

February 1st, 2019

The Gore Standard: Hardscape Design

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	GORE DESIGN PRINCIPLES	2
2.1	Design Principle - Create a Linear Plaza	3
2.2	Design Principle - Improve Accessibility.....	3
2.3	Design Principle - Maintain Functionality	3
2.4	Design Principle - Ensure Resilience	3
2.5	Key Gore Pedestrianization Design Moves	4
	DESIGN APPLICATION, DETAILING AND CONSTRUCTION	5
3.1	Urban Braille	6
3.2	Crosswalks.....	7
3.3	Vehicular Zone	7
3.4	Lay-by Parking Zones.....	9
	APPENDIX	10
A	Saw-cut Patterning and Concrete Finishes	
B	Granite Unit Pavers on Concrete Base	
C	Granite Insert Detail	
D	Construction Joint	
E	Reinforcing Detail for Drain	
F	TFX 08-8" [203mm] ID Trench Former System with E-Coated Frame and Uncoated Ductile Iron Gate (HD Heel Proof/ADA)	
G	TFX24-24" [609mm] ID Trench Former System with Standard Slotted Grate	
H	Additional Corridor Specifications - City of Hamilton	
I	Gore Standard Limits	

LIST OF FIGURES

All photos by MBTW

Fig 1	Bird’s Eye Concept Rendering of The Gore Pedestrianization Initiative.....	1
Fig 2	The Gore Pedestrian Promenade	4
Fig 3	Urban Braille - Pedestrian Clearway with Shoreline and Diamond Marker	6
Fig 4	Urban Braille - Pedestrian Clearway with Shoreline and Rolled Planter Curbs.....	6
Fig 5	Urban Braille - Typical Street Name Tablet.....	6
Fig 6	Trial Run “Mock up” of Concrete Patterning Process.....	8
Fig 7	Vehicular Drive Lane with Integrated Trench Drains	8
Fig 8	Vehicular Drive Lane.....	8



1

Introduction



The MBTW Group was retained by the City of Hamilton to develop the “Gore Standard: Hardscape Design Guidelines”, to direct designers with the application of the ‘typical’ Gore Pedestrianization Initiative hardscape detailing to future streetscape and pedestrianization projects. This standard will be implemented on King Street East, Hughson Street and select intersecting side streets in the design of the LRT B-Line corridor per Appendix "I" in Hamilton, Ontario to “establish a high-quality civic corridor, prioritizing pedestrians and supporting safe, convenient and comfortable connections”.

The Gore Pedestrianization Initiative: In 2009 the city retained MBTW to assist in the preparation of a new master plan vision to guide the future redevelopment of the downtown Gore Precinct. This project involved the repurposing of the south leg of King Street into a Pedestrian Promenade which visually and physically ties together all three blocks of the Gore Area. Through rigorous community engagement and internal consensus building processes, a single vision for the Gore Area evolved that balanced the community’s and city’s objectives for a high quality, Hamilton-specific place. The Gore Pedestrianization Initiative has been a successful project for a variety of reasons including:

- Improving safety by opening views through the site, improving the night-time presence and by creating a well-designed, high quality space that will foster civic ownership and passive surveillance;
- Improving accessibility and inclusiveness by eliminating curbs, reducing grades and slopes and expanding the Urban Braille system;
- Maintaining the heritage character of the downtown area through material selection while introducing a new coordinated urbanism;
- Achieving excellence in design through the successful implementation of a clean, thoughtful design suitable for the civic nature of the site and through the selection of durable, high quality materials.

The Gore Standard: Hardscape Design provides designers with information regarding the pavement surfaces and treatments utilized throughout the Gore Pedestrianization Initiative project, and general guidelines for the application of those treatments to future streetscape developments. It is understood that some adaptation of design elements may be required to apply the Gore Standard to other site-specific conditions. Therefore, it is highly recommended that designers visit the Gore Pedestrianization Initiative project area to fully understand how to successfully apply the hardscape design.



Figure 1: Bird's Eye Concept Rendering of The Gore Pedestrianization Initiative

Gore Design Principles

2



The Gore Pedestrianization Initiative was designed to promote safety, convenience, and accessibility for shared pedestrian and vehicular infrastructure with a special emphasis on creating a plaza atmosphere within an established city road allowance. The following are four design principles that guided the development of the project and the key decisions that were applied.

2.1 Design Principle - Create a Linear Plaza:

One of the main goals of the project was to transform the municipal street into a linear pedestrian-friendly plaza space. The intent was to create a precinct that visually resembles a civic plaza space in which pedestrians and cyclists would have priority over vehicle movement. This effect is generally achieved by reconstructing and re-profiling the road bed to create flush grading conditions to adjacent streetscape and park spaces and by utilizing upgraded paving materials and finishes.

2.2 Design Principle - Improve Accessibility:

The design of the Gore Pedestrianization Initiative has improved accessibility and inclusiveness of the area by reducing grades and slopes and expanding the City of Hamilton's Urban Braille system. The construction of the Pedestrian Promenade created flush connections along the north and south edges; facilitating barrier free pedestrian connections between the park space and the adjacent commercial streetscape.

2.3 Design Principle - Maintain Functionality:

The design maintains functionality for adjacent businesses and emergency services through appropriate dimensioning and pavement surfacing while addressing requirements for special events. Through a best practices review and full coordination with operations staff, a material palette was created that ensures long term durability and efficiencies in maintenance. For example, to create the pedestrian scaled texture within the Pedestrian Promenade that would minimize maintenance and reduce the occurrence of "bad patching", a series of bands and fields were created by finishing plain, un-pigmented concrete in alternating patterns of smooth finished bands and 'soft' finished fields. The finished areas were further broken down by applying a running bond pattern of saw-cut joints to emulate the look of large unit pavers.

2.4 Design Principle - Ensure Resilience:

Through thorough best practices, design and costing investigations, it was determined that natural concrete pavement, coupled with the creative use of surface treatments and saw-cutting, would best meet the objectives of the City, stakeholders and the community. Utilizing concrete was found to:

- Minimize long term maintenance;
- Minimize replacement costs;
- Minimize replacement material colour matching and sourcing;
- Minimize differential settlement causing tripping hazards;
- Reduce the urban heat island effect in the Gore area; and
- Create an easily sourced design palette for future phases and other nearby projects.

2.5 Key Gore Pedestrianization Design Moves:

Further to the development of project design principles, the following “big design moves” were selected and applied to implement the Pedestrianization. They include:

- Re-profiling the municipal street section to an inverted crown;
- Introducing a longitudinal trench drain system in conjunction with conventional street catch basins;
- Removing street curbs and abrupt grade changes where vehicular areas meet pedestrian-only areas;

- Constructing the street, boulevard and lay-by parking surfaces using primarily natural concrete pavement in combination with a variety of surface treatments and strategically placed unit paving to promote pedestrian scale and a plaza atmosphere; and
- Expanding the City’s Urban Braille System.

