

## **January 2024**

To the recipients of the Regional Municipality of Waterloo “General Conditions, Supplemental General Conditions, Standard Specifications, Standard Special Provisions and Drawings” for Unit Price Contracts:

Please replace the complete set of “General Conditions, Supplemental General Conditions, Standard Specifications, Standard Special Provisions and Drawings for Unit Price Contracts” dated January 2023 with the attached documents for 2024. A summary of the changes for 2024 is provided on the following pages.

Please notify Mr. Skylar Van Kruistum, Head, Engineering, [SVanKruistum@regionofwaterloo.ca](mailto:SVanKruistum@regionofwaterloo.ca) or 519-575-4757 x3182 of any noted omissions or errors in these documents.

**Regional Municipality of Waterloo**

**General Conditions, Supplemental General Conditions, Standard Specifications,  
Standard Special Provisions and Standard Drawings for Unit Price Contracts**

**Revisions for 2024**

**RWSSP 314 - Granular "A" Road Base:**

- Deleted the new OPSS.MUNI 314 Clauses related to RAP Shouldering. The previous Region shouldering clause amendments remain unchanged.

**Regional Municipality of Waterloo**

**General Conditions, Supplemental General Conditions, Standard Specifications,  
Standard Special Provisions and Standard Drawings for Unit Price Contracts**

**Index**

General Conditions.....1 page  
Supplemental General Conditions (SGC)..... Index + 29 pages  
Region of Waterloo Standard Specifications (RWSS) ..... Index + 39 pages  
Region or Waterloo Standard Special Provisions (RWSSP) ..... Index + 61 pages  
Standard Drawings..... Index + 47 pages

**Regional Municipality of Waterloo**

**Unit Price Contracts - General Conditions (Not Included in This Document)**

**Refer To Ontario Provincial Standards General Conditions of Contract (Latest Revision)**

**Website:**

<https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/opsViews.aspx> -

“Volume 7, Division 1 – General Specifications, Index 100 – OPSS.MUNI General Conditions of Contract”

**Note 1:** Where any Regional specification makes reference to an OPSS specification, and where a Municipal (OPSS.MUNI) version of such specification exists, the OPSS.MUNI version shall apply.

**Regional Municipality of Waterloo**

**Unit Price Contracts - Supplemental General Conditions – 29 pages**

**Index**

| <b>Item</b>                                      | <b>Page</b> |
|--|-------------|
| 1. Definitions .....                             | 1           |
| 2. Order of Precedence .....                     | 1           |
| 3. Indemnification.....                          | 2           |
| 4. Night, Sunday and Holiday Work.....           | 3           |
| 5. Arbitration .....                             | 3           |
| 6. Explosives.....                               | 3           |
| 7. Protection of Work, Persons and Property..... | 3           |
| 8. Liquidated Damages .....                      | 4           |
| 9. Insurance .....                               | 5           |
| 10. Working Drawings.....                        | 9           |
| 11. Executing Repairs.....                       | 9           |
| 12. Connections with Existing Services .....     | 9           |
| 13. Winter Work.....                             | 10          |
| 14. Safety .....                                 | 10          |
| 15. Weighing of Materials .....                  | 10          |
| 16. Roadway Cleanup .....                        | 11          |
| 17. Contractor Submissions.....                  | 11          |
| 18. Incidental Items.....                        | 12          |
| 19. Inspector and Inspection.....                | 13          |
| 20. Contingency Allowance .....                  | 15          |
| 21. Subcontractors.....                          | 15          |
| 22. Taxes and Duties.....                        | 15          |

**Regional Municipality of Waterloo**

**Unit Price Contracts - Supplemental General Conditions**

**Index (Continued)**

| Item  | Page |
|---|------|
| 23. Ontario Human Rights Code.....                            | 16   |
| 24. Standard Specifications .....                             | 16   |
| 25. Underground and Aboveground Utilities and Structures..... | 16   |
| 26. Language Submission .....                                 | 16   |
| 27. Work Permit.....  | 17   |
| 28. Payment on a Time and Material Basis .....                | 17   |
| 29. Clean Air Initiative.....                                 | 17   |
| 30. Emergency Spill Response.....                             | 17   |
| 31. Notices By Contractor.....                                | 18   |
| 32. Construction Schedule.....                                | 18   |
| 33. Attendance at Meetings .....                              | 19   |
| 34. Owner's Right to Terminate .....                          | 19   |
| 35. Maintenance Security Holdback .....                       | 19   |
| 36. Contractor Performance Evaluations .....                  | 20   |
| 37. Workplace Safety and Insurance Board .....                | 21   |
| 38. Accessibility for Ontarians With Disabilities Act .....   | 22   |
| 39. Coordination of Region Forces as Subcontractor.....       | 22   |
| 40. Performance Bond and Labour/Materials Bond.....           | 24   |
| 41. Statutory Holdback Release on Multi-Year Contracts .....  | 24   |
| 42. Amendments to OPS.MUNI General Conditions .....           | 24   |
| 43. Construction Liens.....                                   | 28   |
| 44. Living Wage.....  | 29   |

## 1. Definitions

In clause GC1.04, Definitions, is amended as follows:

- a) The definition of **Change in the Work** is deleted and replaced with:

**Change in the Work** means the deletion, extension, increase, decrease, or alteration of lines; grades; dimensions; quantities; methods; drawings; changes in the character of the Work to be done; or materials of the Work or part thereof, within the intended scope of the Contract.

- b) The definition of **Contract Drawings** or **Contract Plans** is deleted and replaced with:

**Contract Drawings** or **Contract Plans** means drawings or plans listed in the Index of Contract Drawings or Contract plans included in the Contract Documents.

- c) The following definitions are added:

**Bid Documents** means those documents listed in the Table of Contents herein and in Section C, Contract Agreement;

**Contract Price** means the total price, exclusive of HST that is accepted by the Region of Waterloo;

**Region, Region of Waterloo** and **Owner** mean The Regional Municipality of Waterloo;

**Contract Documents, Contract** and **Agreement** means those documents listed in Section C, Contract Agreement.

## 2. Order of Precedence

Clause GC 2.02 of the OPS General Conditions of Contract (GC) is deleted and replaced by the following.

The Contractor shall do all work and furnish all materials in accordance with the best practice, and in the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following order:

- (a) Agreement
- (b) Addenda
- (c) Special Provisions

- (d) Contract Drawings
- (e) Contract Technical Specifications
- (f) Regional Municipality of Waterloo Standard Specifications
- (g) Regional Municipality of Waterloo Standard Special Provisions
- (h) Regional Municipality of Waterloo Standard Drawings
- (i) Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services
- (j) Ontario Provincial Standards - Standard Specifications
- (k) Ontario Provincial Standards - Standard Drawings
- (l) Instructions to Bidders
- (m) Bid Submission
- (n) Region of Waterloo Supplemental General Conditions
- (o) Ontario Provincial Standards - General Conditions of Contract
- (p) Working Drawings

Later dates shall govern within each of the above categories of documents.

Neither party to the Contract shall take advantage of any apparent error or omission in the documents, but the Contract Administrator shall be permitted to make such corrections and interpretations as may be necessary for fulfilment of the intent of the documents. Any work or material not herein specified but which may be fairly implied as included in the Contract, of which the Contract Administrator shall be the judge, shall be done or furnished by the Contractor as if such work or material had been specified.

### **3. Indemnification**

Clause GC6.02.01 is deleted and replaced by the following.

The Contractor, both during and after the term of this Agreement, shall at all times, and at its own cost, expense and risk, defend, indemnify and hold harmless the Region and the lower-tier municipality in which the works are carried out, their elected officials, officers, employees, volunteers, agents, contractors, the Contract Administrator, all respective heirs and executors, successors and assigns, from any and all losses, damages (including, but not limited to, incidental, indirect, special and consequential damages, or any loss of

use, revenue or profit by any person, organization or entity), fines, penalties and surcharges, liabilities (including, but not limited to, any and all liability for damages to property and injury to persons, including death), judgements, claims, demands, causes of action, contracts, suits, actions or other proceedings of any kind (including, but not limited to, proceedings of a criminal or quasi-criminal nature) and expenses (including, but not limited to, legal fees on a substantial indemnity basis) which the indemnified persons or person may suffer or incur, howsoever caused, arising out of or in consequence of or directly or indirectly attributable to the Work required to be performed by the Contractor, its agents, employees and Subcontractors on behalf of the Region, provided such losses, damages, fines, penalties and surcharges, liabilities, judgments, claims, demands, causes of action, contracts, suits, actions or other proceedings of any kind and expenses as defined above are due or claimed to be due to the negligence, breach of contract, and/or breach of law of the Contractor, its agents, employees or Subcontractors.

Clause GC6.02.03 is deleted.

#### **4. Night, Sunday and Holiday Work**

Night, Sunday, and holiday work will be subject to the approval of the Region and will only be permitted in accordance with local by-laws.

#### **5. Arbitration**

Clause GC3.14 is deleted and replaced by the following.

If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC3.13.04, Negotiations, or the mediation stage noted in clause GC3.13.05, Mediation, the Region and the Contractor may agree in writing to an arbitration pursuant to the Arbitration Act 1991, S.O. 1991, c. 17, as amended, as the method of resolution. Any agreement to an arbitration shall also include an agreement on all procedural rules and other matters for the arbitration.

#### **6. Explosives**

Use of explosives is not permitted unless specified elsewhere in the Contract.

#### **7. Protection of Work, Persons and Property**

Clause GC6.01.02 is deleted and replaced by the following.

The Contractor is responsible for the full cost of any necessary temporary provisions. Except as otherwise provided for in clause GC6.01.04, all loss or damage occasioned to the work or arising out of the nature of the work to be done, or from the normal action of the elements or from any reasonably

foreseeable circumstance in the prosecution of the same, or from any normal difficulties which may be encountered in the prosecution of the work, having regard to the nature thereof, shall be sustained and borne by the Contractor including all material required to replace any defective or rejected work, or to restore any failure shall be all at the expense of the Contractor.

## **8. Liquidated Damages**

It is agreed by the parties to the Contract that in case all the work called for under the Contract is not completed within the number of working days or completion date as set forth in this Contract, damage will be sustained by the Region and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Region will sustain in the event of and by any reason of such delay and the parties hereto agree that the Contractor will pay to the Region the sum as stipulated in Special Provisions for Liquidated Damages for each and every working day delay in finishing the work in excess of the number of working days prescribed, and it is agreed that this amount is an estimate of the actual damage to the Region which will accrue during the period in excess of the prescribed number of working days. The working days stipulated in the Contract include any time required for the correction of deficient work and Liquidated Damages may therefore apply as stipulated in the Special Provisions to the correction of deficient work.

The Region may deduct any amount under this paragraph from any monies that may be due or payable to the Contractor on any account whatsoever. The Liquidated Damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Region.

If the time available for the completion of the work is increased or decreased because of an overrun of a major item in the Contract, the Contract Administrator may increase or decrease the number of days by adding or subtracting therefrom, as the case may be, a number of days calculated on the average daily production of the most productive 50% of the work time shown on the Contractor's schedule, divided into the difference between the actual quantity and the estimated tender quantity, provided that this basis of calculation may not be used where, in the opinion of the Contract Administrator, all or any of the relevant major items are carried out concurrently.

The working days stipulated in the Contract do not provide for the completion of work under Provisional Items and additional working days may be allowed by the Contract Administrator for work carried out under any Provisional item in the Contract or where additional work is added to the Contract.

## **9. Insurance**

Without restricting the generality of Clause 3.0 of the Supplemental General Conditions the following insurance coverages are specified as minimum requirements of this Contract.

The Contractor's attention is directed to the insurance requirements below. It is highly recommended that the Contractor confer with their respective insurance carriers or brokers to determine in advance of bid submission the availability of insurance certificates and endorsements as prescribed and provided herein.

Clause G.C.6.03, Contractor's Insurance, shall be deleted and replaced with the following provisions:

It is the responsibility of the Contractor and/or their Insurance Broker to review all potential operations and exposures to determine if the coverage and limits noted below are sufficient to address all insurance related exposures presented by the specifications of this Contract. The Contractor shall insure its undertaking, business and equipment under the following coverage so as to protect and indemnify and save harmless the Region:

### **a) Commercial General Liability Insurance:**

The Contractor shall maintain liability insurance acceptable to the Region throughout the term of this Agreement. Coverage shall consist of a comprehensive policy of public liability and property damage insurance, with all coverage endorsements available, in an amount of not less than \$5,000,000 per occurrence. Such insurance shall name The Regional Municipality of Waterloo, and any other person or party identified in the Contract Documents, as an additional insured with a cross liability endorsement and severability of interests provision. The policy Self-Insured Retention (SIR)/deductible shall not exceed \$100,000 per claim and if the policy has an aggregate limit, the amount of the aggregate shall be double the required per-occurrence limit.

In the event that the Contract includes shoring, blasting, excavation, underpinning, demolition, pile driving, caisson work and work below ground surface including tunneling and grading, then such insurance coverage shall be endorsed to cover shoring, blasting, excavation, underpinning, demolition, pile driving, caisson work and work below ground surface including tunneling and grading.

The Region reserves the right to request an alternative to the Commercial General Liability Insurance policy in the form of a Wrap-Up Liability Insurance

policy. If this option is exercised, it will be specified elsewhere in the Contract Documents.

**b) Automobile Liability Insurance:**

The Contractor shall maintain automobile liability insurance on all Owned and Leased Automobiles to a limit of \$5,000,000 throughout the term of this Agreement.

- c) Unless otherwise specified in the Contract Documents, the Contractor shall provide and maintain during the term of the Agreement, **Broad Form Contractors' Equipment Insurance** coverage for construction machinery and equipment used by the Contractor for the performance of the work. Such insurance shall be in a form acceptable to the Region and shall not allow subrogation claims by the Insurer against the Region. Subject to satisfactory proof of financial capability by the Contractor to self-insure their equipment, the Region agrees to waive the equipment insurance requirement.
- d) In the event that Contract includes the installation of any machinery and equipment, the Contractor shall provide and maintain during the term of the Agreement an **All Risk Installation Floater Insurance** policy covering the installation of any machinery and equipment associated with the construction Contract. Coverage shall be in an amount equal to the value of the machinery and/or equipment and shall include coverage while it is in transit to and awaiting installation at the work site.
- e) When specified elsewhere in the Contract Documents, the Contractor shall provide and maintain during the term of the Contract, **Broad Form Builders' Risk Insurance** coverage to the amount of 1.1 times the full replacement cost of the construction Contract.

The Builders Risk shall be underwritten on the following basis:

- Policy deductible shall not exceed \$5,000 without prior approval by the Region. If a loss occurs, the deductible shall be the sole responsibility of the Contractor.
- The Contractor and the Region must be named as co-insured on the policy.
- The policy shall contain a clause which will allow occupancy prior to the completion or acceptance of the entire work.
- A copy of the Builders' Risk Certificate shall be furnished to all parties prior to the commencement of the construction Contract.

- f) In the event that Contract includes the replacement of boilers, machinery or equipment, the Contractor shall provide and maintain **Boiler & Machinery Insurance** coverage on a Comprehensive Plus Form to the full replacement cost of the boiler, machinery and equipment.
- g) In the event that Contract requires the Contractor to retain professional consultants, architects, landscape architects, planners and/or engineers, the Contractor shall ensure its professional consultants, architects, landscape architects, planners and engineers, providing a professional service in connection with the Contract, maintain until three (3) years after the Agreement, **Professional Liability Insurance** to a limit not less than \$1,000,000 providing coverage for acts, errors and omissions arising from their professional services performed under this Agreement. The policy SIR/deductible shall not exceed \$100,000 per claim and if the policy has an aggregate limit, the amount of the aggregate shall be double the required per claim limit. Certificates evidencing such coverage shall be supplied to the Region prior to the completion of the Contract and in accordance with the provisions stated above.
- h) When specified elsewhere in the Contract Documents, the Contractor shall take out and keep in force **Contractor's Pollution Liability (CPL)** coverage to ensure that their work does not exacerbate any pre-existing environmental condition during construction. Coverage shall be in an amount of not less than \$2,000,000 per claim or per occurrence, or such greater amount as the Region may from time to time require, naming the Region as an additional insured, which coverage shall be maintained in force for 12 months following the termination of the Contract. The policy SIR/deductible shall not exceed \$100,000 per claim and if the policy has an aggregate limit, the amount of the aggregate shall be double the required per occurrence limit.
- i) In the event any aircraft and/or watercraft are used directly or indirectly in the performance of the work, **Aircraft and/or Watercraft Liability Insurance** shall be maintained by the Contractor throughout the term of this Agreement. Coverage shall be in an amount of not less than \$5,000,000 per occurrence.

**j) Provisions:**

All Insurers must be licensed in Ontario. The Contractor shall forward a Certificate of Insurance on the Region's Form (CERTIFICATE OF INSURANCE – CONTRACTOR) evidencing this insurance with the executed Agreement. The Certificate shall state that coverage will not be cancelled, terminated, amended or otherwise changed or modified except after thirty (30)

days (fifteen (15) days if cancellation is due to non payment of premium) prior written notice by certified mail to the Region.

It is also understood and agreed that in the event of a claim any deductible or self-insured retention under these policies of insurance shall be the sole responsibility of the Contractor and that this coverage shall preclude subrogation claims against the Region and any other person insured under the policy and be primary insurance in response to claims. Any insurance or self-insurance maintained by the Region and any other person insured under the policy shall be considered excess of the Contractor's insurance and shall not contribute with it. The minimum amount of insurance required herein shall not modify, waive or otherwise alter the Contractor's obligation to fully indemnify the Region under this Agreement. Any failure to comply with any provision of the insurance policy by the Contractor shall not affect coverage provided to the Region.

The Region reserves the right to modify the insurance requirements as deemed suitable.

**k) Third Party Claims Process:**

The Region's claims process for third party Contractor claims is to refer the claimant directly to the Contractor and to leave the resolution of the claim with the Contractor. This applies regardless of whether or not it is an insured loss.

As the Region has a responsibility to the taxpayers, the Region must ensure that claimants are dealt with in a fair and efficient manner. Claims reported to the Contractor, either directly by a third party or through the Region shall be promptly investigated by the Contractor. The Contractor shall make contact with the third party claimant within 48 hours of receipt of notice of a claim. The Contractor shall initiate an investigation of the claim immediately upon notice and advise the third party claimant in writing, with a copy to the Region, of the status of their claim within 20 business days of the notice. Upon resolution of the claim, the Contractor shall issue a letter to the Claimant, with a copy to the Region, which will include the reasons for their position.

Should this position not resolve the claim and not be accepted by the third party claimant, the Contractor shall immediately report the claim to its Insurer for a further review. (Insurer for this purpose is defined as either the Claims Department of the Contractor's Insurance Company or the Claim's Administrator at the Contractor's Insurance Broker.) The Contractor's Insurer upon receipt of this claim shall advise the third party claimant by letter, with a copy to the Region, that they are now investigating the claim. When a final position on the claim has been determined, the Contractor's Insurer shall

advise the third party claimant by letter, with a copy to the Region. Failure to follow this procedure shall permit the Region to investigate and resolve any such claims.

Nothing herein shall limit the right of the Region to investigate and resolve any such claims notwithstanding the response of the Contractor and/or its Insurer and to seek indemnification from the Contractor or to exercise any other rights under the Contract.

The Region may, without breaching this contract, retain from the funds owing to the Contractor an amount that, as between the Region and the Contractor, is equal to the balance in the Region's favour of all outstanding debts, claims or damages, whether or not related to this contract.

#### **10. Working Drawings**

The following requirements are in addition to OPS GCC Clause 3.02.

Prior to submission to the Contract Administrator the Contractor shall review all working drawings. By this review the Contractor represents that the Contractor has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data or will do so and that the Contractor has checked and co-ordinated each working drawing with the requirements of the Work and of the Contract Documents. The Contractor's review of each working drawing shall be indicated by date and signature of a responsible person.

#### **11. Executing Repairs**

The Contractor shall execute all repairs within ten (10) days of receipt of the order of the Contract Administrator. If the repairs are not carried out within ten (10) calendar days, the Region may make the repairs and charge the cost of the work to the Contractor.

If immediate repairs shall be deemed necessary by the Contract Administrator, the Region shall notify the Contractor at the earliest possible time, but shall be allowed to repair the work prior to notice and charge the cost of such work to the Contractor or deduct the cost of said repairs from any monies owing to the Contractor.

#### **12. Connections with Existing Services**

The Contractor shall construct all connections to join the work of this Contract to existing services. Unless otherwise provided in the Schedule of Unit Prices, no additional payment shall be made for connections. In the case of existing

manholes, the connection shall be deemed to include all manhole reconstruction and rebenching. All salvageable materials shall become the property of the Region.

When a connection is to be made, the Contractor shall expose the end of the existing service for inspection by the Contract Administrator. No claim by the Contractor shall be allowed for any delays due to changes in design which may be required due to the revealed conditions. All connections are to be watertight.

### **13. Winter Work**

Where the completion of work in this Contract makes necessary the performance of all or any part of the Contract work under winter conditions, then, excepting as specifically otherwise provided in the Contract, the Contractor shall do all things necessary for the performance and protection of such winter work without additional compensation or claim therefore.

### **14. Safety**

The Contractor agrees to be the constructor for the purposes of the Occupational Health and Safety Act.

Prior to the commencement of the work, the Contractor shall file a Ministry of Labour project notice and shall provide a copy of the notice to the Region.

In addition to any requirements under the Occupational Health and Safety Act or other applicable legislation, the Contractor will report to the Region any accident or incident involving Contractor, Regional, or public; personnel and/or property, arising from the Contractors execution of the work.

If the Contractor is responsible for a delay in the progress of the work due to an infraction of legislated or Contractor health and safety requirements, the Contractor will, without additional cost to the Region, work such overtime, acquire and use for the execution of the work, such additional labour and equipment as to be necessary, in the opinion of the Contract Administrator to avoid delay in the final completion of the work or any operations thereof.

### **15. Weighing of Materials**

Weight measurements shall be made by a weigh person supplied by the Contractor.

The Region will accept the Contractor's properly completed weight tickets for determining the quantity of weighed material delivered to the construction site. These tickets must be signed by the Region's inspector on the job-site for the acceptance of material at the time that the material is placed.

The Contract Administrator may carry out periodic checks of the net weight shown on the weigh tickets by re-weighing loaded vehicles and re-establishing tare weights. If, for any reason, any checked net weight is lighter by 130 kg or more, all weigh tickets issued since the previous acceptable check for all Regional contracts originating from the same source will be reduced by the actual difference in weight as determined by the Contract Administrator.

## **16. Roadway Cleanup**

From time to time during the progress of this Contract, the Contractor may be required to clean haul routes which may have become unacceptably covered in dirt as a result of Contract operations. It shall be the sole responsibility of the Contractor to maintain existing streets affected by the operations, and no additional payment shall be made for such work. The cost of this work shall be included in the Unit Prices bid for the various phases of the work. Furthermore, action to clean such streets shall be taken immediately upon instruction to do so by the Contract Administrator. Otherwise, cleaning will be arranged by the Region and the cost will be deducted on the Progress Payment Certificate.

## **17. Contractor Submissions**

Prior to commencing construction, the Contractor shall submit to the Contract Administrator all documentation required by the Contract. Without limiting the generality of the foregoing, such documentation shall include, as a minimum:

- (a) Health and Safety Policy;
- (b) Equipment List (including rates) and Labour Rates;
- (c) Construction Schedule (Gantt chart format);
- (d) Ministry of Labour Notice of Project;
- (e) Traffic Control Plan;
- (f) Erosion and Sediment Control Plan;
- (g) List of Project Personnel and contact information, including 24-hour emergency contacts;
- (h) Certificate of Insurance (on Region standard form);
- (i) WSIB Clearance Certificate;
- (j) Concrete and asphalt mix designs;
- (k) List of working drawing submittals and submittal schedule;

- (l) Watermain Commissioning Plan;
- (m) Approach to Excess Soil Management Plan;
- (n) Excess Soil Destination Assessment Report;
- (o) Soil Tracking and Data Management Plan;
- (p) Source Site Documentation for Imported Soil, where applicable; and
- (q) All other documentation specified in the Contract.

Following construction, the Contractor shall submit a final Excess Earth Quantity Report and Verification of Excess Soil Reuse Plan per the requirements of RWSSP 180.

## **18. Incidental Items**

The following is a partial list of items the cost of which is to be included in the Unit Prices of the Tender unless specifically included as a separate tender item. No additional payment will be made for the following:

- (a) Cost of bonds and insurance.
- (b) Cost of permits and fees.
- (c) Cost of providing and maintaining barriers, signs and lights as required for the safe and proper movement of pedestrians within the immediate Contract limits.
- (d) Cost of protecting existing utilities.
- (e) Cost of equipment and labour required to maintain existing roads and streets used by the Contractor as a haul road, if and when the Contract Administrator directs that the Contractor's operations were the direct cause of damage and/or dirtying of streets.
- (f) Cost of coordination with utility companies and other contractors working in the area.
- (g) Cost of construction schedule preparation and printing on a minimum bi-weekly basis or more frequently as required by changes in the work or as requested by the Contract Administrator.
- (h) Cost of attendance at meetings.
- (i) Cost of preparing, submitting and revising shop drawings, as required.

- (j) Cost of preparing, printing and revising all other submittals, as required.
- (k) Cost of garbage pickup within the work area.
- (l) Cost of regular roadway cleanup.

## **19. Inspector and Inspection**

All work to be done under the Contract shall be done to the satisfaction of the Contract Administrator or of an agent or inspector authorized to act for the Contract Administrator. The Inspector is required by the Contract Administrator to see that the provisions of the Contract are faithfully adhered to, especially in regards to the quality of the workmanship and materials, and may stop the work entirely if there is not a sufficient quantity of suitable and approved material on the site to carry on the work properly or for any good and sufficient reason. In particular, but without limiting the powers of the Inspector, orders given by the Inspector relating to the quality of material or workmanship or in respect of safety or public convenience must at once be obeyed by the Contractor. The Inspector shall have the power to suspend any worker for incompetence, drunkenness, negligence or disregard of orders and the Contractor shall ensure that any worker so suspended is forthwith removed from the site.

Materials and equipment and the process of preparation or manufacture of materials or equipment shall at all times be subject to inspection, testing and rejection at any stage by the Contract Administrator or the Contract Administrator's agent. The Contract Administrator will give the Contractor reasonable notice of the materials and equipment in respect of which the Contract Administrator proposes to have inspection or testing carried out during the process of preparation or manufacture, save that in the case of materials or equipment specifically stated in the Contract as required to be tested or inspected by or in the presence of the Contract Administrator, the Contract Administrator shall not be obliged to give such notice.

The Contractor shall notify the Contract Administrator in writing at least seven days previous to the commencement of preparation or manufacture of each item of such materials or equipment of the time and place at which such preparation or manufacture is to commence in order that the Contract Administrator may be present.

Notwithstanding compliance by the Contractor with the foregoing paragraph hereof, if any materials or equipment prepared or manufactured away from the site of the works and required by the Contract or by the Contract Administrator to be inspected or tested by or in the presence of the Contract Administrator at the place of preparation or manufacture become ready for delivery to the site of the

works but have not been inspected or tested as required, the Contractor shall so notify the Contract Administrator in writing and shall not have such materials or equipment delivered to the site of the works until authorized to do so in writing by the Contract Administrator.

In any event, no materials or equipment required by the Contract or by the Contract Administrator to be inspected or tested by or in the presence of the Contract Administrator shall be incorporated into the work until the required inspection or testing has been carried out to the satisfaction of the Contract Administrator.

The Contractor shall provide, and shall ensure that all Subcontractors and those carrying out the process of preparation or manufacture shall provide, every reasonable facility and cooperation to assist the Contract Administrator or Inspector or others designated by the Contract or by the Contract Administrator in carrying out inspection and testing.

The Contractor shall not backfill or otherwise cover up any work without either having it inspected and passed by the Inspector or first notifying the Inspector in a manner approved or as directed by the Contract Administrator that the work is ready to be covered up and allowing the Inspector reasonable notice and opportunity for carrying out an inspection. Any work covered up other than in accordance with the foregoing shall, if ordered by the Inspector or the Contract Administrator, be uncovered or opened up for inspection and the Contractor shall, as directed by and to the satisfaction of the Inspector or the Contract Administrator, make good again all openings, excavations and disturbances of any property, real or personal, resulting therefrom, all at the Contractor's expense.

No approval by an Inspector or by the Contract Administrator or failure of an Inspector or the Contract Administrator to carry out an inspection shall relieve the Contractor of any obligations under the Contract or shall be interpreted as being an acceptance of defective or improper work or material which must in every case be removed and replaced properly or otherwise rectified in a satisfactory manner whenever discovered at any time.

If, in addition to the inspection provided for above, the Contractor is required by the Contract, by law, by local by-law or by the Contract Administrator to have any part of the works inspected by others, the Contractor shall give the Contract Administrator and the others concerned reasonable notice of the time and date proposed for the additional inspection.

## **20. Contingency Allowance**

The Contract Price includes the contingency allowance, if any is stated in the Contract Documents. Expenditures under the contingency allowance shall be authorized by the Contract Administrator. The contingency allowance will be used to pay for unforeseen Contract work which may or may not arise during the course of construction.

## **21. Subcontractors**

Clause GC3.09 is supplemented by the following:

There is no relationship between the Region and any Subcontractor. The Subcontractor remains at all times contractually responsible to the Contractor.

No Subcontractor shall have any right to make the Region or any adviser, agent, officer or servant thereof a party to any action at law in respect of a Subcontract by reason of this Contract.

## **22. Taxes and Duties**

Clause GC8.02.08 is deleted and replaced with the following:

The Contract Price shall include all taxes and customs duties, except for the Harmonized Sales Tax (HST), in effect at the time of the bid closing and any increase or decrease in costs to the Contractor due to changes in such included taxes and duties after the time of the bid closing shall increase or decrease the Contract Price accordingly. The Contractor shall keep a record of all taxes and duties carried in the Contract Price and records and invoices of accounts subject to such taxes and duties paid for substantiating any adjustments in the event of changes in legislation during the course of the Contract and for the purpose of claiming exemption or recovering taxes and duties paid.

The Region shall pay all applicable HST in addition to the Contract Price.

Upon execution of this agreement, the Contractor shall provide the Region with its GST registration number.

For out of Ontario bidders who have a GST registration number, the Contractor shall invoice the Region for the Ontario HST for applicable goods and services delivered in Ontario.

For out of Ontario Contractors who do not have a GST registration number, the Region will self-assess the HST on applicable goods and services delivered in Ontario. If the Contractor does not have a business office in Canada and does

not provide a waiver of income tax withholding from the Canada Revenue Agency, the Region will withhold and remit income tax as necessary

**23. Ontario Human Rights Code**

The Contractor agrees to abide by the provisions of the Ontario Human Rights Code, latest edition, in carrying out the works in this Contract.

**24. Standard Specifications**

Reference to published standard specifications shall be the edition current at the time of the closing of bids.

Any specification and/or standard drawing references included with the contract tender items in the Schedule of Unit Prices are for convenience only and are not meant to be considered all inclusive with respect to the standards and specifications applicable to each tender item.

**25. Underground and Aboveground Utilities and Structures**

Clause GC2.01.01 is deleted and replaced with the following.

The position of all pole lines, conduits, watermains, sewers and other underground and aboveground utilities and structures is not necessarily shown on the Contract Drawings, and, where shown, the accuracy of the position of such utilities and structures is not guaranteed. Before starting works the Contractor shall investigate the exact locations of such utilities and structures, and shall be liable for damages to them as a result of any act or omission, whether or not the result of negligence, by those for whom the Contractor is responsible. Unless otherwise specified, the Contractor shall temporarily support or relocate such utilities and structures, or temporarily remove them, and restore them, to the satisfaction of the owners of the utilities and structures.

Permanent relocation of underground or overhead utilities will be performed and paid for by others, if necessitated by coincidence of lines or grades, or both. The Contractor shall be responsible for scheduling permanent relocations of utilities with the Contract Work.

**26. Language Submission**

All submissions of correspondence, shop drawings, test results, support documentation, operating and maintenance manuals etc., if submitted in another language shall be accompanied by an English version.

## 27. Work Permit

The Contractor shall obtain a Regional Road Work Permit before proceeding with any work on the Regional road system. The Regional Road Work Permits shall be obtained from the Regional Municipality of Waterloo, Transportation Division.

## 28. Payment on a Time and Material Basis

Clause OPS GC 8.02.05.01.01, Definition for Cost of Labour; is deleted and replaced in its entirety by the following:

**Cost of Labour:** means the amount of wages, salary, Payroll Burden paid or incurred directly by the Contractor to or in respect of labour and supervision actively and necessarily engaged on the Work based on the recorded time and hourly rates of pay for such labour and supervision, but shall not include any payment or costs incurred for general supervision, administration or management time spent on the entire Work or any wages, salary or Payroll Burden for which the Contractor is compensated by any payment made by the Region for Equipment.

Clause OPS GC 8.02.05.01.01, Definition for The 127 Rate; is deleted and replaced in its entirety by the following:

**The 127 Rate:** means the rate for a unit of Equipment as listed in **OPSS.MUNI 127 issued April 2017**, Schedule of Rental Rates for Construction Equipment, Including Model and Specification Reference, that is current at the time the work is carried out or for Equipment that is not so listed, the rate that has been calculated by the Owner, using the same principles as used in determining The 127 Rates.

## 29. Clean Air Initiative

The Contractor shall not re-fuel any equipment on any day between the hours of 8:00 a.m. and 6:00 p.m. The only exception will be for equipment that runs out of fuel during the work day that had been re-fuelled prior to the start of the work day.

The Contractor shall also shut down any equipment idling for more than 10 minutes during the work day.

## 30. Emergency Spill Response

The Contractor shall note and record the following numbers in their emergency contact list to be retained on-site for response to emergency spills and/or testing of suspected contaminated materials which may be discovered on-site.

In the event that either should occur, the Contractor shall as a first course of action contain and/or secure the materials, advise the Contract Administrator, full-time on-site representative (Inspector) and the Region Representative(s) and immediately contact the following:

Ministry of the Environment Phone: 1-800-268-6060 (Spill)

Region of Waterloo Phone: 519-650-8260 (during normal business hours) or  
519-575-4400 (after hours) (Spill)

Local office of the Ministry of the Environment (contaminated materials on-site):

Ministry of the Environment  
Guelph District Office  
1 Stone Road West  
Guelph ON N1G 4Y2  
Toll Free: 1-800-265-8658  
Phone: (519) 826-4255  
Fax: (519) 826-4286

The Contractor is also referred to the following website for further information on reporting Spills and Environmental Emergencies:

<https://www.ontario.ca/page/report-pollution-and-spills>

### **31. Notices by Contractor**

Clause GC7.11 is supplemented by the following.

The Contractor shall provide a minimum of 48 hours notice to all abutting property owners where construction will impact access to the property; however, in the case of commercial properties, a minimum of 72 hours notice shall be provided.

The Contractor shall provide a minimum of one (1) weeks notice to an abutting property owner where construction will impact an underground irrigation system located within the public right-of-way or on private property to provide sufficient time for the property owner to remove the underground irrigation system.

### **32. Construction Schedule**

Clause GC7.01.07 is supplemented by the following.

The Contractor shall provide a detailed construction schedule in Gantt chart format at the pre-construction meeting. The construction schedule shall be updated by the Contractor on a minimum bi-weekly basis or more frequently as

required due to changes in the work or as requested by the Contract Administrator.

**33. Attendance at Meetings**

The Contractor shall attend a pre-construction meeting, bi-weekly site progress meetings, and other meetings as arranged by the Contract Administrator.

**34. Owner's Right to Terminate**

The Region shall have the right, in its sole discretion, to delete any part of the Contract or to terminate the Contract in its entirety for any reason upon five (5) days written notice to the Contractor. The Contractor shall comply with any instructions issued by the Contract Administrator relating to the timing and method of deletion or termination and demobilization. In the event of such deletion or termination, the Contractor shall be entitled to payment for all work completed up to the date of such deletion or termination plus actual costs incurred by the Contractor to comply with the Contract Administrators instructions and remove equipment, materials and labour from the site. For greater certainty, the Contractor shall not be entitled to any claim for loss of profit or anticipated profit, loss of business opportunities, or any other indirect or consequential damages that may arise from the Region's right to delete or terminate all or part of the Contract.

The Owner shall publish a notice of termination in the manner set out in the Construction Act.

**35. Maintenance Security Holdback**

The Region will retain a Maintenance Security Holdback to be calculated as 1% of the value of the Work performed and Material supplied, as shown on the monthly progress Payment Certificate.

The Maintenance Security Holdback shall be first retained by the Region when the monthly progress Payment Certificate shows that 70% or more of the total estimated value of the work has been performed and the Maintenance Security Holdback will be shown as an amount on that and all subsequent progress Payment Certificates. For the purpose of this determination, the total estimated value of the work shall be the Total Tender Price less the Total Contingency Sum plus approved Contract Change Orders.

At the time of Substantial Performance (or Completion where there is no Certificate of Substantial Performance), the Contractor may apply in writing to the Contract Administrator to substitute for the monies retained as Maintenance

Security Holdback an alternative maintenance security of equivalent or greater value comprising:

- (a) an irrevocable letter of credit;
- (b) a certified cheque; or
- (c) other acceptable and readily negotiable security.

The acceptance of any such alternative maintenance security shall be at the sole discretion of the Contract Administrator and the Region.

Should the Contractor fail to comply promptly with Clause GC 7.16, Warranty, of the OPS General Conditions of Contract, or any other obligations under the Contract, the Region may make arrangements for performance of any necessary work or other completion of the Contractor's obligations and recover the costs from the monies retained as Maintenance Security Holdback, or otherwise collect the cost from the Contractor.

The Maintenance Security Holdback, less any deductions made therefrom as provided for in the Contract, will be released to the Contractor upon the expiration of the Contract warranty period or Final Acceptance (OPS GC 1.06) whichever is later. The Region will not pay any interest on monies being withheld as Maintenance Security Holdback.

A Final Release of All Claims form and Statutory Declaration form, each in a format deemed acceptable by the Owner, shall be submitted by the Contractor along with the Proper Invoice for the Maintenance Holdback Release. The Statutory Declaration form shall include:

- The Contract number and location of the project;
- The date of last work done on the project for which the declaration has been made; and
- The release of holdback amount for which the declaration has been made

### **36. Contractor Performance Evaluation**

The Region, at any time during and/or after the completion of the Contract, may conduct a formal evaluation of the Contractor's performance using a performance evaluation form as established by the Region. The results of the formal performance evaluation shall be provided to the Contractor.

If the Contractor obtains a score of less than 80% on any contract, then the Region shall place the Contractor on probation for a period of two years from the date that the Region gives the Contractor notice of the probation. If a Contractor receives a score of less than 80% on a final performance evaluation for a

contract during a probation period then the Region shall suspend the Contractor for a period of two years from the date that the Region gives the Contractor notice of the suspension and the Region shall not open and consider any bids or otherwise acquire any goods or services from the Contractor. At the conclusion of the suspension period, the Region may open and consider bids from the Contractor, and otherwise acquire any goods or services from the Contractor, but the Contractor will be on probation for a one year period commencing on the date that the suspension concludes.

The Contractor may, within 15 days of receipt of a performance evaluation, write to and request that the Region's Chief Financial Officer review the performance evaluation in relation to the grounds as set out in the Contractor's written request. Upon receipt of a written request, the Chief Financial Officer shall review the performance evaluation based on the grounds set out in the request and the Chief Financial Officer shall have all the authority to either revise or confirm the performance evaluation. At the conclusion of the review, the Chief Financial Officer shall advise the Contractor in writing of his or her decision and the Contractor agrees to be bound by such without any further right of review or appeal to any court or other body having lawful jurisdiction.

This provision shall not limit the ability of the Region in any way to utilize third party references, internal references, performance evaluations or other information when considering this or any other bid.

The Region's performance evaluation process shall not limit any other rights or remedies of the Region including those rights and remedies as set out in the Contract.

The Contractor agrees to the terms of the performance evaluation process as set out herein and shall adhere, both during and after the term of the Contract, as applicable.

### **37. Workplace Safety and Insurance Board (WSIB)**

The successful bidder must be registered as an employer or independent operator (as the case may be) with the Workplace Safety and Insurance Board (WSIB). The contractor shall be required to enroll in the WSIB e-Clearance service and provide the Region with a Clearance Certificate Number through the e-Clearance service. The contractor must maintain his or her account with the WSIB in good standing throughout the duration of the work under the Contract, and shall ensure that its e-Clearance is automatically renewed prior to its expiry. At no time may work proceed or continue under the contract in the absence of a current Clearance Certificate Number from the WSIB.

**38. Accessibility For Ontarians With Disabilities Act (AODA)**

The contractor shall comply with the provisions of the Accessibility for Ontarians with Disabilities Act, 2005, and the Regulations there under with regard to the provision of its goods or services contemplated herein to persons with disabilities. Without limitation, if applicable, pursuant to section 6 of Ontario Regulation 429/07, Accessibility Standards for Customer Service, made under the Accessibility for Ontarians with Disabilities Act, 2005, the Bidder shall ensure that all of its employees, agents, volunteers, or others for whom it is at law responsible, receive training about the provision of its goods and services to persons with disabilities.

**39. Coordination of Region Forces as Subcontractor**

Unless specified otherwise, it is a requirement of the Contract that members of the Region of Waterloo Traffic Operations workforce (herein referred to as "Region Operations") will be conducting work on the Contract as Subcontractor to the Contractor. The work to be undertaken by Region Operations as Subcontractor may include activities related to traffic signals, traffic signs and/or pavement markings. Specifically, as applicable on each contract, if no contract pay item exists Region Operations work will entail any or all the following:

(a) Traffic Signals

- Installation of temporary and/or permanent traffic signal equipment including signal heads, wiring and traffic controller (poles, handwells, conduit, loops and controller pads by others under tender items)
- Adjustments to signal timing
- Relocation of signal heads for construction staging
- Removal of temporary traffic signal equipment

(b) Traffic Signs

- Removal and storage of existing signs and posts
- Installation of temporary and permanent signs including posts
- Removal of temporary signs and posts
- Installation/removal of all road closure detour signs (outside of construction zone)

(c) Pavement Markings

- Grinding of pavement markings
- Pre-marking of roadway for pavement markings
- Installation of temporary and/or permanent pavement markings

The terms and conditions of the Contract insofar as they apply to a Subcontract shall govern the relations between the Contractor and Region Operations, as applicable, with the specific exception that: (a) there will be no payment made by the Contractor to Region Operations for the work undertaken by Region Operations; (b) the Contractor shall not be liable for nor required to indemnify and hold harmless the Region for any negligence, breach of contract and / or breach of law by Region Operations in carrying out the Subcontract; and (c) the Contractor shall not be liable for nor warrant any defects in the work caused by Region Operations. There will be a tendered pay item for “Coordination of Region Forces as Subcontractor” which will cover compensation for the administration and coordination effort necessary on the part of the Contractor to incorporate the Region Operations activities.

As Subcontractor to the Contractor, Region Operations acknowledges that the Contractor will be in control of the site and that Region Operations will work in compliance with the Contractor’s health and safety plan and conditions. The Region of Waterloo shall provide the following documentation to the Contractor: Region Operations’ Health and Safety training records; WSIB certificate of good standing (as a Schedule 2 employer); and a completed Form 1000 for the Registration of Constructors and Employers Engaged in Construction. Region Operations will complete supplemental health and safety training and/or documentation as required to comply with the Contractor’s health and safety program.

The Contractor and Region Operations will come to a mutually acceptable timeframe for coordination of the work by Region Operations. Where reasonably possible, notice shall be provided at least one week in advance for the coordination of activities to be undertaken and completed by Region Operations.

In accordance with the Occupational Health and Safety Act of Ontario (OHSA), the Contractor is designated as Constructor for the Contract. The Constructor is responsible to complete, submit to the Ministry of Labour and post the Notice of Project being Ministry of Labour form #0175. The Constructor shall be responsible to take all necessary precautions to protect persons (workers, general public, etc.) and property from any harm during the course of the work. The Constructor shall only permit persons familiar with and abiding by the OHSA

on site, and be responsible to remove any persons not observing or complying with the safety requirements of the OHSA.

#### **40. Performance Bond and Labour/Materials Payment Bond**

The Contractor shall, unless otherwise directed by the Owner, provide to the Owner Contract security as follows:

- (a) Performance Bond from a surety licensed by law to do business in the Province of Ontario for 50% the Contract Price plus HST; and
- (b) Labour and Materials Payment Bond issued from a surety licensed by law to do business in the Province of Ontario for 50% the Contract Price plus HST.

Such security will be held for the warranty period.

#### **41. Statutory Holdback Release on Multi-year Contracts**

Subject to the provisions of the Construction Act (ie. only applicable to contracts over \$10M in value), where work has to be suspended for the winter Statutory Holdbacks will be released annually on multi-year contracts where substantial performance has been achieved for the prescribed work for that year. The overall contract warranty period however will only commence after final substantial performance of the entire contract.

#### **42. Amendments to OPS.MUNI General Conditions**

OPS.MUNI General Conditions are amended as follows (to accommodate the Provisions of the New Construction Act):

- a) OPS.MUNI Section GC 1.04 (“Definitions”) is amended as follows:

The definition of “Rate of Interest” is deleted and replaced as follows: “Rate of Interest means the prejudgment interest rate determined under subsection 127 (2) of the *Courts of Justice Act*.”

- b) OPS.MUNI Section GC 3.01 (“Contract Administrator’s Authority”) is amended as follows:
  - i. in clause GC 3.01.03, delete the words “to establish payment quantities” and replace with “to document payment quantities for verification purposes”.
  - ii. delete clause GC 3.01.04

- c) OPS.MUNI Section GC 3.11 (“Notices”) is amended as follows:

Add new clause GC 3.11.05 as follows: “Any notice pursuant to the Construction Act shall be served in accordance with the requirements set out in the Construction Act or its regulations. All notices including but not limited to a Notice of Non-Payment of Holdback, a Notice of Termination or a Certificate of Substantial Performance shall be published in a construction trade newspaper as defined in O.Reg. 304/18.”

- d) OPS.MUNI Section GC 3.0 (“Administration of the Contract”) is amended as follows:

Add new clause GC 3.16 Adjudication – “Notwithstanding any other foregoing paragraph, the Contractor or the Owner may at any time refer to adjudication a dispute in accordance with the Construction Act. However, an adjudication may not be commenced if the notice of adjudication is given after the date the Contract is completed, unless the parties to the adjudication agree otherwise in writing.

A notice of adjudication may not be given by either party during the period December 20 to January 5 inclusive, on Saturdays, on holidays as defined in the Legislation Act, or during the week leading up to a long weekend. All adjudications in person will be held within the jurisdictional boundaries of the Region of Waterloo unless the Parties agree otherwise.

In accordance with the Construction Act, and notwithstanding the completion of the Contract, the parties may refer to adjudication a dispute with the other party to the Contract respecting any of the following additional matters:

- i. disputes regarding indemnification; and
- ii. disputes regarding the Contractor’s obligation to perform warranty work.

In addition to the powers prescribed in the Construction Act, the adjudicator shall have the following additional powers:

- i. compelling a party to perform warranty work;
- ii. to stay an adjudication where there is an abuse of process; and
- iii. compelling the parties to attend a settlement meeting.”

- e) OPS.MUNI Section GC 4 (“Owner’s Responsibilities and Rights”) is amended as follows:

- Add new clause GC 4.14 – “Notwithstanding any other foregoing paragraph, in the event the Owner elects to terminate the Contract the Owner shall publish a notice of termination in the manner set out in the Construction Act.”
- f) OPS.MUNI Section GC 7.10 (“Contractor’s Right to Stop the Work and or Terminate the Contract”) is amended as follows:
- i. Delete clause GC 7.10.03 a) and b).
  - ii. Add new clause GC 7.10.06 – “Notwithstanding any other paragraph, in the event the Contractor elects to terminate the Contract the Contractor, or the Owner at its discretion, shall publish a notice of termination in the manner set out in the Construction Act.”
- g) OPS.MUNI Section GC 8.01.01 (“Quantities”) is amended as follows:
- Delete clauses GC 8.01.01.01 and GC 8.01.01.02.
- h) OPS.MUNI Section GC 8.02.04.01 (“Progress Payment”) is amended as follows:
- Delete clause GC 8.02.04.01.02, .03 and .04 and replace with the following:
- ““The Contractor shall submit a Proper Invoice as defined in the Construction Act and every Proper Invoice shall include a schedule of unit prices and quantities in a format acceptable to the Region, showing the Work completed to date, any advance payment for material, the amount of statutory holdback, liquidated damages, maintenance holdbacks, liens, applicable taxes and the amount due to the Contractor. Proper Invoices may be submitted monthly after the Cut-Off Date as the Work progresses. Proper Invoices may not be submitted during the period December 20 to January 5 inclusive, on Saturdays, or on holidays as defined in the Legislation Act.
- The Contractor shall submit all Proper Invoices to both the Owner and the Consultant Contract Administrator (if applicable), in a legible electronic format, to their respective email addresses as indicated in the Contract Agreement (under “RECEIPT OF AND ADDRESSES FOR NOTICES IN WRITING”). A Proper Invoice is deemed not to have been received by the Owner until electronic copies have been delivered to the both the Owner and the Consultant.
- Prior to each Proper Invoice, the Contractor and Contract Administrator shall jointly check the progress of the Work at the site and make approximate measurements of the work completed under the Contract, except where the work has been delayed or suspended. The joint checking of progress on the

site does not bind the Contractor or the Owner in any manner in the preparation of the Proper Invoice for the Work constructed by the Contractor under this Contract.

After receipt by the Owner of a Proper Invoice submitted by the Contractor, the Contract Administrator will issue to the Owner with a copy to the Contractor, no later than 10 calendar days after receipt of the Proper Invoice, a statement recommending payment in the amount applied for, or in such amount as the Contract Administrator determines is properly due. Should the amount owing as determined by the Contract Administrator differ from the amount of the Contractor's Proper Invoice, the Owner must give notice of non-payment to the Contractor on the prescribed form as described in the Construction Act within the fourteen (14) day period from receipt of the Proper Invoice.

Subject to the delivery of a notice of non-payment by the Owner to the Contractor in accordance with the Construction Act, the Owner shall make payment to the Contractor on account as provided within the twenty-eight (28) day period from receipt of the Proper Invoice as described in the Construction Act."

- i) OPS.MUNI Section GC 8.02.04.03 ("Subcontract Statutory Holdback Release Certificate and Payment"), GC 8.02.04.05 ("Substantial Performance and Substantial Performance Statutory Holdback Release Payment Certificates") and GC 8.02.04.07 ("Completion Payment and Completion Statutory Holdback Release Payment Certificates") are amended as follows:
- i. Add new clause to each section: "The Owner may refuse to pay some or all of the statutory holdback amount if the Owner publishes a notice of non-payment in the manner as set out and within the 40 day period as prescribed in the Construction Act."
  - ii. Add new clause to each section: "A Release of Claims form and Statutory Declaration form, each in a format deemed acceptable by the Owner, shall be submitted by the Contractor along with the Proper Invoice for any Holdback Release. The Statutory Declaration form shall include:
    - The Contract number and location of the project;
    - The date of last work done on the project for which the declaration has been made; and

- The release of holdback amount for which the declaration has been made.”
- j) OPS.MUNI Section GC 8.02.04.12 (“Delay in Payment”) is amended as follows:

Delete clause GC 8.02.04.12.01.

#### **43. Construction Liens**

The Contractor shall, and shall take all reasonable steps to, ensure that all accounts for materials supplied, products, construction equipment, labour, subcontracts, sub-subcontracts, construction machinery and equipment associated with or related to the Work are paid in a timely manner and in accordance with the Construction Act so as to ensure that no lien or claim for lien attaches to or is registered or filed with the Owner’s Clerk against the Contractor, the Owner, or any property of the Owner, provided the foregoing shall not apply in respect of third party claims that are not related to the Contractor, the Work, the Temporary Work, the Project, the Construction Equipment, or the Products, or which arise as a direct result of Owner's failure to pay Contractor undisputed amounts duly owed by the Owner to Contractor pursuant to the terms of this Contract.

The Contractor shall ensure that other liens do not attach to, nor are advanced, registered or filed with the Owner’s Clerk against, the Owner, the Work, the Temporary Work, the Project, the Construction Equipment or the Products or other construction machinery or equipment, or the labour associated with any of the foregoing, the Owner's interest in or to the any of the foregoing, or other property of the Owner provided the foregoing shall not apply in respect of third party claims that are not related to the Contractor, the Work, the Temporary Work, the Project, the Construction Equipment, or the Products, or which arise as a direct result of Owner's failure to pay Contractor undisputed amounts duly owed by Owner to Contractor pursuant to the terms of this Contract.

If any Construction Act lien or claim for lien or other lien attaches to, or is advanced, registered or filed with the Owner’s Clerk against the Owner, the Building Lands, the Building, the Place of the Work or the Owner's interest in or to the Building Lands or the Building or, if any other lien related to the Contractor, the Services, the Work, the Temporary Work, the Project, the Construction Equipment or the Products or other construction machinery or equipment, or the labour associated with any of the foregoing attaches, is registered or filed with the Owner’s Clerk, in breach of the foregoing paragraphs, the Contractor shall discharge such lien or claim for lien, as applicable, at the Contractor's sole cost and expense within ten (10) calendar days after notice from the Owner.

If the Contractor fails to properly and expediently fulfill its obligations under this provision, the Owner may, at the Owner's option, discharge the lien or claim for lien by any means whatsoever including, without limitation, by payment of monies into court or, in the case of other liens only, directly to the lien claimant or by taking such other action as the Owner, in the Owner's sole discretion, deems to be expedient or advisable to effect the immediate discharge of the lien or other lien whether or not the validity of such lien or other lien is admitted or denied by the Contractor or any other person. Any monies or expenses paid by or costs incurred by the Owner including, without limitation, legal fees and disbursements on a substantial indemnity basis and all monies paid into court as security for costs, shall be paid by the Contractor to the Owner within five (5) calendar days of the issuance of an invoice therefor by the Owner. The Owner may, at the Owner's option, holdback or set-off all or a portion of such monies, costs and expenses from the Price of the Work, or any other amount owing to the Contractor as applicable, or any payment on account to the Contractor, as applicable, or backcharge to the Contractor such sum of money as will fully indemnify Owner for such costs and expenses.

