ANNEX 5

PERMANENT RESTORATION CRITERIA WITHIN A PUBLIC RIGHT-OF-WAY

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Background

The City of Markham Roads Department, as the owners of all City Road Assets, have often been involved in providing restoration feedback to other internal departments whose contractors have been undertaking construction which disturbs the surface of a right-of-way; prior to acceptance of the restoration.

Purpose

The purpose of this document is to outline situational examples of restoration criteria in order to set a precedent for all internal departments and their contractors to follow. This would assist in mitigating any issues related to current restoration practices where a company or contractor has excavated, broken up or otherwise disturbed the surface or structural integrity of a right-of-way for the purpose of any type of utility or infrastructure works.

Notes

The following criteria outlined within this document refer to restoration requirements and are applicable to all construction activities undertaken within the City Right-of-Way.

- The City of Markham is not responsible for maintenance or replacement of driveway aprons.
- All examples of trench restoration below shall be completed in accordance with City of Markham Standard Drawings MR36A and MR36B.
- Any concrete curb restoration shall be in accordance with all relevant City of Markham Standard Drawings, OPSS.MUNI 353 and any relevant OPSD's based on the type of curb to be reinstated.
- Any concrete sidewalk restoration shall be in accordance with all relevant City of Markham Standard Drawings, OPSS.MUNI 351 and any relevant OPSD's.
- User Department shall verify and ensure that all standards are met.
- The practice of keyhole or borehole coring and reinstatement of the core within a roadway is not preferred within the City of Markham. The practice will only be approved on a case-by-case basis at the sole discretion of the City's Operations Department and in accordance with all applicable City Standards.
- The practice of keyhole/borehole coring within a sidewalk shall be completed in accordance with Section 16 – Concrete Sidewalk Restoration of this document (Page 24).
- All restoration criteria imply a restoration to similar or better condition than original.
- Exceptions to restoration requirements as specified within this document, may be made at the sole discretion of the City's Operations Department, based on resurfacing works scheduled to take place in the following year.

- Roads that have been resurfaced within the last five (5) years are under moratorium. Road cuts will not be permitted on any road listed under moratorium, unless required for emergency purposes, essential utility works, or approved service connection works.

- Any situational example not covered in this document, will be assessed on a case-by-case basis and restored in accordance with the Engineering Standards.

- Should a road cut be made on a curbside lane where a bicycle lane is present, restoration shall be in accordance with the situational examples below, and be inclusive of the bicycle lane.

Definitions

(a) Contractor – The term “Contractor” refers to the person(s) or business responsible for undertaking the work as described.

(b) Longitudinally – The term “Longitudinally” as utilized within this document, refers to any form of measurement running lengthwise rather than across.

(c) Trench - The term “Trench” refers to any type or size of excavation as a result of utility or construction works.

(d) Road Cut – The term “Road Cut” refers to any type of excavation in the surface of a road or right of way for the purpose of installing, maintaining, removing, or otherwise daylighting and accessing any type of underground or at grade proposed or existing utility infrastructure.

(e) Sidewalk Bay – The term “Sidewalk Bay” refers to the area of concrete sidewalk between two transverse joints, regardless of the type of joint.

(f) Depressed Curb – The term “Depressed Curb” refers to the portion of concrete curb that ramps down to provide access for vehicular or pedestrian traffic to driveways, pedestrian sidewalk ramps, etc.

(g) Lane – The term “Lane” as utilized within this document, refers to a vehicular lane that is a marked section of a road that allows a single line of vehicles to travel in the same direction. Lanes are separated from other lanes by painted lines or other markers that provide delineation.

(h) Bicycle Lane – The term “Bicycle Lane” as utilized within this document, refers to:

(a) a portion of a roadway that has been designated by pavement markings or signage for the preferential or exclusive use of cyclists, or
(b) a portion of a roadway that has been designated for the exclusive use of cyclists by signage and a physical or marked buffer.

(i) Emergency – The term “Emergency” as utilized within this document, refers to an unforeseen situation or condition that requires immediate attention to ensure public safety, prevent further damage, or restore essential traffic flow.

(j) Standard Typical Materials for Driveways – The term “Standard Typical Materials for Driveways” as utilized within this document, refers to commonly used, straightforward materials installed in a conventional manner that do not require specialized techniques or extensive customization. These materials typically include asphalt, and interlocking pavers. Asphalt driveways are made by laying and compacting a layer of hot asphalt. Interlocking pavers involve placing individual blocks or stones in a specific pattern to create a solid, stable surface. These materials are considered standard because their installation is relatively simple, cost-effective, and generally requires less labour and time compared to non-standard materials for driveways.

(k) Non-Standard Materials for Driveways – The term “Non-Standard Materials for Driveways” as utilized within this document, refers to materials that require additional preparation, specialized tools, custom designs, or the inclusion of components that go beyond conventional installation methods. The installation of these materials typically involves more intricate processes, custom design work, and can be more time-consuming and costly than standard driveway materials, as they demand specialized techniques and often require additional expertise and resources.

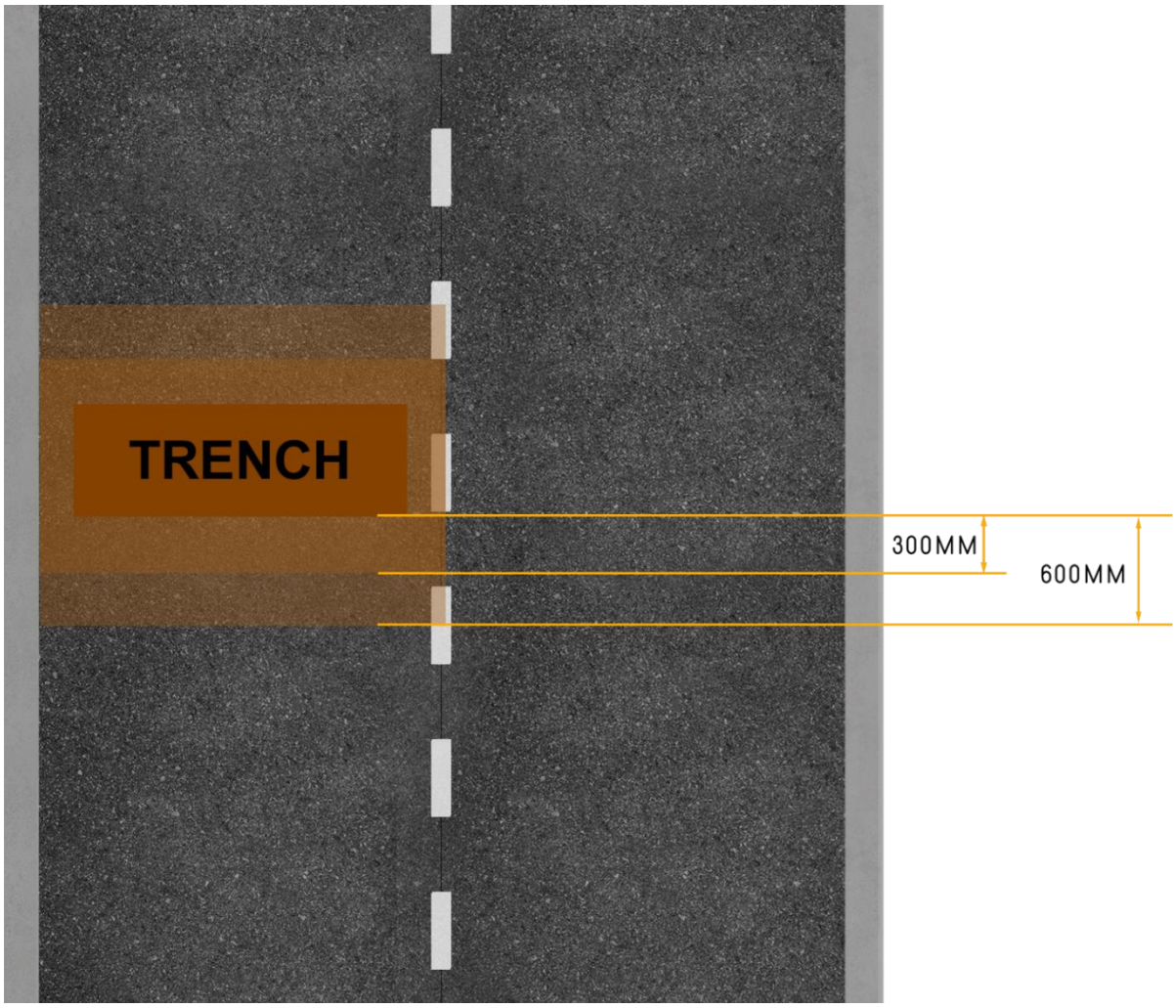
These materials typically include but are not limited to:

- Concrete
- Stamped and/or coloured concrete
- Natural stone
- Specialty interlocking pavers (i.e. grass pavers)
- Other decorative styles
- Driveways containing electrical or plumbing components (i.e. lighting, heating systems, sprinkler systems, etc.)

1. Road Restoration – Single Trench / Single Lane

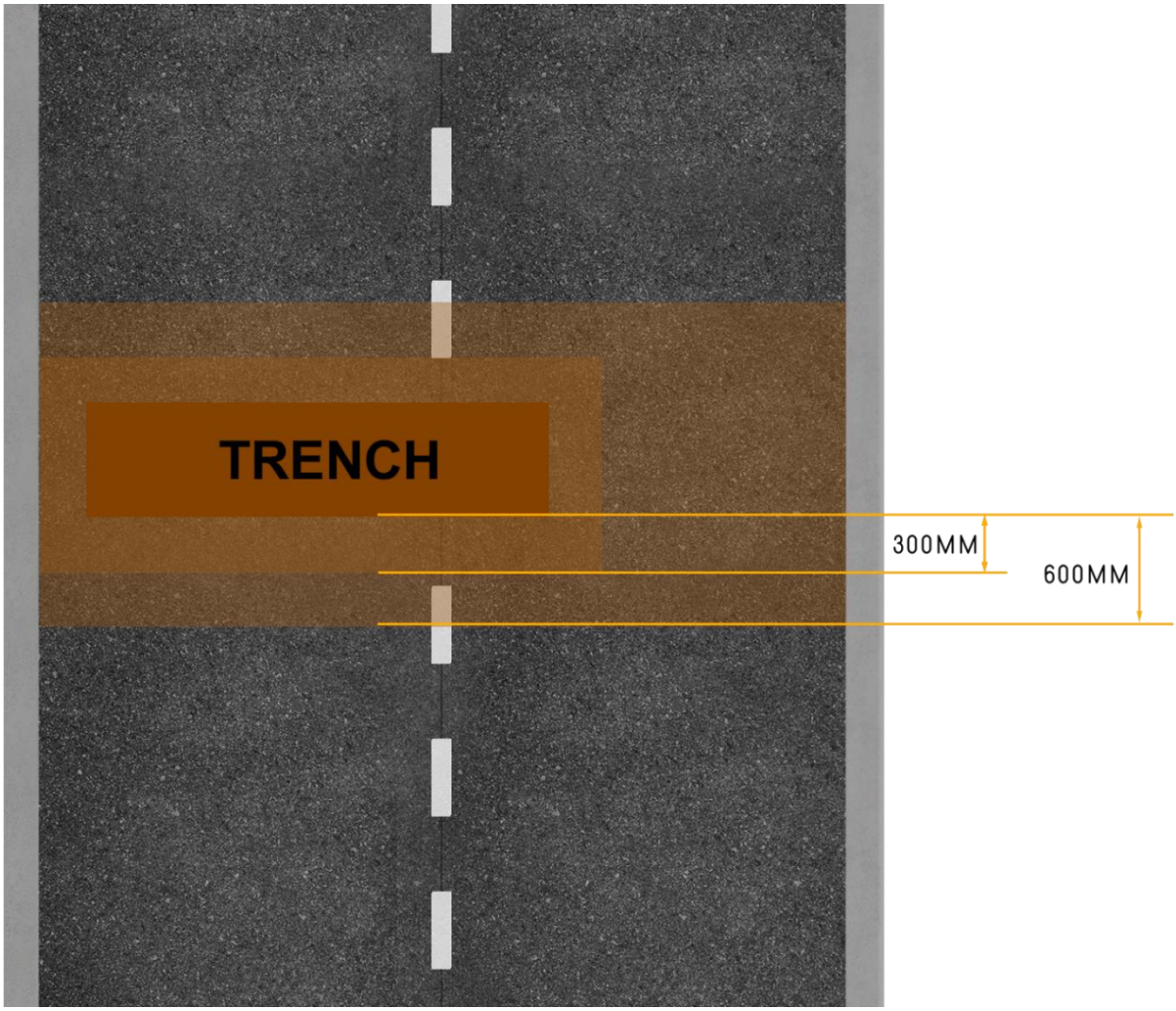
In the event there is only one (1) road cut and the limits of the disturbed area are only within one (1) lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.) to 600 mm beyond the limits of the cut, in either direction longitudinally. All repairs shall include the restoration of all affected roadway markings.

** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 2 - Single Trench / Multi Lane. **



2. Road Restoration – Single Trench / Multi Lane

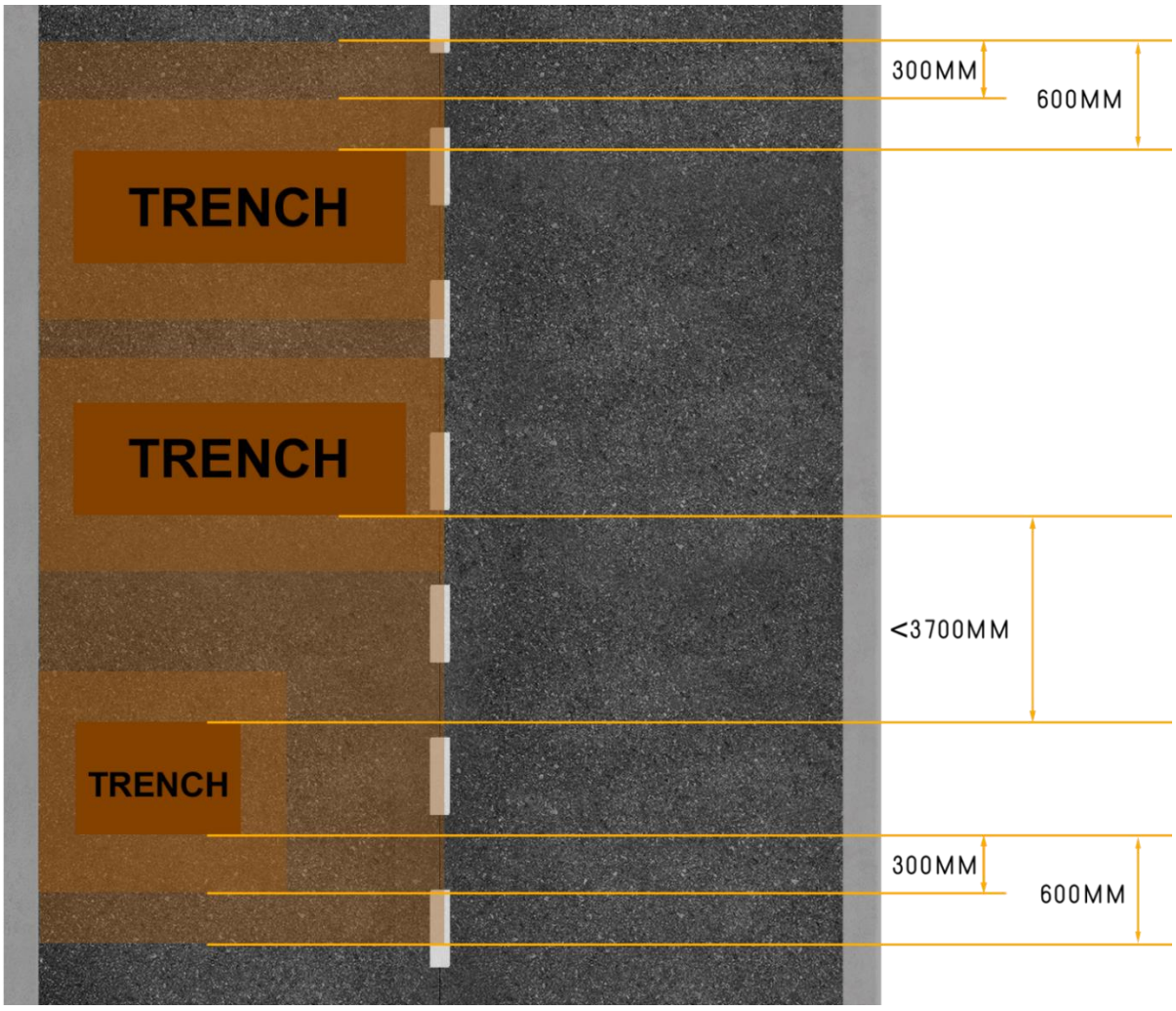
In the event there is only one (1) road cut and the limits of the disturbed area crosses over multiple lanes of traffic or over the centerline into the adjacent lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Curb for 2-Lane Road, Curb to Centerline for 4-Lane Road, etc.) to 600 mm beyond the limits of the cut, in either direction longitudinally. All repairs shall include the restoration of all affected roadway markings.



3. Road Restoration – Multi Trench / Single Lane (Scenario 1 – Trenches < 3700 mm Apart)

In the event there are multiple road cuts and the limits of the disturbed areas are only within one (1) lane of traffic and the trenches are within 3700 mm of each other, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.) encapsulating all of the areas disturbed by that specific contractor, to 600 mm beyond the limits of the cuts, in either direction longitudinally. All repairs shall include the restoration of all affected roadway markings.

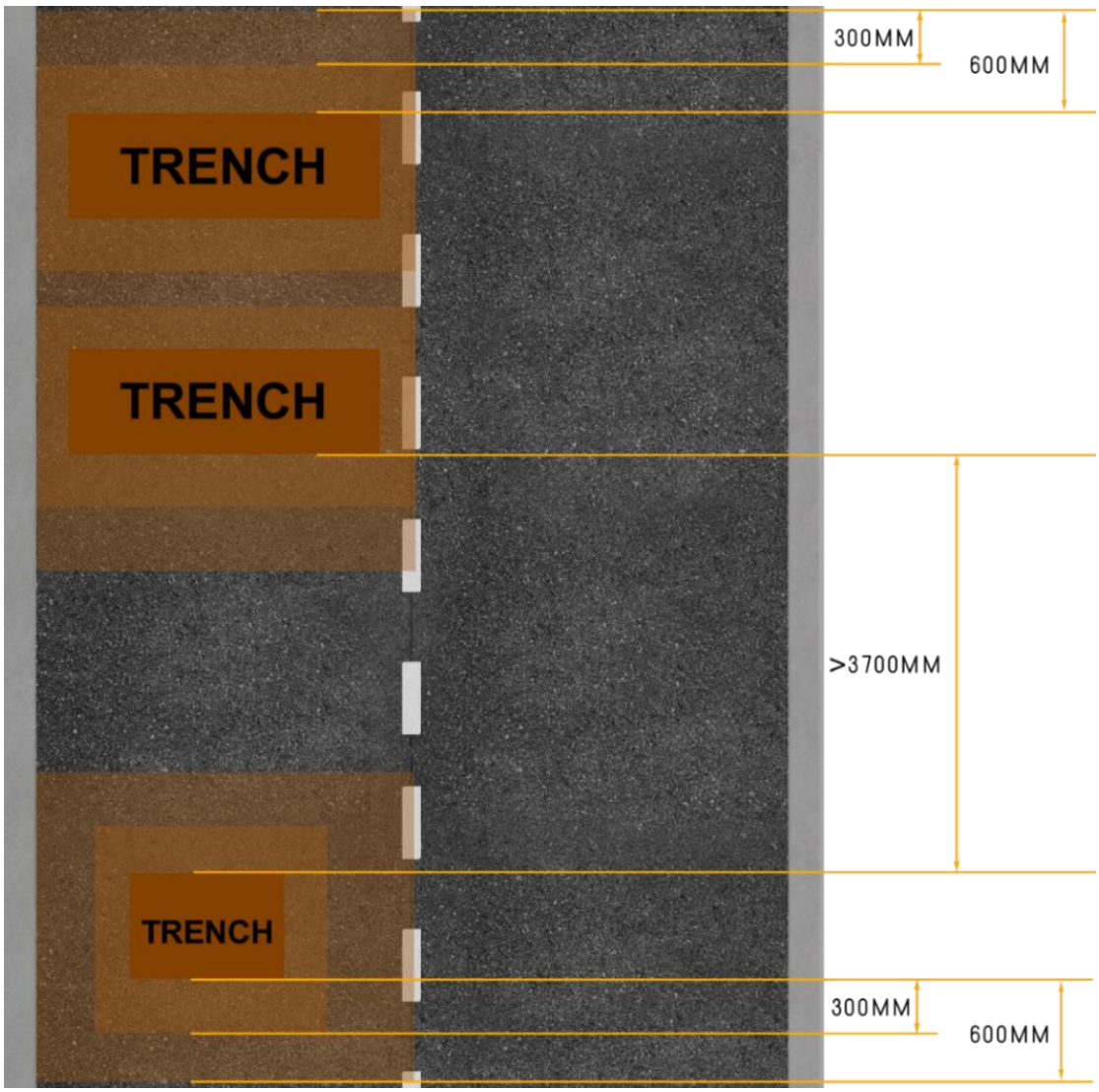
** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 2 - Single Trench/Multi Lane or Section 5 - Multi Trench / Multi Lane (Scenario 1) **



4. Road Restoration – Multi Trench / Single Lane (Scenario 2 – Trenches > 3700 mm Apart)

In the event there are multiple road cuts and the limits of the disturbed areas are only within one (1) lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.). This repair shall encapsulate all of the areas disturbed by that specific contractor where the trenches are closer than 3700 mm to each other; to 600 mm beyond the limits of the trenches, in either direction longitudinally. The trench that is more than 3700 mm away from the others shall be treated as separate and repaired in accordance with Section 1 – Single Trench / Single Lane. All repairs shall include the restoration of all affected roadway markings.

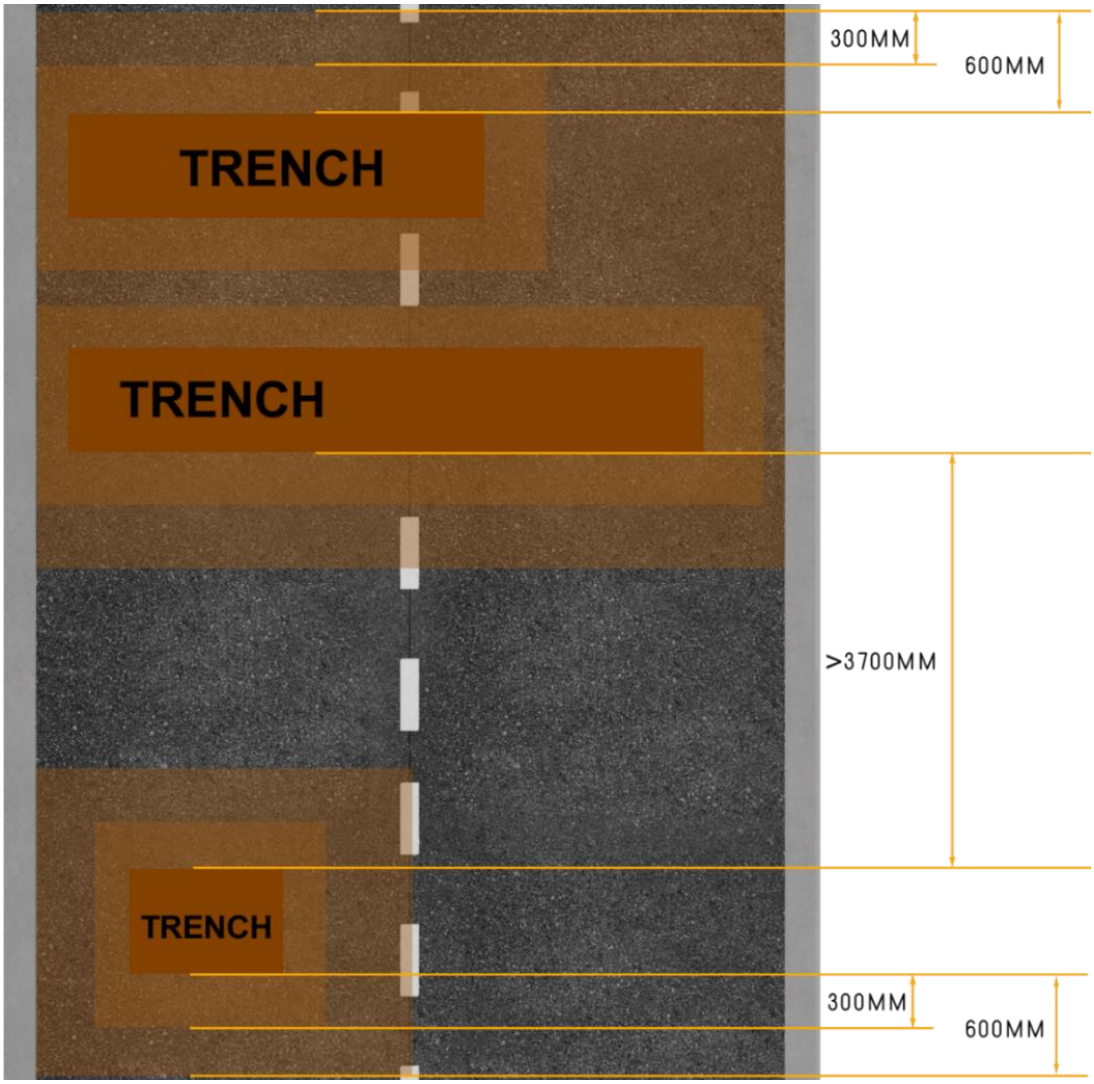
** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 2 - Single Trench / Multi Lane or Section 5 - Multi Trench / Multi Lane (Scenario 1) **



5. Road Restoration – Multi Trench / Multi Lane (Scenario 1)

In the event there are multiple road cuts and the limits of the disturbed areas stretch across multiple lanes of traffic including the opposing direction, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Curb for 2-Lane Road, Curb to Centerline for 4-Lane Road, etc.) for any trenches closer than 3700 mm to each other. This repair shall encapsulate all the areas disturbed by that specific contractor to 600 mm beyond the limits of the cuts, in either direction longitudinally. A trench that is more than 3700 mm away from the others in the same lane of traffic, shall be treated as separate and repaired in accordance with Section 1 – Single Trench / Single Lane. All repairs shall include the restoration of all affected roadway markings.

