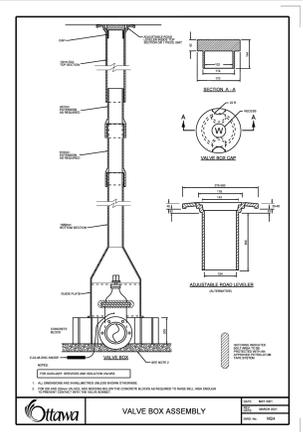
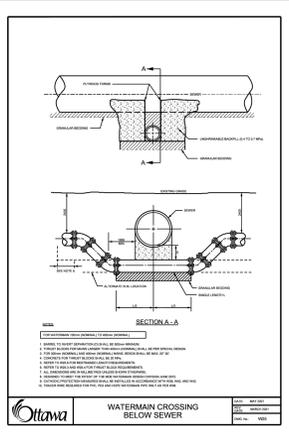


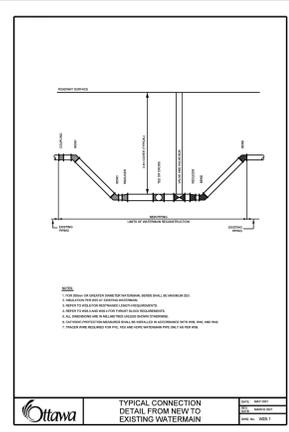
**Thermal Insulation for Watermain in Shallow Trenches**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 102



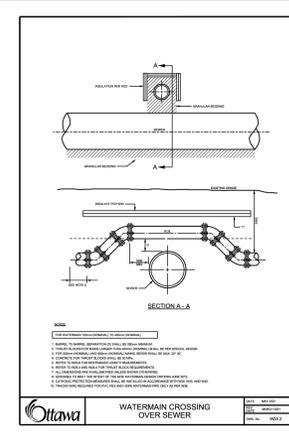
**Valve Box Assembly**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 103



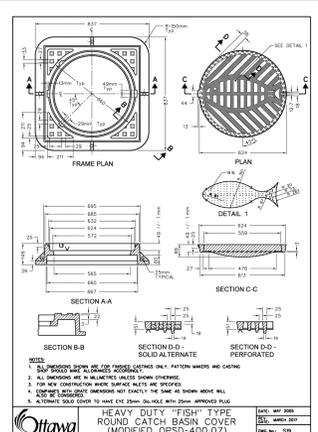
**Watermain Crossing Below Sewer**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 104



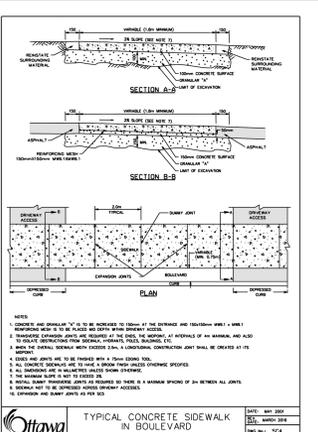
**Typical Connection Detail from New to Existing Watermain**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 105



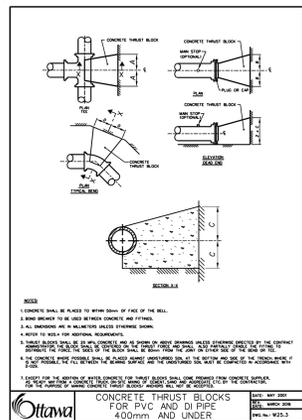
**Watermain Crossing Over Sewer**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 106



**Heavy Duty 'Fish' Type Round Catch Basin Cover (Modified OPSD-400-07)**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 107



**Typical Concrete Sidewalk in Boulevard**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 108



**Concrete Thrust Blocks for PVC and DI Pipe 400mm and Under**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 109

**Thrust Block Dimension Tables for PVC and DI Pipe 400mm and Under**

1. SOIL DESCRIPTION: VERY FINE SANDY CLAY SILT. SOIL WITH TYPICAL BEARING CAPACITY OF 100 TO 150 kPa. DIMENSION NOTED ON FIG. 1.