Notwithstanding any provision to the contrary in the Contract Documents or any customary practice or any common industry practice, in no event shall the Owner be required to make any payment to the Contractor of any kind whatsoever when any Construction Act lien, claim for lien or other lien relating to the Contractor, the Work, the Temporary Work, the Project, the Construction Equipment or the Products is registered or filed with the Owner's Clerk against the Owner, the Building, the Building Lands or, the Owner's interest in either or both.

#### **44. Living Wage**

The Contractor at its sole expense shall pay, as a minimum, a Living Wage to each of its employees, workers and contractors, except those that are students, engaged on the premises of the Region by the Contractor pursuant to this Contract. The Living Wage will be the hourly rate for Waterloo Region as set from time to time by the Ontario Living Wage Network <https://www.ontariolivingwage.ca/>. Students are persons under the age of 18 who work 28 hours a week or less when school is in session or work during a school break or summer holidays. The Region shall reserve the right to audit the Contractor's employment, worker and Contractor records to verify compliance with this provision and to set-off any monies in the event that a breach is determined. In no way shall this provision prevent the Contractor from paying its employees, workers and Contractors an hourly rate that is more than a Living Wage.

## **The Regional Municipality of Waterloo**

### **Unit Price Contracts**

#### **Standard Specifications (RWSS) - 39 pages**

- Note 1:** Where these specifications are used for work done by a utility proponent or other contractor not working on a Regional contract, clauses in these specifications related to “Basis of Payment” and “Measurement for Payment” do not apply.
- Note 2:** The Standard Specifications in this section and the Standard Special Provisions in the next section were previously referred to as “Regional Municipality of Waterloo Standard Specifications for Road Construction” (or “SSRC”). The contents of these two sections are deemed part of the “SSRC” when referred to as such in the Regional Work Permit By-law and in other applicable documentation.

## Index

### Regional Municipality of Waterloo Standard Specifications (RWSS)

| <b>Title</b>   | <b>Page</b> |
|--|-------------|
| Definitions  | <b>1</b>    |
| RWSS-01 Contract Administrator's Field Office                          | <b>2</b>    |
| RWSS-02 Temporary Traffic Control                                      | <b>4</b>    |
| RWSS-03 Coordination of Work By Others                                 | <b>12</b>   |
| RWSS-04 Materials Testing  | <b>13</b>   |
| RWSS-05 Garbage Collection   | <b>13</b>   |
| RWSS-06 Replacement of Existing Driveways, Private Walkways, and Curbs | <b>14</b>   |
| RWSS-07 Cold Planing   | <b>17</b>   |
| RWSS-08 Not used   |             |
| RWSS-09 Steel Plates   | <b>18</b>   |
| RWSS-10 Maintenance of Restored Pavement                               | <b>19</b>   |
| RWSS-11 Lines and Grades   | <b>20</b>   |
| RWSS-12 Coloured Impressed Concrete                                    | <b>22</b>   |
| RWSS-13 Truncated Dome Detectable Warning Plates                       | <b>22</b>   |
| RWSS-14 Contractor Responsibility for Repairs Within Construction Zone | <b>23</b>   |
| RWSS-15 Modular Retaining Walls  | <b>24</b>   |
| RWSS-16 Bird and Wildlife Protection                                   | <b>24</b>   |
| RWSS-17 Phragmites Removal   | <b>26</b>   |
| RWSS-18 Traffic Fibre Network – Ducts and Handwells                    | <b>28</b>   |
| RWSS-19 Payment Adjustment for Changes to the Fuel Price Index         | <b>38</b>   |

## Definitions

“AADT” means Annual Average Daily Traffic.

“Boulevard” means that part of the road from the edge of the roadway to the nearest lateral property line.

“DGSSMS” means Design Guidelines and Supplemental Specifications for Municipal Services.

“Driveway” means that part of the Regional road that provides vehicular access to and from the roadway and an adjacent property.

“kg” means kilograms.

“m” means metres.

“mm” means millimetres.

“Native excavated material” means material of the same type and frost susceptibility as the surrounding unexcavated material at that elevation. It does not include material whose characteristics have been changed by the mixing of excavated material from the road cut or granular base materials or any other man-made materials.

“Person” includes, but is not limited to, an individual, sole proprietorship, partnership, association or corporation.

“PGAC” means Performance Graded Asphalt Cements.

“Proponent” means a person who undertakes Work on a Regional road, not including any person working under contract with the Region.

“Provide” means supply labour, materials and equipment required for complete installation of the Work.

“Region” means The Regional Municipality of Waterloo. For Regional Contracts only, the Region is generally represented by the Region’s Contract Administrator.

“Regional road” means a road under the jurisdiction of the Region.

“RMW” means Regional Municipality of Waterloo.

“road” includes, but is not limited to, a common and public highway, street, avenue, parkway, driveway, square, place, bridge, viaduct or trestle, any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

“roadway” means that part of a Regional road that is improved, designed or ordinarily used for vehicular traffic including cycling lanes, shoulders and curb and gutter.

“sidewalk” means that part of a Regional road with a surface improved with asphalt, concrete or gravel for the use of pedestrians.

“SUPERPAVE” means **SU**perior **PER**forming asphalt **PAVE**ments

“Unsuitable backfill material” includes:

- trees, stumps, branches or any other wood or lumber;
- topsoil, sod, leaves, weeds or any other organic material;
- boulders, rocks, asphalt, masonry or concrete larger than 150 mm measured through any axis;
- excess concrete not used in structures;
- wire, steel, cast iron, cans, drums or any other foreign material;
- contaminated material;
- frozen material of any kind; and
- site material that contains water content in excess of the optimum moisture content.

“vehicle” includes, but is not limited to, a motor vehicle, trailer, traction engine, farm tractor, road-building machine, bicycle and any vehicle drawn, propelled or driven by any kind of power including muscular power.

## **RWSS 01**

### **Contract Administrator’s Field Office**

If a Pay Item is included in the Schedule of Unit Prices of the Contract, the Contractor shall provide a weather-tight Field Office in good condition for the sole use of the Contract Administrator and his representatives. The Field Office shall be provided in advance of any the commencement of any construction.

The field office shall have a minimum floor area of 18 square metres and shall be equipped with the following items:

- Eight chairs and one table of sufficient size to seat eight people;
- One locking filing cabinet with two legal size drawers;

- One desk and chair for the sole use of the Contract Administrator's chief field representative;
- One large reference table and stool sufficient to allow display of large Contract drawings (drafting table);
- Adequate lighting and ventilation;
- Screened windows covering at least 10% of the floor area;
- Heating and cooling equipment adequate to maintain the office temperature between 20 and 22 degrees centigrade;
- A thermometer;
- A garbage can;
- Water cooler with disposable cups;
- A private telephone, printer/scanner, photocopier and high-speed internet service (can be a multi-use unit performing all of the above functions);
- Locking door with two(2) sets of keys provided to the Contract Administrator;
- A fire extinguisher;
- 1 complete set of Ontario Provincial Standards for Roads and Municipal Services (Volumes 1-3 inclusive, latest edition);
- 1 copy of the Region's Unit Price Contracts, General Conditions, Supplemental General Conditions, Standard Specifications, Standard Special Provisions and Standard Drawings (latest edition);
- 1 copy of the Region of Waterloo and Area Municipal Design Guidelines and Supplemental Specifications for Municipal Services (latest edition);
- 1 copy of the "Occupational Health and Safety Act and Regulations for Construction Projects" (latest edition);
- 1 copy of the Ministry of Labour Notice of Project;
- 1 copy of the Registration of Construction and Employers Engaged in Construction for all agencies; and
- A First Aid box and portable eye wash station.

The Contractor shall supply and maintain toilets, privies and clean-up facilities in accordance with the Occupational Health and Safety Act for Construction Projects for use by the Contract Administrator's staff and the Contractor's employees.

The field office shall be placed on smoothly-graded, level ground and a skiff of gravel shall be placed in the area immediately surrounding the Field Office to control dust and mud. Stairs shall be sturdy and meet the requirements of the Ontario Building Code. The Contractor shall be responsible for cleaning the site office on a weekly basis or as directed by the Contract Administrator.

Payment for the Field office will be made at the Lump Sum price bid for this Item on a monthly, pro-rated basis and shall be full compensation for the supply, operation, maintenance, and removal of the Field Office as described herein. The cost of long distance telephone calls made by the Contract Administrator shall not be the Contractor's responsibility.

## **RWSS 02**

### **Temporary Traffic and Pedestrian Control**

For the purposes of this specification, "lane closure" means a closure of one or more lanes on a roadway with all directions of traffic flow maintained as existed before the closure and without any diversion of traffic to other roadways. A "road closure" means a closure of one or more directions of traffic on a road such that a formal diversion of traffic to another road is required.

For the purposes of this specification, "temporary work zone" means the Contractor's work area, including the transition and termination areas of the work area as defined in the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) that requires traffic control due to construction, maintenance and/or utility works.

Under no circumstances is the Contractor to close or re-open any Regional road without coordinating the closure or re-opening with the Contract Administrator. When there is no detour route in effect, under no circumstances is the Contractor to close or re-open any Regional road without prior written consent from the Contract Administrator.

The Contractor will be required to make the Contract's work schedule known and provide 10 calendar days written notice in the case of a "road closure" and 5 calendar days written notice in the case of a "lane closure" to the Contract Administrator. The Contract Administrator will coordinate the assignment and signing of any detour route requirements as the result of a "road closure".

When a detour route is required or is in effect as a result of a "road closure", the Region is responsible for signing temporary alternative detour routes that affect Regional road users, and the local municipality (at their discretion) is responsible for signing temporary

alternative detour routes that may affect local road users. Signage used to detour motorists is outlined in the Ontario Traffic Manual Book 7, Temporary Conditions.

When a detour route is required, excluding temporary detour route signing provided by the Region and/or the local municipality, the Contractor shall be solely responsible to supply, place, maintain and remove all temporary signage and devices approaching and within the designated “temporary work zone”. The “temporary work zone” includes the entire section of roadway from the first advance temporary warning sign through to the last traffic control device where traffic returns to its normal path and conditions. The Contractor will be responsible for all temporary traffic control measures within all Component Areas of the “temporary work zone” as defined in the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) and for all intersecting streets within the limits of the “temporary work zone”. Traffic control measures shall include, but not be limited to, all signs, delineators, flashers, barricades, drums, temporary concrete barriers, temporary pavement markings and Traffic Control Persons (TCP’s) required to comply with the requirements of the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) and the Region of Waterloo requirements specified herein. Figure 1 illustrates Contractor, Region and local municipal responsibilities regarding temporary condition requirements related to works requiring a road closure where Figure 2 shows the component areas of a “temporary work zone” and associated responsibility.

Figure 1 – Contractor, Region and Local Municipal Responsibilities Related to Works Requiring a “Road Closure”

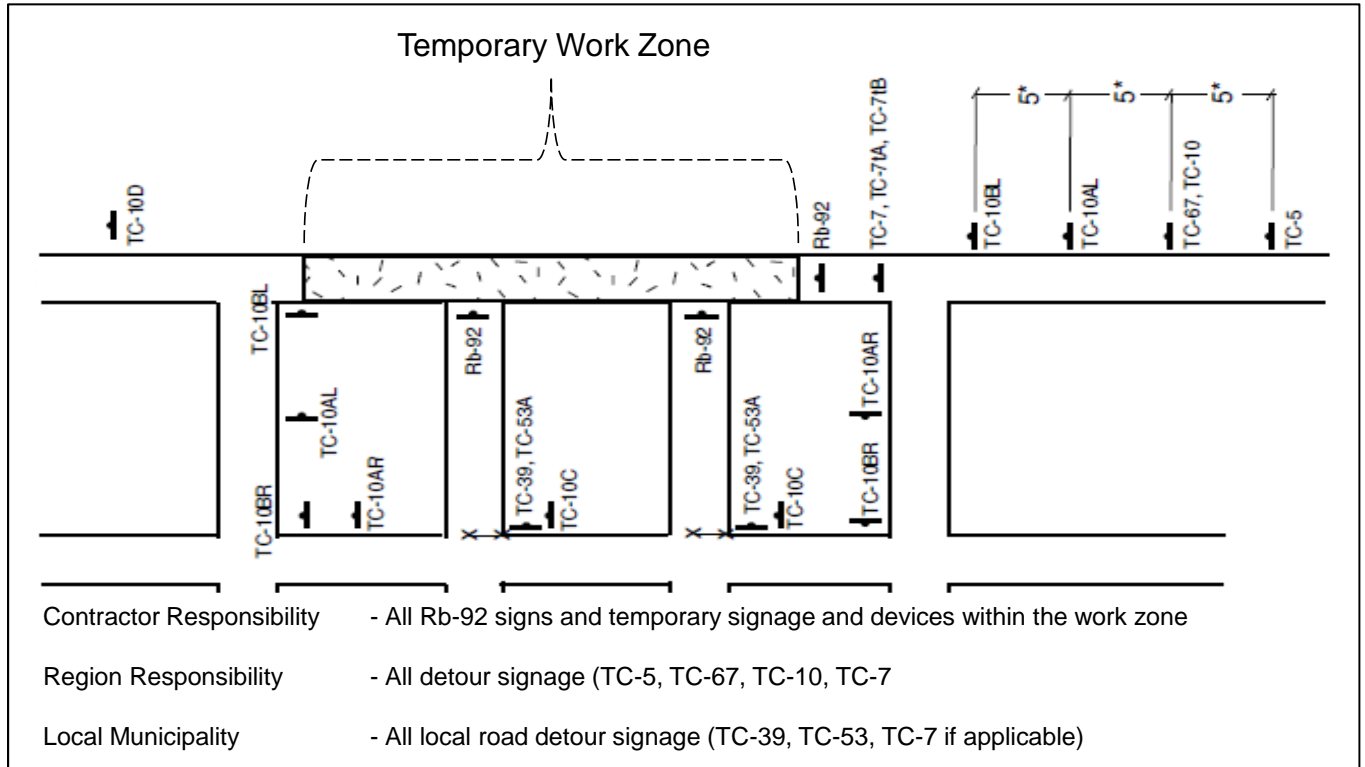
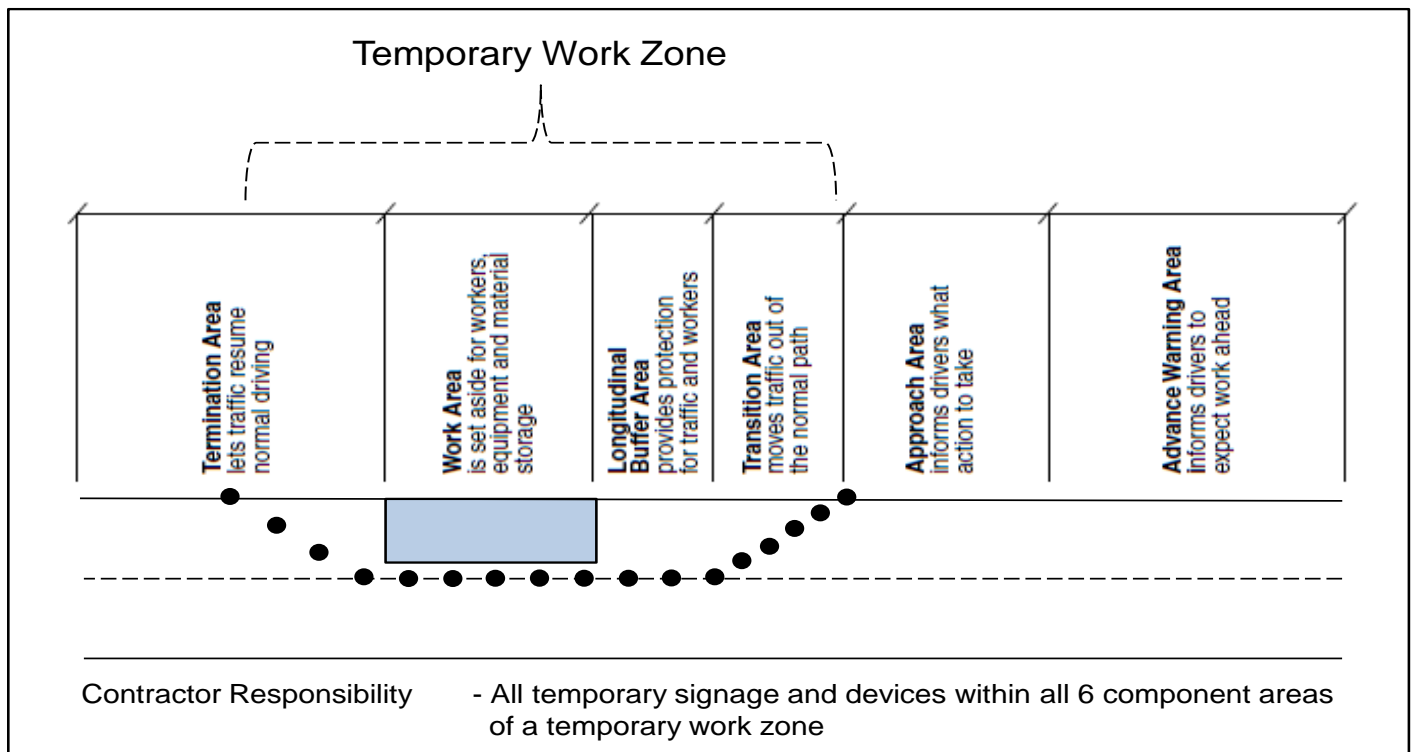


Figure 2 – Component Areas of a “Temporary Work Zone” and Associated Responsibility



When a “lane closure” is required or is in effect, the Contractor will be required to maintain a minimum of one lane of traffic in each direction plus left turn lanes on a paved

surface throughout the duration of the Contract unless otherwise specified in the Special Provisions. Traffic shall also be maintained in all directions at all intersecting streets unless otherwise specified in the Special Provisions. The Contractor shall be solely responsible to supply, place, maintain and remove all temporary signage and devices approaching and within the designated “temporary work zone”. The “temporary work zone” includes the entire section of roadway from the first advance temporary warning sign through to the last traffic control device where traffic returns to its normal path and conditions. The Contractor will be responsible for all temporary traffic control measures within all Component Areas of the “temporary work zone” as defined in the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) and for all intersecting streets within the limits of the “work zone”. Traffic control measures shall include, but not be limited to, all signs, delineators, flashers, barricades, drums, temporary concrete barriers, temporary pavement markings and Traffic Control Persons (TCP’s) required to comply with the requirements of the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) and the Region of Waterloo requirements specified herein.

For each stage of construction, lane diversion or alteration in the traffic control setup, the Contractor shall provide the Contract Administrator with three (3) copies of a detailed Traffic and Pedestrian Control Plan a minimum of five (5) Working Days in advance of undertaking the work, and maintain a copy on site during construction. The requirement to submit the Traffic and Pedestrian Control Plans five (5) days in advance of the work will be **strictly** enforced. The Traffic and Pedestrian Control Plan shall, at a minimum:

- Encompass all Component Areas of the Temporary Work Zone and a sufficient area outside of the Temporary Work Zone to incorporate advance signing or other traffic control measures on intersecting street approaches;
- Consist of a plan view drawing or series of drawings, drawn to a scale of 1:250 or 1:500 unless otherwise approved by the Contract Administrator, and indicate all key dimensions;
- Indicate the type and location of all signs, drums, delineators, flashers, and temporary pavement markings and the position of Traffic Control persons (TCP’s) or Paid Duty Officers;
- Show all available vehicle lanes and widths, pedestrian walkways, cyclist zones, construction vehicle access and egress routes, emergency routes and local access availability, and temporary stop locations.

In addition to the Ontario Traffic Manual (OTM), Book 7 (Temporary Conditions) requirements, the following Region of Waterloo conditions apply:

Safe, dry, convenient and clearly delineated and signed pedestrian walkways shall be provided at all times. Unless specified otherwise, pedestrian passage must always be

available on at least one side of the road. Where sidewalks did not pre-exist, pay items will be used to construct/maintain temporary walkways.

- Temporary walkways shall consist of hot mix asphalt constructed to a minimum of 1.5m width, and shall be maintained in a suitable condition to accommodate all users, including pedestrians and wheelchair users. If a minimum separation of 2 metres or less between pedestrians and traffic or construction equipment cannot be achieved, snow fencing or barricades shall be erected to separate the pedestrian walkway. Where a section of sidewalk will be completely closed and construction of a temporary sidewalk is not feasible, pedestrians shall be directed, through the supply and placement of appropriate signing well in advance of the construction area, to use existing sidewalks on the other side of the road;
- Access to businesses and residences shall be maintained whenever possible. Minimum notification to abutting property owners shall be provided in accordance with the Supplemental General Conditions. Where possible temporary driveway access shall be provided. Temporary driveway access shall consist of a compacted pad of granular "A" a minimum of 3.0 metres in width and 150 mm thick. Driveways greater than 6.0 metres in width shall be constructed in 2 stages to maintain access at all times; Ramping from the roadway to each driveway or access shall not exceed a slope of 5:1 (H:V). Ramping shall be paid under the tender item "Granular "A" for temporary access ramp" on a tonnage basis. Removed material is to be salvaged for re-use as granular road base etc. Driveways shall be re-opened not later than 48 hours following the placement of concrete curb, curb and gutter or sidewalk across the driveway;
- The minimum width of temporary vehicle lanes shall be 3.35 metres unless otherwise approved by the Contract Administrator. The Contractor must dedicate an employee for escorting buses through the construction zone where a 3.35m lane width is not maintained. In addition, the Contractor must have an employee available as required to temporarily relocate traffic control devices, for example to accommodate bus turning movements at intersections;
- The Contractor shall provide for and maintain satisfactory drainage during each stage of construction, including temporary plugging of pipes not yet in use, and temporary ditching to existing or temporary outlets;
- Temporary pavement markings shall conform to the requirements of OPSS 532 and shall be applied with either paint or tape; however, temporary markings on the newly constructed surface top lift shall be done with tape only (see also RWSSP 710). All pavement markings shall comply with the Ontario Traffic Manual, latest edition. If temporary or existing pavement markings are to be removed, the existing tape or paint shall be completely removed (painting over pavement markings is not an acceptable

method of removal). Equipment used for markings of centre lines shall be self-propelled and shall have a mounted electronic arrow board. The Contractor shall undertake all necessary measures to ensure that the temporary pavement markings are clearly visible to motorists at all times. Markings that become faded or tape that peels off as the result of traffic or dirt shall be replaced immediately by the Contractor at his own expense;

- If an item for temporary concrete barriers is included in this contract, temporary concrete barriers shall be placed when either:
  - a) the roadway excavation is greater than 1.0 metres and the distance between the edge of excavation and the edge of traveled lane is less than 2.0 metres; or
  - b) the distance between the edge of a sewer trench and the edge of traveled lane is less than 3.0 metres.

The Contractor is advised that the Region may be supplying and erecting various signs within or outside of the Contract limits for public information, including project information boards, signs directing the public to local businesses, advisory of upcoming paving operations, or other information signs. The Contractor shall ensure that construction operations do not interfere with these signs.

The Contractor will be required to provide TC-52 or TC-54 roadside safety devices spaced a maximum of 30 m apart in accordance with OTM Book 7, "Temporary Conditions" when the travelled roadway has an elevation difference greater than 40 mm to a lane-widening work area or an adjacent shoulder.

The Contractor will be responsible to schedule a police officer for traffic control at all signalized intersections during cold planing and asphalt placement operations, and at any other time where traffic is directed through an intersection counter to the operation of the traffic signals. Contractors are required to fill out a Waterloo Region Police Services (WRPS) "Request for Paid Duty Officers" form and submit by email to [traffic@wrps.on.ca](mailto:traffic@wrps.on.ca) at least 9 calendar days in advance, for the police to schedule an officer on the date required by the Contractor. The Contractor is also required to sign the WRPS "Paid Duty - Terms of Agreement" agreeing to the terms and conditions of the Paid Duty service.

The Contractor is required to pay directly for the cost of all police officer traffic control. For the purposes of estimating the associated costs, the following rates are currently applicable:

Estimated Rate per hour (January 2024) plus HST:

|                | Hourly Rate | Min. Charge (3 Hrs) |
|----------------|-------------|---------------------|
| Staff Sergeant | \$121.75    | <b>\$365.25</b>     |
| Sergeant       | \$109.67    | <b>\$329.01</b>     |
| Constable      | \$96.61     | <b>\$289.83</b>     |
| Police Cruiser | \$39.00     | <b>\$117.00</b>     |

Note:

1. late cancellations are subject to a minimum payment of 3 hours per scheduled officer
2. refer to the "Paid Duty - Terms of Agreement" for all applicable conditions

In order for the "Request for Paid Duty Officers" form to be processed, Contractors must have pre-registered with the Region's Finance Department to obtain a customer number and to activate an account to facilitate payment for the WRPS traffic control.

With respect to maintenance of roadways during construction, OPSS MUNI 100, GC 7.06.04 is deleted and replaced with the following:

The Contractor shall not be required to maintain the entire width of a Roadway through the Working Area before the Contractor has commenced the Work, or during seasonal shutdown or within any sections of the Roadway where a twelve (12) month general warranty period has commenced. Responsibility for maintenance of the entire width of a Roadway shall be transferred between the Contractor and the Owner at the commencement of the Work, the start and end of each seasonal shutdown period, and the start of each twelve (12) month general warranty period. A minimum of 5 Business Days prior to an anticipated transfer date of responsibility for maintenance, the Contract Administrator, Contractor and a representative of the Region's or City's Operations Department shall perform a pre-turnover field inspection. The pre-turnover field inspection shall identify deficiencies within the right-of-way and the anticipated timeframe for correction. The Contract Administrator shall be the sole judge of whether or not the noted deficiencies require correction prior to or after the turnover date. Provided that the Contractor was given advance written notice of the pre-turnover inspection date, the Contractor shall not delay commencement of the Work or the assumption of responsibility for maintenance because of the existence of deficiencies.

A Maintenance Transfer Agreement Form, prepared by the Contract Administrator, which identifies the date and time that responsibility for maintenance (and any maintenance exceptions) shall be transferred between parties shall be executed by both the Contract Administrator and Contractor prior to the actual turnover date. Where work under the Contract is discontinued for any extended period including seasonal shutdown, the

Contractor shall, when directed by the Contract Administrator, open and place the roadway in a passable, safe, and satisfactory condition for public travel and in a condition maintainable by the Region's or City's Operations Department, with no obstructions to the placement of de-icing chemicals or abrasives or Mechanical snow-plowing operations ("Winter Maintenance").

If a snow or freezing rain event is anticipated prior to the implementation date of the Maintenance Transfer Agreement from the Contractor to the Region, the Contractor shall be responsible for coordinating Winter Maintenance as necessary on the travelled portion of the roadway. If the Region's or City's Operations Department is able to perform this work, at their sole discretion, based on a field inspection in advance of the snow or freezing rain event, the Contractor will be responsible for coordinating this work and confirming such arrangements with the Contract Administrator in writing at least 48 hours in advance of the anticipated event. If the Region's or City's Operations Department, at their sole discretion, deems that the travelled portion of the roadway is in a condition that does not allow them to perform Winter Maintenance, the Contractor will be responsible for undertaking this work with their own forces or through the use of a qualified subcontractor. The Contractor shall advise the Contract Administrator of the planned methodology for Winter Maintenance in writing at least 48 hours in advance of the anticipated snow or freezing rain event.

### **Payment**

The contract price bid for Traffic Control in the Schedule of Unit Prices shall include the cost of all labour, material and equipment to provide all traffic control measures as specified herein, including the cost for paid duty police officers. Separate payment will be made at the lump sum price bid for the preparation of all necessary Traffic Control Plans. In the absence of an item for Traffic Control Plans, the cost of the preparation of the plans is to be included in the Traffic Control item. Separate payment will be made at the unit prices bid for temporary pavement markings, pavement marking obliteration, temporary concrete barriers, pedestrian snow fencing and temporary granular 'A' for driveways or pedestrian walkways.

Where it could reasonably be anticipated that the Contract would extend in to the winter months, or where delays beyond the Contractor's control have extended the work in to the winter months, the Contractor will be compensated for Winter Maintenance through provisional items in the Contract, or through negotiated pricing until the Maintenance Transfer Agreement is implemented from the Contractor to the Region. Where the Contractor is deemed responsible for delays that extended work in to the winter months, the Contractor shall be responsible for all Winter Maintenance costs.

## **RWSS 03**

### **Coordination of Work by Others**

The Contractor is advised of the proximity of the work to existing overhead and underground utilities operated by Bell Canada, Cable Authorities, Hydro Authorities, Gas Authorities, Fibre Optic Authorities, the area municipality and the Region. The protection of all utilities encountered as part of the work shall be in accordance with the specific requirements of the utility agency of jurisdiction. The protection of these utilities will also be governed by the Ontario Occupational Health and Safety Act, relative to construction activities adjacent to such facilities.

The Contractor is hereby advised that utilities and services may be installed, upgraded or relocated by others in advance of or in conjunction with this contract. As indicated in the Supplemental General Conditions, work by Region of Waterloo Traffic Operations forces (related to traffic signals, signs and pavement markings) will be completed as a subcontractor to the General Contractor.

Other agencies required to complete work within the contract limits are noted on the plans or in the contract Special Provisions. It is the Contractor's responsibility to coordinate his activities so as not to conflict with the activities of these agencies. Schedules will be provided by these other agencies at least 48 hours in advance of the time that they will be required to access their facilities. A separation of time and/or space must be maintained between the work areas of the utility agencies and the Contractor's operations in accordance with the requirements of the Occupational Health and Safety Act. The Contractor is further advised that Bell Canada and the local Gas Authority may require that their valves and manholes be adjusted by them. The Contractor shall contact the appropriate authority a minimum of two (2) weeks in advance of the required adjustment to allow sufficient time for the appropriate authority to schedule and undertake the adjustment.

The Contractor shall note that certain existing underground utilities within the Contract limits may be situated at an elevation higher than the proposed subgrade elevation. The Contractor shall note that, should an underground utility be encountered above the subgrade elevation, the Contractor shall seek direction from the Contractor Administrator, who may direct the Contractor to alter the subgrade profile and/or the granular subbase depth to protect the underground utility. The Contractor shall also note that when trenching operations is to take place in the vicinity of existing overhead utility poles, the Contractor shall contact the utility agency responsible for the overhead poles a minimum of 72 hours in advance of the trenching operations for a decision on whether temporary support of the overhead poles is required, and, if so, the required method of providing this temporary support. If temporary support of overhead utility poles is required, the Contractor shall undertake this temporary support in accordance with the specific

requirements of the utility agency. The costs will be paid by the Region as extra work if pole support is deemed necessary to conduct the work unless a separate Pay Item for this work is included in the Schedule of Unit Prices of the Contract.

## **RWSS 04**

### **Materials Testing**

The Region may:

- review the Contractor's asphalt and concrete mix designs;
- sample and test the granular materials to be used both at the Contractor's pit and during construction for both gradation and aggregate quality;
- carry out earth, granular and asphalt compaction testing
- sample and test concrete prior to placement to confirm air entrainment and slump;
- sample and test concrete for strength;
- sample and test asphalt during construction for quality assurance; and
- conduct laboratory analysis for water sample testing
- conduct laboratory analysis for topsoil testing

In order to complete the above work, the Contractor shall permit access to the Region's representative in order to take samples and complete the tests. The Contractor will also arrange for water sampling and chlorine residual testing as per the DGSSMS.

The Region will contract directly with a geotechnical engineering firm to complete the materials testing described herein on behalf of the Region. The Contractor shall be responsible for the cost of any re-testing required due to failed test results.

## **RWSS 05**

### **Garbage Collection**

Unless otherwise stipulated in the Special Provisions, the Contractor shall be responsible for the pickup of garbage bags, garbage containers, green bins and recycling boxes left at the curbside from abutting residential or commercial properties within the limits of construction and for delivery of all curbside garbage to the limits of construction at a location approved by the Contract Administrator. Empty garbage containers, green bins and recycling boxes shall be returned to the respective property owners on the same day. The Contractor may have to mark property addresses on

containers/bins/receptacles in order to ensure return to the proper owner. All regularly scheduled garbage and recycling pickups shall be maintained regardless of whether the Contractor is working on that day.

Typically, green bin waste and recycling are collected weekly and garbage, bulky and large metal items are collected bi-weekly. Yard waste will typically be collected bi-weekly on the opposite week of garbage and large metal items. The Contractor shall familiarize themselves with the collection schedule within the project limits and ensure that appropriate arrangements are in place to have all materials collected on time.

Note that in downtown areas, special arrangements may be in place for more regular collection service. The Contractor shall be responsible for maintaining the collection service schedule in accordance with the Contract Documents.

Where a separate Pay Item is included in the Contract Documents for garbage collection, all costs associated with the work described above shall be included under that Pay Item. Where no separate Pay Item exists in the Contract Documents, there will be no separate payment for this work and the cost of completing the work as specified herein shall be deemed to be included in the various unit prices bid for this Contract.

## **RWSS 06**

### **Replacement of Existing Driveways, Private Walks and Curbs**

#### **References:**

OPSS 301 – Construction Specification for Restoring Unpaved Roadway Surfaces

OPSS 310 – Construction Specification for Hot Mix Asphalt

OPSS 311 – Construction Specification for Asphalt Sidewalk, Driveway, and Boulevard  
and for Sidewalk Resurfacing

OPSS 312 – Construction Specification for Asphalt Curb and Gutter Systems

OPSS 314 – Construction Specification for Untreated Granular, Subbase, Base, Surface  
Shoulder and Stockpiling

OPSS 350 – Construction Specification for Concrete Pavement and Concrete Base

OPSS 351 – Construction Specification for Concrete Sidewalk

OPSS 352 – Construction Specification for Concrete Steps

OPSS 353 – Construction Specification for Concrete Curb and Gutter Systems

OPSS 355 – Construction Specification for Interlocking Concrete Pavers

## OPSS 501 – Construction Specification for Compacting

### Construction

All disturbed existing driveways, private walks, and curbs constructed on a Regional road shall be restored to the following standards:

1. Existing Private Driveways – Gravel or Crushed Stone

Minimum of 150 mm of compacted 20 mm crusher-run limestone if the original driveway was crushed limestone or a minimum of 150 mm of Granular “A” fill if the driveway was gravel. Compaction of gravel or crushed stone to be 100% of maximum dry density.

2. Existing Commercial Driveways – Gravel or Crushed Stone

Minimum of 300 mm of compacted 20 mm crusher-run limestone if the original driveway was of crushed limestone, or a minimum of 300 mm of Granular “A” fill if the driveway was gravel. Compaction of gravel or crushed stone to be 100% of maximum dry density.

3. Existing Driveways – Asphalt

Refer to RWSSP-311.01.

4. Existing Private Driveways – Concrete

Refer to OPSS 350 – Concrete Pavement and Concrete Base.

Minimum 150 mm depth Granular “A” and minimum of 150 mm thick, 32 MPa concrete per OPSS 350.05.01, broom or burlap finish as directed and cured per OPSS 350.07.04.

5. Existing Commercial Driveways – Concrete

Refer to OPSS 350 – Concrete Pavement and Concrete Base.

Minimum 150 mm depth Granular “A” and minimum of 200 mm thick, 32 MPa concrete per OPSS 350.05.01, broom or burlap finish as directed and cured per OPSS 350.07.04.

6. Existing Private Walks – Concrete

Refer to OPSS 351 – Concrete Sidewalks

Minimum 150 mm depth Granular “A” and minimum of 125 mm thick 32 MPa concrete per OPSS 351.05.01, broom or burlap finish as directed and cured per OPSS 351.07.13.

7. Existing Private Curb – Concrete

Refer to OPSS 353 – Concrete Curb and Gutter Systems

Minimum of 100 mm wide by 0.3 m deep, or matching the existing private curb, with 32 MPa concrete per OPSS 353.05.01, finished as per OPSS 353.07.08.02 and cured per OPSS 353.07.08.03.

**Measurement for Payment**

Measurement of above work shall be as follows:

- (1) Existing gravel or stone driveways – gravel or crushed stone, in tonnes;
- (2) Existing paved driveways – refer to RWSSP 311.01;
- (3) Existing private concrete driveways – concrete, in square metres;
- (4) Existing commercial concrete driveways – concrete, in square metres;
- (5) Existing private concrete walks – concrete, in square metres;
- (6) Existing private curbs – concrete, in linear metres; and
- (7) Existing private steps – concrete, in square metres of tread.

Steps will be only considered to be steps when there are a minimum of two consecutive risers. Where there is only one riser, the payment for this Work will be under item for “Existing Private Walks – Concrete”, and there will be no separate payment for the riser. The Work to be measured for payment as steps shall include all treads plus a 0.3 m width of landing at the top and bottom of the steps. In the case of a 1 m wide private walk with steps where two risers were constructed, the quantity for payment would be 1.2 m<sup>2</sup>.

**Basis of Payment**

Payment at the contract price for the above items shall be full compensation for all labour, equipment and material required to do the work as described herein including the excavation and disposal of all materials required for the placement of the new driveways, private walks, private curbs and granular “A” bedding; the compaction of the subgrade; and the supply and placement of concrete and gravel.

All excavation required above the top of the driveways and private walks in a cut area will be paid under Earth Excavation.

The removal of existing concrete driveways and walks will be paid under the concrete sidewalk and driveway removal item.

The removal of the private curbs will be paid under the curb removal item.

## **RWSS 07**

### **Cold Planing**

#### **Construction**

Cold planing shall include the removal of existing asphalt to the widths and depths as shown on the contract drawings or described in the contract specifications. The planer to be used must be self-loading, must have automatic grade and slope control and must be capable of planing a minimum width of 1.20 metres.

For longitudinal Step Joint applications, the Contractor will not be allowed to commence the cold planing operation until the adjacent base course asphalt has been placed.

The Work under this item shall include the disposal of planed material at an off-site location arranged and paid by the Contractor, the cleaning and power sweeping of the planed area, the removal of the existing asphalt where it overlays the existing gutter, all hand work required for removing the asphalt around catchbasins, manholes and valve boxes within the planed area and the placement of hot mix asphalt ramps required.

Prior to commencing cold planing, the Contractor will be required to remove all manhole and catchbasin castings located in the asphalt roadway, temporarily supply and install steel plates and cold mix at each casting location when the specified depth of planing exceeds 40 mm. The steel plates shall be in accordance with RWSS-09. Once the Contractor has installed the specified base course asphalt layer, the Contractor will be permitted to remove the temporary steel plates, and adjust the manhole or catch basin casting to finish grade. All costs to remove the castings, temporarily install the steel plates and hot mix and the reinstallation of the castings is to be included in the manhole and catch basin adjustment unit price tendered all in accordance with RWSSP 408.

In all planed areas where catchbasins, manholes, valve boxes, vertical faces, driveway entrances, pedestrian and wheelchair ramps, etc. are left higher than the planed surface, a hot mix asphalt ramp a minimum of one metre in each direction shall be constructed to these castings or vertical faces prior to leaving the work area or at the end of each work day. Alternatively for manholes and valve boxes, where the posted speed is 60 km/hr or less, rubber-ring manhole "safety ramps" are permitted as an alternate to asphalt ramping. "RAISED MANHOLE AHEAD" signage must be installed at an appropriate spacing to adequately warn motorists and cyclists of raised manholes. Where conditions exist that a structure is raised but not yet ramped, the top of the structure must be painted with fluorescent orange paint.

The Contractor may be required to plane all intersections in several lifts in order to achieve the specified planing depths all in accordance with RMW Standard Drawing 202. The maximum cold planing lift permitted at intersections is 50 mm.

The Contractor will be required to make a tapered butt joint at all locations where a new asphalt overlay meets the existing asphalt. The joint shall be tapered over a minimum length of eight (8) metres. The minimum planing depth required for butt joints and for lane widening step joints is 50 mm all as shown on RMW Standard Drawings 207 and 208.

In all locations where cold planing results in a joint transverse to the direction of traffic, hot mix asphalt ramps are required at the full depth planed butt joint in accordance with RWSSP 310. The Contractor shall place two standard “Bump” signs (TC-15) secured by sandbags, one in each direction at every joint and cold planing work will not be permitted to commence until the “Bump” signs (TC-15) have been delivered to the site.

Where cold planed areas are re-opened to traffic, the Contractor is required to install the surface lift of asphalt within Five (5) Working Days of the cold planing operation. The Contract Administrator reserves the right to restrict cold planing operations in areas where it is not evident that paving will occur within Five (5) Working Days.

### **Measurement for Payment**

Measurement for payment of cold planing will be for all cold planing required in the contract in square metres regardless of depth including all butt joints.

### **Basis of Payment**

Payment under the item cold planing shall be full compensation for all labour, equipment and materials required to carry out the Work specified herein including the supply and placement of all temporary hot mix asphalt ramping, paper bond breakers and signs.

## **RWSS 09**

### **Steel Plates**

#### **References:**

OPSS 539 – Construction Specification for Temporary Protection Systems

OPSS 906 – Construction Specification for Structural Steel for Bridges

### **General**

The Contractor may use steel plates to temporarily restore a narrow trench in a roadway. The steel plating used by the Contractor shall be physically restrained to prevent it from slipping or lifting away from the trench and to prevent excessive rattling. The steel plates shall be skid resistant and have sufficient strength (minimum H20 loading) width to carry the traffic safely over the trench without deflecting. The plates must be a minimum of 25mm thick and must extend over the support pavement by at least 300 mm on all sides.

The Contractor must adequately shore the trench to prevent a failure. The Contractor shall note that any trench shall be steel plated for no more than four days before the asphalt is placed.

Where the Contractor has used steel plates to temporarily restore a trench in a roadway, the Contractor shall post a bump warning sign (TC-15) and an advisory (TC-36) maximum speed limit of 20 km/h below the existing posted speed limit.

Where the Contractor cannot provide the steel plate prior to the end of the workday, the trench must be completely backfilled with granular material and 100mm depth cold mix asphalt to the surface elevation.

### **Measurement for Payment**

No measurement for payment will be made for this item as the supply and place the steel plate shall be deemed to be included in the unit price bid for the item requiring the steel plate.

### **Basis of Payment**

Payment for all labour, equipment and material to supply and place the steel plate shall be deemed to be included in the unit price bid for the item requiring the steel plate.

## **RWSS 10**

### **Maintenance of Restored Pavement**

#### **References:**

OPSS 301 – Construction Specification for Restoring Unpaved Roadway Surfaces

OPSS 341 – Construction Specification Routing and Sealing Cracks in Hot Mix Asphalt Pavement

OPSS 490 – Construction Specification for Site Preparation for Pipelines, Utilities and Associated Utilities in Open Cut

OPSS 492 – Construction Specification for Site Restoration Following Installation of Pipelines, Utilities and Associated Structures in Open Cut

OPSS 401 – Construction Specification for Trenching, Backfilling and Compacting

OPSS 539 – Construction Specification for Temporary Protection Systems

### **General**

The Installing Contractor shall maintain any restored pavement by repairing any surface discontinuities greater than 10mm including, but not limited to, differences between the

surface level of the restored pavement and the adjacent pavement, settlement, wheel path rutting, pot holes, cracking, surface delamination, raveling, roughness or deterioration of perimeter joints and adjacent asphalt.

The Region will determine the type of distress in the restored pavement and the Contractor shall repair the distress as noted below:

### **Minor Distress – Cracks**

The Contractor shall repair cracks in accordance with OPSS 341 – Routing and Sealing Cracks in Hot Mix Asphalt Pavement.

### **Moderate Distress – Asphalt Ripping and/or Shoving**

The Contractor shall replace the distressed pavement in accordance with OPSS 492 – Construction Specification for Site Restoration Following the Installation of Pipelines, Utilities and Associated Structures in Open Cut, subsection 492.07.03 – Roadway Restoration. Removals are to be accordance with OPSS 492.07.06 – Removals – Pavement Work.

### **Severe Distress – Asphalt Pavement Failure**

The Contractor shall replace the failed pavement section in accordance with OPSS 492 – Site Restoration Following the Installation of Pipelines, Utilities and Associated Structures in Open Cut, subsection 492.07.03 – Roadway Restoration. Removals are to be accordance with OPSS 510.07.06 – Removals – Pavement Work.

### **Measurement and Basis of Payment:**

No measurement for payment or additional payment made for Work required to maintain restored pavement covered under this section.

## **RWSS 11**

### **Lines and Grades**

Layout will be provided by the Contractor.

The Contractor shall be responsible for the true and proper setting out of the work and for the correctness of the position, elevation and alignment of all parts of the work in accordance with established Regional procedures. Using qualified personnel and following accepted engineering practice, the Contractor shall layout, calculate, establish and maintain all lines and grades necessary for the construction of the work, and shall provide such information on the calculations, layout, lines and grades as the Contract Administrator may at any time require. The Contractor shall provide horizontal and vertical control at uniform offsets, every 20 metres along all tangential sections and every

10 metres along any curvature sections of the work. For roadway construction the Contractor will provide Lines and Grades on both sides of the work being constructed.

The Contract Administrator shall provide basic horizontal and vertical control from which the location of the work may be determined. For horizontal and vertical control this shall comprise either survey bars and ties sufficient to locate the centreline, or control points and their values sufficient to lay out the work. During the progress of the work the Contractor shall be responsible for notifying the Contract Administrator forthwith of any errors, omissions or inconsistencies in the geometric information and the controls provided by the Region.

The Contractor shall give the Contract Administrator 48 hours notice of the time and place where the Horizontal and Vertical control is required for their use in setting out the work.

All bars, benchmarks and other reference points provided by the Contract Administrator shall be located and identified by the Contract Administrator to the Contractor on the site at the start of the work, and shall be carefully preserved by the Contractor, and in the case of their movement, destruction or removal shall be replaced at the Contractor's expense.

Any work done without lines and levels, or to improperly set grade stakes or without the supervision of an inspector when an inspector is required to be in attendance by the provisions of the contract or by the order of the Contract Administrator, shall not be paid for. Such work may, at the discretion of the Contract Administrator, be ordered removed and replaced by correctly aligned and inspected work at no cost to the Region.

If requested by the Contractor in writing, the Contract Administrator will provide, if available, electronic data to assist the Contractor in laying out the works. The software format and version supplied to the Contractor will be the same version as that used by the Contract Administrator to create the files. The Contract Administrator will not convert the electronic data between software platforms or versions of the same software platform. The Contractor, in requesting and utilising any such electronic data, acknowledges and agrees that there may be discrepancies in whole or in part between the electronic data and the Contract Drawings and that it is the Contractor's sole responsibility to ensure that the electronic data is the same. In the event of any discrepancy between the Contract Drawings and the electronic data, the Contract Drawings shall take precedence and govern. Any discrepancies must be reported immediately to the Contract Administrator.

Any use or manipulation of any part or parts of the electronic data by any party, including the Contractor, any subcontractor of the Contractor or any party or parties carrying on any work associated with the project on behalf of the Contractor, is at the sole risk and

responsibility of the Contractor and neither the Contract Administrator nor the Region of Waterloo shall be liable in any way to the Contractor based on such.

Any manipulation of any part or parts of the electronic data by any party, including a Contractor, proponent, or any party or parties carrying on any work associated with the project, is at the sole risk and responsibility of such party or parties.

The electronic data provided will normally include but may not be limited to:

- Existing topographic survey
- Survey control points and benchmarks
- Original ground triangulated irregular network (TIN) surface
- Road alignments
- Location of the proposed works
- Road profiles
- Watermain alignment and profile
- Sanitary and storm sewer layout and profiles

Payment for all labour, materials and equipment for the Contractor to provide construction layout shall be paid under the lump sum bid price for the item "Provide Lines and Grades".

## **RWSS 12**

### **Coloured Impressed Concrete**

"Grey" coloured, impressed concrete shall have a pigment to Portland cement ratio of 5%.

"Red" coloured impressed concrete shall have a pigment to Portland cement ratio of 8%.

All coloured impressed concrete is to be sealed within 7 days after placement with an acrylic sealer with a slip-resistant additive. The concrete is to be power-washed and adequately dried prior to placement of the concrete sealer. The stamping pattern is to consist of a random field stone finish or as noted on the contract drawings.

## **RWSS 13**

### **Truncated Dome Detectable Warning Plates**

Where specified on the contract drawings, Truncated Dome Detectable Warning Plates are to be installed on sidewalk ramps to warn visually impaired pedestrians that they are

entering the roadway. All installations are to be completed in accordance with Regional Standard Drawings 224, 225, 226 and 227 as applicable (which are all appended to these specifications) and in accordance with the following requirements:

- Plates are to be uncoated cast iron material with natural “rust” finish
- Plates are to be set back 150-200mm from back of curb and approximately 200mm from the edge (side) of curb ramp/sidewalk
- Plates are to be parallel with curb radius (ie. not necessarily perpendicular to direction of pedestrian travel). This may require the use of radial plates versus square plates on larger radii.
- A minimum of two 610mm x 610mm plates are to be used at any one sidewalk ramp
- Plates are available in 18” x 24” (457 x 610mm), 24” x 24” (610 x 610mm), and 24” x 30” (610 x 762 mm) ‘square’. Radial plates are available in various radii, including 10’, 15’, 17.5’, 20’, 25’, 30’ and 35’. Careful consideration of radius selection is required as the plate radius must be close to the back of curb radius and not edge of pavement radius.

Truncated dome detectable warning plates must be in compliance with AODA (Accessibility for Ontarians with Disabilities Act) and suppliers must appear on the “Road Authority” website list of endorsed municipal products.

### **Measurement for Payment**

Measurement for payment made under this item shall be on an each basis for each plate installed as per specifications regardless of size/shape.

### **Basis of Payment**

Payment at the contract unit price shall be full compensation for all labour, equipment and material required to do the work as specified herein.

## **RWSS 14**

### **Contractor Responsibility for Repairs Within Construction Zone**

The Contractor is hereby advised that during construction, the Contractor is responsible for the entire roadway within the construction zone, which includes the complete section of road from the “Construction Ahead” signs to the “Construction Ends” signs. Where applicable, any work that is not a result of the Contractor’s operations but that is required to maintain the existing roadway to acceptable standards, would be payable to the Contractor under the appropriate pay item or by contract Change Order.

The Contractor is also required to provide a minimum of 7 days written notice to the Contract Administrator prior to de-mobilization from the site and removal of the “Construction Ahead” / “Construction Ends” signs. This notice is required to formally advise the appropriate municipal Operations staff of the formal transfer of responsibility for the previous construction zone.

## **RWSS 15**

### **Modular Retaining Walls**

Unless approved otherwise, all modular retaining walls must be of a large block size (minimum of 500 mm long and minimum unit weight of 150kg). All retaining walls must have a weeping drain (minimum 100 mm Big ‘O’ type with filter sock) set at the bottom of the bottom block, which outlets to a storm sewer, catchbasin or ditch. Under no circumstances is the drain to be directed over a pedestrian or cycling facility (sidewalk or multi-use trail). Walls must be placed on a compacted bed of Granular ‘A’ at a minimum depth of 400 mm below the bottom course of the wall or as specified on engineered drawings. The walls must also be backfilled with compacted Granular ‘A’. Wall designs that require tieback supports or horizontal geogrid are not permitted in an urban environment or in any location where utilities may be located presently or in the future. Prior to final design, approval is required from the Region’s Project Manager for all tieback/geogrid installations. Walls higher than 900mm must include a protective railing. Railings shall be cored through the top 3-4 blocks and the design of the retaining wall must take this into consideration. All drawings for retaining walls must be signed and sealed by a professional engineer.

For walls less than 2m high, a 0° batter shall be utilized where feasible. Flush coping stones to be considered adjacent to MUTs depending on wall height. For walls adjacent to an asphalt MUT, the surface asphalt shall be extended to the wall face. For walls adjacent to a concrete sidewalk, the gap between the sidewalk and the wall face shall be filled with limestone screenings.

## **RWSS 16**

### **Bird and Wildlife Protection**

This specification outlines general requirements for bird and wildlife protection. The Contractor shall review any additional information contained in the Contract Documents that refer to site specific habitat findings, Species at Risk (SAR) or other species of interest, and abide by any additional requirements identified therein.

The Contractor shall exercise the utmost care with respect to the protection of birds and animals within the project area. The Contractor shall not destroy active nests (nests with eggs or young birds), or wound or kill birds, or species protected under the Migratory

Birds Convention Act, 1994 and/or Regulations under that Act. When active nests are encountered, work around the nest shall cease and the Contract Administrator must be contacted.

### **Clearing and Grubbing of Trees, Shrubs and Vegetation**

In addition to all applicable OPSS and Region of Waterloo Standard Special Provisions, the following shall also apply.

Clearing and grubbing of trees, shrubs and vegetation shall preferably be undertaken outside of the period between April 1 and August 30 in any given year, due to potential nesting activity of migrating birds.

In the event that the Contractor has no option but to remove certain trees within the period between April 1 and August 30 in any given year, the Contractor will be required to coordinate a pre-clearing environmental condition evaluation in accordance with the Migratory Birds Convention Act. This work shall be coordinated with the Contract Administrator, who will make arrangements for an Environmental Planner to visit the site and complete an assessment. A minimum of seven (7) Calendar Days advance notice is required to facilitate this review. There will be no separate payment to the Contractor for coordinating the work of the Environmental Planner with the Contract Administrator.

In the event that the Environmental Planner determines that specific mitigation measures are required by the Contractor in accordance with Environment Canada guidelines, payment shall be made on the basis of a negotiated price and paid out of the Contingency Allowance.

### **Protection of Existing Nesting Birds and Prevention of New Nesting Sites**

The typical nesting season for migratory birds in this part of Ontario extends from April 1 to August 31 in any given year. The Contractor will be responsible for protecting birds and their nests on the site via the following measures:

- Active nests shall not be removed. It is solely the responsibility of the Contractor to ensure that new nests do not develop on the site during the stated nesting season. If at any time an active bird nest does occur on the site, the Contractor will be required to protect the nest (and bird passage to it) until such time as it becomes vacant, which may be until August 30. The Region of Waterloo will not entertain any requests for compensation or extensions of time related to the protection of bird nests or eggs and/or live young that may be required while the site is under the control of the Contractor between April 1 and August 30 in any given year.
- Remove inactive nests before April 1 or after August 30. Remove any inactive bird nests by means of mechanical sweeping or water washing, from the time that the Contractor first mobilizes on site until the end of the nesting period. The intent of the

removal is to remove the nests fragments sufficiently that they do not become inhabited with eggs.