These principles and design moves shall be applied to new pedestrianization projects and modified to address site specific conditions.



Figure 2: The Gore Pedestrian Promenade. A combination of smooth finished bands and soft finished fields.

3

Design Application, Detailing and Construction



This section provides key considerations and guidelines for the application of the Gore Pedestrianization Initiative detailing to future design/development projects throughout the City of Hamilton. Information is organized into the following sections:

- Urban Braille;
- Crosswalks;
- Vehicular Zone;
- Lay-by Parking Zones.

3.1 Urban Braille

Designs that apply the Gore Pedestrianization Initiative detailing must consider safe and accessible use by pedestrians as the primary focus. Of utmost importance is the correct implementation of the City of Hamilton's Urban Braille System in pedestrian-only areas. The Urban Braille program includes but is not limited to: clearways, street name sidewalk plates, transit and warning strips, and shorelines. By utilizing the City of Hamilton's Urban Braille System, designers can effectively design safe pedestrian-only areas that are clearly distinguishable from vehicular areas, without the use of barrier curbs. Generally, the Urban Braille is applied immediately adjacent to built form within a streetscape.

Designers shall submit a set of drawings detailing all components of Urban Braille as part of the City approval process.



Figure 3: Urban Braille - Pedestrian Clearway with Shoreline and Diamond Marker



Figure 4: Urban Braille - Pedestrian Clearway with Shoreline and Rolled Planter Curbs



Figure 5: Urban Braille - Typical Street Name Tablet

Urban Braille Technical Requirements:

- 3.1.1 All features are to be installed according to the specifications listed in the City of Hamilton Integrated Accessibility – Sidewalk/Urban Braille Guidelines RD124.01 – RD 124.03.
- 3.1.2 Cross-falls shall not exceed 2.5% and shall not be less than 1.5%. Grading shall direct surface flows away from buildings and to the modular trench systems or other drainage infrastructure which shall be located outside of the Urban Braille sidewalk.
- 3.1.3 Saw cut lines and joint lines shall be installed perpendicular to the built form at 1000mm spacing. All cut lines should be installed in line with shoreline stamp pattern lines, curb cuts, and saw cut lines within the vehicular zones.
- 3.1.4 Shorelines are utilized to define the pedestrian corridor.

3.2 Crosswalks

- 3.2.1 Crosswalks are clearly marked and are designed to connect the Urban Braille system across streets and intersections per City of Hamilton Std. No. RD- 124.

3.3 Vehicular Zone

Modelled after the Pedestrian Promenade from the Gore Pedestrianization Initiative, the hardscape within the vehicular zone is clearly distinguishable from the hardscape found in the sidewalk. Since vehicular zones do not utilize barrier curbs to separate them from the sidewalk a variety of differences in surface treatment techniques are used to differentiate these areas. Of key importance, is that the Urban Braille system is not

implemented in vehicular zones except for protected crossings. The trench drain system shall be contained within one type of paving (within the bands or fields). For more details on the application of hardscape treatments in the vehicular zone, including the application of the trench drain, refer to the detailed drawings and additional specifications located in Appendix A-H at the back of this document.

Vehicular Zone Technical Requirements:

- 3.3.1 The overall design of the hardscape in the vehicular zone is modelled after the Pedestrian Promenade from the Gore Pedestrianization Initiative.
- 3.3.2 All hardscape features within the vehicular zone are constructed using poured concrete to ensure resilience. Concrete is poured at a depth of 250mm and is reinforced using 152x152 wire mesh.
- 3.3.3 The Gore Standard utilizes longitudinal and cross slopes that are compatible with the pedestrianized zones, minimizing and eliminating abrupt hardscape transitions between vehicular zones and sidewalks in no barrier curb conditions.
- 3.3.4 Trench drain infrastructure shall be installed outside of the wheel path of vehicles and shall be connected to catch basin(s) which then outlet to the Municipal Storm Sewer System.

3.3.5 The vehicular zone is constructed of concrete for resilience and its design is a combination of 5000mm x 2630mm soft finished fields and 1000mm wide smooth finished bands. Accent bands run perpendicular to the built form and all cut lines should be installed in line with shoreline stamp lines, curb cuts, and saw cut lines in the pedestrian zone. Smooth bands are finished by trowel, and soft fields are finished using Grace Topcast 05 exposed finish (10mins.), to replicate a sandblasted finish. The combination of these two treatments creates a subtle and attractive contrast.



Figure 6: Trial Run "Mock Up" of Concrete Patterning Process

3.3.6 Saw cutting is applied in a running bond pattern to achieve the large (526mm x 1000mm) paver aesthetic. Longitudinal saw cuts run continuously through fields and bands, parallel with the direction of vehicular travel. Longitudinal bands (500mm x 500mm) are installed on both sides of the vehicular zone and are installed parallel with the direction of travel.



Figure 7: Vehicular Drive Lane with Integrated Trench Drain

3.3.7 Prior to installation, a mock up test area is to be installed to ensure an understanding and proper execution of the correct application of finishes.

3.3.8 To implement this collection of textures, it is recommended that the banding elements are constructed first and finished with a specialized craftsman troweled finish. With the banding areas protected, the field area construction may follow, including the application of the Topcast finishing.

3.3.9 Quality control should be maintained across the adjacent pours of the field areas, while keeping a tight timeline so that panels cure in a cohesive fashion.

3.3.10 Saw cuts and joints are carefully designed and installed. The design aesthetic of large slab unit paving is achieved, but with a solid, heavy duty load rating for bus, truck and loading vehicle traffic, without the risk of paving settlement or shifting.



Figure 8: Vehicular Drive Lane

3.4 Lay-by Parking Zones

Modelled after the lay-by parking areas within the Gore Pedestrianization Initiative, the hardscape within the lay-by parking zone is clearly distinguishable from the hardscape found in the vehicular drive lane, and pedestrian area. Since barrier curbs are not used to separate lay-by parking areas from pedestrian zones, differences in surface treatment techniques are used to differentiate these areas. The trench drain system is carefully positioned within the vehicular zone, and contained within one type of paving (within the bands or fields), typically a visual separator between the parking and drive lanes. For complete details on the application of hardscape treatments in this area, including the application of the trench drain, refer to the detailed drawings and additional specifications located in Appendix A-I at the back of this document.

