Oxford County Design Guidelines | 4 | Transportation

# TABLE OF CONTENTS

## LIST OF FIGURES

# 4. TRANSPORTATION

## 4.1 GENERAL

Infrastructure projects including development projects shall conform to the applicable standards and guidelines as stipulated in each section below for national, provincial and County standards. All construction specifications and standard drawings shall be in accordance with the applicable Municipal Ontario Standard Specification and any Ontario Provincial Standard Drawing or as replaced by the specified **County Standard Drawings**, local lower tier municipal specifications or standard drawings or as directed by the **County of Oxford Public Works**.

## 4.2 TRAFFIC AND TRANSPORTATION PLANNING AND ENGINEERING

### 4.2.1 Oxford County Official Plan

Refer to the most recent version of the County's Official Plan to obtain and review the guiding principles for infrastructure improvements to the County Road system including connectivity, network improvements and road widenings, road classifications, active transportation infrastructure including pedestrian and cycling facilities, public transit and railway lines.

### 4.2.2 Transportation Master Plan

Refer to the most recent version of the County's Transportation Master Plan identifying specific transportation needs, road network improvements, intersection improvements, grade separations, and specific road projects in accordance with Phase 1 and 2 of the Municipal Class Environmental Assessment process.

### 4.2.3 Cycling Master Plan

Refer to the most recent version of the County's Cycling Master Plan for the location and type of cycling facility identified.

### 4.2.4 Traffic Impact Study

Refer to the most recent version of the Oxford County Traffic Impact Study Guidelines for requirements around Traffic Impact Studies, and when/where they are required.

## 4.3 ROAD GEOMETRIC DESIGN STANDARDS

### 4.3.1 General Requirements

Geometric road design shall generally conform to the current Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads.

### 4.3.2 Roads Design

#### 4.3.2.1 Design Speed

Design speed shall be based on the following chart:

Table 4-1 Road Design Speed

| Posted Speed (km/h) | Design Speed (km/h) |
|---|---|
| 50 and below | 60 |
| 60 | 70 |
| 70 | 80 |
| 80 | 90 |

#### 4.3.2.2 Centreline Radii

This chart is a summary of typical design speeds versus standard super elevation grades taken from Table 3.2.4 of the TAC Geometric Design Guide for Canadian Roads

Table 4-2 Typical Design Speeds Vs. Super Elevation Grades

| Design Speed (km/h) | Minimum Radius (m) | | | |
|---|---|---|---|---|
| | Normal Crown | Reverse Crown 2% | Superelevation 4% | Superelevation 6% |
| 40 | 660 | 65 | 45 | 40 |
| 50 | 950 | 115 | 80 | 75 |
| 60 | 1290 | 185 | 130 | 120 |
| 70 | 1680 | 290 | 200 | 190 |
| 80 | 2130 | 400 | 280 | 250 |
| 90 | 2620 | 530 | 380 | 340 |

1. *Source: Geometric Design Guide for Canadian Roads – Tables 3.2.4 and 3.2.8.*

#### 4.3.2.3 Radii for Curb & Gutter

All curb and gutter radii must allow for adequate turning in accordance with a WB-20 truck template. Compound curves to be used when appropriate, and at the discretion of the County Engineer.

#### 4.3.2.4 Lane Widths

For multi-lane roads or channelized intersections, minimum lane widths shall be based on the following chart:

Table 4-3 Minimum Lane Widths

| Description | Width (m) |
|---|---|
| Right Turn Lane | 3.0 |
| Left Turn Lane | 3.0 |
| Through Lane* | 3.35 |
| Curb Lane (single lane per direction) | 3.5 |
| 2-way Left Turn Lane | 4.0 |

*For Rural Roads a paved 1.15m wide and 1.5m wide gravel shoulder is required adjacent to the travel lane.

NOTE: In situations with higher design speeds or higher road classifications, wider lane widths may be required.

#### 4.3.2.5 Right-of-Way, Pavement and Boulevard Widths

Pavement widths, right-of-way widths and boulevard widths shall be based on the following chart (edge of pavement to edge of pavement):

Table 4-4 R.O.W., Pavement, and Boulevard Widths

| Usage | R.O.W. (m) | Pavement (m) | Boulevard (m) Both Sides |
|---|---|---|---|
| County Road - Rural | 30 | Varies | Varies |
| County Road - Urban | 26 | Varies | Varies |

Refer to **Figures 4.04, 4.05, 4.06** and **4.07** for the various Oxford County Typical Road Sections. For Reconstruction projects, cross-sections may be modified to address constraint areas. To be determined at detailed design and verified with **County of Oxford Public Works**.

### 4.3.3 Vertical Alignment

Refer to the most recent version of the TAC Geometric Design Guide for Canadian Roads Chapters 2 (Design Controls, Classification and Consistency) and 3 (Alignment and Lane Configuration).

#### 4.3.3.1 Vertical Curves

When the numerical difference between two road grades exceeds 1%, a vertical curve must be incorporated using the following criteria:

- Vertical curve length shall be numerically greater than or equal to the design speed
- When matching new vertical curves into existing ones, match the K values to provide continuity.

**Table 4-5 Vertical Curve K Values**

| Design Speed (km/h) | 60 | 70 | 80 | 90 |
|---|---|---|---|---|
| Crest Vertical Curve Minimum K[1] | 11 | 17 | 26 | 39 |
| Sag Vertical Curve Minimum K[2] | 18 | 23 | 30 | 38 |

Source: Geometric Design Guide for Canadian Roads, Tables 3.3.2 and 3.3.4.

For more information on design speed, refer to **Section 4.3.2.1 of this manual**.

#### 4.3.3.2 Maximum and Minimum Road Grades

a) The maximum grades of roads shall be derived from the following table:

**Table 4-6 Maximum and Minimum Road Grades**

| Road Type | Minimum Grade (%) | Maximum Grade (%) |
|---|---|---|
| County Road - Urban | 0.5 | 6 |
| County Road - Rural | 0.5 | 6 |

b) Flat see-saw profiles (identical high and low points) will not be allowed in road profile designs. See-saw profiles must slope in a cascade that allows major storm flows (Overland Flows) to drain along the road or to an acceptable Overland Flow Outlet.

c) In reconstruction projects within existing developed areas of the County, where the existing profile and driveway conditions cannot accommodate a cascading see-saw profile, the proposed profile must provide for adequate road drainage and be acceptable to **County of Oxford Public Works**.

#### 4.3.3.3 Drainage Issues

a) Overland Flow Routes

i. The design of all road profiles for New Development Projects are required to accommodate and direct major overland flow routes (OLFR) to an acceptable outlet. This design element is to be considered at the earliest stages of design, coordinating with the **County's Development Engineering Staff** for information, assistance, review and acceptance, all to the satisfaction of the **County of Oxford Public Works**.

ii. The design of all major road profiles for Capital Works Projects (including Municipal Class Environmental Assessments) are required to consider major overland flow routes (OLFR) and where possible, accommodate and direct the OLFs to an acceptable outlet. This design element is to be considered at the earliest stages of design, coordinating with the **County of Oxford Public Works** for information, assistance, review and acceptance, all to the satisfaction of the **County**.

iii. In reconstruction projects within existing developed areas of the County, where the existing profile and driveway conditions cannot accommodate an outlet to a formalized OLF Route, the proposed profile must provide for adequate road drainage and be acceptable to **County of Oxford Public Works**.

iv. In order of preference, OLFR should be directed along:

a. Urban Thoroughfare;
b. Civic Boulevard;
c. Main Street;
d. Area Municipality Connector;
e. Area Municipality Street;
f. Parks, open spaces;
g. Dedicated municipal easement

b) Culverts Under Roads

i. New culverts or culverts that are being redesigned, replaced or impacted by road works/road widening must be designed to meet the hydraulic requirements established by MTO for inlet or outlet control culverts.

ii. County practice requires that culverts must convey the minimum storm events as specified below:

**Table 4-7 Culvert Sizing by Storm Event**

| Classification of Road | Minimum Storm Event To Be Conveyed By Culvert |
|---|---|
| Urban and Rural | 50-year storm event |
| Bridges | 100-year storm event or Regional storm event (250-year), subject to the local Conservation Authority conditions |

### 4.3.4 Horizontal Alignment

Refer to the most recent version of the TAC Geometric Design Guide for Canadian Roads Chapters 2 (Design Controls, Classification and Consistency) and 3 (Alignment and Lane Configuration).

#### 4.3.4.1 Access and Sight Distance

As determined from Figure 9.10.1 of the TAC Geometric Design Guide for Canadian Roads, the following stopping sight distances shall be provided at intersections and accesses:

a) On new intersections and major accesses such as large commercial or industrial development, the desirable decision sight distance shall be provided.
b) On all other new accesses, the minimum decision sight distance shall be provided.
c) For existing accesses and single-family residences, the minimum stopping sight distance shall be provided.

This figure assumes a line of sight from the driver of a vehicle entering the intersection (1.05m above the pavement surface) to the headlights of an approaching vehicle (at a height of 0.38m). Design speeds for the intersecting roadways are listed in **Section 4.3.2.1** of this manual.

#### 4.3.4.2 Transition Between Road Types

Transition from two lanes to four should be made using the taper dimensions noted in the table in **Section 4.3.2.1** in relation to design speed. The transition from four lanes to two lanes should be clearly signed with a Wa-23R and Wa-23Rtas per the Ontario Traffic Manual – Book 6. Transition from hard surface to loose surface should be signed with a Wa-25 and a Wa-25T.