- Check frequently for new nests under construction. Building of new nests by birds can occur over the span of as little as 3 days. The nest may be inhabited with eggs before construction of the nest is complete. At bridge sites, it is suggested that the Contractor examine the sides of the bridge for nest development every other day.
- If nests are started, these must be removed before they are completed and become habitable.
- The Contractor may choose to employ additional and/or alternate measures to prevent nesting, including installation of bird netting. The design, inspection and maintenance of such measures shall be the sole responsibility of the Contractor.

Questions or queries concerning the protection of Cliff Swallow under the Migratory Birds Convention Act should be directed to the Contract Administrator who can engage staff or Agency staff as appropriate.

The Contract Administrator may undertake detailed inspection and monitoring with regard to compliance with the above requirements; however, the Contractor shall not rely on the Contract Administrator for any assurance of compliance. The Contractor shall bear full responsibility and liability for any penalties, costs or delays arising from violation of the applicable Acts.

### **Basis of Payment**

No specific payment shall be made for compliance with the requirements of this specification unless otherwise indicated in the Contract Documents.

### **RWSS 17**

#### **Phragmites Removal**

The Contractor shall provide services required for removal, disposal, and application of herbicide to control Phragmites Australis according to Invasive Phragmites - Best Management Practices 2011, Ontario Ministry of Natural Resources (OMNR).

The optimum time for Phragmites control using an herbicide is between early spring, when plants begin to emerge, and late fall before the first heavy frost causes significant dieback.

Mowing and/or cutting of Phragmites is to take place a minimum of four weeks prior to the application of herbicide. If possible, cut in the winter, or alternatively early spring. Mowing/Cutting should not take place after viable seed heads have been developed to reduce dispersal of seed.

Phragmites should be mown to a maximum stem height of 10 centimetres. All mown plant materials are to be burned or removed off-site.

Invasive Phragmites clippings should not be composted, unless on site and covered by tarps. Cut plants should be allowed to dry out or decay in the sun to kill all viable seeds and rhizomes. Dried and dead Phragmites plants can be burned or bagged and disposed of at an appropriate disposal location.

All clothing, boots and equipment must be cleaned on-site to avoid the transfer of Phragmites.

### **Herbicide Application**

Ensure all necessary permits are obtained, and regulations are followed in herbicide applications. All regulations including the Pest Control Products Act, the Ontario Pesticides Act and Ontario Regulation 63/09 must be followed.

Roundup Weathermax or Vision Max are to be applied to the Invasive Phragmites stands.

Following the prescribed mowing and disposal of plant waste, Roundup Weathermax or Vision Max is to be applied by a qualified pesticide license holder, according to regulated application practices.

Efficacy of the spray is highest when leaf surface is available to intercept spray. When the plant is 1-1.5m in height is optimal. The herbicide is most effective in the latter part of the growing season.

Do not spray if the plants are wet with rain or dew. Do not spray when temperatures are either too hot or too cold (refer to herbicide product label).

Follow the label directions to mix correct concentration of specified herbicide. Apply in the highest rate allowed.

Existing, native plants are to be protected from the application of herbicide. In most cases, Phragmites is generally found in dense monocultures, but adjacent woody plants must be protected.

### **Inspection**

At the end of construction, prior to seeding and re-planting, the site is to be inspected for Phragmites australis, and any remaining stands are to have the specified herbicide re-applied at this time.

The site will be inspected at substantial completion and at the end of warranty, and any remaining stands of Phragmites will be sprayed with the specified herbicide again.

## **Basis of Payment**

Payment at the contract price shall be full compensation for all labour, materials and services required to provide control of *Phragmites australis*.

An initial payment for 80% of the lump sum cost will be made after initial removal of the *Phragmites*. The final 20% of the lump sum cost will be made at the end of the maintenance and warranty period. Payments for this contract item shall occur only if a reasonable control of *Phragmites australis* has been achieved.

## **RWSS 18**

### **Traffic Fibre Network – Ducts and Handwells**

This specifications identifies requirements for the installation of Ducts and Handwells related to the Region of Waterloo's fibre network infrastructure connecting the traffic signal system.

### **References**

OPSS.MUNI 603: Construction Specification for Installation of Ducts

NASTT Horizontal Directional Drilling Good Practices Guidelines 2008 (3rd Edition).

OPSS.MUNI 450: Pipeline and Utility Installation in Soil by Horizontal Directional Drilling.

### **Submittals**

The Contractor shall supply the product data sheets for the items mentioned as part of this specification to the Region of Waterloo or their designate.

### **Ducts**

For open trench construction, the Contractor shall supply and install 2x50mm Rigid Ducts for Backbone fibre and 1x50mm Rigid Ducts for drop cable at the locations as shown on the Contract Drawings and as directed by the Construction Administrator.

In case of boring and not open trench construction the Contractor shall propose alternative similar to High Density Poly-Ethylene (HDPE) SDR11 conduits.

Rigid Ducts shall be grey in colour.

Rigid Ducts and the alternative shall conform to OPSS.MUNI 603.

### **Duct Installation Requirements**

The Contractor shall install ducts as per requirements detailed in OPSS.MUNI 603 except as amended below.

The Contractor shall install all items in this specification at all locations as shown in the Contract drawings. All road crossings shall be conducted as perpendicular as possible. The Contractor shall install all items in this specification as per the manufacturer's recommended practices.

Unless otherwise stated in the Contract Drawings, all ducts shall be installed at a depth of 1.0m below grade (typical). As a minimum, all ducts shall be installed at a depth of 900mm below grade.

The duct sweeps shall not exceed 90 degrees. The duct sweeps shall not exceed 180 degrees for the sum total of duct sweeps for a section of duct between duct termination points (i.e. handwells).

Sweep radius shall be at least 10 times the internal diameter of the duct and as per the manufacturer's recommendations. 90-degree condulets (LB's) and electrical elbows are not acceptable.

The Contractor shall install a 400N test nylon fish line in the ducts and shall leave 1.5m of line coiled in the bottom of the handwells at the end of each duct run.

The Contractor shall install a 12-gauge, copper 600V insulated blue tracer wire in all ducts. The tracer wire shall interconnect in the handwells and shall be extended back to the marker post in the planters inside handwells. The tracer wire terminals shall be placed in the planters above the duct bank. Each terminal shall have a tag to identify it as 'The Region of Waterloo' fibre.

The Contractor shall ensure proper grounding of the tracer wire cable.

Rigid Ducts or HDPE conduits shall be terminated only inside handwells.

No Rigid Ducts or HDPE conduits (either spare or in use) shall be on site without end-plugs at any time.

The contractor shall conform to the NASTT Horizontal Directional Drilling Good Practices Guidelines 2008 and OPSS 450.

Rigid Ducts or HDPE need to be demonstrated to be free of water at time of installation by way of blowing a sponge/ mandrel through them, then capped/ plugged.

Contractor shall install marker tape along the centreline of the trench approximately 250 mm below finished grade or asphalt or concrete surfaces.

### **Duct Testing Requirements**

Testing of duct shall conform to OPSS.MUNI 603 Quality Control requirements.

## **Handwells**

The Contractor shall supply Handwell – Synertech Oldcastle Model 2436-24 or approved equivalent. Product cut sheet attached as part of this specification.

The size of the Handwell shall be 24”L x 36”W x 24”D or as specified in contract drawings

All lids shall be manufactured with the following markings in the logo area of the lid, in 25mm recessed letters: “Traffic Systems”.

Ground rod shall be 2400mm x 16mm copper clad ground rod.

The locate ball or disk (maintenance marker) shall be a Greenlee Omni Marker or an approved equal.

The preferred spacing between two handwells shall be 350-450m. The spacing between the two handwells shall not be more than 500m.

## **Handwell Installation Requirements**

Install the handwells in accordance with the manufacturer’s recommendations and at locations shown in the contract drawings.

Use handwell with precast duct holes or drill holes to match duct entry where required without damaging the box. Use grout to create a complete seal between duct and the structure wall. Finish grout smooth and flush with the interior wall.

Make drilled holes in the handwell not more than 6 mm larger than duct diameter;

Seal duct ends inside all handwell with at least 50 mm thick duct caulking after wires are installed;

Seal vacant duct with a manufactured duct plug and attach detectable pull tape.

Level the top of the handwell and grade accordingly.

Field-locate handwell to avoid steep slopes and low-lying locations with poor drainage.

Do not install handwell within the traveled right of way or shoulders.

Install bushings on the end of all metallic ducts before cable installation.

The Contractor shall adhere to the following guidelines when installing duct in the handwell:

- Do not install duct within 50 mm of the corner of the handwell;

- Extend duct 150 mm beyond the inside wall of the handwell;
- Align duct ends by colour at each side of the box;
- Enter duct through the bottom of the handwell;
- Should be deburred and free from all sharp edges.

Saw cut concrete or other surfaces that require removal in the sidewalk area. Remove the entire section of sidewalk and replace with in-kind materials to match the existing grade.

Install Region of Waterloo approved, 12.5 mm, preformed expansion joint filler around the entire periphery of the ring for handwell installed in paved surfaces.

Install the ground rod to extend a maximum of 50 mm above the handwell floor.

Place a locate ball or disk in each handwell.

Restore all areas damaged during the installation of the handwell at no additional cost to the Region of Waterloo.

Place 300 mm of free draining granular backfill borrow under handwell.

Hand tamp granular backfill borrow or approved native soil around the handwell collar. Match the top 150 mm to the composition, density and elevation of the surrounding surface.

Ducts and handwells not used, shall be treated as spares

### **Handwell Testing**

Prior to shipment, Factory-controlled tests shall be performed to verify compliance of the above stated specifications.

Any test that reveals the materials or equipment does not meet the stated specifications shall constitute failure.

### **Delivery, Storage and Handling Requirements**

The Contractor is responsible for all delivery, storage and handling of the items specified herein. The Contractor shall deliver, store, install and handle the items in this specification as per manufacturer's requirements.

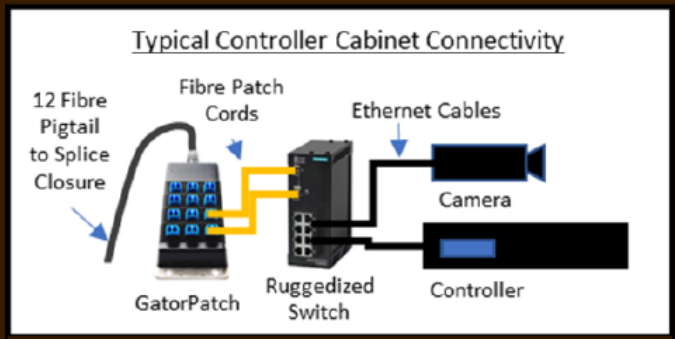
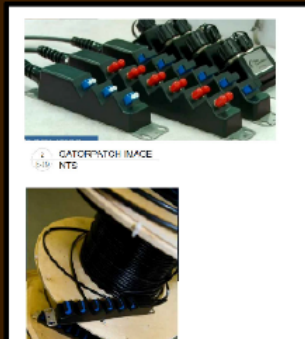
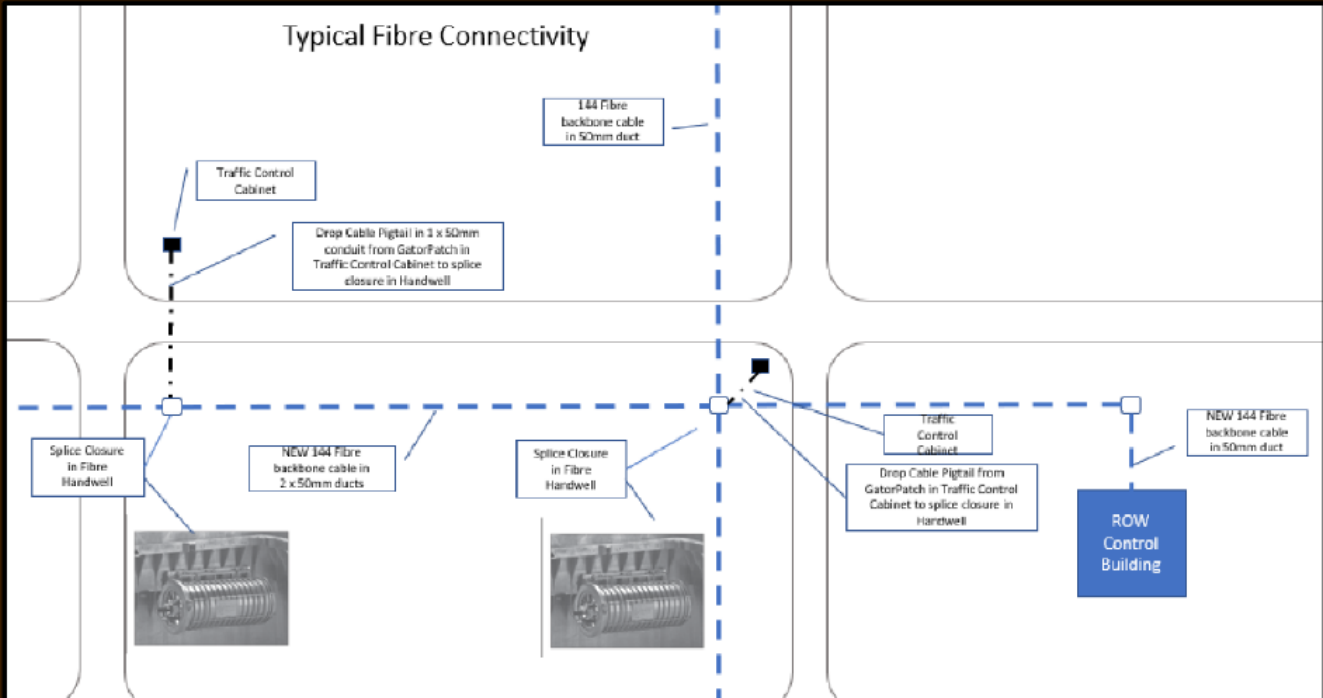
### **Measurement**

Ducts shall be measured by lineal metre from the inside face of handwell to inside face of handwell, or to the termination point of the duct.

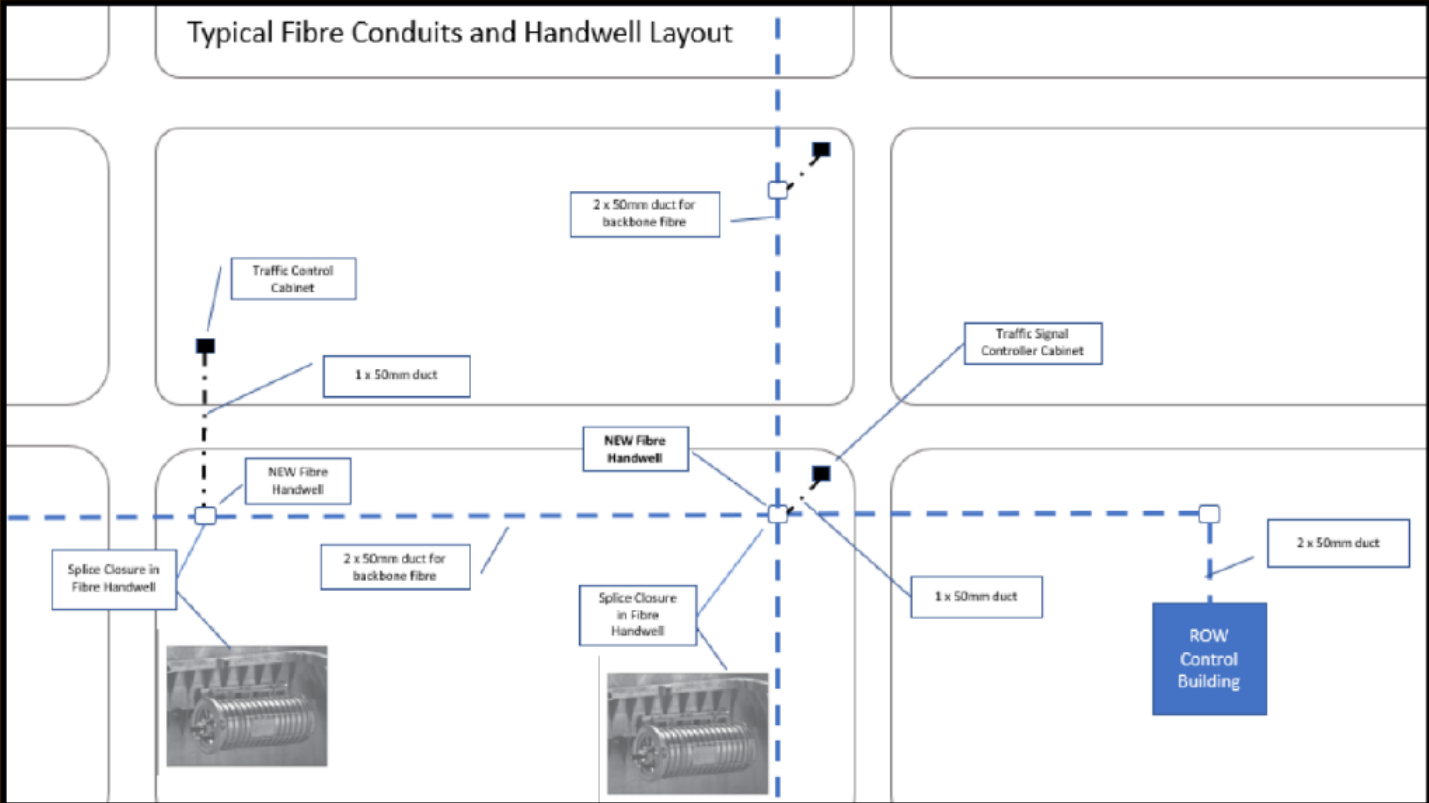
Handwells shall be measured by each.

**Basis of Payment**

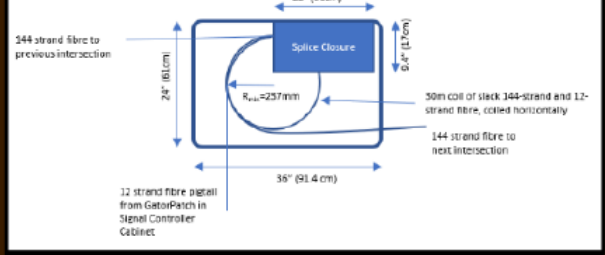
The unit price shall include cost of furnishing labor, materials, tools, testing, documentation and equipment necessary to complete the work and to make the items fully operational.

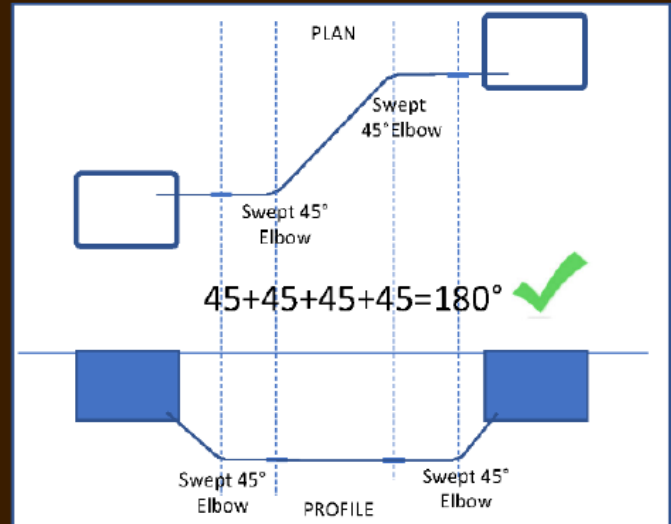
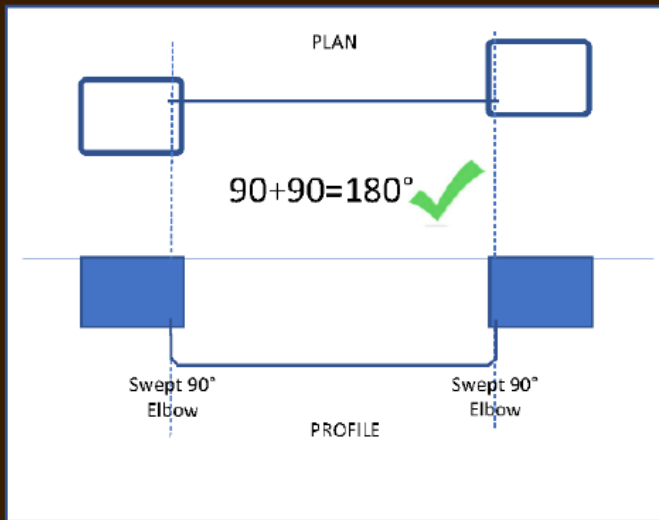


Typical Fibre Conduits and Handwell Layout

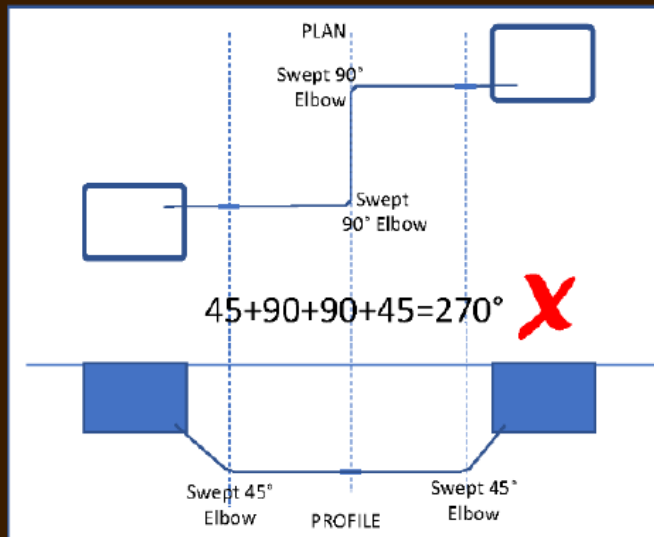


Typical Handwell





Conduit/Duct Installation:  
Maximum Bend=180°  
(all directions)

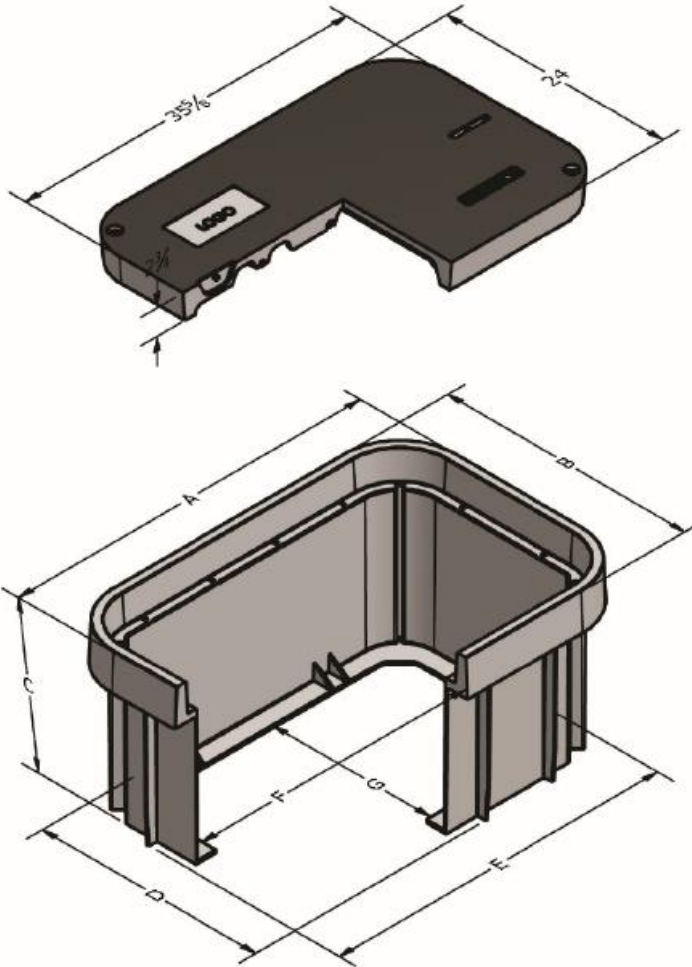




Electric &  
Communications



## 2436



### COVER:

Style: Flush Solid  
Material: DuoMold Composite  
Model: 24" x 36"  
Weight: 126 lbs  
Std. Fasteners: 1/2-13 Stainless Steel Hex Head Bolt, Self-Locating Insert  
Options: Logos and Special Markings  
Surface: Slip Resistant & Marked\*  
Coefficient of Friction: >0.6 ASTM 1028  
Performance: ANSI/SCTE-77 Tier 22, WUC 3.6, ASTM C857 A-16

### BODY:

Material: DuoMold Composite  
Model: 24" x 36"  
Weight: 18" Depth: 82 lbs  
24" Depth: 92 lbs  
36" Depth: 110 lbs  
Wall Type: Straight  
Performance: ANSI/SCTE-77 Tier 22, WUC 3.6, ASTM C857 A-16

Bodies are stackable\*\* to  
Depths of: 36", 42", 48",  
60", 72"

|         | A      | B      | C  | D      | E      | F      | G      |
|---------|--------|--------|----|--------|--------|--------|--------|
| 2436-18 | 38-1/8 | 26-1/2 | 18 | 23-1/2 | 35-1/4 | 29-1/8 | 17-1/2 |
| 2436-24 | 38-1/8 | 26-1/2 | 24 | 23-1/2 | 35-1/4 | 29-1/8 | 17-1/2 |
| 2436-36 | 38-1/8 | 26-1/2 | 36 | 23-1/2 | 35-1/4 | 29-1/8 | 17-1/2 |

\* Cover comes standard with permanent markings for manufacturer, load rating, model size and manufacturing location.

Contact your Oldcastle Enclosure Solutions Distribution Center for specific information and additional options.



Heavy Duty: Incidental,  
Non-deliberate Traffic

For use in non-vehicular traffic  
situations only.

Actual load rating is determined by the box  
and cover combination.  
Weights and dimensions may vary slightly  
\*\*Stacked body units are currently not rated.



Electric &  
Communications



2436

**Options:**

**Available DuoMold Composite Covers:**

Flush Solid (Standard)

**Fastener Options for DuoMold Composite Covers:**

Hex Head Bolt (Standard)

Penta Head Bolt

Oldcastle Enclosures Vandal Resistant Bolt

**Add on Options:**

Larger Lift Hook Pocket

EMS Marker (E)

Mouseholes/Knockouts

Rack Mount (A)

Cable Racks/Cable Arms (B)

Unistrut (C)

Pulling Eye - 1,000 lb and 3,000 lb (D)

Ground Buss (F)

Dividers

Racking Provision

Lid Gaskets\*

Solid Bottom

Bodies are Stackable (with tallest body on bottom)

\*Lid Gaskets inhibit water flow into the box, they do not make Enclosure fully waterproof.



Composite Cover



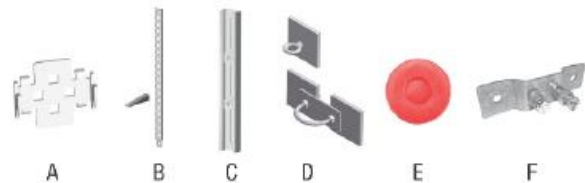
Hex Head



Penta Head



Vandal Resistant



**Raw Material Specifications:**

| Standard Test Method                           | Properties of Raw Material | ASTM Designation | Typical Value                     |
|--|----------------------------|------------------|-----------------------------------|
| Compressive Strength of Polymer Concretes      | Compressive Strength       | C 469            | > 17,000 psi                      |
| Flexural Properties of Plastic Materials       | Flexural Strength          | D 790            | > 14,000 psi                      |
| Resistance of Plastics to Chemical Reagents    | Chemical Resistance        |                  | Retain > 75% of original strength |
| Impact Resistance by Means of a Falling Weight | Impact Resistance          | D 2444           | > 70 ft-lb                        |
| Static Coefficient of Friction                 | Friction Coefficient       | C 1028           | > 0.6                             |

ASTM Specifications shall be the current revision.  
Test Reports available on request.

The Rural Utility Service (RUS) is a department of the US Department of Agriculture organized to facilitate rural development. RUS will only Oldcastle Enclosure Solutions brand enclosures listed by the RUS. All Oldcastle Enclosure Solutions brand enclosures conform to the RUS "Tamper Resistant" fastener design for buried pedestals.

**Product Load Rating:**



**Heavy Duty : Incidental, Non-deliberate Traffic**

For use in non-vehicular traffic situations only.

**Note:**

Actual load rating is determined by the box and cover combination. Weights and dimensions may vary slightly.

All information contained on this sheet is current at the time of printing.

Oldcastle Precast, Inc. reserves the right to discontinue or update product information without notice.



## **RWSS 19**

### **Payment Adjustment for Changes to the Fuel Price Index**

A payment adjustment will be calculated based on changes to the Ministry of Transportation's (MTO's) fuel index, as published monthly in the MTO Contract Bulletin for each calendar month. The Contractor will be responsible for any flow through to truckers, subcontractors and shippers/suppliers as may be required. The Region will not provide any additional compensation for this purpose in addition to that provided through this special provision.

It is agreed by the parties to the contract that it is impracticable and difficult to ascertain actual fuel consumed on the contract, and that the parties hereto agree that for the purpose of calculating the total fuel price adjustments, that the process outlined in this specification will be used.

A payment adjustment will be calculated using a "fuel impact percentage", pre-determined to be 5% for all projects, regardless of the scope of work for the project. In any month where the change to the fuel price index exceeds 15% (positive or negative) for the month when work was completed versus the month prior to tender, a payment adjustment will be made based on the monthly progress payment amount.

Payment or Credit will be subject to taxes and holdback as per the standard contract specifications.

The fuel adjustments will generally be made as a change order at the end of the contract, or annually for multi-year contracts. In circumstances where a monthly adjustment is greater than \$10,000 (positive or negative) the Region will process an interim payment or deduction. Any fuel adjustment for prior work that is being paid in the current month shall be removed from the monthly progress amount before calculating the current month's fuel adjustment.

### **Payment**

The following formula will be used to calculate the monthly fuel adjustment:

$$FA = M_{PA} \times P_{FI} \times P_{FC}$$

FA = Monthly Fuel Adjustment (\$)

M<sub>PA</sub> = Monthly Progress Amount (\$, value of work completed before holdbacks or taxes)

P<sub>FI</sub> = Percentage Fuel Impact (Pre-determined to be 5%)

P<sub>FC</sub> = Percentage Fuel Change (% , see calculation below)

FI<sub>PP</sub> = MTO Fuel Index for the month of Progress Payment

FI<sub>TC</sub> = MTO Fuel Index in the month prior to Tender Closing

When  $F_{PP} > 1.15 F_{TC}$ :

$$P_{FC} = \frac{(F_{PP} - 1.15F_{TC})}{F_{TC}} \times 100\%$$

When  $F_{PP} < 0.85 F_{TC}$ :

$$P_{FC} = \frac{(F_{PP} - 0.85F_{TC})}{F_{TC}} \times 100\%$$

If the MTO Fuel Index differential is less than 15%, no fuel adjustment will be applied for that month.

### **Sample Calculations:**

The following examples provide sample calculations for situations where the fuel index increases or decreases in excess of 15% from the month prior to tender to the month of payment.

#### **Example 1 – Tender Closed in January 2022, Progress Payment in July 2022:**

In this example, the progress payment for the month of July 2022 included a total of \$500,000 before holdbacks and taxes.

$$\begin{aligned} F_{TC} &= 114.3 \text{ (MTO Fuel Index for December 2021)} \\ F_{PP} &= 159.4 \text{ (MTO Fuel Index for July 2022)} \\ P_{FC} &= ((159.4 - (1.15 \times 114.3)) / 114.3) \times 100\% = 24.46\% \end{aligned}$$

$$\begin{aligned} FA &= \$500,000 \times 5\% \times 24.46\% \\ &= \$6,115.00 \end{aligned}$$

An additional payment of \$6,115.00 will be applied to the contract for the month of July 2022.

#### **Example 2 – Tender Closed in February 2020, Progress Payment in July 2020:**

In this example, the progress payment for the month of July 2020 included a total of \$600,000 before holdbacks and taxes.

$$\begin{aligned} F_{TC} &= 99.9 \text{ (MTO Fuel Index for January 2020)} \\ F_{PP} &= 79.5 \text{ (MTO Fuel Index for July 2020)} \\ P_{FC} &= ((79.5 - (0.85 \times 99.9)) / 99.9) \times 100\% = -5.42\% \end{aligned}$$

$$\begin{aligned} FA &= \$600,000 \times 5\% \times -5.42\% \\ &= -\$1,626.00 \end{aligned}$$

A credit of \$1,626.00 will be applied to the contract for the month of July 2020.

**Regional Municipality of Waterloo**  
**Unit Price Contracts**

**Standard Special Provisions (RWSSP) – 61 pages**

**Note 1:** The Regional Municipality of Waterloo Standard Special Provisions are supplemental specifications and amend and take precedence over the Ontario Provincial Standard Specifications and the Ministry of Transportation of Ontario Standard and Supplemental Specifications.

**Note 2:** Where these specifications are used for work done by a utility proponent or other contractor not working on a Regional contract, clauses in these specifications related to “Basis of Payment” and “Measurement for Payment” do not apply.

**Note 3:** The Standard Special Provisions in this section and the Standard Specifications in the preceding section were previously referred to as “Regional Municipality of Waterloo Standard Specifications for Road Construction” (or “SSRC”). All contents of these two sections are deemed part of the “SSRC” when referred to as such in the Regional Work Permit By-law and in other applicable documentation.

## Index

### Regional Municipality of Waterloo Standard Special Provisions (RWSSP)

|           | <b>Title</b>  | <b>Page</b> |
|-----------|---|-------------|
| RWSSP 180 | Management of Excess Materials  | <b>1</b>    |
| RWSSP 201 | Clearing and Grubbing   | <b>12</b>   |
| RWSSP 206 | Earth Excavation  | <b>13</b>   |
| RWSSP 310 | Hot Mix Asphalt   | <b>14</b>   |
| RWSSP 311 | Asphalt Driveway and Boulevard  | <b>22</b>   |
| RWSSP 314 | Granular “A” Road Base  | <b>23</b>   |
| RWSSP 333 | Cold-in-Place Asphalt Recycled Mix  | <b>24</b>   |
| RWSSP 351 | Sidewalks   | <b>26</b>   |
| RWSSP 353 | Curb or curb and Gutter   | <b>27</b>   |
| RWSSP 401 | Trenching, Backfilling and Compacting   | <b>27</b>   |
| RWSSP 407 | Maintenance Hole, Catchbasin, Valve chamber and Valve Box Installation                          | <b>28</b>   |
| RWSSP 408 | Adjusting or Rebuilding Existing Maintenance Holes, Catchbasins, Valve Chambers and Valve Boxes | <b>31</b>   |
| RWSSP 492 | Roadway Cutting and Restoration   | <b>32</b>   |
| RWSSP 510 | Removal   | <b>33</b>   |
| RWSSP 609 | Grounding   | <b>34</b>   |
| RWSSP 610 | Removal of Electrical Equipment   | <b>35</b>   |
| RWSSP 616 | Footings and Pads for Electrical Equipment  | <b>36</b>   |
| RWSSP 620 | Traffic Signal Equipment  | <b>38</b>   |
| RWSSP 623 | Traffic Actuation Equipment   | <b>44</b>   |
| RWSSP 706 | Signing   | <b>46</b>   |

|            |                              |           |
|------------|------------------------------|-----------|
| RWSSP 710  | Pavement Markings            | <b>46</b> |
| RWSSP 801  | Trees and Shrubs             | <b>49</b> |
| RWSSP 802  | Topsoil                      | <b>51</b> |
| RWSSP 803  | Sodding                      | <b>52</b> |
| RWSSP 804  | Seed and Cover               | <b>53</b> |
| RWSSP 805  | Erosion and Sediment Control | <b>54</b> |
| RWSSP 904  | Concrete (Surface Defects)   | <b>55</b> |
| RWSSP 1010 | Granular "B"                 | <b>55</b> |
| RWSSP 1150 | Hot Mix Asphalt              | <b>56</b> |
| RWSSP 1151 | Superpave Mixes              | <b>56</b> |
| RWSSP 1350 | Concrete (Mix Design)        | <b>57</b> |
| RWSSP 1359 | Controlled Density Fill      | <b>61</b> |

## **RWSSP 180**

### **Management of Excess Materials**

#### **References:**

OPSS.MUNI 180 - Management of Excess Materials

On-Site and Excess Soil Management, O.Reg.406/19

Rules for Soil Management and Excess Soil Quality Standards, adopted by reference into O.Reg. 406/19 (the “Soil Rules”)

Records of Site Condition, O.Reg.153/04

General – Waste Management, O.Reg.347

Aggregate Resources Act, R.S.O. 1990, c.a.8

Transportation of Dangerous Goods Act, 1992

#### **Definitions:**

For the purposes of this specification, the Definitions under O.Reg. 406/19 shall apply. Additional definitions below shall also apply for clarification.

**Owner:** As defined under OPSS.MUNI General Conditions shall mean the Region of Waterloo.

**Project Leader:** As defined under O.Reg. 406/19, shall mean the Region of Waterloo.

**Project Leader’s Qualified Person (QP-PL):** A Qualified Person (QP) as defined under O.Reg. 406/19 who is retained by the Project Leader to act as the Project Leader’s Representative to review, accept, and approve soil sampling and management activities and deliverables prepared by the Contractor’s Qualified Person on behalf of the Project Leader.

**Contractor’s Qualified Person (QP-C):** A Qualified Person (QP) as defined under O.Reg.406/19, with a minimum of 5 years of experience as a QP, who is retained by the Contractor to undertake soil sampling and management activities and deliverables in accordance with these specifications. The Contractor must select a QP-C that works for a different company than the QP-PL.

## **Amendments to OPSS 180.04 Design and Submission Requirements**

**OPSS 180.04 is deleted and replaced with the following:**

### **Design and Submission Requirements**

#### **General**

Excess materials shall be managed in accordance with On-Site and Excess Soil Management, O.Reg. 406/19 and OPSS 180.MUNI, as supplemented and amended by the following additional requirements.

For greater certainty, all excess materials (including, but not limited to: bituminous pavement; concrete; fabricated metal and plastic products; wood; masonry; pipes; surplus or unsuitable excavated earth and rock; and other wastes that are not otherwise designated for salvage or Reuse by the Owner) shall be removed from the Project Area and properly transported and re-used or disposed Off-Site in accordance with all applicable legislation at the Contractor's sole expense. More specifically, the Contractor shall comply with the Environmental Protection Act, including Ontario Regulation 347/90 (as amended), and shall use appropriately licensed haulers and receivers for all waste transportation and disposal, as required.

#### **Sampling, Testing and Analysis by QP-PL**

Unless otherwise described in the Contract Documents, prior to Tender the QP-PL has completed the following in accordance with O.Reg. 406/19 on behalf of the Region:

- **Assessment of Past Uses**

The Assessment of Past Uses is intended to identify any potentially contaminating activity within the meaning of Ontario Regulation 153/04 that may affect the Project Area.

- **Sampling and Analysis Plan (SAP)**

The Sampling and Analysis Plan is intended to describe the proposed methodology for sampling and analysis, including sampling locations and the type of analysis to be conducted.

- **Soil Characterization Report**

The Soil Characterization Report is intended to include:

- The results of sampling and analysis and an assessment of those results, including a description of the parts of the Project Area that were sampled and analysed.

- A description of which soil may be Reused within the Project Area, with or without processing at the Project Area, and which soil may be deposited at a Class 1 soil management site, landfilling site or dump.
- Having regard to the Excess Soil Standards, identification of the type of potential Reuse Sites to which Excess Soil from the Project Area may be transported for final placement Off-Site.

The results of these assessments and analyses are made available for review by the Contractor as described in Section A – Instructions to Bidders. For greater certainty, Section A – Instructions to Bidders applies with necessary modification to the foregoing. The Contractor is solely responsible for its own interpretation of assessments and analytical results made available by the Owner.

### **Contractor Responsibilities**

The Contractor shall review and understand the available environmental data on the Excess Soils to be generated, as provided within the Soil Characterization Report.

The Contractor shall engage the services of a Qualified Person (QP-C) to undertake soil sampling and management activities and deliverables in accordance with these specifications.

The Contractor shall be responsible for the On-Site and Off-Site deposit of Excess Soils from the Project Area and will be responsible for executing the requirements of the Reuse Site in relation to import of Excess Soils originating from another site. This shall include all necessary sampling, documentation and reporting to support placement of material at the Reuse Site(s) including the identified submittals. If required, the Contractor will be responsible to supply the necessary planning documents for a notice on the Registry as identified in O.Reg. 406/19, to be prepared by the QP-PL. The project is presently anticipated to be exempt from posting a notice on the Registry.

All excess material shall be transported to the Reuse Site(s) to be identified by the Contractor and approved by the QP-C. The QP-PL shall review and accept the proposed Reuse Site(s) in advance of any excavation work. The Contractor shall obtain written consent from the operator/owner of the Off-Site Reuse Site(s) at which the Excess Soils will be deposited prior to the initiation of construction operations.

The Contractor shall be responsible for the design of any required On-Site storage areas, processing equipment and areas, testing, and transportation including Off-Site haulage and deposit of the Excess Soils.

The Contractor shall submit a plan of any temporary On-Site storage areas for the duration of the project. The plan shall include the erosion and sediment controls.

The Contractor shall develop and submit a plan for the transportation, disposal and tracking of Excess Soils. The plan shall list all carriers who will haul the soil to the Reuse Site(s) to be identified by the Contractor and approved by the QP-C. The QP-PL shall review the plan and list of carriers in advance of any excavation work. The plan shall also include details to meet the tracking requirements identified under O.Reg. 406/19.

The Contractor shall comply with the requirements outlined in a Fill Management Plan, should it exist for the Reuse Site, Excess Soil Destination Assessment Report and/or site-specific Instrument of the Reuse Site where Excess Soil will be placed, as applicable.

The soil hauled Off-Site shall be dry. Otherwise, hauling of liquid soils will be in accordance with provisions in the Soil Rules.

The Contractor shall determine the consistency, quality, and quantity of excavated material generated as a result of construction activities.

Unless otherwise designated, the QP-C shall undertake any required additional sampling and testing of the excavated materials supplemental to the available environmental data and to evaluate the suitability for Reuse either within the Project Area or at an Off-Site Reuse Site.

Soil treatment will not be permitted within the Project Area unless otherwise noted in the Contract Documents. Should the Contractor elect to treat and Reuse Excess Soils generated from the Project Area Off-Site, the Contractor shall be solely responsible for meeting all Regulatory requirements at the Off-Site facility.

### **Contractor Submittals**

The following submittals are to be provided by the Contractor at the Pre-Construction Meeting. The QP-PL will review and comment on the submittals within 10 business days. The Region, or the QP-PL if designated by the Region, shall be responsible for filing all necessary information on the Provincial Registry. The Contractor shall not commence excavation activities until the QP-PL has reviewed the submittals and any concerns or required changes have been addressed, and no removal of Excess Soils from the site will be permitted until the Region or QP-PL have confirmed that any necessary information has been filed on the Provincial Registry. Any delays resulting from late, incomplete or inaccurate submittals shall be the sole responsibility of the Contractor and the Region will not entertain any related claims for compensation or for an extension of Working Days.

## **1. Approach to Excess Soil Management**

Contractor to provide a written description of their approach to Excess Soil management for this contract illustrating their understanding of the requirements and how they will be addressed. This document shall include the following:

- **Identification of Proposed Reuse Sites**

Contractor to provide a list of the Reuse Sites, approved by the QP-C, proposed for the project.

- **Identification of Instruments**

Contractor to provide a copy any Instruments (i.e. existing permits or licenses) applicable to the Reuse Site (s) proposed for the project.

- **Identification of Laboratories**

Contractor to identify analytical laboratories to be used, including their certifications.

- **Identification of Qualified Persons**

Contractor to identify the Qualified Person who will act as the QP-C including a copy of the individual's resume.

## **2. Excess Soil Destination Assessment Report (ESDAR)**

QP-C to prepare and approve the ESDAR in accordance with the Soil Rules incorporated into O.Reg. 406/19 including:

- Identification of the Project Area and each Reuse Site where Reused soil will be deposited
- For each Reuse site, the municipal address (if applicable), latitude and longitude, and coordinates in NAD83 (CSRS) UTM Zone 17N coordinate system
- Acceptance criteria for the Reuse Site, including environmental quality and any other material characterization requirements
- Written consent from the operator/owner of the Reuse Site accepting the deposit of the Excess Soils from the Project. Written consent to be provided using a copy of the completed form OPSF 180-1 (July 2021), Site Selection Notification for Stockpiling Materials Managed Through Re-Use, or OPSF 180-2 (July 2021), Site Selection Notification for Material Managed as Disposable Fill, or both as applicable.

- A copy of any other form of agreement with the Reuse Site for the acceptance of the Excess Soils from the site
- Identification of additional sites at which soil may be Reused in the event that a fill site identified cannot be used
- Provides an estimate on the quality and quantity of soil that will be deposited at each location.

### **3. Source Site Documentation for Imported Soil (Only on projects requiring Borrow)**

Contractor to provide source site documentation prepared by QP-C for each site from which imported soil will be obtained in alignment with O. Reg.406/19 including:

- Assessment of Past Uses
- Sampling and Analysis Plan
- Site Characterization Report

Contractor to identify procedures to ensure that each load is accompanied by documentation signed by the QP-C that includes appropriate and representative soil analysis from the soil at the source site(s) confirming the soil quality is acceptable for the designated Project Area receiving location in accordance with O.Reg.406/19 as well as the fill requirements for the site included in related sections of the Contract Documents.

The requirements of O. Reg.406/19 do not apply to imported soil originating from a pit or quarry licensed under the Aggregate Resources Act.

### **4. Soil Tracking System and Data Management Plan**

The Contractor shall have the QP-C prepare and submit a Soil Tracking System and Data Management Plan to include following as a minimum:

- Project team and their qualifications. The team should be led by the QP-C with adequate support.
- Description of soil tracking relational database (the Database) and any hardware or software requirements including primary, backup and/or redundant systems required to execute the work.
- Describe data storage and back-up processes to protect collected data.
- Describe data security measures to be implemented.

- Description and live-demonstration of the tracking system, including accessibility and passwords to be used by various parties, including Owner, QP-PL and imported soil supplier (when applicable).
- Using example data, a description of column headers, including units of measurement, assumptions, and any formulas required to calculate or transform the raw data into useable real-world data.
- Demonstrate how the following will be accounted for:
  - Details of daily tracking truck weigh tickets for material transported to a Ministry-approved licensed Off-Site facility and tracking documentation to the QP-PL daily during excavation activities.
  - Details of daily tracking of excavated soil volumes for Reuse in the Project Area, or for transfer to an Off-Site Reuse Site(s).
  - Details of daily tracking of imported soils for use in the Project Area.
  - Details of daily tracking of sampling results from soil samples collected by the Contractor or by Others from Off-Site facilities.
  - Details of daily tracking of imported soil sampling results from soil samples collected by Others from Off-Site facilities (when applicable).
  - Details of tracking On-Site soil stockpiles, including location on site, stockpile type (imported, exported, re-use, and/or treated soils) and change management related to stockpile closures or re-use (when applicable).
- Process by which soil approval and rejection between Contractor and QP-C will be managed and communicated to the various parties.
- Details of tracking Environmental Compliance Approvals, operating licenses, or permits for the Ministry-approved licensed Off-Site facility, soil transportation company.
- Details of process and documentation demonstrating acceptance of soil by the receiving facility.
- Anticipated difficulties and proposed resolutions.

## **Amendments to OPSS 180.07 Construction**

**OPSS 180.07 is invoked with the following additions and amendments.**

**The following is added under OPSS 180.07 in advance of Section OPSS 180.07.01:**

### **Additional Sampling, Testing and Analysis by Contractor**

If, for the purpose of accepting Excess Soils, the Reuse or Disposal Sites selected by the Contractor require additional sampling, testing and analysis beyond that provided in the Soil Characterization Report, the QP-C shall complete such work prior to the start of excavation. The Contractor shall consider such additional requirements prior to submission of their Tender Bid and include these costs in their unit bid price for Off-Site Reuse or Disposal of Excess Soils.

If, after the start of construction, areas of potentially contaminated material are encountered that were not identified in the Soil Characterization Report and if, at the QP-PL's discretion, it is necessary to conduct additional sampling, testing and analysis within the Project Area to comply with O.Reg 406/19 requirements, the QP-C shall undertake such work with payment to be made under applicable Provisional Items. Separate payment for this work will only be made if approval is provided by the Contract Administrator in advance of undertaking the additional sampling, testing and analysis.

Prior to proceeding with any additional sampling, testing and analysis, the QP-C shall outline the work required for review and acceptance by the QP-PL.

Confirmation that soil meets the applicable Excess Soil Quality Standard will be achieved via a single-point compliance method (that is, the criteria is met at each sampling point from which a sample is taken for soil analysis) unless directed by the QP-C with the concurrence of the QP-PL.

Samples to be tested shall be collected under the direction of the QP-C as required by the nature of the testing.

Testing services shall be performed by a testing agency approved by the QP-PL.

Test reports, including results and interpretations of results compared to the applicable criteria, and certification of conformance with specified requirements, shall be transmitted directly from the testing agency to the QP-C and QP-PL. Copies of the analytical data shall be appended to the body of the report in an electronic data delivery (EDD) format acceptable to the QP-PL.

Testing reports shall be prepared under the direction QP-C and submitted to the QP-PL.

The QP-PL will be responsible for updating the Soil Characterization Report as necessary.

### **Storage, Processing, Site Transport and Off-haul**

Storage, processing, site transport and off-haul shall be undertaken in accordance with the Soil Rules and the reviewed submittals.

Storage, transportation and processing of liquid soils shall be undertaken by the Contractor in accordance with O.Reg.406/19, including the requirements detailed within the Soil Rules. No more than 10,000 m<sup>3</sup> of liquid soils, processed or dewatered or solidified soil and process residues may be present at the site at any one time. Liquid soils shall be stored in a leakproof container on an impermeable surface to contain and prevent the material from leaking into the natural environment.

Transport and disposal of classified hazardous materials shall be handled in accordance with applicable regulations including O.Reg.347 and the Transportation of Dangerous Goods Act.

### **Tracking System**

The Contractor shall have the QP-C develop a tracking system to track each load of Excess Soils, during the transportation and deposit at an On-Site or Off-Site Reuse Site or at a disposal site if soil is unsuitable for Reuse. The tracking system shall provide:

- The location at which the Excess Soils, were loaded for transportation.
- The date and time the Excess Soils, were loaded for transportation.
- The quantity of Excess Soils, in the load.
- The name of an individual who may be contacted to respond to inquiries regarding the load, including inquiries regarding the soil quality.
- The name of the corporation, partnership or firm transporting the Excess Soils, the name of the driver of the vehicle and the number plates issued for the vehicle under the Highway Traffic Act.
- The name and location of the Reuse Site.
- The date and time of arrival of the load to the Reuse Site.
- The volume of Excess Soils, received.
- Documentation from the Project Area signed by the QP-C, including soil analytical results.
- Written consent from the Reuse Site accepting and acknowledging that the incoming Excess Soils, are acceptable for receipt at the site, including

the contact information of the person who acknowledged receipt of the load(s).

- Rejections of any loads of Excess Soils, due to visual inspection or review of analytical results.
- Documentation to the QC-PL, once Excess Soils are received, confirming the materials were received and the type, quality and quantity were appropriate.

A person who is operating a vehicle for the purpose of transporting the Excess Soils, shall provide the tracking information to any provincial officer, upon request.

The Contractor and the QP-C shall determine the appropriate means of estimating the quantities of Excess Soils loaded, transported and received. Irrespective of the selected method of measurement for tracking, the volume of Excess Soil quantities tracked by the Contractor shall be considered an approximation and shall have no bearing on the final payment quantities. Measurement for payment purposes shall be as defined in the Measurement for Payment and Basis of Payment sections of this specification.

### **Reuse and Disposal Sites**

For greater certainty, the Owner has not designated or identified specific haulers, receivers, Reuse Sites and/or disposal sites for excess materials generated under this Contract. The Contractor is solely responsible for identifying and selecting appropriate haulers, receivers, and/or disposal sites required to complete the work of this Contract.

### **OPSS.MUNI 180.07.01 Conditions on Management of Excess material - General**

OPSS.MUNI 180.07.01, the third sentence is deleted and replaced with the following: "Where excess material includes asbestos waste, the asbestos waste shall be managed in accordance with all applicable legislation, including, but not limited to, Ontario Regulation 347/90 (as amended)."

### **Amendments to OPSS.MUNI 180.07.08 Excess Earth Quantity Report**

#### **OPSS.MUNI 180.07.08 is deleted and replaced with the following:**

The Contractor shall have Form OPSF 180-6 (July 2021), Excess Earth Quantity Report, completed during construction by the QP-C and made available to the QP-PL and/or Contract Administrator upon request within 3 Business Days of such request being made, for information purposes only. The form shall account for all excess earth managed as disposable fill, by stockpiling, and by re-use. Revisions shall be highlighted. The form shall confirm the submission date of the corresponding Notification of Site Selection and Property Owner Release forms. The Contractor shall

have the QP-C provide a final completed Quantity Report Form OPSF 180-6, to the QP-PL and Contract Administrator prior to Contract Completion, for information purposes only.

**Amendments to OPSS.MUNI 180.07.09 Verification of Excess Soil Reuse Plan**

**OPSS.MUNI 180.07.09 is deleted and replaced with the following:**

Within 14 Days of the completion of the excess soil reuse plan, the Contractor shall have the QP-C provide a report to the QP-PL and Contract Administrator verifying that excess soil has been placed to the correct reuse site(s) for the quantity and the beneficial purpose identified in the excess soil reuse plan, as amended, for information purposes only. Amendments to the plan shall be identified in the report.

**The following is added in advance of OPSS 180.10 Basis of Payment:**

**Measurement for Payment**

Payment for the management of excess material shall be included in the tender items requiring such management and shall include all costs associated with acquiring approvals, releases, and agreements.

Measurement for Earth Excavation and Soil Reuse On-Site (Grading) shall be per RWSSP 206.

