



Engineering Design Criteria & Standard Drawings

(December 2020)

APPENDIX A – STANDARD DRAWINGS



FOREWORD

The Standard Drawings presented are meant to be read in conjunction with the City's Design Criteria document.

The 2020 edition of the Standard Drawings has been prepared in response to the planned growth envisioned by the City's Official Plan and informed by various Master Plan studies for transportation, water, wastewater and stormwater management infrastructure. While the previous stock of Standard Drawings has been simplified and consolidated wherever appropriate, additional standard drawings have been created to address the past experience of the City as well as emerging trends in the industry.

Changes and revisions will be made to the Design Criteria and Standard Drawings from time-to-time. It is the responsibility of the developer, its engineer(s) and others using this information to obtain and make use of the latest versions available at the time of design.

The Standard Drawings are unique to the City of Vaughan and take precedence over any Ontario Provincial Standard Drawings (OPSD) for similar matters, unless approved otherwise by the City.

If no standard drawing is provided by the City, the OPSD are to be consulted and referenced. In the event that OPSD does not contain the required standard, the developer, through its engineer, may prepare a standard for the review and approval of the City prior to the submission of any designs.



Please consider the environment before printing.

STANDARD DRAWING INDEX

SECTION	PRIOR REF 2004	DESCRIPTION
GENERAL		
G-101		BASE MAP
G-102		LEGEND OF SYMBOLS
G-103		ABBREVIATIONS
G-104		GEODEDIC CONTROL SURVEY MARKER – TYPE A
G-105		GEODEDIC CONTROL SURVEY MARKER – TYPE B
G-106		GEODEDIC CONTROL SURVEY MARKER – ENGRAVING/STAMPING
G-107		GEODEDIC CONTROL CONCRETE SURVEY MARKER
G-108		PROJECT SIGN
ROADS		
R-101		MAJOR COLLECTOR ROAD 26m R.O.W. – 14m PAVEMENT
R-102		MINOR COLLECTOR ROAD 24m R.O.W (WITH LAY-BY LANE)
R-103		MINOR COLLECTOR ROAD 24m R.O.W. (W/O LAY-BY LANE)
R-104		LOCAL ROAD 17.5m R.O.W. – 8m PAVEMENT
R-105		BUFFER ROAD 15m R.O.W. – 7m PAVEMENT
R-106	B14	LANEWAY - 8m R.O.W. - 6m PAVEMENT
R-107		CUL-DE-SAC
R-108		ANGLE BEND
R-109		HORIZONTAL CURVE
R-110		INTERSECTION DESIGN GUIDELINES
R-111		STREET SIGNS
R-112		BREAKAWAY BOLLARD DETAIL
R-113		DEAD END BARRICADE
R-114		CONSTRUCTION TRAFFIC BARRICADES
R-115	J-1	TRAFFIC CALMING ADVANCE WARNING SIGNS
R-116		SPEED HUMP
R-117		RAISED MIDBLOCK PEDESTRIAN CROSSOVER (PXO)
R-118		RAISED INTERSECTION
R-119a		COLLECTOR/COLLECTOR ROUNDABOUT LAYOUT
R-119b		COLLECTOR/COLLECTOR ROUNDABOUT LAYOUT (W. TURNING MOVEMENT 1)
R-119c		COLLECTOR/COLLECTOR ROUNDABOUT LAYOUT (W. TURNING MOVEMENT 2)
R-120	J-6	SINGLE-LANE ROUNDABOUT – NEW DEVELOPMENT AND RE-DEVELOPMENT
R-121a		MINI-ROUNDABOUT
R-121b		MINI-ROUNDABOUT (W. TURNING MOVEMENT 1)
R-121c		MINI-ROUNDABOUT (W. TURNING MOVEMENT 2)
R-122	J-8	TRAFFIC CALMING MEDIANS
R-123	J-9	CURB EXTENSIONS AND ROAD NARROWINGS
R-124		LADDER PAVEMENT MARKING DETAIL AT SIGNALIZED INTERSECTIONS
R-125		CATCHBASIN CURB DETAIL
R-126		CURB AND SUBDRAIN DETAIL
R-127	UNDER DEVELOPMENT	UNIT PAVER CROSSWALK DETAIL
R-128		SIDEWALK AND RAMP
R-129		WALKWAYS
R-130	UNDER DEVELOPMENT	BOLLARD DETAIL
R-131		CONCRETE MULTI-USE PATH DETAIL
R-132		ACTIVE TRANSPORTATION FACILITY (MULTI-USE ASPHALT PATHWAY)
R-133		PEDESTRIAN AND CYCLING FACILITIES
R-134		MAJOR LOCAL ROAD 19m R.O.W. – 8m PAVEMENT

R-135	2-STAGE CURB AND GUTTER
R-136	PERMANENT ASPHALT SPEED CUSHIONS
R-137	RAISED UNCONTROLLED MIDBLOCK CROSSING
R-138a	TRAFFIC CIRCLE
R-138b	TRAFFIC CIRCLE (W. TURNING MOVEMENT 1)
R-138c	TRAFFIC CIRCLE (W. TURNING MOVEMENT 2)

SEWER SYSTEM

S-101		OUTFALL GRATE MAX. 900mm DIAMETER
S-102		INLET GRATE
S-103		REAR YARD CATCHBASIN GRATE
S-104	K-4	CATCHBASINS
S-105	K-5	PRECAST CATCHBASIN WITHOUT SUMP
S-106		STORM WATER FACILITY POND WARNING SIGN
S-107		SAFETY STATION FOR PONDS AND WATERWAYS
S-108	UNDER DEVELOPMENT	SIDE INLET CATCHBASIN DETAILS
S-109		IFC MAINTENANCE HOLE TAPERED TOP ASSEMBLY
S-110		PATHWAY (TYP.) – ABOVE A NON-CONVENTIONAL SWMF
S-111		ASPHALT PATHWAYS (TYP.) ABOVE A NON-CONVENTIONAL SWMF LOCATED WITHIN PARK
S-112		ARMOUR STONE (TYP.) DETAIL ABOVE A NON-CONVENTIONAL SWMF
S-113		BIKE RACK DETAIL (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-114		IDENTITY SIGNAGE (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-115		GATE (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-116		BOLLARD (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-117		TREE PLANTING (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-118		SHRUB PLANTING (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-119		EXAMPLE STORM CONNECTION DOWNSTREAM FROM A NON-CONVENTIONAL SWMF
S-120		CHAIN LINK SECURITY FENCE (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-121		PEDESTRIAN BICYCLE HAND RAIL (TYP.) DETAIL ABOVE A NON-CONVENTIONAL SWMF
S-122		ASPHALT PAVING HEAVY DUTY (TYP.) ABOVE A NON-CONVENTIONAL SWMF LOCATED WITHIN ROW
S-123		ASPHALT PAVING LIGHT DUTY (TYP.) ABOVE A NON-CONVENTIONAL SWMF LOCATED WITHIN ROW
S-124		DECORATIVE POLE (TYP.) ABOVE A NON-CONVENTIONAL SWMF
S-125		MAINTENANCE HOLE BUMP OUT FROM PEDESTRIAN PATH FOR NON-CONVENTIONAL SWMF
S-126		CONCEPTUAL STORM SEWER CONNECTION TO NON-CONVENTIONAL SWMF
S-127		CONCEPTUAL NON-CONVENTIONAL SWMF WITHIN ROW LAYOUT
S-128a		STORMWATER MANAGEMENT TREE TRENCH PLAN VIEW
S-128b		STORMWATER MANAGEMENT TREE TRENCH PROFILE
S-128c		STORMWATER MANAGEMENT TREE TRENCH INLET-CROSS-SECTION
S-128d		STORMWATER MANAGEMENT TREE TRENCH SOIL CELL CROSS-SECTION
S-128e		STORMWATER MANAGEMENT TREE TRENCH OUTLET CROSS-SECTION
S-128f		STORMWATER MANAGEMENT TREE TRENCH TRCA LID SIZING CALCULATOR
S-128g		STORMWATER MANAGEMENT TREE TRENCH BIORETENTION MEDIA

WATER

W-101	SINGLE VALVE IN CHAMBER
W-102	MULTIPLE VALVE CHAMBER
W-103	AIR RELEASE VALVE CHAMBER
W-104	HYDRANT INSTALLATION
W-105	RESTRAINING OF PVC WATERMAIN AT VALVES AND FITTINGS
W-106	METER, BACKFLOW PREVENTER IN CHAMBER
W-107	METER CHAMBER FOR COPPER SERVICES
W-108	INTENTIONALLY LEFT BLANK

W-109		INDUSTRIAL/COMMERCIAL METER WITH BACKFLOW PREVENTER AND VALVE INSTALLATION (METER ROOM)
W-110		WATER VALVE OPEN/CLOSE DIRECTIONS
W-111		BACKFLOW PREVENTER & CHAMBER FOR 100mm THROUGH 300mm DOUBLE CHECK VALVE ASSEMBLY
W-112	UNDER DEVELOPMENT	TEMPORARY SUPPLY AND DISINFECTION CONNECTION
W-113		WATERMAIN BYPASS SETUP
W-114		FIRE HYDRANT CONNECTION WITH METER AND BACK FLOW PREVENTER
W-115	UNDER DEVELOPMENT	GROUNDWATER FLOW MEASURING DEVICE PIPING LAYOUT
W-116	UNDER DEVELOPMENT	GROUNDWATER SAMPLING ACCESS POINT WITH MAINTENANCE ACCESS HOLE
W-117	UNDER DEVELOPMENT	GROUNDWATER SAMPLING ACCESS POINT
W-118		AUTOMATED IRRIGATION SYSTEM FOR YORK REGION LANDSCAPE MEDIANS

CONNECTIONS

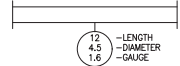
C-101	RESIDENTIAL SERVICE CONNECTIONS
C-102	BLOCK SERVICE CONNECTIONS
C-103	BLOCK WATER CONNECTION
C-104	STORM CONNECTION WITH ORIFICE CONTROL

STREET LIGHTING

SL-100a	STANDARD TRENCH FOR DIRECT BURIED CABLES
SL-100b	STANDARD STREETLIGHTING TRENCH
SL-101	INSTALLATION OF STREETLIGHT CABLE AT ROAD CROSSINGS
SL-102	STREETLIGHT WIRING CONNECTIONS
SL-103	INSTALLATION OF BOLLARD WALKWAY LIGHT SERVICE AT STREETLIGHT POLE
SL-104	STREETLIGHT PEDESTAL BASE DETAIL
SL-105	STREETLIGHT PEDESTAL DETAIL
SL-106	POLE HAND HOLE BREAKER SL1-15
SL-107	POLE HAND HOLE BREAKER SL2-15
SL-108	POLE HAND HOLE BREAKER SL1-50
SL-109	POLE HAND HOLE BREAKER SL2-50
SL-110	VICTORIAN SCROLL ARM 1.5M (5')
SL-111	VICTORIAN SCROLL ARM 1.8M (6')
SL-112	ALUMINUM ELLIPTICAL BRACKET 30' (2.5')
SL-113	ALUMINUM ELLIPTICAL BRACKET 1.83M (6')
SL-114	ALUMINUM ELLIPTICAL BRACKET 2.44M (8')
SL-115	ALUMINUM ELLIPTICAL BRACKET 3M (10')
SL-116	ALUMINUM ELLIPTICAL BRACKET 3.65M (12')
SL-117	TAPERED ROUND CONCRETE POLE 7.6M (25')
SL-118	TAPERED ROUND CONCRETE POST TOP POLE 9.1M (30')
SL-119	TAPERED ROUND CONCRETE POLE 9.9M (32.5')
SL-120	TAPERED ROUND CONCRETE POLE 12.2M (40')
SL-121	TAPERED ROUND CONCRETE POLE 12.9 (42.5')
SL-122	TAPERED ROUND CONCRETE POLE 15.2M (50')
SL-123	DECORATIVE FLUTED OCTAGONAL (POST TOP) POLE 5.3M (17.5')
SL-124	DECORATIVE OCTAGONAL (POST TOP) POLE 6M (19.6')
SL-125	TAPERED OCTAGONAL (POST TOP) POLE 6.1M (20')
SL-126	TAPERED OCTAGONAL POLE 6.1M (20')
SL-127	TAPERED OCTAGONAL POLE 9.9M (32.5')
SL-128	DECORATIVE OCTAGONAL POLE 7.6M (25')
SL-129	DECORATIVE OCTAGONAL POLE 8.2M (27')
SL-130	DECORATIVE FLUTED OCTAGONAL POLE 9.75M (32')
SL-131	DECORATIVE MULTI-UTILITY POLE 9.9M (32.5')
SL-132	DECORATIVE OCTAGONAL POLE 11.1M (36.5')
SL-133	POLE ASSEMBY WALKWAY/PATHWAY LIGHTING 6.1M (20')

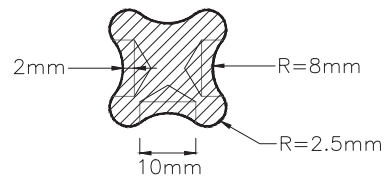
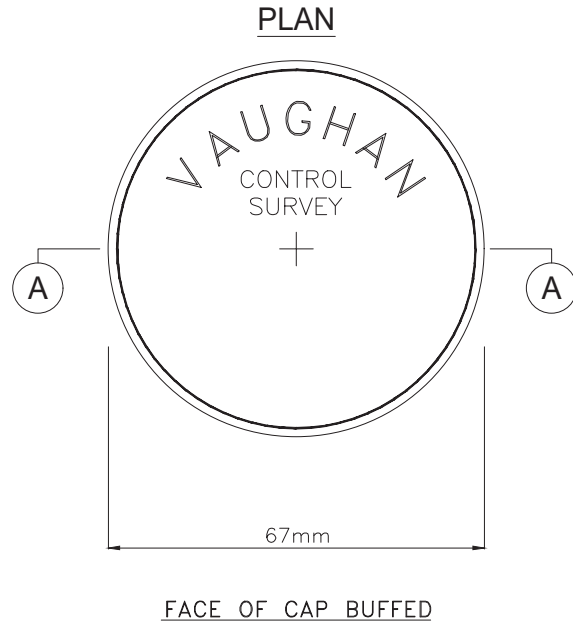
FENCING AND RETAINING WALLS

FRW-101	CHAIN LINK SECURITY FENCE
FRW-102	ACCOUSTIC WOOD FENCE
FRW-103	PRIVACY WOOD FENCE
FRW-104	ACCOUSTIC/PRIVACY FENCE NOTES
FRW-105	PEDESTRIAN/BICYCLE HAND RAIL
FRW-106	FENCE TYPES & PLACEMENT

WATER	SEWER	ROAD															
-- (size) --- W --- EXISTING WATERMAIN ____ (size) WATERMAIN PROPOSED WATERMAIN (UP TO 675mmØ) ____ (size) WATERMAIN PROPOSED WATERMAIN (OVER 675mmØ) ____ (size) VC/VB VALVE CHAMBER / IN BOX ____ (size) AV AIR VALVE IN CHAMBER ____ (size) DV DRAIN VALVE IN CHAMBER HYD HYDRANT & VALVE IN BOX CS CURB STOP ➔ REDUCER └ PLUG └ CAP ⌞ CHECK VALVE ⌞ PRESSURE REDUCING VALVE	-- (size) --SAN/STM-- EXISTING SANITARY / STORM SEWER ____ (size) SANITARY/STORM SEWER PROPOSED SEWER (UP TO 675mmØ) ____ (size) SANITARY/STORM SEWER PROPOSED SEWER (OVER 675mmØ) ____ (size) FDC FOUNDATION DRAIN COLLECTOR --- ○ MH EXISTING MAINTENANCE HOLE --- ● MH PROPOSED MAINTENANCE HOLE --- ○ ○ EXISTING DUAL MAINT. HOLE --- ● ● PROPOSED DUAL MAINT. HOLE --- □ CB EXISTING CATCHBASIN --- ■ CB PROPOSED CATCHBASIN --- □ DCB EX. DOUBLE CATCHBASIN --- ■ DCB PR. DOUBLE CATCHBASIN FM (size) ○ PS FORCE MAIN & PUMPING STATION --- ○ CB/MH CATCHBASIN MH ===== CONC. ENCASEMENT	/// /// /// REMOVAL SYMBOL ===== CURB & GUTTER OR CONCRETE CURB ____ (width) C.S.W. CONCRETE SIDEWALK ____ (height & type) FENCE ____ (type) GUIDE RAIL ===== PROPERTY LINE / STREET LINE ===== DITCH / SWALE ===== EXISTING CULVERT ● S/MB SIGN / MAIL BOX HP/BP/TP/ LP/TL ● HP HYDRO POLE/BELL POLE TIE POLE/LIGHT POLE TRAFFIC LIGHT															
GENERAL  CHANGE OF ROAD GRADE (PROFILE DRAWING)  CONCRETE THRUST BLOCK  BM(number) BENCH MARK (description, location, elevation in notes)  CHANGE IN HORIZONTAL DIRECTION OF WATERMAIN (PROFILE DRAWING)  FIB/SIB/RIB PROPERTY BAR  BH(number) BORE HOLE		UNDERGROUND UTILITIES ----- G ----- GAS MAIN ----- B ----- BELL CABLE/CONDUIT ----- H ----- HYDRO CABLE ----- B & H ----- BELL & HYDRO (COMMON TRENCH) ===== PROPOSED CULVERT  12" - LENGTH 4.5" - DIAMETER 1.6" - GAUGE <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 5%; text-align: center;">2.</td> <td style="width: 85%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td style="text-align: center;">1.</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">REVISIONS</td> <td style="text-align: center;">DATE</td> </tr> </table>  VAUGHAN CITY OF VAUGHAN ENGINEERING STANDARD LEGEND OF SYMBOLS <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 33%;">NOT TO SCALE</td> <td style="width: 33%;">DESIGNED: _____</td> <td style="width: 34%; text-align: center;">STD. DWG.</td> </tr> <tr> <td>REVISION: _____</td> <td>DATE: DEC. 2020</td> <td style="text-align: center;">G - 102</td> </tr> </table>	2.			1.				REVISIONS	DATE	NOT TO SCALE	DESIGNED: _____	STD. DWG.	REVISION: _____	DATE: DEC. 2020	G - 102
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	REVISIONS	DATE															
NOT TO SCALE	DESIGNED: _____	STD. DWG.															
REVISION: _____	DATE: DEC. 2020	G - 102															