### 4.3.5 Rural Asphalt Lift Edge Taper

On rural roads, asphalt in all lifts shall be laid so that the edge of pavement is inclined at a 45-degree angle. Base lifts of asphalt shall be laid wider than surface lifts, so that a consistent slope is maintained.

## 4.4 INTERSECTIONS

### 4.4.1 Road Safety Audit

Consultant/Developer must complete a Road Safety Audit, as per the Oxford County Road Safety Audit Guidelines, when considering potential impacts to an intersection or roadway that is within the jurisdiction of the County.

### 4.4.2 Road/Road Approach Grades

Refer to TAC Geometric Design Guide for Canadian Roads – Figure 2.3.2.2.

### 4.4.3 Road Layouts

When two (2) streets connect at an intersection they shall connect at 90 degrees with 10 metre straight sections measured back from the street line.

### 4.4.4 Traffic Calming

Refer to the most recent version of the TAC Canadian Guide to Traffic Calming.

Refer to **Figure 4.03** for the typical Milled Rumble Strips layout approaching a stop-controlled intersection.

### 4.4.5 Roundabouts

A roundabout is a raised island located in the centre of an intersection, which requires vehicles to travel through the intersection in a counterclockwise direction around the island. Where a roundabout is being considered, the Consultant shall complete the County's **Roundabout Feasibility Initial Screening Tool** (2024 Oxford County Transportation Master Plan – Appendix G) to support the design.

All approaches to the circle shall be protected by a Yield sign, so that vehicles already traveling on the roundabout have right-of-way over vehicles entering it. A One-Way sign Rb-21, indicating a counterclockwise direction of travel, shall be installed on the centre island opposite each approach.

For maintenance purposes, sanitary maintenance holes are not permitted to be located within the raised centre island of the roundabout. The sanitary maintenance hole is to be located within the apron of the island. Storm maintenance holes may be located within the centre island of the roundabout, provided the proposed landscaping does not hinder access to the maintenance hole.

Location of mainline water valves shall be coordinated with Oxford County Public Works to determine the most suitable location, on a project-by-project basis.

### 4.4.6 Traffic Control Signal Warrants

Traffic signals shall be considered warranted if:

a) Intersection conditions meet or exceed the warrant requirements of Section 4.3 of the Ontario Traffic Manual – Book 12

### 4.4.7 Intersection Pedestrian Signal (I.P.S.) Warrants

Intersection pedestrian signals shall be considered warranted if:

a) Conditions meet or exceed the warrant requirements of Section 4.8 of the Ontario Traffic Control Manual – Book 12

All aspects of the pedestrian signal design, including crosswalks and pedestrian access

equipment, shall be AODA compliant.

### 4.4.8 Materials

Materials used for traffic signals shall be in conformance with the requirements of the appropriate subsection of this Section.

### 4.4.9 Right-Turn Lanes

Right-turn lanes should be designed according to the following table:

**Table 4-8 Right-Turn Lanes Design Standards**

| Design Speed (km/h) | Taper Ratio Design Domain | Lane Length Design Domain (m) |
|---|---|---|
| 50 | 11:1 – 17:1 | 35 – 75 |
| 60 | 14:1 – 17:1 | 40 – 90 |
| 70 | 17:1 – 20:1 | 50 – 110 |
| 80 | 17:1 – 24:1 | 60 – 130 |

The taper ratio is the ratio of the taper length to the lane width. The design domain is the range of the deceleration length to the deceleration length plus the storage length. The appropriate storage length can be calculated using the following equation where S is the storage length (m), N is the design volume of turning cars (v/h), and L is the length occupied by each vehicle (m).

$$S = \frac{NL}{30}$$

Further details on the design of right-turn lanes can be found in Chapter 9.14 of the TAC Geometric Design Guide for Canadian Roads.

Right-turn channelizations with a yield design can either use a 60m taper or an auxiliary lane designed with the same parameters as a normal right-turn lane. A sufficient turning radius should be used to include room for a pedestrian island. Further details on right-turn channelizations can be found in Chapter 9.15 of the TAC Geometric Design Guide for Canadian Roads.

### 4.4.10 Left Turn Lanes

Left-turn lanes should be designed according to the following table:

**Table 4-9 Left-Turn Lanes Design Standards**

| Design Speed (km/h) | Design Domain for Taper Ratio |
|---|---|
| 50 | 8:1 – 30:1 |
| 60 | 15:1 – 36:1 |

| | |
|---|---|
| 70 | 15:1 – 42:1 |
| 80 | 15:1 – 48:1 |

The lower end of the design domain is appropriate for more constrained urban areas while the upper end is appropriate for less constrained rural areas. The storage length can be calculated using the same equation that is applicable for right-turn lanes. Details on the appropriate deceleration length can be found in Chapter 2 of the TAC Geometric Design Guide for Canadian Roads. Further details on left-turn lanes can be found in Chapter 9.17 of the TAC Geometric Design Guide for Canadian Roads.

### 4.4.11 Intersection Control Drawings

Any alterations to an existing Oxford County intersection, or the creation of a new intersection within Oxford County, shall require the Designer to create a legal PHM-125 (intersection control) drawing for the intersection and submit to County of Oxford Public Works department for record keeping.

## 4.5 PAVEMENT STRUCTURES

### 4.5.1 Geotechnical Report

A geotechnical report shall be completed unless otherwise noted by the County's Project Manager. The report shall include borehole data, groundwater level, and recommendations for pavement structure and need for a hydrogeological study to potentially dewater during construction. The geotechnical engineer licensed as a Professional Engineer (P.Eng.) with the Professional Engineer's of Ontario shall prepare and seal the report including recommendations for pavement structure including depth of granular base material, asphaltic concrete pavement and tack coat recommendations. Where retaining walls are identified, the geotechnical report shall include discussions and recommendations for the design and construction of a retaining wall. Sufficient borehole locations and depth shall be completed to support the retaining wall design recommendations. For development projects, completing a geotechnical report is the responsibility of the developer. For Capital Work projects, it is the responsibility of the **County of Oxford Public Works** department.

### 4.5.2 Base Component Depths

Municipal Projects: The pavement structure of all roads being constructed or repaired under a Municipal Project, and in New Subdivisions, shall be based on the following table, at a minimum:

**Table 4-10 Base Component Depths for County Roads**

| Subgrade Type | Component | County Road (Min. Depth in mm) |
|---|---|---|
| | Asphalt | 150[a] |
| | Gran. A | 150 |

| | | |
|---|---|---|
| | Gran. B | 450[b] |
| | Equivalent Granular Thickness | 711.5 |

a) 2 lifts x 50mm HL-8 plus 1 lift x 50mm HL-4. Thicker asphalt depth should be considered for urban areas.
b) 450mm of Granular B is the minimum standard that is required on all County Roads. Granular B thickness may be increased where warranted based on the Geotechnical Report recommendation and Pavement Design Analysis

If the geotechnical investigation determines the native material is stronger & free draining, a reduction in the Granular B thickness could be considered, at the discretion of **County of Oxford Public Works** department.

**Table 4-11 Equivalent Granular Thickness Factors**

| Component | Factor |
|---|---|
| Asphalt (New or Recycled) | 2.00 |
| Granular A | 1.00 |
| Granular B | 0.67 |

- Top-coat asphalt shall be placed over existing or freshly laid hot mix asphalt, cold in-place recycled, or milled asphalt, and shall have a minimum lift thickness of 50mm.
- Granular A shall be placed at a minimum thickness of 150mm.
- A tack coat shall be applied on all milled surfaces and between each asphalt lift.

### 4.5.3 Granular Base

County preference is given for granular base using full-depth Granular “A” to minimize excavation depth and minimize conflicts with existing shallow utilities. However, the Oxford County Engineer, and/or geotechnical report, may identify the need for using both granular ‘B’ and granular ‘A’ to address specific road structure needs based on the underlying soil conditions. Refer to the current version the Ontario Provincial Standards and Specifications OPSS.MUNI 206 Grading, OPSS.MUNI 1001 Aggregates - General and OPSS.MUNI 1010 Aggregates – Base, Subbase, Select Subgrade, and Backfill Material.

### 4.5.4 Asphaltic Concrete Pavement

**Table 4-12 Asphalt Selection by Road Classification**

| Classification of Road | PGAC | Binder Asphalt | Surface Asphalt |
|---|---|---|---|
| Rural County Road | 58-28 | HL 8 | HL 4 |
| Urban County Road | 58-28 | HL 8 | HL 4 |

County requires the use of a Material Transfer Vehicle (Shuttle Buggy) for base, binder and surface courses of asphalt on all rural and urban roads.

Refer to the current version of the Ontario Provincial Standards and Specifications OPSS.MUNI 310 Hot Mix Asphalt and OPSS.MUNI 311 Asphalt Sidewalk, Driveway, Boulevard, and Sidewalk Resurfacing. Tack coating of the granular base and between lifts of hot mix asphalt shall be included as stipulated in OPSS.MUNI 310 as recommended by the geotechnical report or required by the **County of Oxford Public Works**.

Refer to the current version of the Ontario Provincial Standards and Specifications OPSS.MUNI 331 Full-Depth Reclamation with Expanded Asphalt Stabilization and OPSS.MUNI 333 Cold In-Place Recycled (CIR) Mix and OPSS.MUNI 335 Cold In-Place Recycled (CIR) Expanded Asphalt Mix.

