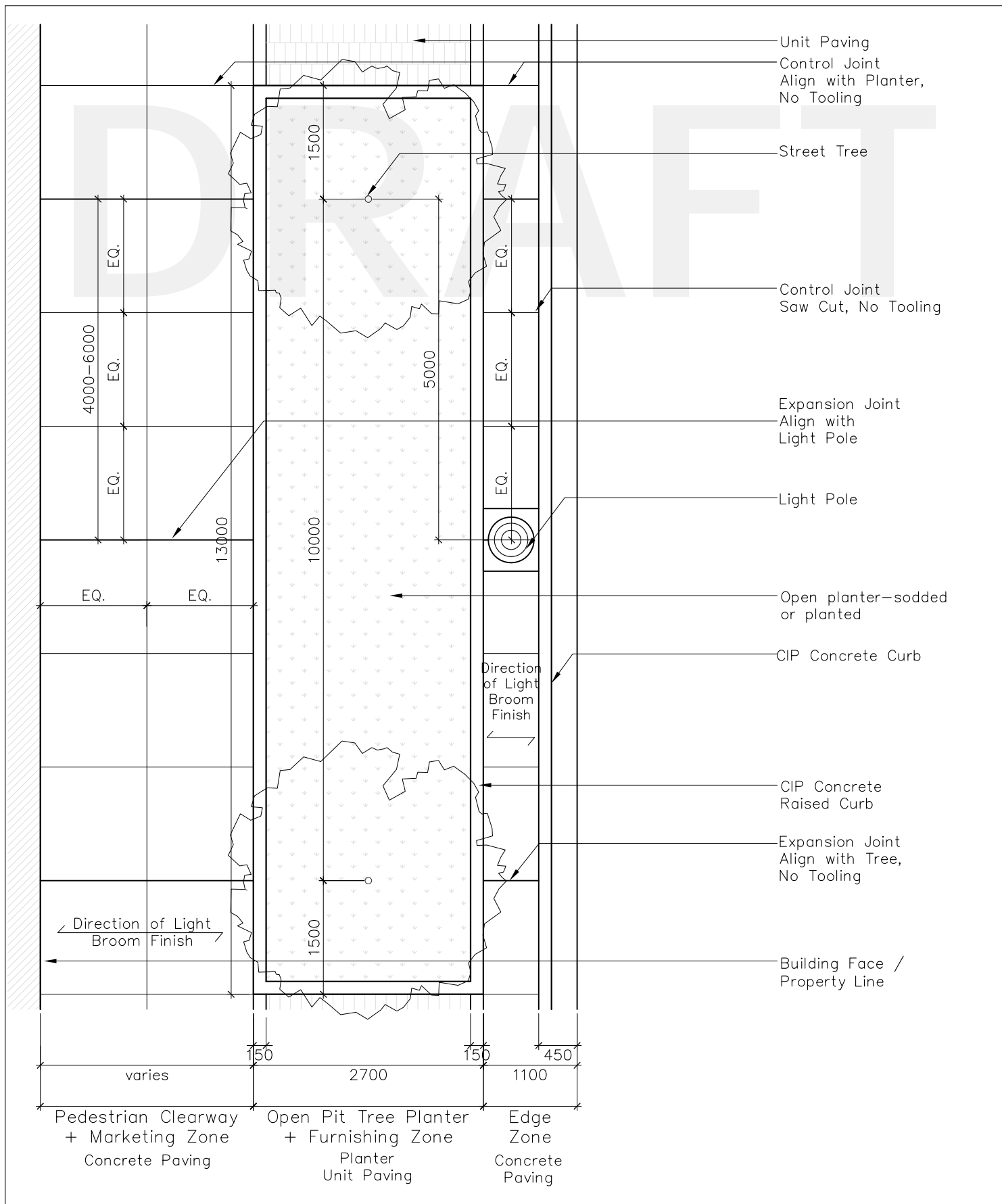
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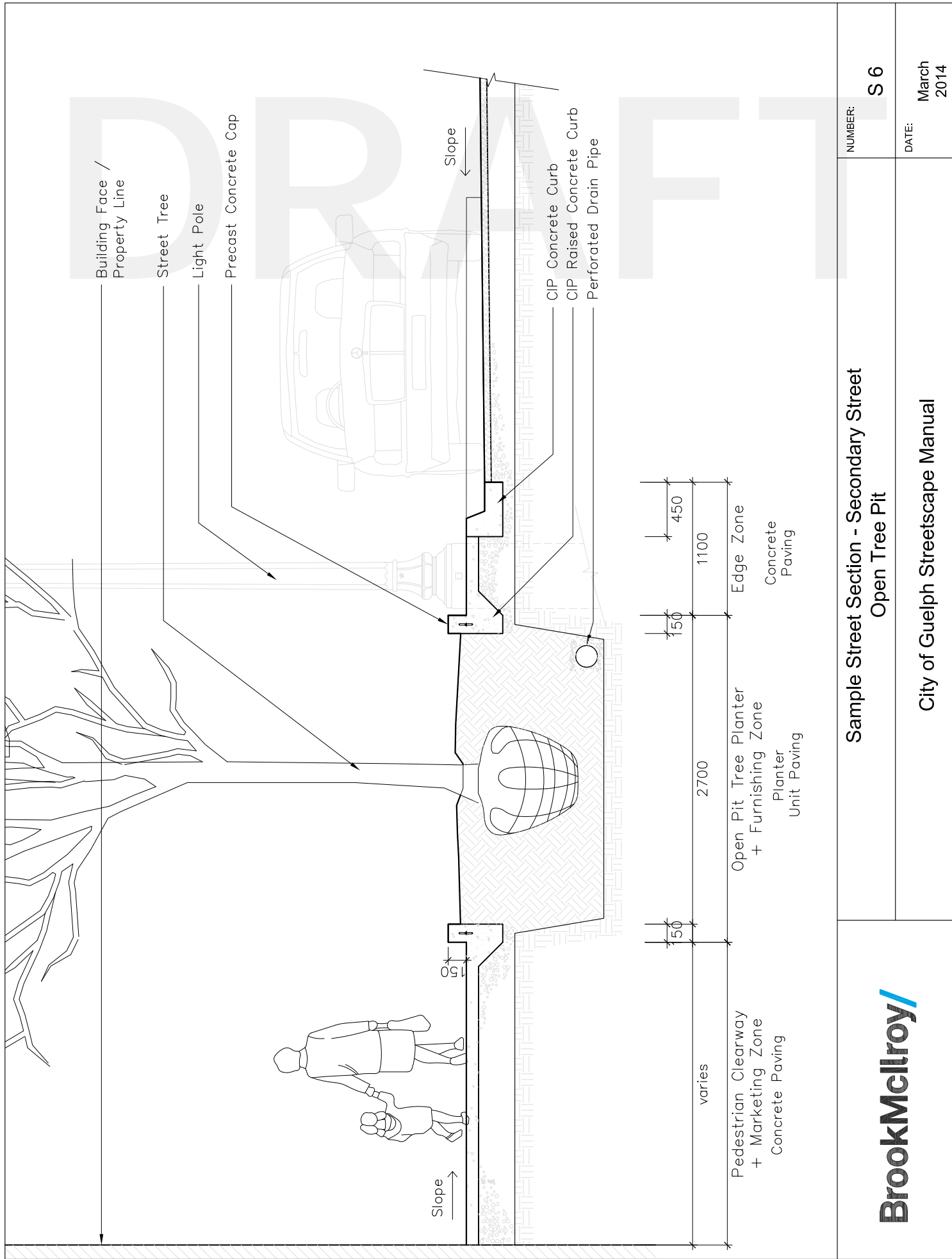
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	City of Guelph Streetscape Manual	DATE: March 2014



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	City of Guelph Streetscape Manual		DATE: March 2014