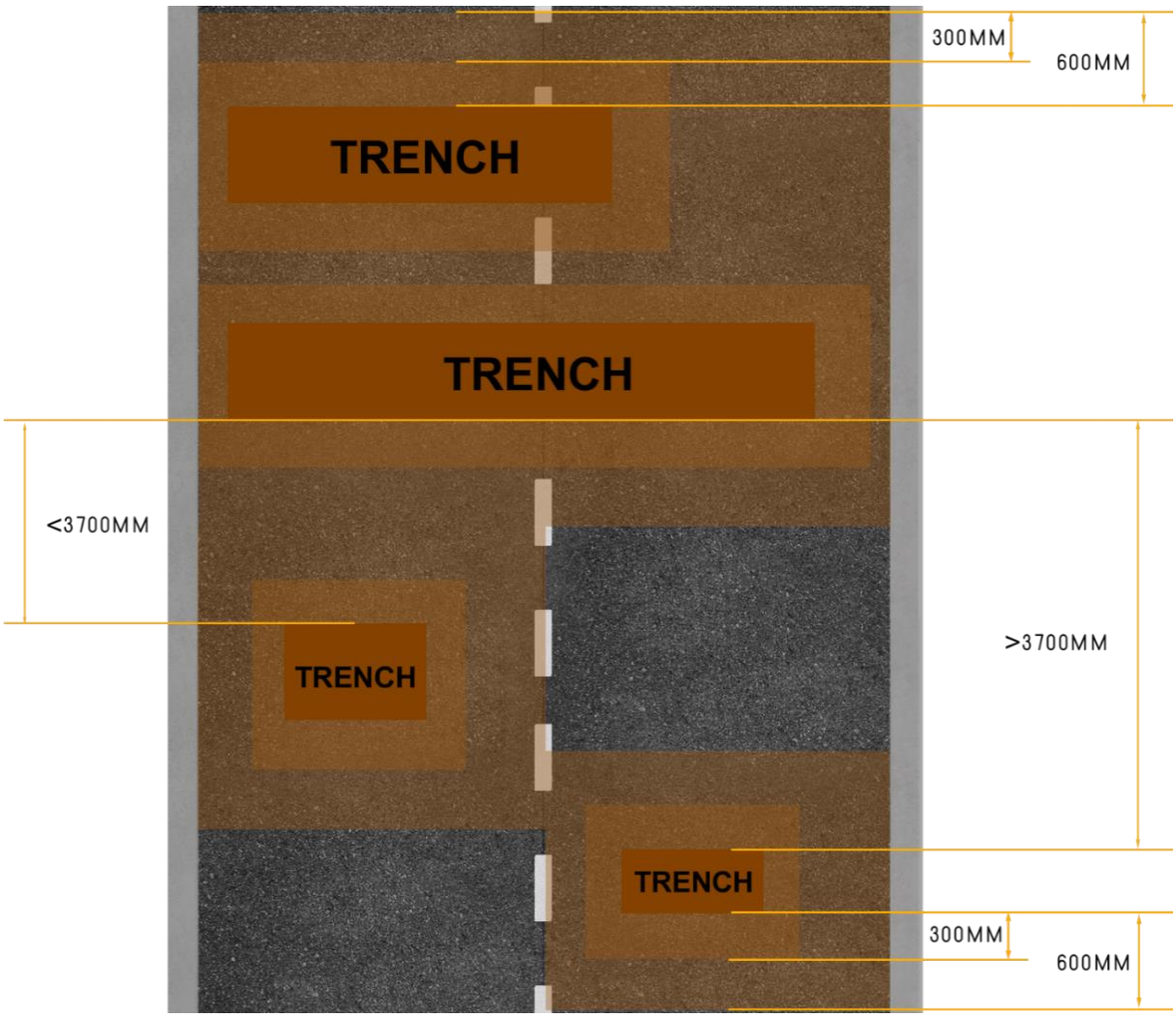
** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 2 - Single Trench / Multi Lane or Section 5 - Multi Trench / Multi Lane (Scenario 1) **



6. Road Restoration – Multi Trench / Multi Lane (Scenario 2)

In the event there are multiple road cuts and the limits of the disturbed areas stretch across multiple lanes of traffic including the opposing direction, the contractor shall restore the surface course asphalt to the entire width of the impacted lane(s) (i.e. Curb to Curb for 2-Lane Road, Curb to Centerline for 4-Lane Road, etc.) for any trenches closer than 3700 mm to each other. This repair shall encapsulate all the areas disturbed by that specific contractor to 600 mm beyond the limits of the cuts, in either direction longitudinally. The trench that is more than 3700 mm away from the others in the same lane of traffic, shall be treated as separate and repaired in accordance with Section 1 – Single Trench / Single Lane. All repairs shall include the restoration of all affected roadway markings.

** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 2 - Single Trench / Multi Lane or Section 5 - Multi Trench / Multi Lane (Scenario 1) **

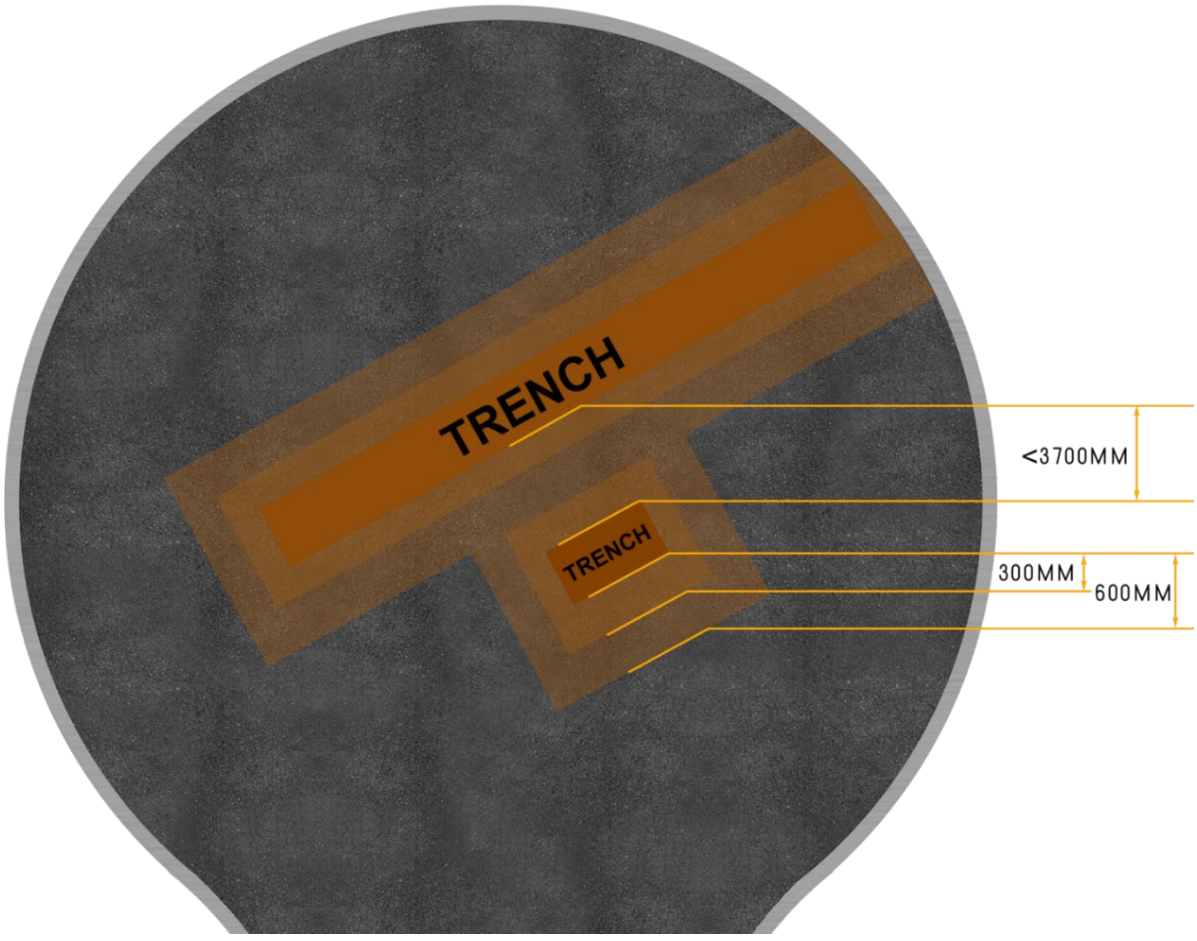


7. Road Restoration – Cul-de-Sac's

In the event there are road cuts, and the limits of the disturbed areas are within a cul-de-sac, the contractor shall restore the asphalt for each trench in accordance with City of Markham Standard Drawing MR36.

- If there are multiple road cuts, and the trenches are within 3700 mm of each other, the surface course asphalt repair shall be combined to create one singular asphalt patch, as shown below.
- If there are multiple road cuts, and the trenches are greater than 3700 mm apart, the repairs shall be completed individually in accordance with City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.

** If the limits of any trench come within 1000 mm of the concrete curb, the surface course asphalt repair shall extend to the curb. **

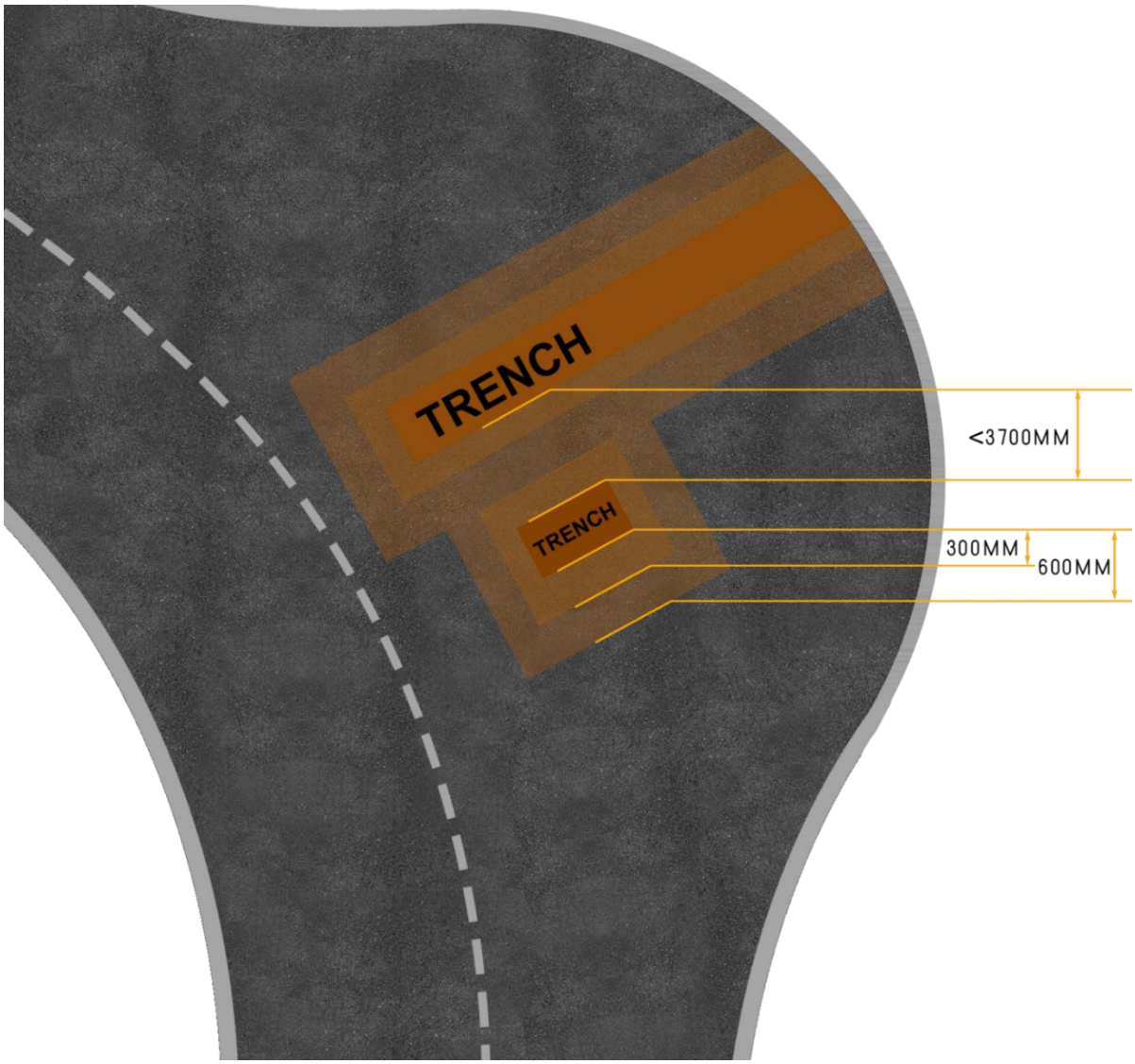


8. Road Restoration – Wide Bend Corner

In the event there are road cuts, and the limits of the disturbed areas are located on a wide bend corner, the contractor shall restore the asphalt for each trench in accordance with City of Markham Standard Drawing MR36.

- If there are multiple road cuts, and the trenches are within 3700 mm of each other, the surface course asphalt repair shall be combined to create one singular asphalt patch, as shown below.
- If the there are multiple road cuts, and the trenches are greater than 3700 mm apart, the repairs shall be completed individually in accordance with City of Markham Standard Drawing MR36 and shall include the restoration of all affected roadway markings.