Lay-by Parking Zones Technical Requirements:

- 3.4.1 The overall design of the hardscape in the lay-by parking areas is modelled after the Pedestrian Promenade from the Gore Pedestrianization Initiative
- 3.4.2 All hardscape features within the lay-by parking zones are constructed using poured concrete and granite pavers to ensure resilience. Concrete is poured at a depth of 250mm and is reinforced using 152x152 wire mesh, and granite pavers (125mm x 250mm x 70mm) are installed on top, and flush with the surrounding concrete bands or approved equivalent.
- 3.4.3 This area is constructed of poured concrete and granite pavers for resilience and its design is a combination of 5000mm wide fields of granite pavers between 1000mm wide smooth finished bands. Accent bands run perpendicular to the built form and all cut lines should be installed in line with cut lines in the vehicular drive lane, shoreline stamp lines, curb cuts, and saw cut

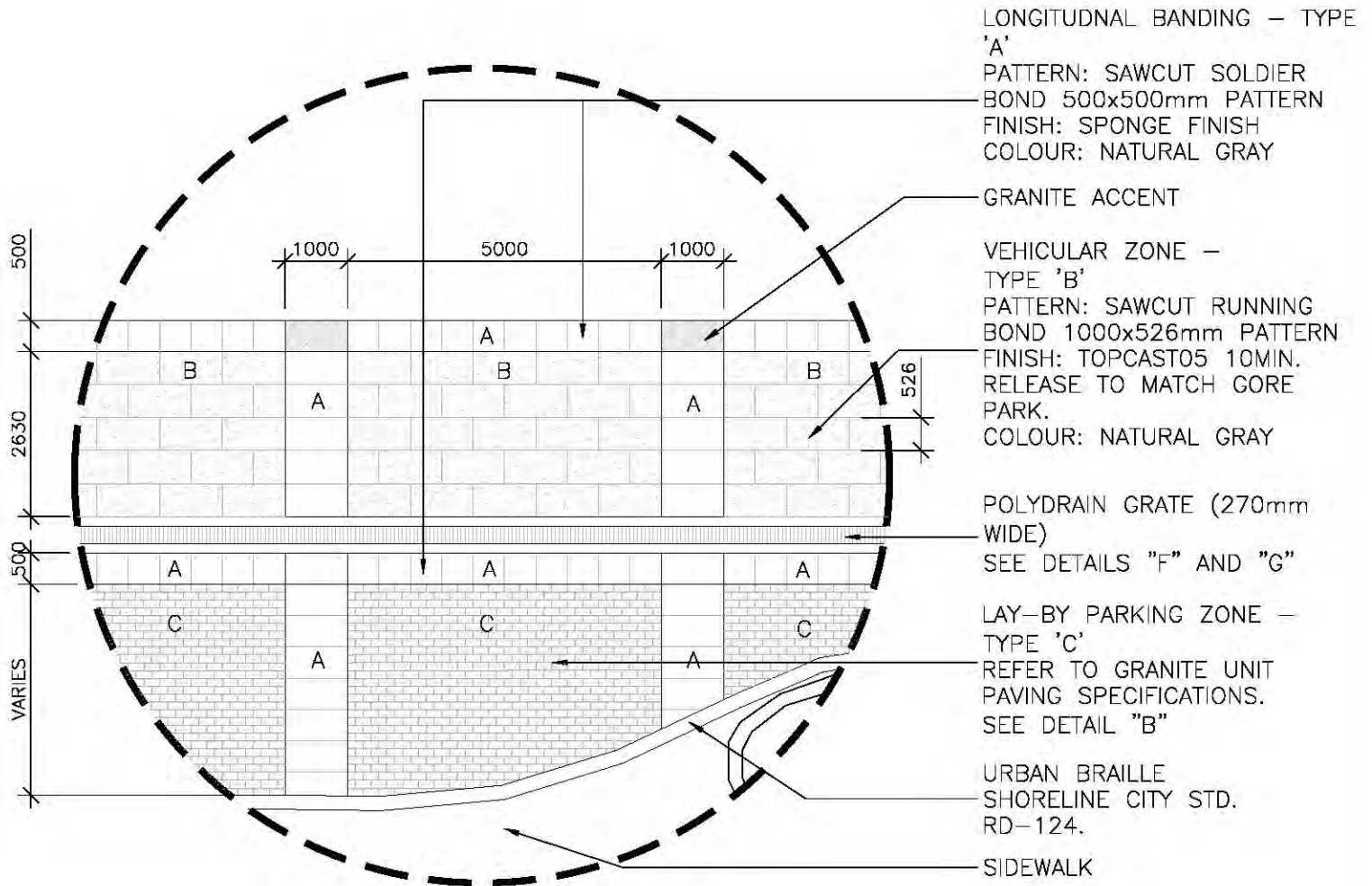
lines in the pedestrian zone. Smooth bands are finished by trowel, and fields are composed of black granite pavers (125mm x 250mm x 70mm) with a flamed finished or approved equivalent.

- 3.4.4 Granite pavers are laid in a running bond pattern parallel to the direction of travel. Longitudinal bands are installed on the side of the lay-by parking lane furthest from the pedestrian zone.
- 3.4.5 Granite paver joints shall be filled using polymeric sand.

Appendix

A





NOTES:

1. ENSURE ALL EXPANSION JOINTS ALIGN WITH SAW CUT PATTERNS WHEREVER POSSIBLE.
2. ENSURE POLYDRAIN CATCHBASIN IS LOCATED ENTIRELY WITHIN ONE PAVING TYPE (TYPE 'A' OR 'B') AND DOES NOT STRADDLE BETWEEN TYPE.
3. ALL EXPANSION & SAW CUT JOINTS TO ALIGN WITH CONCRETE PATTERNING
4. 152x152 WIRE MESH 18.7/18.7 SHALL BE PROVIDED WITHIN ALL TYPE "A", "B" AND "C" CONCRETE POURS.