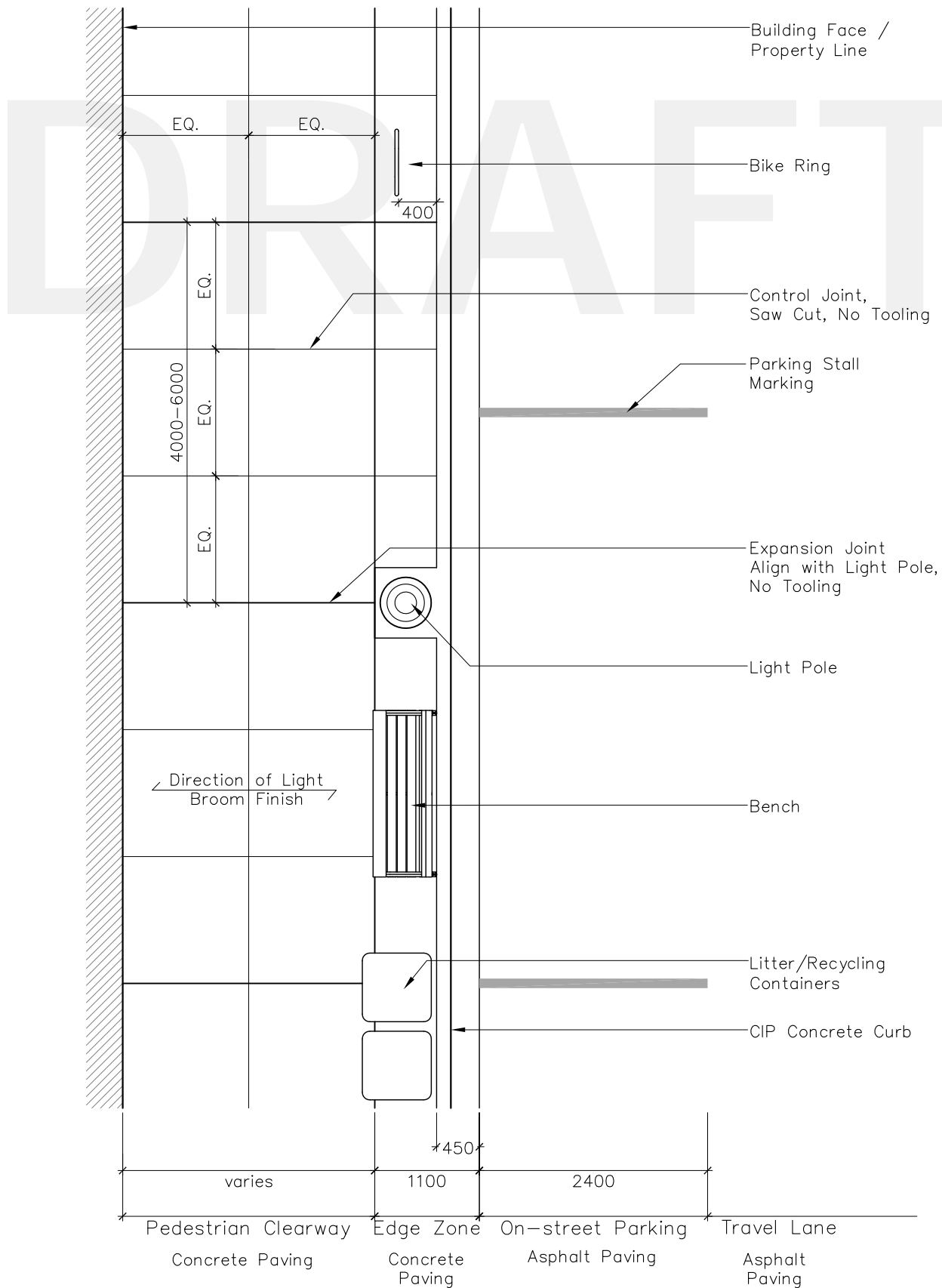
	Sample Street Plan - Secondary Street Open Tree Pit	NUMBER: S 5
	City of Guelph Streetscape Manual	DATE: March 2014