STD. DWG.
G - 103

FILE: O:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\ColStandardDrawings_CAD_2021\G-104 -Geodetic Control Survey Marker TypeA.dwg



SECTION B-B

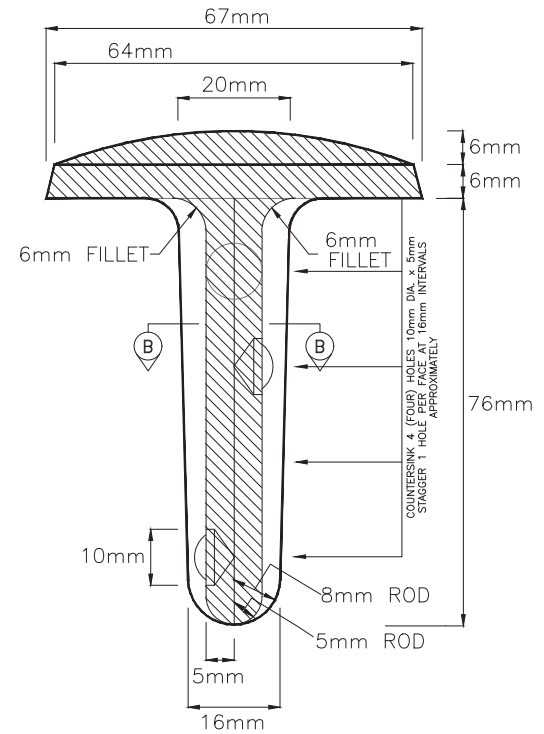
NOTE

1. REFER TO DRAWING STD. G-106 FOR ENGRAVING / STAMPING DETAILS.

MATERIAL - BRASS OR BRONZE WITH NOT LESS THAN 83% COPPER CONTENT.
B METAL 0.78 lbs.



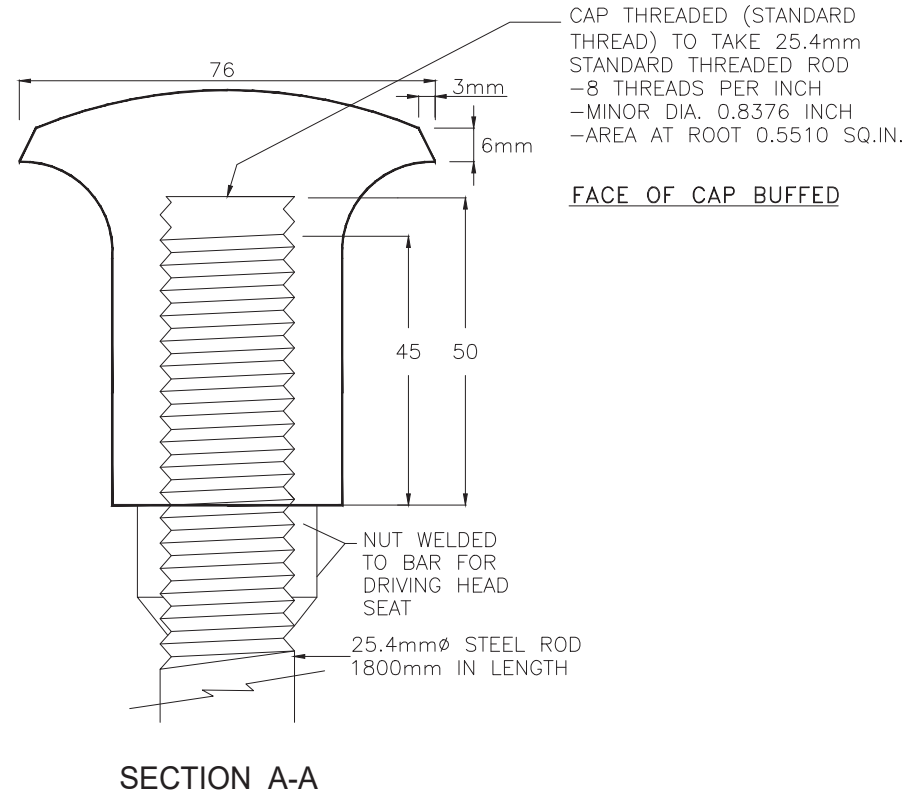
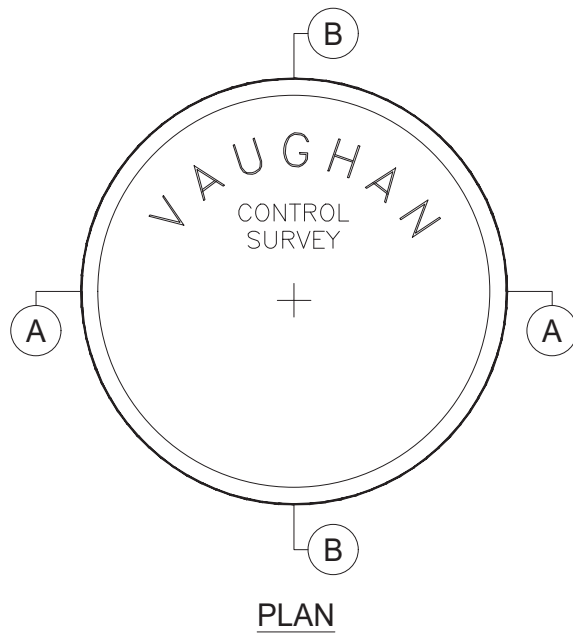
mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



SECTION A-A

4.		
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REVISIONS		DATE
 VAUGHAN		
CITY OF VAUGHAN ENGINEERING STANDARD		
GEODETIC CONTROL SURVEY MARKER - TYPE A		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	G - 104

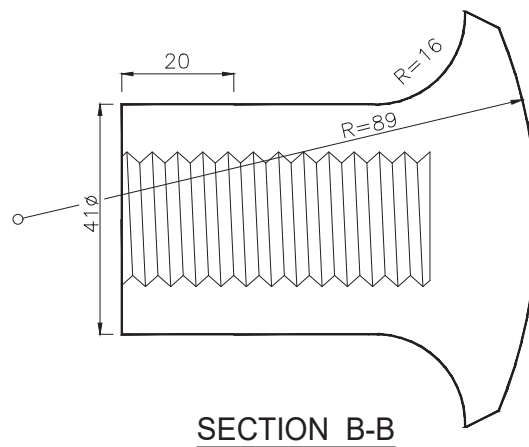
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NOTE

1. REFER TO DRAWING STD. G-106 FOR ENGRAVING / STAMPING DETAILS.

MATERIAL - BRASS OR BRONZE WITH NOT LESS THAN 83% COPPER CONTENT.
B METAL 2 32 lbs.



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CITY OF VAUGHAN ENGINEERING STANDARD		
GEODETIC CONTROL SURVEY MARKER - TYPE B		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	G - 105

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

FILE: O:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\ColStandardDrawings_CAD_2021\G-106 - Geodetic Control Survey Marker Engraving+Stamping.dwg



CITY CODE NUMBER

2 DIGIT YEAR

4 DIGIT MONUMENT NUMBER

PLAN VIEW

LETTER STYLE - STANDARD GOTHIC

LETTER SIZE - 5mm STROKE CENTRE
TO STROKE CENTRE;
6mm EDGE TO EDGE FOR
OUTER INSCRIPTION
3mm STROKE CENTRE
TO STROKE CENTRE;
3mm EDGE TO EDGE FOR
INNER INSCRIPTION

LETTER DEPTH - 1mm

LETTER TAPERED 20° PER SIDE

4.		
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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

GEODETIC CONTROL
SURVEY MARKER ENGRAVING / STAMPING

NOT TO SCALE

DESIGNED: _____

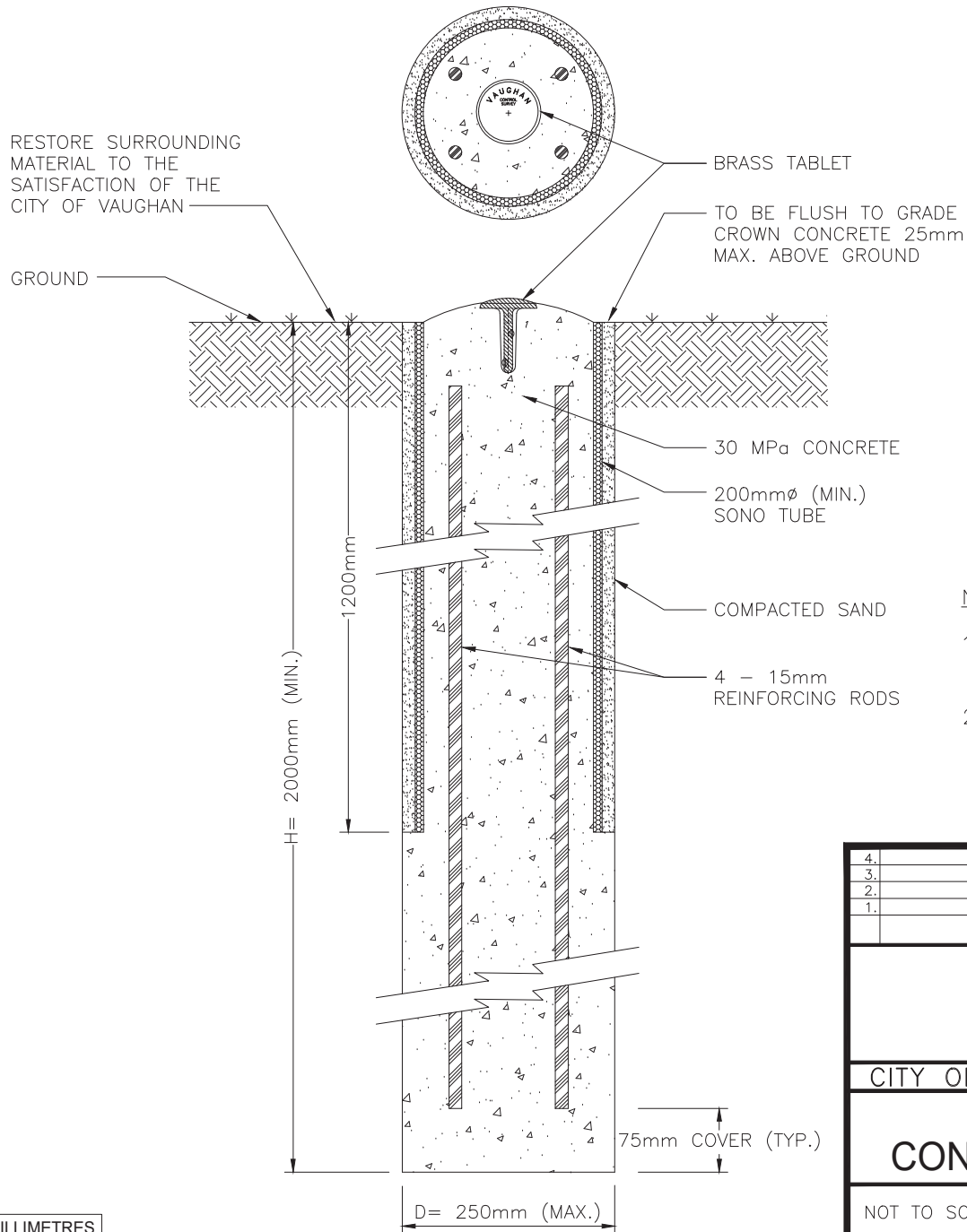
REVISION: _____

DATE: DEC. 2020

STD. DWG.

G - 106

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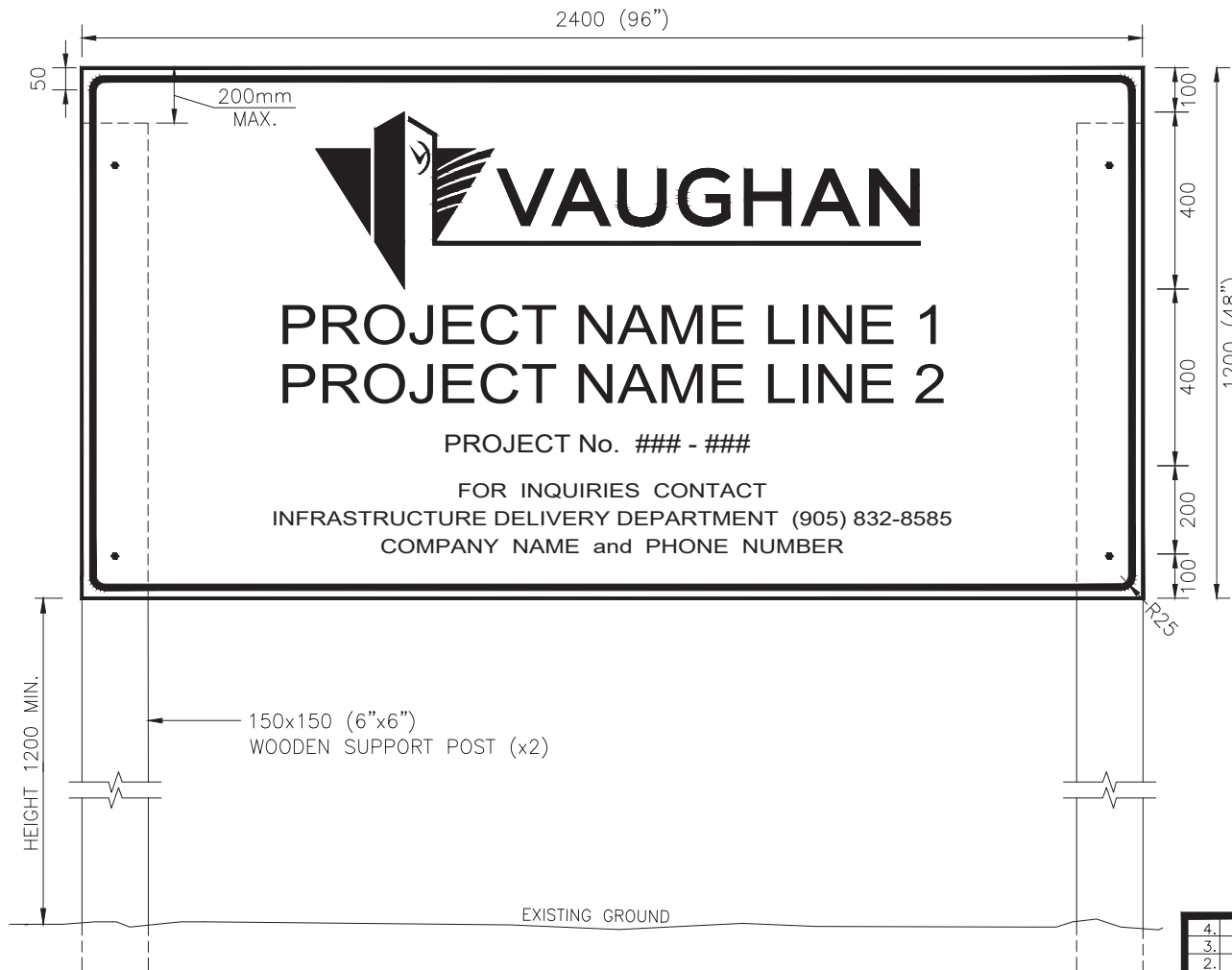
NOTE

1. REFER TO DRAWING STD. G-106 FOR ENGRAVING / STAMPING DETAILS.
2. REFER TO DRAWING STD. G-104 FOR BRASS TABLET DETAILS.