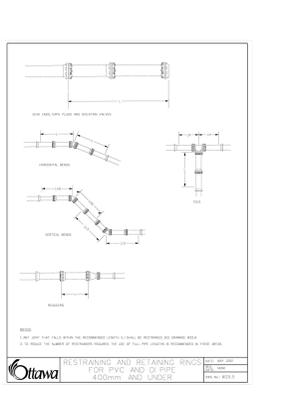
PIPE SIZE (mm)	PIPE WALL THICKNESS (mm)	PIPE WEIGHT (kg/m)	PIPE LENGTH (m)	PIPE WEIGHT (kg)
100	3.0	1.5	1.0	1.5
150	4.0	2.5	1.0	2.5
200	5.0	3.5	1.0	3.5
250	6.0	4.5	1.0	4.5
300	7.0	5.5	1.0	5.5
350	8.0	6.5	1.0	6.5
400	9.0	7.5	1.0	7.5

2. SOIL DESCRIPTION: SANDY SILT OR CLAY SAND GRAVEL. SOIL WITH TYPICAL BEARING CAPACITY OF 150 TO 200 kPa. DIMENSION NOTED ON FIG. 2.

PIPE SIZE (mm)	PIPE WALL THICKNESS (mm)	PIPE WEIGHT (kg/m)	PIPE LENGTH (m)	PIPE WEIGHT (kg)
100	3.0	1.5	1.0	1.5
150	4.0	2.5	1.0	2.5
200	5.0	3.5	1.0	3.5
250	6.0	4.5	1.0	4.5
300	7.0	5.5	1.0	5.5
350	8.0	6.5	1.0	6.5
400	9.0	7.5	1.0	7.5

3. SOIL DESCRIPTION: SANDY GRAVELS AND GRAVEL SAND MATERIALS. SOIL WITH TYPICAL BEARING CAPACITY OF 200 kPa AND OVER. DIMENSION NOTED ON FIG. 3.

PIPE SIZE (mm)	PIPE WALL THICKNESS (mm)	PIPE WEIGHT (kg/m)	PIPE LENGTH (m)	PIPE WEIGHT (kg)
100	3.0	1.5	1.0	1.5
150	4.0	2.5	1.0	2.5
200	5.0	3.5	1.0	3.5
250	6.0	4.5	1.0	4.5
300	7.0	5.5	1.0	5.5
350	8.0	6.5	1.0	6.5
400	9.0	7.5	1.0	7.5



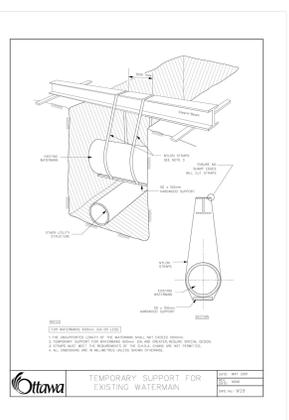
**Restraining and Retaining Blocks for PVC and DI Pipe 400mm and Under**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 110

**Tables of Restrained Lengths for PVC and DI Pipe 400mm and Under**

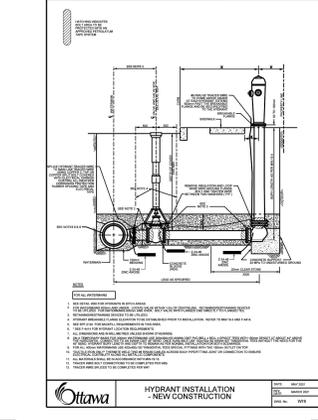
TABLE OF RESTRAINED LENGTHS FOR PVC AND DI WATERMAIN ON STANDARD GRANULAR BASEMENT IN SOIL OF BEARING CAPACITY OF 100 kPa AND OVER

RESTRAINT	PIPE DIAMETER (mm)			
	100	150	200	250
SMALLER CONCRETE CURB	3	4	5	6
VERTICAL BENCH	3	4	5	6
HORIZONTAL BENCH	1.5	2	2.5	3

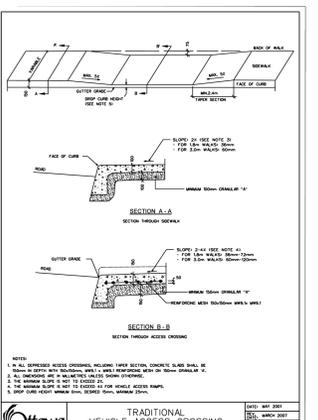
**Tables of Restrained Lengths for PVC and DI Pipe 400mm and Under**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 111



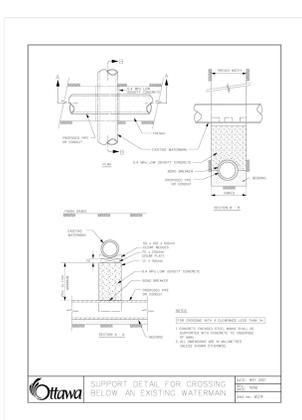
**Temporary Support for Existing Watermain**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 112