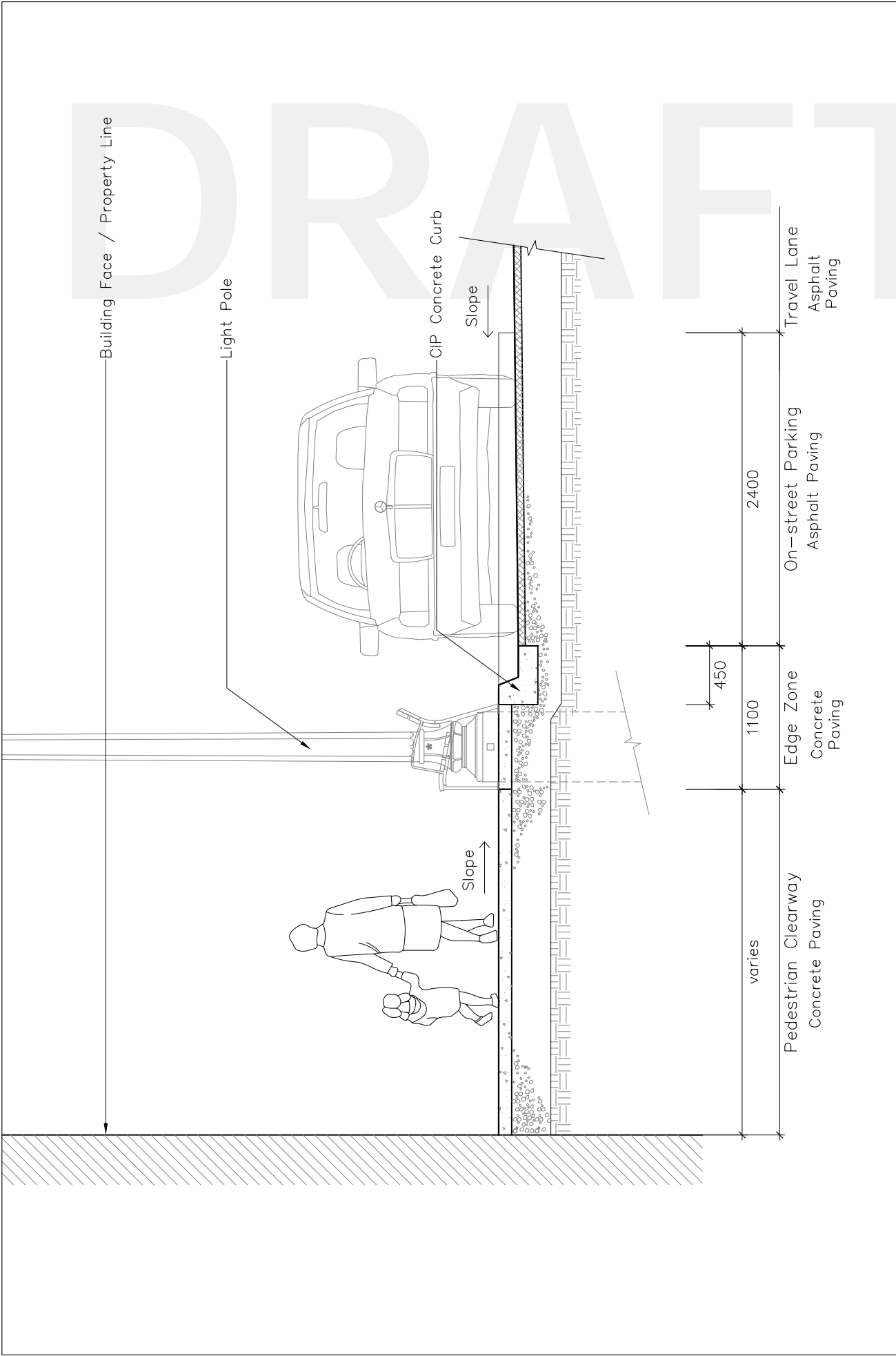


Sample Street Section - Secondary Street
Open Tree Pit

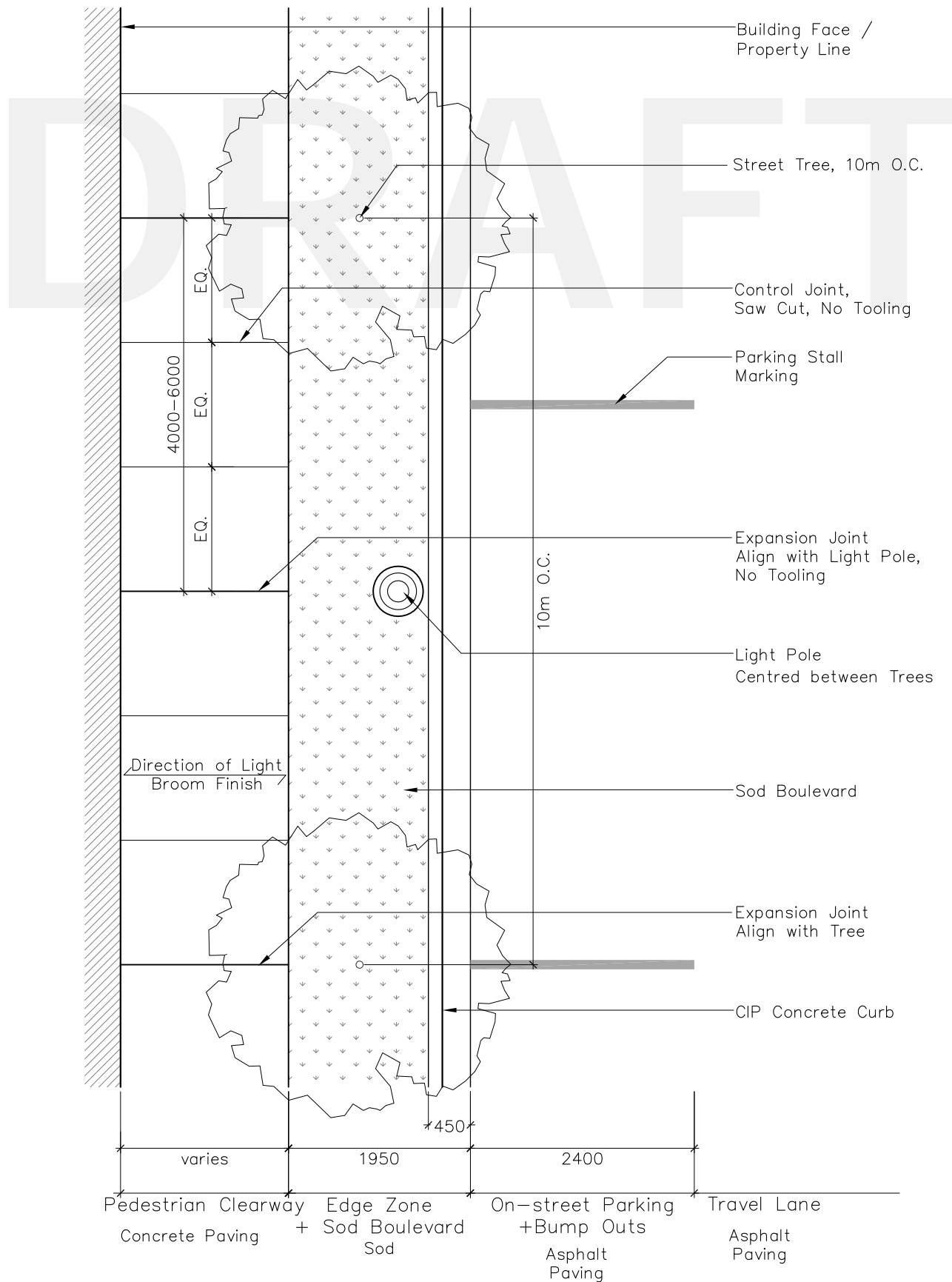
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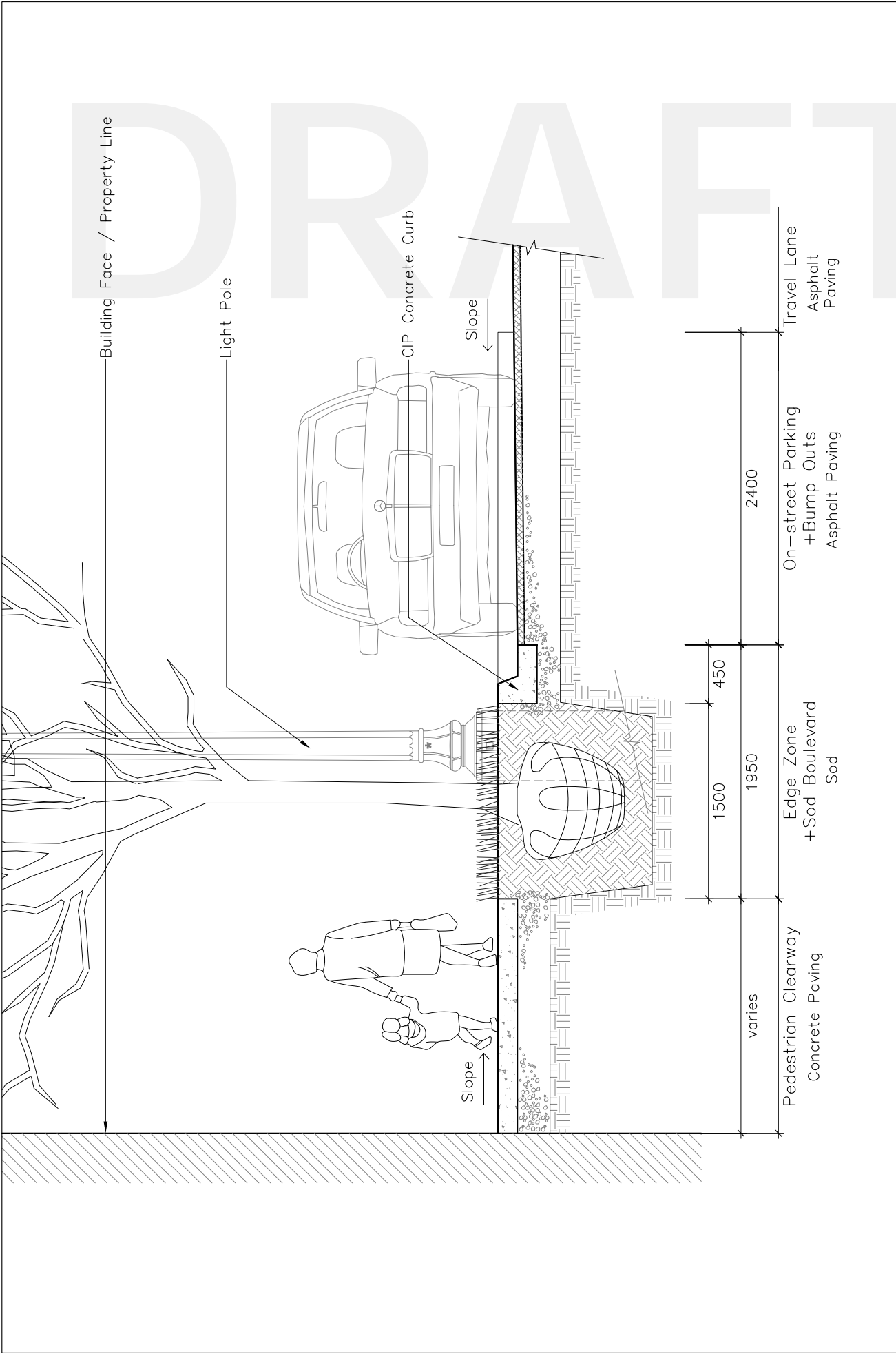
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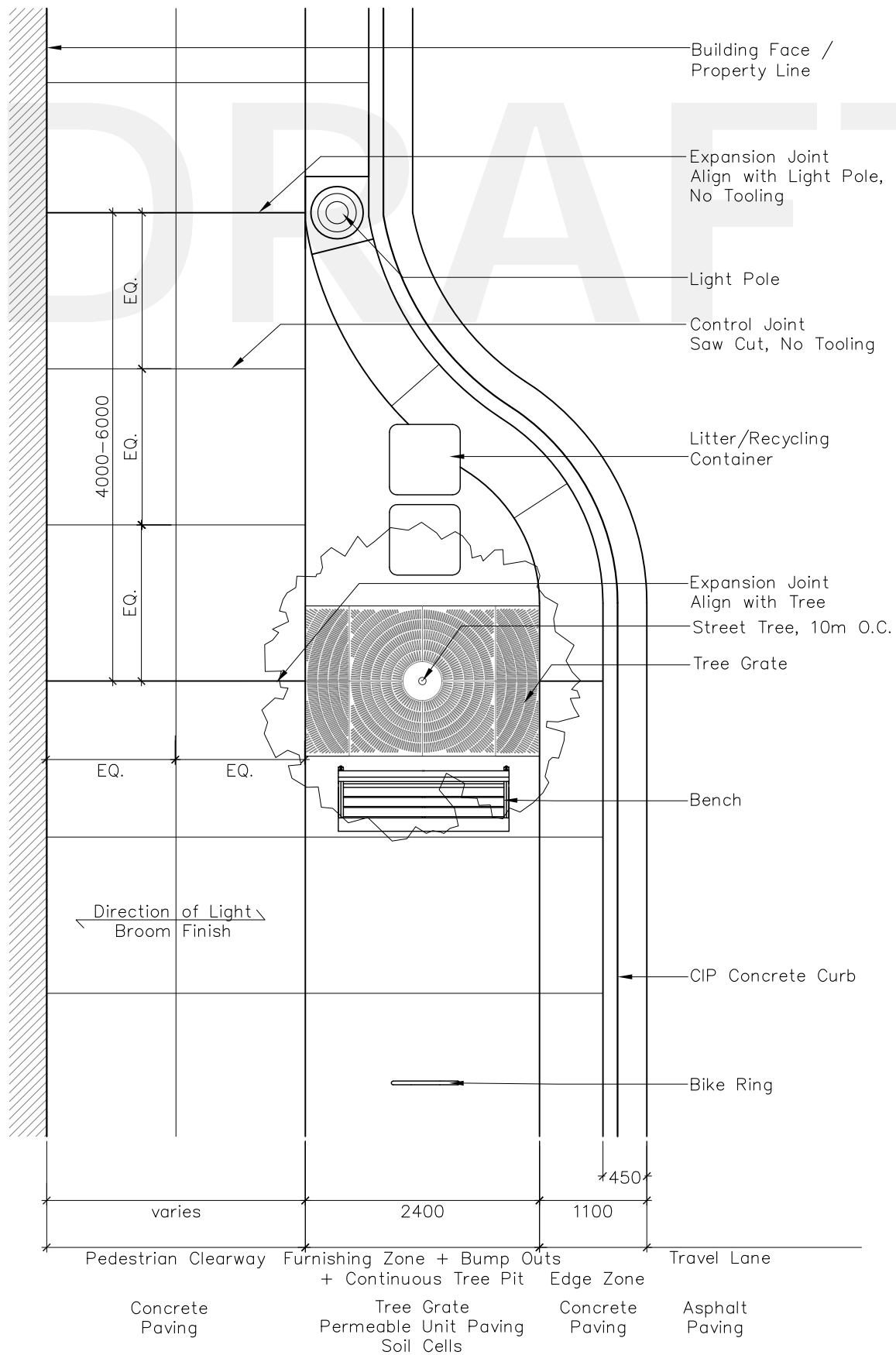