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REVISIONS		DATE
 VAUGHAN		
CITY OF VAUGHAN ENGINEERING STANDARD		
GEODETIC CONTROL CONCRETE SURVEY MARKER		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	G - 107

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

FILE: C:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\City Standards\Drawings_CAD_2021\G-108 - Project Sign.dwg



NOTES

1. PROJECT TITLE & CONTRACT NUMBER TO BE PROVIDED BY THE CITY.
2. COMPANY NAME & NUMBER TO BE CONFIRMED.
3. MINIMUM 20mm THICK PLYWOOD SIGN.
4. WOODEN SUPPORT POSTS TO BE INSTALLED AS PER OPSD 985.220

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

SIGN COLOURS & FONTS

BACKGROUND: WHITE

CITY LOGO:

GRAPHIC AVAILABLE ON CITY WEB SITE
PANTONE 376 GREEN
PANTONE 294 BLUE

EDGE STRIPE:

WIDTH-15mm, PANTONE 294 BLUE
CORNER RADIUS-25mm

PROJECT NAME: (TWO LINES PREFERRED)

UNIVERS 65 BOLD-250 pt, PANTONE 294 BLUE, UPPER CASE
LINE 1: PRIMARY STREET WHERE WORK IS TAKING PLACE e.g. "MCKENZIE STREET"
LINE 2: PROJECT TYPE (PRIMARY WORK) e.g. "WATERMAIN REPLACEMENT"

CONTRACT NUMBER: (1 LINE)

UNIVERS 55 ROMAN BOLD-115 pt, PANTONE 294 BLUE, UPPER CASE

CONTACT INFORMATION: (3 LINES)

UNIVERS 55 ROMAN BOLD-90 pt, PANTONE 294 BLUE, UPPER CASE



CITY OF VAUGHAN ENGINEERING STANDARD

PROJECT SIGN

NOT TO SCALE

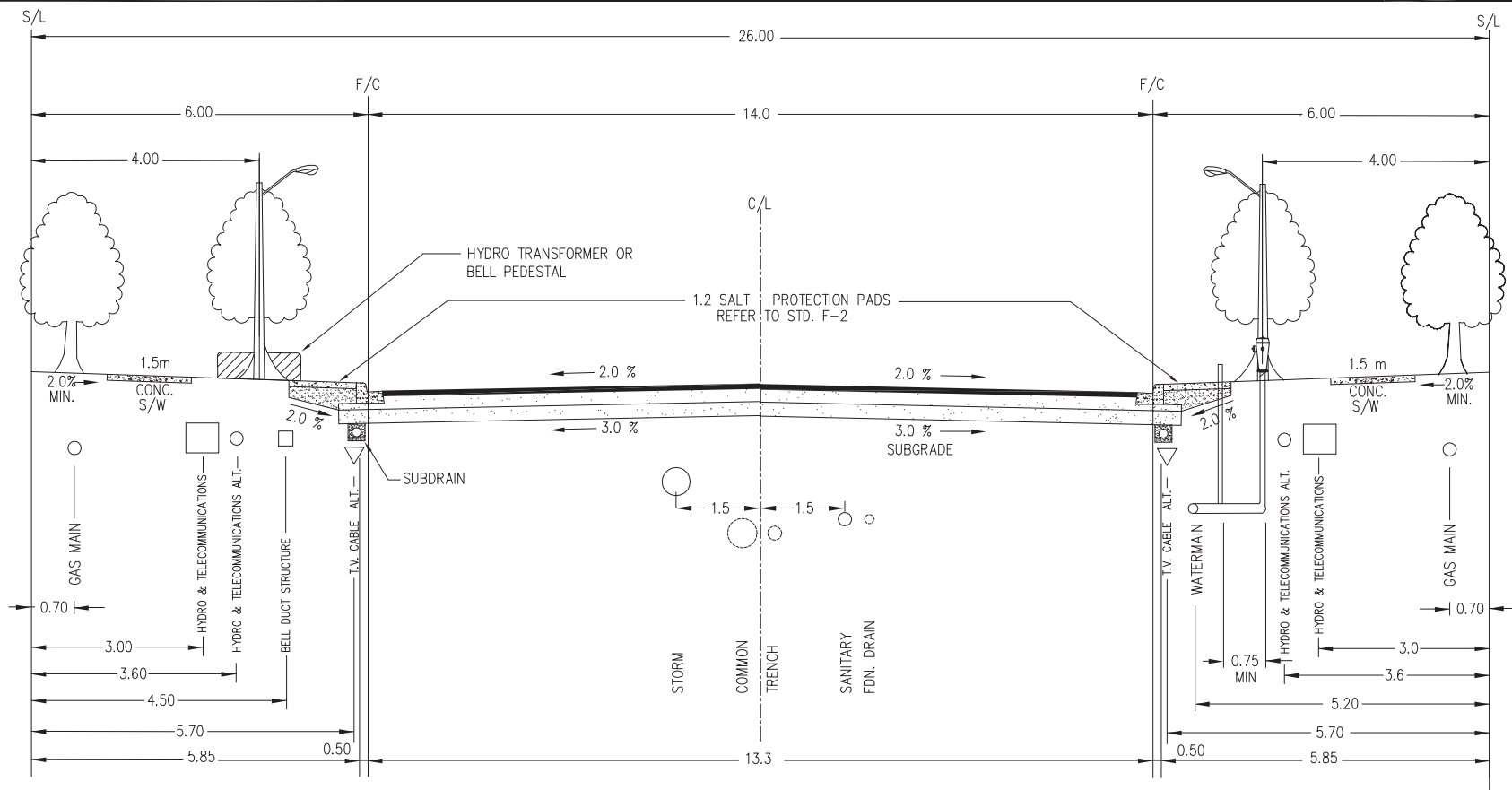
DESIGNED: _____

REVISION: _____

DATE: DEC. 2020

STD. DWG.

G - 108

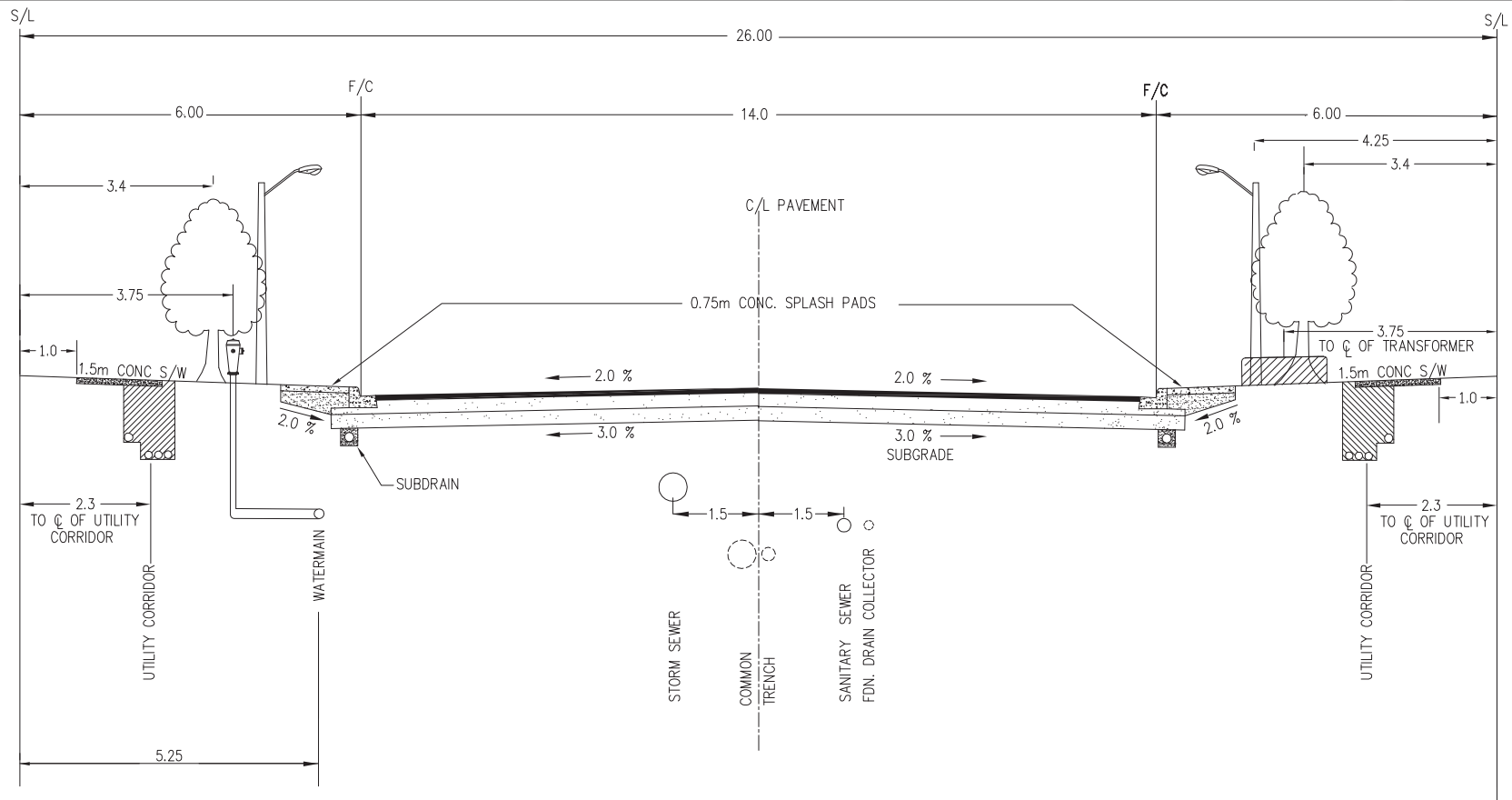


NOTES

1. PAVEMENT WIDTH IS DESIGNED TO ACCOMMODATE 4 TRAVEL LANES OR 2 TRAVEL LANES WITH 2 PARKING LANES.
2. PAVEMENT DESIGN SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
3. ACTIVELY GROWING No. 1 NURSERY SOD TO BE LAID ON 150mm OF TOPSOIL, PROPERLY GRADED AND ROLLED.
4. DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

4.		
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REVISIONS		DATE
Vaughan <i>The City Above Toronto</i> ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
MAJOR COLLECTOR ROAD 26m R.O.W.		
NOT TO SCALE		DESIGNED: <u>ENG. DEPT.</u>
REVISION: _____		DATE: <u>MARCH 2004</u>
		STD. DWG.
		B - 3



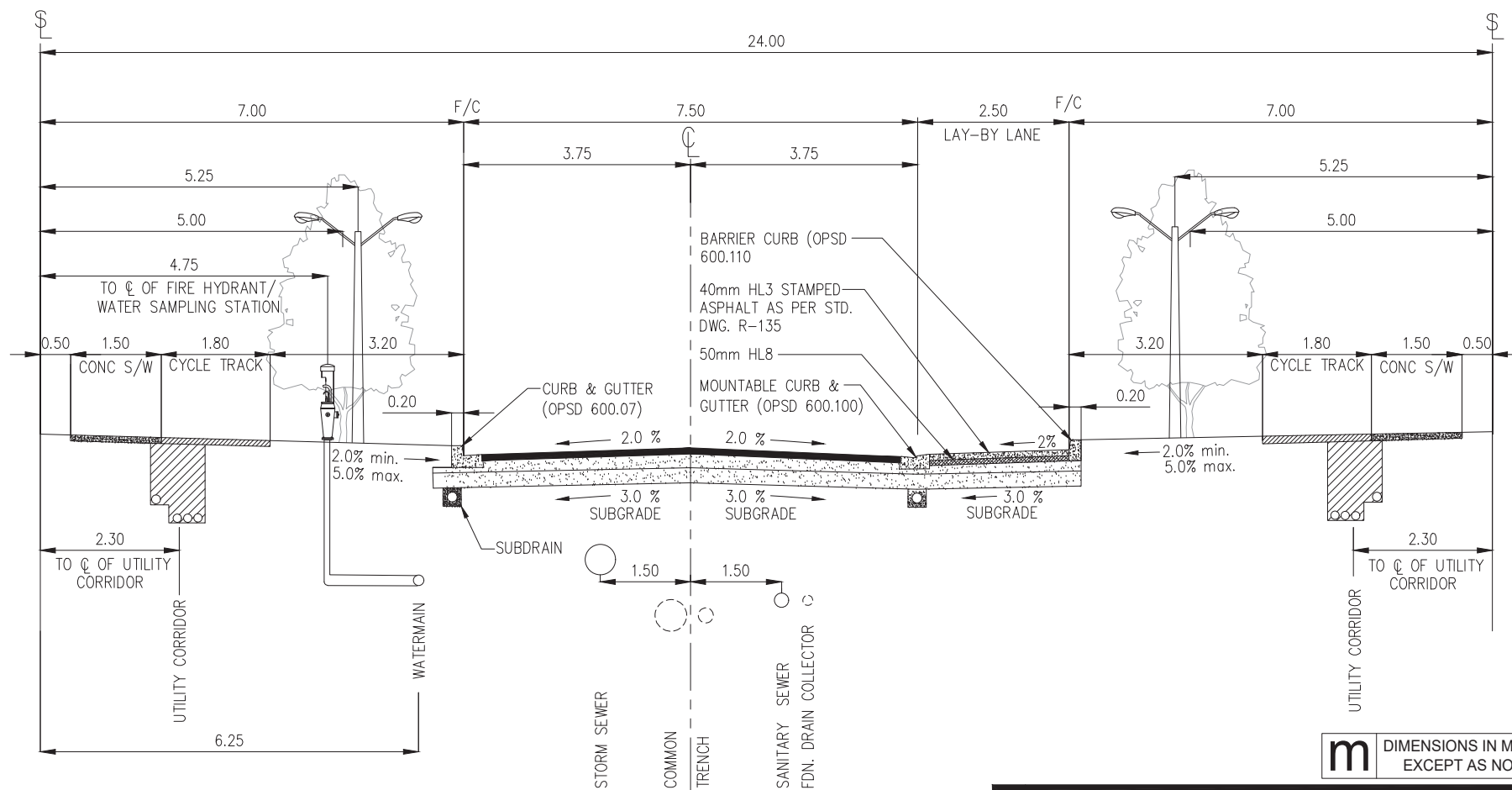
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DIMENSIONS IN METRES
EXCEPT AS NOTED

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1.		
REVISIONS		DATE
 		
CITY OF VAUGHAN ENGINEERING STANDARD		
MAJOR COLLECTOR ROAD 26m R.O.W. - 14m PAVEMENT		
NOT TO SCALE		DESIGNED: <u>ENG. DEPT.</u>
REVISION: _____		DATE: <u>MARCH 2004</u>
		STD. DWG. B - 8



NOTES

1. PAVEMENT DESIGN SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
2. ACTIVELY GROWING No. 1 NURSERY SOD TO BE LAID ON 150mm OF TOPSOIL, PROPERLY GRADED AND ROLLED.
3. DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.
4. COLOR AND PATTERN OF CONCRETE UNIT PAVERS TO BE APPROVED BY THE ENGINEERING DEPARTMENT IN CONSULTATION WITH THE URBAN DESIGN DEPARTMENT.
5. REFER TO BIKEWAY TRAFFIC CONTROL GUIDELINES FOR CANADA (LATEST EDITION, TAC & O.T.M., YORK REGION) FOR TYPICAL BICYCLE FACILITY SPECIFICATIONS INCLUDING PAVEMENT MARKING & SIGNAGE AND INTERSECTION APPLICATION.
6. THE DEDICATED CYCLE TRACK WIDTH OF 1.8m SHOULD BE ACCOMMODATED WHERE POSSIBLE
7. WHERE RAISED PLANTER OR VERTICAL OBJECT WILL ABUT THE CYCLE TRACK, 0.5m OF CLEARANCE MUST BE PROVIDED.
8. THE SUBSTITUTION OF SEPARATED PEDESTRIAN AND CYCLING FACILITIES INSTEAD OF COMBINED FACILITIES IS ACCEPTABLE. THE DESIGN OF THE ACTIVE TRANSPORTATION FACILITIES SHOULD BE CONFIRMED WITH CITY STAFF.
9. PARKING PERMITTED WITHIN THE LAY-BY-LANE.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

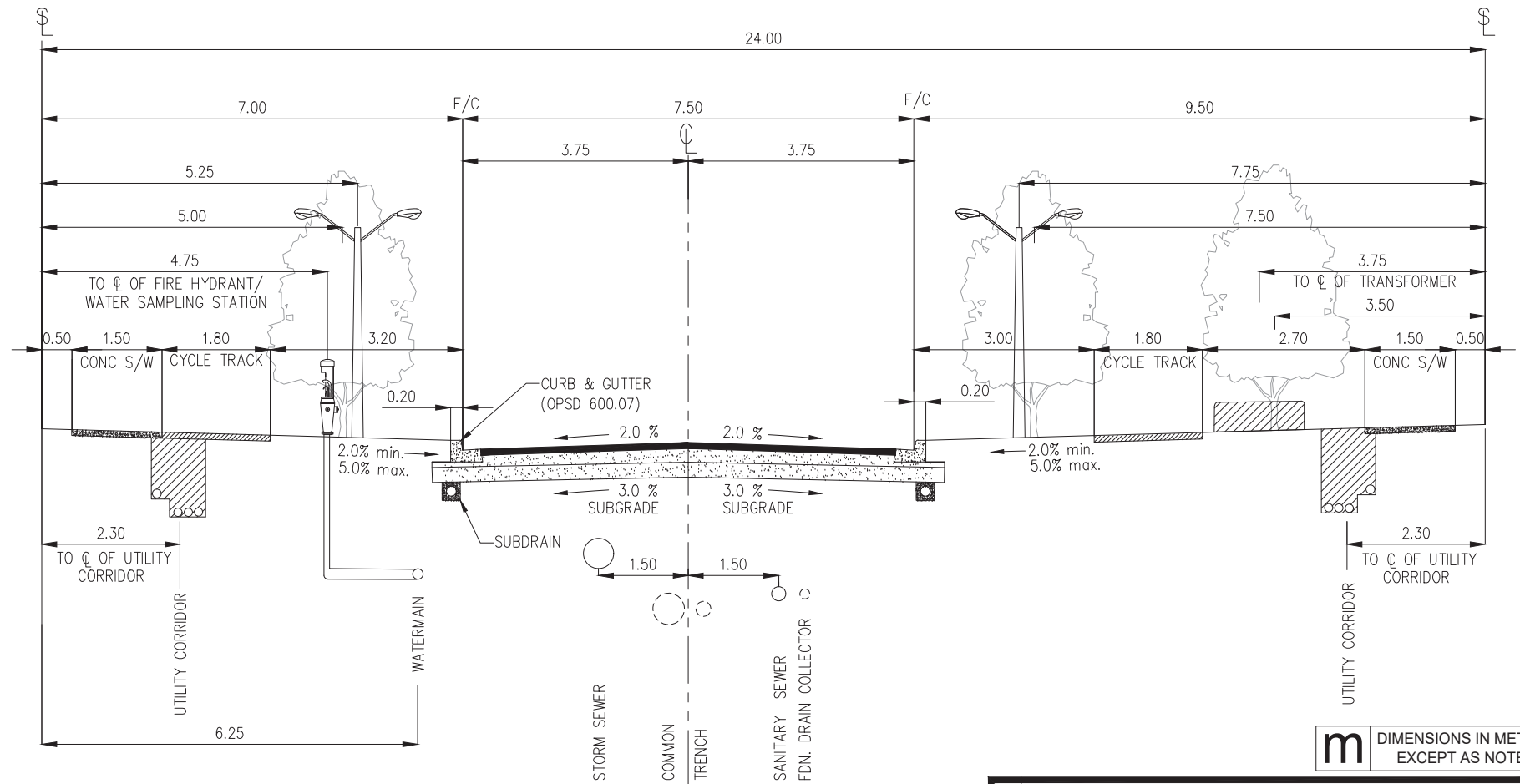
MINOR COLLECTOR ROAD 24m R.O.W. (WITH LAY-BY LANE)