Measurement for Earth Excavation and Excess Soil Reuse Off-Site and for Imported Soil Reuse On-Site (Earth Borrow), if required, shall be by Plan Quantity of the in-place volume of earth in cubic metres computed from design cross-sections per RMW Standard Drawing 266. No allowance for material bulking has been made. The estimated quantity of spoil material from trenches and structures is included in the Plan Quantity for Excess Soil Reuse Off-Site.

For greater clarity, no quantity adjustments will be considered for Items measured by Plan Quantity unless changes are made to excavation limits with prior approval by the Contract Administrator, or the limits of soil characterization change during construction as accepted by the QP-PL and the Contract Administrator. Excess Soil quantities tracked by the Contractor shall be considered an approximation and shall have no bearing on the final payment quantities.

Measurement for Earth Excavation and Excess Soil Disposal Off-Site (contaminated material) shall be by tonne as quantified by tickets collected by the Contractor from the Disposal Site and provided to the Contract Administrator through the QP-PL.

Progress payment quantities for Excavation and Excess Soil Reuse Off-Site shall be based on the estimated percentage complete for the Item. The Item will only be paid

after the Contractor's tracking system verifies receipt and acceptance of all subject material at the specified Reuse Site(s).

### **OPSS.MUNI 180.10 Basis of Payment**

**OPSS.MUNI 180.10 is deleted in its entirety and replaced with the following:**

Payment for Earth Excavation and Soil Reuse On-Site (Grading) shall be per RWSSP 206.

Payment for the management of Excess Soils shall be included in the Tender Items requiring such management and shall include all costs associated with sampling, testing, analyses, characterization of quality, designation of waste types, delineation of quality and extent of excess material, identifying and selecting appropriate haulers, receivers, Reuse Sites and/or disposal sites for excess material, acquiring approvals, releases, reporting of soil tracking and agreements, and all other costs associated with the work pursuant to this specification, O.Reg. 406/19 and OPSS.MUNI 180.

The unit bid prices for Earth Excavation and Soil Reuse or Disposal Off-Site and Imported Soil Reuse On-Site (Earth Borrow) Items shall be complete, including all costs associated with excavation, separating, temporary stockpiling, double handling, hauling, loading, tipping fees and all sampling and testing requested by the Reuse or Disposal site. Excavation for sewers and appurtenances, watermain and appurtenances, and driveway reconstruction is included in those pay items.

### **Costs for Correction**

The Contractor shall, at its own cost, promptly correct any breach of this special provision, O.Reg. 406/19 or OPSS.MUNI 180.

### **Indemnification**

For greater certainty, Supplemental General Conditions Clause 3 (SGC 3), Indemnification, applies to this specification.

### **RWSSP 201**

#### **Clearing and Grubbing**

#### **References:**

OPSS 201 – Clearing and Grubbing

**Amendments to OPSS 201- Clearing, Close Cut Clearing, Grubbing, and Removal of Surface and Piled Boulders.**

**Add the following to OPSS 201.07.01 – Construction – General**

Brush and debris shall be disposed of off-site in a manner approved by the Region and according to OPSS 180. The Contractor shall arrange for disposal areas at the Contractor's own expense.

Burning of any debris at the work site will not be allowed.

Repair of any damage caused by the Contractor's operations to surrounding property shall be the responsibility of the Contractor. Any debris, mud or other material deposited on the roadway or on private property by the Contractor shall be removed immediately. Any damage to the existing roadway shall be repaired by the Contractor to the satisfaction of the Region. Reinstatement or repair of private property or restitution to the owner in lieu must be acceptable to the Region.

**Amendment to OPSS 201.09 Measurement for Payment**

Delete subsection 201.09 and replace with the following:

Payment at the contract lump sum price shall be full compensation for all labour, equipment and material to clear and grub the site, remove and dispose of all materials (trees, brush, stumps, rocks and boulders under 1 m<sup>3</sup>) within the limits of the contract.

The extent of the clearing and grubbing as shown on the drawings is approximate only and the Contractor shall base his bid solely on his own investigation of the site to determine the actual limits of the work, prior to preparing his bid.

**Amendment to OPSS 201.10 Basis of Payment**

Amend subsection 201.10.01 to add the following item description:

Clearing and Grubbing - Item

**RWSSP 206**

**Earth Excavation**

**References:**

OPSS.MUNI 206 – Grading

RWSSP 180 and OPSS.MUNI.180

On-Site and Excess Soil Management, O.Reg.406/19

Rules for Soil Management and Excess Soil Quality Standards, adopted by reference into O.Reg. 406/19 (the "Soil Rules")

### **Amendment to OPSS 206.09 – Measurement for Payment**

The first paragraph of OPSS.MUNI 206.09.01.01 is deleted and replaced with the following:

Measurement for Earth Excavation and Soil Reuse On-Site (Grading) shall be by Plan Quantity of the in-place volume of earth, excluding topsoil, in cubic metres computed from design cross-sections per RMW Standard Drawing 266. No allowance for material bulking has been made.

Measurement for Topsoil Stripping and Reuse or Disposal Off-Site shall be by Plan Quantity of the in-place volume of topsoil, in cubic metres computed from design areas designated for topsoil removal multiplied by the average depth of existing topsoil.

For greater clarity, no quantity adjustments will be considered for Items measured by Plan Quantity unless changes are made to excavation limits with prior approval by the Contract Administrator, or the limits of soil characterization change during construction as accepted by the QP-PL and the Contract Administrator. Soil Reuse On-Site or Topsoil Stripping quantities tracked by the Contractor shall be considered an approximation and shall have no bearing on the final payment quantities.

### **Amendment to OPSS 206.10 – Basis of Payment**

OPSS.MUNI 206.10.01 is amended with the addition of the following:

The unit bid prices for Earth Excavation and Soil Reuse On-Site (Grading) and for Topsoil Stripping and Reuse or Disposal Off-Site Items shall be complete, including all costs associated with excavation, separating, temporary stockpiling, double handling, hauling, loading, tipping fees and all sampling and testing requested by the Reuse or Disposal site. Excavation for sewers and appurtenances, watermain and appurtenances, and driveway reconstruction is included in those pay items.

Separate Pay Items are defined under RWSSP 180 for the Management of Excess Soils, Earth Excavation and Soil Reuse or Disposal Off-Site and Imported Soil Reuse On-Site (Earth borrow), if required.

## **RWSSP 310**

### **Hot Mix Asphalt**

#### **References:**

OPSS 310 – Construction Specification for Hot Mix Asphalt

OPSS 1150 – Material Specification for Hot Mix Asphalt

**OPSS 310.05.01 – Materials – Hot Mix Asphalt - is amended by the addition of the following:**

Reclaimed Asphalt Pavement (RAP) and/or Roof Shingle Tabs (RST) are not permitted in any SuperPave or Marshall surface asphalt mixes.

**OPSS 310.06 - Equipment is amended by the addition of the following:**

For main lane paving, tack coat shall be applied using self-propelled or tow-along pressure distributors capable of applying the product at the specified rate and in a continuous and uniform manner both longitudinally and transversely for the full lane width. The distributors shall be equipped with a volume-determining device of sufficient sensitivity to measure the quantity of tack coat dispensed, measurable to four or five litres.

The use of a hand held pressure wand is acceptable for tack coating only small irregularly shaped areas such as tapers.

All surface course paving shall be completed with two pavers in echelon. Where echelon paving is not possible or practical as determined by the Contract Administrator, cold joints are to be pre-heated using a paver-mounted infrared joint heater that achieves a joint temperature of 90 degrees C (+/- 10 degrees C) immediately ahead of the paver. Material transfer devices and joint heaters are to be used for all roadway paving operations including surface and base courses, with the exception of small localized paving areas where the use of a material transfer device and/or joint heater is deemed impractical by the Contract Administrator. Payment for echelon paving, joint heating and material transfer devices will be identified as included in the applicable pay items or will be identified as separate pay items.

**310.07.01 Construction - Quality Control - is amended by the addition of the following:**

For asphalt placement tonnages over 500 tonnes, the Contractor shall supply copies of plant records during asphalt production that will allow a determination of the proportion of Reclaimed Asphalt Pavement added to the mix within one week of production.

**OPSS 310.07.03 Construction - Tack Coat - is removed and replaced by the following:**

Surfaces to be tack coated shall be free of standing water and contamination, such as mud, loose aggregate or debris. Tack shall be placed sufficiently ahead of the paving operation to allow for curing. Paving equipment shall not be permitted upon the tack coat until it has fully cured.

Tack coat shall be slow set, non-tracking (SS-1HH) and shall be applied at the following rates:

- a. 0.20 litres/m<sup>2</sup> to all new or milled pavement surfaces;
- b. 0.30 litres/m<sup>2</sup> to any surface that has been left open to traffic over at least one winter; and
- c. 0.45 litres/m<sup>2</sup> to expanded asphalt surfaces or cold-in-place recycled surfaces.

**OPSS 310.07.05.02.01 Construction- Hot Mix Asphalt - General and OPSS 310.07.05.02.02 Construction- Hot Mix Asphalt - Frequency and Location are removed and replaced with the following:**

The Contractor is responsible for obtaining two asphalt samples for the Contract Administrator at each sampling location, one for Quality Assurance (QA) testing and one for referee testing. Samples are to be collected in the presence of the Contract Administrator's laboratory representative. The Contractor may choose the appropriate collection method. Samples shall be placed in a suitable container supplied by the Contractor and be provided to the Contract Administrator's laboratory representative who will transport the samples to the QA laboratory for testing. It is suggested that the Contractor obtain a Quality Control sample at the same location of the QA and referee samples.

The minimum sample size for Superpave mixes is 20 kg. The minimum sample size for Marshall mixes is 10 kg.

A minimum of three sets of asphalt samples are required for each day of paving at each location. Based on the paving expected each day, the Contract Administrator will predetermine the 3 or more sampling locations for that day. For example, where more than 1500 tonnes will be placed in a day, three equally spaced samples shall be taken for the first 1500 tonnes and one sample for every 500 tonnes thereafter. Where less than 1500 tonnes will be placed in a day, three equally spaced samples shall be taken so that each sample represents approximately 1/3 of the day's paving. Prior to the start of paving each day, the Contractor must arrange for a mandatory "pre-pave meeting" with the Contract Administrator to review the asphalt sample locations for that day.

**OPSS 310.07.05.02.04 Construction - Hot Mix Asphalt - Cores is not applicable and is deleted.**

**OPSS 310.07.05.02.05 Construction - Hot Mix Asphalt - Delivery is not applicable and is deleted.**

**OPSS 310.07.06.01 Placing Hot Mix Asphalt - General is amended by the addition of the following:**

The Contractor shall provide a detailed asphalt placement plan to the Region at least 2 working days in advance of placing asphalt. This plan shall indicate the asphalt mat widths to be placed and the order in which each mat, including tapers and intersections, are to be placed. The plan shall outline the Contractor's proposed construction procedure to ensure that the finish asphalt surface is not damaged by the Contractor's operations.

Freshly paved roads shall not be opened to through traffic until the temperature of the asphalt has cooled to 50 degrees C or lower. The Contractor shall detail, in their asphalt placement plan, their traffic control procedures to keep traffic off of the asphalt until it has cooled sufficiently.

On rural Contracts, driveway paving must be completed within 10 working days of roadway paving.

Water valves must be exposed and available for use within one working day after asphalt placement.

Following the completion of asphalt placement, the Contractor in the presence of the Contract Administrator representative, shall open all manholes, catchbasins, valve chambers and valve boxes, clean all debris from the inside of the frames, and then replace the covers.

**OPSS 310.07.11.03 Longitudinal and Transverse Joints - Transverse Joints - is amended by the addition of the following;**

Transverse joints shall be constructed as per Reg. Std. Dwg. 208.

At the end of each day, all lanes of traffic are to be open to vehicle traffic. For all transverse joints, ramping is to be put in place prior to re-opening the vehicle lane to traffic. The Contractor shall place two standard "bump" signs (TC-15) secured by sandbags, one in each direction, at every joint. Prior to re-opening the lane to traffic after milling operations, all transverse joints must be ramped a minimum of one (1) metre in length with hot mix asphalt (or as approved by Engineer) over a bond breaking paper barrier. A minimum ramp length of 2 m is required where the posted speed limit is 70 kph or greater. A minimum ramp length of 0.5 m is permissible at stop conditions on side streets with the approval of the Contract Administrator. As an alternative to constructing temporary ramps, the Contractor may elect to taper the milled asphalt at the joint to transition from existing to milled asphalt in accordance with the above-noted length requirements. Temporary asphalt ramps are also required at all sidewalk drop locations until final surface asphalt is placed. All ramps must be removed prior to final surface course paving.

**OPSS 310.08.04 Quality Assurance - Aggregate Gradation and Asphalt Cement Content Acceptance and OPSS 310.08.05 Quality Assurance - Hot Mix Asphalt Properties Acceptance are removed and replaced by the addition of the following:**

Aggregate gradation and asphalt cement content test results for HMA samples based on LS-282 and LS-292 shall meet the JMF tolerance requirements as specified in Table 7. Marshall test results for hot mix samples based on LS test procedures shall meet the requirements specified in Table 8. The production air voids for all HMA mixes shall be evaluated according to Table 9.

If the Q/A reporting deems consecutive HMA results to be borderline on the same attribute for aggregate gradation, asphalt cement content or air voids, the Contractor shall take immediate corrective action through process control at the HMA plant. If corrective action is not taken and/or the test results continue to be borderline for the same attribute, all asphalt placed after becoming aware of the initial borderline sample will be considered rejectable. If the results of Q/A testing are disputed by the Contractor based on differing Q/C results, the Contractor shall provide plant or field Q/C testing results, for information purposes only, to the Contract Administrator within five business days of receiving the Q/A results. The Region reserves the right to order the Contractor to suspend all paving operations until the Contractor can prove that the mix can be produced within OPSS 310, OPSS 1150 and OPSS 1151 acceptance tolerances. The Contractor should note that a systemic change in aggregate gradation or properties outside of the tolerances permitted, may require a job mix formula modification which will be developed and provided at the Contractor's cost by the CCIL Type "A" certified laboratory that prepared the job mix formula. Should a job mix formula adjustment be required, the Contractor shall provide the revised job mix formula to the Region for approval prior to placement of any of the new pavement mix.

The Contractor is advised that a borderline test result does not constitute an "acceptable" result. A borderline result is indicative of a production problem and provided appropriate process changes are made to adjust the mix production, "borderline" pavement can remain in place.

If any individual Q/A test results indicate that hot mix is rejectable for aggregate gradation (Table 7), asphalt cement content (Table 7) or air voids (Table 9), the HMA represented by that test shall be considered rejectable. Asphalt that is rejectable will remain in place with no payment to the Contractor if the asphalt is within the following tolerances for Asphalt Cement Content or Air Voids:

Asphalt Cement Content:

minus 0.50-0.60% or plus 0.50-0.60% (of the Job Mix Formula AC content)

Air Voids:

1.4 to 2.0% or 6.0 to 6.6%

Asphalt outside these tolerances or that is deemed rejectable for gradation will be removed and replaced with acceptable HMA at the Contractor's expense. The HMA subject to removal and replacement shall be from the location of the first acceptable sample preceding the rejectable sample to the location of the first acceptable sample following the rejectable sample, in accordance with the sequence of paving operations.

The Contractor must provide written requests for any Job Mix Field Adjustment or Referee Testing within 7 Business Days of receiving the Q/A results, otherwise the Contractor accepts the Q/A results. Job Mix Field Adjustments must be submitted on the standard Regional form.

A maximum of three Job Mix Field Adjustments may be allowed for each Approved Asphalt Mix Design, one preconstruction and two during construction. All Job Mix Field Adjustments shall be to the original Approved Mix Designs as per OPSS.MUNI 1151 Table 8 and the final JMF must remain within OPSS.MUNI 1151 Table 2 gradation control points. Testing results must fall within OPSS.MUNI 310 Table 7 and Table 9 parameters

If the Contractor disputes a Q/A result, the Contractor may request that a third-party referee laboratory (mutually agreed to by the Region and by the Contractor) re-test the sample in question using the additional sample in storage at the Region's Q/A Consultant's laboratory. In the absence of a duplicate sample being available, a cored sample from the original sample location may be used to conduct the referee test. The referee laboratory's results shall be considered final and binding. If the re-test confirms that the hot mix is rejectable, the mix represented by the test shall be removed and replaced by the Contractor (or left in place with no payment as applicable). If the mix is confirmed to be rejectable, the Contractor shall be responsible for all costs associated with the referee testing and all costs associated with the replacement (approximately \$ 5,000 per occurrence to cover the Region's costs for detours, pavement markings, re-testing, administration and inspection). If the referee testing determines the mix is acceptable, the Region will be responsible for all costs associated with the referee testing.

In the case of a confirmed rejectable mix, the Contractor may undertake a coring and testing program to supplement the previous referee results in order to further define the area of rejectable mix to minimize the area requiring replacement. The Region must review and approve in advance, the coring and testing program and the firm to be used

to carry out the additional testing. Cores must be located at a minimum distance of 100m from any previous test location.

**OPSS 310.09.01.01.01 Measurement for Payment - By Mass - is amended by the addition of the following:**

Truck weigh tickets shall also include the following information regarding HMA mix type: PGAC grade, RAP%, RST%, and any modifiers used.

**OPSS 310.10 Basis of Payment - is amended by the addition of the following:**

OPS MUNI 310, Appendix 310-B (November 2017) is automatically invoked on all contracts, which adjusts payment for asphalt cement when the price varies by more than 5% from the published price in the month prior to tendering. Payment adjustments will only be made for individual item quantities that exceed 100 tonnes. Where the asphalt item is paid for on a square metre or Lump Sum basis rather than per tonne (typically for asphalt shoulders, boulevards, driveways or trails) a theoretical tonnage of new asphalt placed will be calculated for the purpose of determining the liquid AC payment adjustment. The theoretical tonnage of new asphalt placed will be calculated as follows:

Field measured asphalt area (square metres) x specified compacted asphalt depth (metres) x 2.4 tonnes/m<sup>3</sup> (assumed density factor of compacted asphalt for calculation purposes)

Payment made under the hot mix asphalt items shall be in accordance with OPSS 310.09 and shall include sweeping or air cleaning the surface, removing asphalt ramps, applying bond breaker material, applying joint painting material, installation of shoulder treatments, all hand-placed asphalt, all machine-laid asphalt padding, cleaning of castings, installation of hand-formed asphalt curb around catchbasins at low points when specified and providing a detailed asphalt placement plan.

ACbid in Superpave mixes

In order to discourage low asphalt cement (AC) content in Superpave mixes, payment adjustments will be made for the content of asphalt cement in mixes once under production. All tenderers are to base their bid submissions on the specified bid asphalt cement content (ACbid) in the chart below:

| <b>Mix Type</b>      | <b>ACbid<br/>(%AC)</b> | <b>Minimum<br/>%AC in<br/>JMF</b> |
|----------------------|------------------------|-----------------------------------|
| Superpave 12.5mm     | 5.0%                   | 4.8%                              |
| Superpave 12.5mm FC1 | 5.0%                   | 4.8%                              |
| Superpave 12.5mm FC2 | 5.0%                   | 4.8%                              |
| Superpave 19mm       | 4.8%                   | 4.6%                              |

Following award of a contract, the successful bidder will complete their mix designs and submit job-mix formulas (JMF) for acceptance by the Region. A minimum AC content in the JMF is also applicable as noted in the chart above. For each mix with a minimum contract quantity of 1000 tonnes, any variance between the job-mix formula asphalt content and ACbid will result in a price adjustment for the asphalt placed on the contract. If the contract quantity of a mix is less than 1000 tonnes, there will be no payment adjustment. An adjustment to the contract price will be made if the percentage by mass of new PGAC required for the work as required by the job-mix formula differs from that specified for bidding purposes. The contract price shall be adjusted upwards or downwards by an amount of 0.1 percent of the price of the new PGAC for every 0.1 percent increase or decrease respectively in the percentage by mass of new PGAC content required by the job-mix formula compared to that specified for bidding purposes. The price adjustment will be calculated based on the Ministry of Transportation (MTO) Performance Graded Asphalt Price Index as published monthly in effect at the time paving takes place.

Sample calculations are provided below for price adjustments on Superpave mixes when the “bid” asphalt cement price differs from the Job Mix Formula asphalt cement price:

**Example 1**

A surface asphalt course includes 1500 tonnes of Superpave 12.5 mm (no RAP), 5.1% AC in the JMF, 5.0% AC in the ACbid and was placed in September 2011 (AC price index of \$641.50).

Payment adjustment = 1500 t x (5.1% - 5.0%) x \$641.50 = \$962.25 payment to the Contractor

## Example 2

A base asphalt course includes 2000 tonnes of Superpave 19mm mix with 10% RAP (3.39% AC in the RAP), 4.7% AC in the JMF, 4.8% AC in the ACbid and was placed in September 2011 (AC price index of \$641.50). For mixes containing RAP, the residual AC content in the RAP must be deducted so that only virgin AC is included in the price adjustment.

Payment adjustment calculation:

Virgin AC based on the JMF =  $90\% \times 4.7\% + 10\% (4.7\% - 3.39\%) = 4.361\%$

Percentage of virgin AC in the JMF =  $4.361\% / 4.7\% = 92.79\%$

Assume the same proportion of virgin AC in AC bid =  $92.79\% \text{ of } 4.8\% = 4.454\%$

Difference in Virgin AC between JMF and ACbid =  $4.361\% - 4.454\% =$

$-0.093\%$  resulting in a payment adjustment of  $-0.1\%$  (rounded)  $\times 2000 \text{ tonnes} \times$   
 $\$641.50 = -\$ 1283.00$  (credit to the Owner)

## **RWSSP 311**

### **Asphalt Driveway and Boulevard**

#### **References:**

OPSS 311 – Construction Specification for Asphalt Sidewalk, Driveway, and Boulevard and for Sidewalk Resurfacing

OPSS 310 – Construction Specification for Hot Mix Asphalt

#### **Amendments to OPSS 311 – Asphalt Sidewalk, Driveway, and Boulevard**

##### **Add the following to OPSS 311.07.01 – Construction – General**

The surface of the asphalt driveway or paved boulevard shall be constructed in such a manner as to give a smooth transition between all new construction and existing driveway or boulevard to remain.

##### **Add the following to OPSS 311.07.01 – Construction - General**

The Contractor shall arrange their schedule such that any driveways that are excavated will be backfilled, as per RWSSP 401, with Granular “B” and/or Granular “A” the same day.

All joints with existing asphalt pavement shall be saw cut.

**Add the following subsection OPSS 311.07.01.01 – Construction – General – Pavement Structures**

1. Commercial and Industrial Driveways

After compaction, each material shall meet the following minimum depths:

Granular “B” 300 mm

Granular “A” 150 mm

HL-4 50 mm

HL-3 50 mm

2. Private Driveways, Paved Boulevards

After compaction, each material shall meet the following minimum depths:

Granular “A” 150 mm

HL-3(F) 50 mm

**Amendment to OPSS 311.10 – Basis of Payment**

Delete subsection 311.10 in its entirety and replace with following:

Payment at the Contract price for the above work shall be full compensation for all labour, equipment and material, including granular and HMA, to do the work.

All excavation required above the top of the driveways in a cut area will be paid under Earth Excavation.

Removal of existing asphalt driveways will be paid under the asphalt removal item of the contract. There will be no separate payment for the sawcutting of all joints with existing asphalt driveways.

**RWSSP 314**

**Granular “A” Road Base**

**References:**

OPSS.MUNI 314 – Construction Specification for Untreated Granular, Subbase, Base, Surface Shoulder, and Stockpiling

**OPSS.MUNI 314.05.02 – RAP Shouldering is not applicable and is deleted**

**OPSS.MUNI 314.07.06.02 and .03 (Surface Tolerances) are deleted and replaced with the following:**

For a finished Granular A surface on which hot mix asphalt is to be placed, the finished granular surface shall not deviate more than 10 mm from the specified grade and cross-section and the surface shall not deviate more than 10mm at any place as measured in any direction with a 3m straight-edge.

**OPSS.MUNI 314.07.04.01 – RAP Shouldering is not applicable and is deleted**

**OPSS.MUNI 314.07.05.02.01 – RAP Shouldering is not applicable and is deleted**

**The following is added to OPSS.MUNI 314.07.04 (Shoulders):**

All shoulder construction material shall be conveyed from the transport vehicle onto the shoulder area. End dumping of shoulder construction material directly on to the adjacent pavement surface or directly on to the shoulder shall not be permitted. All shoulder construction material shall be placed with a shoulder spreader or road widener having hydraulic grade and slope control and capable of a spread width to match the maximum width of the proposed shoulder. For projects with small sections of shoulder construction, grading may be permitted without the use of a shoulder spreader, subject to approval by the Contract Administrator.

Edge ramping of bituminous pavement courses will be permitted without the use of a shoulder spreader, provided the chosen method prevents damage to the asphalt. Edge ramping shall be completed before opening to traffic as per OPSS.MUNI 314.07.03.

Unless specified otherwise in the Special Provisions or Item Description, material for granular shoulders and private driveways shall be Granular “A” with 45 to 55% RAP by mass.

**RWSSP 333**

**Cold-in-Place Asphalt Recycled Mix**

**References:**

OPSS 333 – Construction Specification for Cold-in-Place Asphalt

**Mix Design**

All costs associated with the development of revised mix designs requested by the Contractor shall be at the Contractor’s expense.

A minimum of 2 calendar days prior to the start of operations, the Contractor shall submit to the Region information on the type, manufacturer and supplier of the binder.

## **Construction**

The Work shall be carried out in-place on the road in a manner that does not disturb the underlying base.

Prior to commencing full cold-in-place recycling operation of the existing roadway on each project, the Contractor will be required to place a trial area 0.5 km in length, from the commencement of the milling operation, one lane in width, to demonstrate the ability to produce a cold-in-place recycled mix in conformance with this specification. The trial area will be accepted visually after initial compaction. The final acceptance of the trial area and the entire project will be based on compaction density results as outlined in these specifications once the project is completed. If the trial area or any other area does not meet specification, the Contractor at their expense shall remove and replace the rejected sections with Hot Mix HL-4 asphalt.

Copies of all High Float Rejuvenator (HFR) test results shall be forwarded to the Region.

The Region will provide the Contractor with grade/crossfall information to which the recycled asphalt is to be placed. The compacted cold-in-place recycled mix shall be smooth and true to the established crown and grade. The grade and slope of the finished cold-in-place asphalt recycled mix shall meet tolerances as per RWSSP 314.01. All deficient areas shall be re-profiled or padded with hot mix asphalt to meet the specified surface tolerance, all at the Contractor's expense.

The Contractor shall be responsible for insuring that the cold-in-place recycled mix is not damaged by traffic. Traffic including construction traffic, shall be kept off the freshly placed cold-in-place recycled mix for a minimum of one hour or whatever time is required to prevent damage to the surface.

When pavement widening is necessary, the Contractor will be required to excavate the existing gravel shoulder to the depth equivalent to the specified cold-in-place thickness for the project to a width that will allow for the cold-in-place recycled mix to be placed to a lane width of 4.00 metres.

For pavement widening, the Contractor shall ensure that excavation is to the exact limits, i.e. no over excavation. All suitable excavated material shall be placed, graded and compacted on the existing shoulder.

Where there is insufficient height of existing shoulder to match the proposed height of the recycled mix, pre shouldering with imported Granular “A” will be required prior to the cold-in-place recycling process.

Deficient crossfall at the outer edge of the recycled mat due to shoving, inability of the shoulder to provide lateral support to the recycled mat, or other causes is not acceptable and must be corrected before the Work is accepted.

For all pavement widening areas where the recycling depth is greater than 75 mm and/or the recycling depth is 75 mm but over excavation has occurred, the Contractor shall adopt the following additional work sequence.

After the recycled asphalt mat is placed and prior to rolling the outer 1.0 m of this mat, shoulder gravel shall be graded against the edge and to the level of the asphalt mat. The roller shall then operate parallel to the edge of pavement and shall simultaneously operate on the asphalt and gravel so as to compact both materials to prevent any lateral displacement.

## **RWSSP 351**

### **Sidewalks**

#### **References:**

OPSS 351 – Construction Specification for Concrete Sidewalk

#### **Amendments to OPSS 351 - Concrete Sidewalk**

##### **Add the following to OPSS 351.07.01 – Construction – General**

Sidewalks, sidewalk ramps and approaches are to be constructed in accordance with the contract drawings and RMW Standard Drawings 224, 225, 226, 227 and 261.

##### **Add the following to OPSS 351.07.02.02 – Construction – Grading Tolerances-Granular Base**

All concrete sidewalks shall be bedded on 150 mm of compacted Granular “A” unless otherwise noted elsewhere in the Contract Documents.

##### **Amendment to OPSS 351.10 Basis of Payment**

Delete subsection 351.10.01 and 351.10.03 and replace with the following:

Payment at the contract price for the above item shall be full compensation for all labour, materials and equipment required to complete the supply and placement of concrete as described herein.

Payment for earth excavation and soil reuse or disposal required for the placement of the new sidewalk including the compaction of the subgrade shall be included under the Earth Excavation and Excess Soil items in the contract. The supply, placement and compaction of Granular “A” for sidewalks shall be included in the item for roadway granular..

## **RWSSP 353**

### **Curb or Curb and Gutter**

#### **References:**

OPSS 353 – Construction Specification for Concrete Curb and Gutter Systems

OPSS 1440 – Material Specification for Steel Reinforcement for Concrete

#### **Amendments to OPSS 353 - Concrete Curb and Gutter Systems**

##### **Add the following to OPSS 353.07.04 – Construction – Steel Reinforcement**

Reinforcement shall be placed in driveway curb cuts for industrial, commercial and apartment entrances and at transit ramps. Two 10M bars shall be placed in the curb and gutter at a height of 50 mm above the bottom of the curb and gutter, one 76 mm from the front face and the other 76 mm from the back face.

##### **Add the following to OPSS 353.07.05 – Construction – Formwork**

All curb or curb and gutter installations adjacent to curb face sidewalks, concrete islands, concrete driveways, concrete boulevard edging and at transit stops and wheel chair ramps shall include additional 50 mm width of concrete along the back of curbs and curb and gutters in accordance with the applicable OPSDs.

The Contractor shall saw cut the limits of the existing curb prior to extending/replacing new curb.

##### **Amendment to OPSS 353.09 Measurement for Payment**

Delete subsection 353.09.01.03 and replace with the following:

There will be no separate measurement for setbacks and gutter outlets unless separate pay items are specified in the contract documents.

## **RWSSP 401**

### **Trenching, Backfilling and Compacting**

#### **References:**

OPSS 401 – Construction Specification for Trenching, Backfilling and Compacting

**RC-30.01 Amendments to OPSS 401 – Trenching, Backfill and Compacting**

**Add to OPSS 401.07.10.01 – Backfilling and Compacting - General**

The Contractor must backfill excavations, cut or trenches in accordance with RMW Standard Drawing 216.

**Amendment to OPSS 401.07.10.05 – Backfilling and Compacting – Backfill**

Delete first paragraph and replace with the following paragraphs:

**Backfill in Roadway**

The Contractor shall backfill trenches on the roadway with suitable native excavated material or clean, compactable granular material, placed in 150 mm layers and compacted by mechanical impact or vibratory means to not less than 98% Standard Proctor Density to the subbase. The granular subbase and base on the roadway shall conform to or exceed the existing road base. The Contractor shall compact the granular subbase and base in 150 mm layers to not less than 98% Standard Proctor Density. The trench walls must be shored or the soil sufficiently stable to avoid trench walls collapsing and contaminating the granular backfill.

The Region reserves the right to require the Contractor to provide materials testing results in advance of any backfilling operation for all materials to be used in backfilling to ensure conformance with this specification.

**Backfill in Boulevard**

The Contractor shall backfill trenches in boulevards but outside of driveways with compactable native excavated material. The Contractor shall grade and restore the area to a condition equal to that existing prior to the Work being done.

**RWSSP 407**

**Maintenance Hole, Catchbasin, Valve Chamber and Valve Box Installation**

**References:**

OPSS 407 – Construction Specification for Maintenance Hole, Catch Basin, Ditch Inlet, and Valve Chamber Installation

**Amendments to OPSS 407 – Maintenance Hole, Catch Basin, Ditch Inlet, and Valve Chamber Installation**

**Add the following to OPSS 407.07.01 – Construction - General**

Tolerances:

All frames and appurtenances shall be adjusted to final grade so that, when tested with a 3 m straight edge in any direction of the surface, they meet the following grade variance requirements between the bottom of the straight edge and the surface of the asphalt or the frame and appurtenance.

| <b>Gap (mm)</b> | <b>Action</b> |
|-----------------|---------------|
| Up to 10        | Acceptable    |
| Greater than 10 | Unacceptable  |

For new construction and total roadway rehabilitation, all adjustments must be completed after the initial base asphalt layer and before the second base asphalt layer is placed. An exception to this would be on smaller scale projects where there is not sufficient time between layers and at the discretion of the Region. Adjustments will not be allowed at Granular “A” grade prior to placing base asphalt layer. For surface asphalt layer installation, the Contractor will be required to complete all adjustments in the roadway a minimum of 24 hours prior to commencing the placement of the final surface lift of asphalt on the roadway.

All adjusted structures that are in the driving lane or cycling lane must be ramped with hot mix asphalt and the ramping is only to be removed immediately prior to asphalt paving. Ramping is to consist of 1 m long ramps in the direction of travel. Alternatively, where the posted speed is 60 km/hr or less, rubber-ring manhole “safety ramps” are permitted as an alternate to asphalt ramping. “RAISED MANHOLE AHEAD” signage must be installed at an appropriate spacing to adequately warn motorists and cyclists of raised manholes. Where conditions exist that a structure is raised but not yet ramped, the top of the structure must be painted with fluorescent orange paint.

Any frame or appurtenance adjustment deemed unacceptable based on the 10 mm gap tolerance criteria will be rectified at the Contractor’s cost.

The frame and appurtenances deemed unacceptable must be rectified by sawcutting, breaking out and resetting the frames and covers and reconstructing the road structure to within the tolerable gap limit of 10 mm. The removal and reinstatement must be completed in a diamond pattern to ensure the resultant joint is not transverse to the driving lane.

**Add the following to OPSS 407.07.14 – Installation of Frames with Grates or Covers**

When pre-cast concrete frames are set in mortar for final adjustments and leveling of castings on all adjustments made, the Contractor will be required to supply and install High Density Polyethylene structure shims to support the casting while the mortar sets as supplied by Ken Taylor Industries or approved equal. The use of stones, bricks, wood etc. to support castings will not be permitted.

All new manholes shall be fitted with a self-adjusting manhole frame and cover (including gasket between frame and cover) from one of the following suppliers:

**East Jordan Iron Works, East Jordan, Michigan (Product No. 00302201)**

Ontario Branch:  
159 Sugar Maple Road,  
St. George, Ontario  
N0E 1N0

Phone: 519-448-3395  
Fax: 519-448-3393

**Bibby-Ste-Croix, Ste-Croix, Quebec (Product : Auto Stable C-50M-ONT)**

Ontario Office:  
1757 Burlington Street East  
Hamilton, Ontario  
L8M 3L5

Phone: 1-800-982-5682 or 905-312-4776  
Fax: 905-312-1434

**Star Pipe Products, Houston, Texas (Product: MH24SL)**

Ontario Office:  
Star Pipe Canada Inc.  
1144 Industrial Road  
Cambridge, Ontario  
N3H4W4

Phone: 1-888 893 7827 or 519- 650-1550  
Fax 519-650-1553

**Add the following to OPSS 407.07.16 – Installation of Extension Stems and Boxes for Valve Chambers**

The Region shall determine if the valve box top section requires replacement or if an extension is required. These sections or extensions will be screw types. Road levellers are not acceptable.

**RWSSP 408**

**Adjusting or Rebuilding Existing Maintenance Holes, Catchbasins, Valve Chambers and Valve boxes**

**References:**

OPSS 408 – Construction Specification for Adjusting or Rebuilding Maintenance Holes, Catch Basins, Ditch Inlets, and Valve Chambers

**Amendments to OPSS 408 - Adjusting or Rebuilding Maintenance Holes, Catch Basins, Ditch Inlets, and Valve Chambers**

**Add the following to OPSS 408.07.09.01 – Rebuilding - General**

When placement of the proposed surface asphalt layer is being deferred to the following year, all catchbasins at low points shall be installed at base asphalt grade and temporarily protected with a hand-formed asphalt curb and gutter or curb all in accordance with RMW Standard Drawing 215.

**Add the following to OPSS 408.07.09.02 – Rebuilding - Cast-In-Place Structures**

For catchbasin and catchbasin maintenance holes, lateral adjustments may be made by sloping/tapering the concrete extension to conform to the curb alignment. The slope shall be limited to 100 mm horizontal to 300 mm vertical, and the resulting opening shall be not less than 500 mm measured at right angles to the curb line.

**Amendment to OPSS 408.09 Measurement for Payment**

The following is added to subsection 408.09.01.01:

**Maintenance Hole, Catchbasin, Ditch Inlets and Valve Chamber Adjustments**

Payment shall be made under this item on an “each” basis. Adjustments up to and including 0.3 m shall be paid as one adjustment. Adjustments over 0.3 m shall be paid as one additional adjustment for each additional 0.3m increment. The measurement for payment will be based upon the height of new concrete, precast concrete adjustment units and mortar added.

### **Valve Box Adjustment:**

If called for in the Schedule of Unit Prices or if required by the Region, the Contractor will supply and install new top sections and/or extensions under the unit price bid for the item – Adjusting Valve Boxes (including the installation of new top sections and/or extensions).

If the existing valve box top section is suitable for re-use and an extension is not required, payment shall be made under the item – Adjusting Valve Boxes (not including the installation of new top sections and/or extensions).

Payment at the Contract price for the above tender item(s) shall be full compensation for all labour, equipment and material to do the work.

Delete subsections 408.09.01.04, 408.09.01.05 and 408.09.01.06.

### **RWSSP 492**

#### **Roadway Cutting and Restoration**

##### **References:**

OPSS 301 – Construction Specification for Restoring Unpaved Roadway Surfaces

OPSS 314 – Construction Specification Routing and Sealing Cracks in Hot Mix Asphalt Pavement

OPSS 490 – Construction Specification for Site Preparation for Pipelines, Utilities and Associated Utilities in Open Cut

OPSS 492 – Construction Specification for Site Restoration Following Installation of Pipelines, Utilities and Associated Structures in Open Cut

OPSS 401– Construction Specification for Trenching, Backfilling and Compacting

OPSS 539 – Construction Specification for Temporary Protection Systems

##### **General**

#### **a) Cutting Roadway Pavement**

When cutting roadway pavement, the Contractor shall make every effort to keep the amount of pavement damage to a minimum. Longitudinal cuts are only permitted at the edge or centre of a driving lane or the edge of a cycling lane. Unless otherwise specified, pavement restoration must be a minimum of 5 metres in length to ensure the repair can be completed using appropriate machine-laid paving equipment. All repairs that include multiple lifts of asphalt shall be completed with milled lap joints 0.3m in width in each successive layer to

ensure that all joints between asphalt layers are staggered. Cutting of roadway pavement shall be in accordance with OPSS 510 – Removals, subsection 510.07.06.02 – Cutting Existing Pavement.

**b) Amendments to OPSS 492 - Site Restoration Following Installation of Pipelines, Utilities and Associated Structures in Open Cut**

**Add the following to OPSS 492.07.03 – Roadway Restoration**

The Contractor shall restore the pavement to the existing lift thicknesses of the road or in conformance with RMW Standard Drawing 216, whichever is greater in the same day.

Where two or more excavations, cuts or trenches have been made within 2 m of each other, the Contractor shall restore the roadway pavement by cutting and removing the entire pavement between them and restoring the whole of the cut area.

The Contractor shall use the following minimum depths for pavement restoration:

100 mm (base course - two 50mm lifts)

50 mm (surface course)

In no case shall the asphalt depth be less than that of the existing pavement.

Where asphalt has been removed for the installation or adjustment of a water valve, manhole or other structure, the asphalt shall be neatly cut and restored in a diamond pattern in the direction of travel (i.e., cuts are not to be transverse to the vehicle wheel path).

Tolerances for adjustments of structures and reinstatement of asphalt shall be in accordance with RWSSP 407 and RWSSP 408.

**RWSSP 510**

**Removal**

**References:**

OPSS 510 – Construction Specification for Removal

OPSS 610 – Construction Specification for Removal of Electrical Equipment

**Amendments to OPSS 510 - Removals**

### **Amendment to OPSS 510.07.01 – Construction – General**

All saw cutting shall be carried out in a manner which will reduce dust nuisance to the greatest extent. In built-up areas or where traffic is affected, saws shall use wetted-type blades.

All saw cuts shall be of sufficient depth to allow remaining structures to stay intact while demolition is being carried out. The Contractor shall be responsible for maintaining all saw cut edges and shall re-cut any edges damaged by the Contractor's equipment or by traffic allowed to cross same.

### **Measurement for Payment**

#### **1. Removal of Concrete Driveways**

Removal of concrete driveways will be measured in square metres in place.

#### **2. Saw cutting**

Saw cutting will only be measured for payment where called for as a separate contract item. All other sawcutting will be considered incidental to and included in the demolition. Measurement for payment will be made horizontally for the entire length of saw cut, but will not include any additional measurement for trimming broken edges.

### **Basis of Payment**

Payment at the Contract price for the items covered by this specification shall be full compensation for all labour, equipment and material to do the work for demolition, for the disposal of debris, for salvage where specified, for earth excavation required for the demolition and for the subsequent disposition of the excavated material and for the backfilling of the resulting trenches, holes and pits except that imported backfill will be paid for separately in accordance with specifications for the material required and used.

### **RWSSP 609**

#### **Grounding**

#### **References:**

OPSS 609

#### **Amendments to OPSS 609 – Grounding**

#### **Amendment to OPSS 609.05.02 – Material – Grounding Plates**

Delete subsection 609.05.02 in its entirety and replace with the following:

The galvanized grounding plates shall be a model 1016.GPGC as manufactured by Hydrel Enterprises Inc., Scarborough, Ont. or CSA approved equal.

### **Construction-General**

The Contractor shall be required to install the ground plates and 100 mm rigid visual inspection conduits complete with ground wire and ground wire connectors, 50 mm ground wire conduit terminated a minimum of 3 metres vertically above existing ground level including a minimum 1 metre length of coiled ground wire at the top of the 50 mm conduit at the power supply location. The Contractor will be required to install the temporary visual inspection conduits **over the ground wire connectors** and ensure that the connectors remain visible. The Contractor may also contact the RMOW traffic signal representative who will then take digital photos of the installation prior to the Contractor backfilling the trench.

### **Measurement for Payment**

#### **a) Ground Plate and Wire**

Measurement shall be made for each ground plate and wire installation.

The wire between the power supply pole, additional 50 mm conduit riser section at power supply location, including the spare 1 metre coil and the first ground plate shall be deemed as one unit and the wire between the first ground plate and the second ground plate shall, also, be considered as one unit.

### **Basis of Payment**

#### **a) Ground Plate and Wire**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to the supply and installation of the ground plate, wire, ground wire connectors including visual inspection conduits and additional 50 mm conduit riser section at power supply location as required.

### **RWSSP 610**

### **Removal of Electrical Equipment**

### **References:**

OPSS 510 – Construction Specification for Removal

OPSS 610 – Construction Specification for Removal of Electrical Equipment

## **Amendments to OPSS 610 – Removal of Electrical Equipment and Materials**

### **Measurement for Payment**

#### **1. Removal of Traffic Signal Underground Conduit**

The removal of traffic signal underground conduit will be measured horizontally in linear metres from the centreline to centreline of existing handwells, pole bases or supply poles. No additional measurement will be made for the vertical length of conduit removed. Also, in instances where two or more underground conduits are in a common trench, i.e., the distance between the centerlines of the outermost ducts does not exceed 0.6 m; measurement will only be made for the removal of a single length of underground conduit.

#### **2. Removal of Traffic Signal Pole Bases**

Where traffic signal pole bases are to be removed, payment will be made on a unit basis.

#### **3. Removal of Traffic Signal Handwells**

Where traffic signal handwells are to be removed, payment will be made on a unit basis.

### **Basis of Payment**

Payment at the Contract price for the items covered by this specification shall be full compensation for all labour, equipment and material to do the work for demolition, for the disposal of debris, for salvage where specified, for earth excavation required for the demolition and for the subsequent disposition of the excavated material and for the backfilling of the resulting trenches, holes and pits except that imported backfill will be paid for separately in accordance with specifications for the material required and used.

## **RWSSP 616**

### **Footings and Pads for Electrical Equipment**

#### **References:**

OPSS 616

### **Amendments to OPSS 616 – Footings & Pads for Electrical Equipment**

#### **Add the following to OPSS 616.07.03.02.02 – Anchorage Assemblies**

##### **616.07.03.02.02.01 Traffic Signal Pole Base Anchorage**

A pole base anchorage shall be an Acro-Richmond Anchor Assembly comprised of:

- a) a 320 mm centre DGR 2-2, 320 mm x 320 mm x 610 mm, with 32 mm diameter x 250 mm long double nutted studs;
- b) a 280 mm centre DGR 2-2, 280 mm x 280 mm x 610 mm, with 32 mm diameter x 250 mm long double nutted studs;
- c) a 230 mm centre DGR 2-2, 230 mm x 230 mm x 610 mm, with 25 mm diameter x 250 mm long double nutted studs;

or an AMG Metals Inc. Anchor Assembly comprised of:

- a) a 450 BCD x 610 Depth, 320 mm x 320 mm x 610 mm, with 32 mm diameter x 250 mm long double nutted studs;
- b) a 395 BCD x 610 Depth, 279 mm x 279 mm x 610 mm, with 32 mm diameter x 250 mm long double nutted studs;
- c) 325 BCD x 610 Depth, 230 mm x 230 mm x 610 mm, with 25 mm diameter x 250 mm long double nutted studs.

All signal poles and anchorage systems are designed to accommodate tapered sectional steel poles as manufactured by Polefab Inc., Powco Steel Products Ltd., or AMG Metals Inc.

### **Construction-General**

The 610 or 760 mm diameter pole base shall be installed to a minimum depth of 1.82m (6 feet) against undisturbed soil. All excavation must be carried out by hand or by use of an auger; a backhoe is not suitable for this purpose. Where ground conditions are unstable, the Contractor shall consult with the Region to determine any design changes that may be required. The top of the pole base shall be hand trowelled to ensure a smooth finish and marked to indicate the direction of each of the conduit elbows.

The Contractor shall construct the concrete controller pad complete per RMW Standard Drawing 509/512. The Contractor shall be required to position the Controller pad in the orientation as laid out by Regional Operations Signal Staff. All footing excavations are to be augered; backhoe excavating will not be permitted.

### **Measurement for Payment**

#### **a) Concrete Pole Base (Concrete Footings)**

Refer to OPSS 616.09 – Footings & Pads for Electrical Equipment –  
Measurement for Payment

Measurement shall be made for each individual concrete pole base installed.

**b) Controller Pad**

Measurement shall be made for each individual concrete controller pad installed.

**Basis of Payment**

**a) Concrete Pole Base (Concrete Footings)**

Refer to OPSS 616.10 – Footings & Pads for Electrical Equipment – Basis of Payment

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to all costs for the supply and installation of the concrete pole base complete including required anchorage assembly, conduit piping and fittings required.

**b) Controller Pad**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to all costs to supply and install the concrete controller per pad complete including conduit piping and fittings required.

**RWSSP 620**

**Traffic Signal Equipment**

**References:**

OPSS 620 – Construction Specification for Traffic Signal Equipment

**Delete subsection 620.05.06 in its entirety and replace with the following:**

Rigid PVC conduits and fittings shall meet the following requirements:

**Conduit and Fittings**

**a) Open Cut Method:**

Rigid P.V.C. conduit, elbows and fittings shall meet CSA No. C22.2, No. 211.1-M1984 (R2003), Type DB2/ES2.

**b) Trenchless Technology/Directional Drilling Method:**

High Density Polyethylene SDR13.5 (1000 series manufactured by Driscopipe or approved equal).

### **Amendment to OPSS 620.05.08 – Junction Boxes and Fittings**

Delete subsection 620.05.08 in its entirety and replace with the following:

a) Handwell

Handwells shall be 20,000 psi Polymer Concrete style. Handwell sizes shall be 12 x 12, 10 x 15, 13 x 24 or 17 x 30 and 450mm (18”) in depth.

b) Handwell Lid

Handwell lids shall be 12 x 12, 10 x 15, 13 x 24 and 17 x 30 with traffic signal engraved on lid or approved equal.

### **Construction - General**

The sequence or order of Work shall be as detailed in the Special Provisions to the contract. If the contract requires construction at a number of separate locations, the Contractor may only commence Work at the first four locations. Construction at the fifth location may only commence after completion of all Work at one of the original four locations. The procedure shall apply for any succeeding locations as well, i.e., construction may only be in progress at a maximum of four locations.

The locations of all works necessary to undertake completion of traffic control signal poles, pole bases, handwell, underground conduit and vehicle detector loops shall be as indicated on the contract drawings and as confirmed by the Region.

The Contractor is required to give at least 48 hours notice to the Region prior to commencement of Work at each traffic control signal installation location in order to arrange a suitable time for confirmation of construction locations.

No construction location will be confirmed in the field until the Contractor has arranged for and obtained all underground utility locates. The Contractor shall note that this includes traffic control signal locates as well.

The Contractor is required to assist the Region in marking all construction locations.

### **Road Widening and New Road Construction**

Underground conduit shall only be installed across the travelled portion of the roadway after the sub-base (Granular “B”) has been constructed and accepted.

All pole bases, handwells and concrete controller pads shall only be installed after the adjacent curb and gutter, if required, has been constructed.

Excavation shall allow for the placement of the handwell on a 300 mm base of 19 mm washed clear stone. Backfilling of the handwell shall be completed to subgrade using suitable native excavated material compacted to 95% Standard Proctor Density.

Underground conduit of the specified diameter shall be located to a minimum depth of 760 mm below finished grade. For **Open Cut Method** trenches shall be kept uniform, dry and level. Conduit shall enter the handwell through the 300 mm base of 19mm washed clear stone. In instances where the conduit cannot enter through the 300 mm base of 19mm washed clear stone an access hole shall be neatly cut using a fine-toothed hole saw into the side of the handwell to allow insertion of the conduit. The resultant cavity between the edge of the opening and the outside circumference of the conduit shall be completely filled with a non-shrinking waterproof silicone sealant. Conduit joints shall be made with the use of couplers and PVC cement. The Contractor shall not install any cracked or broken conduit and shall remove same from the site. No more than one piece of conduit in any single run shall be less than 3.0 m in length and no more than two bends will be allowed in any one run of conduit. All conduits terminating adjacent to a wooden or concrete pole shall be extended 600 mm vertically above proposed finished ground level. These riser sections must be securely attached to the wooden or concrete pole with stainless steel bands.

All conduit runs shall be cleaned out by using compressed air to void the conduit of any earth or waste material. All conduit runs shall have a single run of 8 mm diameter polypropylene fish rope including two (2) additional metres of fish rope coiled and secured in each handwell.

When **Trenchless Technology/Directional Drilling** installation is specified, the trenchless technology method must be able to consistently install the specified conduit(s) to the specified line and grade. However, the Contractor, in order to avoid obstruction, may place the conduit up to 450 mm lower than the specified 760 mm below finish grade. The Contractor shall obtain the necessary information from all utility companies in order to maintain proper clearances. If the directional drilling operation advances across any leg of an intersection and then encounters an obstruction or resistance, the Contractor will be required to make two (2) additional separate attempts at each leg of the intersection to successfully complete the crossing by withdrawing the directional drill completely into the launching pit and starting a new hole. If the third directional drilling attempt witnessed by the Region is unsuccessful, the Contractor will be permitted to complete the balance of the crossing by the open cut method. The Contractor shall make the final decision whether to withdraw the directional drilling equipment and to complete the crossing by open cut.

## **Surface Restoration**

### **a) New Roadway Construction, Intersection and Road Widening of Existing Roadway**

The surface restoration for all Work included in areas of intersection or road widening shall be in accordance with the specified roadway and boulevard construction items of the contract. For the areas of existing roadway and boulevards, the Contractor shall be responsible for surface restoration of gravel shoulders, curb and gutters, sidewalks, asphalt boulevards, driveways, curb and gutters and sodded boulevards all to be carried out in accordance with the appropriate specifications. For the existing roadway surface restoration, the Contractor shall be responsible to backfill the complete trench in accordance with Region Standard Drawing #216.

Also included in these Works is the placement of continuous yellow or red plastic marker tape with black letters identifying the underground conduit installation. The marker tape shall be placed approximately half way between the conduit and final grade and must cover the entire width of the installation per OPSS 603.05.09 – Marker Tape.

### **b) New Installations at Existing Intersections or Replacement of Existing Equipment**

The Contractor shall be responsible for surface restoration of gravel shoulders, curb and gutters, sidewalks, asphalt boulevards, sodded boulevards and driveways to be carried out in accordance with the appropriate specifications. For the existing roadway surface restoration, the Contractor shall be responsible to backfill the complete trench in accordance with Region Standard Drawing #216.

Also included in these Works is the placement of continuous yellow or red plastic marker tape with black letters identifying the underground conduit installation. The marker tape shall be placed approximately half way between the conduit and final grade and must cover the entire width of the installation per OPSS 603.05.09 – Marker Tape.

## **Measurement for Payment**

### **a) Handwell**

Measurement shall be made for each individual handwell installed.

**b) Underground Conduit**

**i) Open Cut Method**

Refer to OPSS 603.09 – The Installation of Ducts – Measurement for Payment

Measurement shall be made horizontally between centre of pole base to centre of pole bases or handwells. All fittings required, including plastic marker tape, are deemed to be included in the above.

**ii) Trenchless Technology/Directional Drilling Method**

Measurement for payment for conduit installed by the trenchless technology/directional drilling method shall be made from centre of handwell to centre of handwell for each run of conduit.