Surface course asphalt (HL-4) shall be virgin (no recycled products or recycled/reclaimed asphalt pavement [RAP] shall be allowed in hot mix asphalt HL-4) and shall be mixed with 5.3% to 5.5% of 58-28 Performance Graded Asphalt Cement (PGAC).

Binder/Base course asphalt (HL-8) may contain RAP as per OPSS.MUNI 1150 (up to maximum of 15%) and shall be mixed with 5.0% to 5.2% of 58-28 PGAC

Driveways and levelling/padding courses (HL-3F and HL-3 respectively) may contain RAP as per OPSS.MUNI 1150 (up to a maximum of 15%) and shall be mixed with 5.3% to 5.5% of 58-28 PGAC.

In cases where high rutting issues and concerns are present or anticipated, different pavement structure may be required by the County Public Works Department. Designer to consult with the County Public Works Department to determine if improved/premium asphalt mix, higher/lower PGAC grade, increased pavement thickness, and/or addition of geogrid on granular base is required.

## 4.6 PAVEMENT MARKINGS

Permanent pavement markings shall be designed in accordance with the Ontario Traffic Manual – Book 11. Proposed designs shall be submitted to the **County of Oxford Transportation Division** for approval, prior to application.

### 4.6.1 Materials

For rural roads, traffic paint shall be used.

For urban roads, Field Reacted Polymeric material shall be used.

For high traffic rural intersections, Field Reacted Polymeric material shall be used within the intersection and 30m of each approach. **County of Oxford Public Works** to determine if a rural intersection is a high traffic rural intersection or not.

### 4.6.2 Pavement Marking Removals

Any Pavement marking removals that are required shall be specified to be removed by abrasive blasting equipment (with materials in accordance with MTO DSM) or grinding. Determination of which method shall be used shall consider project-specific variables mentioned with this section. The Design Engineer shall coordinate with Oxford County Public Works for final decision between the two methods.

**Table 4-13 Comparison of Pavement Marking Removal Methods**

| Criteria | Grinding | Abrasive Blasting |
|---|---|---|
| Pavement Damage | High | Low |
| Removal Effectiveness | Excellent (All Types) | Best for Thing Markings |
| Ghosting | Moderate – High | Low |
| Cost | Lower | Higher |
| Speed | Fast | Slower |
| Urban / Residential Suitability | Fair | Good |
| Long-Term Pavement Impact | Negative | Minimal |

Grinding shall be considered when:

- Removing thick thermoplastic or MMA pavement markings;
- Speed and cost are primary concerns; and/or
- Pavement condition is already poor or due for resurfacing.

Abrasive Blasting shall be considered when:

- Preserving pavement condition is critical;
- Working in urban or residential areas;
- Removing paint or thin epoxy markings; and/or
- Aesthetics and long-term performance matter.

## 4.7 CONCRETE FLATWORK

Refer to the current version of the Ontario Provincial Standards OPSS.MUNI 351 Concrete Sidewalk.

### 4.7.1 Tactile Plates

Tactile plates at intersection radii should be custom made to the correct radius, arc and chord for the approaches. Tactile plates should be installed at all pedestrian crossings as per the A.O.D.A.

## 4.8 CURB AND GUTTER

Refer to the current version of the Ontario Provincial Standards OPSS.MUNI 353 Concrete Curb and Gutter Systems.

a) Types and Applications

i. For all road classifications, Concrete Barrier Curb with Standard Gutter as per OPSD 600.04 shall be used.

b) Transition/Termination

i. A transition of 3.0m is required between curb types. Curb transitions must occur on the road with the lower classification, minimum 1.0m away from the end of the radius.
ii. Curb termination shall be as per OPSD 608.01

c) New Access

i. Any new accesses to existing roads are required to attain approval from the **Oxford County Transportation Division** as per the Oxford County Entrance Guidelines and By-Law 5222-2010

## 4.9 RETAINING WALLS

Retaining walls shall be designed according to the following specifications:

a) The supplier shall be Permacon Grande Walle or an approved equivalent.
b) The minimum block size shall be 200mm x 375mm x 1000mm
c) A grey color shall be used for the blocks.
d) The retaining wall must have drainage including a drainage sock behind the wall and adequately spaced outlets that do not drain to a sidewalk or road. Drainage outlets should drain to a catch basin when possible.
e) All Grande Walle style retaining walls shall include approved shop drawings stamped by a professional engineer registered with the P.E.O.
f) Fencing is required if the height of the wall exceeds 1m.

## 4.10 ROADSIDE PROTECTION

Refer to the current version of the TAC Geometric Design Guide for Canadian Roads Chapter 7 (Roadside Design) for guide rails and other roadside protection measures.

Where guiderails are present or required, shoulder shall be paved with a minimum depth of 50mm HMA, and a minimum distance of 12m from the end of the Sequential Kinking Terminal (SKT) End Treatment shall be paved.

## 4.11 TRAFFIC CONTROL DEVICES, PXO, STREETS SIGN AND PAVEMENT MARKINGS

At a minimum, refer to Ontario Traffic Manual:

- Book 5 (Regulatory Signs)
- Book 6 (Warning Signs)
- Book 7 (Temporary Conditions)
- Book 11 (Pavement, Hazard and Delineation Markings)
- Book 12 (Traffic Signals)
- Book 15 (Pedestrian Crossing Treatments)
- Book 18 (Cycling Facilities)

### 4.11.1 Construction Signage

Advance warning road closure signage (TC-65, TC-67, etc.), including detour signage, must be erected and in place a minimum of two weeks (14 calendar days) prior to road closures

### 4.11.2 Pavement Markings

Centre line pavement markings will be required on all Street classifications. All pavement markings are to be designed in accordance with the Ontario Traffic Manual Standards. All final pavement markings on urban roads shall be of a durable material (field reacted polymeric) as defined in OPSS. All final pavement markings on rural roads shall be traffic paint. Green surface treatment for cycling facilities, longitudinal crosswalk markings and stop bars to have an anti-skid resistance of 50 BPN to 65 BPN (British Pendulum Number).

Pre-marking of top and base asphalt shall be completed a minimum of 24 hours before final application. The application of the pavement markings shall be within 24 hours after acceptance of the pre-markings by **County of Oxford Public Works**. Temporary pavement markings will be required if the topcoat of asphalt is scheduled more than 2 weeks after the base asphalt is complete.

Traffic signage shall be designed in accordance with the applicable Ontario Traffic Manual Standards. Cycling Facility Signs to be installed with the appropriate lane divider lines.

Pavement markings and traffic signs shall be shown on the same drawing. Traffic signs shall include the OTM reference number, a graphic of the sign and station/offset.

## 4.12 INTERSECTION TRAFFIC CONTROL SIGNALS

### 4.12.1 Drawing Requirements

Drawings shall identify the following:

a) Poles
b) Anchor Assemblies
c) Power Supply Assemblies
d) Traffic Controller Cabinet Assembly

### 4.12.2 Precast Concrete Handholes

Precast concrete handholes shall be designed in accordance with OPSD 2117.020.

### 4.12.3 Prefabricated Service Boxes

Prefabricated services boxes shall be designed in accordance with OPSD 2117.020.

Where a ground rod or plate is required in or adjacent to the maintenance / handhole or prefabricated service box, the system #6 AWG copper ground wire shall exit out of the maintenance / handhole or prefabricated service box to enable ground rod connection.

### 4.12.4 Ducts and Fittings

The following minimum size conduit shall be identified in the design drawings:

| | | |
|---|---|---|
| a) | Road Crossings – Handhole to handhole | - 3/75mm |
| b) | Boulevard – Handhole to Controller Pad | - 4/75mm + 1/50mm |
| c) | Boulevard – Handhole to Pole Footing | - 2/75mm |
| d) | Boulevard – Handhole/Controller Pad to Power Supply | - 2/50mm |
| e) | Boulevard – Controller Pad to Communication Pedestal | - 50mm |
| f) | Boulevard – Handhole to Flasher | - 50mm |

The type of conduit shall be rigid polyvinyl chloride (RPVC) unplasticized conduit conforming to CSA Standards C22.2 No. 211.2.

#### Open Cut Installation

Rigid ducts installed by open cut, direct buried and subsurface installation shall be rigid polyvinyl chloride (RPVC) unplasticized conduit conforming to CSA Standards C22.2 No. 211.2, except where otherwise indicated. All rigid ducts in roadway shall be installed utilizing unshrinkable backfill material.

#### Directional Boring

Rigid ducts installed by directional boring shall be rigid polyvinyl chloride (RPVC) unplasticized conduit conforming to CSA Standards C22.2 No. 211.2 except as otherwise indicated.

### 4.12.5 Cable Installation

This specification is intended to govern the supply, delivery and installation of the following cables including splicing and termination:

a) Low voltage Cable
b) Low Voltage 5, 7, 12 and 19 conductor solid copper-traffic signal cables, and
c) Extra-low voltage,

i. 4, 6, 12 and 25 pair interconnect communication cable
ii. 2 conductor loop / pedestrian pushbutton lead-in cable
**iii.** 4 conductor pedestrian pushbutton lead-in cable

**Fibre optic cable**

All traffic signal, loop, and communication cable used must meet the Operating Authority Specification.

**General**

Low-voltage multi-conductor cables shall be according to CAN/CSA C22.2 No. 239.

Low-voltage single conductor cables for Underground Installations shall be standard copper type RWU90 cross-linked polyethylene according to CSA C22.2 No. 38.

Low-voltage single conductor cables for aerial installations on messenger cable shall be type RW90 stranded aluminum cross-linked polyethylene according to CSA C22.2.