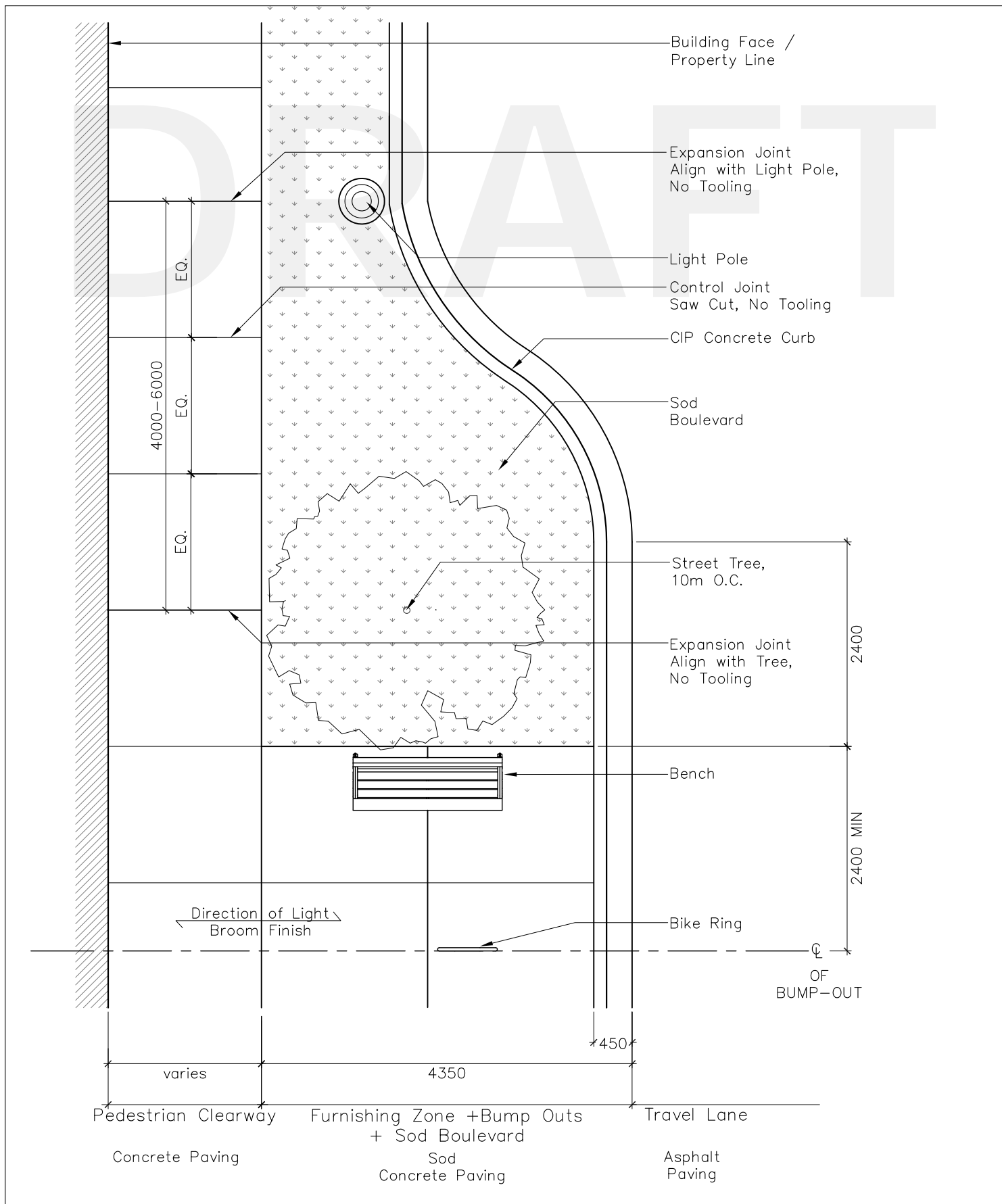
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	City of Guelph Streetscape Manual		DATE: March 2014

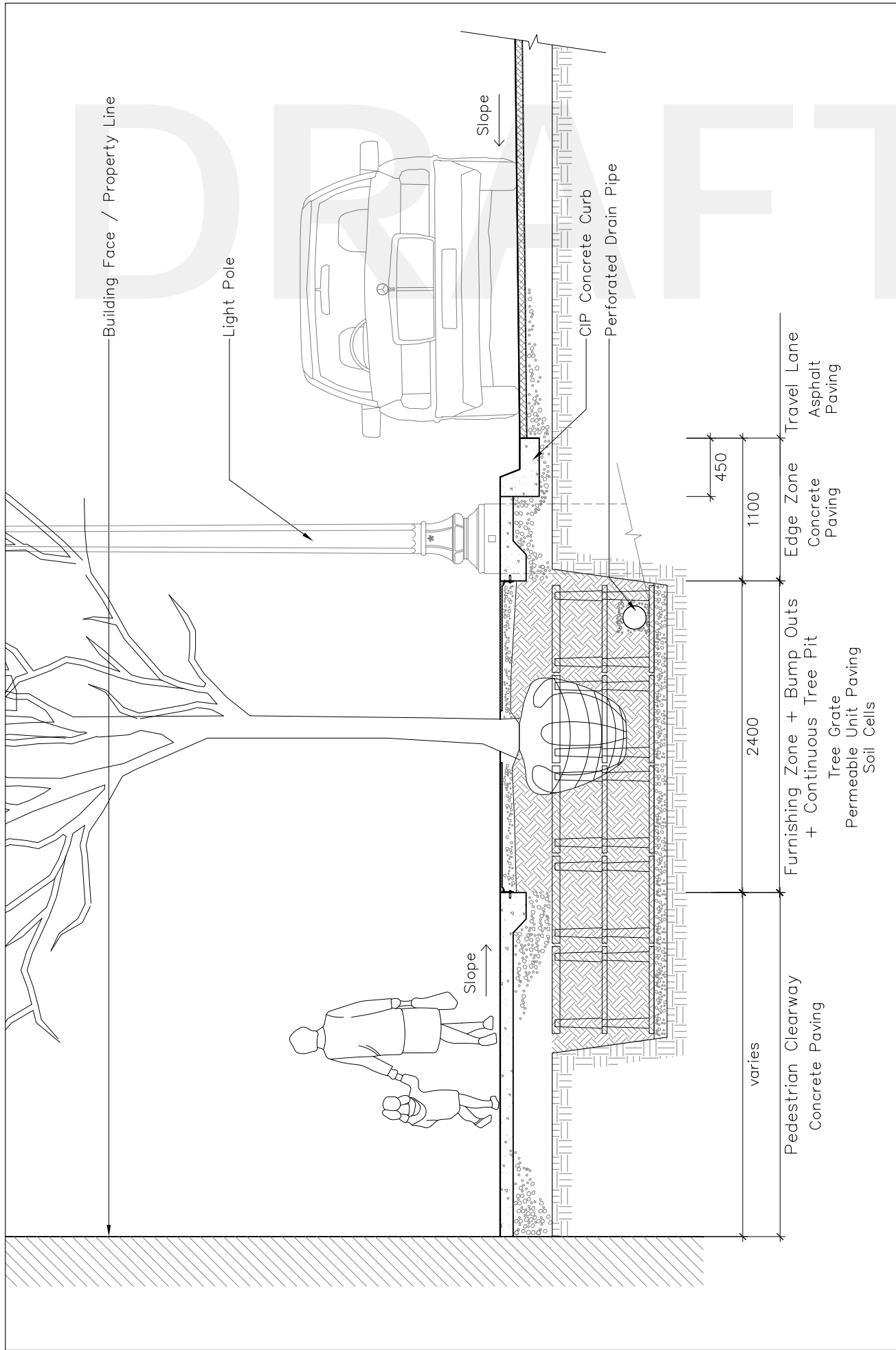




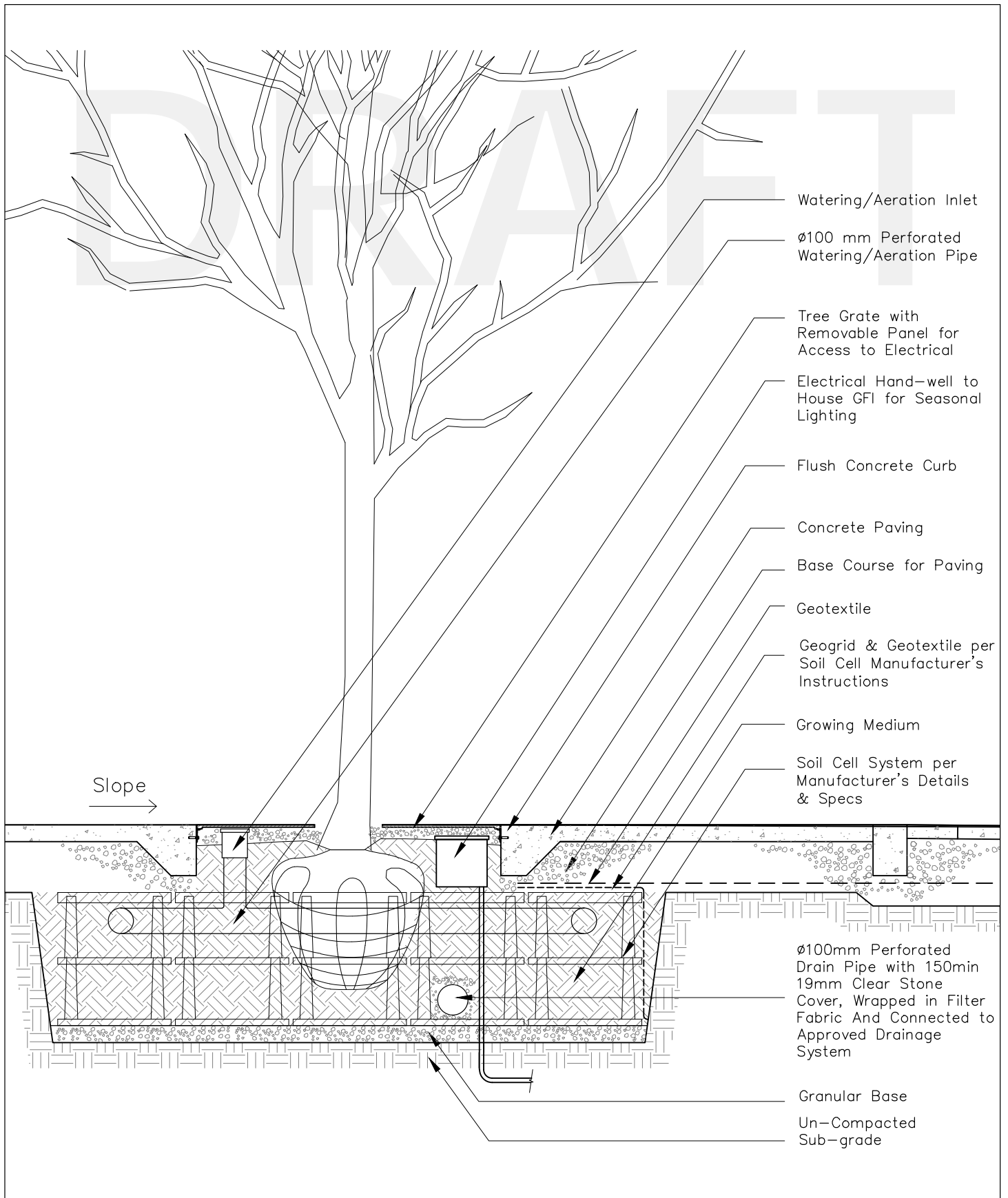
BrookMcIlroy	Sample Street Section - Local Street Sod Boulevard	
	NUMBER: L4	DATE: March 2014