NOT TO SCALE DESIGNED: _____

REVISION: DATE: JAN. 2022

STD. DWG.
R - 102

\\fs01\vaughan\Infrastructure Delivery\Infrastructure Programming\MD\City Standards\Design Criteria\2020-21\City Standards Update\Folder\CollateralDrawings_CAD_2021\B-103 - Minor Collector Road - 24m ROW - w.o. Lay-By Lane.dwg

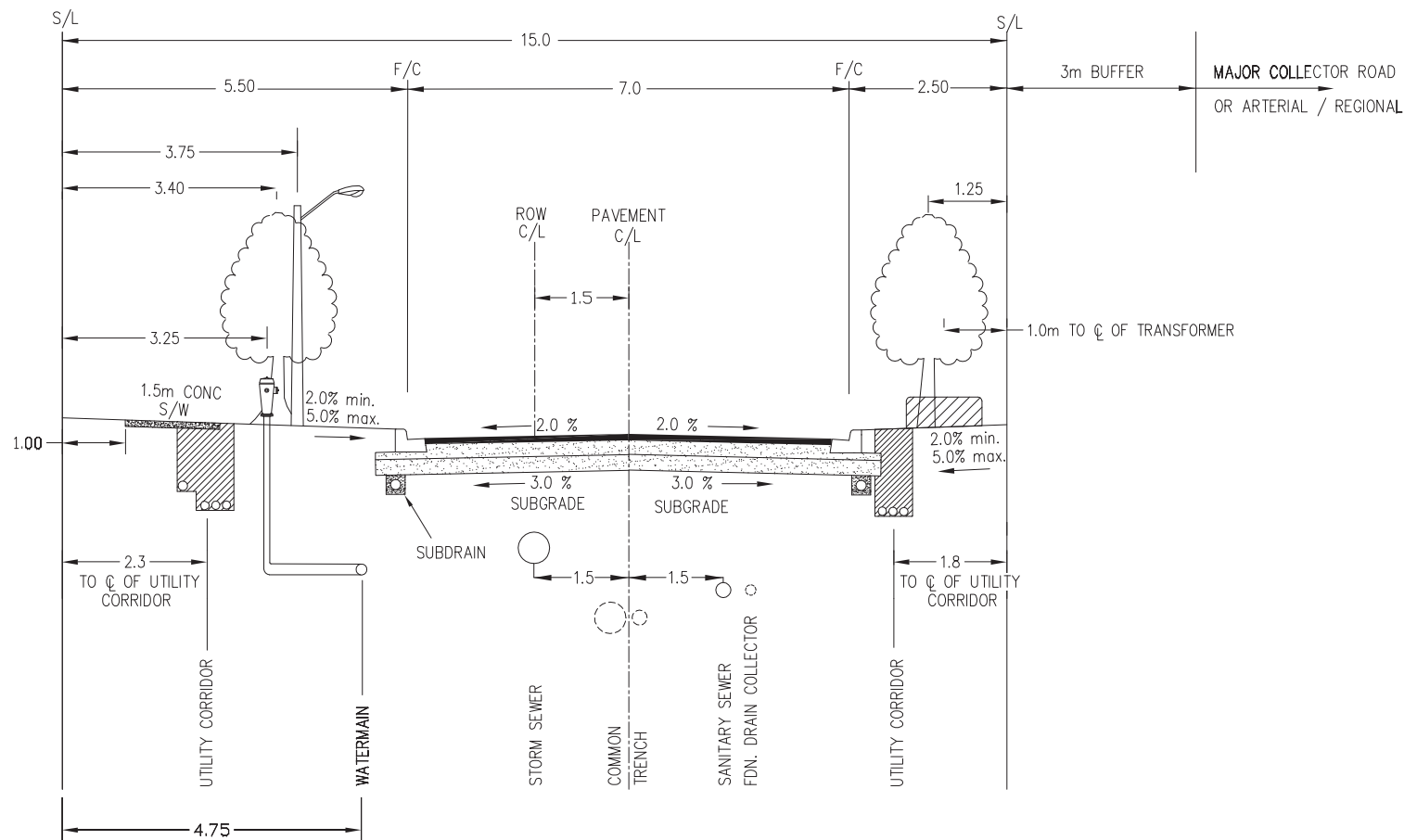


m DIMENSIONS IN METRES
EXCEPT AS NOTED

NOTES

1. PAVEMENT DESIGN SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
2. ACTIVELY GROWING No. 1 NURSERY SOD TO BE LAID ON 150mm OF TOPSOIL, PROPERLY GRADED AND ROLLED.
3. DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.
4. COLOR AND PATTERN OF CONCRETE UNIT PAVERS TO BE APPROVED BY THE ENGINEERING DEPARTMENT IN CONSULTATION WITH THE URBAN DESIGN DEPARTMENT.
5. REFER TO BIKEWAY TRAFFIC CONTROL GUIDELINES FOR CANADA (LATEST EDITION, TAC & O.T.M., YORK REGION) FOR TYPICAL BICYCLE FACILITY SPECIFICATIONS INCLUDING PAVEMENT MARKING & SIGNAGE AND INTERSECTION APPLICATION.
6. THE DEDICATED CYCLE TRACK WIDTH OF 1.8m SHOULD BE ACCOMMODATED WHERE POSSIBLE.
7. WHERE RAISED PLANTER OR VERTICAL OBJECT WILL ABUT THE CYCLE TRACK, 0.5m OF CLEARANCE MUST BE PROVIDED.
8. THE SUBSTITUTION OF SEPARATED PEDESTRIAN AND CYCLING FACILITIES INSTEAD OF COMBINED FACILITIES IS ACCEPTABLE. THE DESIGN OF THE ACTIVE TRANSPORTATION FACILITIES SHOULD BE CONFIRMED WITH CITY STAFF.
9. PARKING NOT PERMITTED ON THE ROADWAY.

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CITY OF VAUGHAN ENGINEERING STANDARD		
MINOR COLLECTOR ROAD		
24m R.O.W. (W/O LAY-BY LANE)		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: JUN. 2021	R - 103



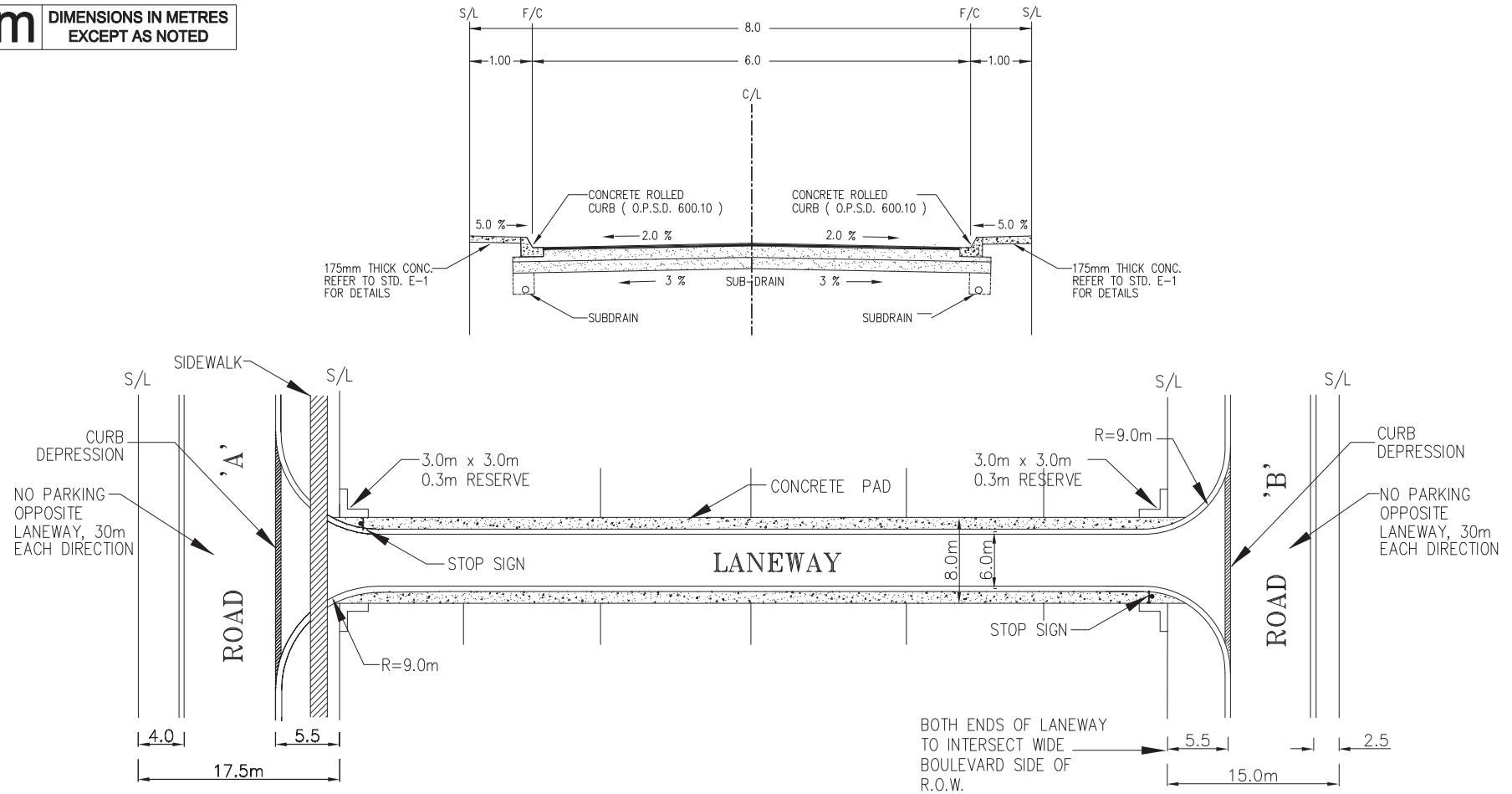
NOTES

- PAVEMENT WIDTH IS DESIGNED TO ACCOMMODATE 2 TRAVEL LANES WITH NO PARKING.
- PAVEMENT DESIGN SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
- ACTIVELY GROWING No. 1 NURSERY SOD TO BE LAID ON 150mm OF TOPSOIL, PROPERLY GRADED AND ROLLED.
- DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.
- BUFFER ROAD SHALL ONLY BE USED ADJACENT TO MAJOR COLLECTOR OR HIGHER CLASSIFICATION ROAD.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS		DATE
Vaughan <i>The City Above Toronto</i> ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
BUFFER ROAD 15 m R.O.W. - 7m PAVEMENT		
NOT TO SCALE	DESIGNED: <u>ENG. DEPT.</u>	STD. DWG.
REVISION: _____	DATE: <u>MARCH 2004</u>	B - 13

m DIMENSIONS IN METRES
EXCEPT AS NOTED



NOTES

1. STOP SIGN SIZE 60cm x 60cm INTERSECTING (15.0m/17.5m/20.0m/23.0m) R.O.W.
2. "NO PARKING FIRE ROUTE" SIGNS TO BE INSTALLED AT ENTRY POINTS AND LOCATED 45.0m APART THEREAFTER (WHENEVER POSSIBLE).
3. ALL SIGNS TO BE INSTALLED ON U—CHANNEL GALVANIZED STEEL POSTS.
4. STREET NAME SIGNS TO ON 150mm DOUBLE FACED ALUMINUM BLADES (REFLECTORIZED).
5. ALL REGULATORY SIGNS MANUFACTURED USING HIGH INTENSITY SHEETING.
6. LUMINAIRES TO BE PROVIDED ON GARAGES WHERE APPLICABLE.
7. PAVEMENT DEPTH SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
8. DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.

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CITY OF VAUGHAN ENGINEERING STANDARD		
LANEWAY 8m R.O.W. - 6m PAVEMENT		
NOT TO SCALE	DESIGNED: <u>ENG. DEPT.</u>	STD. DWG.
REVISION: _____	DATE: <u>MARCH 2004</u>	B - 14

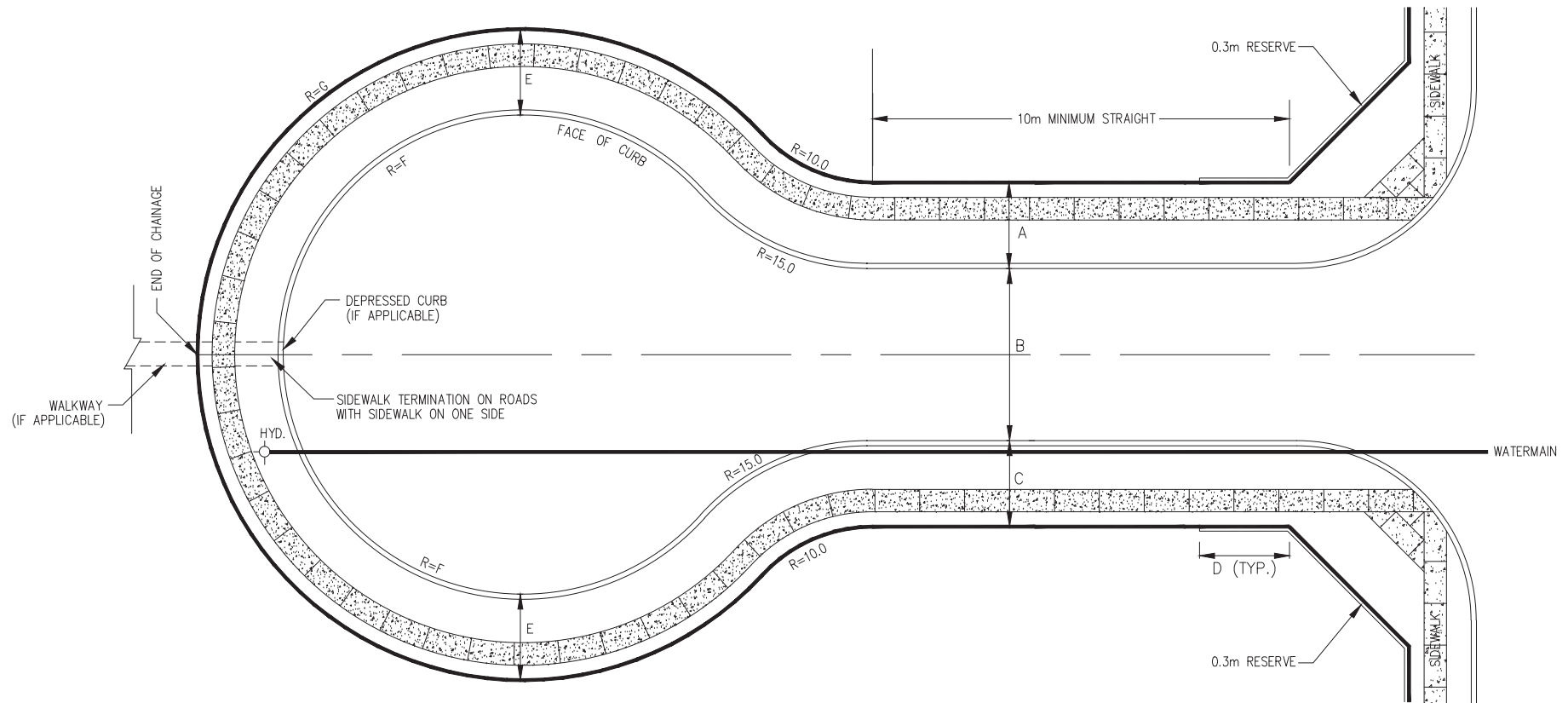


TABLE:

	R.O.W.	A	B	C	D	E	F	G
MINOR COLLECTOR/INDUSTRIAL ROAD	24.0m	5.5	10.5	8.0	6.0*	5.5	16.0	21.5
LOCAL ROAD	17.5m	4.0	8.0	5.5	3.0	5.5	13.25	18.75

NOTES

1. AT THE CURB, THERE SHALL BE A MIN. 1.0m BARRIER CURB BETWEEN EVERY DRIVEWAY AROUND THE BULB OF THE CUL-DE-SAC.
2. HYDRANT TO BE LOCATED AT THE END OF THE WATERMAIN, AS CLOSE TO THE END OF THE CUL-DE-SAC AS POSSIBLE.
3. MINIMUM 0.7% GUTTER GRADE.
4. MAXIMUM 40 UNITS ON CUL-DE-SAC.