the mbtw group

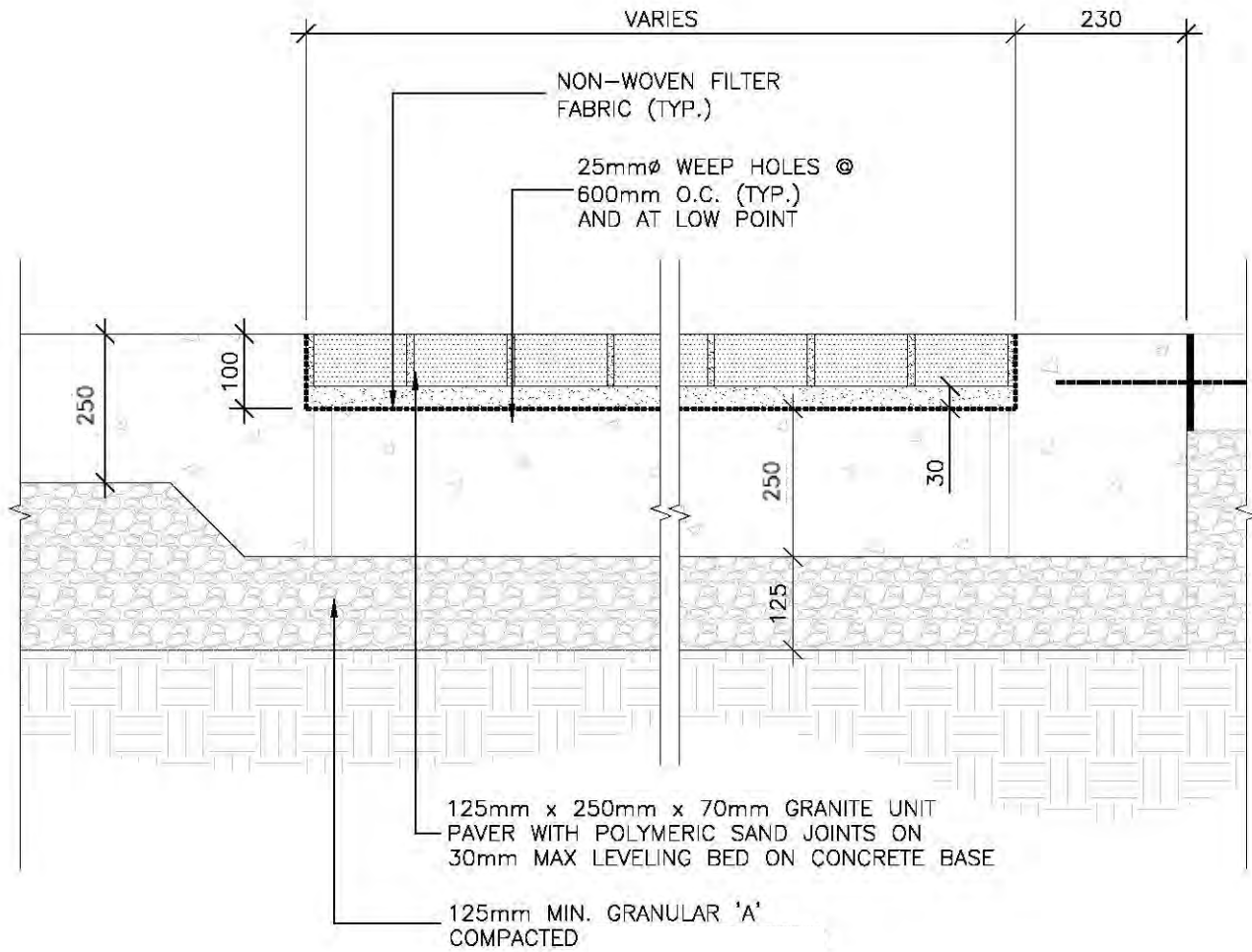
landscape architecture | urban design | design guidance | architecture | golf design | leisure design
 255 Wicksteed Ave., Unit 1A | Toronto, Ontario, Canada M4H 1G8
 T: (416) 449-7767 | F: (416) 449-1803 | www.mbtw-wsl.com

Drawing Title:
SAW-CUT PATTERNING AND CONCRETE FINISHES
 (Promenade) TYPE 'A', 'B' & 'C'

Project Name:
THE GORE STANDARD
 HARDSCAPE DESIGN

Design By / Drawn By:
 METW
 Scale:
 N.T.S.
 Job#
 COH017
 Date:
 March 2018





NOTES:

1. PAVER TO FINISH FLUSH WITH SURROUNDING CONCRETE PAVING.
2. ALL GRANITE TO MATCH IN APPEARANCE AND COLOUR WITH GRANITE USED IN GORE PARK
COLOUR: TO BE BLACK TO MATCH GORE PARK OR APPROVED EQUAL
FINISH: ALL EXPOSED STONE FACES TO BE FLAMED FINISH.
SIZE: 125mm X 250mm X 70mm.
PATTERN: RUNNING BOND PAVER PATTERN PARALLEL TO DIRECTION OF TRAVEL.
3. PROVIDE SAMPLE TO PROJECT MANAGER FOR APPROVAL PRIOR TO INSTALLATION.



the mbtw group

landscape architecture | urban design | design guidance | architecture | golf design | leisure design
 255 Wicksteed Ave., Unit 1A | Toronto, Ontario, Canada M4H 1G8
 T: (416) 449-7767 | F: (416) 449-1803 | www.mbtw-wai.com

Drawing Title:

GRANITE UNIT PAVERS ON CONCRETE BASE
 (Promenade) TYPE C

Project Name:

THE GORE STANDARD
 HARDSCAPE DESIGN

Design By / Drawn By:

METW

Scale:

N.T.S.

Job#

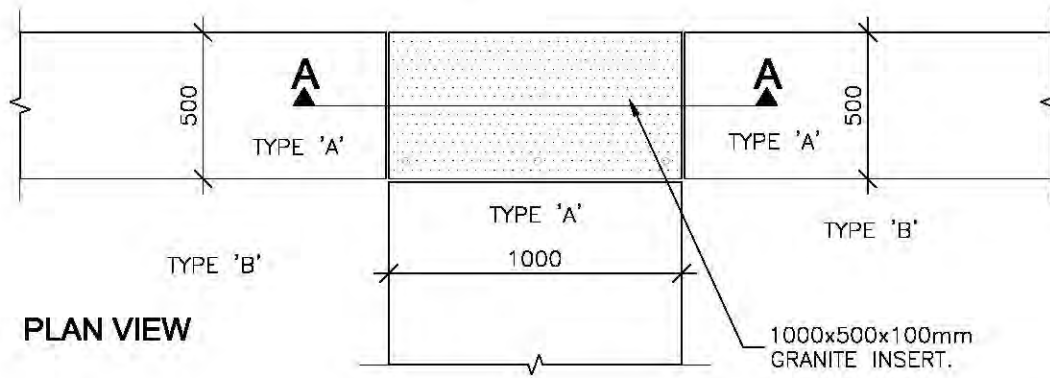
COH017

Date:

March 2018

B

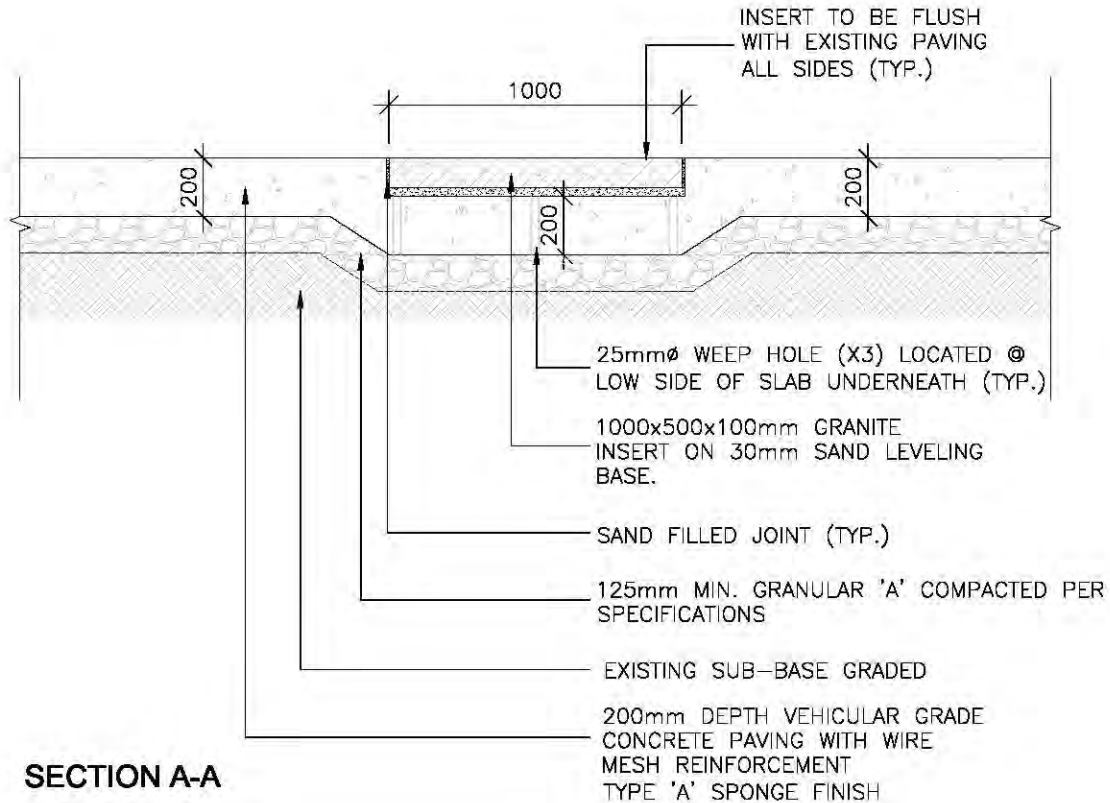
SURFACE VARIES — SEE PLANS



PLAN VIEW

NOTES:

1. GRANITE INSERT TO BE ENGRAVED.
2. PAVER TO FINISH FLUSH WITH SURROUNDING CONCRETE PAVING.
3. ALL GRANITE TO MATCH IN APPEARANCE AND COLOUR WITH GRANITE USED IN GORE PARK.
COLOUR: TO BE BLACK TO MATCH GORE PARK
FINISH: ALL EXPOSED STONE FACES TO BE FLAMED FINISH.
SIZE: 1000x500x100mm.
4. PROVIDE SAMPLE TO PROJECT MANAGER FOR APPROVAL PRIOR TO INSTALLATION.



SECTION A-A



the mbtw group

landscape architecture | urban design | design guidance | architecture | golf design | leisure design
 255 Wicksteed Ave., Unit 1A | Toronto, Ontario, Canada M4H 1G8
 T: (416) 449-7767 | F: (416) 449-1803 | www.mbtw-wai.com

Drawing Title:

GRANITE INSERT DETAIL
 (Promenade)

Project Name:

THE GORE STANDARD
 HARDSCAPE DESIGN

Design By / Drawn By:

MBTW

Scale:

N.T.S.

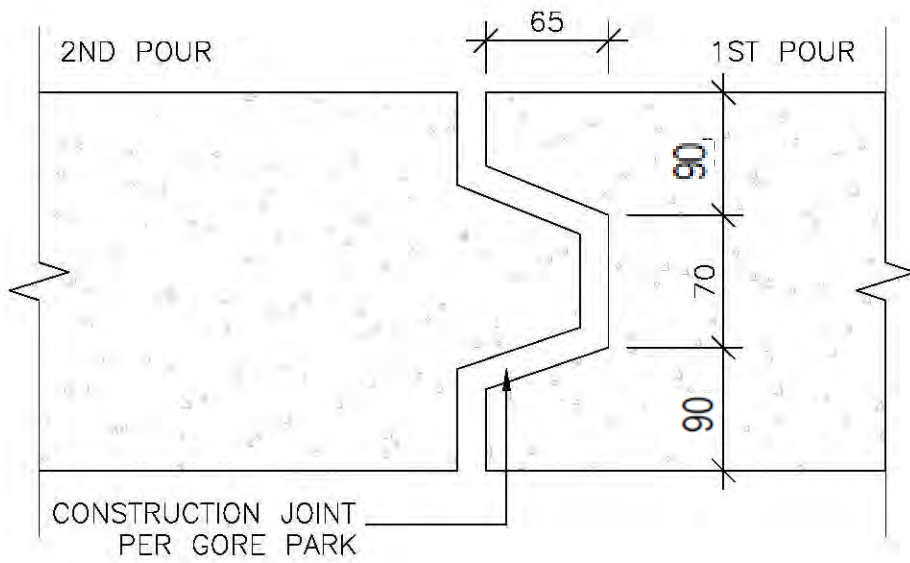
Job#

COH017

Date:

March 2018

C



the mbtw group

landscape architecture | urban design | design guidance | architecture | golf design | leisure design
 255 Wicksteed Ave., Unit 1A | Toronto, Ontario, Canada M4H 1G8
 T: (416) 449-7767 | F: (416) 449-1803 | www.mbtw-wai.com

Drawing Title:

CONSTRUCTION JOINT

Project Name:

**THE GORE STANDARD
 HARDSCAPE DESIGN**

Design By / Drawn By:

MBTW

Scale:

N.T.S.

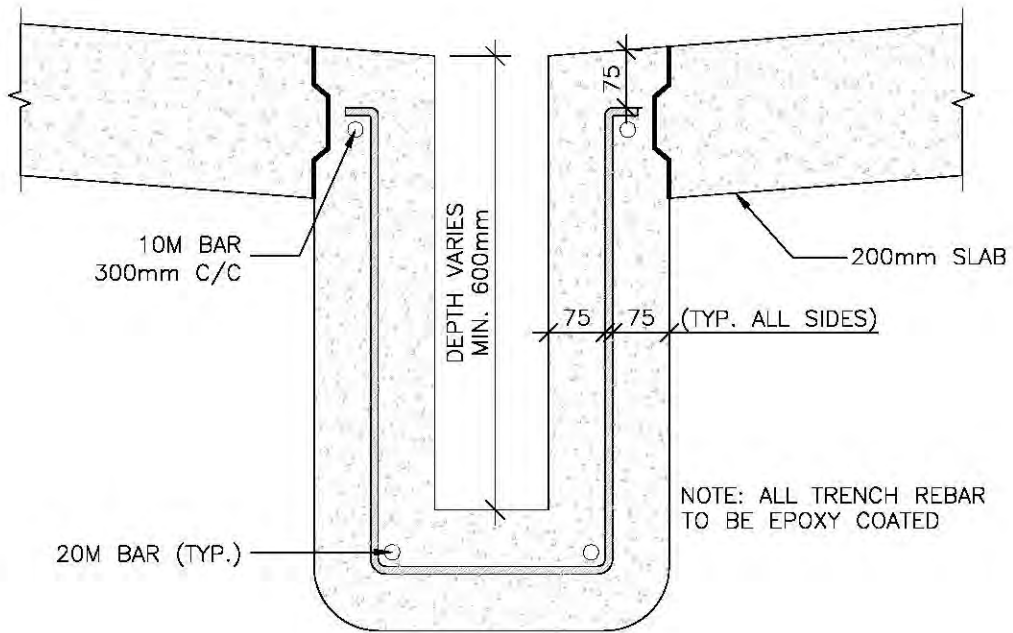
Job#

COH017

Date:

March 2018

D



the mbtw group

landscape architecture | urban design | design guidance | architecture | golf design | leisure design
255 Wicksteed Ave., Unit 1A | Toronto, Ontario, Canada M4H 1G8
T: (416) 449-7767 | F: (416) 449-1803 | www.mbtw-wai.com

Drawing Title:

REINFORCING DETAIL FOR DRAIN

Project Name:

**THE GORE STANDARD
HARDSCAPE DESIGN**

Design By / Drawn By:

MBTW

Scale:

N.T.S

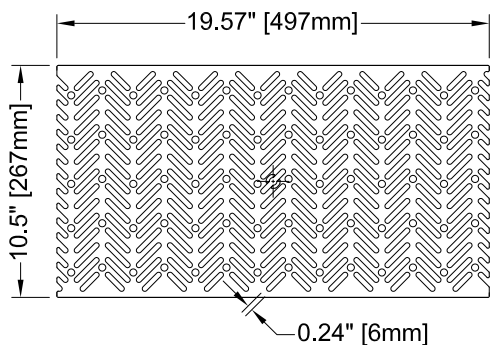
Job#

COH017

Date:

March 2018

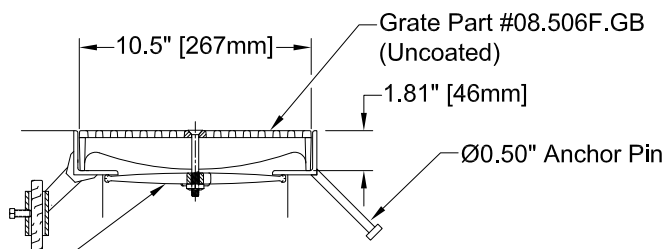
E



GRATE TOP VIEW
(ROTATED 90°)

Plan Notes

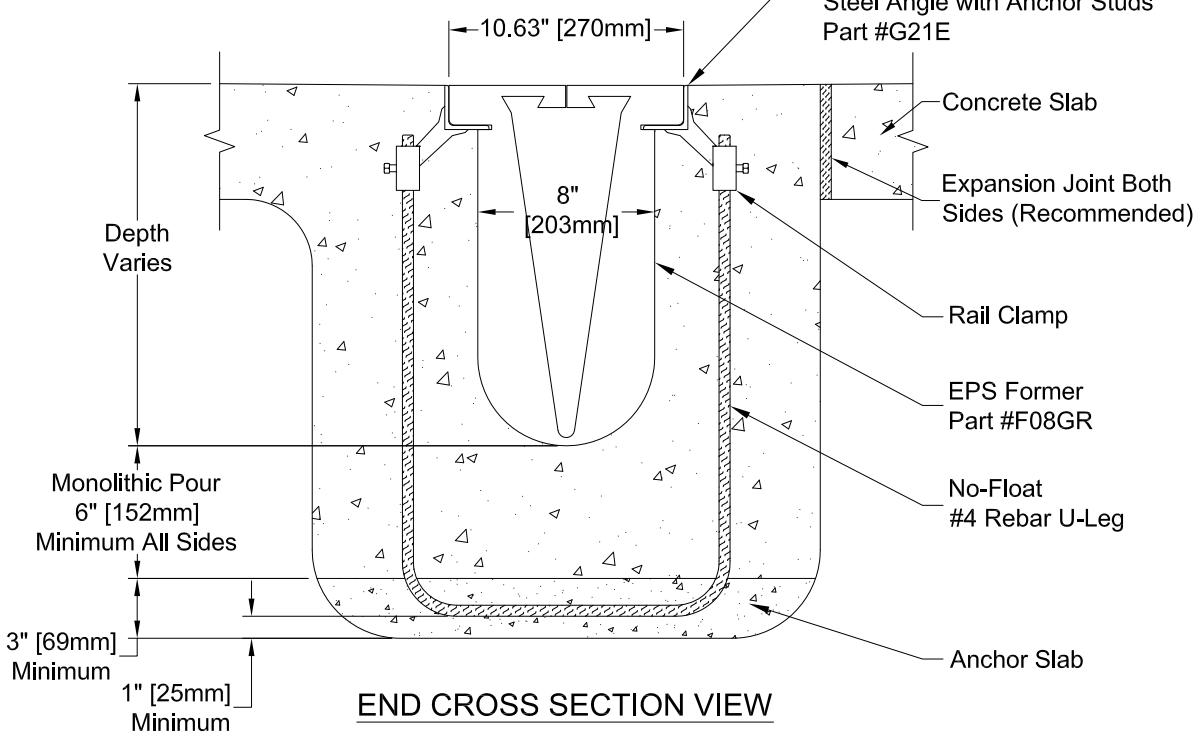
1. Series Number: TR08-08.506F.GB-G21E
2. Grates:
 - Ductile Iron per ASTM A536-84 Grade 80-55-06 (Uncoated)
 - Open Area: 0.299 FT² per Lineal Foot [0.091 M² per Lineal Meter]
 - Load Rating: 1235 PSI (AASHTO M-306 Test Method)
 - Made in the USA
2. Form Release: Non-Petroleum Based
3. Concrete: Concrete Thickness and Reinforcement per Structural Engineer's Specification for the Application.



GRATE END VIEW

Hold Down Device
Part #R08.5

2" X 2" X 0.19"
[50.8mm X 50.8mm X 3mm]
Black Epoxy Coated
Steel Angle with Anchor Studs
Part #G21E



END CROSS SECTION VIEW

Copyright © 2011 ABT, Inc.



P.O. BOX 837, 259 MURDOCK ROAD
TROUTMAN, NC 28166
(704) 528-9806

**TFX 08 - 8" [203mm] ID Trench Former® System with
E-Coated Frame & Uncoated Ductile Iron Grate (HD Heel Proof / ADA)**

SERIES:

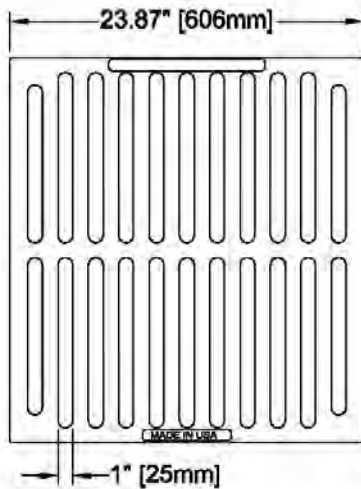
TR08-08.506F.GB-G21E

REV: 00

Proprietary rights of ABT, Inc. are included in the information disclosed herein. The recipient, by accepting this document, agrees that neither this document nor the information disclosed herein nor any part thereof shall be copied, reproduced or transferred to others for manufacturing or for any other purpose except as specifically authorized in writing by ABT, Inc.