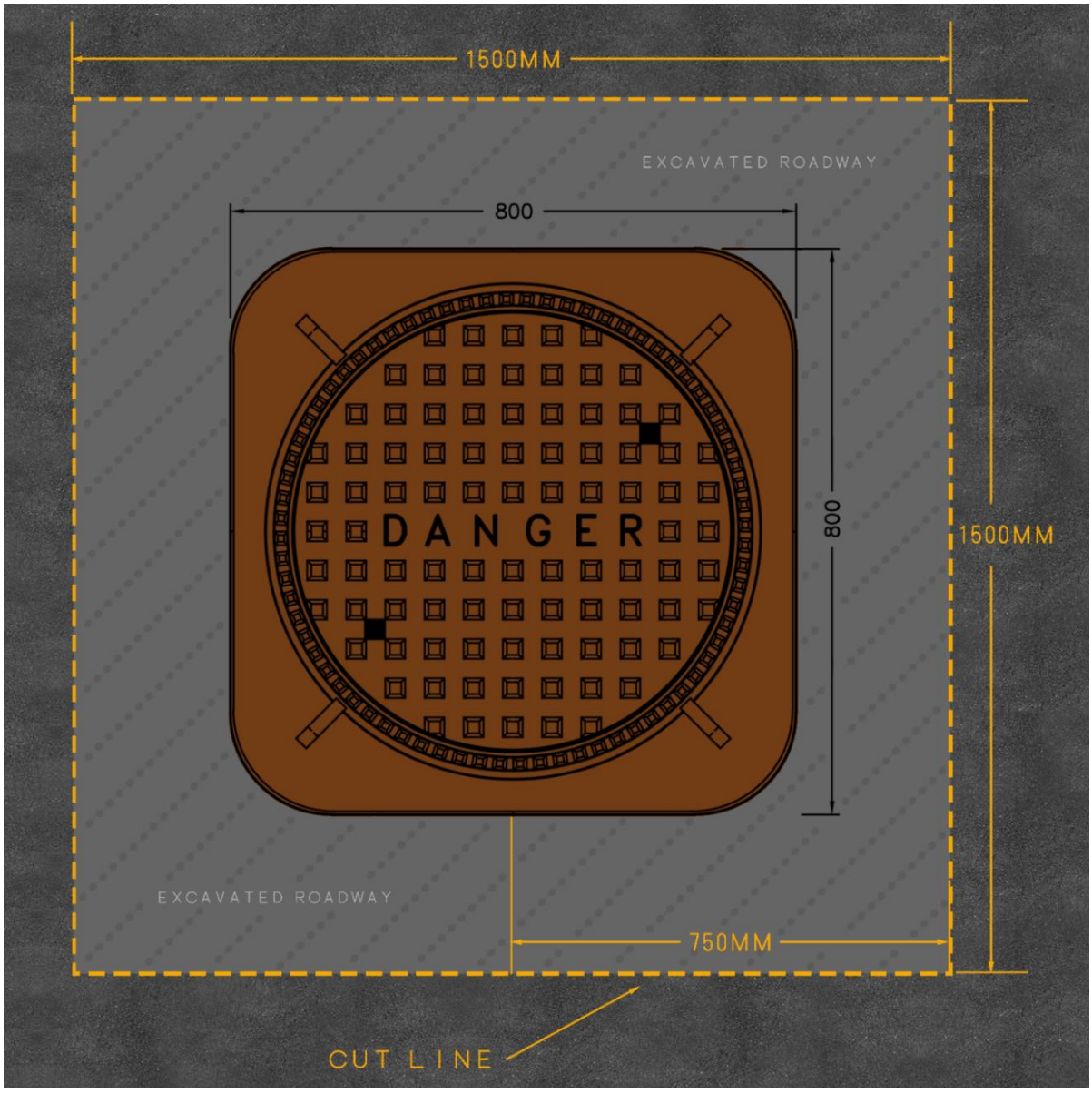
** If the limits of any trench come within 1000 mm of the concrete curb, the surface course asphalt repair shall extend to the curb. **



9. Road Restoration – Maintenance Hole Adjustments / Repairs

In the event that a maintenance hole is in need of adjustment or repair within the roadway, the contractor shall adhere to the following criteria when excavating and restoring the asphalt roadway. Excavation cuts around a maintenance hole shall be 1500 mm by 1500 mm square and shall be cut by means of a saw in order to create a defined vertical edge. Asphalt Restoration shall match existing surrounding asphalt, and shall include the restoration of all affected roadway markings.

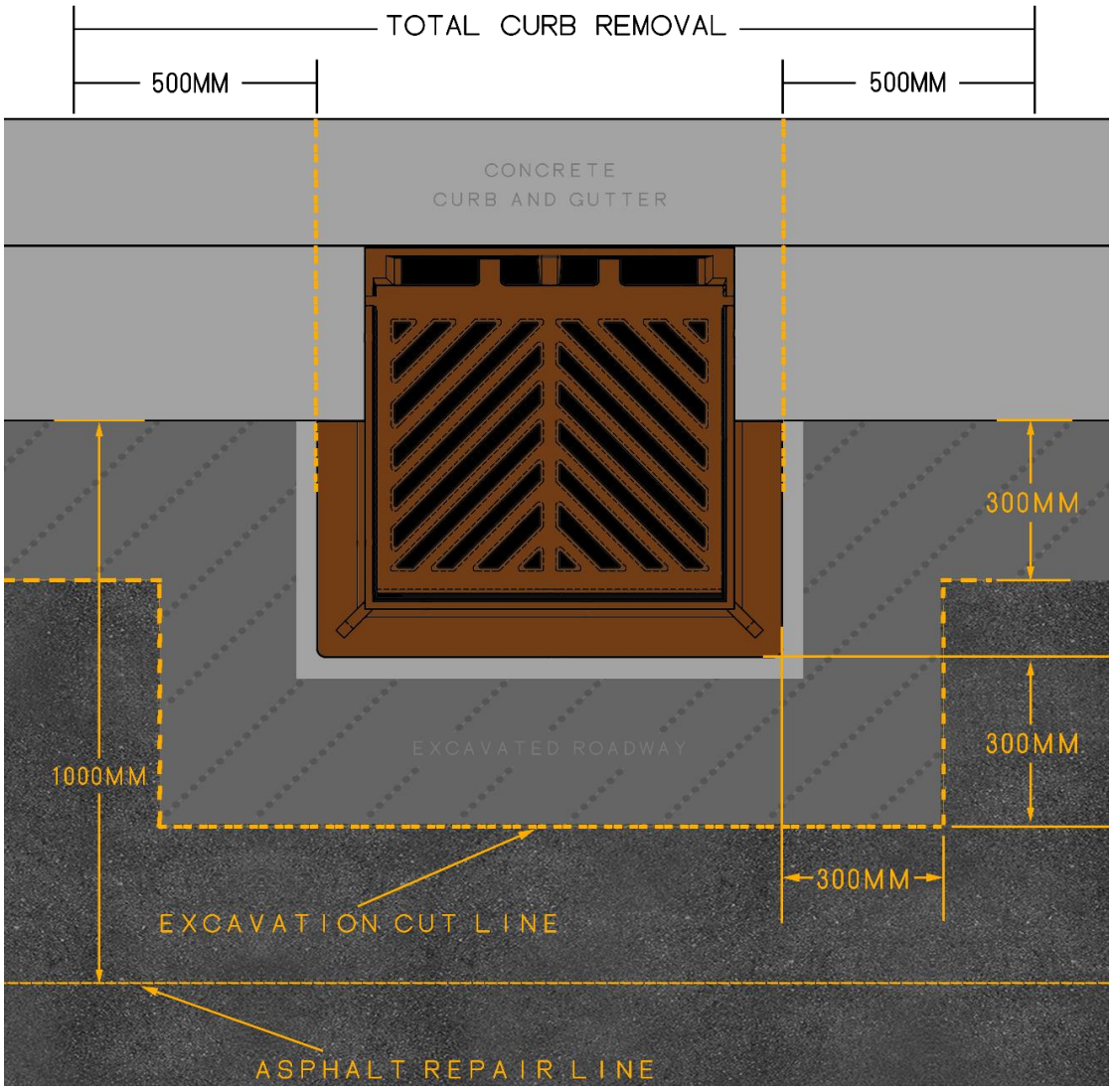
This repair shall be completed in accordance with all relevant Ontario Provincial Standard Drawings and Specifications as well as the City of Markham Standard Drawing MS6 – Manhole and Catch Basin Adjustment Units.



10. Road Restoration – Single Catch Basin Adjustments / Repairs

In the event that a catch basin is in need of adjustment or repair within the roadway, the contractor shall adhere to the following criteria when excavating and restoring the asphalt roadway and curb. Excavation cuts around a catch basin shall extend 300 mm out from the curb or catch basin lid and frame, and shall be cut by means of a saw in order to create a defined vertical edge. Minimum curb removed and replaced for a catch basin repair shall be the total distance from the outside edge(s) of the catch basin frame(s), plus 500 mm on either side. Restoration of the excavated area of roadway shall match existing, and shall include the restoration of all affected roadway markings. Surface course asphalt restoration shall consist of a 1000 mm wide cold-milled patch extending out from the curb / gutter, for the entire length of disturbed area and in accordance with Section 12 – Asphalt Patch – Cold Milling.

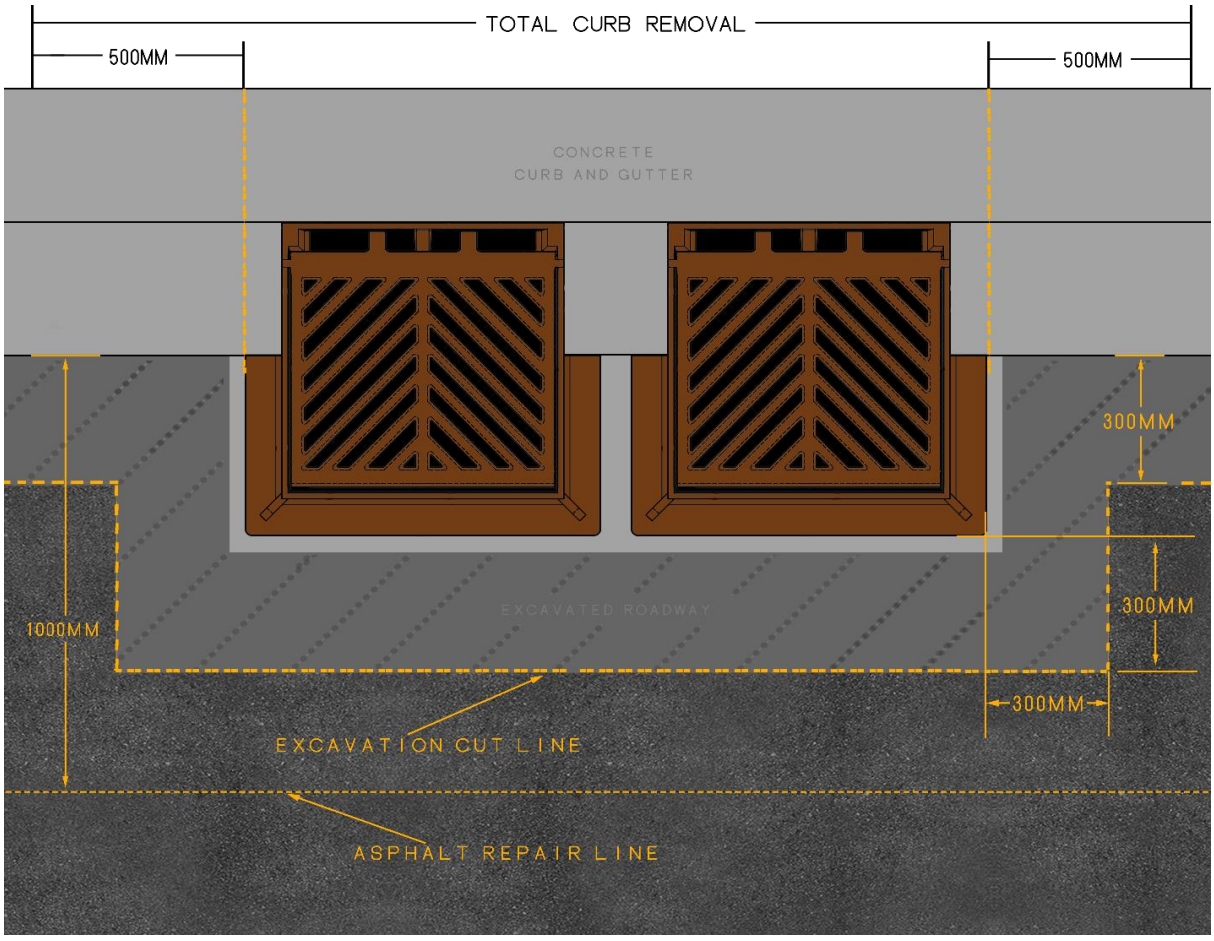
This repair shall be completed in accordance with all relevant Ontario Provincial Standard Drawings and Specifications as well as the City of Markham Standard Drawing MS6B – Manhole and Catch Basin Adjustment Units.



11. Road Restoration – Double Catch Basin Adjustments / Repairs

In the event that a double catch basin is in need of adjustment or repair within the roadway, the contractor shall adhere to the following criteria when excavating and restoring the asphalt roadway and curb. Excavation cuts around a catch basin shall extend 300 mm out from the curb or catch basin frame, and shall be cut by means of a saw in order to create a defined vertical edge. Minimum curb removed and replaced for a catch basin repair shall be the total distance from the outside edge(s) of the catch basin frame(s), plus 500 mm on either side. Restoration of the excavated area of roadway shall match existing, and shall include the restoration of all affected roadway markings. Surface course asphalt restoration shall consist of a 1000 mm wide cold-milled patch extending out from the curb / gutter, for the entire length of disturbed area and in accordance with Section 12 – Asphalt Patch – Cold Milling.

This repair shall be completed in accordance with all relevant Ontario Provincial Standard Drawings and Specifications as well as the City of Markham Standard Drawing MS6B – Manhole and Catch Basin Adjustment Units.