DIMENSIONS IN METRES
EXCEPT AS NOTED

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1.	*REVISED/UPDATED TABLE	11/24
	REVISIONS	DATE

CITY OF VAUGHAN ENGINEERING STANDARD

CUL-DE-SAC

NOT TO SCALE

DESIGNED: _____

STD. DWG.

REVISION: 1

DATE: JUN. 2021

R - 107

1. MINIMUM 0.7% GUTTER GRADE.
2. BOULEVARD WIDTHS TO BE MAINTAINED AS PER ROAD CROSS-SECTION DETAILS.
3. APPLICABLE ONLY TO ROADS BELOW MAJOR COLLECTOR STATUS.
4. AT THE CURB ON THE OUTSIDE OF THE BEND THERE SHALL BE A MINIMUM 1.0m SPACE BETWEEN EVERY SECOND DRIVEWAY.

ROAD TYPE	S	D	RI
LOCAL ROAD	5	—	10
MAJOR OR MINOR COLLECTOR	8	6	12

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	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

ANGLE BEND

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: DEC. 2020

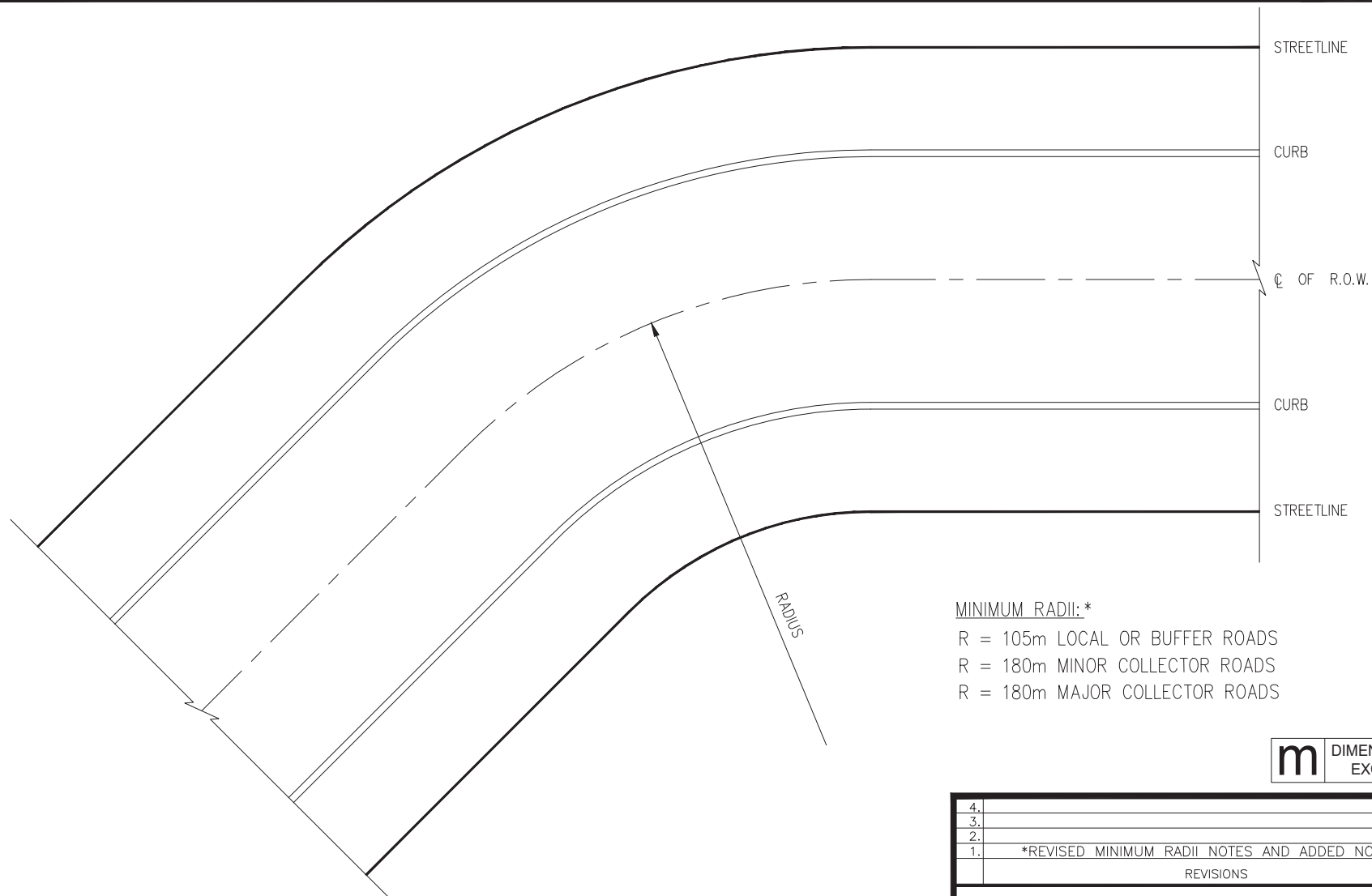
STD. DWG.

R - 108



DIMENSIONS IN METRES
EXCEPT AS NOTED

FILE: C:\Users\audimnap\CITY OF VAUGHAN\City Standards - General\Design Criteria 2024\Dev - Standards\CD\ R-109 - Horizontal Curved.dwg



MINIMUM RADII: *

- R = 105m LOCAL OR BUFFER ROADS
- R = 180m MINOR COLLECTOR ROADS
- R = 180m MAJOR COLLECTOR ROADS

m DIMENSIONS IN METRES
EXCEPT AS NOTED

NOTES:

1. BOULEVARD WIDTHS TO BE MAINTAINED AS PER ROAD CROSS-SECTION DETAILS THROUGHOUT THE CURVE.
2. 20m MINIMUM STRAIGHT R.O.W. BEYOND/BETWEEN CURVES.
3. FOR OTHER CURB RADII REFER TO DESIGN CRITERIA.
4. VALUES PROVIDED RELATE TO CROWN ROADWAY SECTIONS AND THE VALUES REFLECT NORMAL CROWN. VALUES MAY BE REDUCED IN CONSULTATION WITH THE CITY BY WAY OF APPLYING ROADWAY SUPER-ELEVATION OR REDUCING DESIGN SPEED UPON APPROVAL BY THE CITY.*

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1.	*REVISED MINIMUM RADII NOTES AND ADDED NOTE #4	11/24
REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

HORIZONTAL CURVE

NOT TO SCALE
DESIGNED: _____
REVISION: 1 DATE: DEC. 2020

STD. DWG.
R - 109

NOTES

1. ALL ROADS TO INTERSECT AT 90°.
2. MAJOR AND MINOR LEGS OF THE INTERSECTION MAY REQUIRE 2.0m MEDIAN SUBJECT TO CITY REQUEST.
3. LANE MARKINGS TO BE TAPERED IN ACCORDANCE WITH O.T.M. BOOK 11.
4. LOCAL TO ARTERIAL INTERSECTIONS DISCOURAGED & WHERE NECESSARY THEIR DESIGN MUST BE APPROVED BY THE CITY AND REGION (WHERE APPLICABLE).
5. INCREASED CURB RADII CAN BE CONSIDERED WHERE JUSTIFIED BASED ON HIGH TRAFFIC AND/OR BUS VOLUMES EXPECTED.

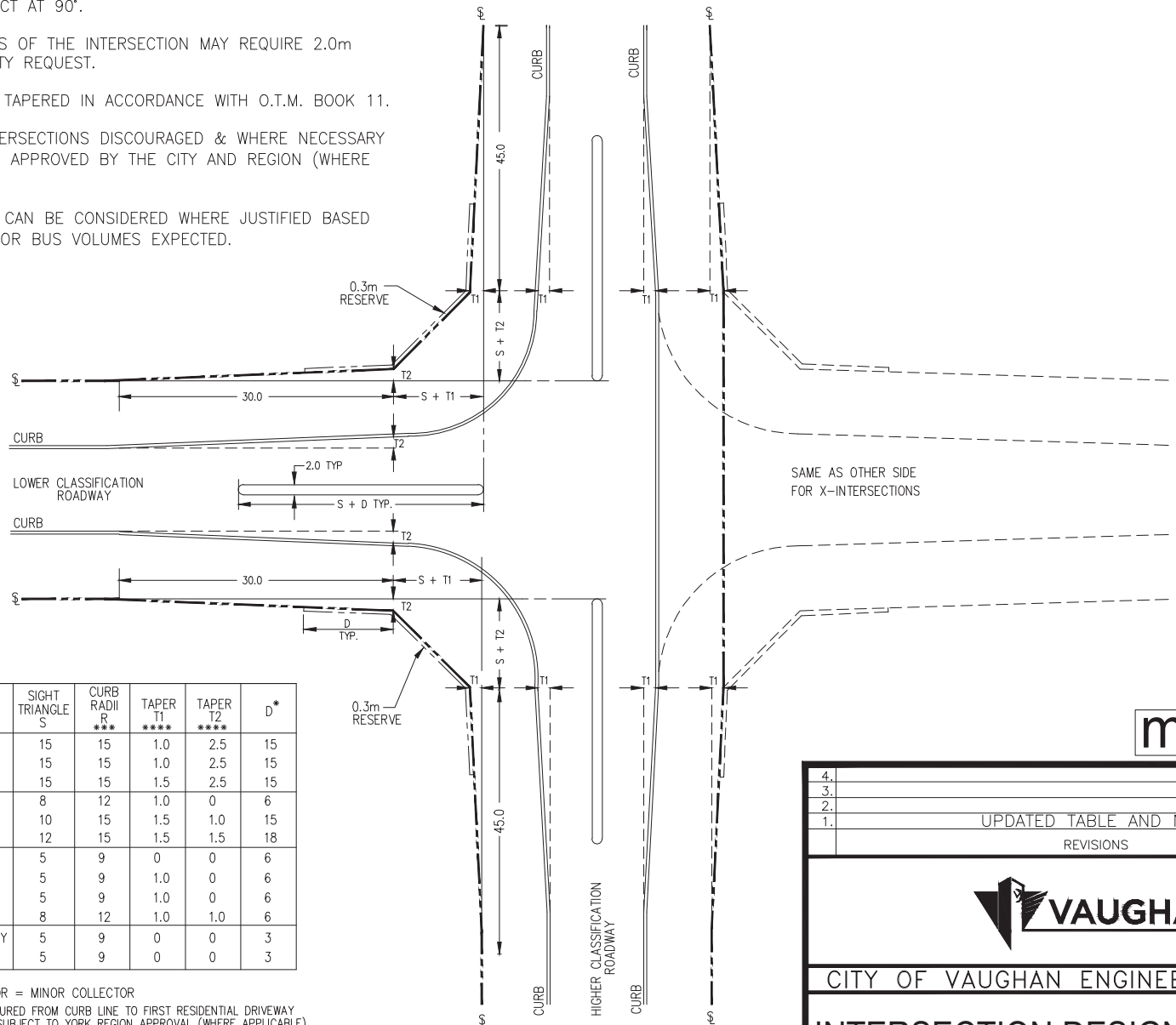


TABLE:

INTERSECTION OF:	SIGHT TRIANGLE S	CURB RADII R ***	TAPER T1 ****	TAPER T2 ****	D*
ARTERIAL AND LOCAL **	15	15	1.0	2.5	15
ARTERIAL AND MINOR **	15	15	1.0	2.5	15
ARTERIAL AND MAJOR **	15	15	1.5	2.5	15
MAJOR AND LOCAL	8	12	1.0	0	6
MAJOR AND MINOR	10	15	1.5	1.0	15
MAJOR AND MAJOR	12	15	1.5	1.5	18
MINOR AND LANEWAY	5	9	0	0	6
MINOR AND LOCAL	5	9	1.0	0	6
MINOR AND BUFFER	5	9	1.0	0	6
MINOR AND MINOR	8	12	1.0	1.0	6
LOCAL AND LOCAL/BUFFER/LANEWAY	5	9	0	0	3
BUFFER AND BUFFER/LANEWAY	5	9	0	0	3

MAJOR = MAJOR COLLECTOR; MINOR = MINOR COLLECTOR

* SUBJECT TO MAXIMUM 25m MEASURED FROM CURB LINE TO FIRST RESIDENTIAL DRIVEWAY (NOT MULTI-UNIT APPARMENTS) SUBJECT TO YORK REGION APPROVAL (WHERE APPLICABLE).

** UNLESS OTHERWISE REQUIRED BY YORK REGION

*** THE CITY WOULD WELCOME SMALLER CURB RADII TO BENEFIT PEDESTRIANS IN URBAN AREAS, INTENSIFICATION AREAS AND AREAS WITH HIGHER DENSITY. THE CITY'S TRANSPORTATION MASTER PLAN MAKES RECOMMENDATIONS FOR OPTIMUM CURB RADII (CITY OF VAUGHAN 2012, 6-21). PROPOSALS TO REDUCE CURB RADII SHALL BE SUPPORTED BY A TRANSPORTATION CONSULTANT.

**** THE PROVISION OF TAPER T1 AND T2 IS SUBJECT TO CITY DISCRETION/REQUIREMENT.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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1.	UPDATED TABLE AND NOTES	11/24
	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

INTERSECTION DESIGN GUIDELINES

NOT TO SCALE

DESIGNED: _____

REVISION: 1

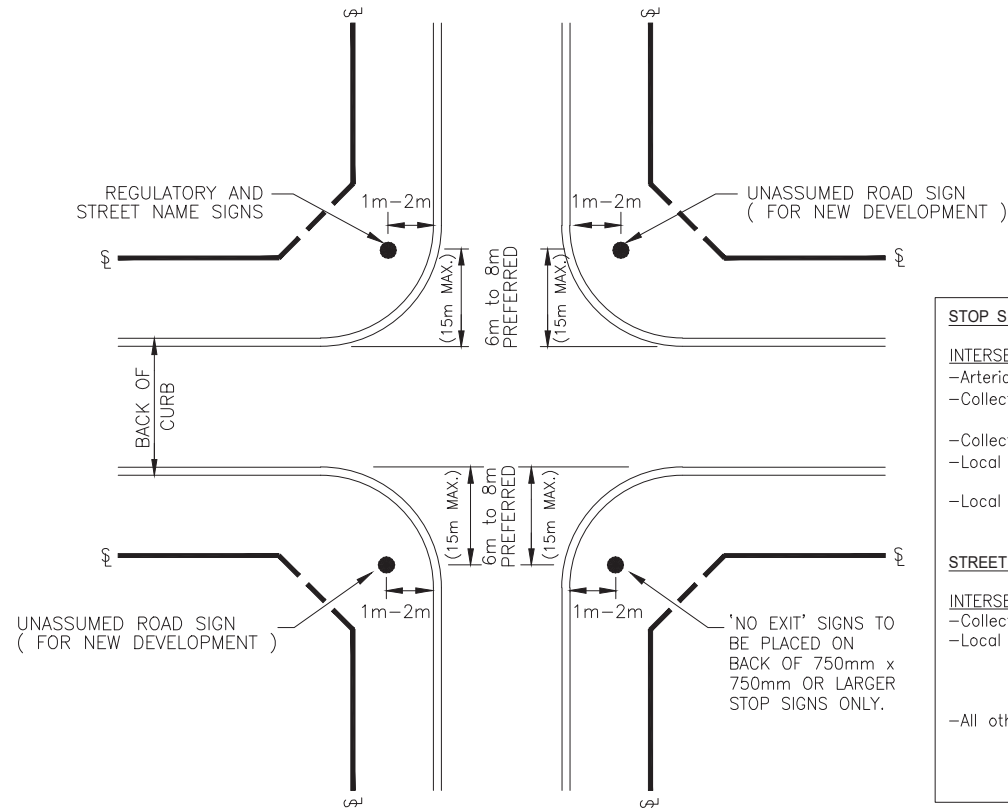
DATE: AUG. 2021

STD. DWG.