DISCLAIMER: The customer and the customer's architects, engineers, consultants and other professionals are completely responsible for the selection, installation, and maintenance of any product purchased from ABT, and EXCEPT AS EXPRESSLY PROVIDED IN ABT'S STANDARD WARRANTIES, ABT MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE SUITABILITY, DESIGN, MERCHANTABILITY, OR FITNESS OF THE PRODUCT FOR CUSTOMER'S APPLICATION. Copies of ABT's standard warranties are available upon request.





GRATE TOP VIEW
(ROTATED 90°)

Plan Notes

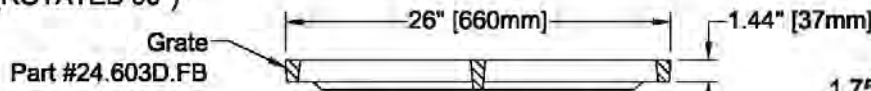
Series Number: TR24-24.603D.FB-F20E

1. Grates:

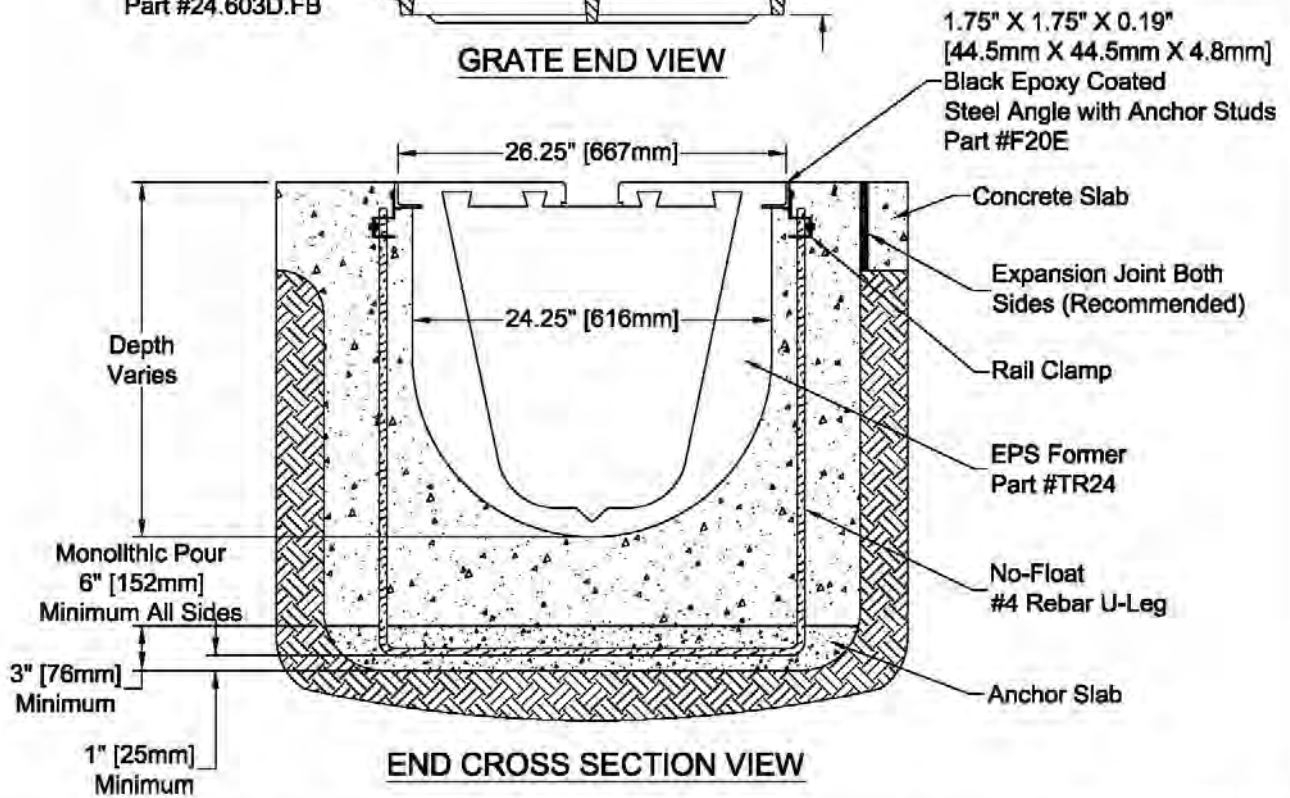
- Cast Gray Iron per ASTM A48 Class 35-B (Uncoated)
- Open Area: 0.9 FT² per Lineal Foot [0.27 M² per Lineal Meter]
- Load Rating: 494 PSI (AASHTO M-306 Test Method)
- Made in the USA

2. Form Release: Non-Petroleum Based

3. Concrete: Concrete Thickness and Reinforcement per Structural Engineer's Specification for the Application.



GRATE END VIEW



END CROSS SECTION VIEW

Copyright © 2010 ABT, Inc.

ABT, INC.
P.O. BOX 837, 259 MURDOCK ROAD
TROUTMAN, NC 28166
(704) 528-8806

**TFX24 - 24" [609mm] ID Trench Former® System
with Standard Slotted Grate**

SERIES:

TR24-24.603D.FB-F20E

REV: **01**

Proprietary rights of ABT, Inc. are included in the information disclosed herein. The recipient, by accepting this document, agrees that neither this document nor the information disclosed herein nor any part thereof shall be copied, reproduced or transferred to others for manufacturing or for any other purpose except as specifically authorized in writing by ABT, Inc.

DISCLAIMER: The customer and the customer's architects, engineers, consultants and other professionals are completely responsible for the selection, installation, and maintenance of any product purchased from ABT, and EXCEPT AS EXPRESSLY PROVIDED IN ABT'S STANDARD WARRANTIES, ABT MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE SUITABILITY, DESIGN, MERCHANTABILITY, OR FITNESS OF THE PRODUCT FOR CUSTOMER'S APPLICATION. Copies of ABT's standard warranties are available upon request.



Surface Design:

On King Street the following treatments shall be applied:

- Urban Braille sidewalk adjacent to the south property line
- 500mm Type A banding¹
- Trench drain in 570mm wide concrete area
- 2630mm wide installation of Type B consisting of five rows 526mm wide
- 500mm Type A banding directly adjacent to the guideway curb
- Guideway incorporating a continuous longitudinal modular trench system
- Variable width amenity zone
- Urban Braille sidewalk adjacent to the north property line

Note 1 - Within the Type A banding supplemental pedestrian lighting poles, bollards and banner poles shall be provided at 6m alternating pattern and be installed per the manufacturer's recommendations.