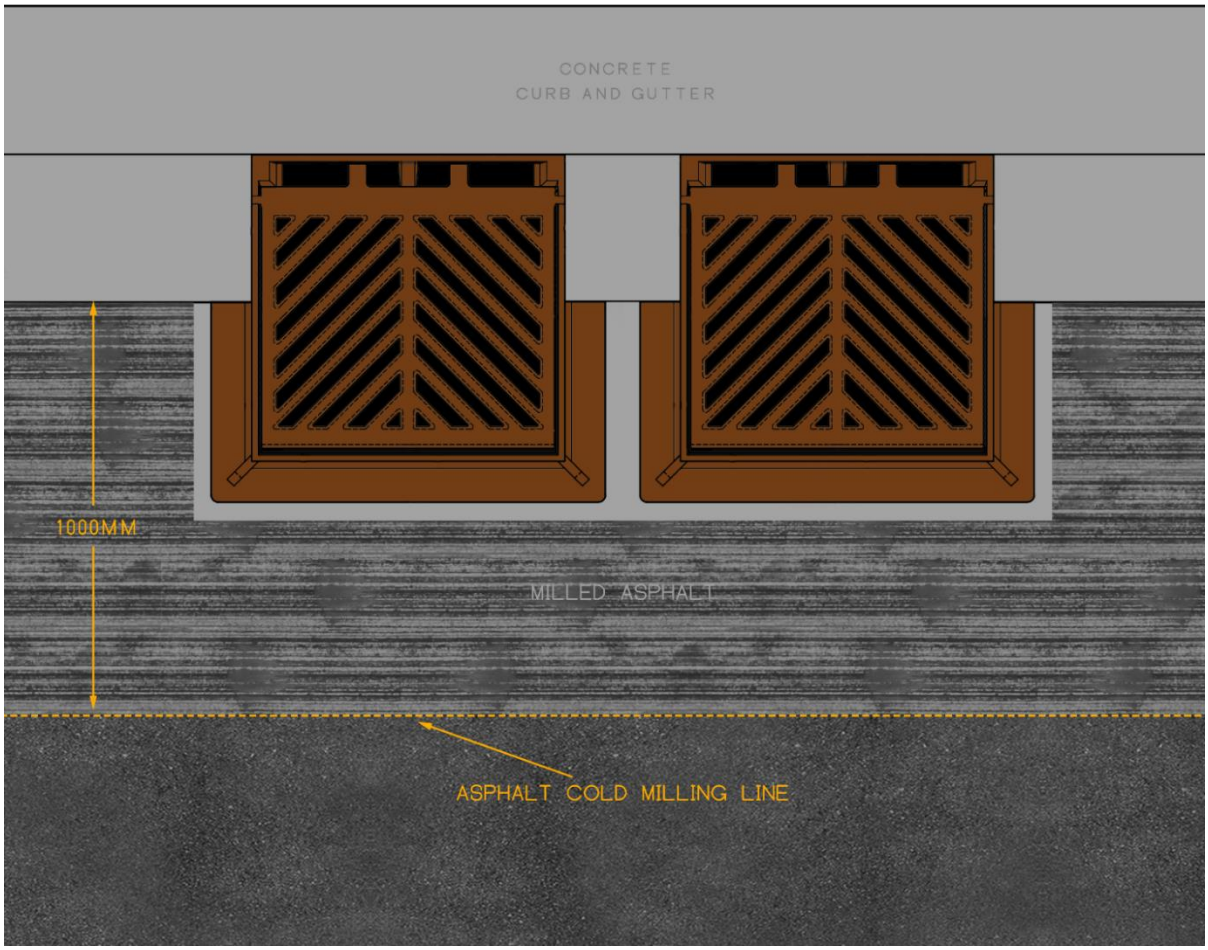
12. Asphalt Patch – Cold Milling

Curb Repair

In the event that a surface course asphalt patch is required along the curb, the existing asphalt shall be cold-milled to a minimum depth of 40 mm and shall extend a minimum of 1000 mm out from the edge of curb / gutter. Any asphalt patch required as a result of curb repair, shall extend to the limits of the new curb. All sides of cold-milled asphalt patches shall be milled to create defined vertical edges.

Trench Works

Any asphalt patch required as a result of trench works within the roadway, shall be completed in accordance with the appropriate situational example above in tandem with City of Markham Standard Drawing MR36.



13. Concrete Curb Restoration – Trench Works

If there are any trench works undertaken which compromise the compaction of the base underneath concrete curb resulting in the failure of the linear infrastructure, the contractor shall remove and restore the affected section of failing curb to the extent of the final surface course asphalt repair of the trench (600 mm beyond the edge of the trench), in either direction.

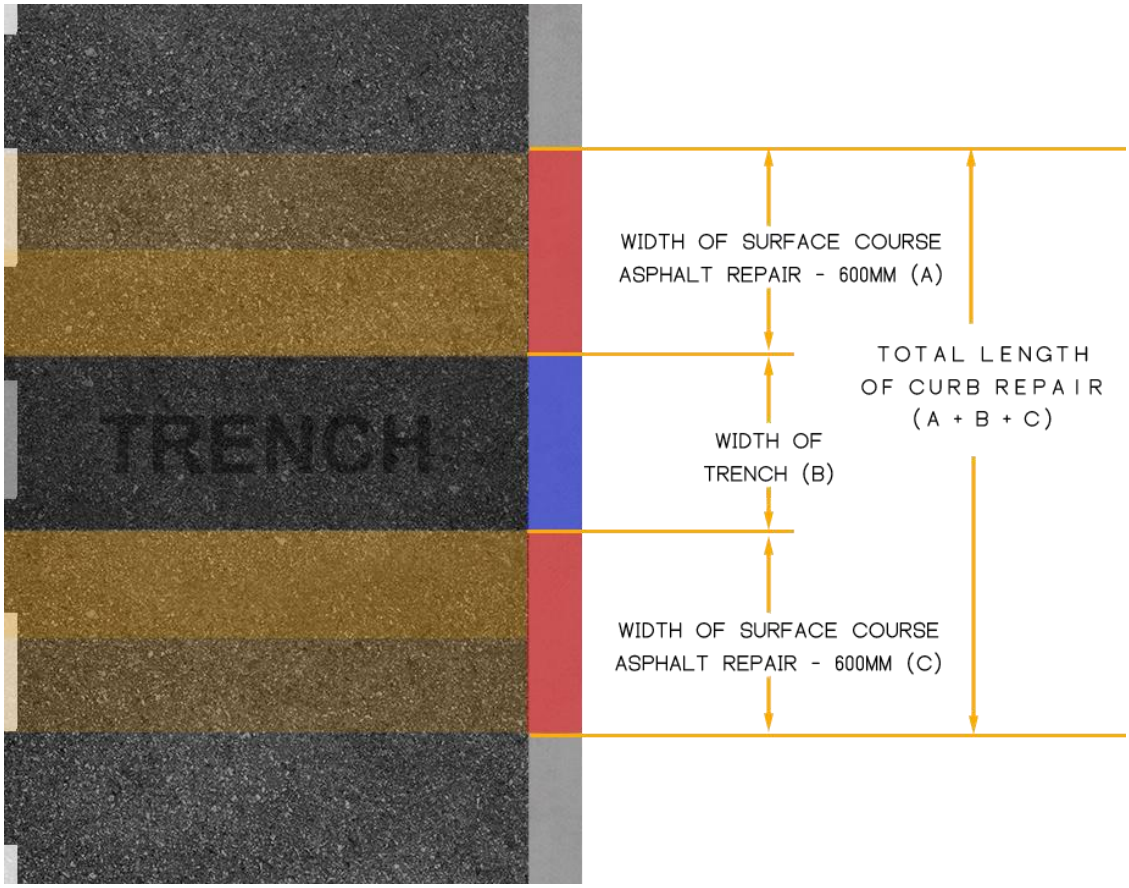
If the damaged curb extends beyond the extent of the surface course asphalt repair, the contractor must extend their repair to ensure that all damaged curb is repaired in accordance with Section 14 – Concrete Curb Restoration – No Trench Works.

If there is a control joint in the existing curb and it is within 1000 mm of the new curb repair, the contractor must extend their repair to the control joint.

Restoration of concrete curb, as well as any affected section of boulevard shall be in accordance with all appropriate City and Provincial Design Standards and shall be restored to similar or better condition.

** Concrete works shall be completed before any asphalt restoration in the roadway. **

Any asphalt restoration as a part of curb replacement due to road trenches, shall be completed in accordance with the appropriate City of Markham Standard Drawing, as well as any relevant situational example within this document depending on the number of trenches and their proximity to each other.

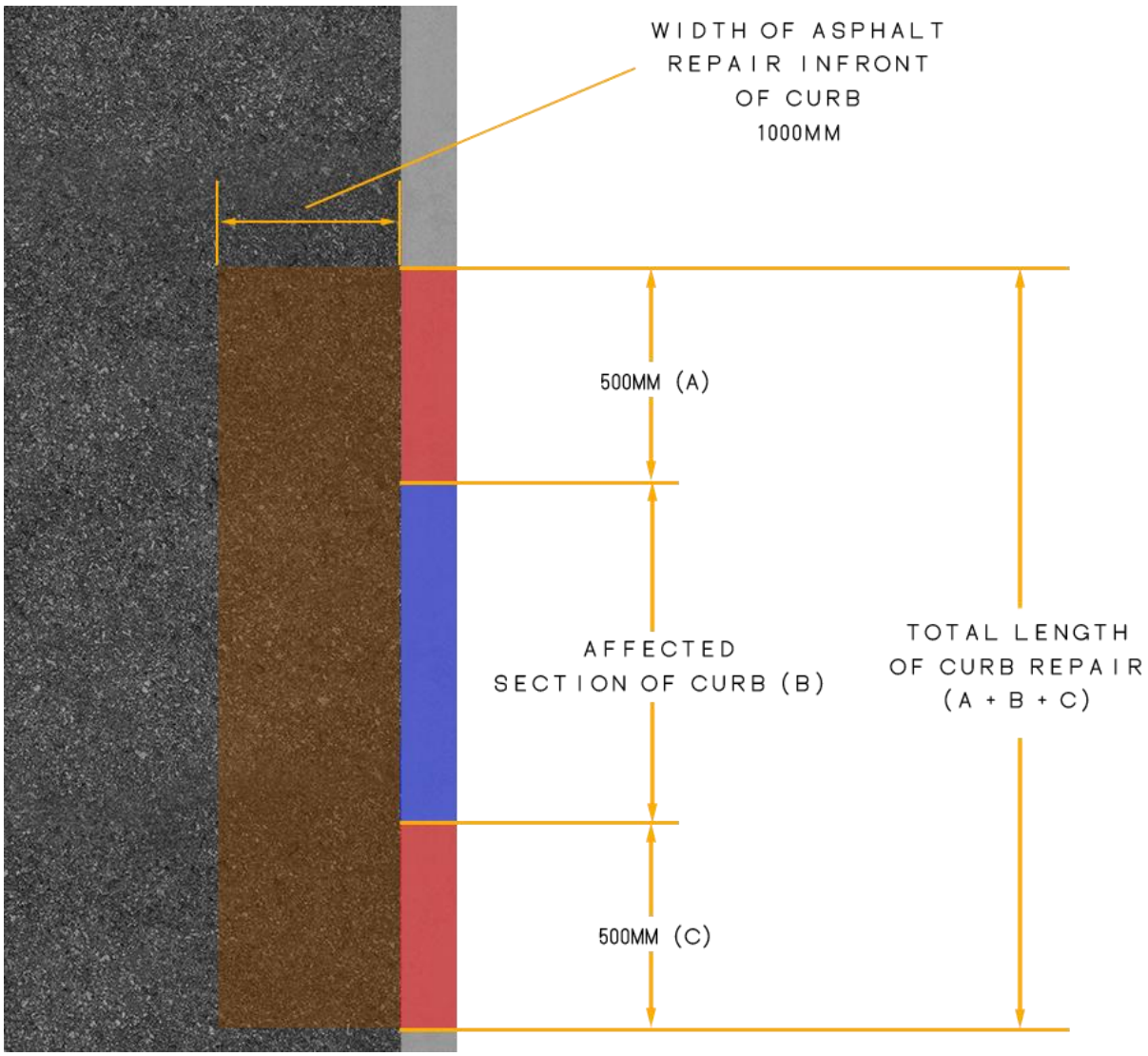


14. Concrete Curb Restoration – No Trench Works

If there are any curb replacement works undertaken that do not involve trench works within the roadway, the contractor shall remove and restore the deficient section of curb to 500 mm beyond the disturbed area, in either direction. If there is a control joint in the existing curb and it is within 1000 mm of the new curb repair, the contractor must extend their repair to the control joint. Asphalt repairs for standard curb replacement shall extend the entire length of disturbed area and shall extend out 1000 mm from the edge of gutter in accordance with Section 12 – Asphalt Patch – Cold Milling.

Concrete restoration shall be in accordance with all appropriate City and Provincial Design Standards.

** Concrete works shall be completed before any asphalt restoration in the roadway. **



15. Driveway Apron Restoration

If there are any works undertaken on a driveway apron which compromise or disturb the apron resulting in structural or superficial deficiencies, the contractor shall restore the apron in accordance with the following examples below.

The standard typical materials used for driveways in the City of Markham are primarily asphalt and interlock pavers.

- For any driveway constructed with asphalt, the material used to restore the driveway shall be Hot Mix Asphalt in accordance with City of Markham MR35AA, and to similar or better condition than the original.

- For any driveway constructed with interlock pavers, best efforts must be taken by the Contractor to remove and preserve the original pavers for re-installation.