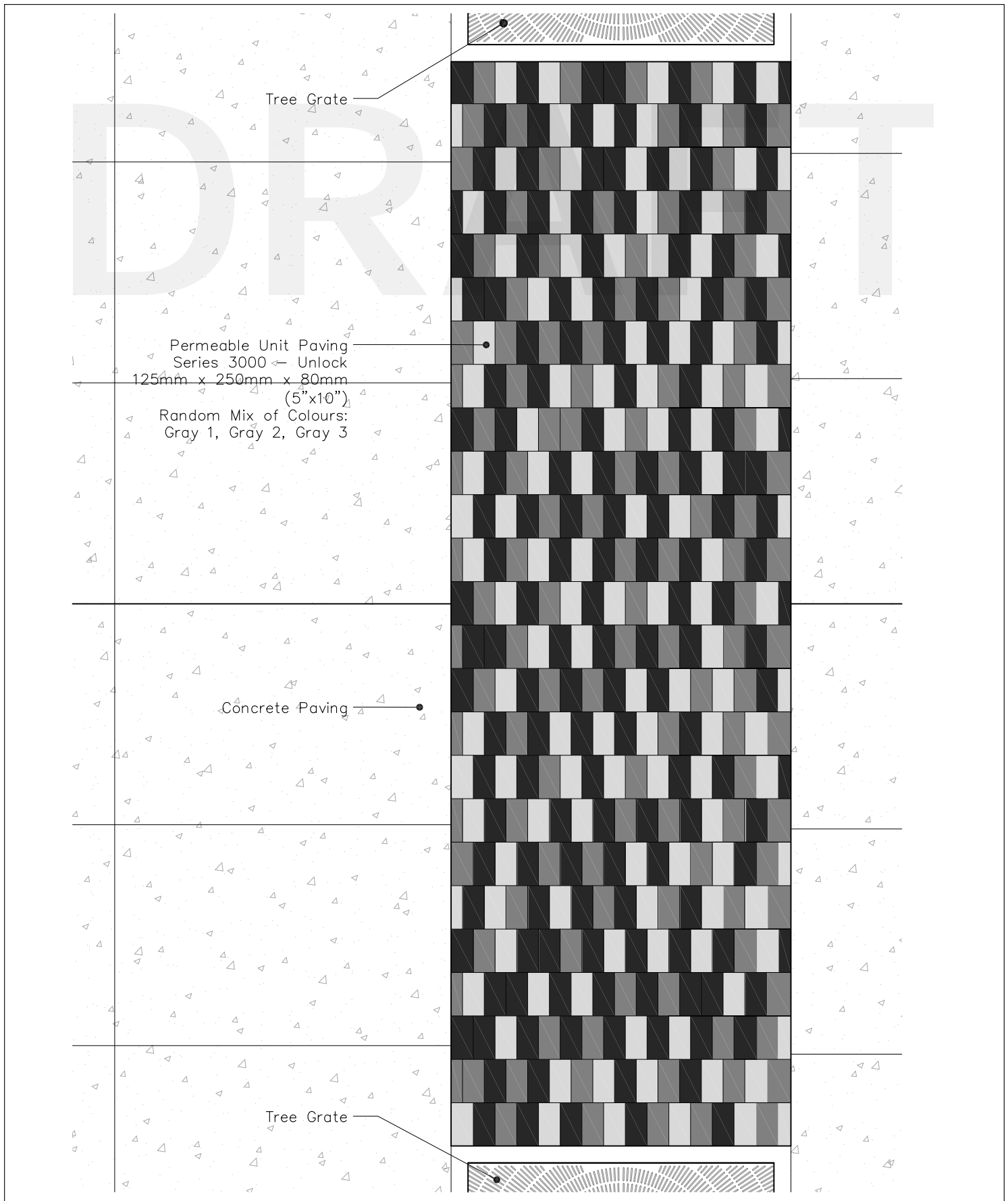


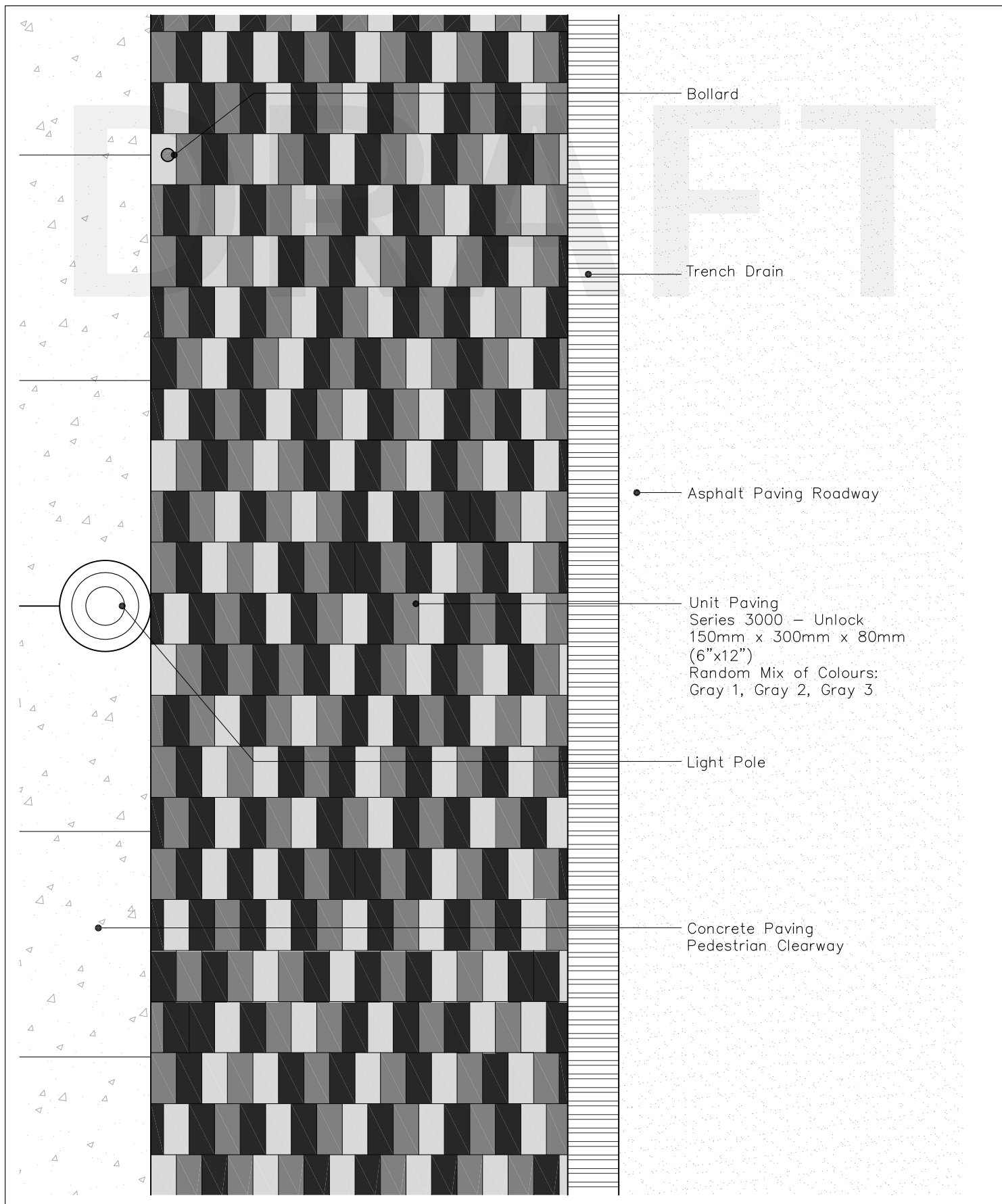





BrookMcIlroy/	Sample Street Section - Local Street - Bump Out - Hardscape Boulevard	
	NUMBER: L 7	DATE: March 2014







	<p>Paving Pattern - Unit Paving On-street Parking</p>	<p>NUMBER: UP2</p>
	<p>City of Guelph Streetscape Manual</p>	<p>DATE: March 2014</p>

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Lighting

The five streetscape categories consider right-of-way width, street/sidewalk pavement width, and adjacent land use and street function. The criteria used to determine street lighting pole/fixture types and locations are:

Category A

Right-of-way width of generally 30 metres (100 feet) with predominately retail/commercial land uses adjacent, and with high or potentially high night-time pedestrian activity

Category B

Right-of-way width of generally 30 metres (100 feet) with predominately office/ residential/open space/ institutional land uses adjacent, and with moderate or potentially moderate night-time pedestrian activity

Category C

Right-of-way width of generally 20 to 30 metres (66 feet) but less than 11 m road surface with predominately retail/commercial office/ residential/ open space/ institutional land uses adjacent, and with moderate to high or potentially high night-time pedestrian activity

Category D

Right-of-way width of generally less than 20 metres (66 feet) with high or potentially high, moderate or potentially moderate night-time pedestrian activity.