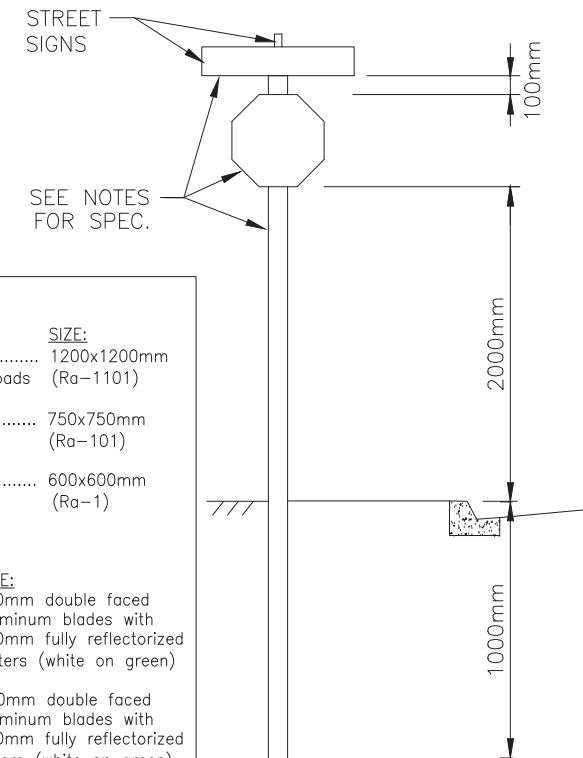
R - 110

FILE: C:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria\2020-21\City Standards Update Folder\City Standards Drawings_CAD_2021\R-111 - Street Signs.dwg

LOCATION PLAN



INSTALLATION DETAIL



STOP SIGN SIZES

INTERSECTION:	SIZE:
-Arterial to Arterial, Collector (14m),	1200x1200mm
-Collector (14m) to Collector (14m) roads (Ra-1101)	
-Collector (11.5m) to Collector (14m).....	750x750mm
-Local to Collector	(Ra-101)
-Local to Local roads	600x600mm
	(Ra-1)

STREET NAME SIGN SIZES

INTERSECTION:	SIZE:
-Collector to Local	150mm double faced
-Local to Local roads	aluminum blades with
	100mm fully reflectorized
	letters (white on green)
-All other roads	200mm double faced
	aluminum blades with
	150mm fully reflectorized
	letters (white on green)

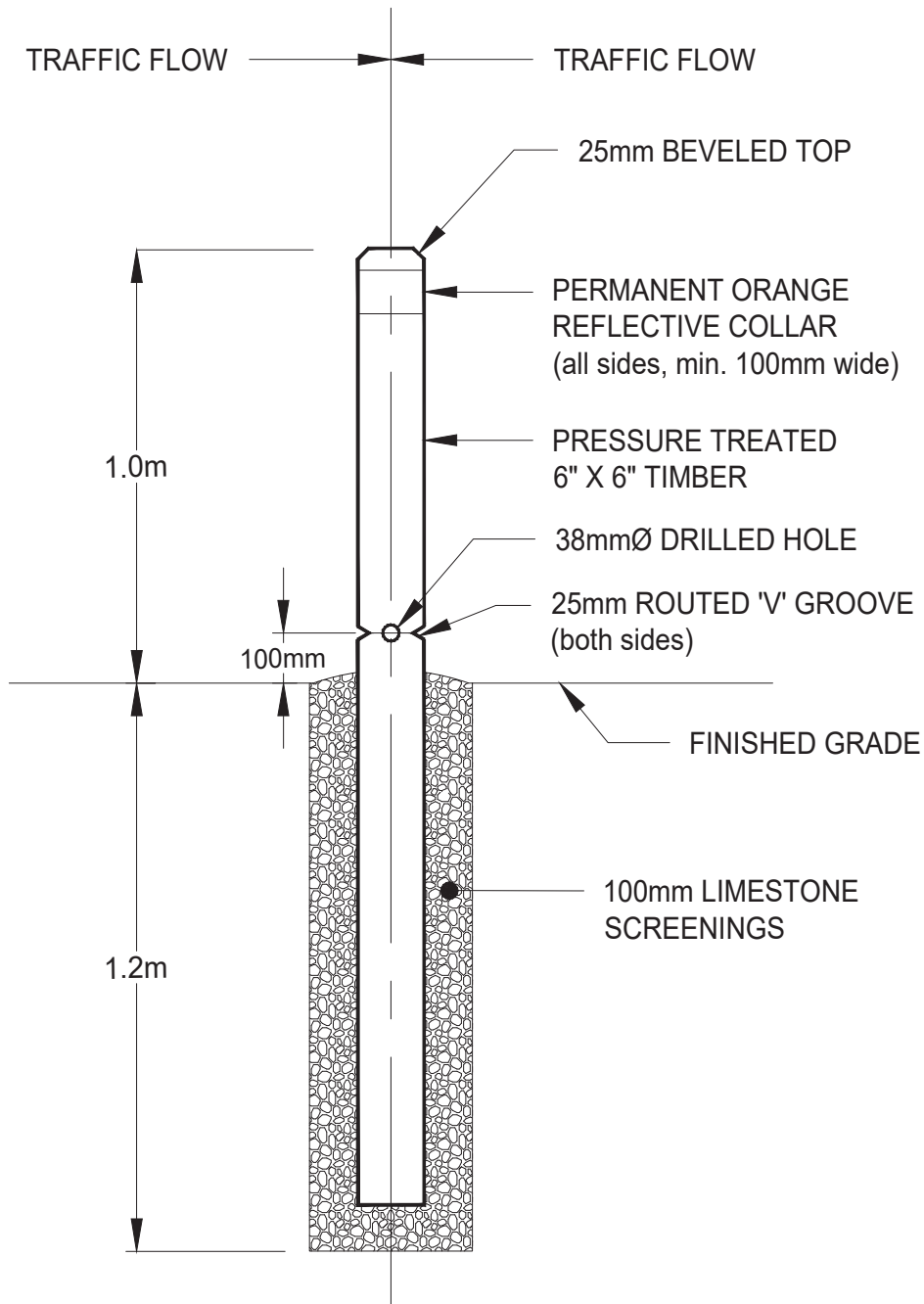
NOTES

1. REGULATORY SIGN AS PER OHTA REG. 615/95 OR AMENDMENTS THEREOF.
2. ALL REGULATORY SIGNS MANUFACTURES USING HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING STAMPED WITH DATE (MONTH/YEAR) ON SIGN FACE BY MANUFACTURER.
3. SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH MTOD 986.101, 986.105, 987.101, 987.105 AND OPSS 915.
4. REGULATORY AND STREET SIGNS MAY BE PLACED ON LIGHT STANDARDS, PROVIDED THEY ARE CLEARLY VISIBLE AND WITHIN SPECIFIED LOCATIONS.
5. SPECIAL CIRCUMSTANCES MAY WARRANT LARGER STOP SIGNS, OR SECOND STOP SIGN ON SAME APPROACH.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
STREET SIGNS		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	R - 111

FILE: Q:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\CoStandardDrawings_CAD_2021\R-112 - Breakaway Bollard Detail.dwg

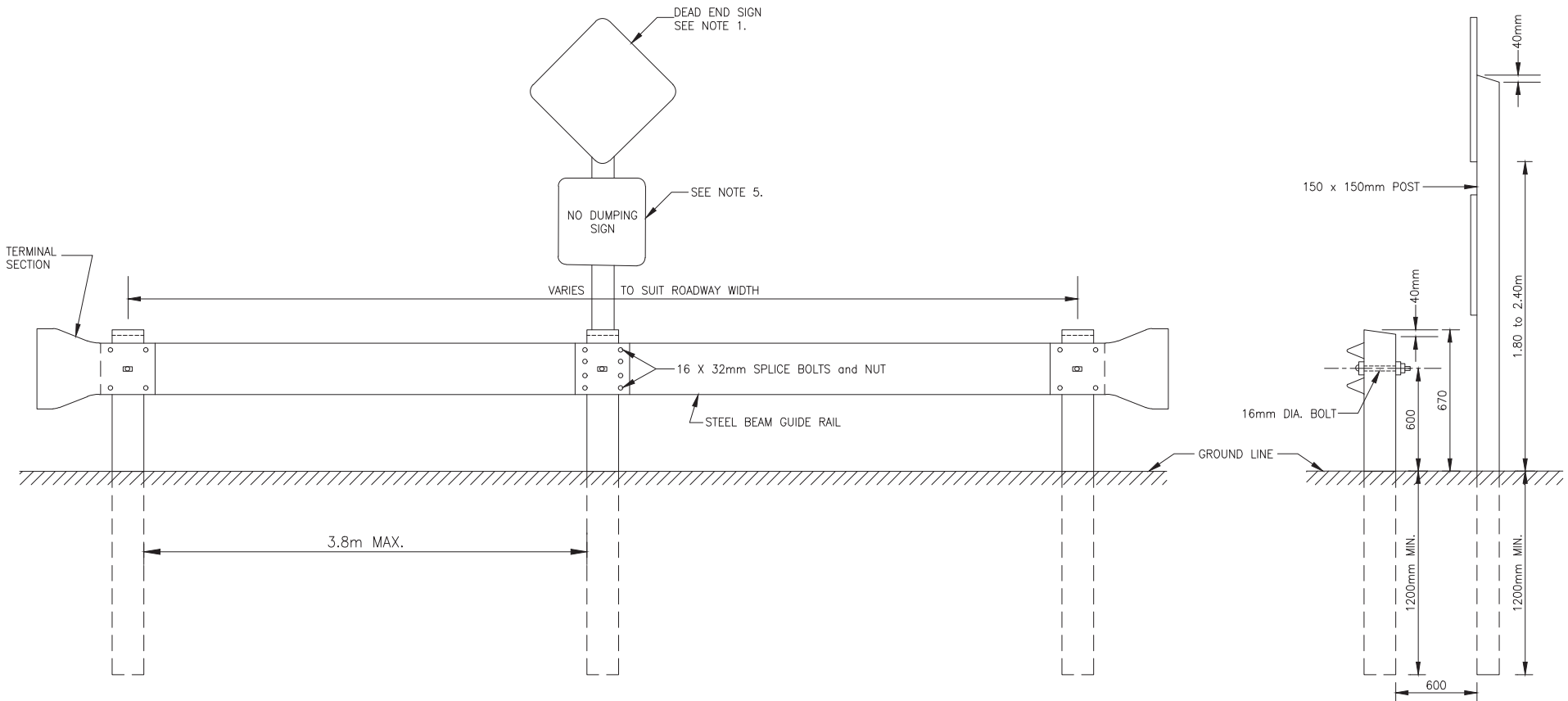


NOTE:

1. BOLLARDS MUST BE PLACED WITH 'V' GROOVES PERPENDICULAR TO TRAFFIC FLOW.
2. BOLLARD POSTS TO BE INSTALLED WITH MIN 2.0m CLEARANCE FROM ANY FIXED STRUCTURE/OBSTACLE

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
BREAKAWAY BOLLARD DETAIL		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	R - 112

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



ELEVATION

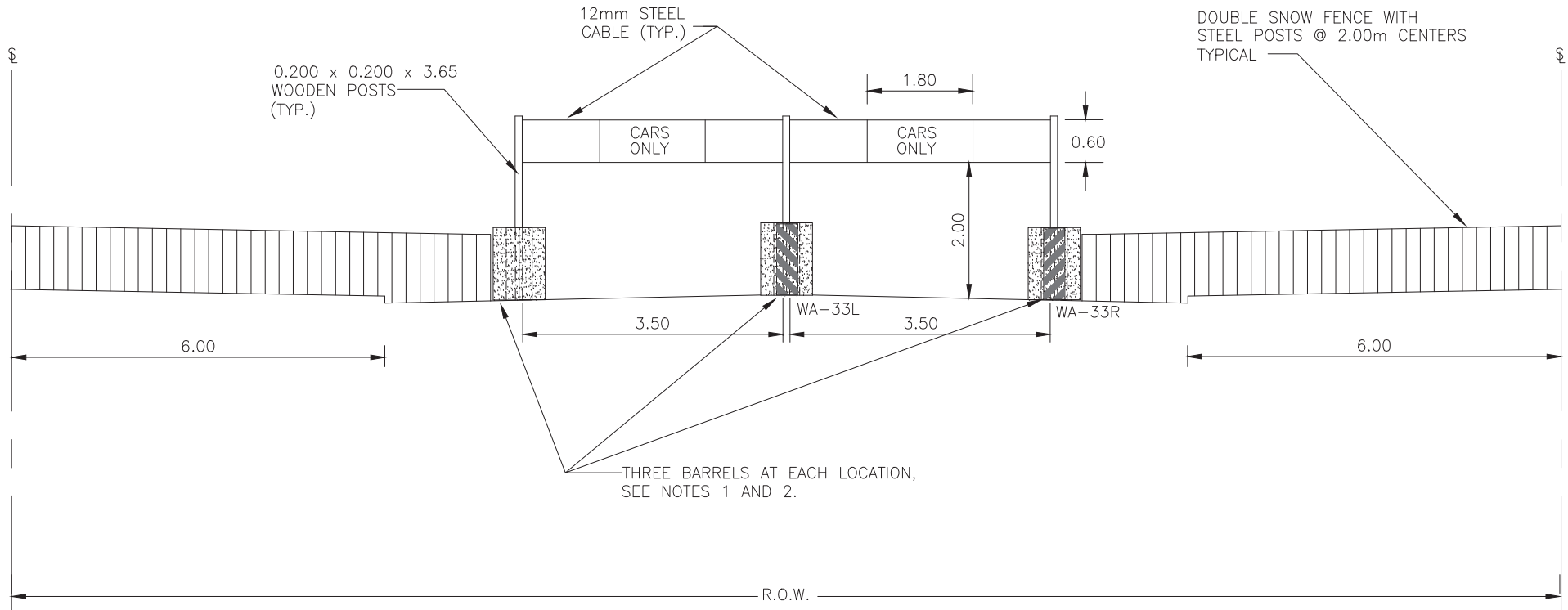
NOTES

1. DEAD END SIGN AS SPECIFIED IN THE ONTARIO TRAFFIC MANUALS (OTM)
2. ALL METAL TO BE GALVANIZED.
3. DEAD END BARRICADES REQUIRED WHEN A ROAD ENDS WITHOUT A TURNING CIRCLE AND TO EXTEND 2.0m BEYOND CURB LINE.
4. ALL POSTS TO BE GALVANIZED STEEL.
5. NO DUMPING SIGN TO BE IN ACCORDANCE WITH THE CITY STANDARDS (TRANSPORTATION SERVICES, PARKS AND FORESTRY OPERATIONS)

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
DEAD END BARRICADE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	R - 113

FILE: C:\Infrastructure\Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria\2020-21\City Standards Update\Folder\Co\StandardDrawings_CAD_2021\R-114 - Construction Traffic Barricades.dwg



NOTES

1. TWO FRONT BARRELS TO BE FILLED WITH SAND; REAR BARREL TO BE FILLED WITH CONCRETE.
2. CONTRACTOR TO EMBED 200 x 200mm POSTS IN REAR BARREL.
3. MINIMUM LANE WIDTH TO BE 3.00m.
4. MINIMUM CLEARANCE FROM BOTTOM OF OVERHEAD SIGN TO ROAD TO BE 2.00m.
5. CABLE TO BE ATTACHED TO POSTS WITH BOLTS TO PERMIT EMERGENCY VEHICLES TO CUT THE BOLTS AND NOT THE CABLES TO GAIN ACCESS.
6. OVERHEAD SIGNS SHALL HAVE AN ORANGE BACKGROUND WITH A BLACK LEGEND MESSAGE AND SIGN BORDER.
7. ALL SIGNS SHALL BE REFLECTORIZED TO SHOW THE SAME COLOUR AND SHAPE BY DAY AS BY NIGHT.
8. SIGNAGE TO BE THE SAME FOR OPPOSING DIRECTION.
9. DELINEATORS TO BE INSTALLED ON BOTH OPENINGS, BOTH DIRECTIONS.



DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

CONSTRUCTION TRAFFIC BARRICADES

NOT TO SCALE

DESIGNED: _____

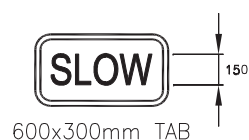
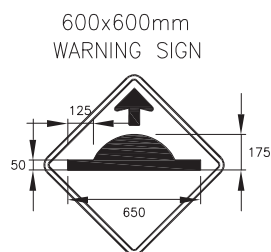
REVISION: _____

DATE: DEC. 2020

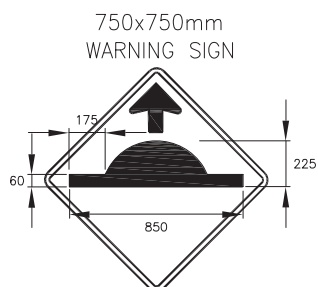
STD. DWG.

R - 114

SPEED HUMP, RAISED CROSSWALK & RAISED INTERSECTION



INSTALL ON
LOCAL ROADS



INSTALL ON PRIMARY/FEEDER
ROADS OR ABOVE

ROUNDABOUT



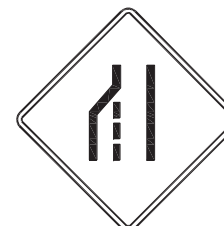
INSTALL ON
LOCAL ROADS



INSTALL ON PRIMARY/FEEDER
ROADS OR ABOVE

MEDIAN

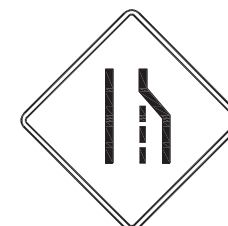
750x750mm
WA-23L LANE
REDUCTION SIGN



INSTALL IF MEDIAN RESULTS
IN LANE REDUCTION

CURB EXTENSION & CHICANE

750x750mm
WA-23R LANE
REDUCTION SIGN



INSTALL IF CURB
EXTENSION OR CHICANE
RESULTS IN LANE REDUCTION

INSTALL IN BOTH DIRECTIONS PER THE FOLLOWING (EXCEPT AS NOTED):

1. 100m IN ADVANCE OF EACH MEASURE IF ON LOCAL ROAD, 150m IF ON PRIMARY/FEEDER ROAD OR ABOVE.
2. IN ADVANCE OF SERIES OF MEASURES IF THEY ARE LESS THAN 300m APART.
3. ON PROPERTY LINES WHEREVER POSSIBLE.
4. ON EXISTING LIGHT STANDARD OR UTILITY POLE IF WITHIN 30m OF LOCATION DETERMINED THROUGH PRECEDING STEPS.