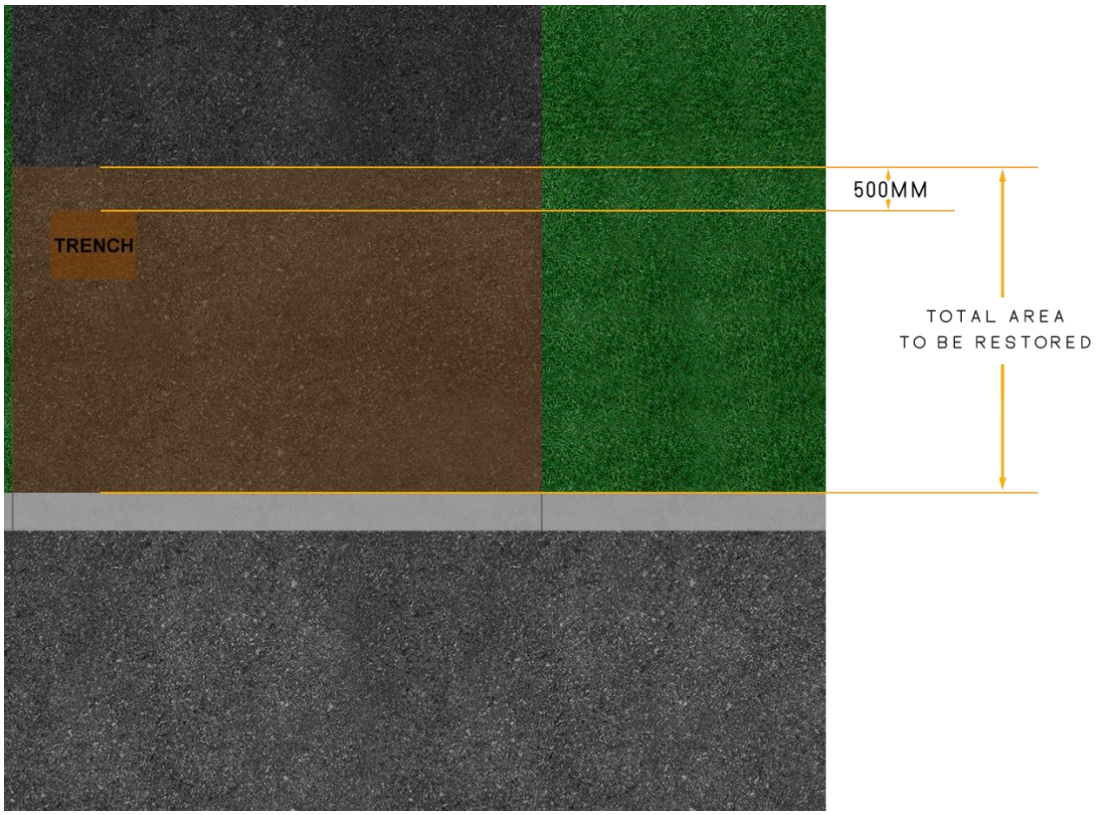
    - In the case of pre-existing damage to pavers, the Contractor must document and communicate the damage to the homeowner, before the removal of the pavers. It will be the responsibility of the Contractor to coordinate with homeowner to provide extra pavers, or procure new pavers for the Contractor to install for final restoration, to the satisfaction of the City of Markham.

    - If replacement pavers are unable to be procured due to product availability, the Contractor will restore the affected portion of the driveway with Hot Mix Asphalt in accordance with the Engineering Standards, in coordination with the City.

** Each cut to a driveway should be assessed on a case-by-case basis to determine if it can be restored to similar or better condition than the original, utilizing standard typical materials. Driveways constructed of non-standard materials as described in the definitions (i.e. stamped concrete, driveways containing electrical or plumbing components, etc.) are in contravention of the City of Markham Road Occupancy By-law and will be restored in accordance with the Engineering Standards. **

15.1 Not Containing a Sidewalk

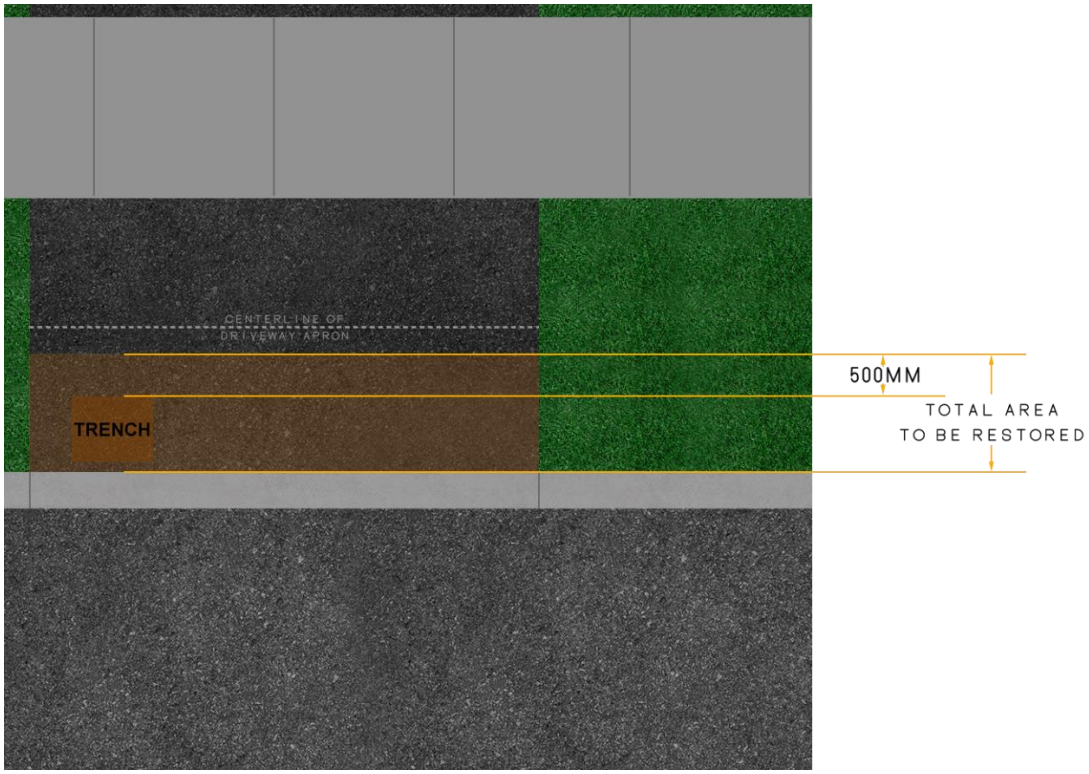
On a boulevard which does not contain an intersecting sidewalk, the contractor is to provide a restoration to the driving surface (i.e. Asphalt, Interlocking) from the back side of the curb, to 500 mm beyond the extent of the disturbed area. This restoration should extend the entire width of the driveway in order to leave no more than one (1) new seam. The area must be restored using standard typical materials for driveways (as described in the Definitions) and must be restored to similar or better condition than the original.



15.2 Containing a Sidewalk (Scenario 1) – Repair Area Less than Half of Boulevard

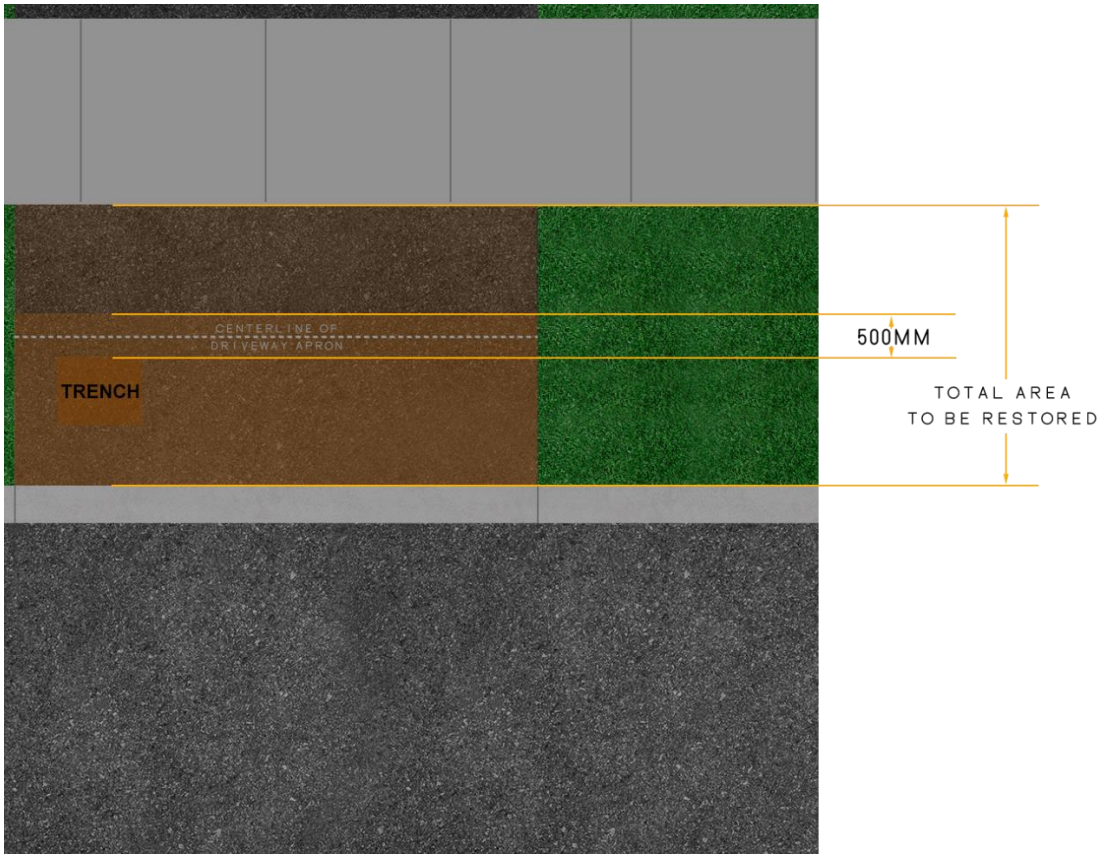
On a boulevard that contains an intersecting sidewalk, the contractor is to provide a restoration to the driving surface (i.e. Asphalt, Interlocking) from the back side of the curb, to 500 mm beyond the extent of the disturbed area. This restoration should extend the entire width of the driveway in order to leave no more than one (1) new seam. The area must be restored using similar products and must be restored to similar or better condition than the original.

If the final restoration, in accordance with the details described above, makes up half or more of the distance between the back of curb, and edge of sidewalk, the contractor must restore the entire apron between the sidewalk and curb to existing or better condition. (See Section 15.3 – Containing a Sidewalk (Scenario 2).



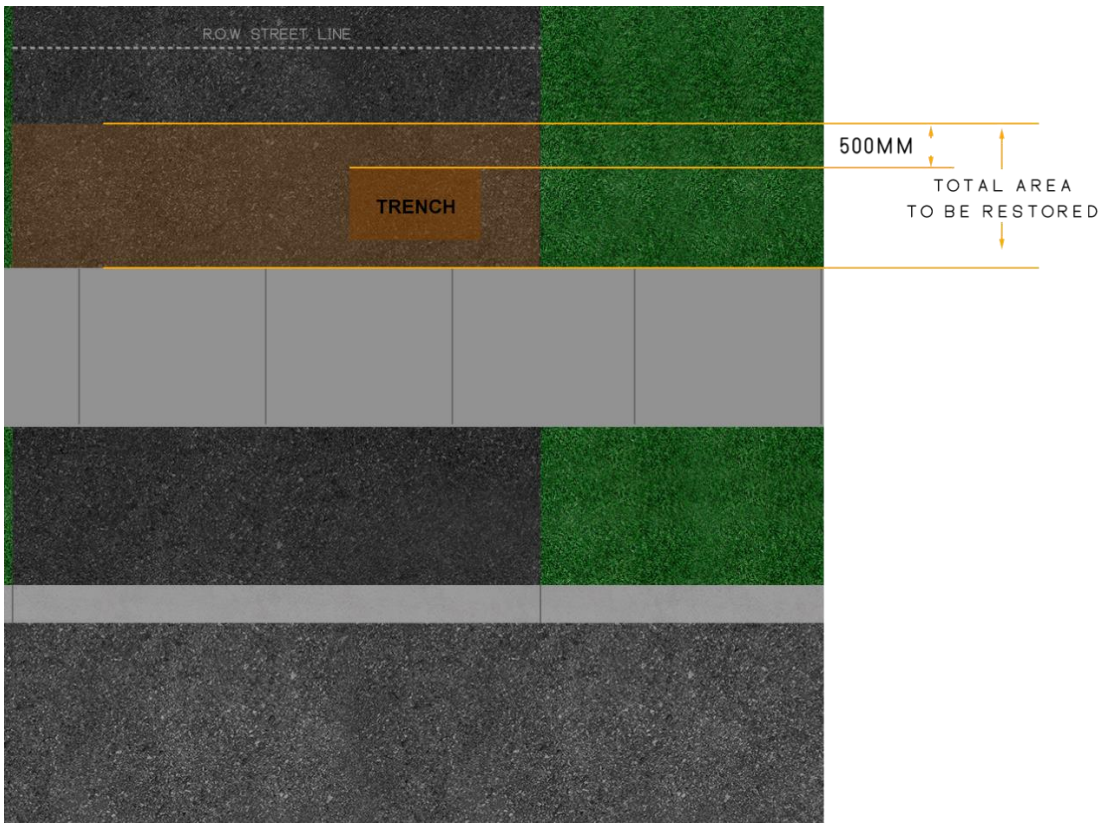
15.3 Containing a Sidewalk (Scenario 2) – Repair Area More than Half of Boulevard

On a boulevard that contains an intersecting sidewalk, and where the work taking place including the 500 mm restoration makes up half or more of the distance between the back of curb, and the edge of sidewalk, the contractor must restore the entire apron between the sidewalk and curb. This restoration should extend the entire width of the driveway and must not contain any seams. The area must be restored using similar products and must be restored to similar or better condition than the original.