When the Contractor elects to abandon the Trenchless Technology/Directional Drilling Method and completes the conduit by Open Cut Method, the measurement for payment shall be made as if the Contractor had completed the installation by Directional Drilling Method. When the Contractor elects to complete the conduit installation by the Open Cut Method, the Contractor will be required to complete all surface restoration in accordance with RC-19 requirements. The unit price bid shall include all costs for labour, equipment and materials required including additional directional drilling attempts, roadway, sidewalk and boulevard restoration required to complete the Work.

**c) Surface Restoration**

**i) Roadway Construction, Intersection and Road Widening of Existing Roadway**

The measurement for payment of all surface restoration for installation of underground traffic control signal equipment included in areas of intersection and road widening of existing roadway will be paid under the applicable unit prices tendered for road works.

**ii) New Installation or Replacement of Existing Equipment at Existing Intersections**

The measurement for payment of all surface restoration for installation of underground traffic control signal equipment included in areas of new installations or replacement of existing equipment at existing intersections will be paid under the applicable unit prices tendered for each item.

## **Basis of Payment**

### **a) Handwell**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to all costs for the supply and installation of the handwell complete including specified materials, frame and cover, conduit piping and clear stone bedding required.

### **b) Underground Conduit**

#### **i) Open Cut Method**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to all costs for saw cutting, removing and disposing of all structures, excavation and disposal of surplus excavated material, supply and installation of specified conduit, backfilling in accordance with Region Standard Drawing #216 and supply and installation of plastic marker tape. Where conduits are installed in areas of road widenings or new construction, the conduits must be installed after the Granular "B" subbase has been constructed and accepted.

#### **ii) Trenchless Technology/Directional Drilling Method**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work for the specified conduit size per lineal metre for directional drilling method.

When the Contractor elects to abandon the Trenchless Technology/Directional Drilling Method and completes the conduit by Open Cut Method, the measurement for payment shall be made as if the Contractor had completed the installation by Directional Drilling Method. When the Contractor elects to complete the conduit installation by the Open Cut Method, the Contractor will be required to complete all surface restoration in accordance with RC-19 requirements. The unit price bid shall include all costs for labour, equipment and materials required including additional directional drilling attempts, roadway, sidewalk and boulevard restoration required to complete the Work.

**c) Surface Restoration**

**i) Roadway Construction, Intersection and Road Widening of Existing Roadway**

Payment of all surface restoration for the installation of underground traffic control signal equipment included in areas of intersection and road widenings of existing roadway will be paid under the applicable unit prices tendered for road works.

**ii) New Installation or Replacement of Existing Equipment at Existing Intersections**

Payment of all surface restoration for the installation of underground traffic control signal equipment included in areas of new installations or replacement of existing equipment at existing intersections will be paid under the applicable unit prices tendered for each item.

**RWSSP 623**

**Traffic Actuation Equipment**

**References:**

OPSS 623

**Amendments to OPSS 623 – Traffic Actuation Equipment**

**Amendment to OPSS 623.05.01 – Materials – Cables (Loop Detectors)**

Delete subsection 623.05.01 in its entirety and replace with the following:

**a) Loop Detector Wire**

The loop detector wire shall be 14 gauge RWU-90 as manufactured by Canada Wire or approved equal.

**b) Direct Buried Lead in Cable**

The Direct Buried Lead in Cable shall be 14 gauge C2550 Carol Brand as manufactured by General Cable or approved equal.

**Add the following to OPSS 623.05.07 – Material – Sealant Compound**

The following products or approved equal are to be used for loop sealant dependent on varying temperatures and weather conditions:

| <b>Distributor</b> | <b>Product Name</b> | <b>Temperature Requirements</b> |
|--------------------|---------------------|---------------------------------|
| Meadow             | Sealex              | 10 degrees Celsius & rising     |
| 3M                 | 3M Loop Sealant     | 10 degrees Celsius & rising     |
| Preco              | Gold Label Flex 1P  | 4 degrees Celsius & rising      |
| Preco              | Gold Label Flex II  | 0 degrees Celsius and lower     |

### **Amendment to OPSS 623.05 – Material**

Add the following subsection to OPSS 623.05:

#### **623.05.12 Backer Rod**

The backer rod shall be an extruded closed cell 13 mm diameter polyethylene foam.

#### **Construction - General**

All loop detectors shall be installed in the top course of base asphalt prior to the application of the surface asphalt course.

The foam backer rod shall be inserted into saw cut and positioned so that loop wire is held to the bottom of the saw cut. A blunt tool or roller must be used to press the foam backer rod uniformly into saw cut. Care shall be utilized not to puncture or stretch the foam backer rod during installation.

Amendment to 623.07.01.06 and 623.07.02.04.

The Contractor shall supply and install the sealant specified in the Schedule of Unit Prices required to meet the temperature and weather conditions all in accordance with manufacturer's specifications.

The Contractor shall ensure that vehicular traffic does not disrupt the loop sealant process during the curing.

#### **Measurement for Payment**

##### **a) Loop Saw Cut and Sealant**

Measurement shall be made horizontally for each individual saw cut from intersecting saw cut to intersecting saw cut.

##### **b) Loop Detector Wire**

Measurement shall be made horizontally for each individual saw cut from intersecting saw cut to intersecting saw cut for each turn of wire.

### **Basis of Payment**

#### **a) Loop Saw Cut and Sealant**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to all cost for saw cutting of the asphalt surface, chiseling the corners and blowing clean the saw cut; the supply and installation of required 13 mm PVC conduit, foam backer rod, sealant, and cement powder; and removal of excess sealant.

#### **b) Loop Detector Wire**

Payment at the Contract price for the above item shall be full compensation for all labour, equipment and materials to do the work including but not limited to the supply and installation of the loop detector wire and holding material; twisting of the lead-in wire and labeling each loop lead-in wire appropriately.

### **RWSSP 706**

#### **Signing**

##### **References:**

OPSS 706 – Construction Specification for Temporary Traffic Control Devices

##### **General**

The Contractor shall provide, install, maintain, and remove all necessary construction signing within their project limits as per OTM Book 7, “Temporary Conditions” and RWSS-02, Traffic Control.

##### **Basis of Payment**

#### **a) Construction Signing**

Payment shall be made as per RWSS-02.

### **RWSSP 710**

#### **Pavement Markings**

##### **References:**

OPSS.MUNI 710 – Construction Specification for Pavement Marking

##### **General**

The Work will include all labour, equipment and materials required to supply and install the pavement markings including pre-marking layout. The Contractor must commence

the installation of the pavement markings following Regional staff approval of pre-marking layout and within 48 hours of completing the asphalt installation. Field reacted polymeric pavement markings must be installed no less than 12 hours and no later than 48 hours after paving. Failure to meet these requirements could result in the Region having to install temporary markings at the Contractor's cost.

Where contract items are included for a second application of paint, the paint must be applied 30-60 days after the initial application. If weather conditions do not permit the second application in this timeframe, the painting is to be completed in the following year as soon as practical when conditions permit.

### **Materials**

OPSS.MUNI 710.07.08 is amended by the deletion of the second paragraph and the following paragraph added:

When the item Pavement Marking, Durable or Pavement Marking Symbols, Durable is called for, the Contractors choice of material is restricted to:

- Field reacted polymeric pavement marking material
- Thermoplastic pavement marking material

### **Temporary Pavement Markings**

OPSS.MUNI 710.07.08 is amended by the deletion of the third paragraph and the following added:

Unless otherwise directed by way of an approved pavement marking plan, all temporary centerline and edgeline markings shall be completed with orange paint or with orange tape if temporary markings are on surface asphalt. Temporary paint and tape shall meet the following specifications:

Temporary Orange Tape: 3M Stamark A654 Wet Reflective Removable Tape

Temporary Orange Paint: Ennis-flint HPS-6 MMA Flourescent Orange 1:1 spray, Product Code T-46-603B. This is a low VOC paint which can be used from May 1st to October 15<sup>th</sup>.

Temporary Orange Paint: Ennis Flourescent Orange Lead-Free Non-Coning Alkyd fast dry Traffic and Parking Paint, Product Code 40-516S. This is only approved for use from October 15<sup>th</sup> to May 1<sup>st</sup>.

## **Construction**

The pavement markings shall be applied in accordance with the marking drawings, OTM Book 11 and the manufacturer's recommendations. The Region must approve the Contractor layout of pavement markings prior to commencing any installations.

The Contractor will be required to prepare the surface, provide samples of materials for testing, premarking and application of pavement markings in accordance with OPSS.MUNI 710

The pavement surface must be clean and dry. Contaminants such as dirt, loose asphalt and oily residue shall be removed prior to application of pavement markings as per OPSS.MUNI 710.

For the purpose of completing the Durable Markings or Symbols, the Contractor shall provide a service vehicle equipped with directional arrow board conforming to Ontario Traffic Manual (OTM) specifications and two (2) rotating flashing amber lights, minimum. Cones and signs are to be placed around the work zone for safety guidance in accordance with Ontario Traffic Manual (OTM), Book 7.

Contractor to provide to the Region, copies of the Traffic Protection Plan that will be used by the work crews. The Region reserves the right to disallow any plans that do not conform to the Ontario Traffic Manual (OTM), Book 7 requirements.

Contractors are advised that the installation of the Durable Markings or Symbols shall only be allowed to be completed after 7:00 pm at night and before 6:00 am and/or on Sundays.

Tracking of fresh paint shall be removed by the Contractor.

### **Amendment to OPSS.MUNI 710.07.09.04 – Construction – Application – Thermoplastic Pavement Marking Material and OPSS.MUNI 710.07.09.05 – Construction – Application – Field Reacted Polymeric Pavement Marking Materials**

Delete the first paragraph of 710.07.09.04 and the second paragraph of 710.07.09.05 and replace both paragraphs with the following:

The minimum surface temperature for application shall be 10 degrees Celsius and a maximum surface temperature shall be 35 degrees Celsius. Maximum relative humidity shall not exceed 70%. Where these requirements cannot be met due to timing of the work, late in the construction season, consideration should be given to placement of temporary painted markings, with placement of durable markings in the Spring. This shall be at the discretion of the Contract Administrator.

## **Application Rates**

### **a) Field Reacted Polymeric Pavement Marking Materials**

Field reacted polymeric pavement marking materials shall be applied at a rate which results in a uniform thickness of 1.90 mm +/- 0.40 mm, measured dry. Markings shall not be applied over pavement joints.

During the manufacturing process reflectorizing glass beads shall be mixed into the material to the extent of not less than 20% or more than 50% by weight of the material. In addition, glass beads shall also be applied to the surface of material during the extrusion process at a uniform rate of approximately 15 kg of glass beads to every 100 square metres of line. The glass beads shall be dropped onto the plastic material while it is in a liquid stage after it has been extruded onto the pavement.

Curing time from the time the activator is mixed with the base material to the point that it is 100% polymerized shall not exceed 1 hour maximum to allow for the least amount of traffic interruption.

## **Measurement for Payment**

### **a) Temporary and Permanent Pavement Markings**

#### **i) Pavement Marking Lines**

Measurement for payment shall be made per OPSS.MUNI 710.09.01.01.

#### **ii) Temporary and Permanent Pavement Marking Symbols**

Measurement for payment shall be made per OPSS.MUNI 710.09.01.02

## **Basis of Payment**

### **a) Temporary and Permanent Pavement Markings – Lines and Symbols**

Payment at the Contract price for the above items shall be full compensation for all labour, equipment and materials required to do the work.

## **RWSSP 801**

## **Trees and Shrubs**

## **References:**

OPSS 801 – Construction Specification for the Protection of Trees and Shrubs

## **RC-26.01 Amendments to OPSS 801 – Protection of Trees**

### **Add to OPSS 801.03 – Definitions**

“Barriers” as called for in this specification are to be plastic protective fencing or an approved equivalent.

### **Add the following to OPSS 801.07.01 – Construction – Operational Constraints**

The Contractor during all construction operations shall protect from danger and injury all trees, shrubs, and other vegetation as designated by the Region to be saved. All protection measures must be approved by the Region and installed prior to the commencement of any Work. The Contractor may be required to cut only certain selected trees in certain areas, leaving the rest of the trees in the indicated areas unharmed.

Whenever working near a tree, the Contractor shall protect the tree from materials, equipment, compaction of the soil and changes in the grade of soil within the dripline area of the tree by placing protective fencing 0.5 m outside the dripline.

If the Contractor must carry out Work within the outer one-third of the dripline of a tree, the Contractor shall take all reasonable precautions to prevent or at least minimise damage to tree roots when digging.

If the Contractor must carry out Work within the inner two-thirds of the dripline of a tree, the Contractor shall tunnel or bore under roots of the tree in the dripline area.

### **Amendment to OPSS 801.07.02 – Construction - Barrier for Tree Protection**

Replace the first sentence of the second paragraph of 801.07.02 with the following:

The protective fencing should be placed 0.5m outside the dripline of the trees, shrubs or wooded lot edge unless it this is inadequate to provide a 1.5m buffer zone between the protective fencing and the limit of grading.

### **Amendment to OPSS 801.07.03 – Construction – Tree Cutting and Repair**

If the Contractor must carry out Work within the outer one-third of the dripline of a tree, the Contractor shall take all reasonable precautions to prevent or at least minimise damage to tree roots when digging. The Contractor shall arrange for roots and branches that are inadvertently damaged to be pruned by a certified arborist.

Any damaged tree, shrub, garden or other vegetation not designated for removal shall be pruned, staked and/or replaced as required at the Contractor’s expense.

If a tree must be replaced, as determined by the Region, the Contractor shall be responsible for removing and replacing the removed tree with 2 replacement trees.

The replacement trees shall be at least 1.8 m in height, of species native to the Region and appropriate to the local conditions in the opinion of the Region. The Contractor shall plant the replacement trees in a location approved by the Region. The Contractor shall amend the soil, install collars to protect against rodent damage, and stake and mulch the replacement trees to the satisfaction of the Region. The Contractor shall plant the replacement trees from April 1 to May 10 or from September 15 to November 30, whichever time period is closer when completing the Work.

## **RWSSP 802**

### **Topsoil**

#### **References:**

OPSS 802 - Construction Specification for Topsoil

RWSSP 803 - Sodding

RWSSP 804 - Seed and Cover

#### **Amendments to OPSS 802 - Topsoil**

##### **Amend OPSS 802.05.01 a) and b) - Materials – Topsoil as follows:**

Only screened topsoil is permitted to be used on Region projects unless noted otherwise in the Contract documents. All imported topsoil shall have a pH range of 6.5 to 7.5 and shall contain 4% - 6% organic matter.

The Contractor shall be satisfied of the suitability of any salvaged on-site topsoil or imported topsoil before placement, including the possible presence of ATRAZINE, the potential for sodium contamination and any other chemicals which may inhibit seed germination and growth. By proceeding with the seed/mulch or sodding application, the Contractor is accepting topsoil conditions as satisfactory.

##### **Amendment to OPSS 802.07.03 – Placement of Topsoil**

Replace subsection 802.07.03 in its entirety with the following:

Prior to placement of any topsoil, the contractor shall provide test results from a certified laboratory showing that the topsoil meets the required tolerances for pH and organic content. Testing undertaken by the Contractor to confirm that the topsoil meets the required specifications shall be at the Contractor's expense. The Region may conduct additional testing for quality assurance at Region expense. Topsoil that does not meet the specified parameters for pH or organic matter shall be removed and replaced at the Contractor's expense.

Topsoil should be spread to a uniform depth of a minimum 150mm for all applications unless otherwise noted. Topsoil is to be placed only up to the subgrade elevation on rural roadway side slopes. In urban areas, topsoil shall be rolled to provide a smooth, level surface prior to placement of sod/seed. The fertilizer shall be applied and the topsoil shall then be loosened using a Harley Rake immediately prior to sod/seed placement.

### **Amendment to OPSS 802.09 – Measurement for Payment, and OPSS 802.10 – Basis of Payment**

OPSS 802.09 “Measurement for Payment” and OPSS 802.10 “Basis of Payment” are deleted in their entirety and replaced with the following:

Measurement for payment shall be by square metres and will be taken after the topsoil is placed on site and rolled, and will be based on a uniform depth of 150mm.

Measurement shall not be made using truckload volumes or supplier weigh tickets. All payment for excavation to place topsoil and for the supply and placement of topsoil shall be deemed included in the unit price bid for the item “Supply and Place Topsoil”.

## **RWSSP 803**

### **Sodding**

#### **References:**

OPSS 803 – Construction Specifications for Sodding

RWSSP 802.01 - Topsoil

### **Amendments to OPSS 803 – Sodding**

#### **Add the following to OPSS 803.05.01 – Materials - Sod**

The m<sup>2</sup> unit price shall include 1.2m tall wooden stakes spaced every 15m in the grassed area where adjacent to paved shoulders.

### **Amendments to OPSS 803.07 Construction and 803.08 Quality Assurance**

Subsections 803.07.05 (Maintenance of Completed Sodding), 803.08.01 (Performance Measure) and 803.08.02 (Acceptance) are amended in that all references to a “30 day maintenance period” are replaced with a “60 day maintenance period”.

#### **Add the following to OPSS 803.07.05 - Maintenance of Completed Sodding**

Water shall be applied to new sod immediately after placement and the sod is to be watered regularly during the 60 day maintenance period. New sod is to be aerated within 45 days of placement at a rate of 400 cores/m<sup>2</sup> (36 cores/ft<sup>2</sup>). The Contractor is also responsible to perform the first cut on all new sod.

**Add the following to OPSS 803.08.01 – Quality Assurance – Performance Measure**

If the 60 day maintenance period starts after or extends past October 1<sup>st</sup>, the maintenance period will be in effect until May 31<sup>st</sup> of the following year.

**Add the following to 803.10.01 Basis of Payment - Sod Item**

The Region will withhold a 25% maintenance holdback on the sod item until final acceptance of the sod at the end of the 60 day maintenance period.

Water for sod will be paid by m<sup>3</sup> and will be paid under the separate contract item “Water for Dust Control, Compaction and Sod”.

**RWSSP 804**

**Seed and Cover**

**References:**

OPSS 804 – Construction Specification for Seed and Cover (November 2003)

RWSSP 802.01 – Topsoil

**Amendments to OPSS 804 – Seed and Cover**

**Add the following to OPSS 804.05.01.04 – Materials – Permanent Seed Mixes.**

Unless otherwise specified, Permanent Seed Mix shall be Standard Roadside Mix as per Table 1 of OPSS 804.

**Add the following to OPSS 804.07.02 – Surface Preparation for Seeding**

By proceeding with the seeding/mulching application, the Contractor will be accepting topsoil conditions as satisfactory.

**Amendment to OPSS 804.07.04.01 – Application Rates for Seed, Fertilizer, and Water (Table 2)**

Permanent Seed Mix Rate – 200kg per 10,000m<sup>2</sup>

**Add the following to OPSS 804.08.01 Quality Assurance - Performance Measure**

The Contractor is responsible to perform the first initial cut within all new seeded areas.

**Amendment to OPSS 804.10 – Basis of Payment**

Delete section 804.10 in its entirety and replace with the following.

Payment at the Contract price (generally m<sup>2</sup>) for the above item shall be full compensation for all labour, equipment and material to do the work as follows:

- a) 50% for surface preparation, placing and surface preparation, including fine grading, of stockpiled or imported topsoil and loosening of the topsoil surface; and
- b) An additional 50% upon satisfactory completion of seeding, fertilizing and mulching.

The Region will withhold a 50% maintenance holdback until final acceptance of the seed/mulch. The maintenance holdback will be released by the Region once a minimum 75% growth of the secondary grass is achieved.

Should growth of the seed not be acceptable to the Contract Administrator, the seeded area must be weeded, recultivated and reseeded at the Contractor's own cost.

Maintenance holdback will be retained until secondary grass in the reseeded area is acceptable.

## **RWSSP 805**

### **Erosion and Sediment Control**

#### **References:**

OPSS 805

#### **General**

Further to OPSS 805, the Contractor shall prepare and submit three (3) copies of a detailed Erosion and Sediment Control Plan at the time of the pre-construction meeting. The contract drawings may include the general type and location of specific erosion and/or sediment control measures to be used as a minimum. These measures typically include silt fence, check dams, sediment basins, burlap wrap, erosion control blankets, geotextile fabric, rock, mulch or dewatering traps. Any erosion and sediment control measures indicated on the Contract drawings are intended to be schematic only and the Contractors Erosion and Sediment Control Plan shall fully detail the type and extent of specific erosion and sediment control measures to be used.

The Contractor's Erosion and Sediment Control Plan shall consist of appropriate plan drawings, detail drawings and documentation describing all proposed erosion and sediment control measures to be implemented.

The Contract may include Pay Items for specific erosion and sediment control measures. Where no specific Pay Item exists, the cost of providing erosion and sediment controls shall be included in the various unit prices bid.

## **RWSSP 904**

### **Concrete (Surface Defects)**

#### **References:**

OPSS.MUNI 904

#### **Concrete Surface Defects**

A surface defect is defined as a defect with dimensions a minimum of 15mm measured in any direction and with a minimum depth of 3mm. The Contractor shall ensure that the concrete supplier utilizes appropriate aggregates that do not contain deleterious particles that cause concrete surface defects.

In sidewalk, the maximum allowable tolerance for surface defects will be 10 surface defects per square metre of sidewalk placed. In private concrete driveways and private concrete walkways, the maximum allowable tolerance for surface defects will be 2 surface defects per square metre of concrete placed. Any sidewalk with surface defects greater than this tolerance shall be removed and replaced at the contractor's expense

## **RWSSP 1010**

### **Granular "B"**

#### **(Amendment to OPSS 1010)**

#### **References:**

OPSS 1010 – Material Specification for Aggregates – Base, Subbase, Select Subgrade, and Backfill Material

#### **Amendment to Table 2 - Gradation Requirements - Percent Passing**

The following gradations shall apply for Granular "B" Type 1 per MTO Test LS-602 Sieve Analysis of Aggregates:

| <b>MTO Sieve Designation</b> | <b>Percentage Passing by Mass</b> |
|------------------------------|-----------------------------------|
| 150.0 mm                     | 100                               |
| 26.5 mm                      | 50 – 100                          |
| 4.75 mm                      | 20 – 55                           |
| 1.18 mm                      | 10 – 40                           |
| 300 um                       | 5 – 22                            |
| 75 um                        | 0 – 8                             |

## **RWSSP 1150**

### **Hot Mix Asphalt**

#### **References:**

OPSS 1150.MUNI – Material Specification for Hot Mix Asphalt

#### **Add the following to OPSS.MUNI 1150.04.02.03 – Documents**

Following acceptance of the mix design, the Contractor shall prepare a trial batch conforming to the mix design submission and arrange for delivery of a sample of the material to the Region’s designated CCIL Type B certified laboratory at least 7 days prior to the date that the Contractor wishes to commence production of the mixture. Paving will not be permitted until trial batch test results are received by the Region that show the Contractor is able to produce the mix to within the “acceptable” tolerances as per OPSS.MUNI 310 and RWSSP 310.

Trial batches of hot mix asphalt are not required if the Region has accepted material of the same mix design from the same supplier in the same calendar year that is being shown to produce results within the acceptable limits.

If the trial batch does not meet acceptable tolerances for any of the specified parameters, additional trial batch testing will be at the Contractor’s expense.

## **RWSSP 1151**

### **Superpave Mixes**

#### **References:**

OPSS.MUNI 1151 - Material Specification for Superpave and Stone Mastic Asphalt Mixtures

**Add the following to OPSS.MUNI 1151.01.02 – Appendices Significance and Use**

Appendix 1151-B is invoked on all Regional contracts.

**Add the following to 1151.04.01.01 - RAP Proportions**

Reclaimed Asphalt Pavement (RAP) and/or Roof Shingle Tabs (RST) are not permitted in any of the Superpave surface asphalt mixes. RAP and/or RST are permitted in Superpave base asphalt mixes as per OPSS 1151.

**Add the following to 1151.04.02.02.02 - Superpave Mix Design Method**

All urban roads within the Region of Waterloo are to be designed to Ontario Traffic Category 'D'. All rural roads within the Region of Waterloo are to be designed to Ontario Traffic Category 'C'.

Irrespective of the Traffic Category calculations, unless explicitly specified otherwise, the surface course mix shall be SP12.5FC2 on all urban roads and SP12.5FC1 on all rural roads.

**Amendment to 1151.04.02.03 Mix Design Submission**

**1151.04.02.03 is deleted in its entirety and replaced by the following:**

All required mix design and JMF documentation (as identified in OPSS MUNI 1151.04.05 – Documents) must be submitted to the Region's geotechnical consultant a minimum of 5 working days prior to paving to allow for review and approval. All required mix design and JMF documentation shall include certification of physical properties of aggregates and asphalt cement. Batch testing and acceptance in accordance with RWSSP 1150 must also take place prior to any paving. No mix shall be placed until the Region provides permission to construct hot mix using the submitted JMF and until the Region approves the batch test results.

**Add the following to 1151.05.02 - Aggregates**

The requirements of Appendices 1003-E (**Superpave Consensus Property Requirement Test Data**) of OPSS 1003 shall apply to this contract.

**RWSSP 1350**

**Concrete – Materials and Production**

This RWSSP applies to concrete used in Non-Engineered and Engineered applications set out as follows:

### **Non-Engineered Applications**

Curb and Gutter

Sidewalk on Grade

Bus Pad on Grade

Manholes

Other applications deemed Non-Engineered at the discretion of the Region

### **Engineered Applications**

Bridges (all concrete components, including sidewalks, barriers, etc.)

Culverts (all concrete components, including sidewalks, barriers, etc.)

Retaining Walls

Stairs spanning between supports

Water tanks

Other Engineered Structures so designated by the Region

### **References:**

OPSS.MUNI 1350

### **Amendment to OPSS.MUNI 1350.04 – Design and Submission Requirements**

The Performance Specification Alternative shall apply.

#### **Add the following to 1350.04.02 – Submission Requirements:**

#### **Concrete Mix Design Submissions for Engineered Applications**

#### **Performance Mix Design Submission for Engineered Applications**

At least three weeks prior to the delivery of concrete of each type specified in the contract, the Contractor shall confirm with the concrete supplier and the owner the performance characteristics of the concrete through the submission of three copies of the Concrete Mix Design Submission form, using Ready Mixed Concrete Association of Ontario Form 'A' or equivalent, to the Contract Administrator. The form shall be of a format as specified herein completed by the concrete supplier based on the requirements of the contract and those of the contractor. The form shall be signed by the Contractor and the Contract Administrator to certify that performance characteristics meet their respective requirements under the contract. The form shall then be returned to the supplier and shall form the basis of the detailed mix design.

### **Confidentiality Agreement for Engineered Applications**

Three weeks prior to the placing of any concrete, the Region will execute a 'Confidentiality Agreement' with the Contractor's concrete supplier to cover the protection of proprietary mix proportion information which is to be released as part of the detailed mix design submission process.

### **Detailed Mix Proportions Submissions for Engineered Applications**

Upon receipt of the signed Form 'A' and upon execution of the confidentiality agreement, the concrete producer shall formulate the detailed mix design for each mix type. The details of the mix proportions will be documented as per the Ready Mixed Concrete Association of Ontario Form 'B' or equivalent. The form shall be delivered directly to the Region not later than two weeks prior to the placement of any concrete. No concrete shall be placed until two weeks after the Form 'B' submission is received by the Region. The Form 'B' submission is for information and historical records only, and in no way relieves the supplier of their responsibility for producing concrete that achieves the performance requirements under the contract.

### **Deviations from Submitted Mix Designs for Engineered Applications**

The supplier of the concrete may make minor alterations from the stated mix proportions in order to compensate for time specific conditions, which affect compliance with the overall requirements of the contract. Such deviations shall be in accordance with CSA A23.1. Deviations that alter the sources of supply or the fundamental character of the mix shall require a resubmission of the mix design.

### **Concrete Mix Design Submissions for Non-Engineered Concrete Applications**

#### **Detailed Mix Proportions Submissions for Non-Engineered Applications**

The details of the mix proportions for non-engineered concrete will be documented as per the Ready Mixed Concrete Association of Ontario Form 'A' or equivalent. The Contractor shall also identify the maximum water to be added per the mix design. The form shall be delivered directly to the Contract Administrator not later than two weeks prior to the placement of any concrete. No concrete shall be placed until two weeks after the Form 'A' submission is received by the Region.

**Add the following to 1350.04.02.01 – Performance Specification Alternative:**

Under Item (c), add the following:

**Contractor’s Quality Control Plan – Implementation and Costs – Engineered Applications**

Quality Control (QC) refers to those actions taken by the Contractor to maximize the probability that the concrete placed will meet the end-product performance criteria established for concrete. Quality Control is the responsibility of the Contractor.

The full cost to develop and implement the QC Plan shall be borne by the Contractor and shall be included in the prices bid for concrete items.

Quality Control measures undertaken by the Contractor at the Contractor’s expense are separate and distinct from Quality Assurance sampling and testing undertaken by the Region at the Region’s expense.

The Contractor’s Quality Control Plan shall include, but not be limited to specification, sampling, testing and reporting of results for mix design; admixtures; formwork and surface preparation; use and/or limits of use of water after batching; slump, slump flow; plastic air content; temperature control; provisions for placement in hot and/or cold weather; placement, consolidation, finishing; and curing.

The separate Quality Assurance (QA) actions to be undertaken by the Region under Clause 1350.08 do not preclude the Contractor from undertaking other analysis and/or tests on concrete (plastic or hardened) at any time for the Contractor’s own use, benefit or information. The costs for any such analysis and/or testing shall be borne by the Contractor and shall be included in the prices bid for concrete items.

**Add the following to 1350.04.02.01.01 – Performance Based Concrete Mix Data:**

For both Engineered and Non-Engineered Applications:

The quantity of chemical admixtures shall be at least the minimum dose specified in the MTO Designated Sources of Materials (DSM) List.

**Amendment to OPSS.MUNI 1350.08 – Quality Assurance**

**Add the following to 1350.08.01 - General:**

For both Engineered and Non-Engineered Applications:

For clarity, Quality Assurance (QA) for concrete (as covered under OPSS.MUNI.1350 and related specifications) generally refers to those actions (sampling, testing, analysis, etc.) undertaken by the Region to independently confirm the Contractor’s Quality Control (QC) parameters and to determine whether the end-product concrete placed by

the Contractor meets the established end-product performance criteria. Accordingly, the costs to develop and implement the Quality Assurance (QA) Plan shall be borne directly by the Region.

## **RWSSP 1359**

### **Controlled Density Fill**

#### **References:**

OPSS 1359 – Material Specification for Unshrinkable Backfill

#### **Steel Plating**

If traffic must be allowed to pass over the trench into which controlled density fill has been placed, steel plating, supplied by the Contractor, shall be placed across the trench until the controlled density fill has reached sufficient strength to allow for placement of asphalt and the subsequent passage of traffic. The steel plating used by the Contractor shall be in accordance with RWSS-09.

#### **Measurement for Payment**

No measurement for payment will be made for this item as the supply and placement of the controlled density fill, and the supply and placement of steel plating shall be deemed to be included in the unit price bid for the item requiring controlled density fill.

#### **Basis of Payment**

Payment for all labour, equipment and material to supply and placement of the controlled density fill, and the supply and placement of steel plating shall be deemed to be included in the unit price bid for the item requiring controlled density fill.

**Regional Municipality of Waterloo Standard Drawings – 44 pages**

**Standard Drawings Index**

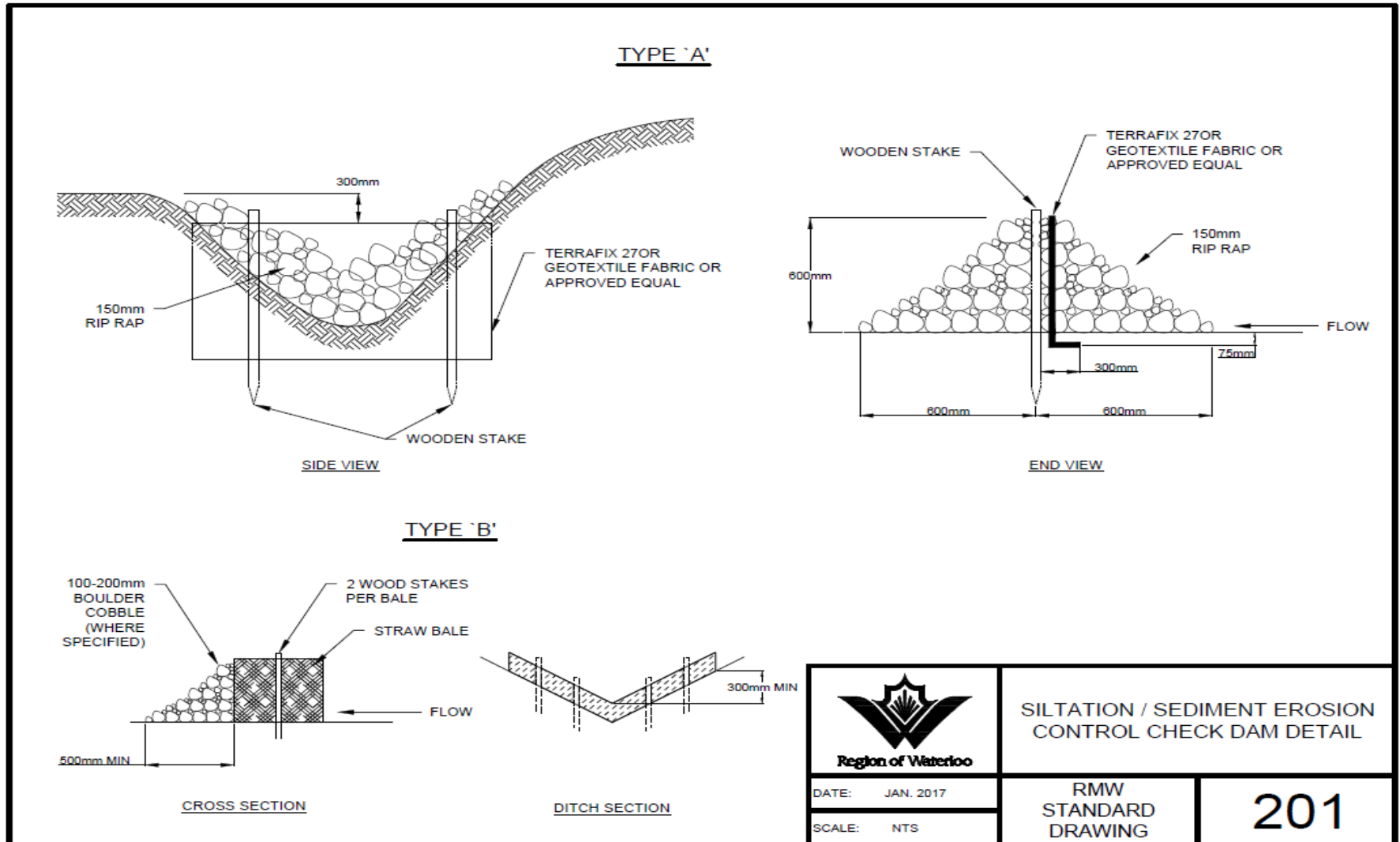
**200 Series – Roads**

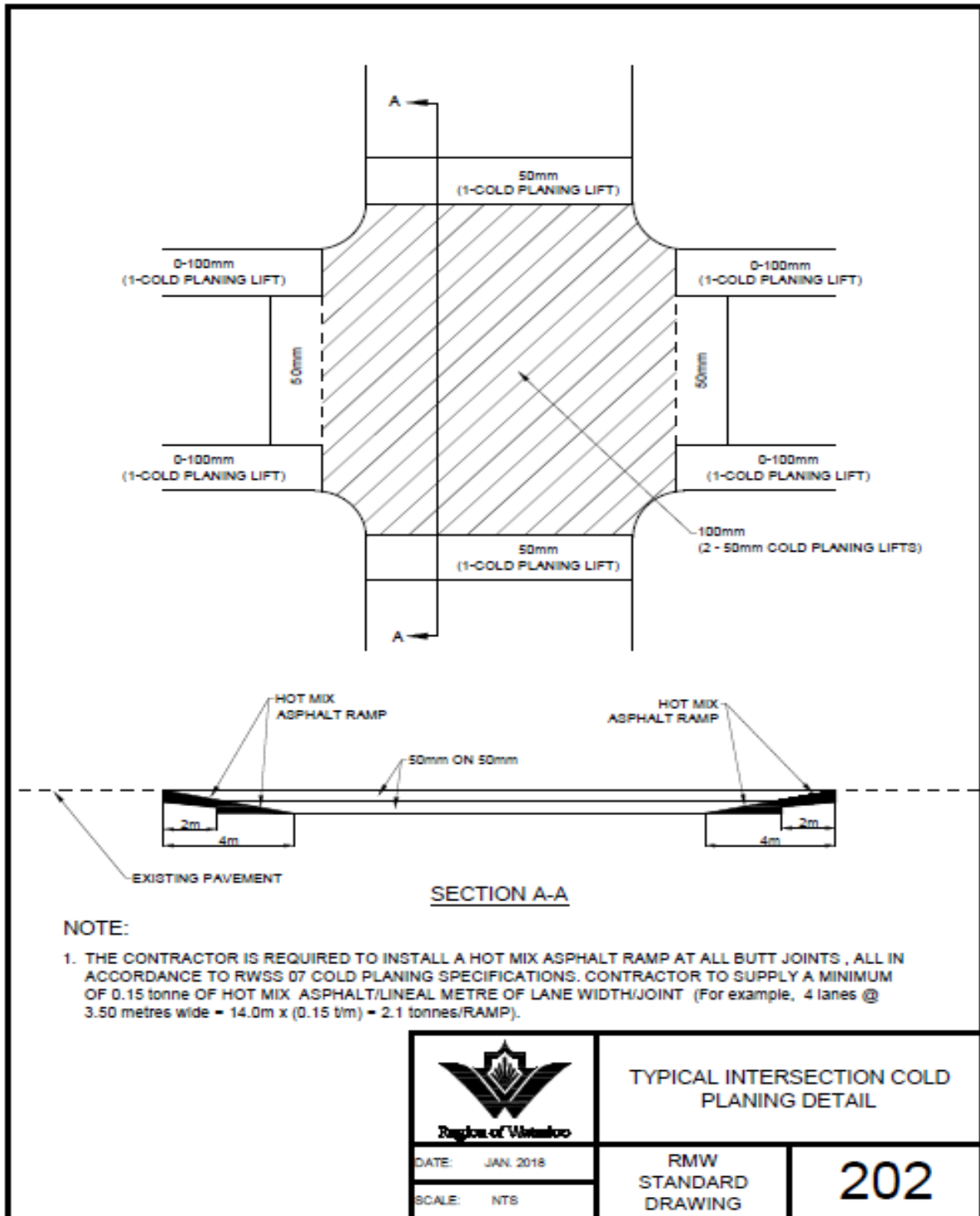
| <b>Item</b> |  | <b>Page</b> |
|-------------|--|-------------|
| 201         | Siltation/Sediment Erosion Control Check Dam Detail  | 1           |
| 202         | Typical Intersection Cold Planing Detail   | 2           |
| 203         | Typical Intersection and Shoulder Treatment<br>(Rural Application at Asphalt Sideroad)                       | 3           |
| 204         | Typical Intersection and Shoulder Treatment<br>(Rural Application at Gravel Sideroad)                        | 4           |
| 205         | Typical Intersection and Shoulder Treatment<br>(Urbanized Curb and Gutter Application without Turning Lanes) | 5           |
| 206         | Typical Intersection and Shoulder Treatment<br>(Urbanized Curb and Gutter Application with Turning Lanes)    | 6           |
| 207         | Lane Widening Step Joint Cold Planing Detail   | 7           |
| 208         | Asphalt Overlay Longitudinal Transition  | 8           |
| 210         | Custom Mountable Curb and Gutter For Roundabout Aprons   | 9           |
| 211         | Boulevard Concrete Edge Strip Detail   | 10          |
| 212         | Concrete Collar For Catchbasins  | 11          |
| 213         | Catchbasin Setback for Concrete Curb and Gutter  | 12          |
| 214         | Raised Catchbasin Top  | 13          |
| 215         | Temporary Catchbasin Installation at Low Points  | 14          |
| 216         | Excavation, Cut or Trench Restoration Detail   | 15          |
| 217         | Pedestrian Refuge Island   | 16          |
| 218         | Side Inlet Catchbasin Frame  | 17          |
| 219         | Side Inlet Catchbasin Cover  | 18          |
| 220         | Channelized Right Turn Lanes   | 19          |

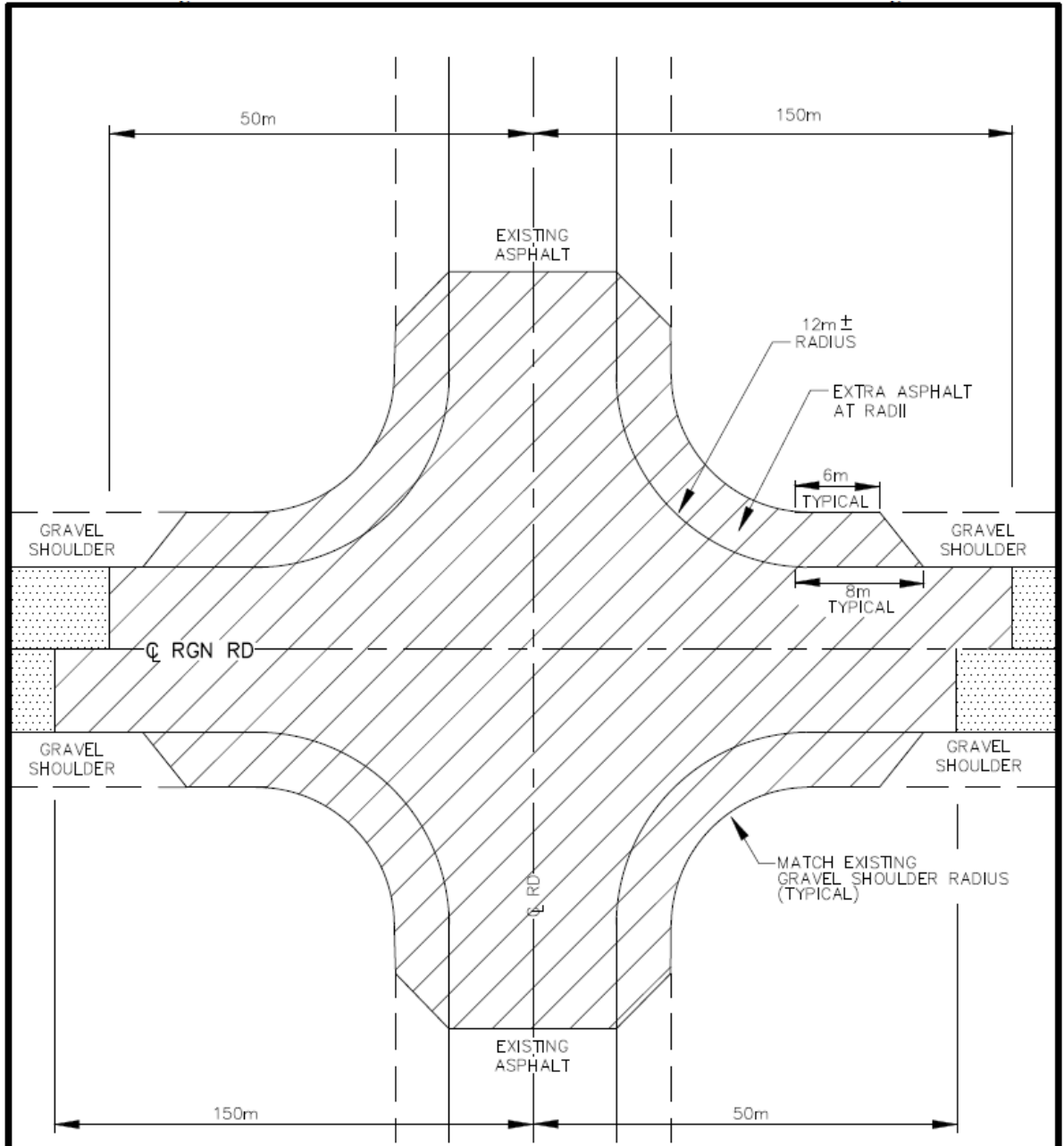
| <b>Item</b> |  | <b>Page</b> |
|-------------|--|-------------|
| 221         | Standard Roundabout Details (2 Lanes)  | 20          |
| 221A        | Standard Rural Roundabout Details (1 Lane)                                       | 21          |
| 222         | Urban Access Plan (Low to Medium Driveway Volume)                                | 22          |
| 223         | Urban Access Profile   | 23          |
| 224         | Truncated Dome Detectable Warning Plates   | 24          |
| 225         | Preferred Sidewalk Ramp Treatment – Separate Landing Areas                       | 25          |
| 226         | Alternative Sidewalk Ramp Treatment –<br>Separate Ramps with Common Landing Area | 26          |
| 227         | Alternative Sidewalk Ramp Treatment – Common Ramp                                | 27          |
| 228         | Directional Lines at Unsignalized Crossings                                      | 28          |
| 229         | Standard Median Island   | 29          |
| 253         | Rural Access   | 30          |
| 260         | Shoulder Paving at Gravel Pit Entrance   | 31          |
| 261         | Concrete Sidewalk  | 32          |
| 262         | Concrete Multi-Use Trail   | 33          |
| 263         | Asphalt Multi-Use Trail  | 34          |
| 264         | Servicing under ION Tracks (centre running tracks)                               | 35          |
| 265         | Servicing under ION Tracks (side running tracks)                                 | 36          |
| 266         | Typical Cross Section Showing Areas of Cut and Fill                              | 37          |


### **500 Series – Traffic Signals**

| <b>Item</b> |  | <b>Page</b> |
|-------------|--|-------------|
| 500         | Standard Concrete Foundation for Pedestrian Signal Poles | <b>38</b>   |
| 501         | Concrete Foundation for Pedestrian Signal Poles          | <b>39</b>   |
| 502         | Anchorage Assembly and Installation                      | <b>40</b>   |
| 503         | Grounding Requirements for Traffic Signal Installations  | <b>41</b>   |
| 504         | Handwell   | <b>42</b>   |
| 506         | Typical Quadropole Loop                                  | <b>43</b>   |
| 507         | Loop Lead In Installation Detail                         | <b>44</b>   |
| 509         | Concrete Controller Pad                                  | <b>45</b>   |
| 510         | Typical Diamond Loop                                     | <b>46</b>   |
| 512         | Traffic Controller Base with Metered Power Pedestal      | <b>47</b>   |

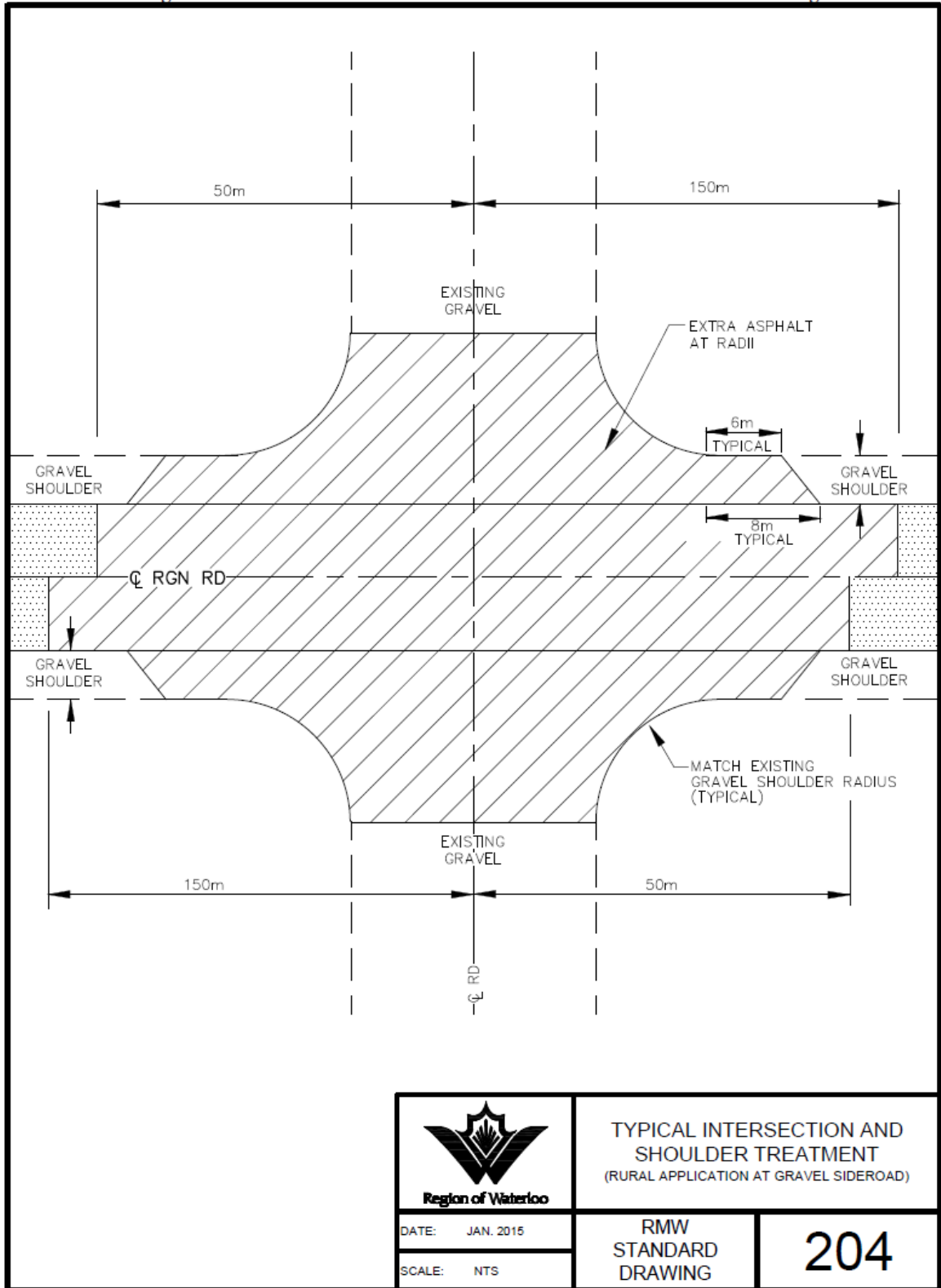


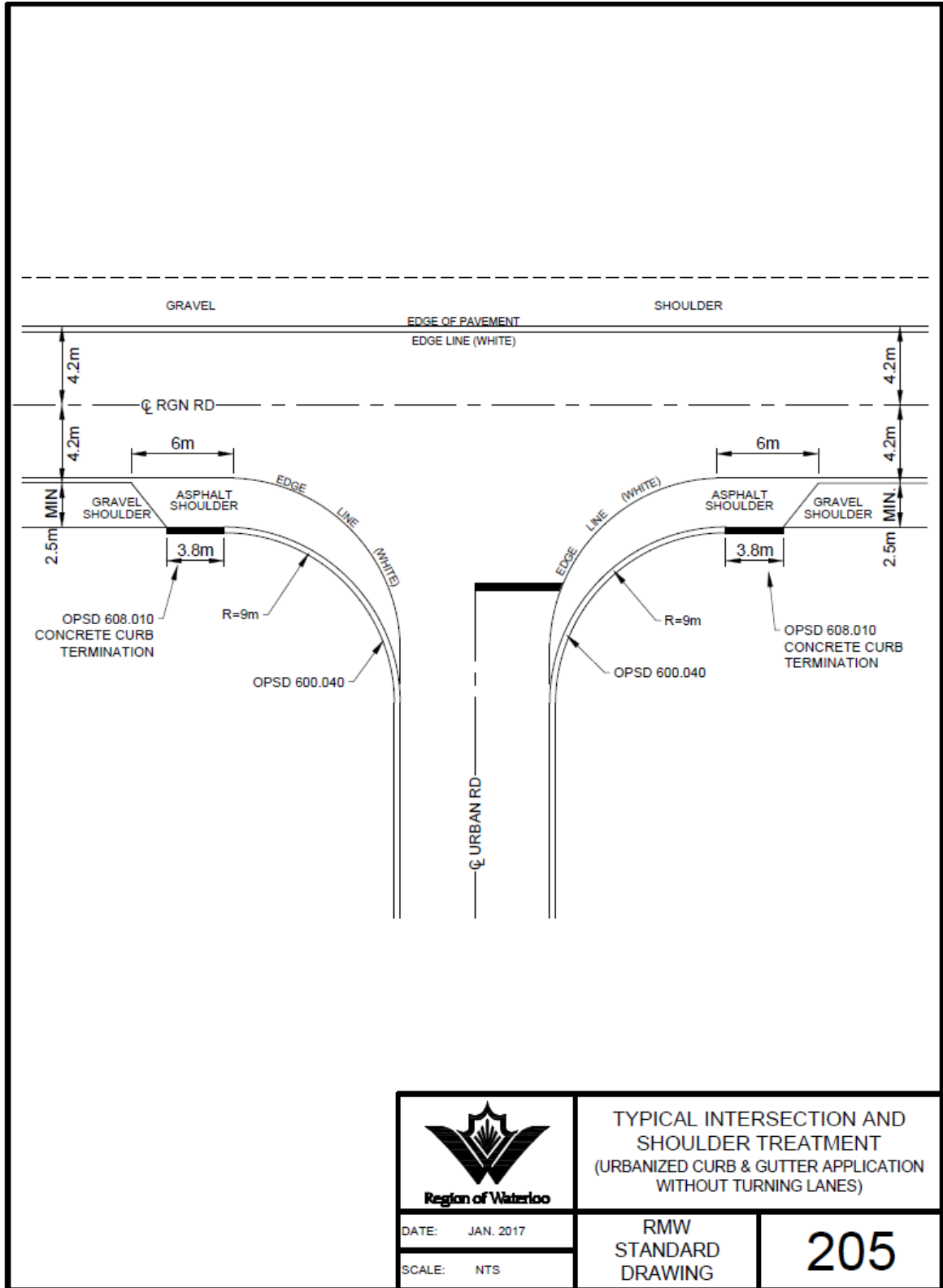





|  |  |                            |
|--|--|----------------------------|
| <br>Region of Waterloo | TYPICAL INTERSECTION AND SHOULDER TREATMENT<br>(RURAL APPLICATION AT ASPHALT SIDEROAD) |                            |
|  | DATE: JAN. 2015<br>SCALE: NTS  | RMW<br>STANDARD<br>DRAWING |