TRAFFIC-CALMED NEIGHBOURHOOD

600x450mm
WHITE ON GREEN SIGN



600x225mm
WHITE ON GREEN TAB

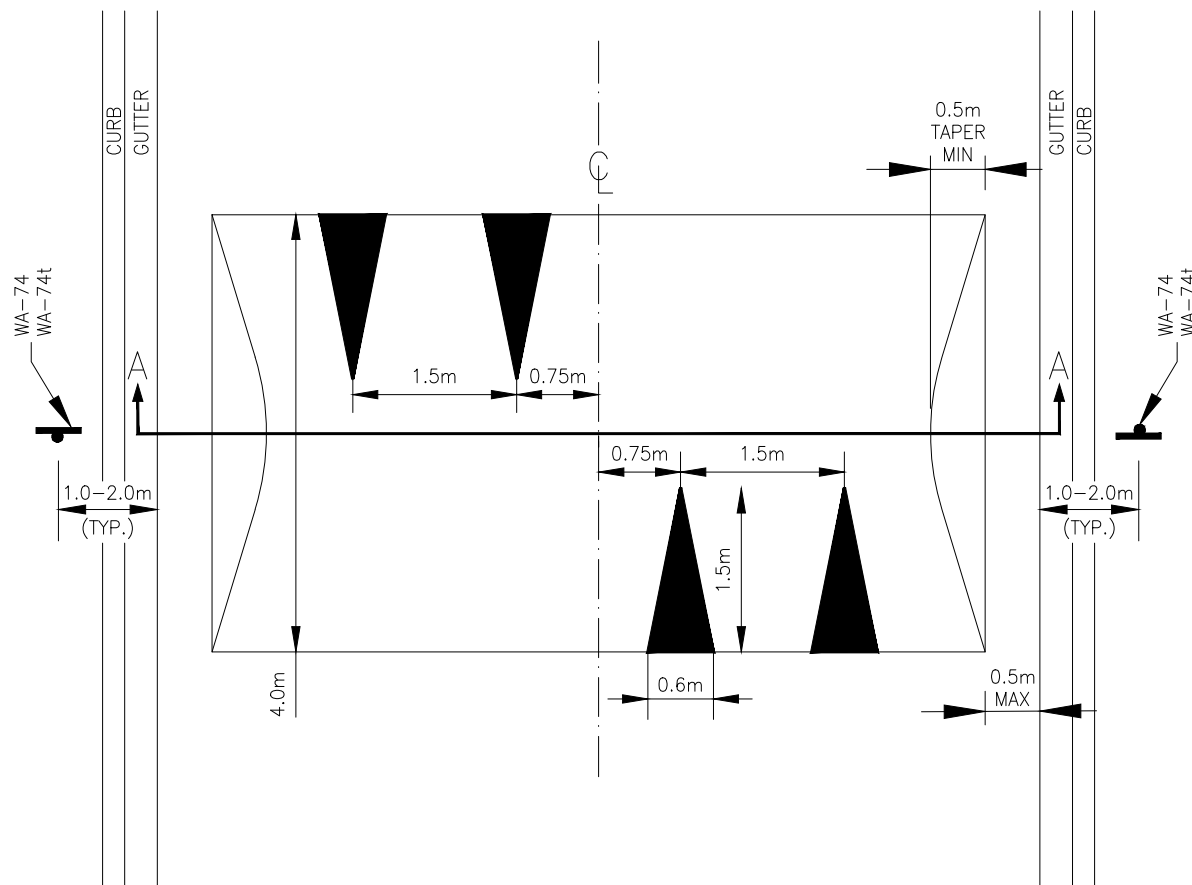
INSTALL ON ALL STREETS
ENTERING A TRAFFIC CALMED
NEIGHBOURHOOD
(MIN. 20m FROM ARTERIAL ROAD
WHEREVER POSSIBLE)

NOTES:

1. ALL SIGNS MUST BE VISIBLE TO MOTORISTS FROM A DISTANCE OF 65m ON LOCAL ROADS, AND 85m ON PRIMARY/FEEDER ROADS WHEREVER POSSIBLE. TRIM OR RELOCATE OBSTRUCTING BOULEVARD TREES IF NECESSARY.
2. LETTERING AND SYMBOLS TO BE BLACK ON HIGH INTENSITY REFLECTIVE YELLOW BACKGROUND, EXCEPT WHERE NOTED.
3. MOUNT ON 3.7m U-CHANNEL GALVANIZED STEEL POSTS, OR EXISTING LIGHT STANDARDS OR UTILITY POLES IF APPROPRIATE.
4. MOUNT SO THAT BOTTOM EDGE OF WARNING SIGN IS BETWEEN 2.0 AND 2.5m HIGH AND ROADSIDE EDGE IS AT LEAST 0.3m BEHIND CURB.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

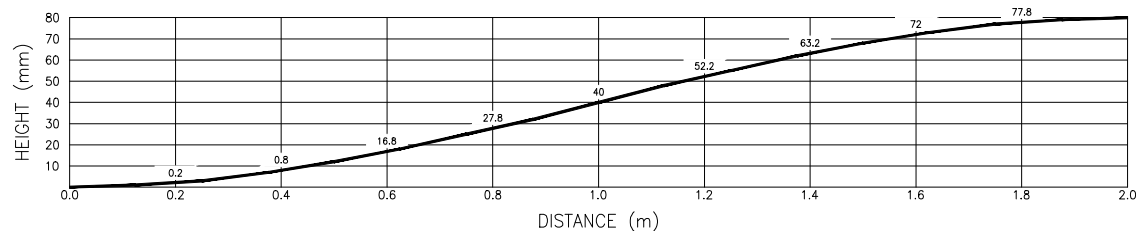
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REVISIONS		DATE
 City of Vaughan The City Above Toronto  ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
TRAFFIC CALMING ADVANCE WARNING SIGNS		
NOT TO SCALE	DESIGNED: _____ P.W.	STD. DWG.
REVISION: _____	DATE: _____ MARCH 2004	J - 1



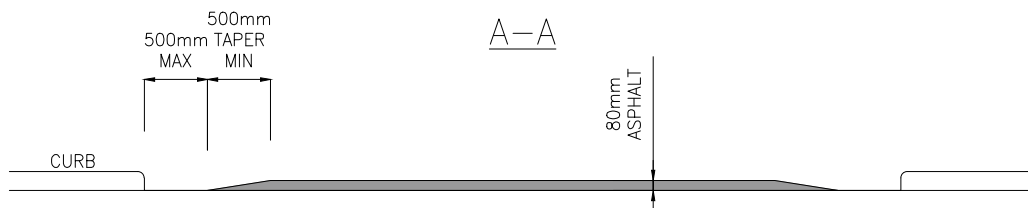
NOTES:

1. MINIMUM 60m SPACING BETWEEN SPEED HUMPS.
2. FOR EXISTING ROADS ASPHALT SHOULD BE GRIEDED TO PROVIDE A 150mm WIDE STEP JOINT.
3. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
4. WHEN POSSIBLE, BIKE LANES TO BE DELINEATED USING PHYSICAL SEPARATOR.
5. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.

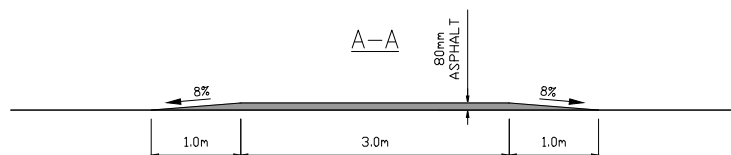
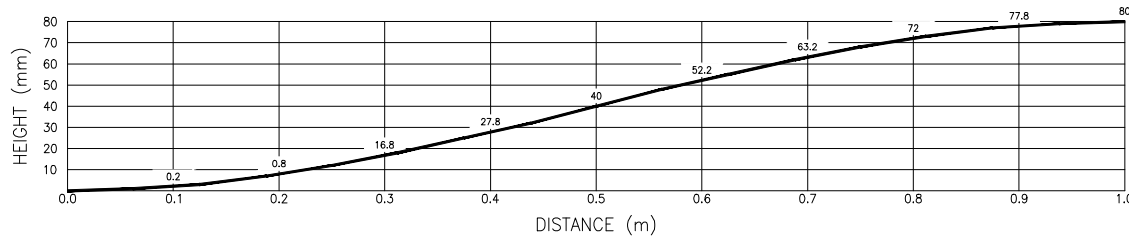
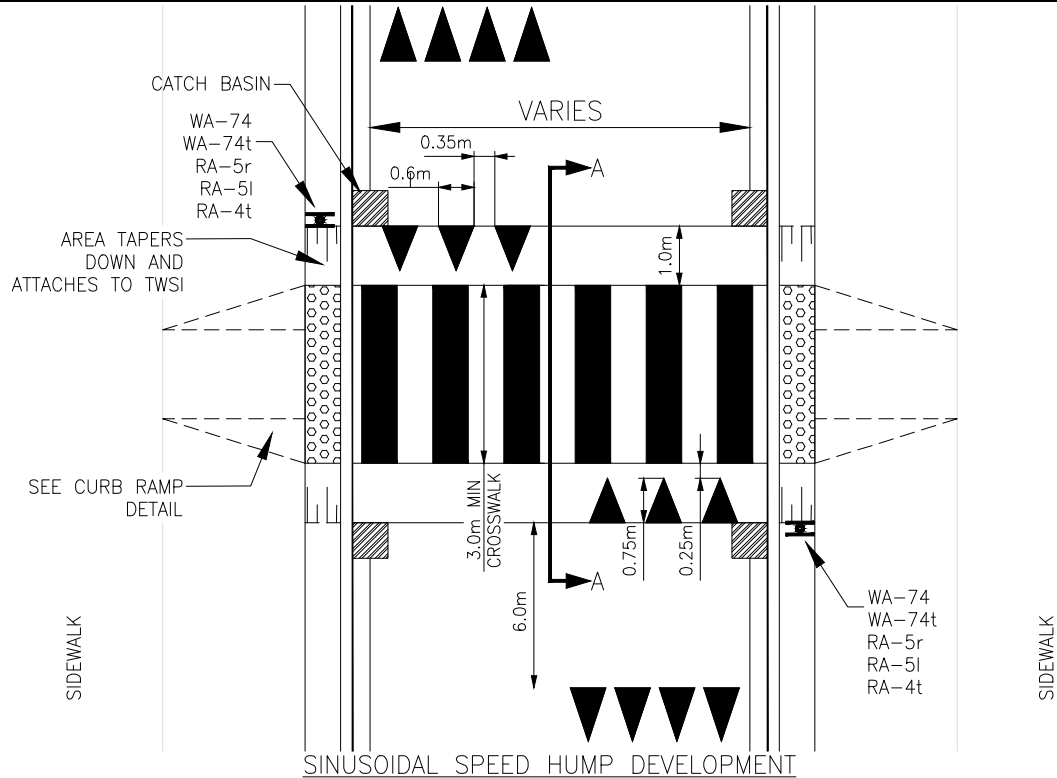
SINUSOIDAL SPEED HUMP DEVELOPMENT



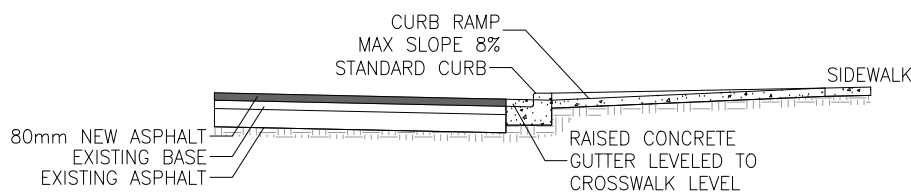
WA-74t WA-74



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1.	MODIFIED/UPDATED STANDARD	01/25
	REVISIONS	DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
SPEED HUMP		
NOT TO SCALE	DESIGNED: P.W.	STD. DWG.
REVISION: 1	DATE: JAN. 2013	R-116



CURB RAMP DETAIL



NOTES:

1. RAISED CROSSWALKS TO BE IMPLEMENTED AT MIDBLOCK CONFIGURATION. RAISED CROSSWALKS AT INTERSECTIONS TO BE IMPLEMENTED AS PART OF RAISED INTERSECTION.
2. PAVEMENT MARKINGS AND SIGNAGE SHALL COMPLY WITH OTM BOOK 11 AND OTM BOOK 15.
3. TACTILE FEATURES PER AODA STANDARDS.
4. ADD THIRD PAVEMENT MARKING TRIANGLE ON EACH SIDE OF RAISED CROSSWALK IF ON COLLECTOR ROAD.
5. CATCH BASINS TO BE LOCATED AT BOTTOM OF RAMP, AS REQUIRED.
6. CHEVRON ARROWS DIMENSION: 0.75m HIGH BY 0.6m WIDE.
7. MIN 0.25m SPACE BETWEEN TOP OF RAMP AND CROSSWALK.
8. DESIGN SHALL HAVE REGARD FOR MANHOLE LOCATIONS AND OVERLAND FLOW ROUTES.
9. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
10. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.



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1.	MODIFIED/UPDATED STANDARD	01/25
	REVISIONS	DATE

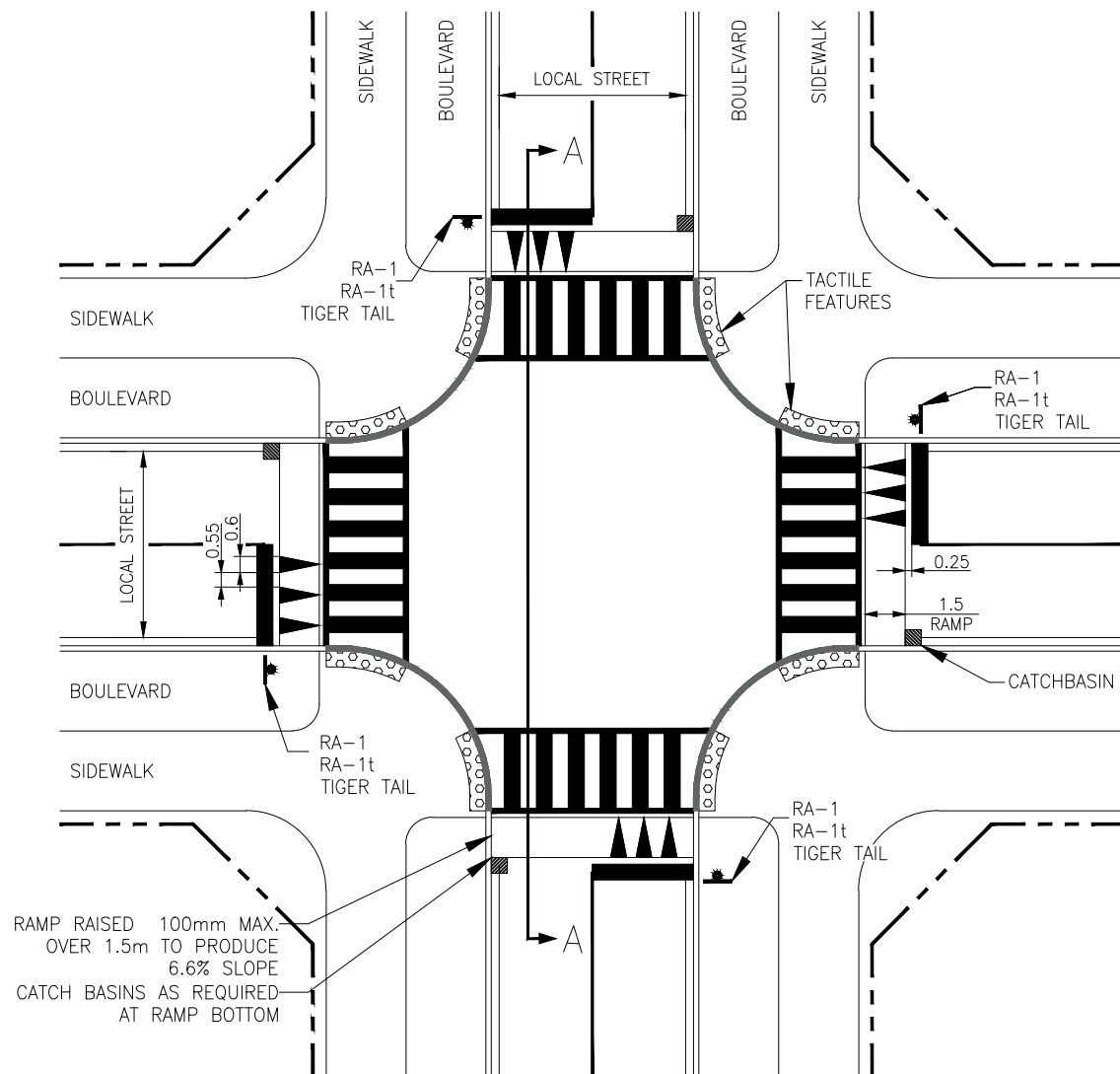


CITY OF VAUGHAN ENGINEERING STANDARD

RAISED MIDBLOCK PEDESTRIAN CROSSOVER (PXO)

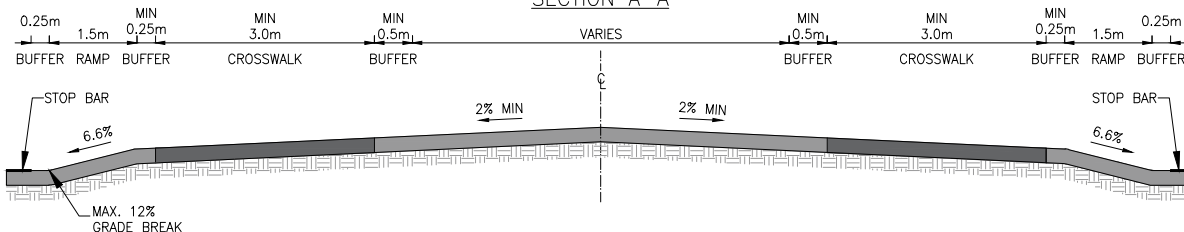
NOT TO SCALE DESIGNED: P.W.
REVISION: 1 DATE: JAN. 2016

STD. DWG.
R-117



RAMP RAISED 100mm MAX. OVER 1.5m TO PRODUCE 6.6% SLOPE
CATCH BASINS AS REQUIRED AT RAMP BOTTOM

SECTION A-A



NOTES:

1. PAVEMENT MARKINGS SHALL COMPLY WITH OTM BOOK 11 AND OTM BOOK 15.
2. TACTILE FEATURES PER AODA STANDARDS.
3. INCLUDE WA-74 AND WA-74t SIGNS AT LOCATIONS WHERE AN ALL-WAY STOP IS NOT WARRANTED.
4. MAINTAIN ROAD GRADES THROUGH INTERSECTION.
5. CATCH BASINS TO BE LOCATED AT BOTTOM OF RAMP.
6. CHEVRON ARROWS DIMENSION: 1.5m HIGH BY 0.6m WIDE.
7. MIN 0.25m SPACE BETWEEN TOP OF RAMP AND CROSSWALK.
8. DESIGN SHALL HAVE REGARD FOR MANHOLE LOCATIONS AND OVERLAND FLOW ROUTES.
9. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
10. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.