15.4 Containing a Sidewalk (Scenario 3) – Repair Area on Property Side of Sidewalk

On a boulevard that contains an intersecting sidewalk, and if the work is taking place on the property side of the sidewalk, the contractor is to provide a restoration to the driving surface (i.e. Asphalt, Interlocking) from the edge of sidewalk, to 500 mm beyond the extent of the disturbed area. This restoration should extend the entire width of the driveway in order to leave no more than one (1) new seam. The area must be restored using similar products and must be restored to similar or better condition than the original.

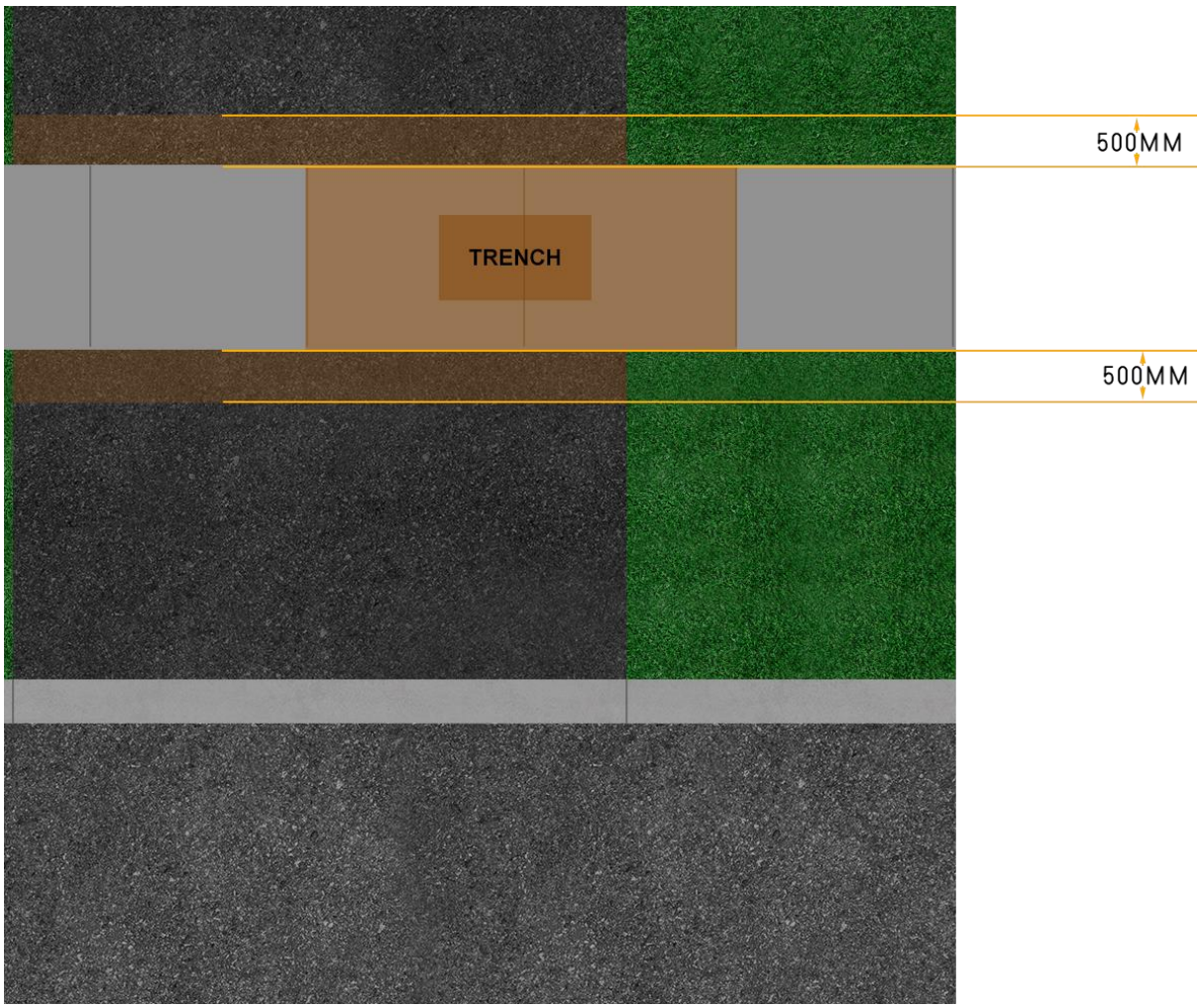


16. Concrete Sidewalk Restoration

In the event that there are any works undertaken which compromise or disturb concrete sidewalk, resulting in structural or superficial deficiencies, the contractor shall remove and restore the entirety of the affected sidewalk bay(s). The restoration should extend the entire width of the sidewalk, and include any individual bays affected by the works.

Any restoration to driveways as a result of concrete sidewalk replacement shall be no less than 500 mm on either side of the sidewalk (as long as there has been no change in grade to the sidewalk) and shall extend the entire width of the driveway. If there has been a change in grade of the replaced sidewalk bay(s), the limits of the driveway restoration shall extend far enough back to maintain the original driveway slope and ensure a smooth transition.

Restoration shall be in accordance with all appropriate City and Provincial Design Standards.

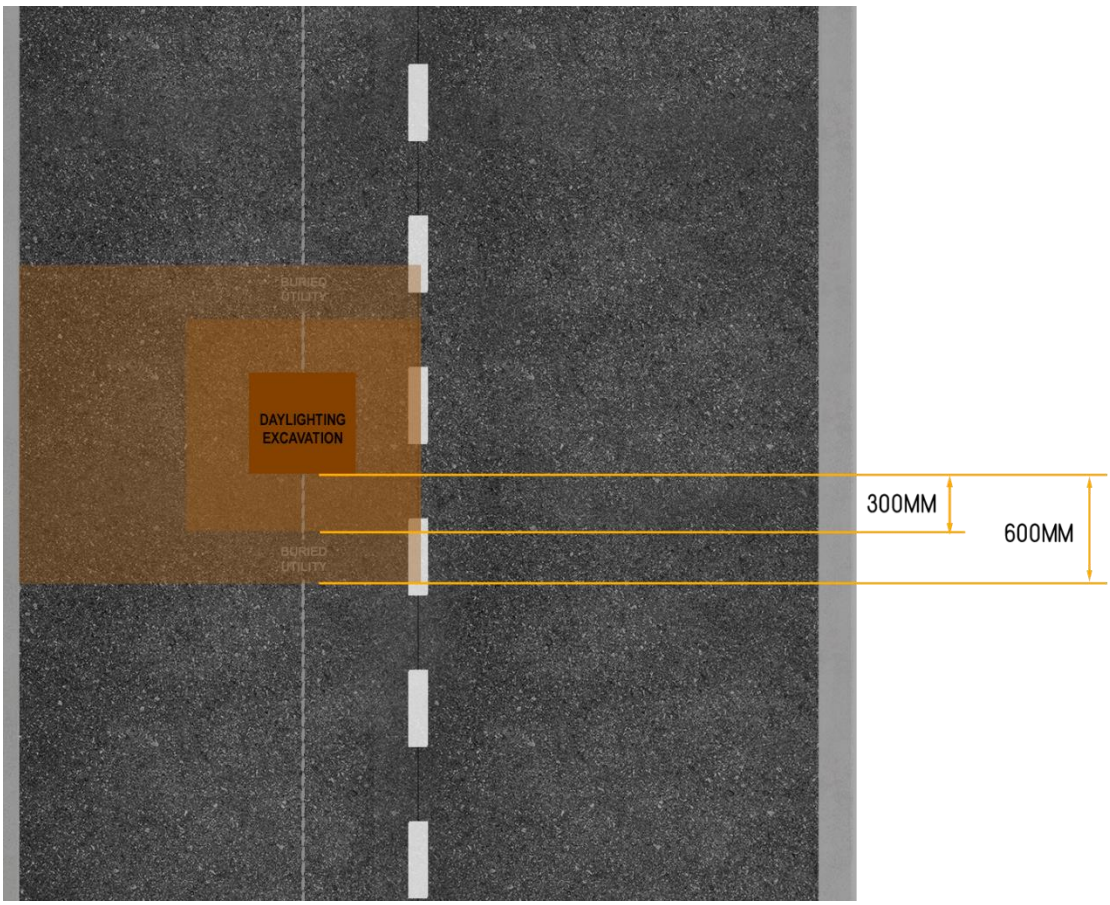


17. Daylighting Excavation

In the event that any daylighting excavation is undertaken within a roadway for any reason, the contractor shall be responsible to restore the asphalt in accordance with the situational examples below. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.

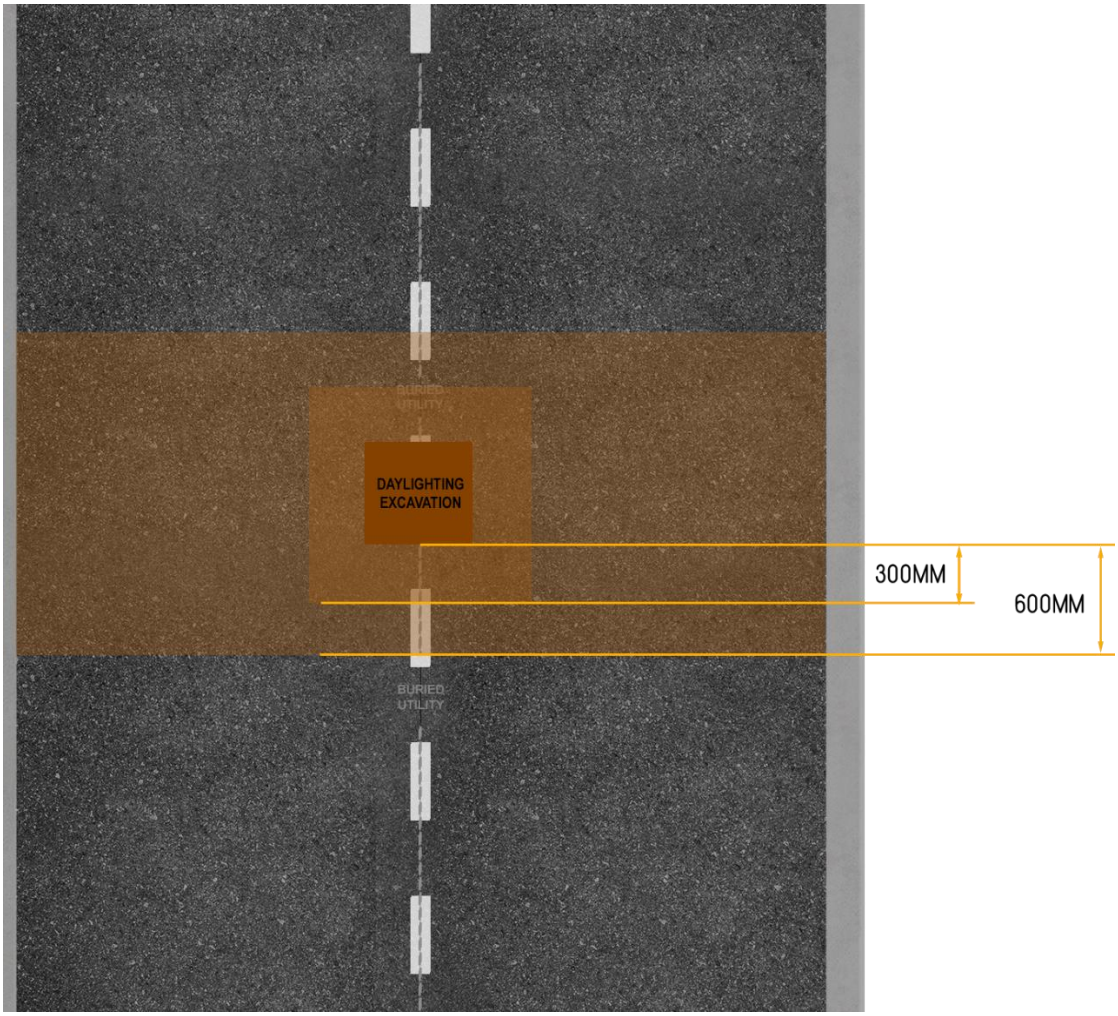
17.1 Daylighting - Single Excavation / Single Lane

In the event there is only one (1) daylight excavation and the limits of the disturbed area are only within one (1) lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the lane of traffic (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.) to 600 mm beyond the limits of the excavation, in either direction longitudinally. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.