Low-voltage neutral supported cables with one, two, or three insulated aluminum conductors and ACSR neutral shall be 300 V type NS-90 or 600 V type NSF-2 and shall be according to CSA C22.2 No. 129.

Low-voltage multi-conductor traffic signal cable shall be according to OPSS 2409.

All traffic signal cables shall meet or exceed OPSS.MUNI 2409. The Contractor shall use MTO type of traffic signal cable throughout the installation. Mixing of MTO and IMSA cable types at an installation shall not be permitted.

**Extra Low-Voltage Cables**

Extra low-voltage cables for use of traffic signal interconnection systems shall meet or exceed IMSA Specification No. 19-2.

Extra low-voltage cables for use of traffic signal actuation devices shall meet or exceed OPSS.MUNI 2410 and “3M” Traffic Control Systems for Model # 30003 cable. Radar detector cables shall conform to manufacturer requirements.

**Loop Lead-in and Pushbutton Cable**

The following types of cable are approved for use:

2/C #14 AWG, Shielded

i. Belden #8720, or
ii. Impulse #211441S

### 4.12.6 Power Supply

#### Supply Control Cabinet Assembly

Supply control cabinets shall be designed to include a Smart Metered Service (SMT) for Traffic Signals and an unmetered Street Lighting Service (SLS) for Street Lighting. Power supplies will be 120/240V, 100 Amp, 1Ø, 3 wire power supply pedestal assembly complete with powder coated green steel enclosure and pre-fabricated concrete base. Control cabinets shall be designed to provide additional space for future UPS on the concrete base including conduit integration.

### 4.12.7 Poles

#### Aluminum Poles, Base Mounted

Designers shall note whether a pole base needs to be Light Duty or Heavy Duty, based on the equipment installed on the pole.

Any length of aluminum pole mounted on a bridge deck shall be complete with a vibration dampening device.

Aluminum base mounted poles shall be per OPSD 2200.010 Concrete Footing for Base Mounted Lighting Poles.

#### Pole Erection

Base mounted lighting poles shall be installed as per OPSD 2414.010 3.3 m Aluminum Pole, Base Mounted and OPSD 2415.011 Steel Pole, Base Mounted.

### 4.12.8 Footings And Pads for Electrical Equipment

#### Concrete

Concrete shall conform to OPSS.MUNI 1350, be 32 Mpa 28-day strength and supplied by an approved Ready-Mix Concrete supplier with a Ready Mixed Concrete Operation.

#### Anchorage Assemblies and Hardware

All steel components shall be hot dip galvanized conforming to CSA G164M.

The complete anchorage assembly shall be as shown in OPSD 2215.020 Anchorage Assembly for Lighting Poles and Signal Poles. A wood template shall be provided with each assembly.

Studs shall be factory inserted and held in place with a pre-applied threaded locking compound. The nuts on studs shall be installed finger-tight only by the fabricator. Any threads of the studs and bolts exposed above the ferrule shall be coated with factory applied white lithium grease. A minimum of three exposed bolt threads shall be visible above the top of the adjusting nut when a pole is installed and connected.

**Concrete Pads**

The concrete pad for the controller cabinet and UPS foundation shall be constructed as shown in OPSD 2126.010 Distribution Assembly, Concrete Pad and Ducts and OPSD 2126.020 Distribution Assembly, Concrete Pad and Ducts.

Concrete shall be placed, vibrated, cured, protected and finished conforming to OPSS.MUNI 904 and shall be formed as one monolithic slab. The alignment of the sleeves and/or duct entry points shall be scribed marked on the top of the concrete slab.

**Anchorage Assemblies**

The anchorage assembly shall be in the size and configuration shown in OPSD 2215.020 Anchorage Assembly for Lighting and Signal Poles...

### 4.12.9 Traffic Control Signals

Traffic Signal Poles are to be mounted to buried concrete pole bases with circular or round poles. Design shall include:

a) Conduit and appurtenances locations with offsets and stationing related to road centreline;
b) Size, type, class of conduits for buried power service supply;
c) Schematics of wiring details for traffic signals (including poles with streetlights attached to directly to signal poles);
d) Details of Non-Invasive Detection System (NIDS), detector loops, buried conduit, controller cabinet assembly, hand wells, pole height, arms, brackets, signal heads and all other wiring circuits for traffic signals;
    a. **County of Oxford Public Works** to determine which of NIDS or detector loops are required at each intersection in question.
e) Streetlights mounted to traffic signal poles shall be numbered and pertinent information, (i.e. wattage, lamp type, pole height and location, arranged in table format)

### 4.12.10 Traffic Signal Equipment and Electrical Traffic Control Devices

**Mast Arms**

Mast arms shall be aluminum with steel pole plate.

**Double Arm Brackets**

Double arm brackets for signal heads shall be aluminum. These brackets shall be used to mount signal heads and using a two-point application.

### Signal Heads

Signal heads shall be designed for use in all directions facing the direction of approaching traffic according to the “legal drawing” Form PHM-125, approved for the intersection. Any alterations to an Oxford County intersection shall require an updated PHM-125 drawing from the Designer.

The signal heads shall be securely covered with a durable coated nylon signal head bag and shall remain in place until all tests have been completed and the signal heads are put into operation. Pedestrian heads shall be turned to face the pole prior to operation.

Traffic signal head bags shall be a durable nylon bag with nylon straps and shock cords designed for traffic signal heads. All bags shall be equipped with a nylon mesh window for signal testing.

Signal heads shall be adjusted for maximum visibility and focusing prior to final tightening or sealing of hardware. Unused hubs in signal heads shall be plugged with sealing caps, without a gasket.

### Pedestrian Pushbuttons

Pedestrian pushbuttons shall be audible and shall be located on the pole face. The pushbutton/sign assembly mounting height shall be measured from the centre of the pushbutton to the adjacent sidewalk/boulevard grade. This height shall be 1.10m. The pedestrian pushbutton/sign assembly shall be Polara INS2-2 Wire Navigator Pushbutton Station (PBS) complete with control unit or approved equivalent (Audible).

### Fibre Optic Cable

The installation of cables shall be carried out in the following manner:

- Materials used to facilitate the pulling of cables in conduit. Cable shall not be pulled at temperatures below -6 degrees C.
- Cable runs shall be continuous between poles. Signal cable splices shall only be made within a steel / aluminum pole handhole or junction boxes on a wooden pole. No signal cable splices are permitted below ground level.
- Sufficient length of free cable shall be left in pole handholes or junction boxes to permit proper connection to be made with cable coming from signal and/or pedestrian heads.
- Cable from signal and/or pedestrian heads on steel/aluminum poles shall run inside the mast arms and carry down inside the pole to the handhole.
- Cable from signal and/or pedestrian heads on wood poles shall run inside the mast arms and carry on up or down the outside of the pole to a 200mm x 200mm x 100mm PVC watertight junction box. The junction box shall be mounted between 4m and 5m above the finished grade.
- Detector lead in cable from the vehicle detector loops shall be brought to the controller pad through the designated conduit and 1.5m coiled up on the pad. These cables shall be one continuous piece with no splices and shall run from the curbside junction box to the controller pad.

- All signal cables shall terminate in the controller cabinet.

**Prefabricated Service Boxes**

The following prefabricated service boxes are approved for us:

- Type I
  - Quazite – Model # PT2436BA18 with cover – Model # PT2436HA0046, or
  - Synertech – Model # S2436B18FA with cover – Model # S2436HBBOA.
  - Quazite – Model # PT1730BA18 with cover – Model # PT1730HA0046, or
  - Synertech – Model # S1730B18FA with cover – Model # S1730HBBOA.
  - Quazite – Model # PT1324BA18 with cover Model # PT1324HA0046,or
  - Quazite – Model # PT2436BA18 with cover Model # PT2436HA0046

**Power Supply Pedestal Assembly**

Power Pedestal Assemblies shall be from the following manufacturer: Pedestal Solutions Inc.

### 4.12.11 Non-Intrusive Detection System (Camera Detection)

The camera detection system for Oxford County intersections within the City of Woodstock shall be the following:

a) Miovision detection solution, supplied by Innovative Traffic Solutions Inc, to include the following hardware and software components:

i. Miovision Core DCM
ii. Miovision SmartView 360 cameras c/w mounting hardware
iii. Cat5e - 300ft to be supplied
iv. Miovision Detection Software (perpetual)
v. Miovision Intersection monitoring license (1 year term)
vi. Miovision Managed Connectivity license, 1GB (1 year term)

## 4.13 SOUND ABATEMENT

Refer to the most recent version of the Ministry of the Environment, Conservation and Parks publication “Environmental Noise Guideline Stationery and Transportation Sources – Approval and Planning” Publication NPC-300.

## 4.14 MAILBOXES – COMMUNITY / RURAL

The most recent version of the Transportation Association of Canada Design Guide for Canadian Roads Chapter 7 (Roadside Design) references the most recent version of the American Association of State Highway and Transportation Officials (AASHTO) Guide for Erecting Mailboxes on Highways. Canada Post shall be consulted for replacements, consolidation or

planned new mailbox locations including community mailbox specifications and drawings, as well as temporary mailboxes during construction.

## 4.15 SERVICE ROADS

Refer to the most recent version of the TAC Design Guide for Canadian Roads Chapter 8 (Access).

## 4.16 GUIDELINES FOR ENTRANCES

Refer to the current version of the County's Guidelines for Entrances to the County Road System - Tiered Access Control Standards" and Oxford County Entrance By-Law No. 5222-2010.