Category E

Special treatment areas where conventional pole style street lighting would not be appropriate - alternative lighting styles include building mounted fixtures, tree uplighting or wall wash lighting for buildings and public monuments. Areas have high or potentially high, moderate or potentially moderate night-time pedestrian activity.

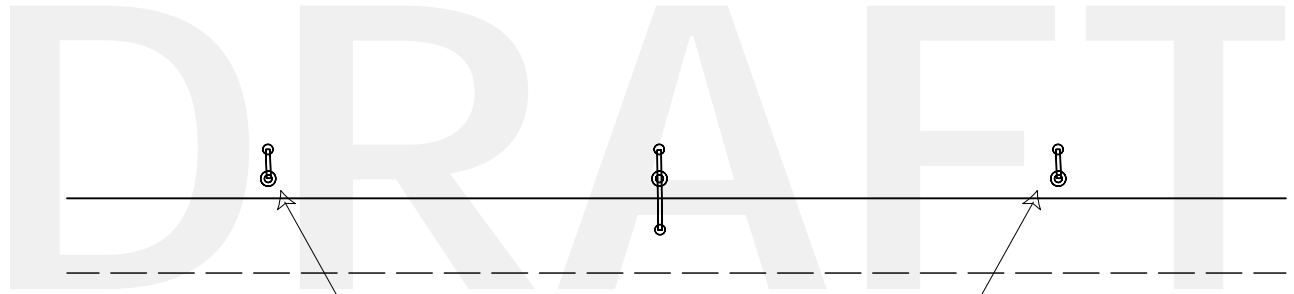
PUBLIC REALM STREET LIGHTING CATEGORIES

- A** retail-commercial
high night-time
pedestrian activity
30m ROW
- B** office/residential -
open space -
institutional
moderate night-
time pedestrian
activity 30m ROW
- C** retail-commercial -
office-residential
high to moderate
night-time
pedestrian activity
< 11m road surface
20 - 30 ROW
- D** high or moderate
night-time
pedestrian activity
< 20 ROW
- E** Special treatment
areas, high to
moderate night-
time activity



A

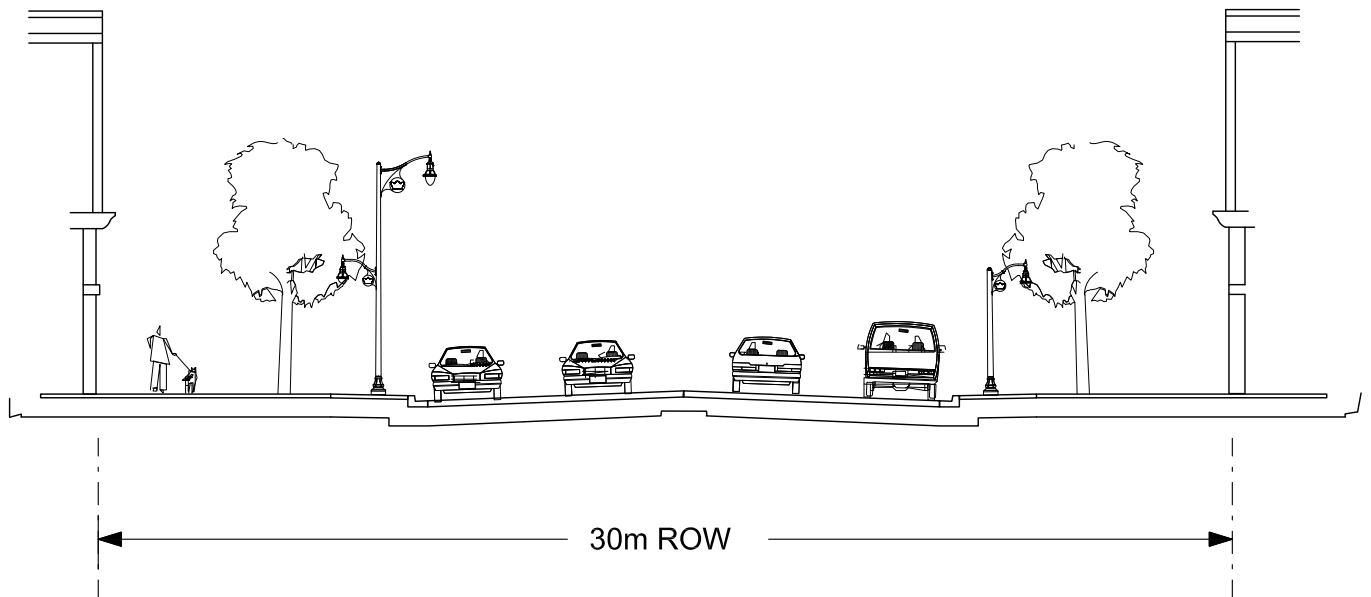
retail-commercial
high night-time
pedestrian activity
30m ROW



pedestrian scale light

road scale light

alternating
pattern.



30m ROW

BrookMcIlroy

STREET LIGHTING - CATEGORY A

City of Guelph Streetscape Manual

NUMBER:

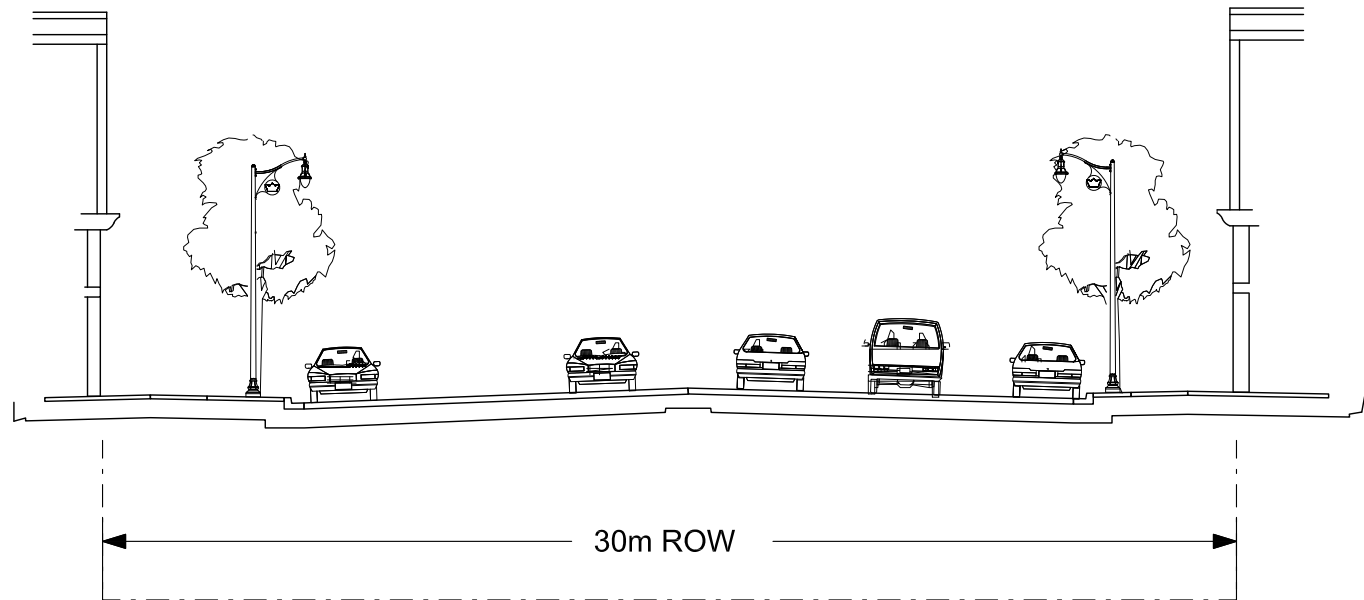
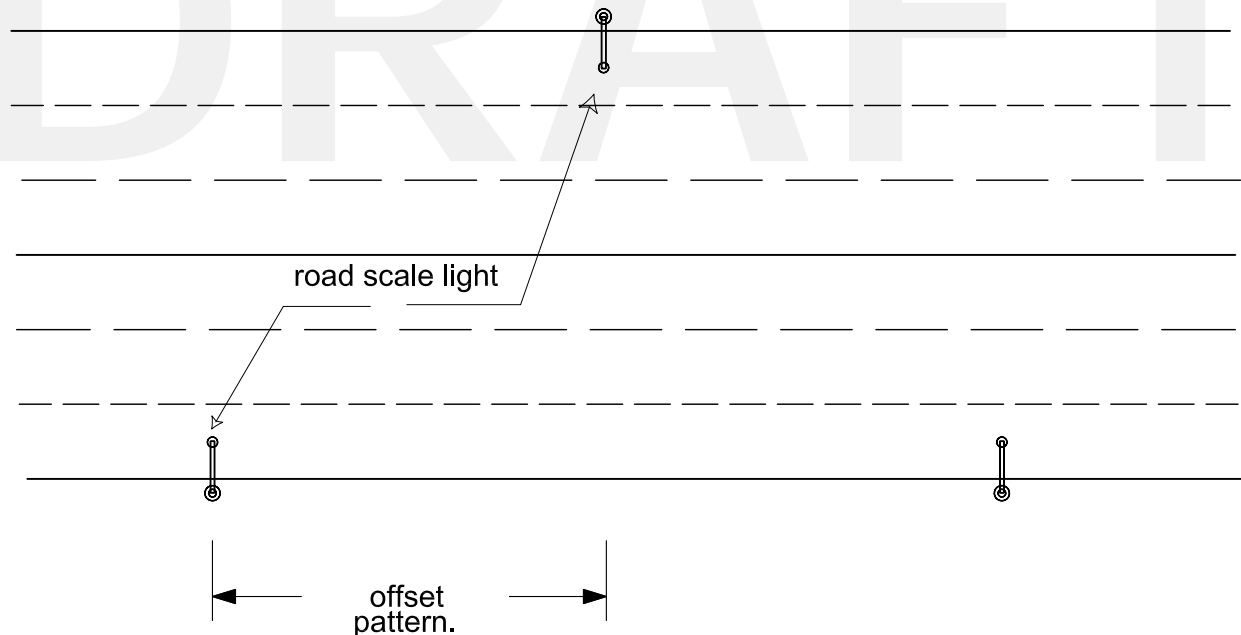
A1