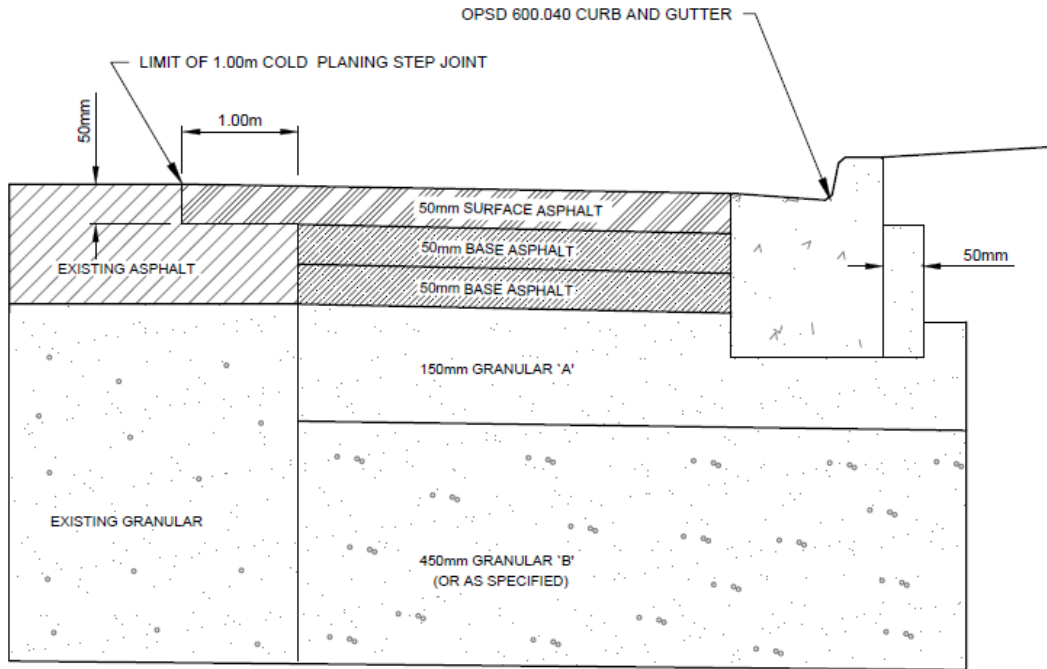
FORMERLY RMW STD DWG 378






|   |  |                                     |
|---|--|-------------------------------------|
|  <p>Region of Waterloo</p> | <p>TYPICAL INTERSECTION AND SHOULDER TREATMENT<br/>(URBANIZED CURB &amp; GUTTER APPLICATION WITHOUT TURNING LANES)</p> |                                     |
|   | <p>DATE: JAN. 2017</p>   | <p>RMW<br/>STANDARD<br/>DRAWING</p> |
| <p>SCALE: NTS</p>   |  |                                     |

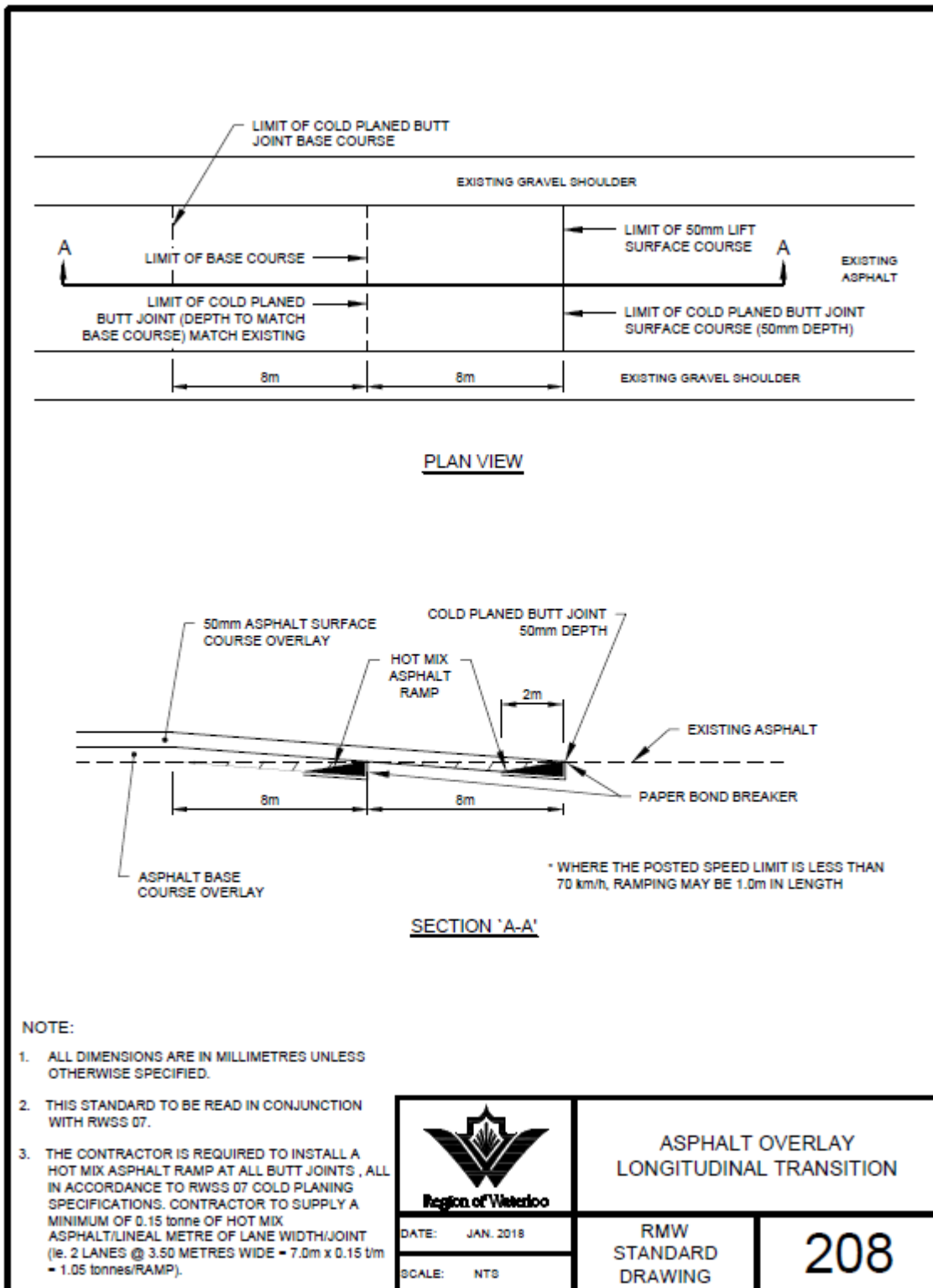




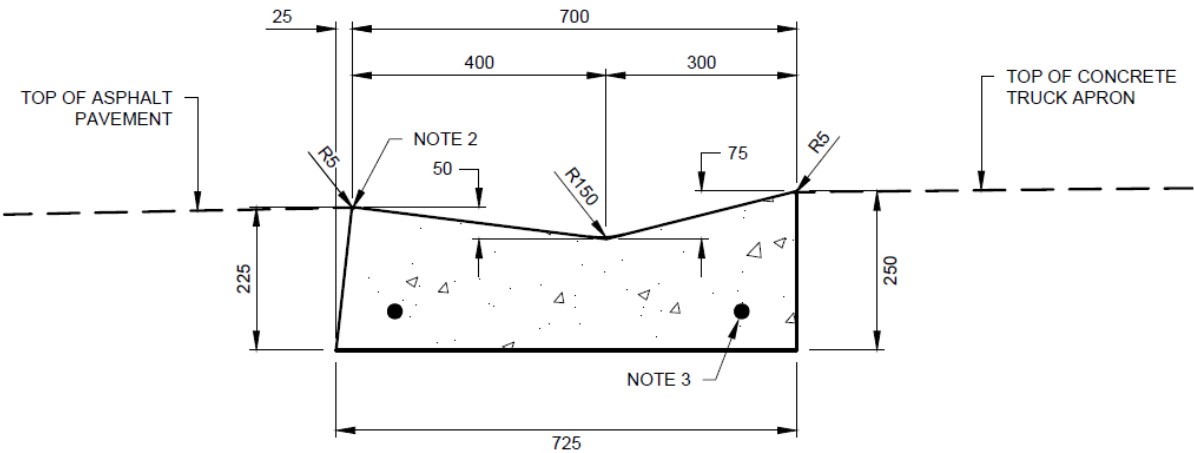
**NOTE:**


1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED
2. THIS STANDARD TO BE READ IN CONJUNCTION WITH RWSS 07

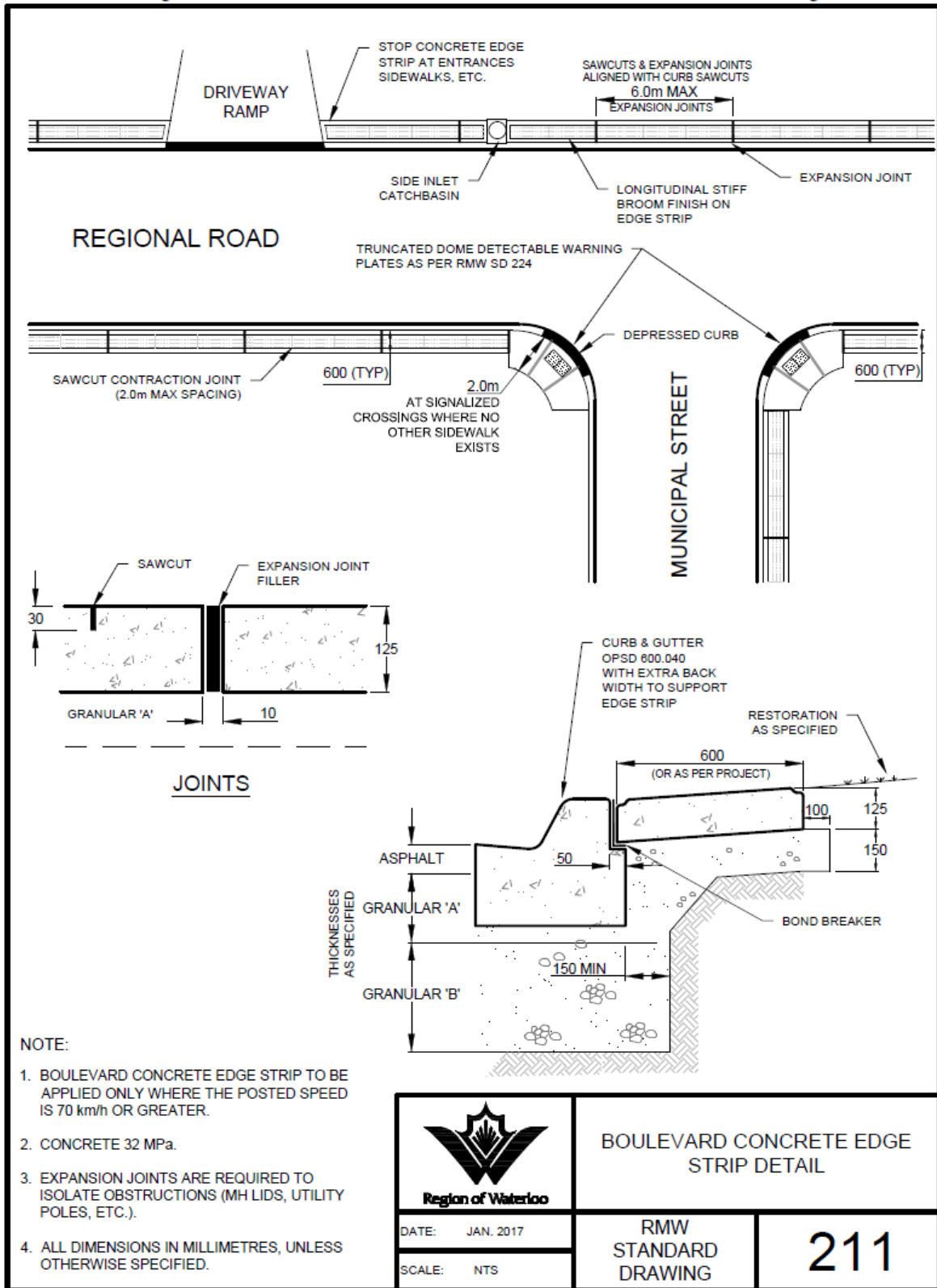
|   |  |                            |
|---|--|----------------------------|
| <br>Region of Waterloo | LANE WIDENING STEP JOINT COLD PLANING DETAIL |                            |
|   | DATE: JAN. 2017                              | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 207  |                            |

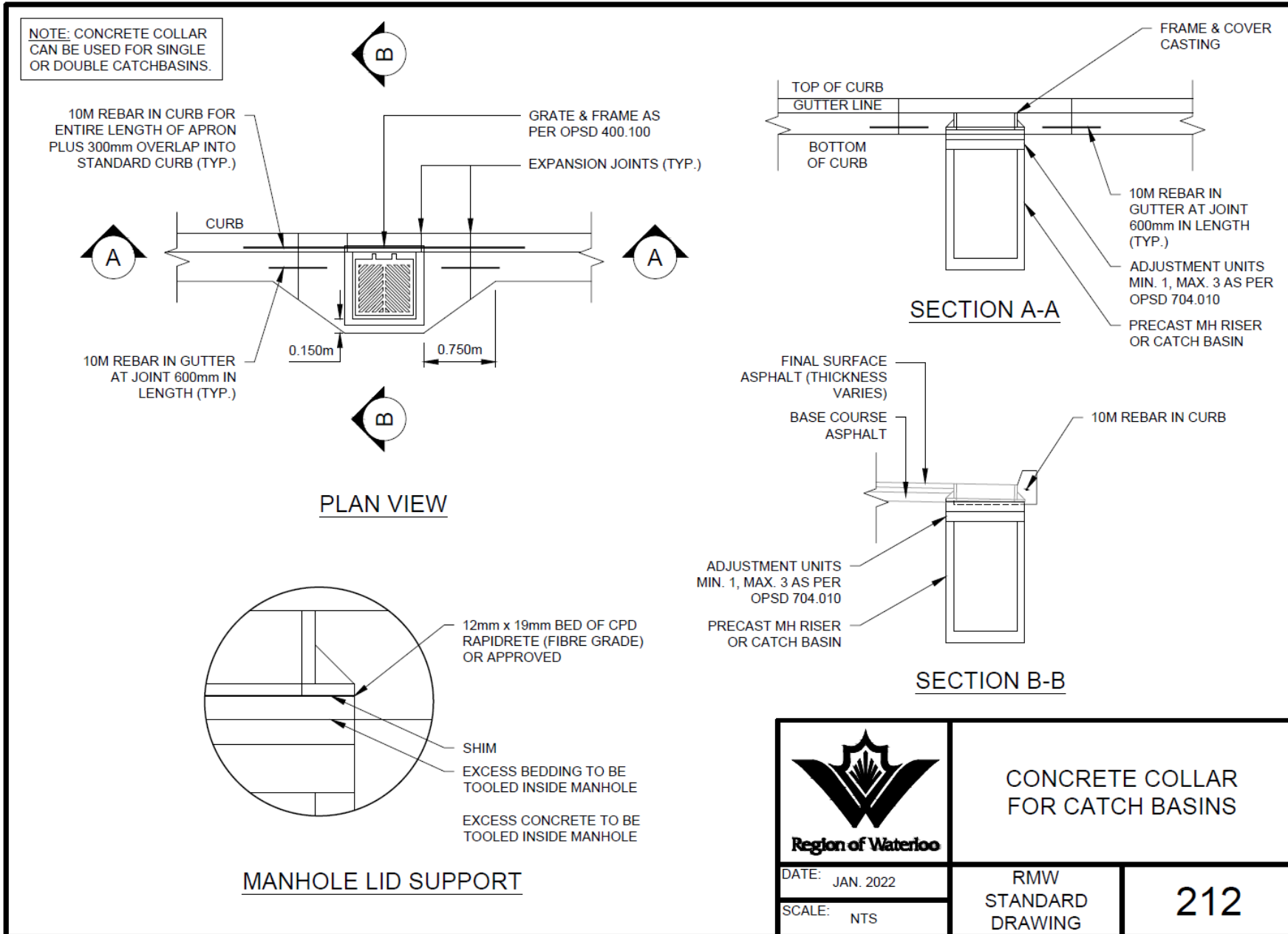


- NOTES:**
1. ALL DIMENSIONS ARE IN mm.
  2. FLEXIBLE AND COMPOSITE PAVEMENT SHALL BE PLACED 5mm ABOVE THE ADJACENT EDGE OF GUTTER.
  3. CONCRETE CURB TO BE REINFORCED IN ACCORDANCE WITH RWSSP 353.



|   |  |                            |
|---|--|----------------------------|
| <br>Region of Waterloo | CUSTOM MOUNTABLE<br>CURB AND GUTTER FOR<br>ROUNDABOUT APRONS |                            |
|   | DATE: JAN. 2022  | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 210  |                            |





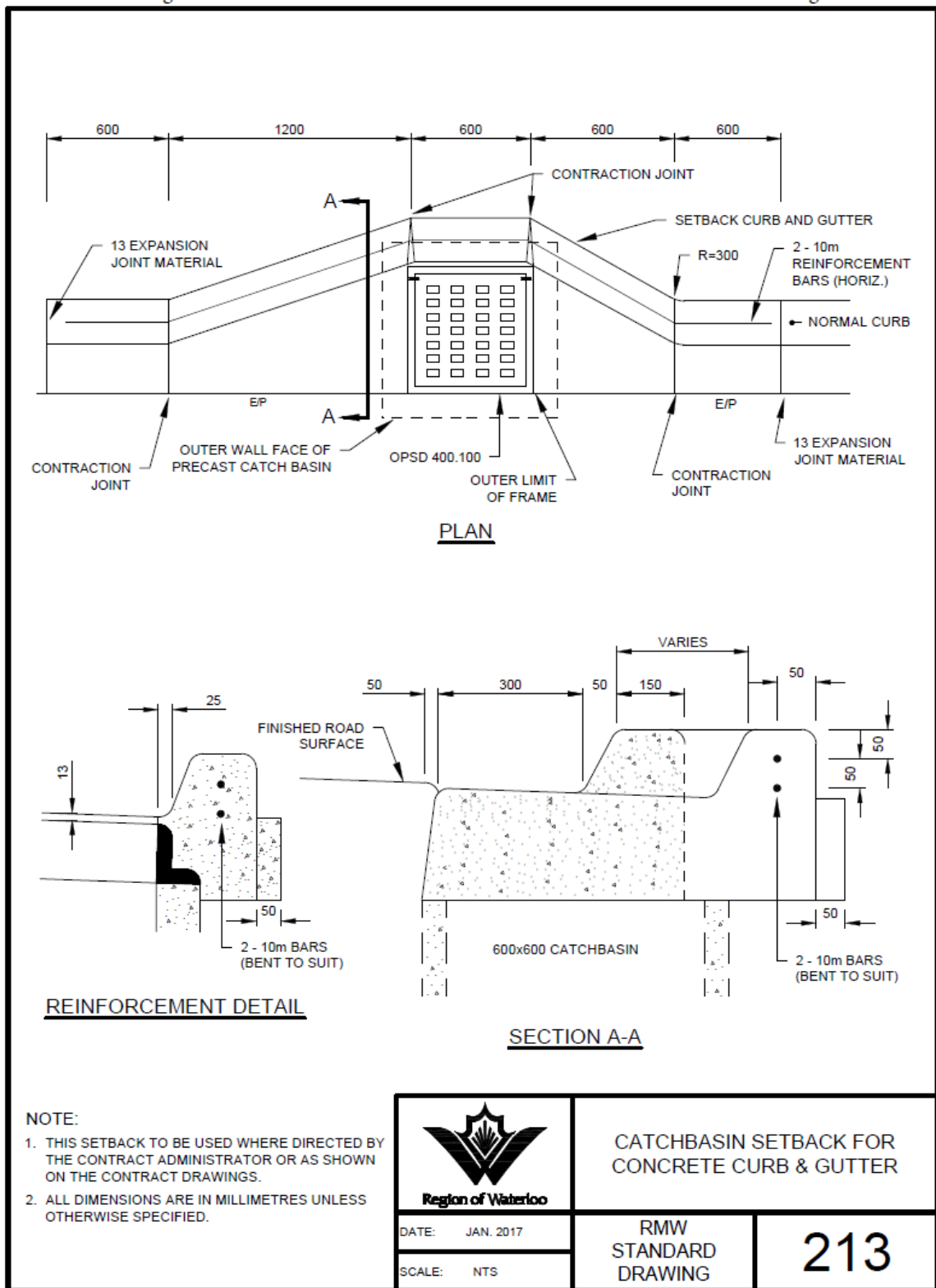
**CONCRETE COLLAR FOR CATCH BASINS**

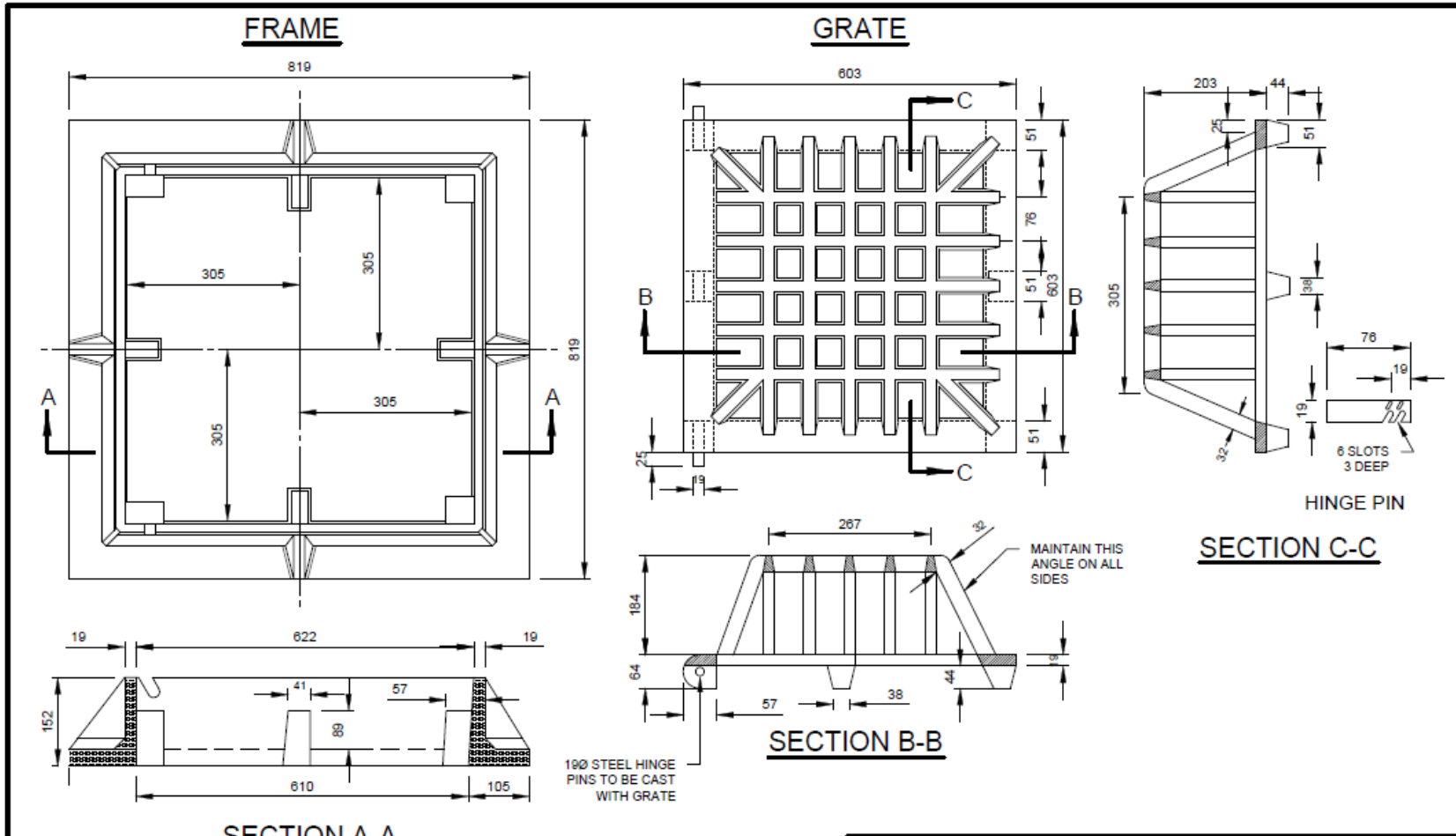
DATE: JAN. 2022

RMW  
STANDARD  
DRAWING

SCALE: NTS


**212**

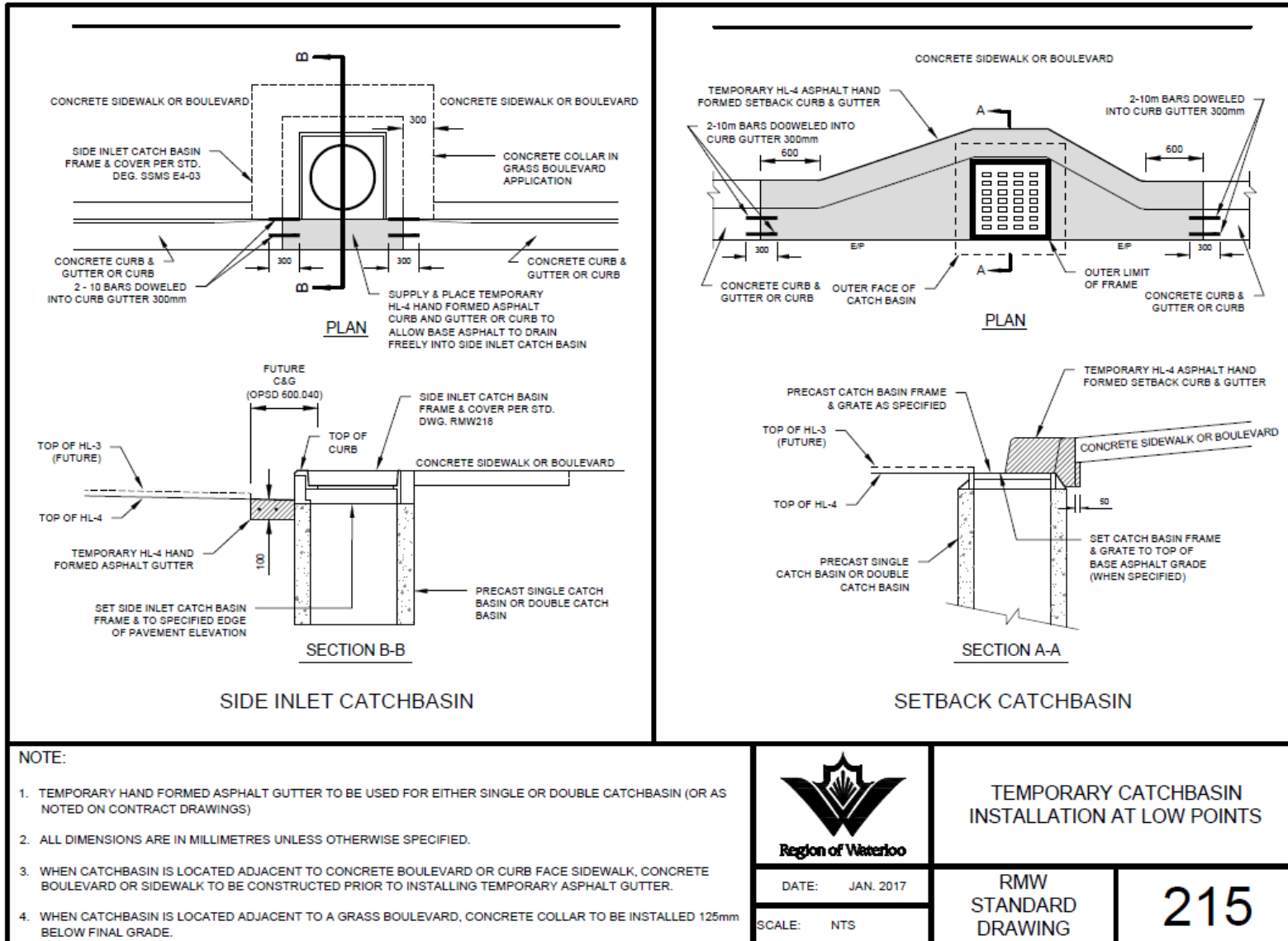


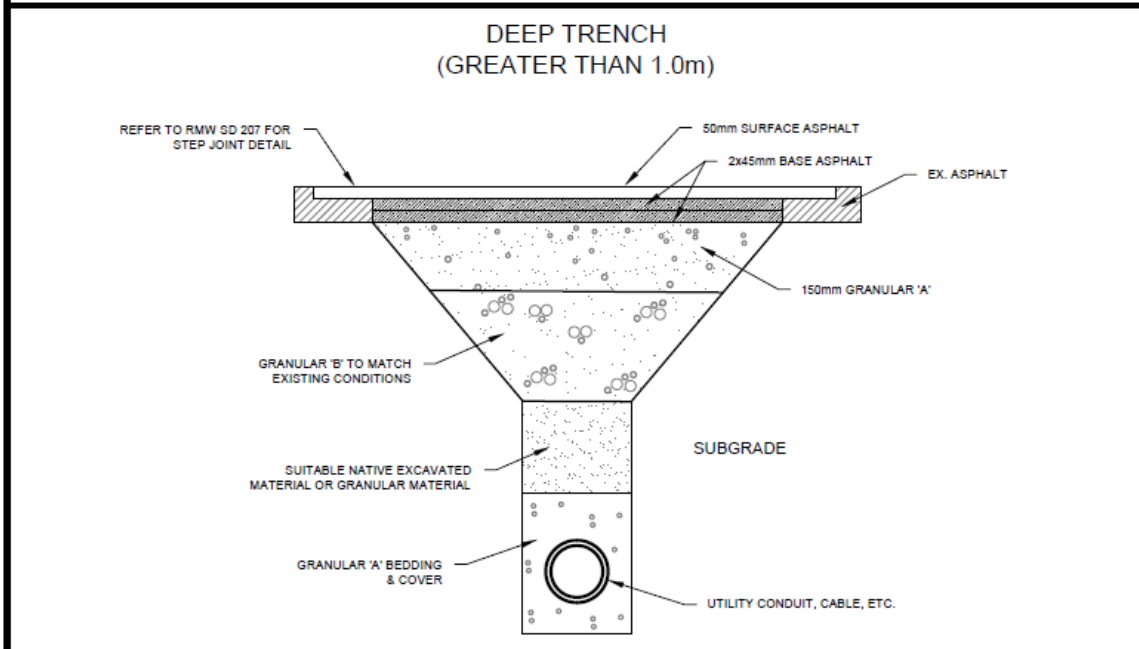
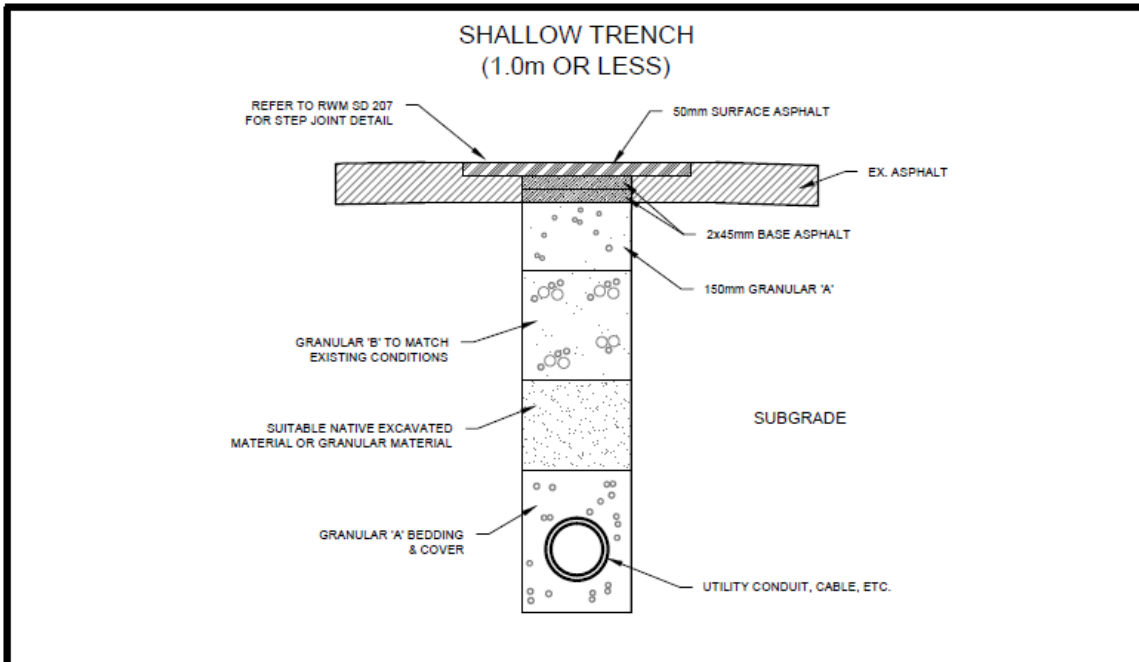


19Ø STEEL HINGE PINS TO BE CAST WITH GRATE

- NOTE:**
- ALLOWABLE TOLERANCES: DIMENSIONS 300mm OR LESS: +/- 3mm  
DIMENSIONS OVER 300mm UP TO AND INCLUDING 900mm +/- 6mm.
  - THE INITIALS OR MARK OF THE MANUFACTURER ARE TO BE DISTINCTLY CAST IN RAISED LETTERS ON BOTH FRAME AND GRATE.
  - STEEL FOR HINGE PINS TO BE A.S.T.M. DESIGNATION A-7 OR EQUIVALENT.
  - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.


|   |                        |                            |
|---|------------------------|----------------------------|
| <br>Region of Waterloo | RAISED CATCH BASIN TOP |                            |
|   | DATE: JAN. 2005        | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 214                    |                            |

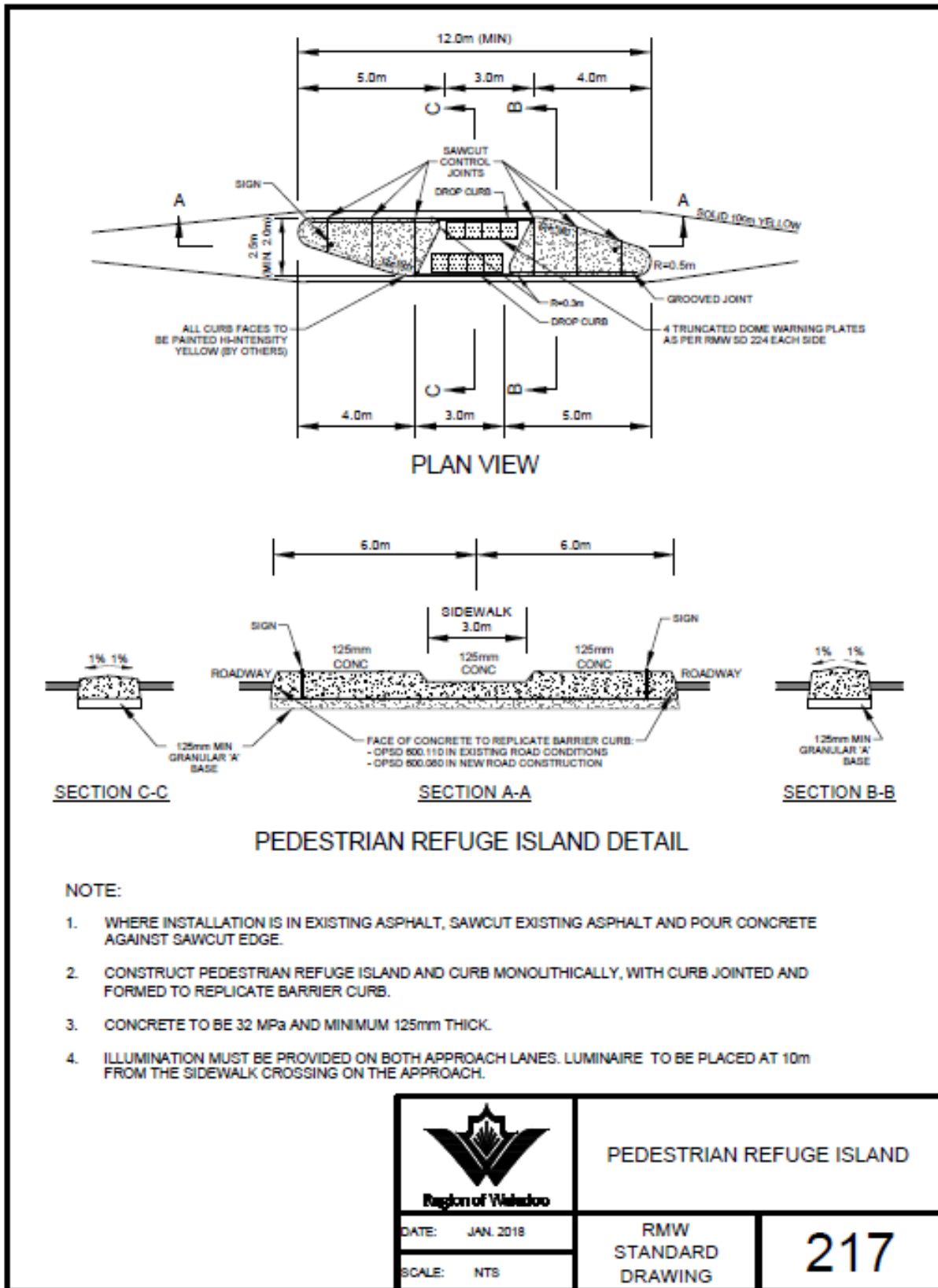


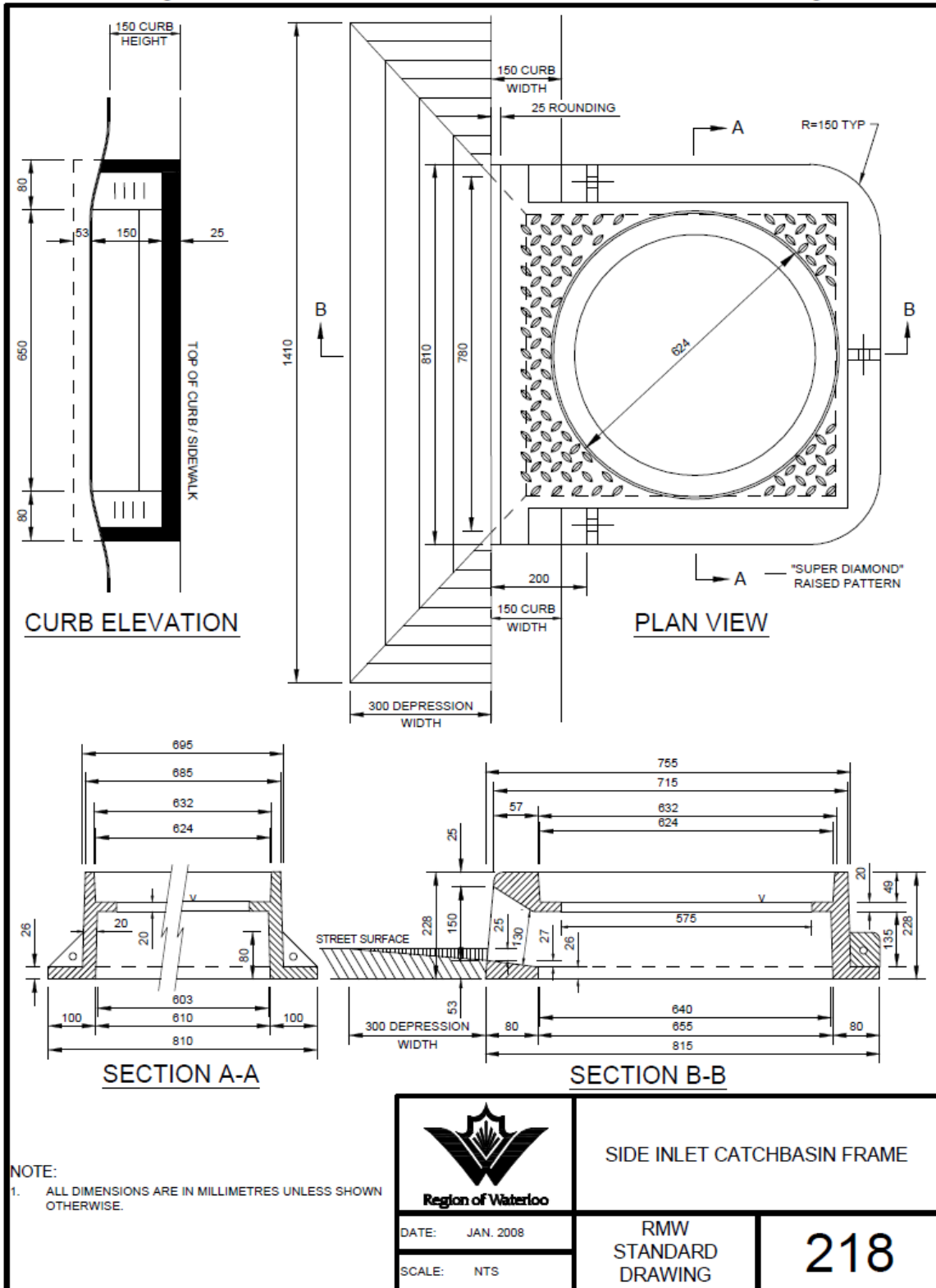


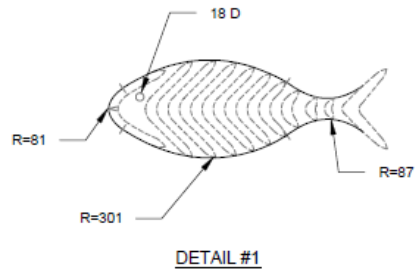
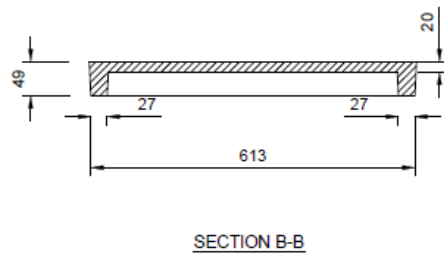
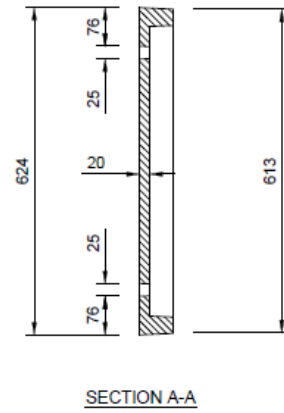
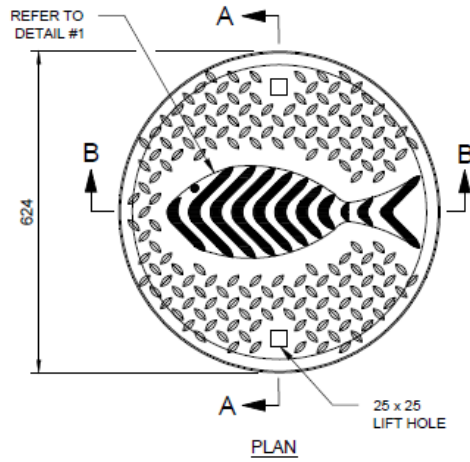
**NOTE:**

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED
2. THIS STANDARD TO BE READ IN CONJUNCTION WITH RWSS 10 AND RWSSP 507.01
3. GRANULAR 'B' THICKNESS TO MATCH EXISTING CONDITIONS
4. TRENCH WALLS PER EXISTING SOIL CONDITIONS

|  |   |   |
|--|---|---|
| <br><b>Region of Waterloo</b> | <b>EXCAVATION, CUT OR TRENCH RESTORATION DETAIL</b> |   |
| DATE: JAN. 2009  | <b>RMW<br/>STANDARD<br/>DRAWING</b>                 | <span style="font-size: 2em; font-weight: bold;">216</span> |
| SCALE: NTS   |   |   |




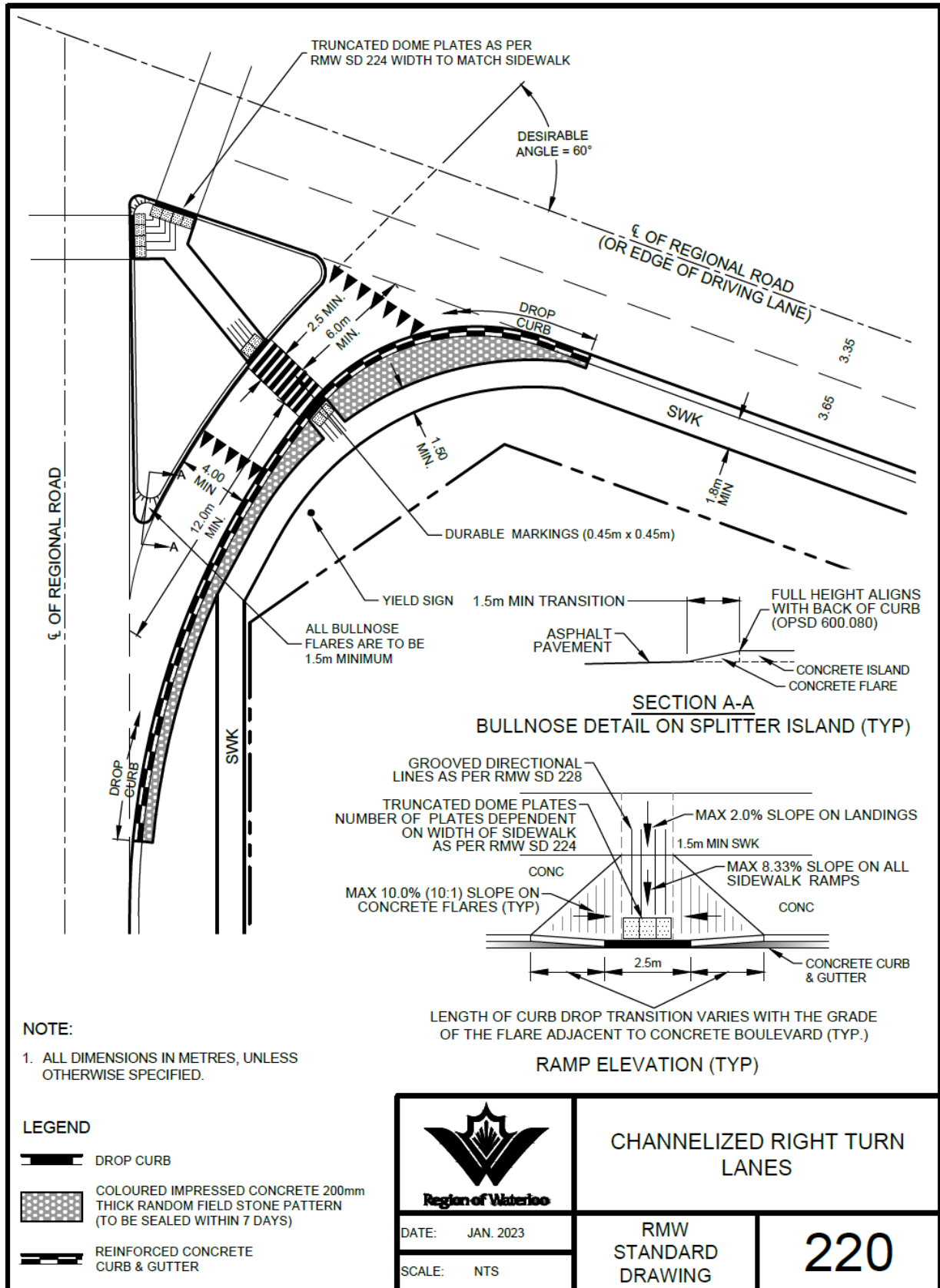





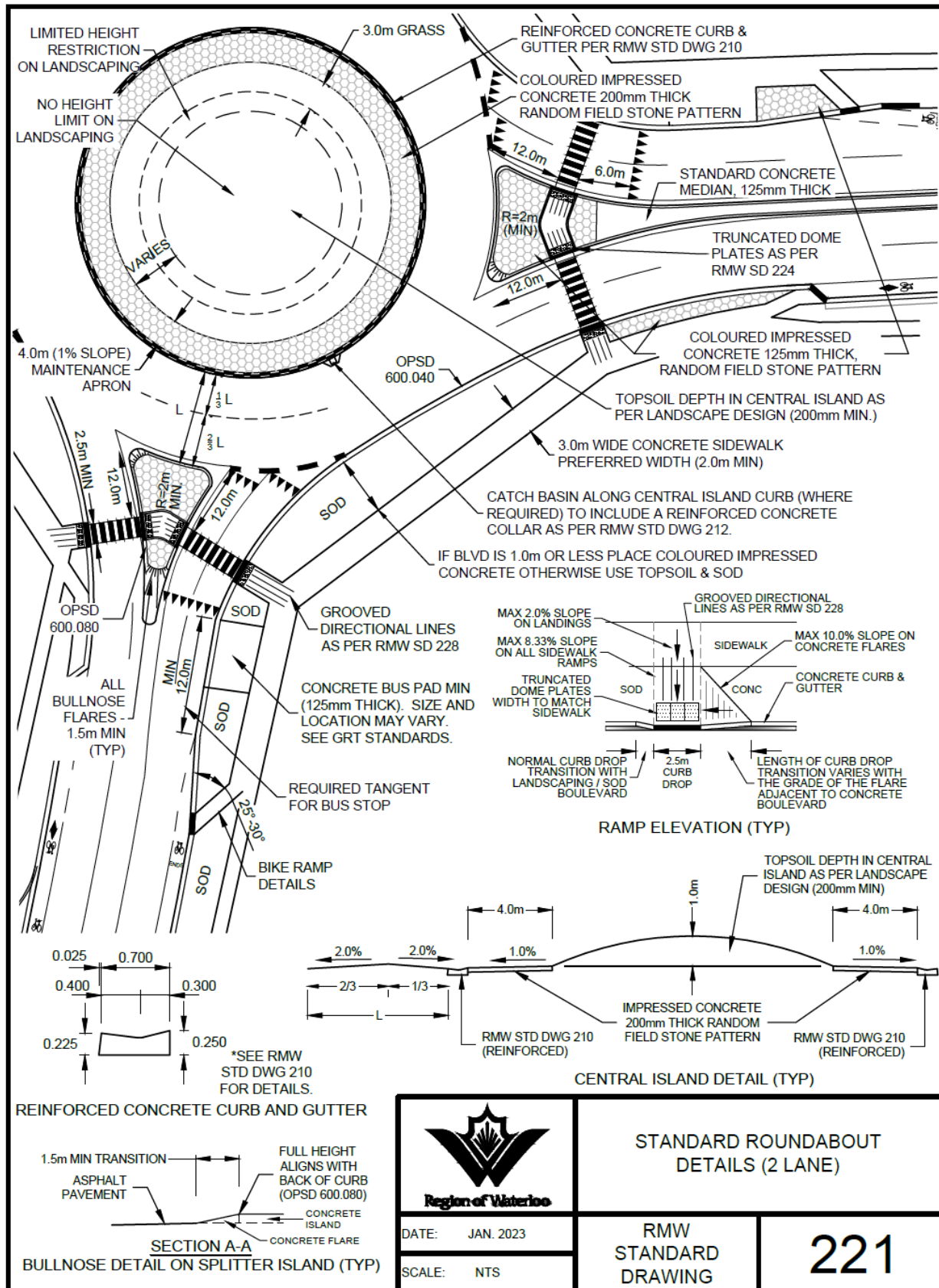
NOTE:

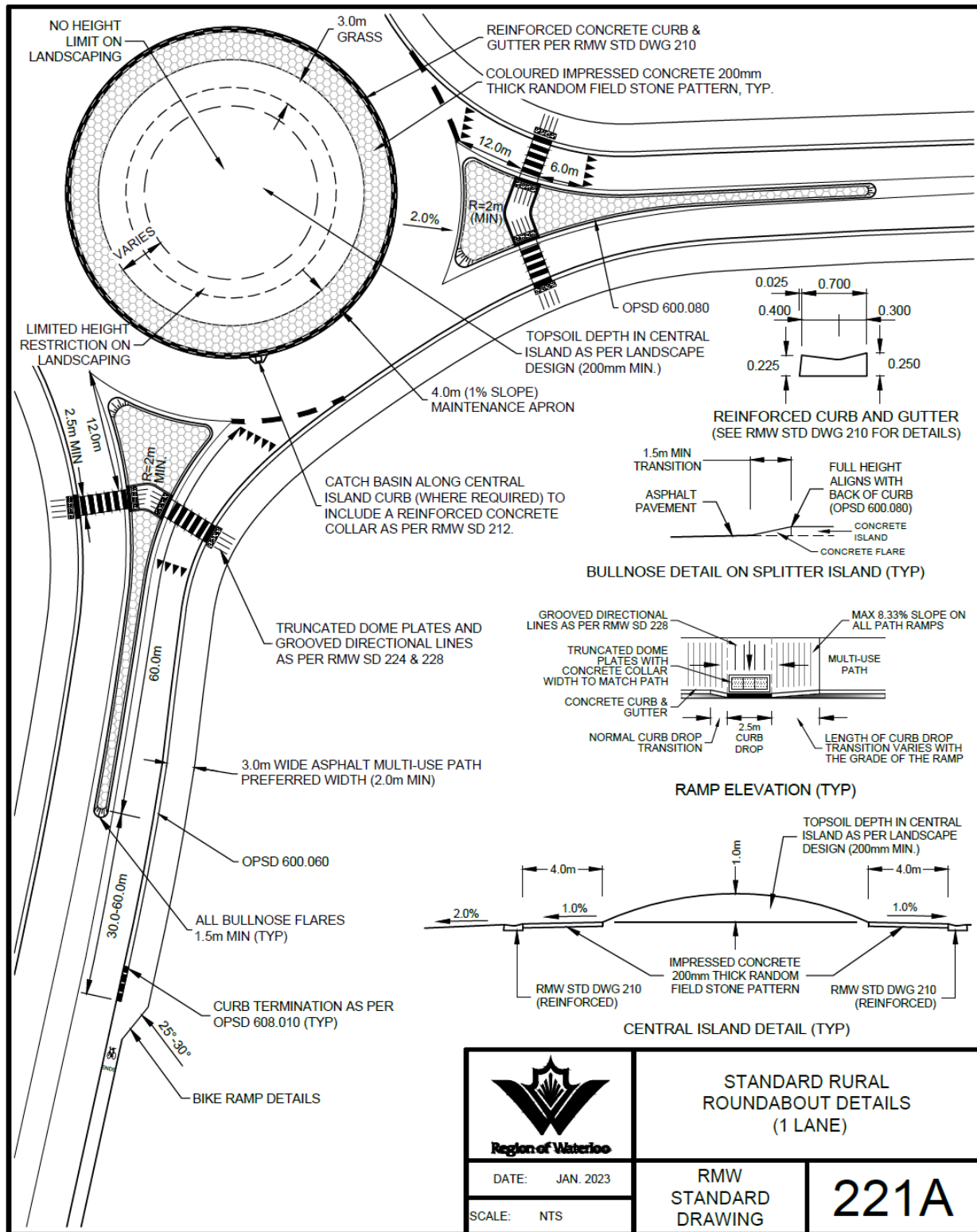
1. ALL DIMENSIONS SHOWN ARE FOR FINISHED CASTINGS ONLY.  
PATTERN MARKERS AND CASTING SHOP SHOULD MAKE ALLOWANCES ACCORDINGLY.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.