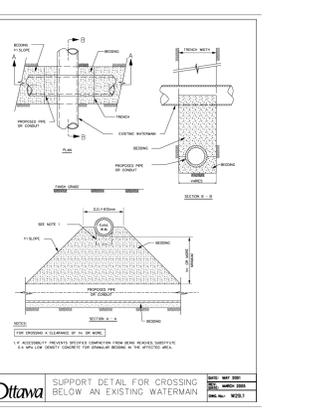
**Hydrant Installation - New Construction**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 113



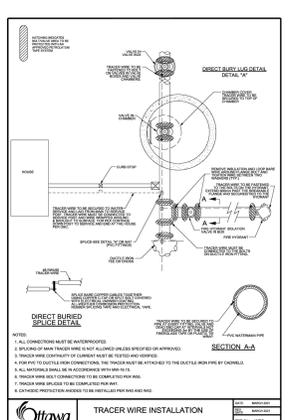
**Traditional Vehicle Access Crossing**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 114



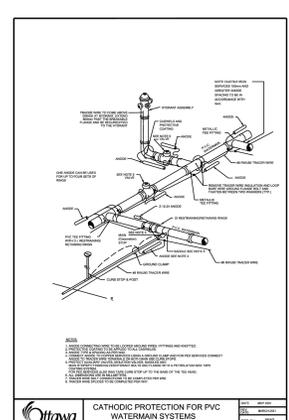
**Support Detail for Crossing Below an Existing Watermain**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 115



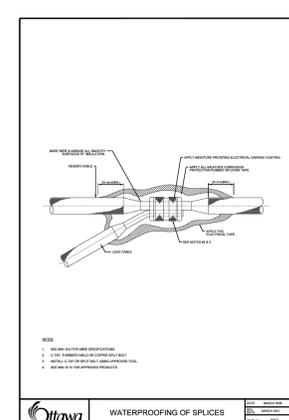
**Support Detail for Crossing Below an Existing Watermain**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 116



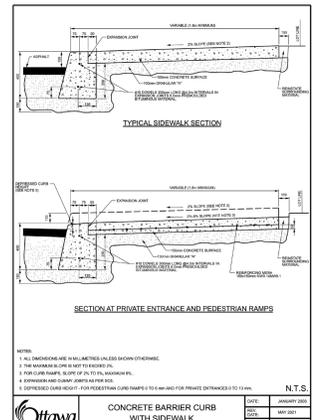
**Tracer Wire Installation**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 117



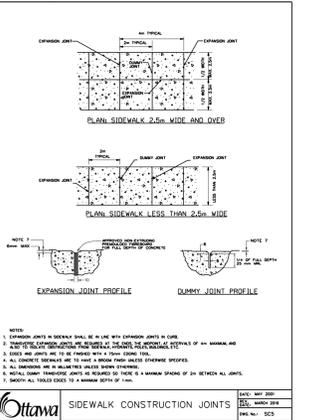
**Cathodic Protection for PVC Watermain Systems**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 118



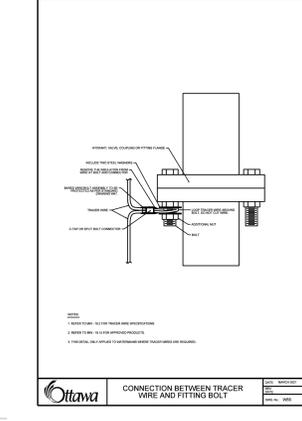
**Waterproofing of Splices**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 119



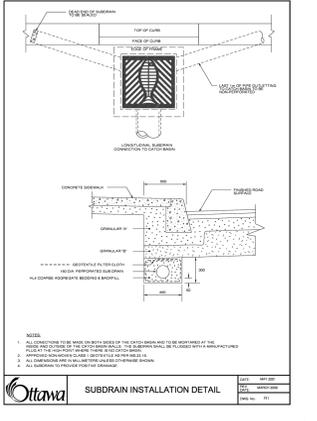
**Concrete Barrier Curb with Sidewalk**  
 DATE: JANUARY 2008  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: SC1.4



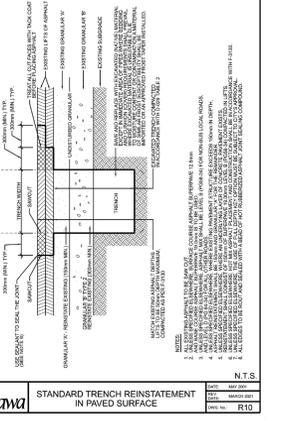
**Sidewalk Construction Joints**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: SC2