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**NOVEMBER
2013**

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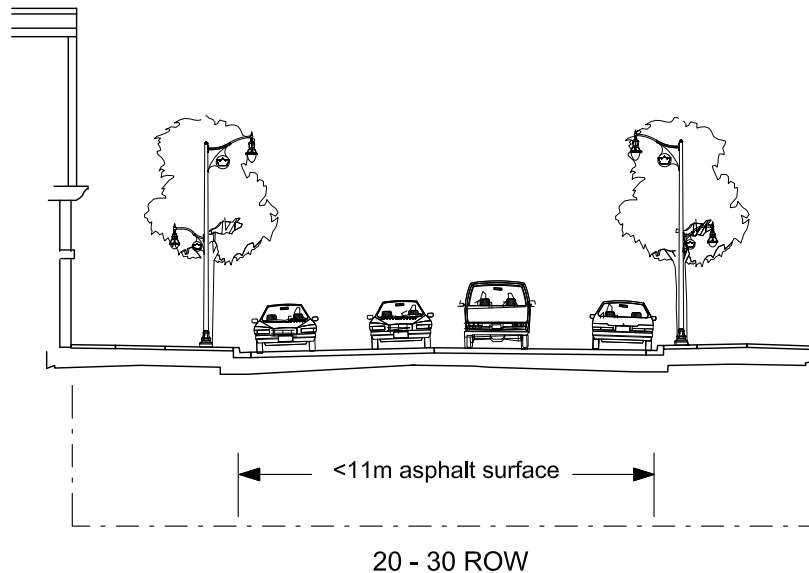
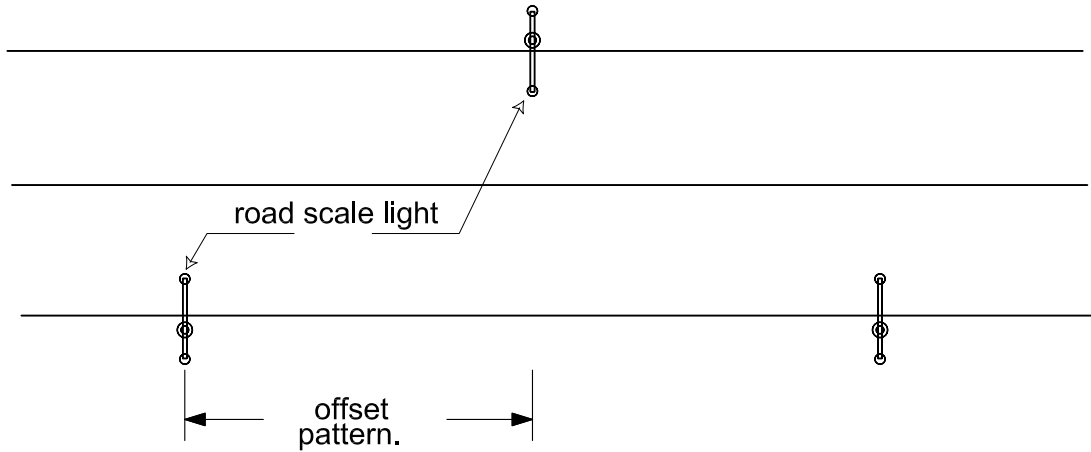
B office/residential - open
space - institutional
moderate night-time
pedestrian activity 30m
ROW



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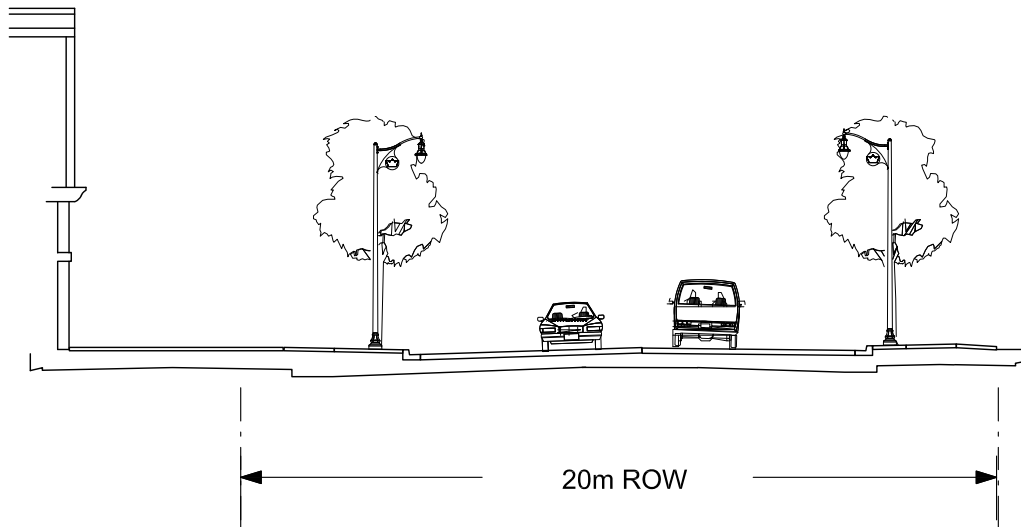
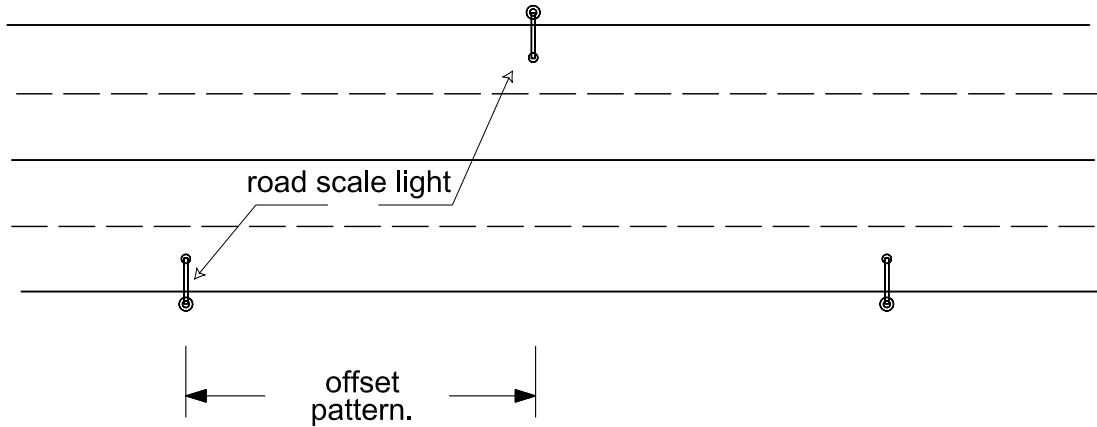


retail-commercial -
office-residential
high to moderate
night-time
pedestrian activity
< 11m road surface