|  |                               |                            |
|--|-------------------------------|----------------------------|
| <br><b>Region of Waterloo</b> | SIDE INLET CATCHBASIN COVER   |                            |
|  | DATE: JAN. 2008<br>SCALE: NTS | RMW<br>STANDARD<br>DRAWING |

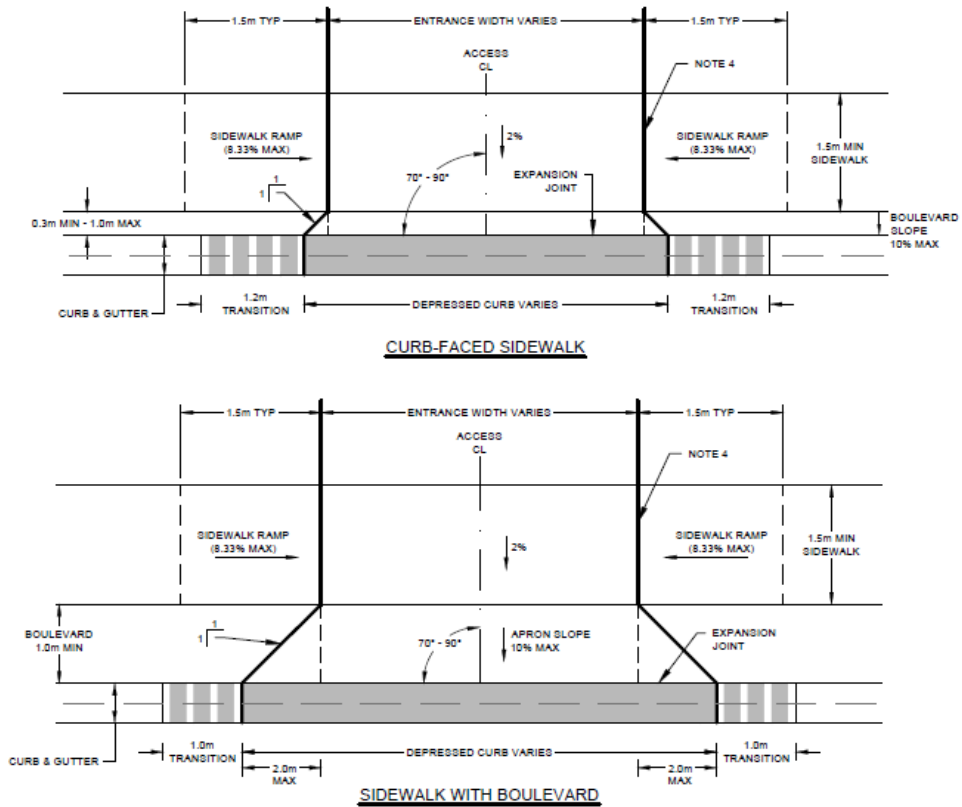


|   |                                 |                            |
|---|---------------------------------|----------------------------|
| <br>Region of Waterloo | CHANNELIZED RIGHT TURN<br>LANES |                            |
|   | DATE: JAN. 2023<br>SCALE: NTS   | RMW<br>STANDARD<br>DRAWING |





|   |  |                            |
|---|--|----------------------------|
|  <p>Region of Waterloo</p> | <b>STANDARD RURAL<br/>ROUNDBOUT DETAILS<br/>(1 LANE)</b> |                            |
|   | DATE: JAN. 2023  | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 221A   |                            |




RESIDENTIAL RAMPS - MIN 150mm GRANULAR 'A'  
MIN 150mm CONCRETE

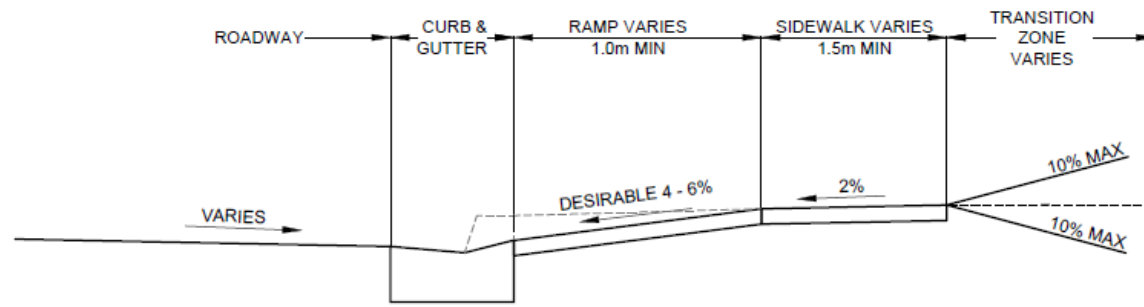
COMMERCIAL / INDUSTRIAL RAMPS - MIN 150mm GRANULAR 'A'  
MIN 200mm CONCRETE

**NOTE:**

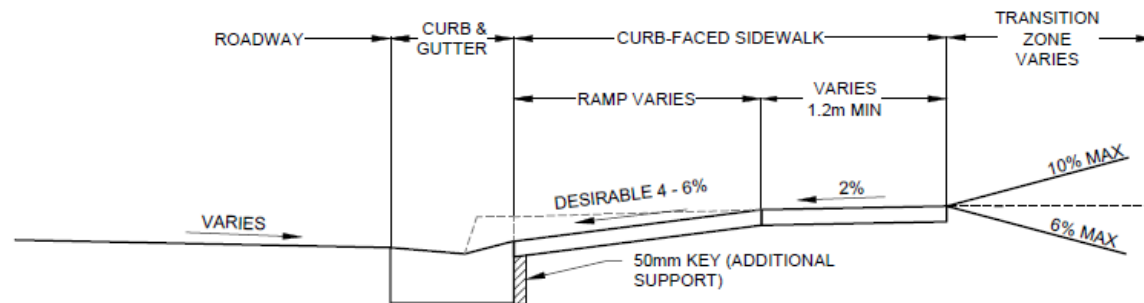
1. TRAFFIC VOLUME DEFINITIONS AS PER REGIONAL ROAD ACCESS GUIDE.
2. HIGH TRAFFIC VOLUME ACCESSES TO BE DESIGNED ON A CASE BY CASE BASIS.
3. THIS STANDARD DRAWING TO BE READ IN CONJUNCTION WITH RWM STANDARD DRAWING 223.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED AT THE BACK OF THE CONCRETE CURB AND BOND BREAKER AT THE SIDEWALK AND DRIVEWAY INTERFACE.
5. SAWCUT SHALL BE PLACED AT THE CENTRELINE OF THE DRIVEWAY RAMP AND EXTENDED THROUGH THE SIDEWALK AND CURB.
6. 2 - 10M BARS ARE REQUIRED IN CURB AND GUTTER FOR ALL COMMERCIAL / INDUSTRIAL DRIVEWAYS.
7. SAWCUTS SHALL BE PLACED IN THE SIDEWALK WHERE THE DRIVEWAY RAMP TAPER INTERSECTS AND THE CURB AT THE BOTTOM OF GRADE TRANSITION.
8. FOR BOULEVARDS GREATER THAN 3m WIDE, RAMP IS TO BE ASPHALT.

R04W-2014

|  |  |                            |
|--|--|----------------------------|
| <br><b>Region of Waterloo</b> | <b>URBAN ACCESS PLAN<br/>CONCRETE RAMP<br/>(LOW TO MEDIUM<br/>DRIVEWAY VOLUME)</b> |                            |
|  | DATE: JAN. 2017<br>SCALE: NTS  | RMW<br>STANDARD<br>DRAWING |




SIDEWALK WITH BOULEVARD

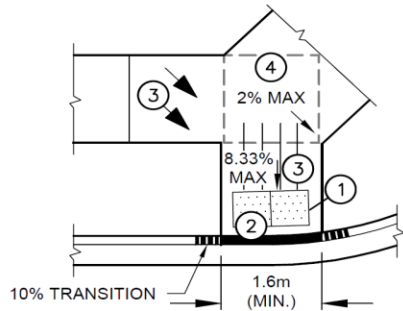


CURB-FACED SIDEWALK

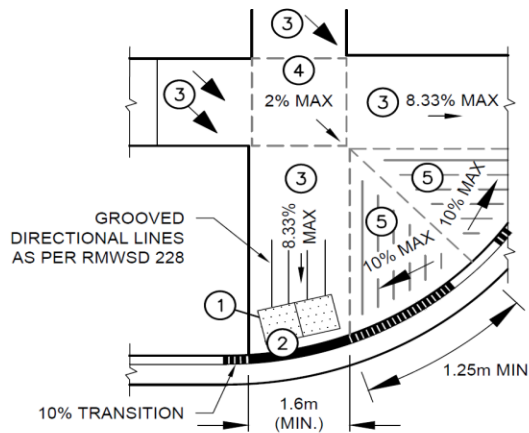
NOTE:

1. THIS STANDARD DRAWING TO BE READ IN CONJUNCTION WITH RMW STANDARD DRAWING 222.
2. WHERE RAMP GRADES EXCEEDING 10% APPEAR TO BE UNAVOIDABLE, THE ELEVATION OF THE TRANSITION ZONE TO BE LOWERED ACCORDINGLY TO ACHIEVE A MAXIMUM GRADE OF 10% ON THE RAMP.
3. THE MAXIMUM ALGEBRAIC DIFFERENCE BETWEEN GRADES TO BE 8%.

|  |                             |                      |
|--|-----------------------------|----------------------|
| <br><b>Region of Waterloo</b> | <b>URBAN ACCESS PROFILE</b> |                      |
|  | DATE: JAN. 2017             | RMW STANDARD DRAWING |
| SCALE: NTS   | <b>223</b>                  |                      |

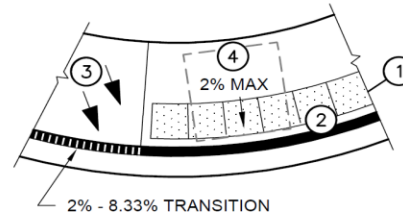


**PREFERRED TREATMENT WITH SEPARATE LANDING AREAS**  
(SEE RMW SD 225)



**ALTERNATE SIDEWALK RAMP - SEPARATE RAMPS WITH COMMON LANDING AREAS**  
(SEE RMW SD 226)

— CONCRETE CURB IS DEPRESSED  
- - - - - CONCRETE CURB IS IN TRANSITION



**ALTERNATE SIDEWALK RAMP TREATMENT - COMMON RAMP**  
(SEE RMW SD 227)

| TRUNCATED DOME DETECTABLE WARNING PLATES |               |
|--|---------------|
| SIDEWALK / MUT WIDTH                     | No. OF PLATES |
| 1.5m                                     | 2             |
| 1.8 - 2.1m                               | 3             |
| 3m                                       | 4             |

- DROP CURBS ARE EXTENDED FROM THE EDGE OF PLATES  
- FLARE SIDEWALK WIDTH FROM INCOMING TO DROP CURB  
- 3m SIDEWALK DOES NOT REQUIRE FLARING

**NOTE :**

- ① ALL TRUNCATED DOME DETECTABLE WARNING PLATE DESIGNS ARE TO BE FINALIZED BY THE PLATE MANUFACTURER. (610mm x 610mm SQUARE OR RADIAL PLATES TO MATCH CURB RADIUS). NUMBER OF WARNING PLATES TO MATCH WIDTH OF PROJECTED SIDEWALK OR TRAIL
- ② TRUNCATED DOME PLATES ARE TO BE PLACED 150mm OFFSET FROM BACK OF CURB (200mm MAXIMUM). MINIMUM 150mm CONCRETE REQUIRED FROM OUTER EDGE OF PLATE ASSEMBLY TO THE EDGE OF SIDEWALK.
- ③ RAMPS ARE TO BE SLOPED BETWEEN 2% AND 6% DESIRABLE (8.33% MAXIMUM).
- ④ LANDING AREAS ARE 1.5m X 1.5m MINIMUM AND ARE SLOPED TO A MAXIMUM OF 2%.
- ⑤ CONCRETE FLARES ARE SLOPED TO A MAXIMUM OF 10%.



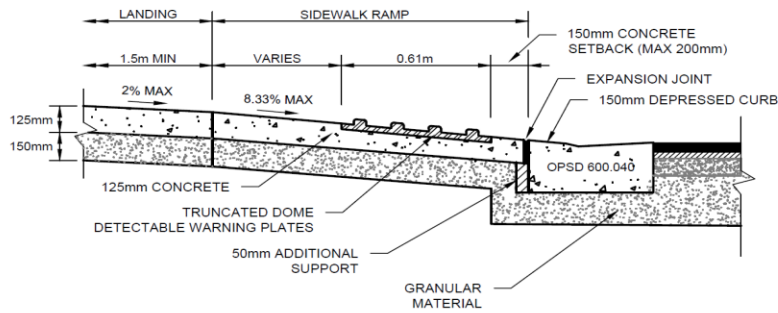
DATE: JAN. 2019  
SCALE: NTS

**TRUNCATED DOME DETECTABLE WARNING PLATES**

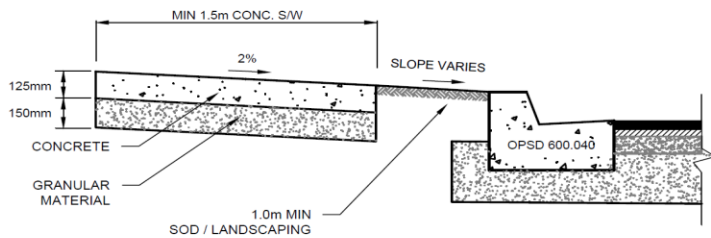
RMW STANDARD DRAWING

**224**

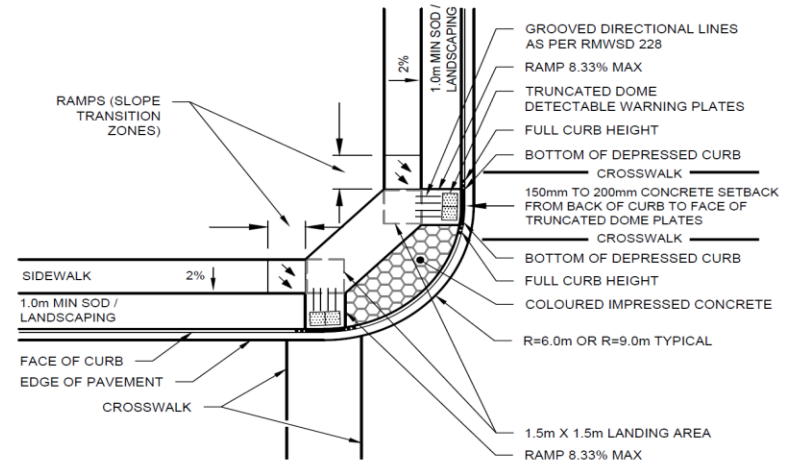
**CROSS SECTION OF COMBINED  
SIDEWALK AND CURB AND  
GUTTER AT SIDEWALK RAMP**



**CROSS SECTION OF SIDEWALK,  
BOULEVARD, CURB AND GUTTER**




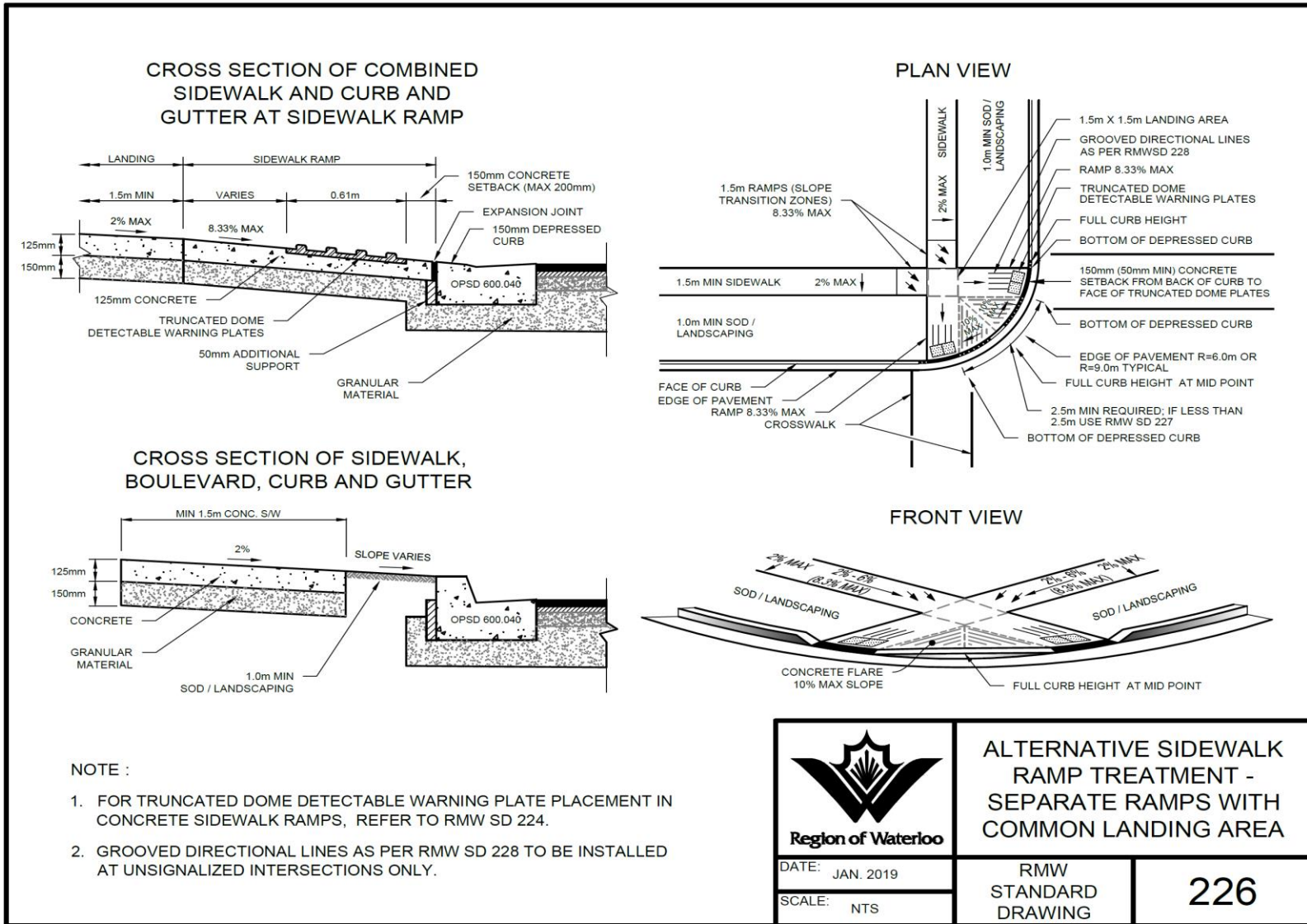
**PLAN VIEW**




**NOTE :**

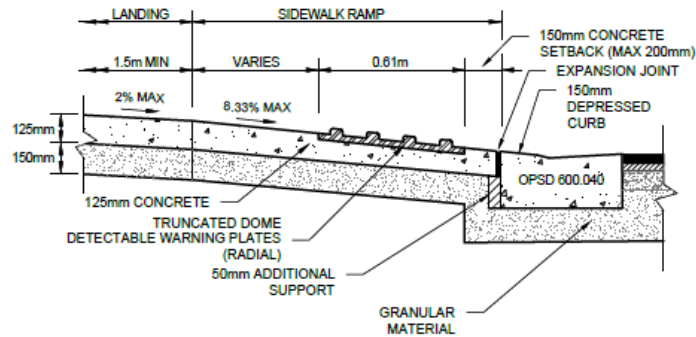
1. FOR TRUNCATED DOME DETECTABLE WARNING PLATE PLACEMENT IN CONCRETE SIDEWALK RAMPS, REFER TO RMW SD 224.
2. GROOVED DIRECTIONAL LINES AS PER RMW SD 228 TO BE INSTALLED AT UNSIGNALIZED INTERSECTIONS ONLY.

|  |   |                            |
|--|---|----------------------------|
| <br><b>Region of Waterloo</b> | <b>PREFERRED SIDEWALK<br/>RAMP TREATMENT -<br/>SEPARATE LANDING<br/>AREAS</b> |                            |
|  | DATE: JAN. 2019<br>SCALE: NTS   | RMW<br>STANDARD<br>DRAWING |

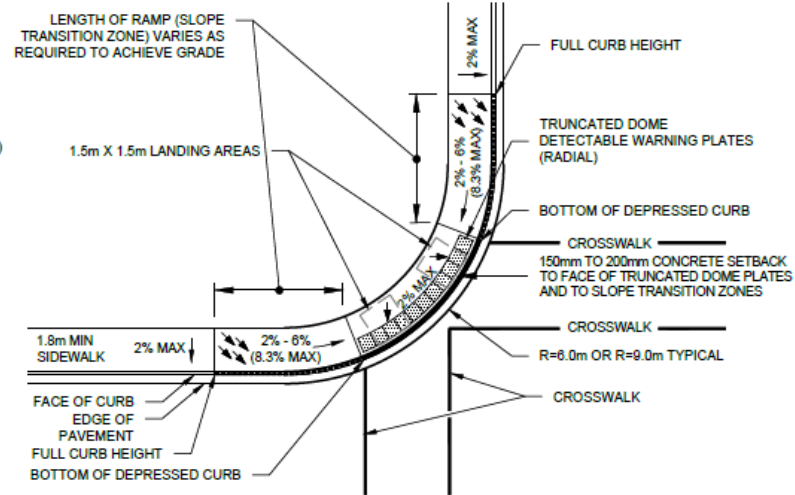


|  |  |                      |
|--|--|----------------------|
| <br><b>Region of Waterloo</b> | <b>ALTERNATIVE SIDEWALK RAMP TREATMENT - SEPARATE RAMPS WITH COMMON LANDING AREA</b> |                      |
|  | DATE: JAN. 2019  | RMW STANDARD DRAWING |
| SCALE: NTS   |  |                      |

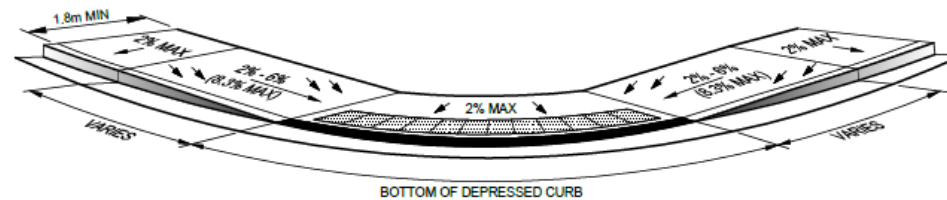
CROSS SECTION OF COMBINED  
SIDEWALK AND CURB AND  
GUTTER AT SIDEWALK RAMP



PLAN VIEW




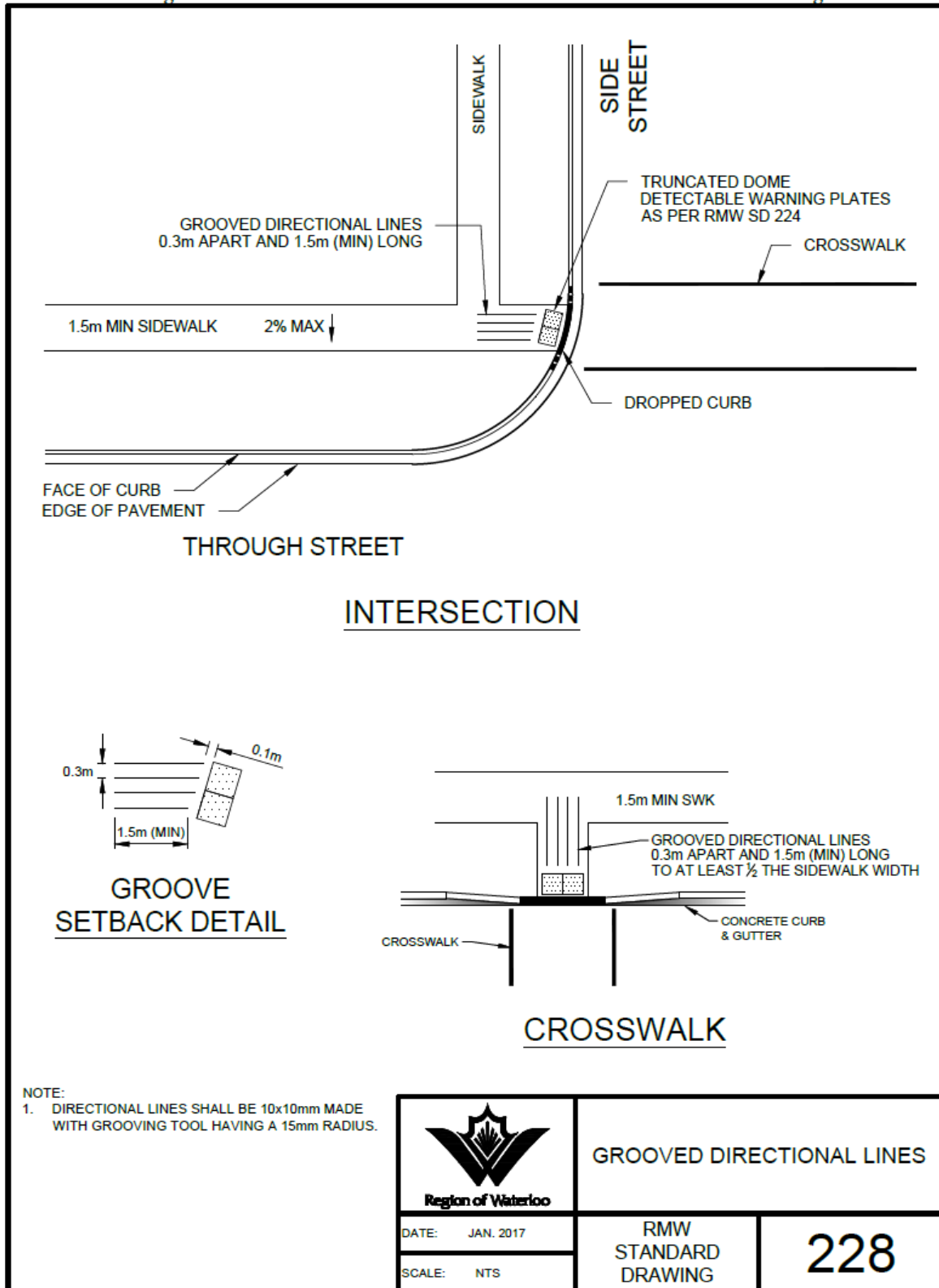
FRONT VIEW

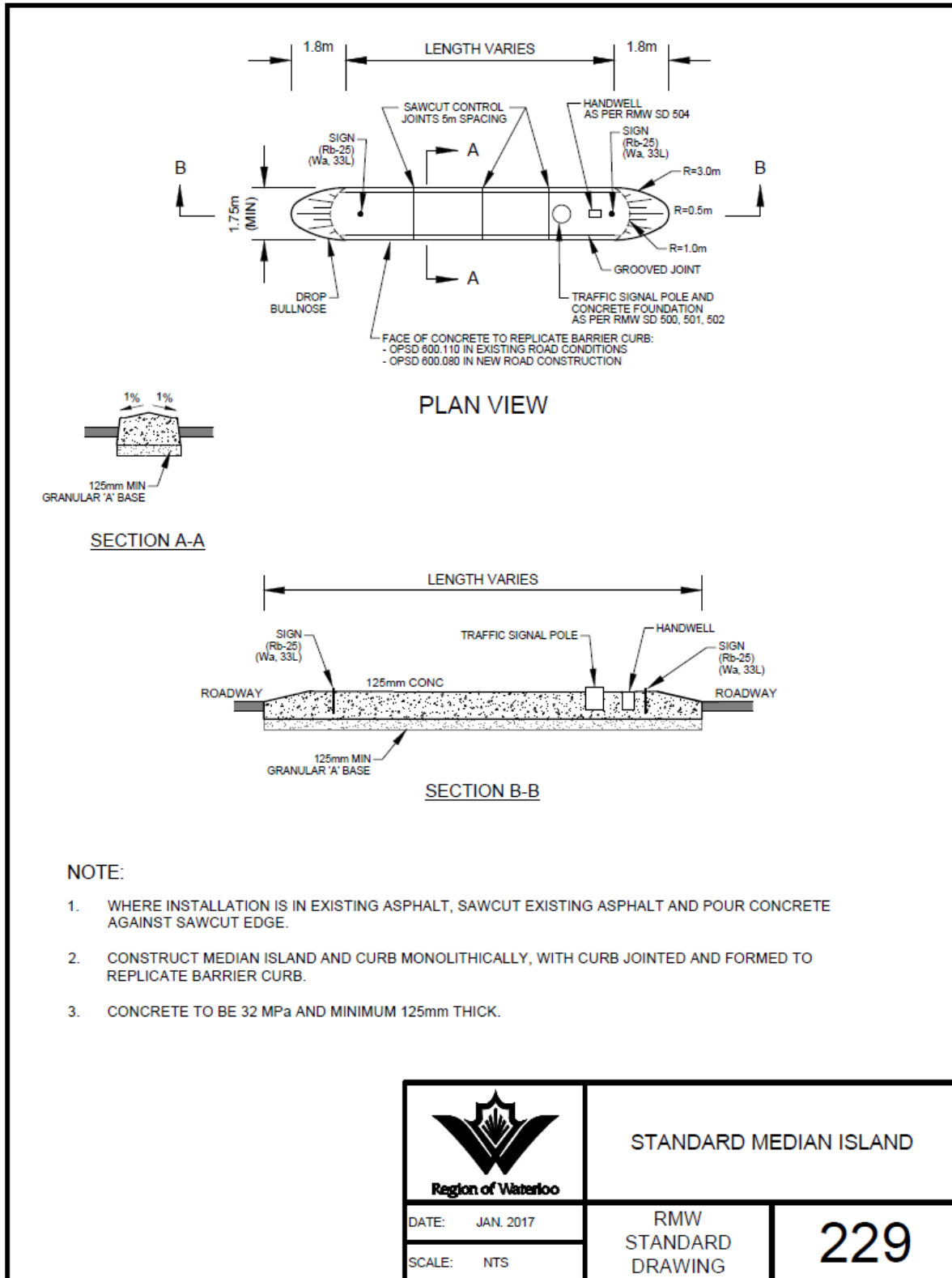


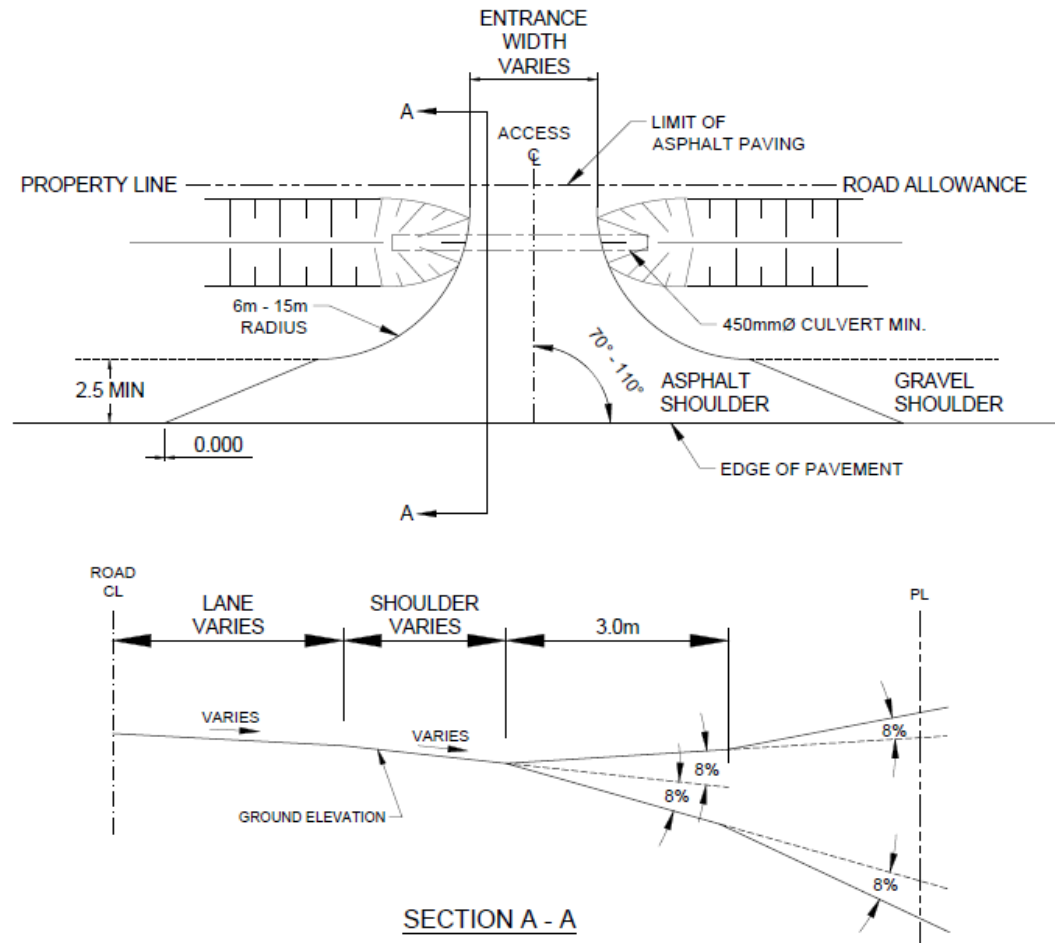
NOTE :

1. FOR TRUNCATED DOME DETECTABLE WARNING PLATE PLACEMENT IN CONCRETE SIDEWALK RAMPS, REFER TO RMW SD 224.
2. BOTTOM OF DEPRESSED CURB SHOULD LINE UP WITH BACK EDGE OF SIDEWALK ON THE OPPOSITE SIDE OF THE STREET IN BOTH DIRECTIONS WHERE APPLICABLE.

|  |  |                            |
|--|--|----------------------------|
| <br><b>Region of Waterloo</b> | <b>ALTERNATIVE SIDEWALK<br/>RAMP TREATMENT -<br/>COMMON RAMP</b> |                            |
|  | DATE: JAN. 2017<br>SCALE: NTS                                    | RMW<br>STANDARD<br>DRAWING |




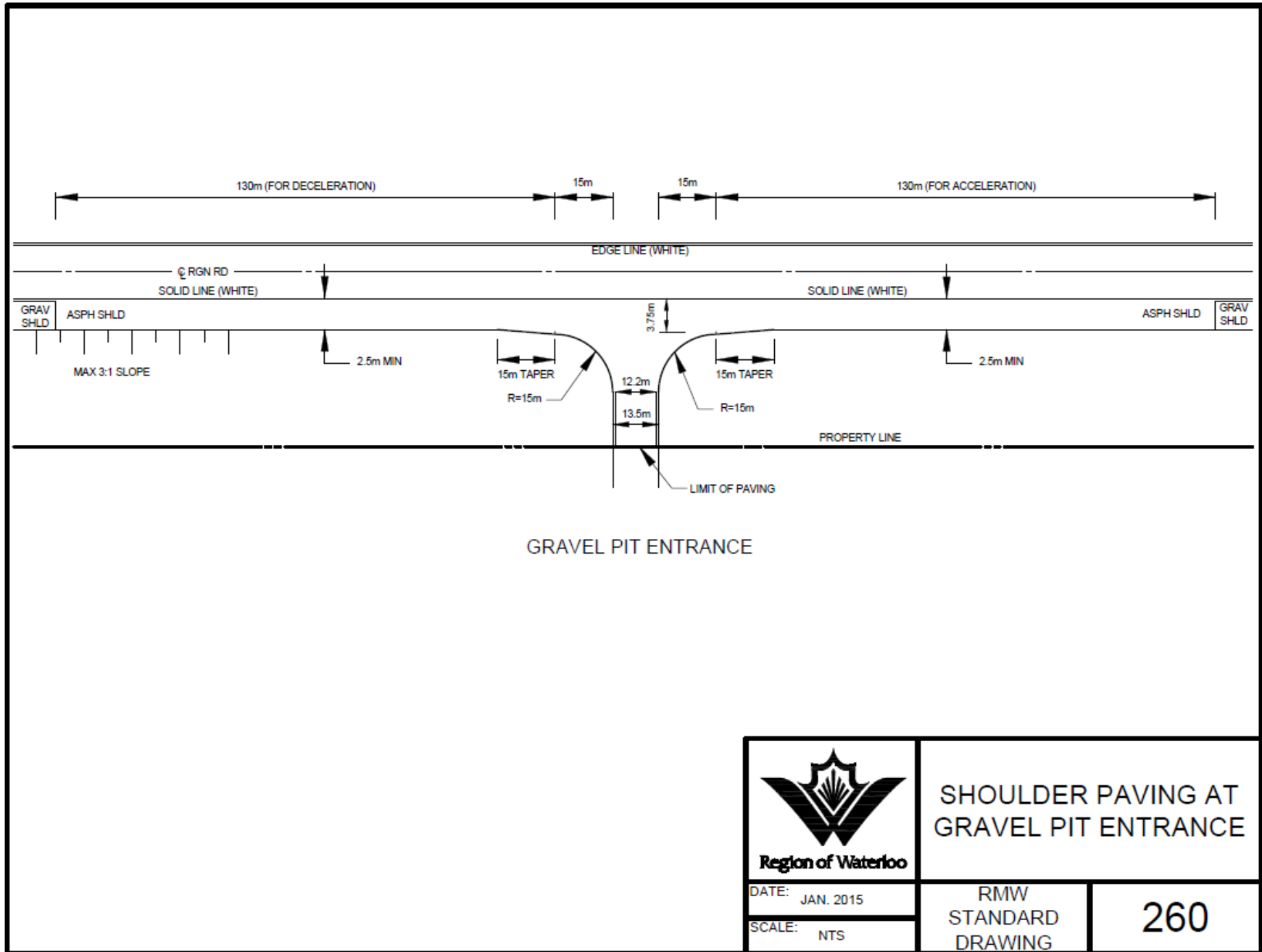


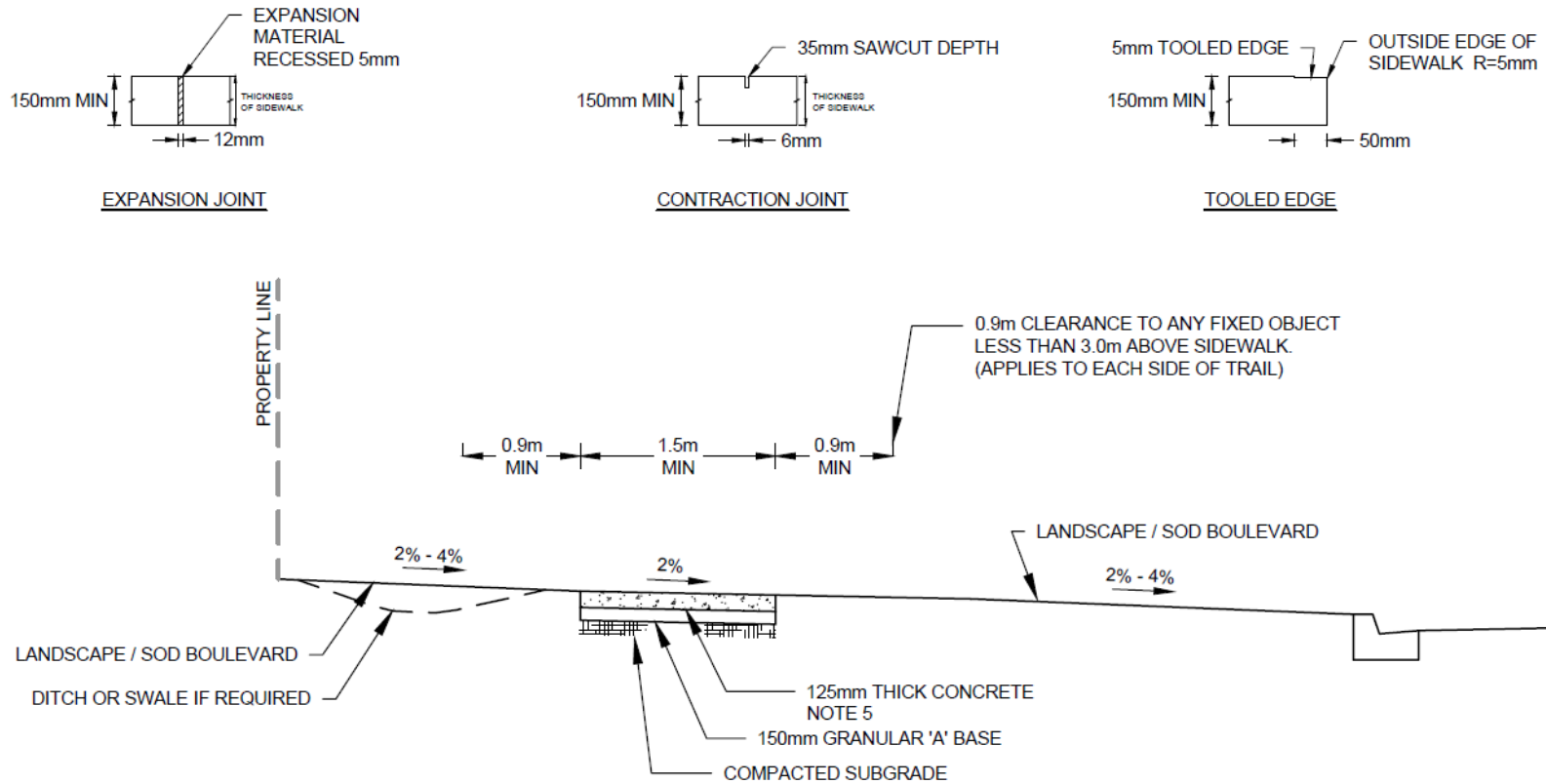


**NOTE:**

1. NO CHANGE IN GRADE OF ACCESS IS TO EXCEED 8%.


|  |                               |                            |
|--|-------------------------------|----------------------------|
| <br><b>Region of Waterloo</b> | <b>RURAL ACCESS</b>           |                            |
|  | DATE: JAN. 2017<br>SCALE: NTS | RMW<br>STANDARD<br>DRAWING |

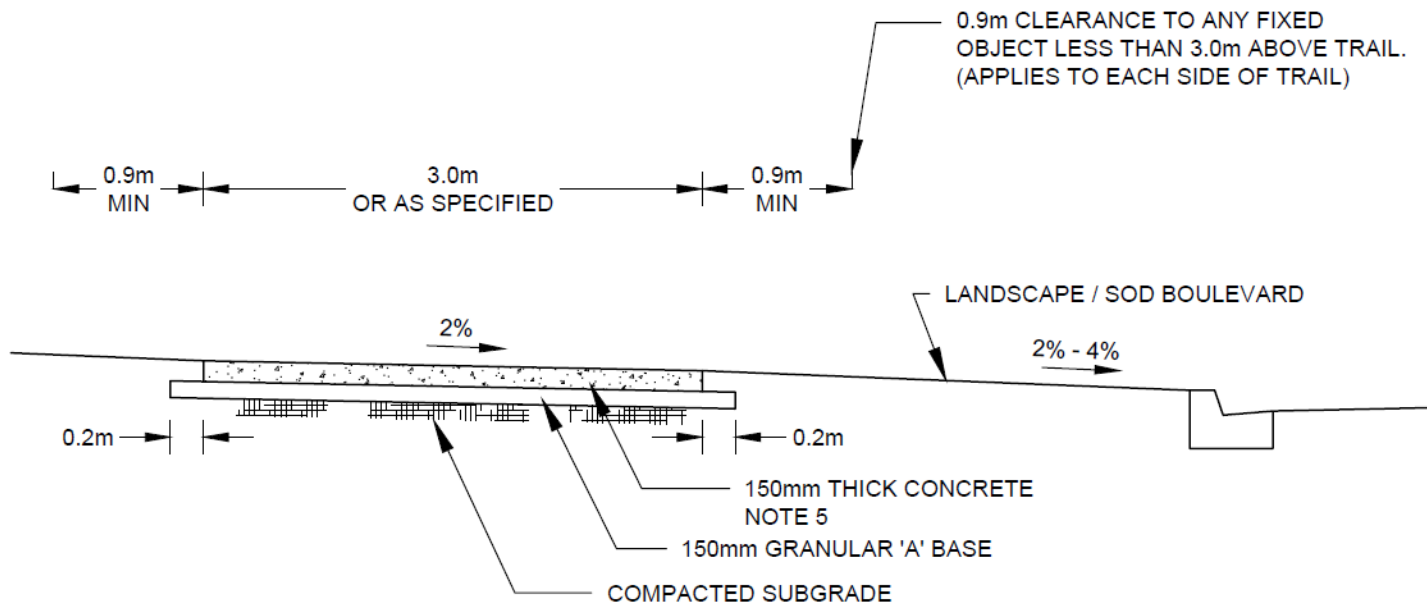
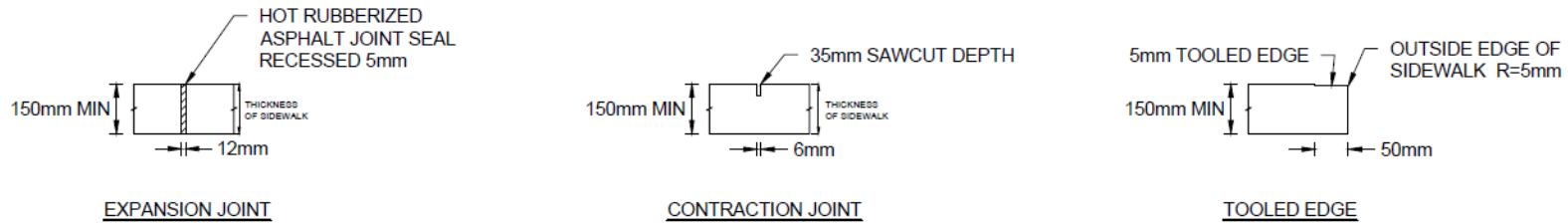




**NOTE:**


1. TRANSVERSE BROOM FINISH WITH TOOLED EDGES.
2. NO LONGITUDINAL JOINTS.
3. CONTRACTION JOINTS SPACED EVERY 1.5m.
4. CONTRACTION JOINTS INSTALLED BY SAWCUT (NO TOOLING).
5. WHEREVER CONCRETE SIDEWALK CROSSES A COMMERCIAL OR INDUSTRIAL ENTRANCE, THE THICKNESS SHALL BE INCREASED TO 200mm AND WHEREVER IT CROSSES A RESIDENTIAL DRIVEWAY, THE CONCRETE THICKNESS SHALL BE INCREASED TO 150mm.
6. EXPANSION JOINTS TO BE SET AT 9m INTERVALS (HOT RUBBERIZED ASPHALT JOINT SEAL OR FIBREBOARD EXPANSION JOINT MATERIAL).
7. CONCRETE TO BE MIN 32 MPa.
8. PAVEMENT THICKNESS ARE MINIMUM REGION OF WATERLOO STANDARD. SITE CONDITIONS OR GEOTECHNICAL REPORT MAY REQUIRE ADDITIONAL PAVEMENT THICKNESS.

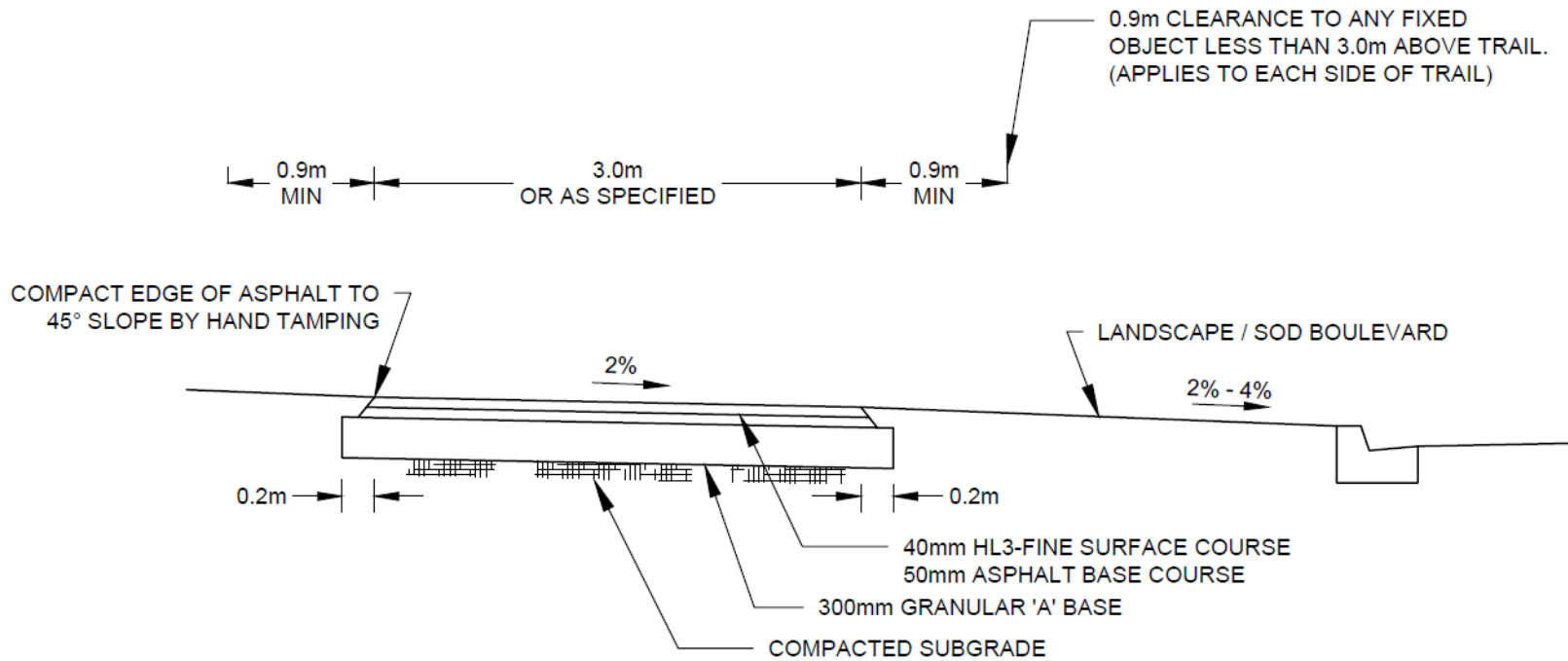
|  |                               |                            |
|--|-------------------------------|----------------------------|
| <br><b>Region of Waterloo</b> | <h2>CONCRETE SIDEWALK</h2>    |                            |
|  | DATE: JAN. 2022<br>SCALE: NTS | RMW<br>STANDARD<br>DRAWING |



**NOTE:**


1. TRANSVERSE BROOM FINISH WITH TOOLED EDGES.
2. NO LONGITUDINAL JOINTS.
3. CONTRACTION JOINTS SPACED EVERY 2m.
4. CONTRACTION JOINTS INSTALLED BY SAWCUT (NO TOOLING).
5. CONCRETE THICKNESS AT COMMERCIAL AND INDUSTRIAL DRIVEWAYS SHALL BE 200mm THICK.
6. EXPANSION JOINTS TO BE SET AT 8m INTERVALS (HOT RUBBERIZED ASPHALT JOINT SEAL).
7. CONCRETE TO BE MIN 32 MPa.
8. PAVEMENT THICKNESS ARE MINIMUM REGION OF WATERLOO STANDARD. SITE CONDITIONS OR GEOTECHNICAL REPORT MAY REQUIRE ADDITIONAL PAVEMENT THICKNESS.