## 4.17 SITE FURNITURE

Refer to the most recent version of the Oxford County Official Plan, TAC Design Guidelines (TAC), O.P.S.S. and A.O.D.A.

## 4.18 ACTIVE TRANSPORTATION

### 4.18.1 Pedestrian Walkways

The Oxford County Transportation Master Plan strategy is to provide for pedestrian connectivity with the local pedestrian walkway network. Please refer to most current version of the Oxford County approved Transportation Master Plan, O.P.S.S., A.O.D.A. and the Ontario Traffic Manual.

### 4.18.2 Cycling Infrastructure

Refer to the current version of the County approved Cycling Master Plan, A.O.D.A., the Ontario Traffic Manual and **County Standard Drawings** for widths of cycling lanes or paved shoulder, painted buffers and rumble strip locations as applicable. Typically, rural Oxford County roads consist of a 1.5 metre wide shoulder complete with a rumble strip and line striping providing a buffer width of 0.5 to 1.0 metres.

### 4.18.3 Trails

Refer to current version of the Oxford Trails Master Plan including Appendix C – Trail Designers' Toolbox for guidelines for trail design.

## 4.19 SEDIMENT & EROSION CONTROL

The County requires an Erosion Sediment Control Plan (ESCP) be designed for most Capital Works, Operational and Development Projects. The complexity of the ESCP is determined by

the sensitivity of the area that is to be protected. The relative Conservation Authority will be required to provide review, comment and approval for each ESCP.

For resurfacing of existing roads, or for infill sites less than 3.0 ha in land area within existing urbanized areas, that are not in close proximity to an open watercourse, woodlands, ESA's, steep slopes or other natural area, an ESCP is not required, unless otherwise directed by **County of Oxford Public Works**. Where an ESCP is not required, all reasonable protective measures must be taken during construction to control sediment and prevent erosion from occurring. In all other cases, an ESCP is required from the Designer.

### 4.19.1 Bird and Wildlife Protection

Contractors shall not destroy active nests or harm birds and other protected species under the Migratory Birds Convention Act (MBCA), 1994. Clearing and grubbing of trees, shrubs, and vegetation should not occur between April 1 and August 30 to avoid interfering with the nesting activity of migration birds. If clearing needs to occur during this period, an environmental condition evaluation in accordance with the MBCA acceptable to the County must be completed prior to any clearing.

## 4.20 ROADSIDE & BOULEVARD RESTORATION

### 4.20.1 Rural Road Restoration

All rural roadside restoration shall include a minimum of 150mm depth of screened topsoil complete with hydroseed and mulch.

### 4.20.2 Urban Road Restoration

All urban roads and street restoration shall include a minimum of 150mm depth of screened topsoil and sod. Sod shall not be placed before June 30th or after October 31st in any year. All placed sod shall receive a continuous application of water for a minimum of 24 hours during dry weather above 23 degrees Celsius. All sod placement for road construction projects shall be sufficiently watered and maintained by the contractor until Substantial Completion is achieved and will be subject to a 30-day maintenance period. The 30-day sod maintenance period shall begin at the completion of sod installation. At the end of the 30 days, the County shall inspect all placed sod to confirm the following conditions:

- No surface soil is visible;
- No sign of dry or dead grass;
- Grass height shall be 30mm minimum, and 70mm maximum; and
- Each sod piece shall show evidence of rooting into the underlying soil.

Any sod installations that do not meet the criteria above shall be replaced by the Contractor immediately and be subject to another 30-day maintenance period. Additional maintenance periods shall be added until all sod meets the criteria above. Inspections shall not be made during the winter dormant period for Southwestern Ontario (November 15th to April 15th inclusive). Timing

between inspections shall be suspended during the winter dormant period and continue once they have ended.

### 4.20.3 Topsoil Testing

All topsoil proposed for placement for restoration in any subdivision or County Road construction project shall be tested by a certified laboratory that the quality of topsoil will support the germination and establishment of the sod and/or hydroseed. A report by the laboratory shall be provided certifying the topsoil to be placed is satisfactory for supporting grass cover. All activities related to topsoil testing, requirements, and quality shall be in accordance with OPSS 802.

## 4.21 CONSTRUCTION SIGNAGE

### 4.21.1 General

Use the Ontario Traffic Manual - Book 7 - Temporary Conditions for all construction signage applications.

### 4.21.2 Traffic Management Plans

A TMP is required whenever the **Oxford County Project Manager** determines the Capital Works or Development Works facilitate the need.

### 4.21.3 Detour Plans

Detour plans must be authorized through the Transportation Division, two weeks prior to the tender being posted. Signs are to be placed by the Contractor's own forces. Detour Routes shall only utilize County Roads. Any detour routes that are proposed to include an Area Municipality road must be circulated to the applicable Area Municipality for their review and comment.

### 4.21.4 Pedestrian Safety

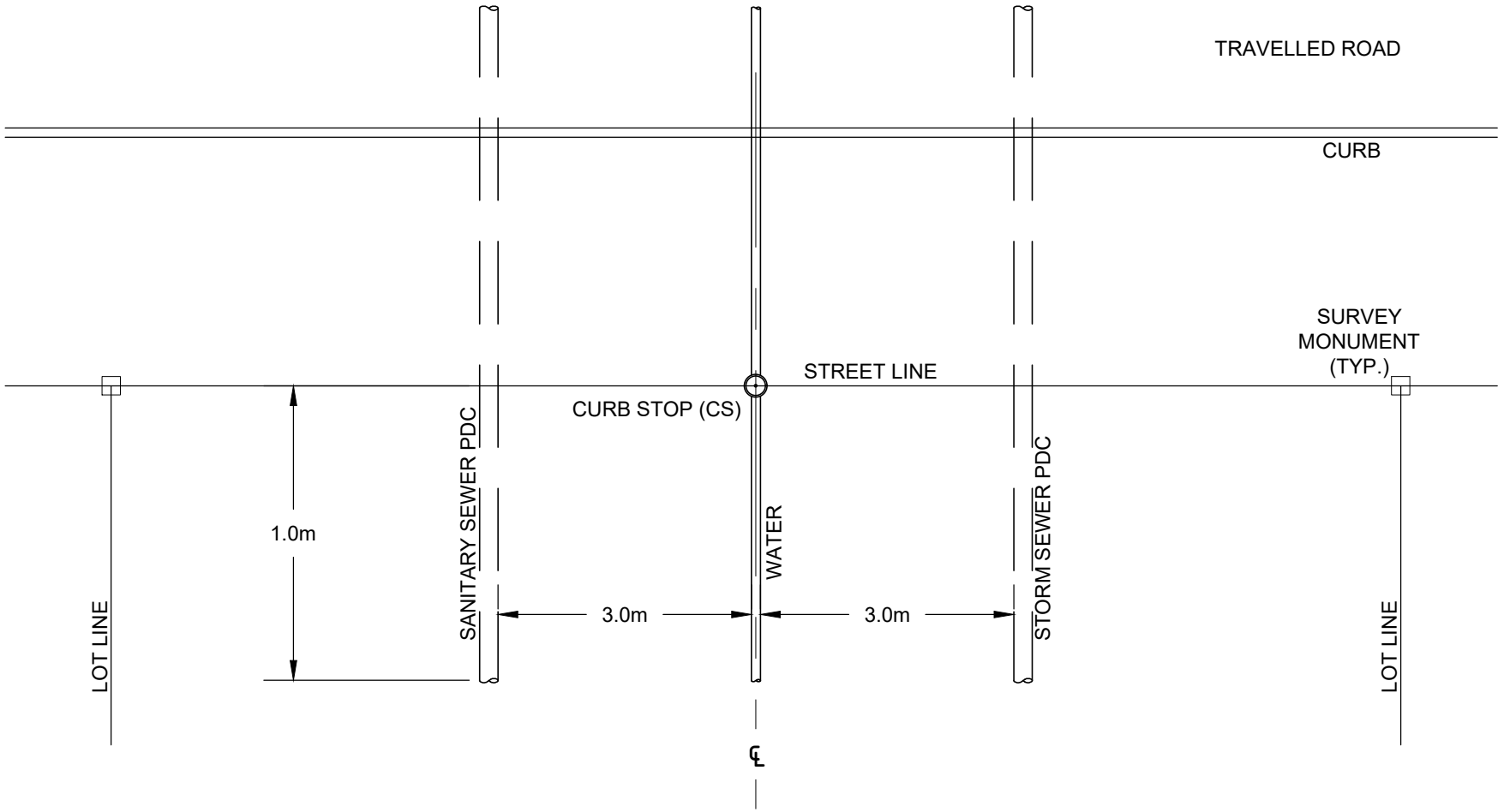
Construction Projects in proximity to high pedestrian areas, including schools, commercial areas and any other source of high pedestrian volumes should take extra precaution to separate construction activity from pedestrian movements.

Sidewalks that are closed or removed should have signed alternate detour routes. Pedestrian paths of travel impacts must be addressed in accordance with AODA. If it is not possible to retain a smooth hard-surface sidewalk, appropriate closure and pedestrian detour signage is required identifying an AODA compliant path of travel.

Impactful closures where reasonable detours are not available require informational signage placed for a 2-week period prior to the event.

Any material deliveries or construction vehicle movements crossing pedestrian areas should be carefully monitored by a traffic control person.

Schools in close proximity to projects should be notified in the preconstruction letters and kept informed of progress.