Pedestrian Lighting Poles and Banner poles shall be StressCrete KS15-G-E11 s/f K5 & BA c/ w DR Sheridan concrete pole complete with an Eclipse Black lightly etched finish. Poles shall have a 9" flared tip dimension with a 7" OD ring suitable for a pole top fixture mount, weigh 985 lbs., and shall be constructed to withstand overturning moments created by wind loads on the

Only two piece steel molds shall be used in the manufacturing process. Where underground utility conflicts preclude the direct burial of the poles and bollards a footing detail signed and stamped by a Professional Engineer licensed in the Province of Ontario shall be provided to the City for acceptance.

<http://www.stresscretegroup.com/Products/Concrete-Poles/Decorative-Concrete-Poles/The-Sheridan.aspx>

Non-Illuminated Bollards shall be per:

<http://www.stresscretegroup.com/Products/Bollards/Concrete-Bollards/The-Sheridan-KL-C-SH.aspx>

Modular Trench System:

All surface drainage from the sidewalk(s), lay-by parking zones, amenity and vehicular zones shall be directed to a continuous longitudinal Modular Trench System located along the south edge of the vehicular zone.

The Modular Trench Systems shall be concrete encased in a monolithic concrete including wire mesh reinforcement, be manufactured by ABT, Inc. and as per the provided figures or approved equivalent.

Pre-cast trench shall be manufactured using polyester polymer concrete consisting of pre-sloped channels with 200mm nominal inside width with trapezoidal bottom and a minimum depth of 600mm.

Trench system cover shall consist of heel proof ductile iron grates, grates to be epoxy coated to match colour, finish and pattern of the existing trench grates and in the the existing pedestrianized section of the south leg of King Street Phase 1 (Veterans' Place Park).

Shop drawings signed and stamped by a Professional Engineer licensed in the Province of Ontario shall be provided to the City for acceptance.

Granite Pavers:

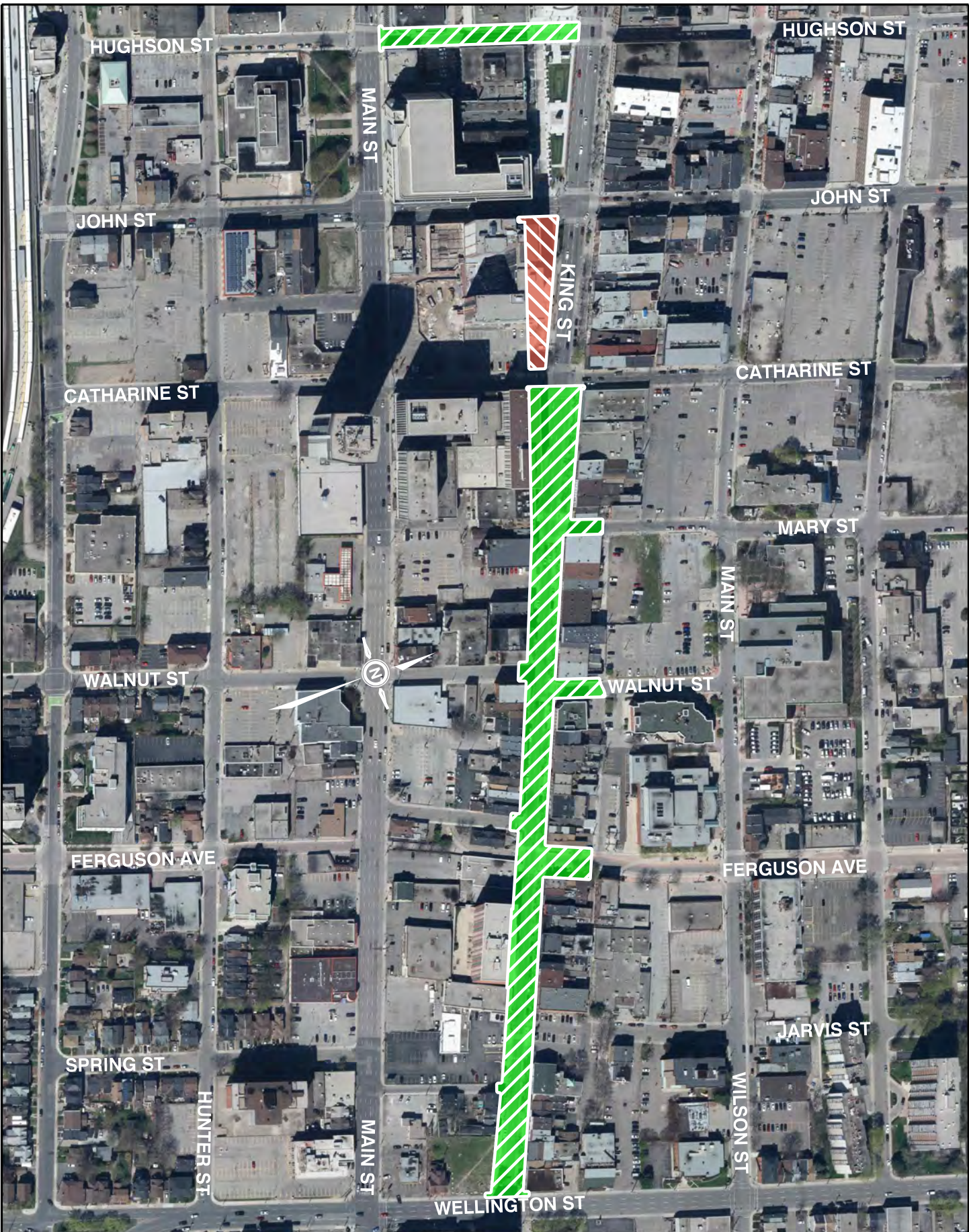
Granite Pavers and inserts shall be provided by Sanicol Stone and shall match match colour, finish and dimensions of the existing Granite Pavers and inserts in the the existing pedestrianized section of the south leg of King Street Phase 1 (Veterans' Place Park). Granite pavers shall be provided within lay-by parking zones and amenity areas.

Amenity Areas (all locations in the corridor):

Such amenity areas shall consist of 150mm coloured exposed aggregate concrete, (Nuss Brown, 902045, Dufferin) on a 150mm layer of compacted Granular A.

Sidewalks (all locations in the corridor):

Where a sidewalk is provided adjacent to the guideway, amenity area and/or curb and gutter these elements are to include a 50mm key behind their back edge to support the sidewalk. Where a sidewalk is adjacent to a modular trench system it shall be keyed in per Figure E. Sidewalks are not to be secured to any adjacent feature with doweling.



GORE STANDARD LIMITS (ProjectCo)



GORE STANDARD LIMITS (Others)





mbtw  wai

255 Wicksteed Avenue, Unit 1A

Toronto, Ontario, Canada M4H 1G8

T 416.449.7767

F 416.449.1803

www.mbtw-wai.com



This document is printed on recycled paper.