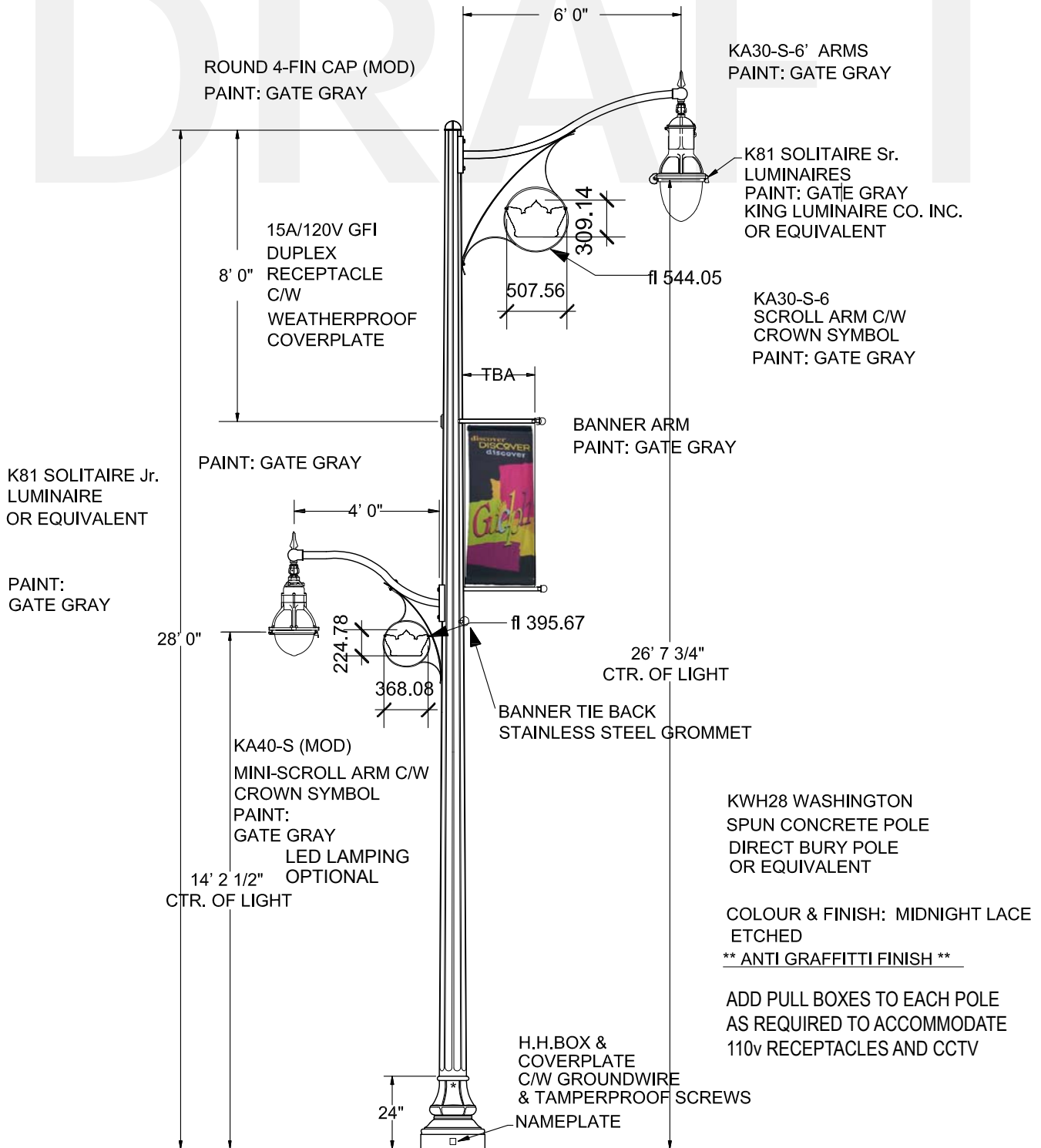


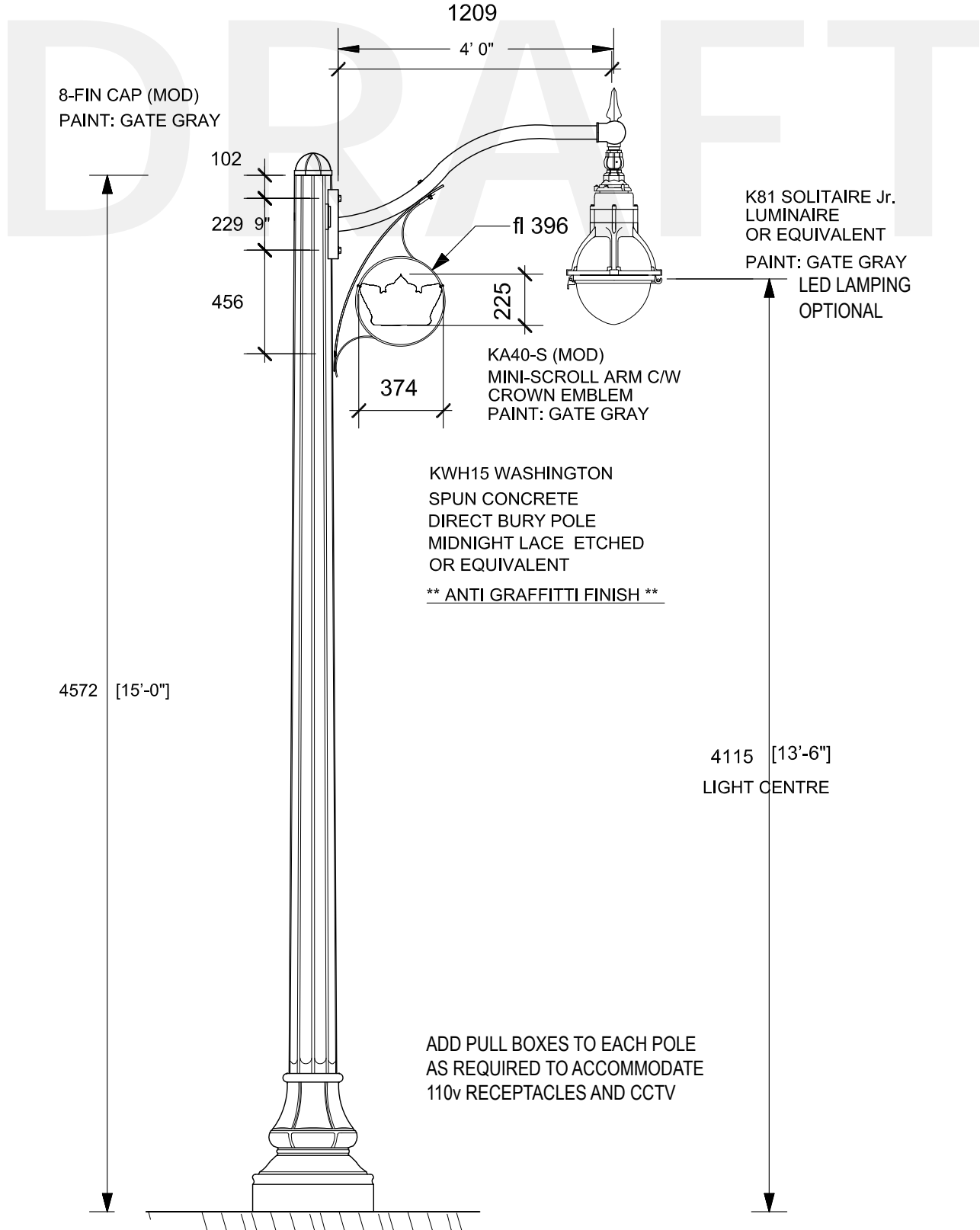
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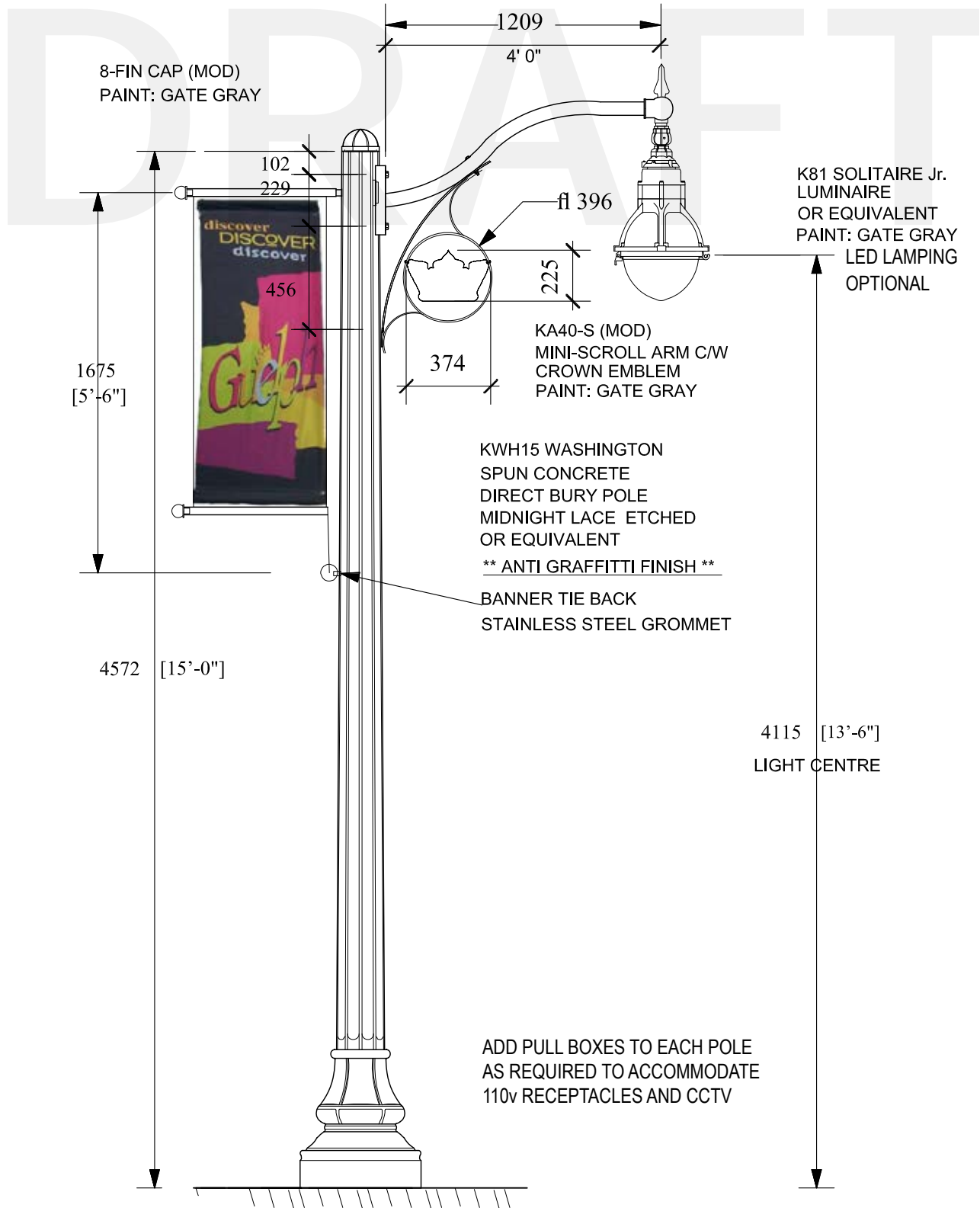
D office-residential-
open space-
institutional -
moderate night-
time pedestrian
activity 20m ROW



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DRAFT