NOTE:

1. LOCATION OF SANITARY AND STORM SERVICES ON LOTS IN WOODSTOCK AND TILLSONBURG MAY VARY FROM THIS FIGURE. CHECK WITH LOCAL MUNICIPALITY.
2. STORM PDC REQUIREMENT AND LOCATION SHALL BE AT THE DISCRETION OF THE LOCAL MUNICIPALITY.
3. SANITARY AND STORM PDC TO BE INSTALLED TO 1.0m PAST PROPERTY LINE.
4. CURB STOP TO BE LOCATED ON PROPERTY LINE.
5. ALL SERVICE WIRES TO BE PLACED A MINIMUM OF 2m AWAY FROM MUNICIPAL SERVICES.

OXFORD COUNTY STANDARD DRAWING

# SERVICE LOCATIONS
# SINGLE FAMILY RESIDENTIAL

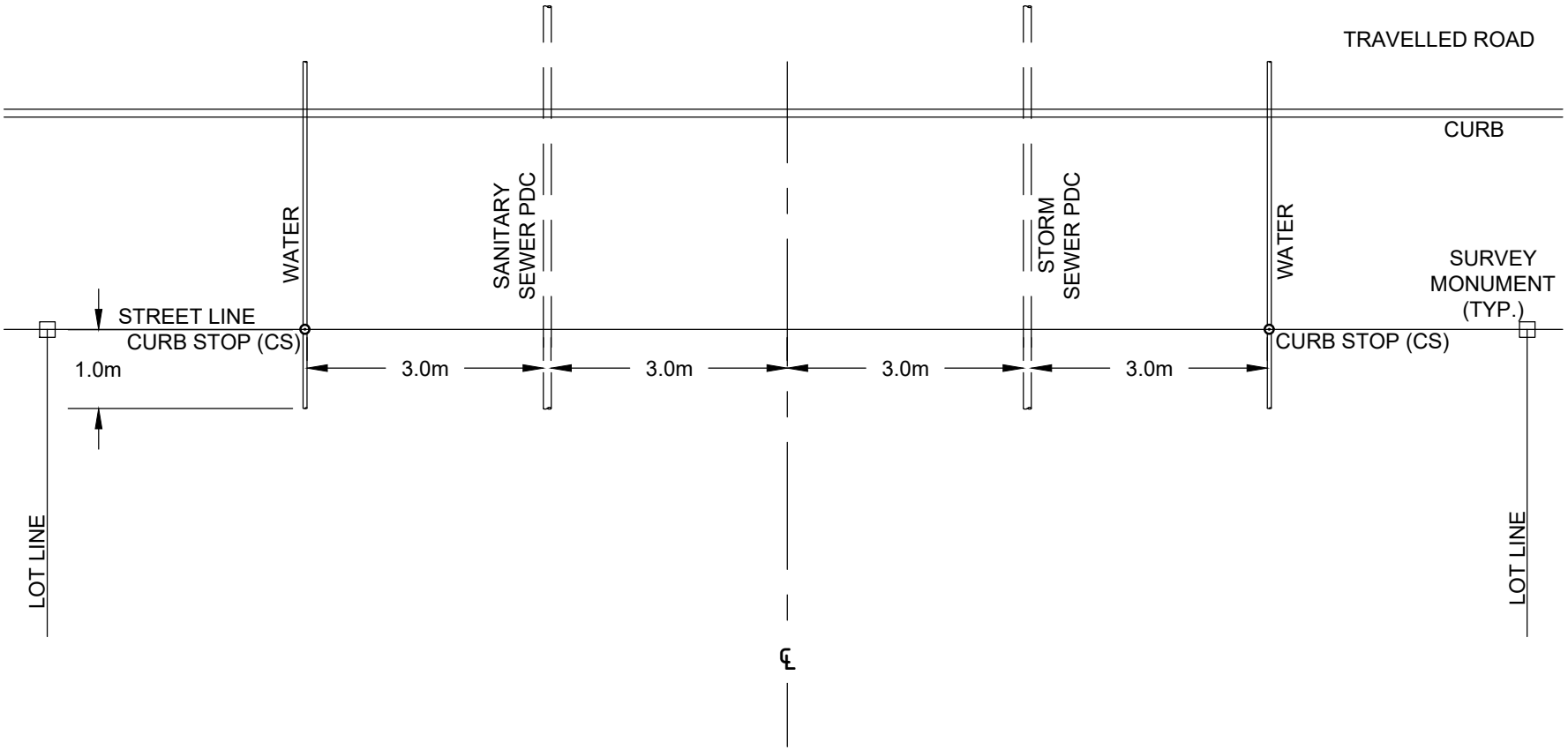
REV#: 2

08/2025

Oxford County
Growing stronger together

FIG. 4.01

PREVIOUSLY: FIG 1.1.1




NOTE:

1. LOCATION OF SANITARY AND STORM SERVICES ON LOTS IN WOODSTOCK AND TILLSONBURG MAY VARY FROM THIS FIGURE. CHECK WITH LOCAL MUNICIPALITY.
2. STORM PDC REQUIREMENT AND LOCATION SHALL BE AT THE DISCRETION OF THE LOCAL MUNICIPALITY.
3. SANITARY AND STORM PDC TO BE INSTALLED TO 1.0m PAST PROPERTY LINE.
4. CURB STOP TO BE LOCATED ON PROPERTY LINE.
5. ALL SERVICE WIRES TO BE PLACED A MINIMUM OF 2m AWAY FROM MUNICIPAL SERVICES.