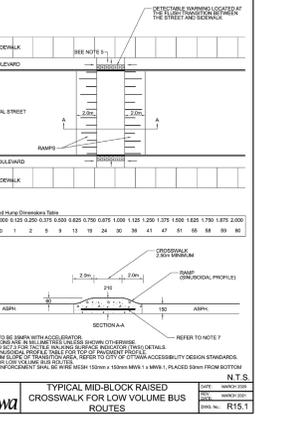
**Connection between Tracer Wire and Fitting Bolt**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 120



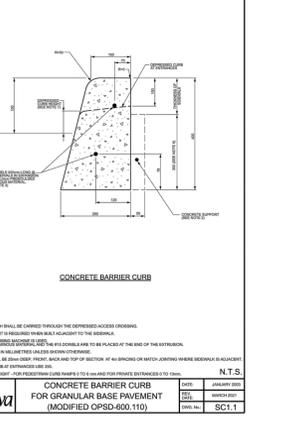
**Subdrain Installation Detail**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: 121



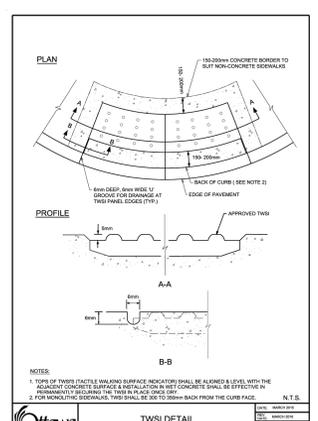
**Standard Trench Reinforcement in Paved Surface**  
 DATE: MAY 2007  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: R10



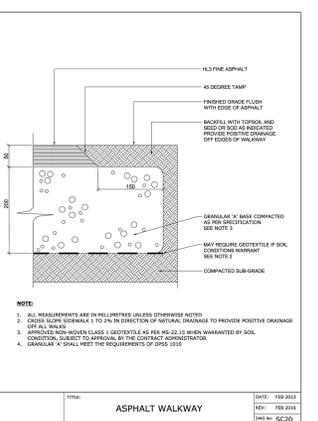
**Typical Mid-Block Raised Crosswalk for Low Volume Bus Routes**  
 DATE: JANUARY 2008  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: R15.1



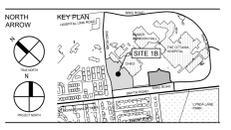
**Concrete Barrier Curb for Granular Base Pavement (Modified OPSD-600-110)**  
 DATE: JANUARY 2008  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: SC1.1



**TWSI Detail**  
 DATE: JANUARY 2008  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: SC7.3

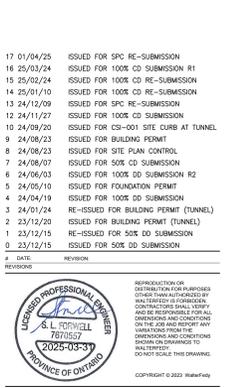


**Asphalt Walkway**  
 DATE: FEB 2003  
 DRAWN: JMM  
 CHECKED: JMM  
 SCALE: 1:10  
 SHEET NO: SC20



17 01/24/25 ISSUED FOR SPC RE-SUBMISSION  
 16 25/03/24 ISSUED FOR 100% CD SUBMISSION R1  
 15 25/03/24 ISSUED FOR 100% CD RE-SUBMISSION  
 14 25/01/10 ISSUED FOR 100% CD RE-SUBMISSION  
 13 24/12/09 ISSUED FOR SPC RE-SUBMISSION  
 12 24/11/27 ISSUED FOR 100% CD SUBMISSION  
 11 24/09/29 ISSUED FOR CD-001 SITE CURB AT TUNNEL  
 8 24/08/23 ISSUED FOR BUILDING PERMIT  
 7 24/08/07 ISSUED FOR SITE PLAN CONTROL  
 6 24/06/03 ISSUED FOR 50% CD SUBMISSION  
 5 24/05/10 ISSUED FOR FOUNDATION PERMIT  
 4 24/04/19 ISSUED FOR 100% CD SUBMISSION  
 3 24/01/24 RE-ISSUED FOR BUILDING PERMIT (TUNNEL)  
 2 23/12/29 ISSUED FOR BUILDING PERMIT (TUNNEL)  
 1 23/12/15 RE-ISSUED FOR 50% CD SUBMISSION  
 0 23/12/15 ISSUED FOR 50% CD SUBMISSION

DATE: REVISION



APPROVED  
 By Lily Xu at 1:08 pm, Apr 22, 2025

LILY XU, MCIP, RPP  
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 PLANNING, DEVELOPMENT, AND BUILDING SERVICES  
 DEPARTMENT, CITY OF OTTAWA