17.2 Daylighting - Single Excavation / Multi Lane

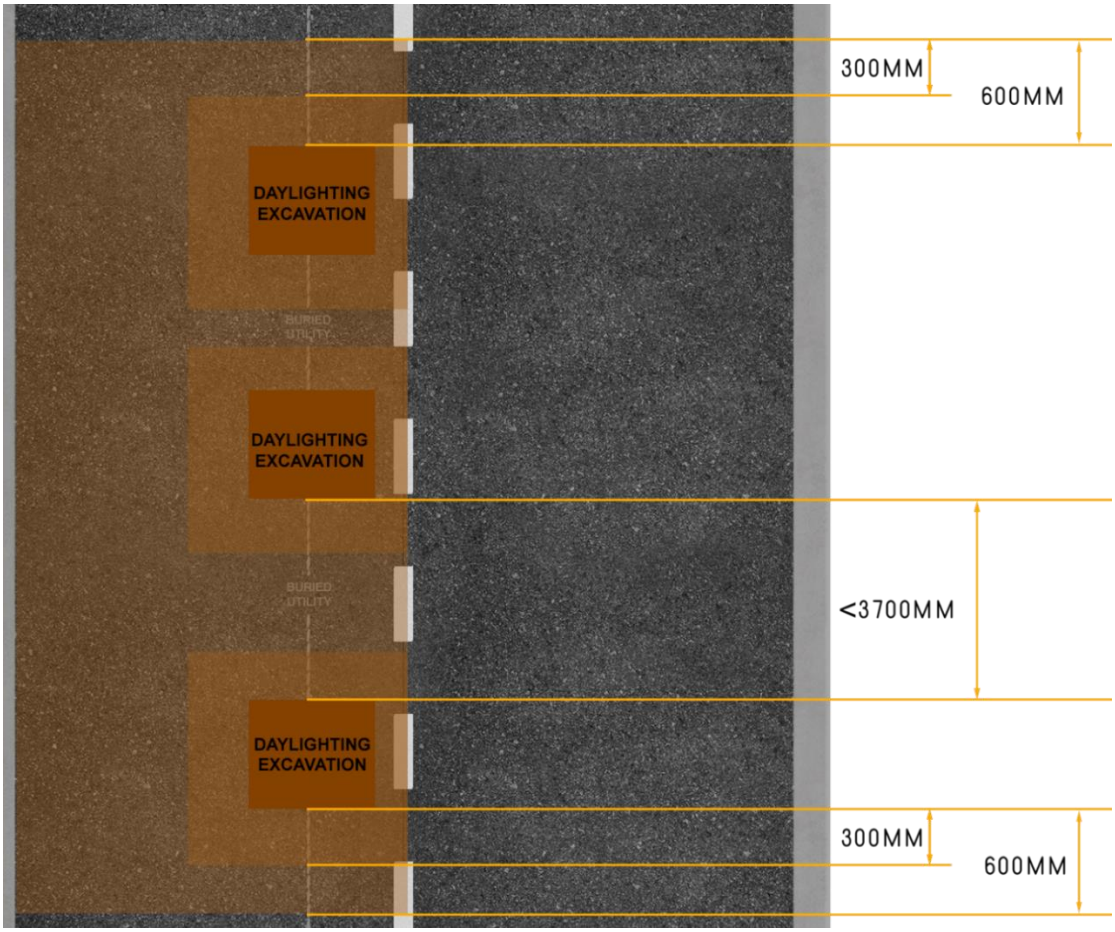
In the event there is only one (1) daylighting excavation and the limits of the disturbed area crosses over multiple lanes of traffic or over the centerline into the adjacent lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the lanes of traffic affected (i.e. Curb to Curb for 2-Lane Road, Curb to Centerline for 4-Lane Road, etc.) to 600 mm beyond the limits of the cut, in either direction longitudinally. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.



17.3 Daylighting - Multi Excavation / Single Lane (Scenario 1 – Excavations < 3700 mm Apart)

In the event there are multiple daylighting excavations and the limits of the disturbed areas are only within one (1) lane of traffic and the excavations are within 3700 mm of each other, the contractor shall restore the surface course asphalt to the entire width of the lane of traffic (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.) encapsulating all of the areas disturbed by that specific contractor, to 600 mm beyond the limits of the cuts, in either direction longitudinally. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36 and shall include the restoration of all affected pavement markings.

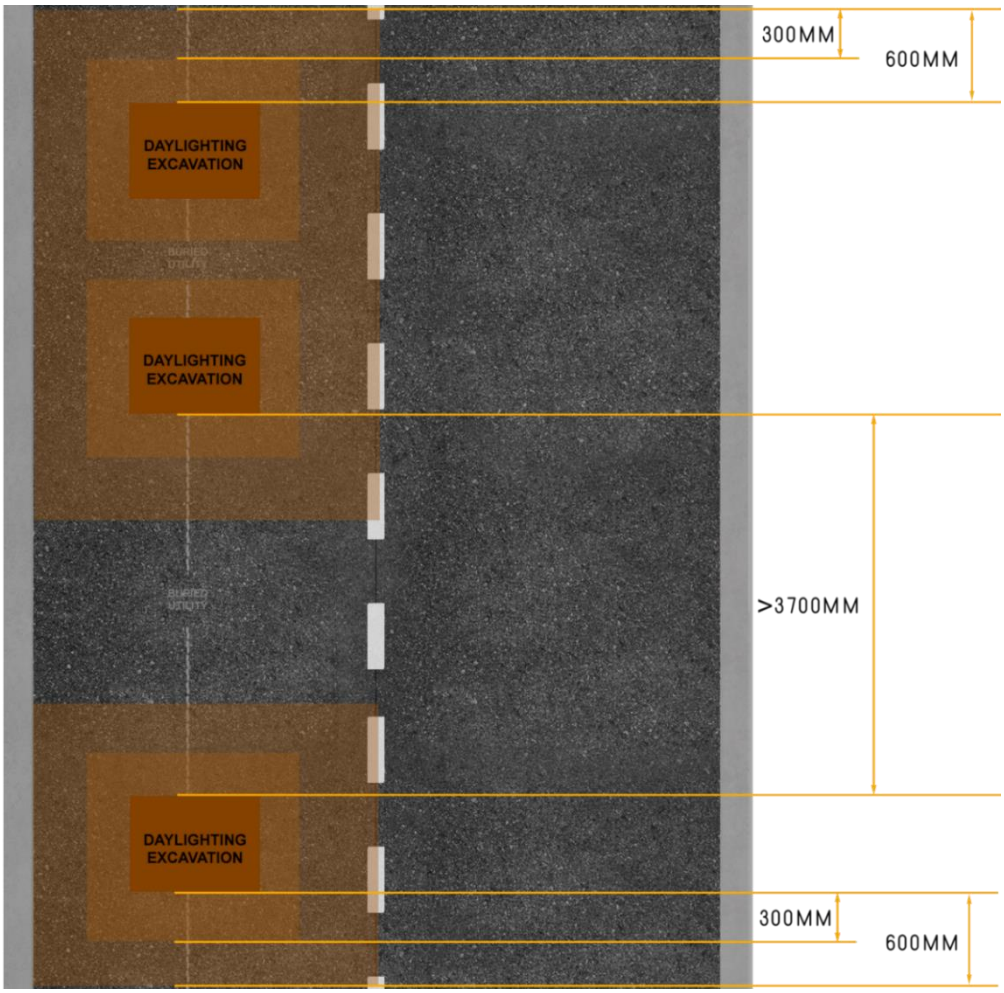
** If the edge of any daylighting excavation is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 17.2 - Single Excavation / Multi Lane or Section 17.5 - Multi Excavation / Multi Lane **



17.4 Daylighting – Multi Excavation / Single Lane (Scenario 2 – Excavations > 3700 mm Apart)

In the event there are multiple daylighting excavations and the limits of the disturbed areas are only within one (1) lane of traffic, the contractor shall restore the surface course asphalt to the entire width of the lane of traffic (i.e. Curb to Centerline, Curb to Broken Line, Broken Line to Centerline, etc.). This repair shall encapsulate all of the areas disturbed by that specific contractor where the excavations are closer than 3700 mm to each other; to 600 mm beyond the limits of the excavations, in either direction longitudinally. Any excavation that is more than 3700 mm away from the others shall be treated as separate and repaired in accordance with Section 17.2 Daylighting – Single Excavation / Single Lane. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.

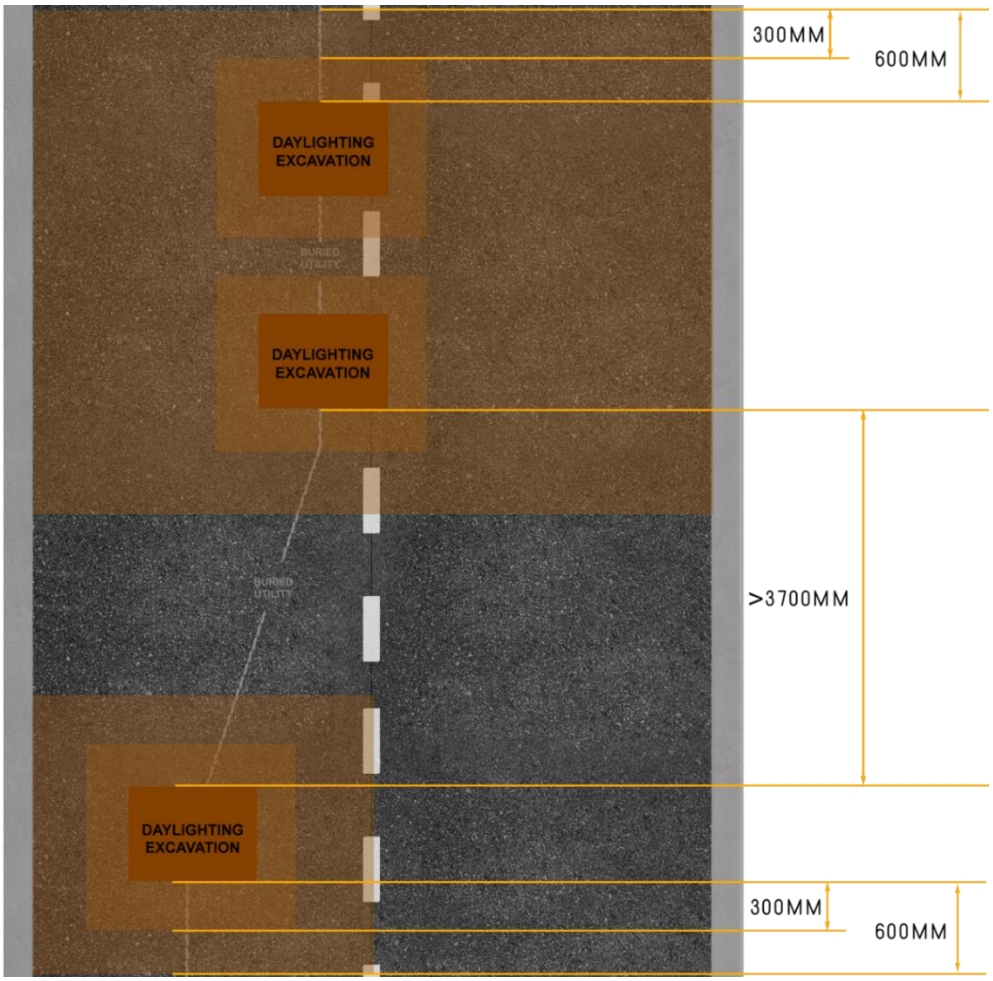
** If the edge of any daylighting excavation is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 17.2 - Single Excavation/Multi Lane or Section 17.5 - Multi Excavation / Multi Lane **



17.5 Daylighting – Multi Excavation / Multi Lane (Scenario 1 – Excavations > 3700 mm Apart)

In the event there are multiple road cuts and the limits of the disturbed areas stretch across multiple lanes of traffic including the opposing direction, the contractor shall restore the surface course asphalt to the entire width of the lanes of traffic affected (i.e. Curb to Curb for 2-Lane Road, Curb to Centerline for 4-Lane Road, etc.) for any trenches closer than 3700 mm to each other. This repair shall encapsulate all the areas disturbed by that specific contractor to 600 mm beyond the limits of the cuts, in either direction longitudinally. An excavation that is more than 3700 mm away from the others in the same lane of traffic, shall be treated as separate and repaired in accordance with Section 1 – Single Trench / Single Lane. All repairs shall be completed in accordance with the appropriate City of Markham Standard Drawing MR36, and shall include the restoration of all affected roadway markings.

** If the edge of any excavated trench is encroaching the lane line or centerline, causing the binder course lap joint and surface course lap joint (as described in the standards) to extend into the adjacent lane, the contractor shall extend their surface course restoration to the limits of the adjacent lane in accordance with Section 17.2 - Single Excavation / Multi Lane or Section 17.5 - Multi Excavation / Multi Lane **



APPENDIX A – RELEVANT STANDARD DRAWINGS & ENGINEERING DESIGN CRITERIA

Below is a list of standard drawings that are relevant to the various examples within this document.

It is important to note that this list is not a full representation of all standard drawings that may require referencing for various types of work within a City of Markham Right-of-Way.

City of Markham Standard Drawings

- MR36 A – Road Restoration for Service Laterals and Utility Cuts
- MR36 B – Road Restoration for Main Line Infrastructure and Utility Cuts
- MR20 – Concrete Sidewalk
- MR21 – Concrete Sidewalk Adjacent to Curb
- MS6B – Manhole and Catch Basin Adjustment Units
- MR35AA – General Notes for Subdivision & Public Works

For a complete list of current City of Markham Standard Drawings, please visit:
https://prodd.markham.ca/economic-development-business/planning-development-services/engineering-services/engineering-standard-drawings

Ontario Provincial Standard Drawings (OPSD)

- 600.040 – Concrete Barrier Curb with Standard Gutter
- 600.060 – Concrete Semi-Mountable Curb with Standard Gutter
- 600.110 – Concrete Barrier Curb
- 610.010 – Catch Basin Frame with Grate Installation at Curb with Gutter

For a complete list of current Ontario Provincial Standards, please visit:
https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/opsViews.aspx?lang=en-US

City of Markham Engineering Design Criteria

For a complete list of current City of Markham Engineering Design Criteria documents, please visit:
https://prodd.markham.ca/economic-development-business/planning-development-services/engineering-services/engineering-design-criteria