OXFORD COUNTY STANDARD DRAWING

# SERVICE LOCATIONS
# SEMI DETACHED RESIDENTIAL

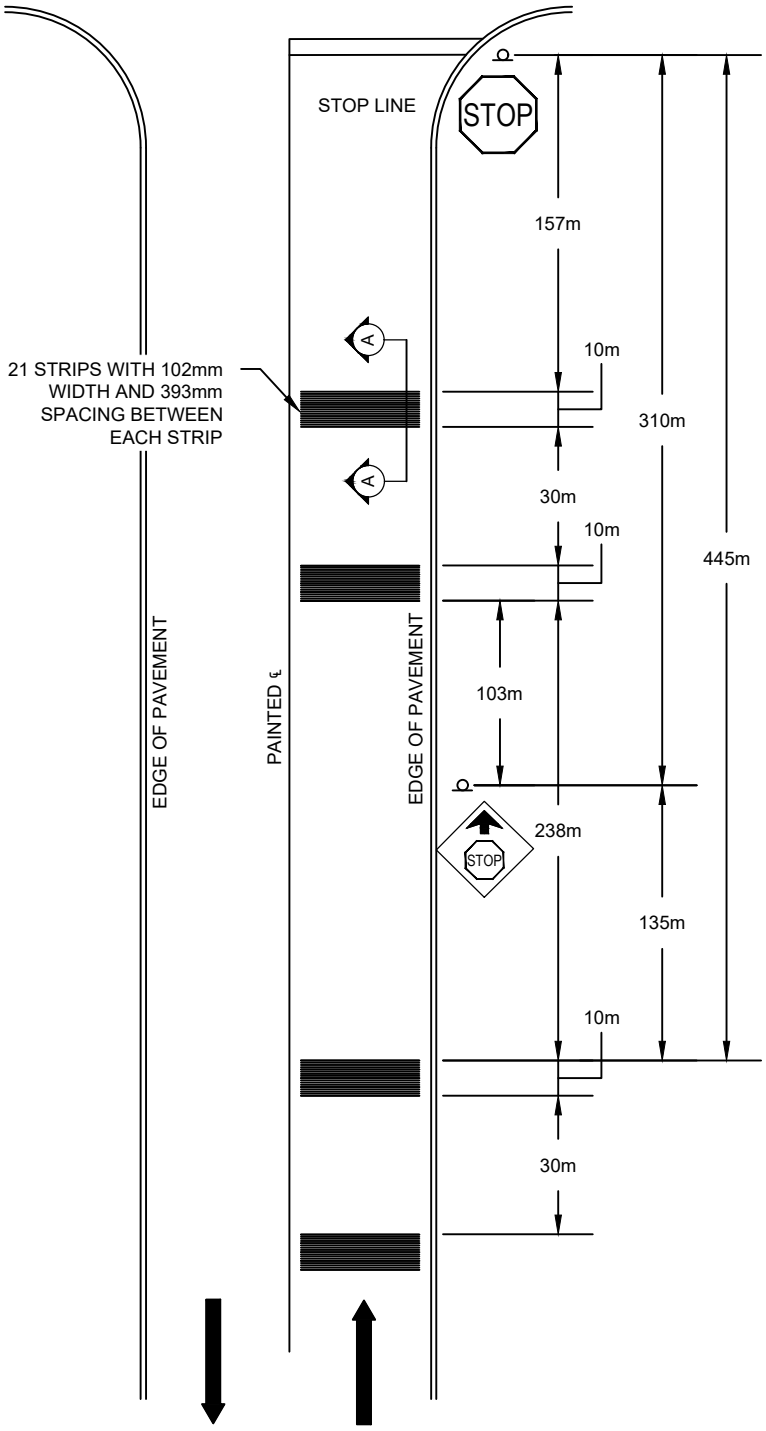
REV#: 1

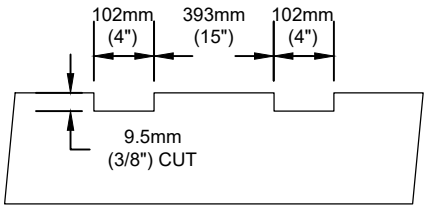
08/2025

Oxford County
Growing stronger together

FIG. 4.02

PREVIOUSLY: FIG 1.1.2




1 A-A SECTION
Scale: N.T.S.

OXFORD COUNTY STANDARD DRAWING

# TYPICAL LAYOUT FOR MILLED RUMBLE STRIPS

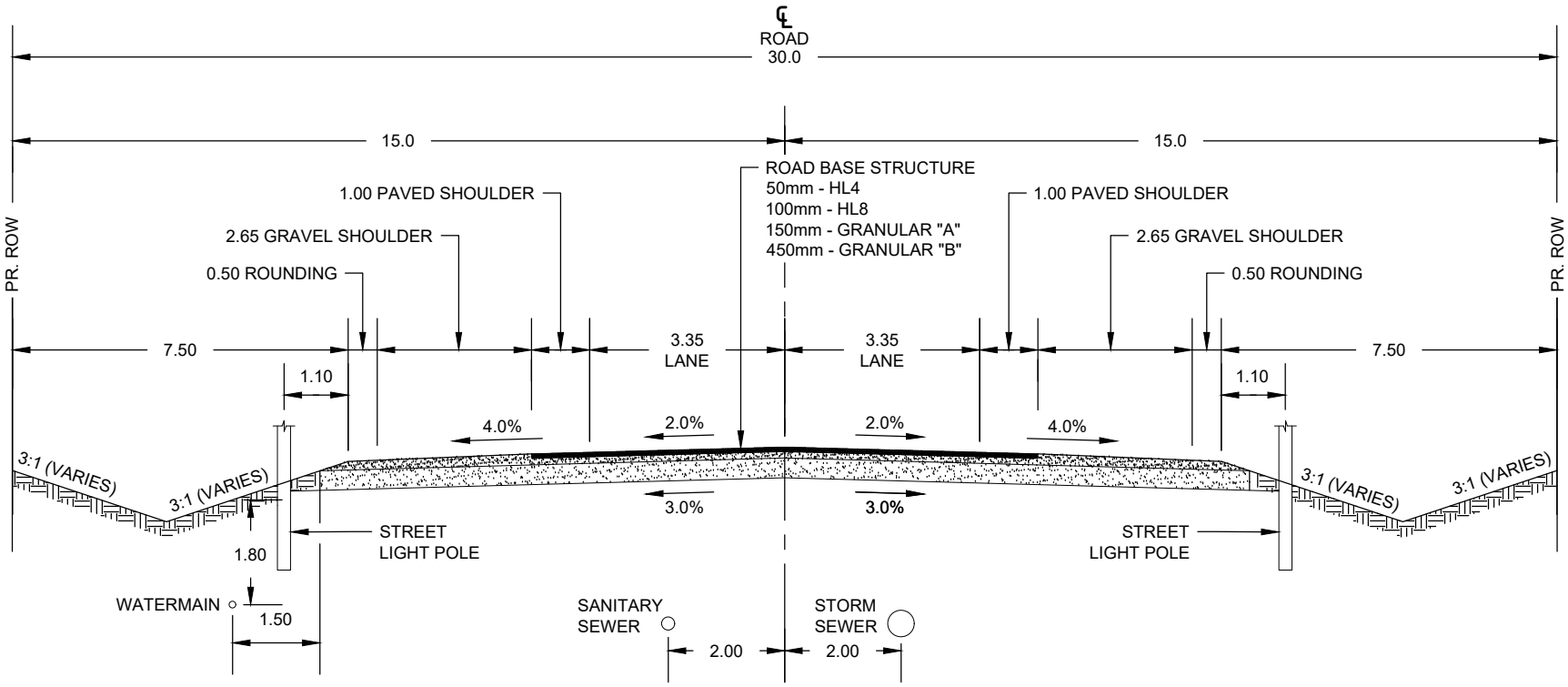
REV#: 1

08/2025

OxfordCounty
Growing stronger together

FIG. 4.03

PREVIOUSLY: D1800-1-2004




# RURAL TYPICAL SECTION - 30m ROAD ALLOWANCE

N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
2. STREET LIGHT STANDARDS ON ALTERNATE SIDES OF THE ROAD.
3. UTILITY RELOCATION MAY BE REQUIRED TO SUIT PROPOSED CROSS SECTION.
4. CROSS SECTION MAY BE MODIFIED TO ADDRESS CONSTRAINT AREAS, TO BE DETERMINED AT DETAILED DESIGN.
5. PARTIALLY PAVED SHOULDER PROVIDES: REDUCED SHOULDER MAINTENANCE; IMPROVED SAFETY FOR SLOW MOVING AGRICULTURAL VEHICLES ALONG SHOULDERS, LIMITED BICYCLE ACCESSIBLE SHOULDER.
6. ANY CONSTRAINED AREAS SHOULD BE DISCUSSED WITH THE COUNTY ENGINEER.

OXFORD COUNTY STANDARD DRAWING

30m RURAL TYPICAL
ROAD SECTION

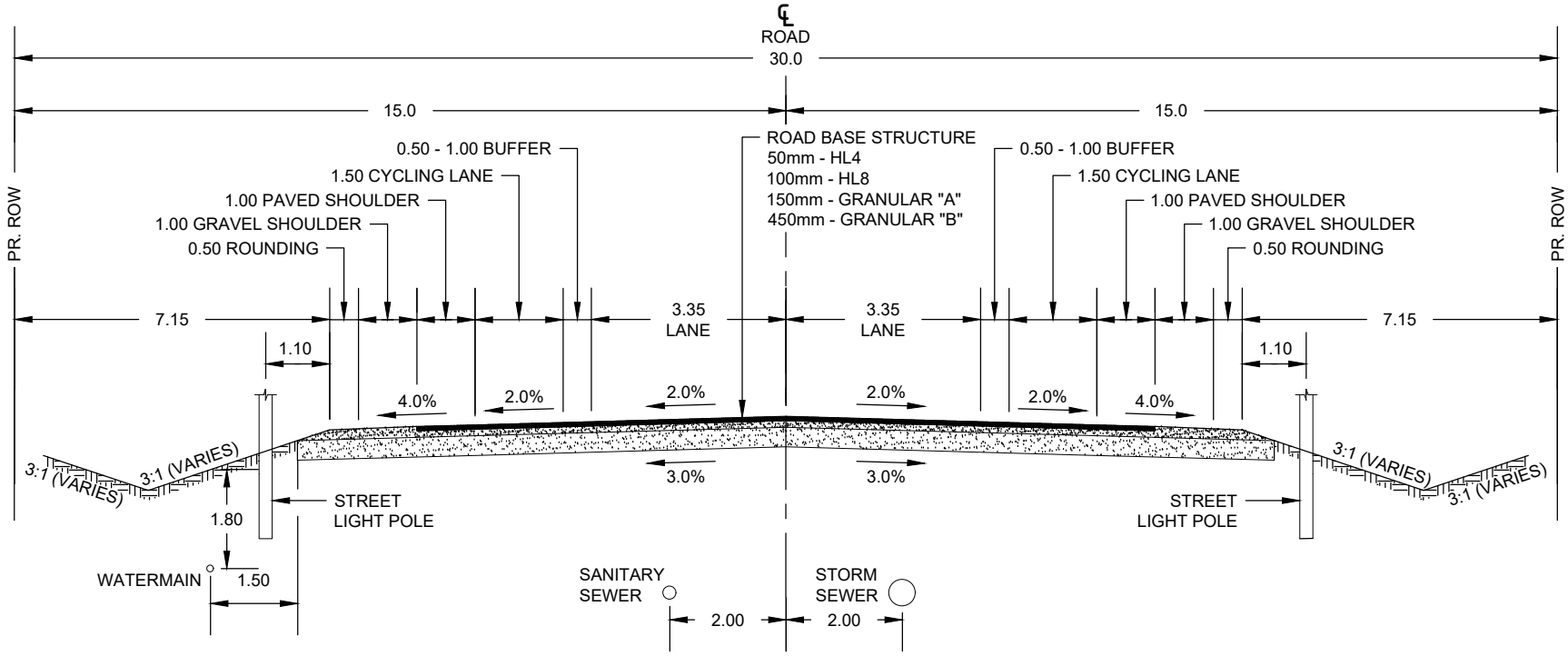
REV#: 0

08/2025

Oxford County
Growing stronger together

FIG. 4.04

PREVIOUSLY: N/A




# RURAL TYPICAL SECTION w/ CYCLING - 30m ROAD ALLOWANCE

N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
2. STREET LIGHT STANDARDS ON ALTERNATE SIDES OF THE ROAD.
3. UTILITY RELOCATION MAY BE REQUIRED TO SUIT PROPOSED CROSS SECTION.
4. CROSS SECTION MAY BE MODIFIED TO ADDRESS CONSTRAINT AREAS, TO BE DETERMINED AT DETAILED DESIGN.
5. PARTIALLY PAVED SHOULDER PROVIDES: REDUCED SHOULDER MAINTENANCE; IMPROVED SAFETY FOR SLOW MOVING AGRICULTURAL VEHICLES ALONG SHOULDERS, LIMITED BICYCLE ACCESSIBLE SHOULDER.
6. ANY CONSTRAINED AREAS SHOULD BE DISCUSSED WITH THE COUNTY ENGINEER.