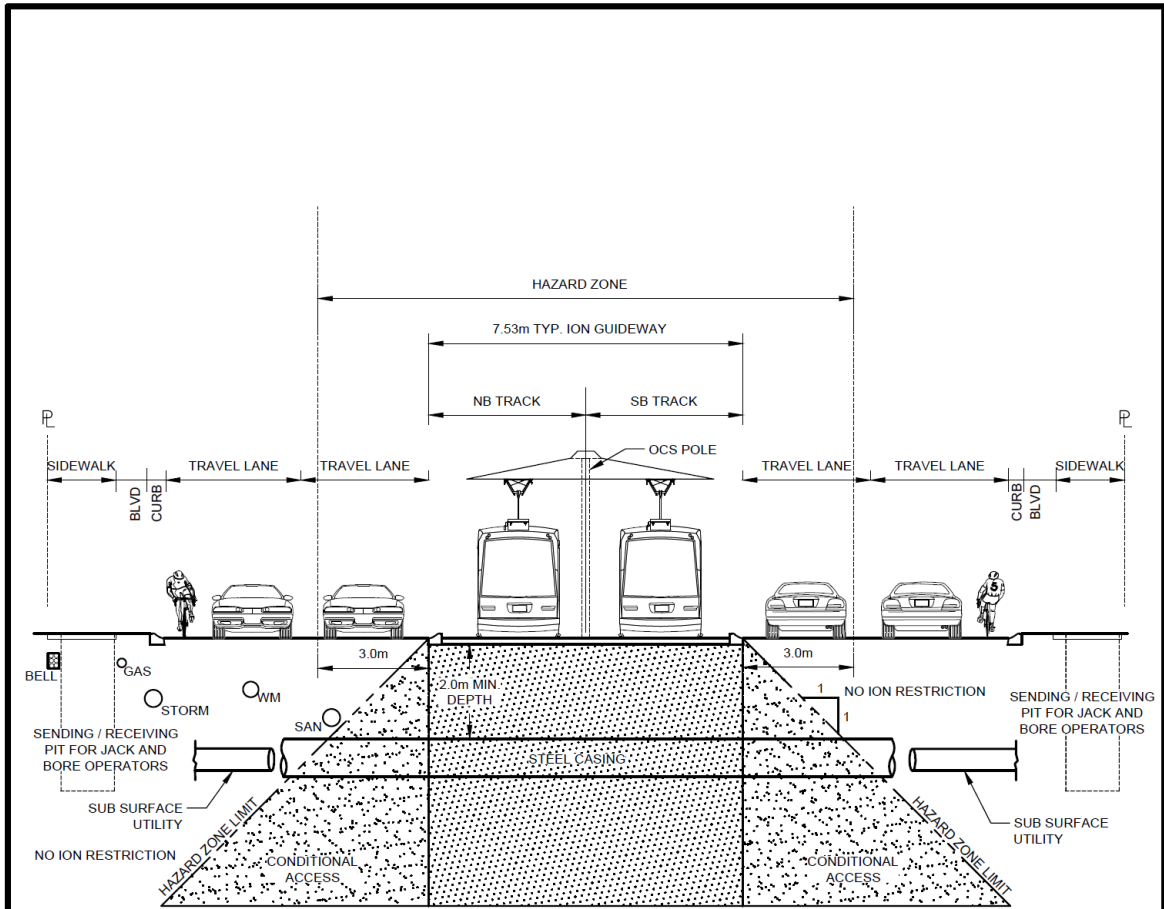
|  |                                       |                            |
|--|---------------------------------------|----------------------------|
| <br><b>Region of Waterloo</b> | <h2>CONCRETE<br/>MULTI-USE TRAIL</h2> |                            |
|  | DATE: JAN. 2022<br>SCALE: NTS         | RMW<br>STANDARD<br>DRAWING |



**NOTE:**


ASPHALT AND GRANULAR THICKNESSES ARE THE MINIMUM REGION OF WATERLOO STANDARD. THICKER PAVEMENT STRUCTURE IS REQUIRED AT RESIDENTIAL AND COMMERCIAL DRIVEWAYS AND MAY ALSO BE REQUIRED BASED ON SITE CONDITIONS OR GEOTECHNICAL RECOMMENDATIONS.

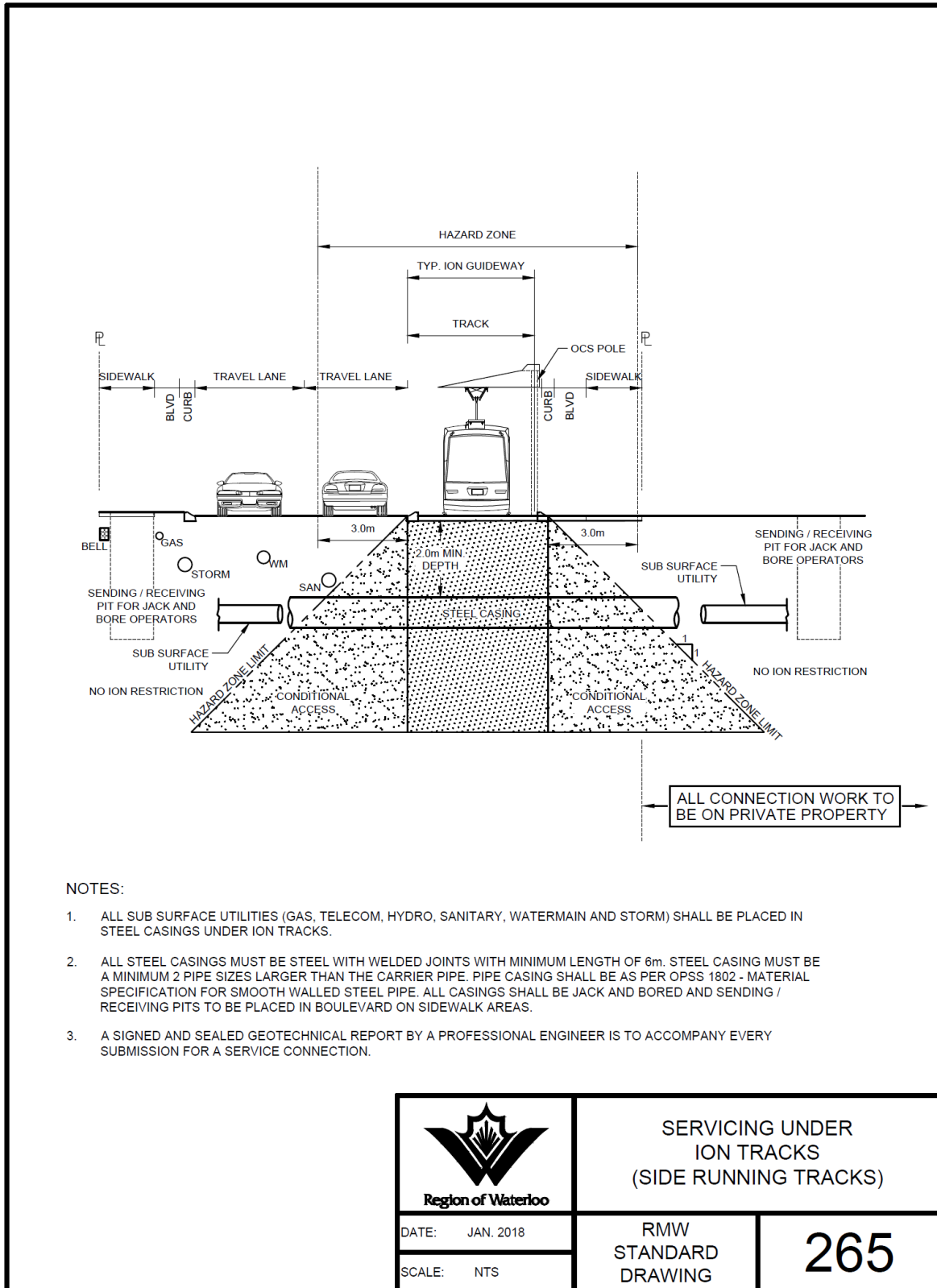
|  |                                    |                            |
|--|------------------------------------|----------------------------|
| <br><b>Region of Waterloo</b> | <b>ASPHALT<br/>MULTI-USE TRAIL</b> |                            |
|  | DATE: JAN. 2022<br>SCALE: NTS      | RMW<br>STANDARD<br>DRAWING |



NOTES:


1. ALL SUB SURFACE UTILITIES (GAS, TELECOM, HYDRO, SANITARY, WATERMAIN AND STORM) SHALL BE PLACED IN STEEL CASINGS UNDER ION TRACKS.
2. ALL STEEL CASINGS MUST BE STEEL WITH WELDED JOINTS WITH MINIMUM LENGTH OF 6m. STEEL CASING MUST BE A MINIMUM 2 PIPE SIZES LARGER THAN THE CARRIER PIPE. PIPE CASING SHALL BE AS PER OPSS 1802 - MATERIAL SPECIFICATION FOR SMOOTH WALLED STEEL PIPE. ALL CASINGS SHALL BE JACK AND BORED AND SENDING / RECEIVING PITS TO BE PLACED IN BOULEVARD ON SIDEWALK AREAS.
3. A SIGNED AND SEALED GEOTECHNICAL REPORT BY A PROFESSIONAL ENGINEER IS TO ACCOMPANY EVERY SUBMISSION FOR A SERVICE CONNECTION.

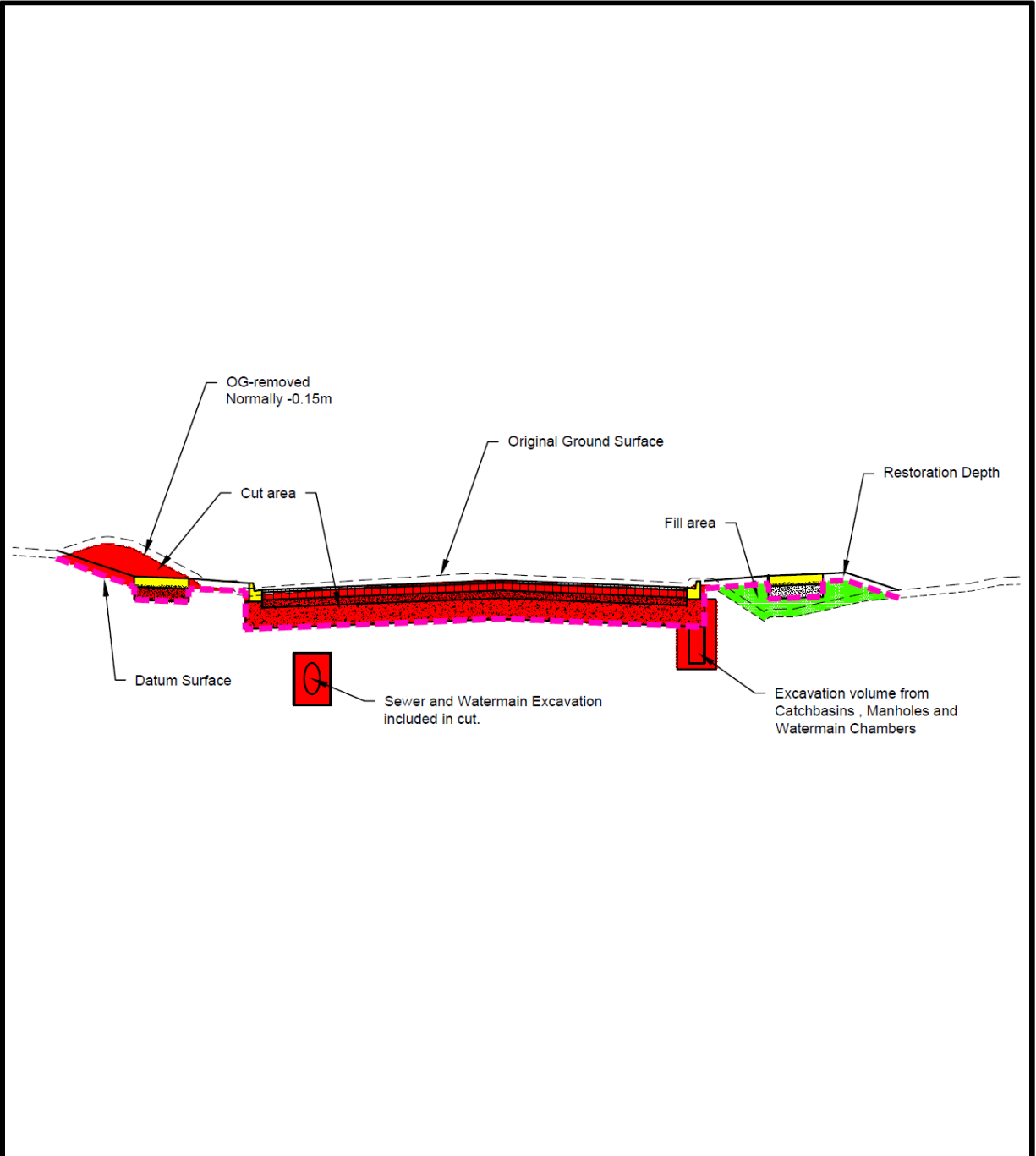
|   |  |                            |
|---|--|----------------------------|
| <br>Region of Waterloo | SERVICING UNDER<br>ION TRACKS<br>(CENTRE RUNNING TRACKS) |                            |
|   | DATE: JAN. 2018  | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  |  |                            |




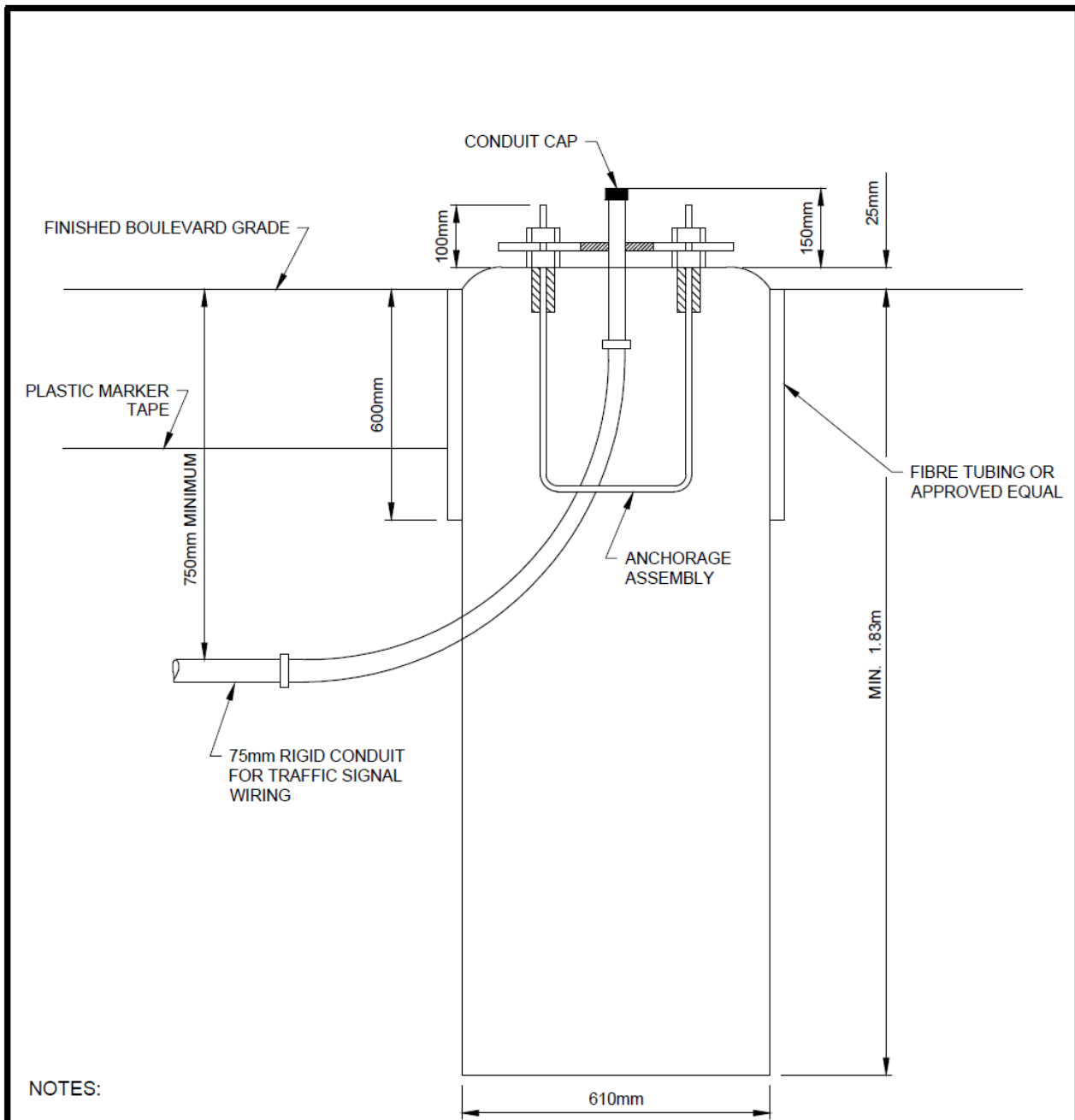
NOTES:

1. ALL SUB SURFACE UTILITIES (GAS, TELECOM, HYDRO, SANITARY, WATERMAIN AND STORM) SHALL BE PLACED IN STEEL CASINGS UNDER ION TRACKS.
2. ALL STEEL CASINGS MUST BE STEEL WITH WELDED JOINTS WITH MINIMUM LENGTH OF 6m. STEEL CASING MUST BE A MINIMUM 2 PIPE SIZES LARGER THAN THE CARRIER PIPE. PIPE CASING SHALL BE AS PER OPSS 1802 - MATERIAL SPECIFICATION FOR SMOOTH WALLED STEEL PIPE. ALL CASINGS SHALL BE JACK AND BORED AND SENDING / RECEIVING PITS TO BE PLACED IN BOULEVARD ON SIDEWALK AREAS.
3. A SIGNED AND SEALED GEOTECHNICAL REPORT BY A PROFESSIONAL ENGINEER IS TO ACCOMPANY EVERY SUBMISSION FOR A SERVICE CONNECTION.

|  |   |                            |
|--|---|----------------------------|
| <br><b>Region of Waterloo</b> | <b>SERVICING UNDER<br/>ION TRACKS<br/>(SIDE RUNNING TRACKS)</b> |                            |
|  | DATE: JAN. 2018<br><br>SCALE: NTS                               | RMW<br>STANDARD<br>DRAWING |




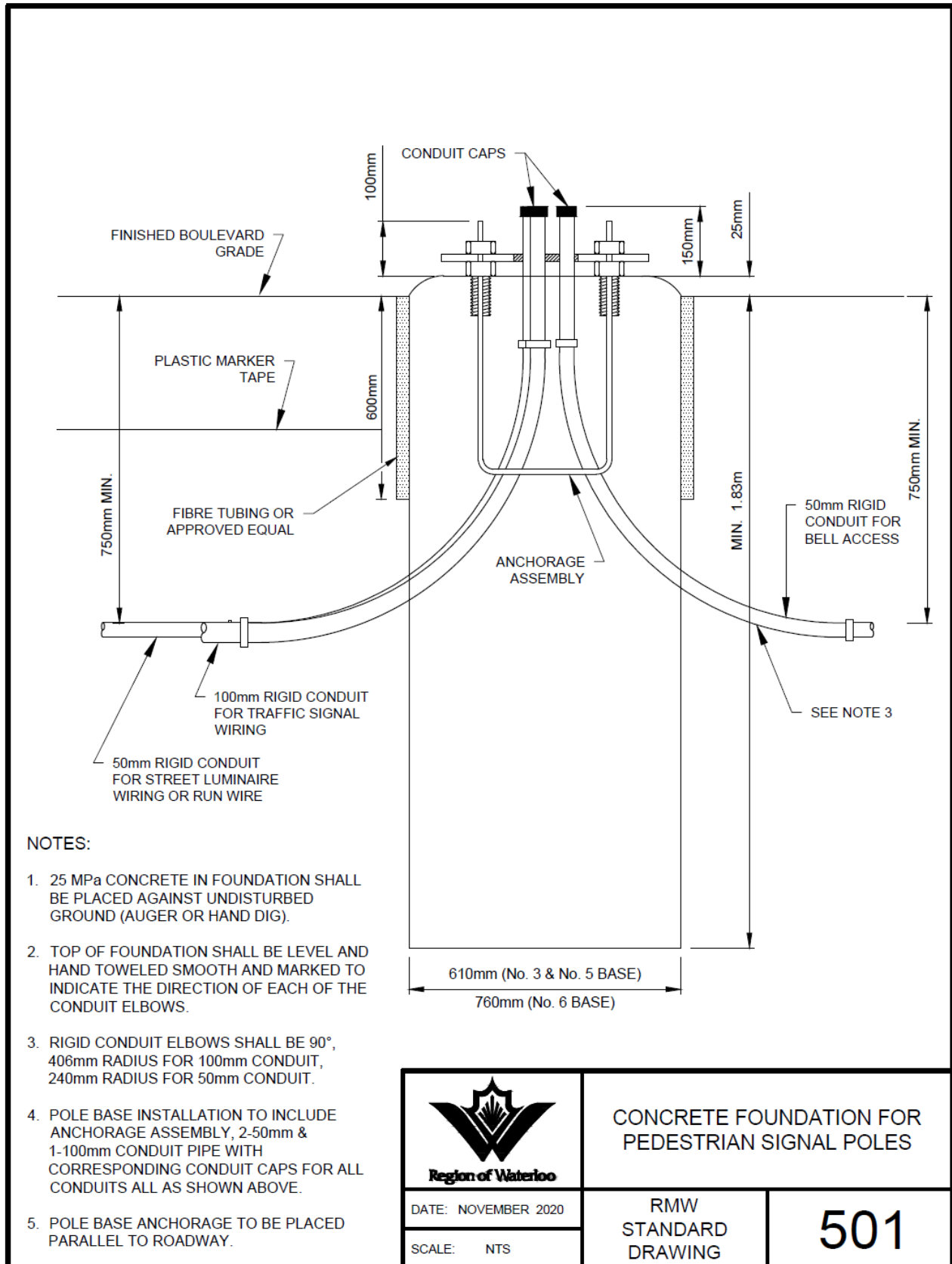
|   |   |                            |
|---|---|----------------------------|
| <br>Region of Waterloo | TYPICAL CROSS SECTION<br>SHOWING AREAS<br>OF CUT AND FILL |                            |
|   | DATE: JAN. 2021   | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  |   |                            |




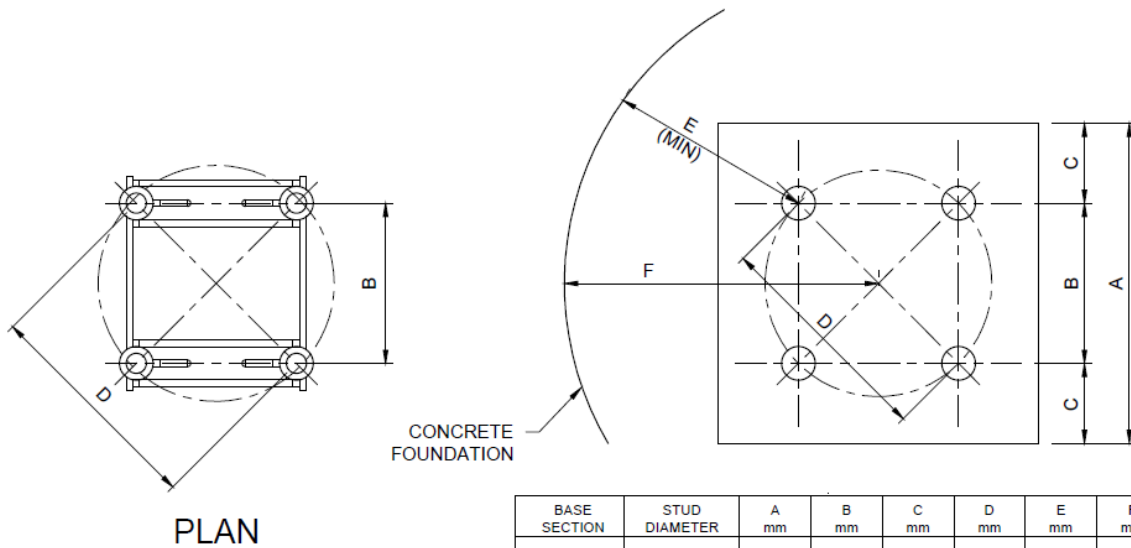
**NOTES:**

1. 25MPa CONCRETE IN FOUNDATION SHALL BE PLACED AGAINST UNDISTURBED GROUND (AUGER OR HAND DIG).
2. TOP OF FOUNDATION SHALL BE LEVEL AND HAND TROWELLED SMOOTH.
3. RIGID CONDUIT ELBOWS SHALL BE 90°, 330mm RADIUS.
4. POLE BASE INSTALLATION TO INCLUDE ANCHORAGE ASSEMBLY, 1-75mm CONDUIT PIPE & 75mm CAP COMPLETE ALL AS SHOWN ABOVE.

|  |   |     |
|--|---|-----|
| <br><b>Region of Waterloo</b> | <b>STANDARD CONCRETE<br/>FOUNDATION FOR PEDESTRIAN<br/>SIGNAL POLES</b> |     |
| DATE: NOVEMBER 2020  | RMW<br>STANDARD<br>DRAWING  | 500 |
| SCALE: NTS   |   |     |



|   |  |                            |
|---|--|----------------------------|
| <br>Region of Waterloo | CONCRETE FOUNDATION FOR<br>PEDESTRIAN SIGNAL POLES |                            |
|   | DATE: NOVEMBER 2020                                | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 501  |                            |

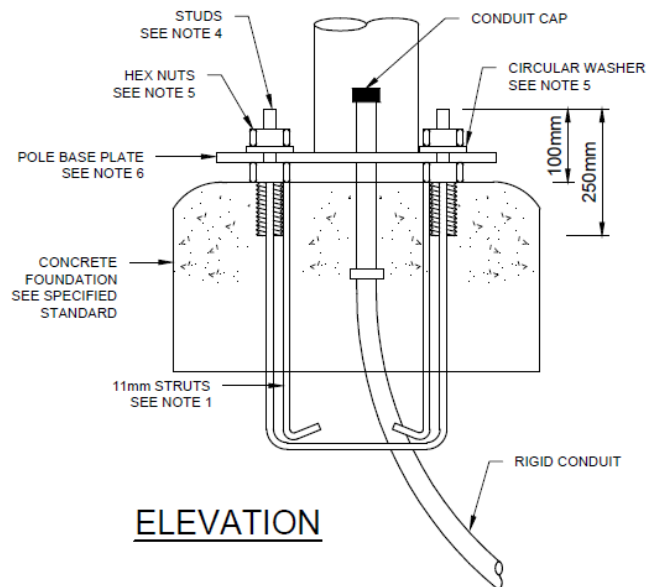



| BASE SECTION | STUD DIAMETER | A mm | B mm | C mm | D mm | E mm | F mm |
|--------------|---------------|------|------|------|------|------|------|
| 3            | 25mm          | 330  | 230  | 50   | 325  | 140  | 305  |
| 5            | 32mm          | 380  | 280  | 50   | 395  | 100  | 305  |
| 6            | 32mm          | 420  | 320  | 50   | 450  | 150  | 380  |

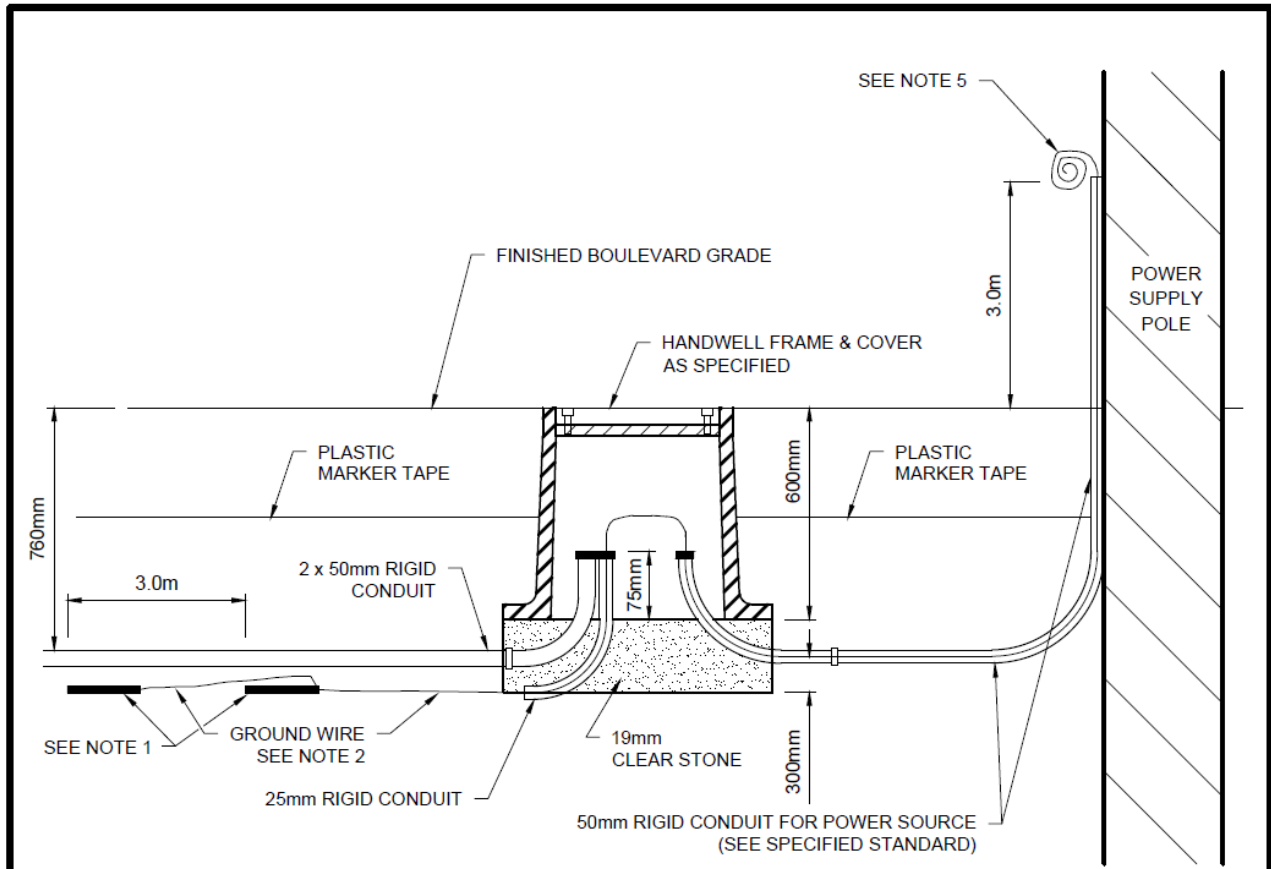
**TEMPLATE AND POSITIONING**

**NOTES:**

1. ANCHORAGE ASSEMBLY STRUTS AND COILS SHALL BE MADE OF SAE 10-20 STEEL AND SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CSA STANDARD G-164.
2. STUDS SHALL BE COATED WITH WHITE, NON-STAINING GREASE.
3. A SETTING TEMPLATE SHALL BE PROVIDED FOR ACCURATE POSITIONING OF THE ANCHOR WITHIN THE FORM. CENTRE OF ANCHORAGE ASSEMBLY SHALL COINCIDE WITH CENTRE OF CONCRETE FOUNDATION. TOLERANCES SHALL BE IN ACCORDANCE TO COLUMN 'E' NOTED ABOVE.
4. STUDS SHALL BE 250mm LONG, A.S.T.M. SPEC. A4140 STEEL A-193 GRADE B-7 FULLY THREADED WITH SQUARE HEAD.
5. STEEL HEX NUTS AND HARDENED STEEL WASHERS SHALL BE IN ACCORDANCE WITH A.S.T.M. SOEC.A325, AND SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CSA STANDARD G-164.
6. PLATE THICKNESS: 12mm FOR No. 3 BASE, 16mm FOR No. 5 BASE, 16mm FOR No. 6 BASE.




|  |  |            |
|--|--|------------|
| <br><b>Region of Waterloo</b> | <b>ANCHORAGE ASSEMBLY<br/>AND INSTALLATION</b> |            |
| DATE: JANUARY 2005   | <b>RMW<br/>STANDARD<br/>DRAWING</b>            | <b>502</b> |
| SCALE: NTS   |  |            |



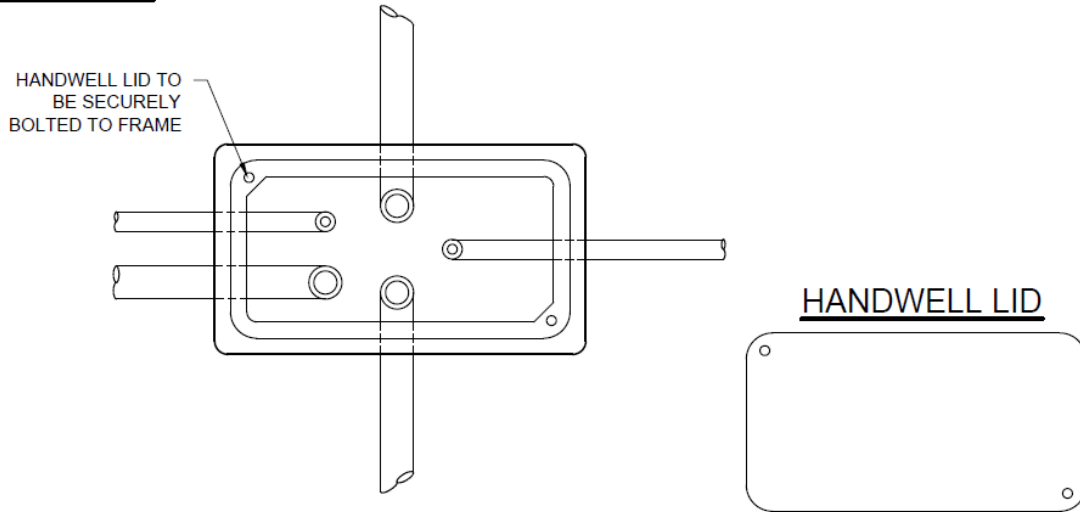
**ELEVATION**

**NOTES:**

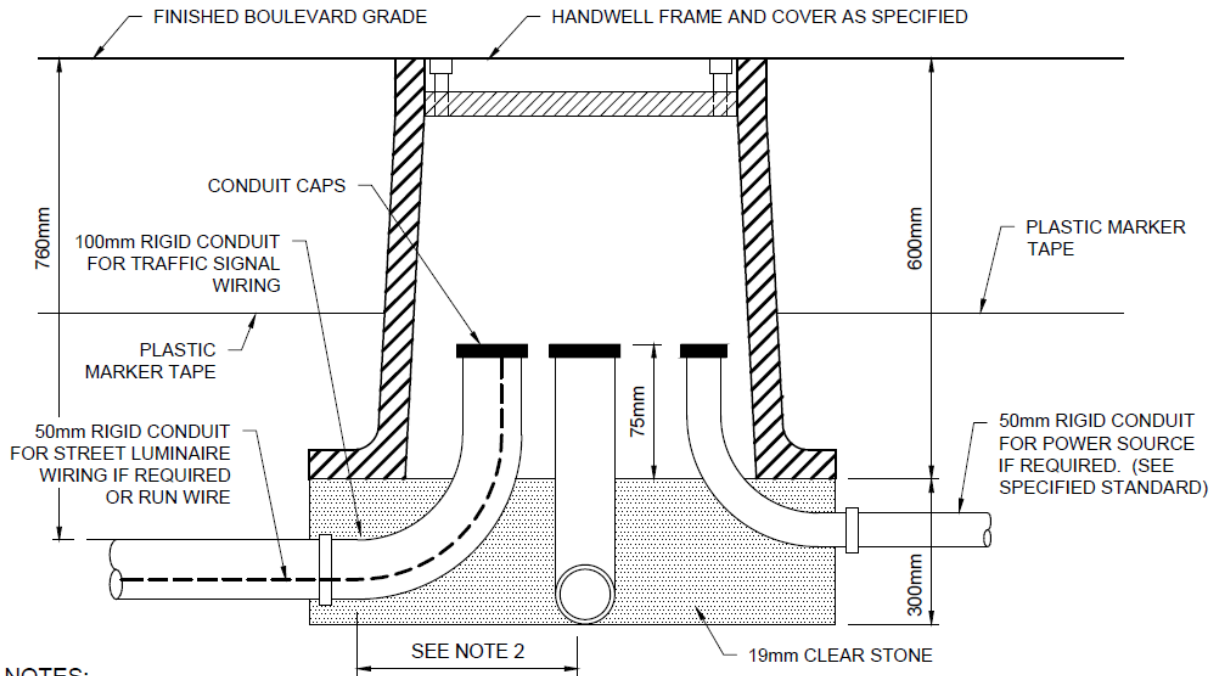
1. GROUND PLATES SHALL BE (250mm x 400mm x 6mm) HOT DIPPED GALVANIZED OR APPROVED EQUAL. (2 REQUIRED). SEPARATED BY 3.0m.
2. GROUND WIRE SHALL BE CONTINUOUS No. 6 GAUGE RWU 90 WIRE OR APPROVED EQUAL.
3. GROUNDING REQUIREMENTS ARE SUBJECT TO COMPLIANCE WITH, AND AMENDMENTS TO, THE ONTARIO HYDRO ELECTRIC SAFETY CODE.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
5. A MINIMUM OF 1.0m OF GROUND WIRE SHALL BE COILED AT THE TOP OF THE 50mm RIGID CONDUIT AT THE POWER SUPPLY POLE.

|  |  |                            |
|--|--|----------------------------|
| <br><b>Region of Waterloo</b> | GROUNDING REQUIREMENTS FOR<br>TRAFFIC SIGNAL INSTALLATIONS |                            |
|  | DATE: NOVEMBER 2020  | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS   | <b>503</b>   |                            |

PLAN VIEW




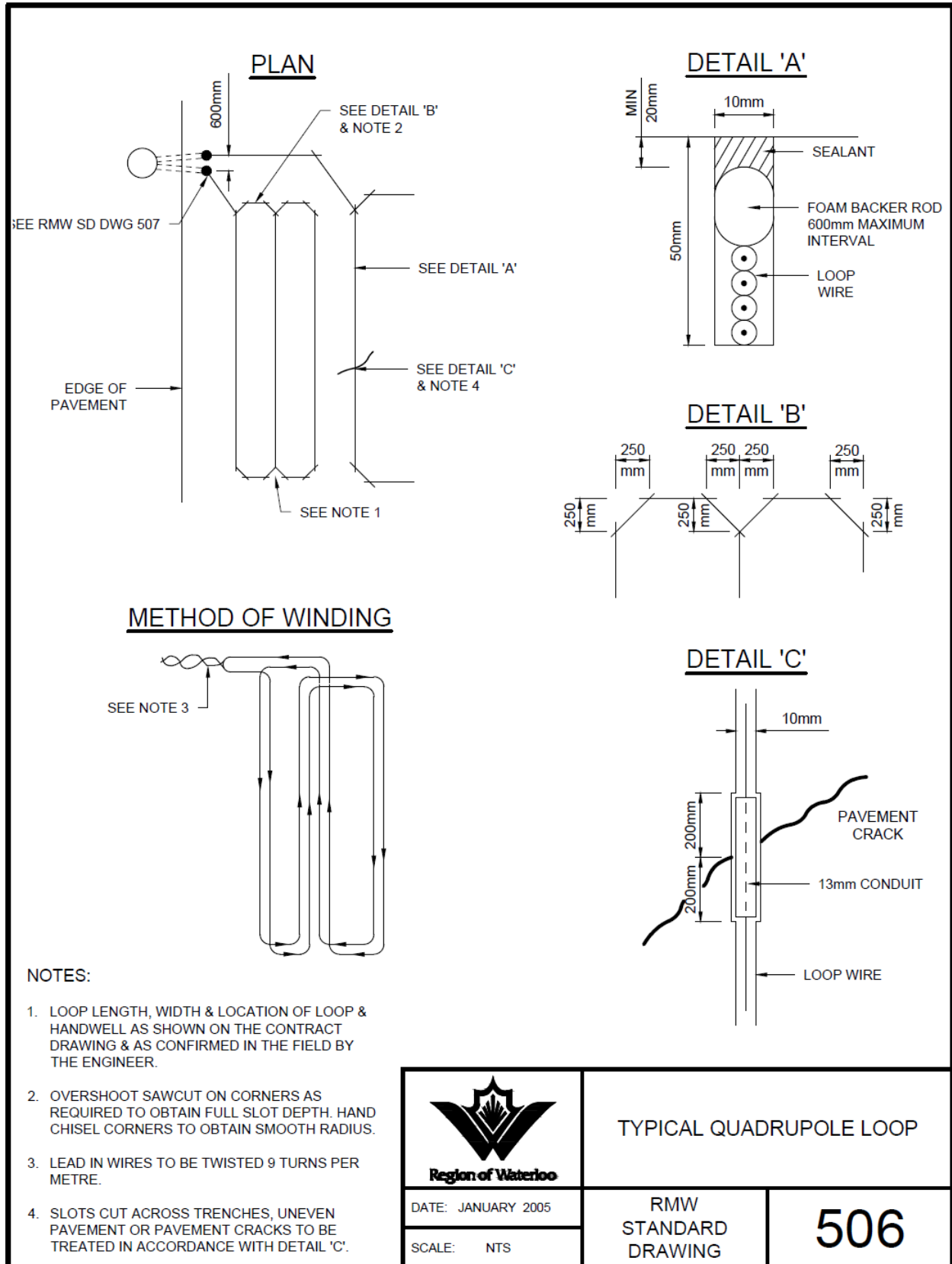
SECTION




NOTES:

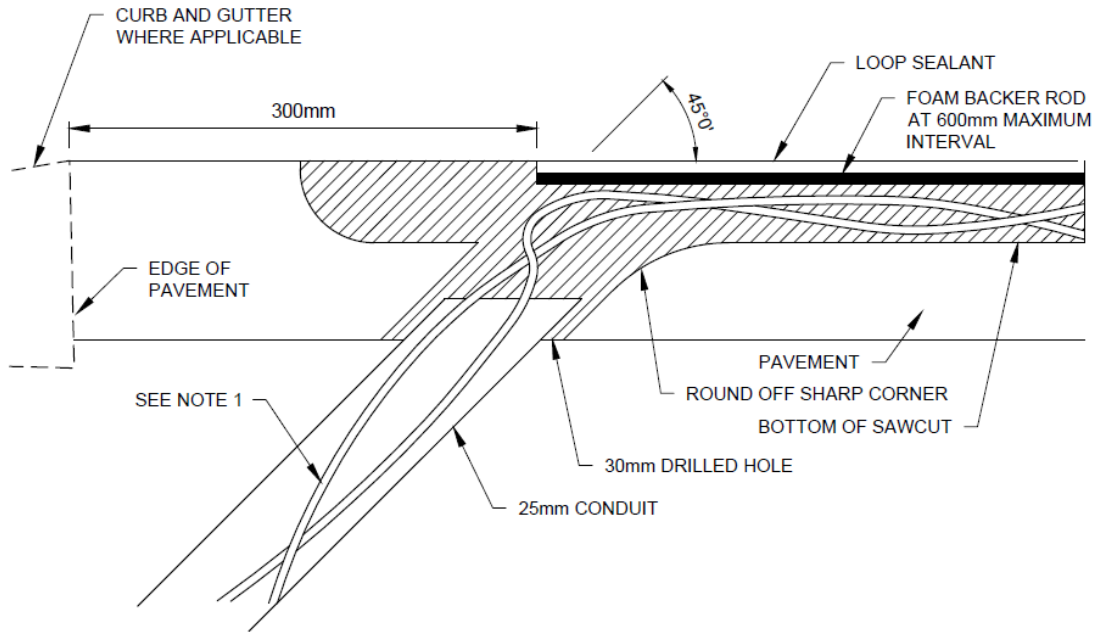
1. RIGID CONDUIT ELBOWS SHALL BE 90°, 406mm RADIUS FOR 100mm CONDUIT, 240mm RADIUS FOR 50mm CONDUIT, 146mm RADIUS FOR 25mm CONDUIT.
2. HANDWELL INSTALLATION TO INCLUDE SPECIFIED HANDWELL AND FRAME AND COVER, CONDUIT PIPE SHOWN ON CONTRACT DRAWINGS AND CONDUIT CAPS AS REQUIRED, COMPLETE ALL AS SHOWN ABOVE.

|  |                     |                            |
|--|---------------------|----------------------------|
| <br><b>Region of Waterloo</b> | HANDWELL            |                            |
|  | DATE: FEBRUARY 2006 | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS   | 504                 |                            |

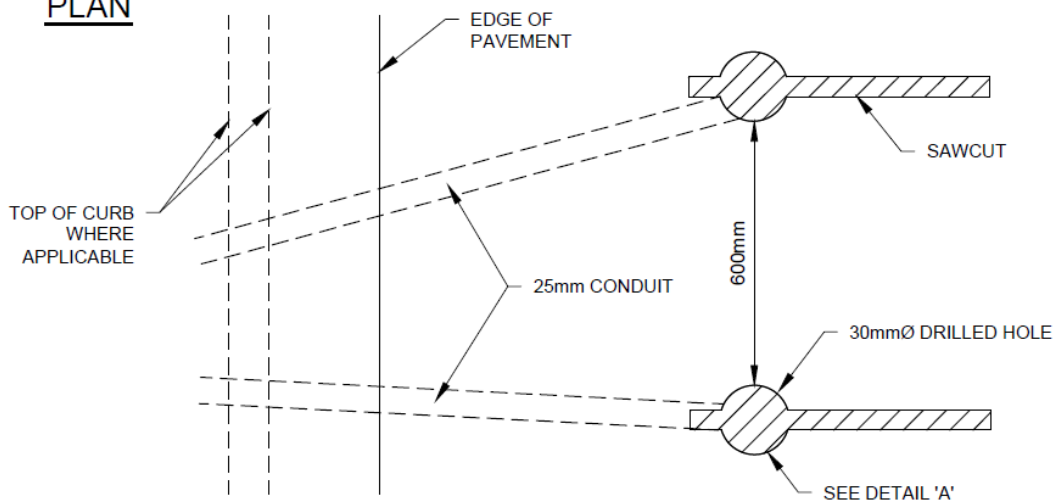


|   |                         |                            |
|---|-------------------------|----------------------------|
| <br>Region of Waterloo | TYPICAL QUADRUPOLE LOOP |                            |
|   | DATE: JANUARY 2005      | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 506                     |                            |

**DETAIL 'A'**




**PLAN**

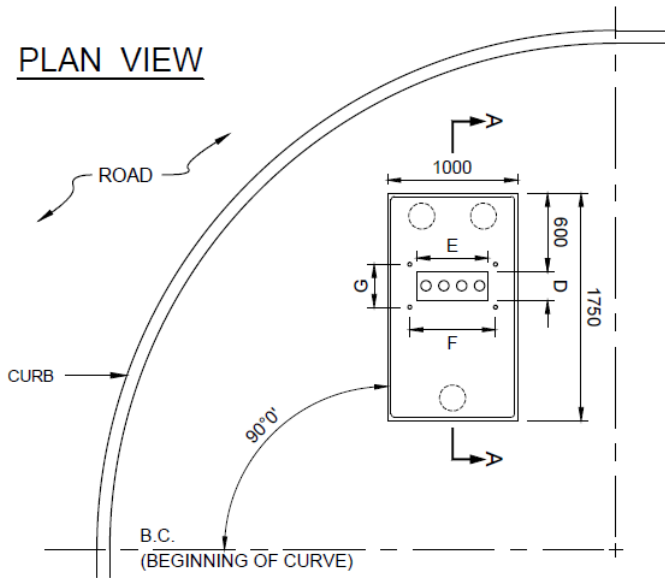


**NOTES:**

1. LEAD IN WIRES TO BE TWISTED 9 TURNS PER METRE.
2. CONDUIT TO BE PLACED MINIMUM 25mm BELOW SAWCUT OR 75mm BELOW ASPHALT SURFACE.
3. ACCESS PIPES(S) ARE TO BE MARKED WITH SAWCUT ON CURB.

|  |   |                            |
|--|---|----------------------------|
| <br><b>Region of Waterloo</b> | <b>LOOP LEAD IN<br/>INSTALLATION DETAIL</b> |                            |
|  | DATE: JANUARY 2005<br>SCALE: NTS            | RMW<br>STANDARD<br>DRAWING |

**PLAN VIEW**

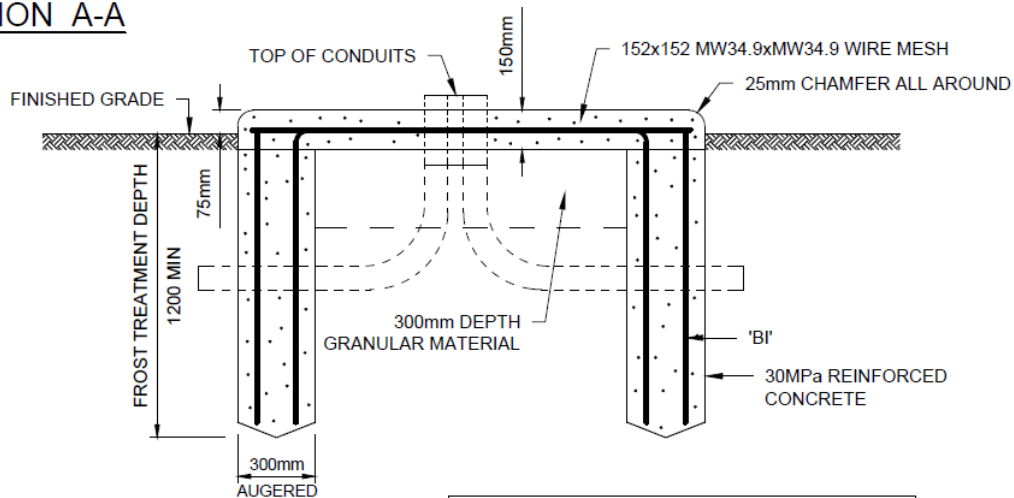


**NOTES:**

1. ORIENT CONTROLLER PAD AT A 90° ANGLE FROM 'A' BASE LINE PROJECTED FROM BEGINNING OF CURVE.
2. LOCATION OF CONTROLLER PAD AND NUMBER OF DUCTS ENTERING PAD SHALL BE AS PER TRAFFIC CONTROL DRAWING.
3. TEMPLATE TO SET ACCURACY OF 'D' AND 'E' IN PLAN VIEW, SUPPLIED BY TRAFFIC SIGNAL OPERATIONS STAFF.

- D = 225 } CONDUIT OPENING
- E = 550 } CONDUIT OPENING
- F = 660 } USE TEMPLATE
- G = 330 } USE TEMPLATE

**SECTION A-A**



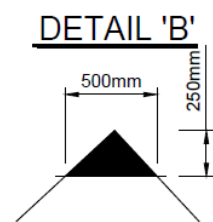
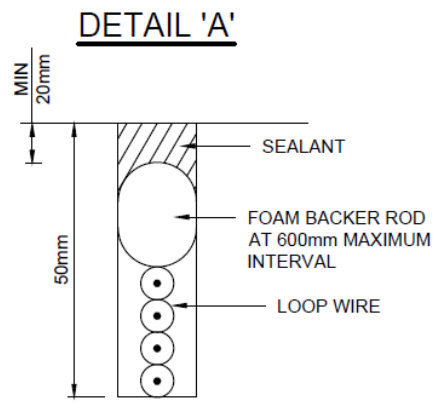
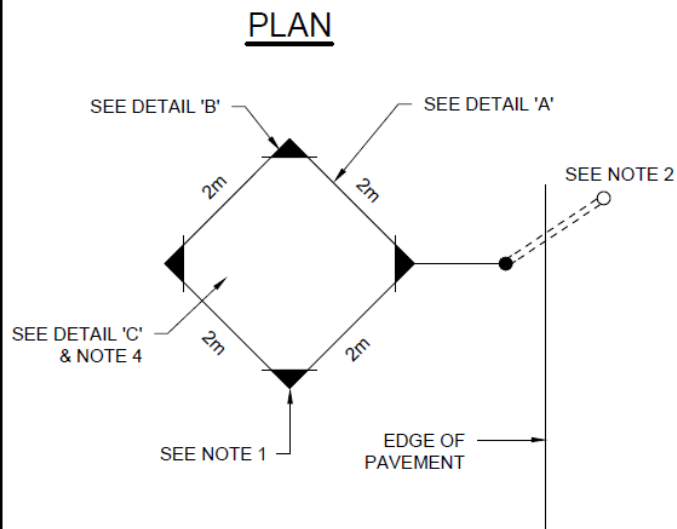
| STEEL TABLE * |       |      |          |
|---------------|-------|------|----------|
| MARK          | SHAPE | SIZE | No REQ'D |
| 'BI'          |       | 20   | 9        |

\* REINFORCING STEEL TO BE GRADE 400

**NOTES:**

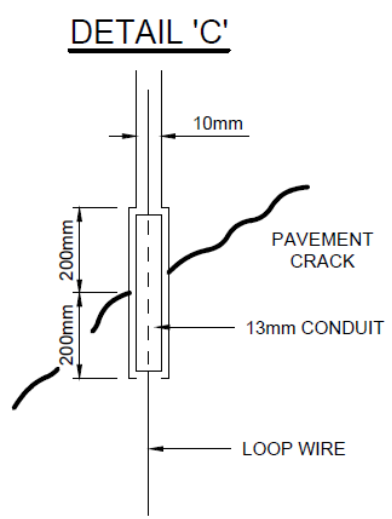
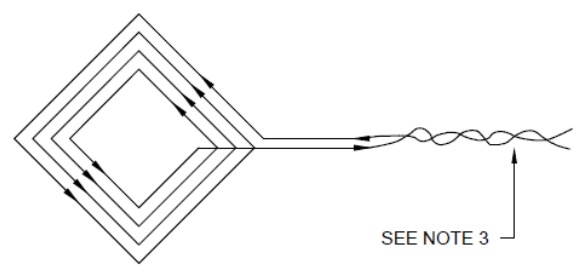
4. THIS STANDARD TO READ IN CONJUNCTION WITH OPSD-2514.01. MAINTAIN 75mm COVER OVER REINFORCING STEEL.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.
6. CONDUIT IN CONCRETE PAD TO BE SEPARATED BY MIN. 25mm.

|                           |                         |                            |
|---------------------------|-------------------------|----------------------------|
| <p>Region of Waterloo</p> | CONCRETE CONTROLLER PAD |                            |
|                           | DATE: NOVEMBER 2020     | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS                | 509                     |                            |




HAND CHISEL CORNERS  
TO DIMENSIONS SHOWN

**METHOD OF WINDING**



- NOTES:**
1. LOOP LENGTH, WIDTH & LOCATION OF LOOP & HANDWELL AS SHOWN ON THE CONTRACT DRAWING & AS CONFIRMED IN THE FIELD BY THE CONTRACT ADMINISTRATOR.
  2. OVERSHOOT SAWCUT ON CORNERS AS REQUIRED TO OBTAIN FULL SLOT DEPTH. HAND CHISEL CORNERS TO OBTAIN SMOOTH RADIUS.
  3. LEAD IN WIRES TO BE TWISTED 9 TURNS PER METRE.
  4. SLOTS CUT ACROSS TRENCHES, UNEVEN PAVEMENT OR PAVEMENT CRACKS TO BE TREATED IN ACCORDANCE WITH DETAIL 'C'.

|   |                      |                            |
|---|----------------------|----------------------------|
| <br>Region of Waterloo | TYPICAL DIAMOND LOOP |                            |
|   | DATE: JANUARY 2005   | RMW<br>STANDARD<br>DRAWING |
| SCALE: NTS  | 510                  |                            |