OXFORD COUNTY STANDARD DRAWING

# 30m RURAL TYPICAL w/ CYCLING ROAD SECTION

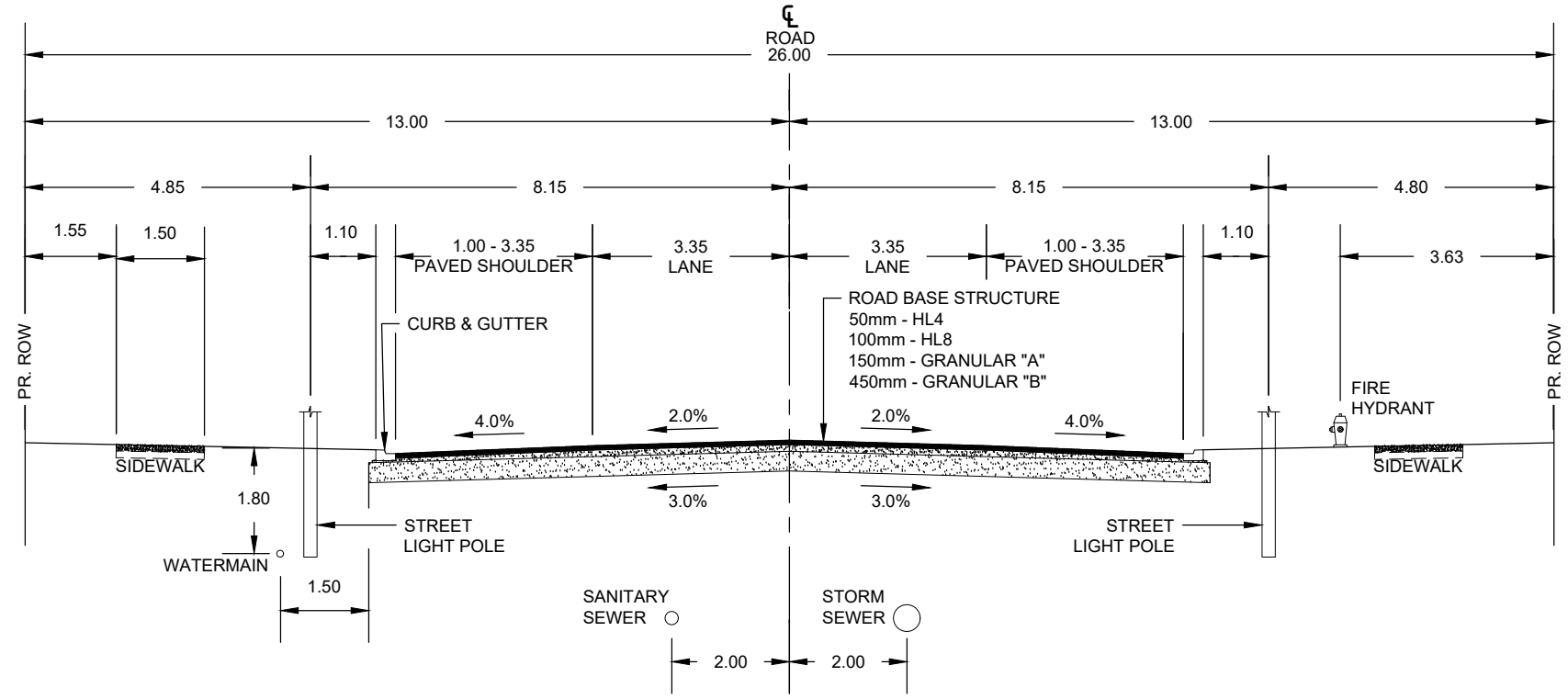
REV#: 0

08/2025

Oxford County
Growing stronger together

FIG. 4.05

PREVIOUSLY: N/A




# URBAN TYPICAL SECTION - 26m ROAD ALLOWANCE

N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
2. CURB AND GUTTER AS PER OPSD.
3. STREET LIGHT STANDARDS ON ALTERNATE SIDES OF THE ROAD.
4. STREET LIGHT POLES TO BE LOCATED NOT LESS THAN 3.0m EITHER SIDE OF HYDRANT LATERALS.
5. UTILITY RELOCATION MAY BE REQUIRED TO SUIT PROPOSED CROSS SECTION.
6. CROSS SECTION MAY BE MODIFIED TO ADDRESS CONSTRAINT AREAS. TO BE DETERMINED AT DETAILED DESIGN.
7. ANY CONSTRAINED AREAS SHOULD BE DISCUSSED WITH THE COUNTY ENGINEER.
8. FOR 3 - LANE TYPICAL CROSS SECTION WITH 2 LANES AND A SHARED CENTER LEFT TURNING LANE, THE SHARED LEFT TURNING LANE SHALL BE 3.5m WIDE AND EACH THROUGH LANE SHALL BE 3.35m WIDE.

OXFORD COUNTY STANDARD DRAWING

# 26m URBAN TYPICAL ROAD SECTION

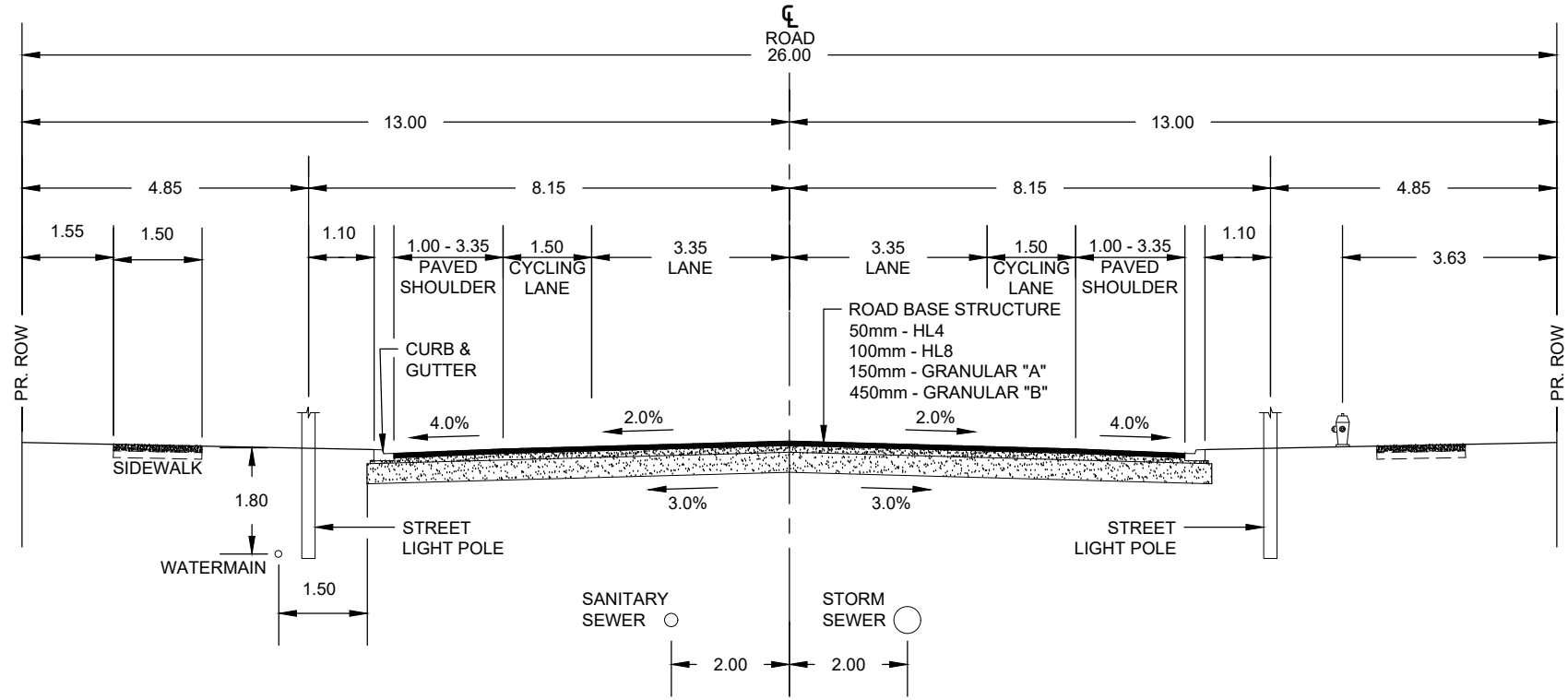
REV#: 0

08/2025

Oxford County
Growing stronger together

FIG. 4.06

PREVIOUSLY: N/A




# URBAN TYPICAL SECTION w/ CYCLING - 26m ROAD ALLOWANCE

N.T.S.

NOTES:

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN.
2. CURB AND GUTTER AS PER OPSD.
3. STREET LIGHT STANDARDS ON ALTERNATE SIDES OF THE ROAD.
4. STREET LIGHT POLES TO BE LOCATED NOT LESS THAN 3.0m EITHER SIDE OF HYDRANT LATERALS.
5. UTILITY RELOCATION MAY BE REQUIRED TO SUIT PROPOSED CROSS SECTION.
6. CROSS SECTION MAY BE MODIFIED TO ADDRESS CONSTRAINT AREAS. TO BE DETERMINED AT DETAILED DESIGN.
7. ANY CONSTRAINED AREAS SHOULD BE DISCUSSED WITH THE COUNTY ENGINEER.
8. FOR 3 - LANE TYPICAL CROSS SECTION WITH 2 LANES AND A SHARED CENTER LEFT TURNING LANE, THE SHARED LEFT TURNING LANE SHALL BE 3.5m WIDE AND EACH THROUGH LANE SHALL BE 3.35m WIDE.

OXFORD COUNTY STANDARD DRAWING

# 26m URBAN TYPICAL w/ CYCLING ROAD SECTION

REV#: 0

08/2025

Oxford County
Growing stronger together

FIG. 4.07

PREVIOUSLY: N/A