TIGER TAIL RA-1t

RA-1

4.		
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2.	MODIFIED/UPDATED STANDARD	01/25
1.	REVISED NOTES/UPDATED STANDARD	11/24
REVISIONS		DATE



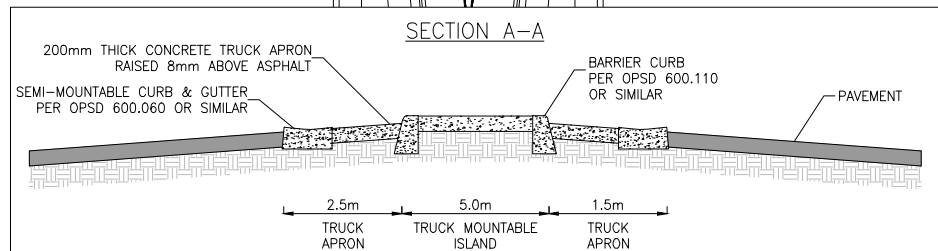
CITY OF VAUGHAN ENGINEERING STANDARD

RAISED INTERSECTION

NOT TO SCALE DESIGNED: P.W.

REVISION: 2 DATE: JAN. 2016

STD. DWG.
R-118



WC-27r RB-71 RA-4t RA-5l RA-5r RA-2t RA-2

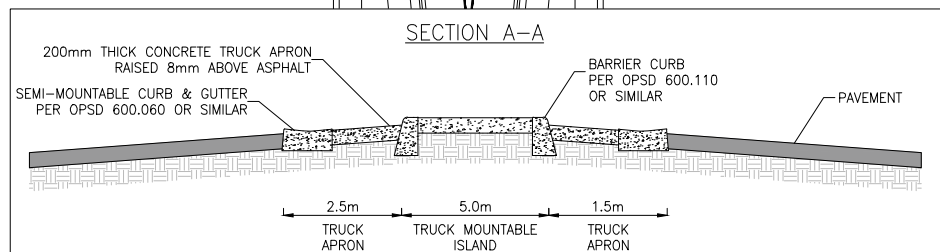
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1.	MODIFIED/UPDATED STANDARD	01/25
	REVISIONS	DATE



COLLECTOR/COLLECTOR ROUNABOUT LAYOUT

NOT TO SCALE DESIGNED: P.W.
REVISION: 1 DATE: JAN. 2016

STD. DWG.
R-119a



1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. CYCLING FACILITIES MERGE ONTO SHARED SPACE AT THE INTERSECTION. IF SPACE PERMITS, SEPARATING PEDESTRIANS AND CYCLISTS PREFERRED.
4. ALL APPROACHES TO BE UNDER YIELD CONTROL.
5. LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION.
6. THE ENTIRE CIRCULATORY ROADWAY MUST BE SLOPED AT A MINIMUM OF 0.5% TO ENSURE DRAINAGE IS NOT TRAPPED AT SPLITTER ISLANDS.

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1.	MODIFIED/UPDATED STANDARD	01/25
	REVISIONS	DATE

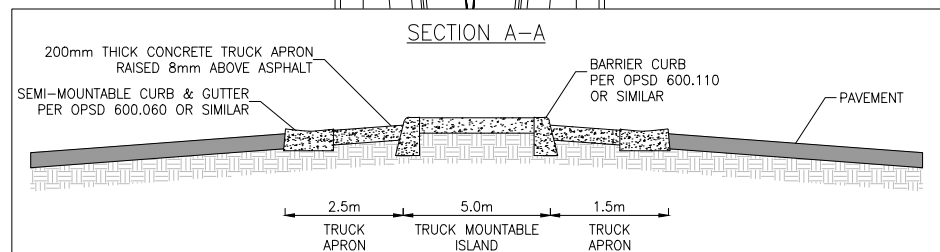


CITY OF VAUGHAN ENGINEERING STANDARD

COLLECTOR/COLLECTOR
ROUNDAABOUT LAYOUT
(W. TURNING MOVEMENT 1)

STD. DWG.

R-119b



1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED WITH SWEEP PATH ANALYSIS FOR DESIGN AND CONTROL VEHICLES.
3. CYCLING FACILITIES MERGE ONTO SHARED SPACE AT THE ROUNDABOUT. IF SPACE PERMITS, SEPARATING PEDESTRIANS AND CYCLISTS SHOULD BE CONSIDERED.
4. LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION.
5. THE ENTIRE CIRCULATORY ROADWAY MUST BE SLOPED AT A MINIMUM OF 0.5% TO ENSURE DRAINAGE IS NOT TRAPPED AT SPLITTER ISLANDS.

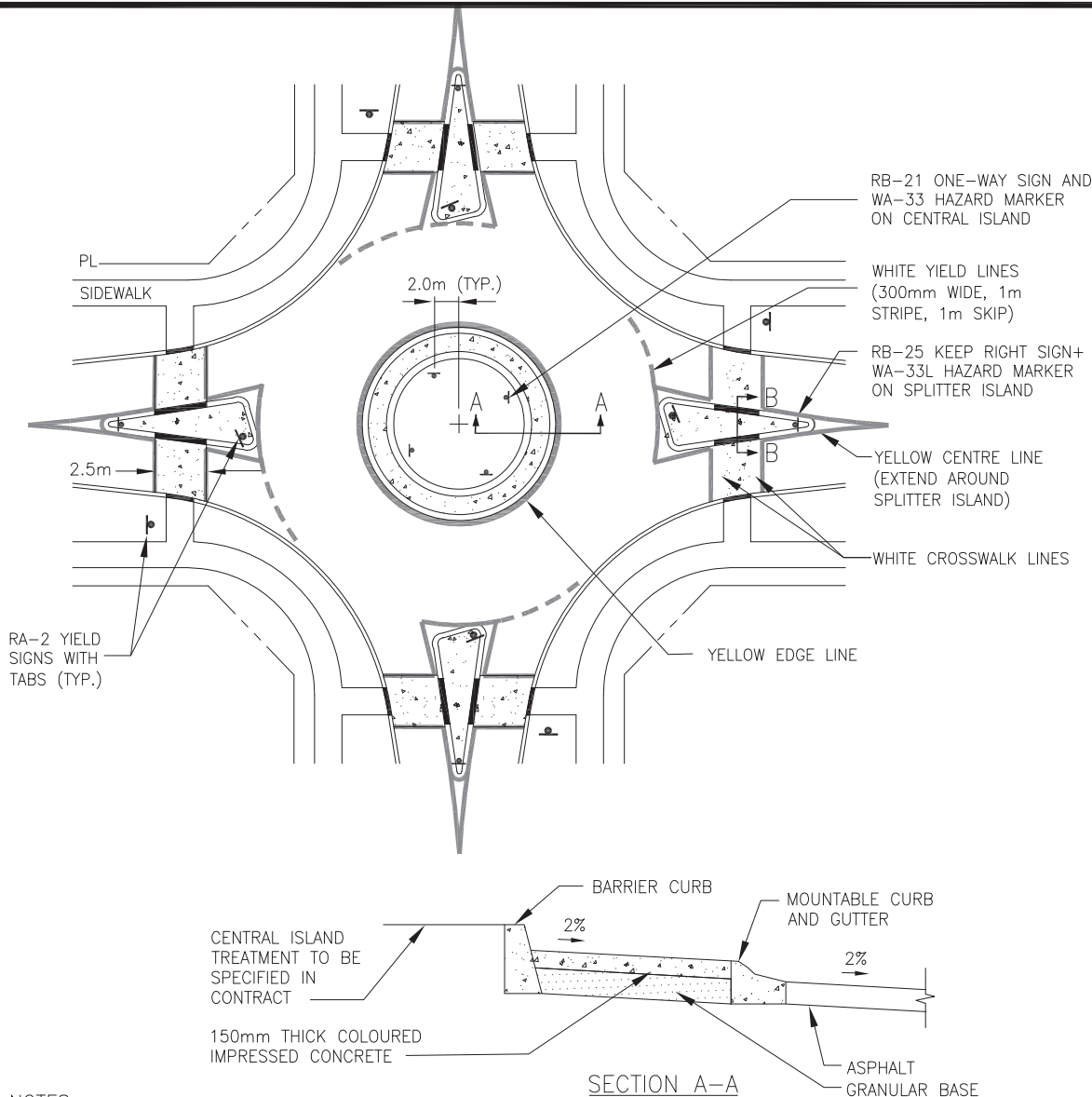
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1.	MODIFIED/UPDATED STANDARD	01/25
	REVISIONS	DATE



COLLECTOR/COLLECTOR
 ROUNDABOUT LAYOUT
 (W. TURNING MOVEMENT 2)

NOT TO SCALE DESIGNED: P.W.
REVISION: 1 DATE: JAN. 2016

STD. DWG.
R-119c

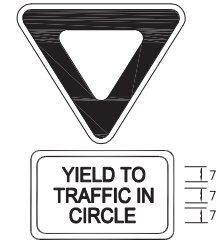


NOTES:

1. ALL APPROACHES TO BE UNDER YIELD CONTROL.
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. COLOUR AND PATTERN OF IMPRESSED CONCRETE TO BE CONFIRMED WITH CITY ENGINEERING DEPARTMENT AND SPECIFIED IN CONTRACT.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. J-1.

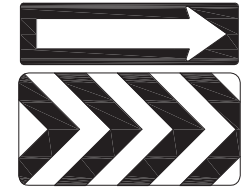
mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

APPROACH SIGNAGE

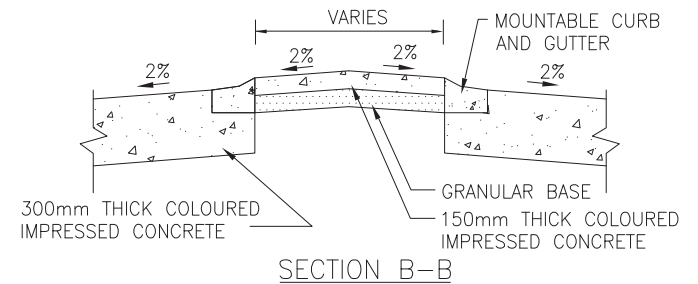


RA-2 YIELD SIGN AND
600x450mm TAB
(BLACK LETTERS ON WHITE)
INSTALL ON
ALL APPROACHES

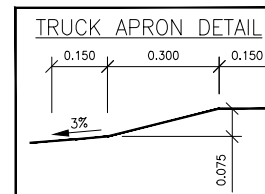
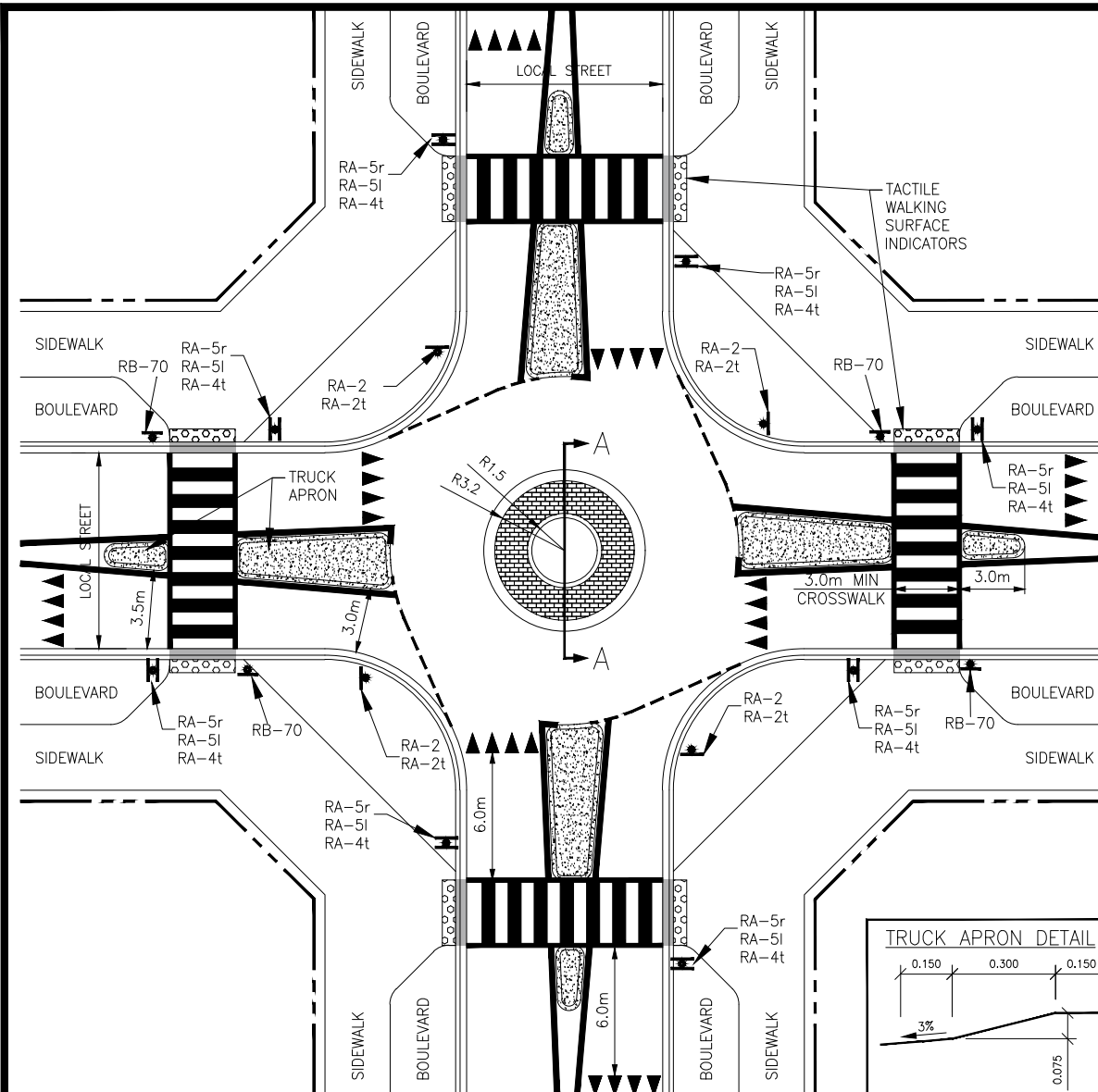
CENTRAL ISLAND SIGNAGE



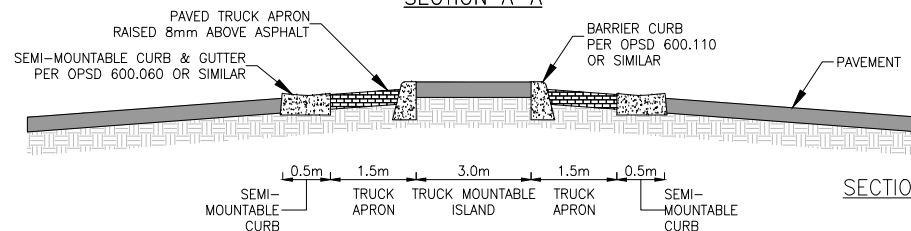
RB-21 ONE-WAY SIGN
AND WA-33 HAZARD MARKER
INSTALL FOR EACH DIRECTION



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REVISIONS		DATE
City of Vaughan The City Above Toronto ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
SINGLE-LANE ROUNDABOUT		
NOT TO SCALE	DESIGNED: _____ P.W.	STD. DWG.
REVISION: _____	DATE: MARCH 2004	J - 6



SECTION A-A



SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
6. COLOUR AND PATTERN OF IMPRESSED ASPHALT TO BE CONFIRMED WITH PUBLIC WORKS DEPARTMENT AND SPECIFIED IN CONTRACT.
7. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT OTM STANDARDS AND SPECIFICATIONS.
8. IF IMPLEMENTED, LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION.
9. WC-15 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER OTM BOOK 18. WA-39 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER MUTCD.
10. PARKING AND STOPPING SHOULD BE PROHIBITED 6.0M FROM THE EDGE OF THE SPLITTER ISLAND.
11. IF INTERSECTION HAS WIDER LANE WIDTH OR LARGER CORNER RADII, USE FLEX POSTS/PAVEMENT MARKINGS TO TIGHTEN UP INTERSECTION TO ENSURE DEFLECTION.
7. WC-27r SIGNS (PEDESTRIAN CROSSING AHEAD) TO BE PLACED 20-50m FROM THE CROSSING
8. IN PRESENCE OF BOULEVARD CYCLING FACILITIES, INCLUDE RB-70 SIGNS OR ACCOMMODATE CROSSRIDE MARKINGS IF SPACE ALLOWS.



RB-70



WC-27r



RA-4t



RA-5l



RA-5r



RA-2t



RA-2

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1.	MODIFIED/UPDATED STANDARD	02/25
	REVISIONS	DATE

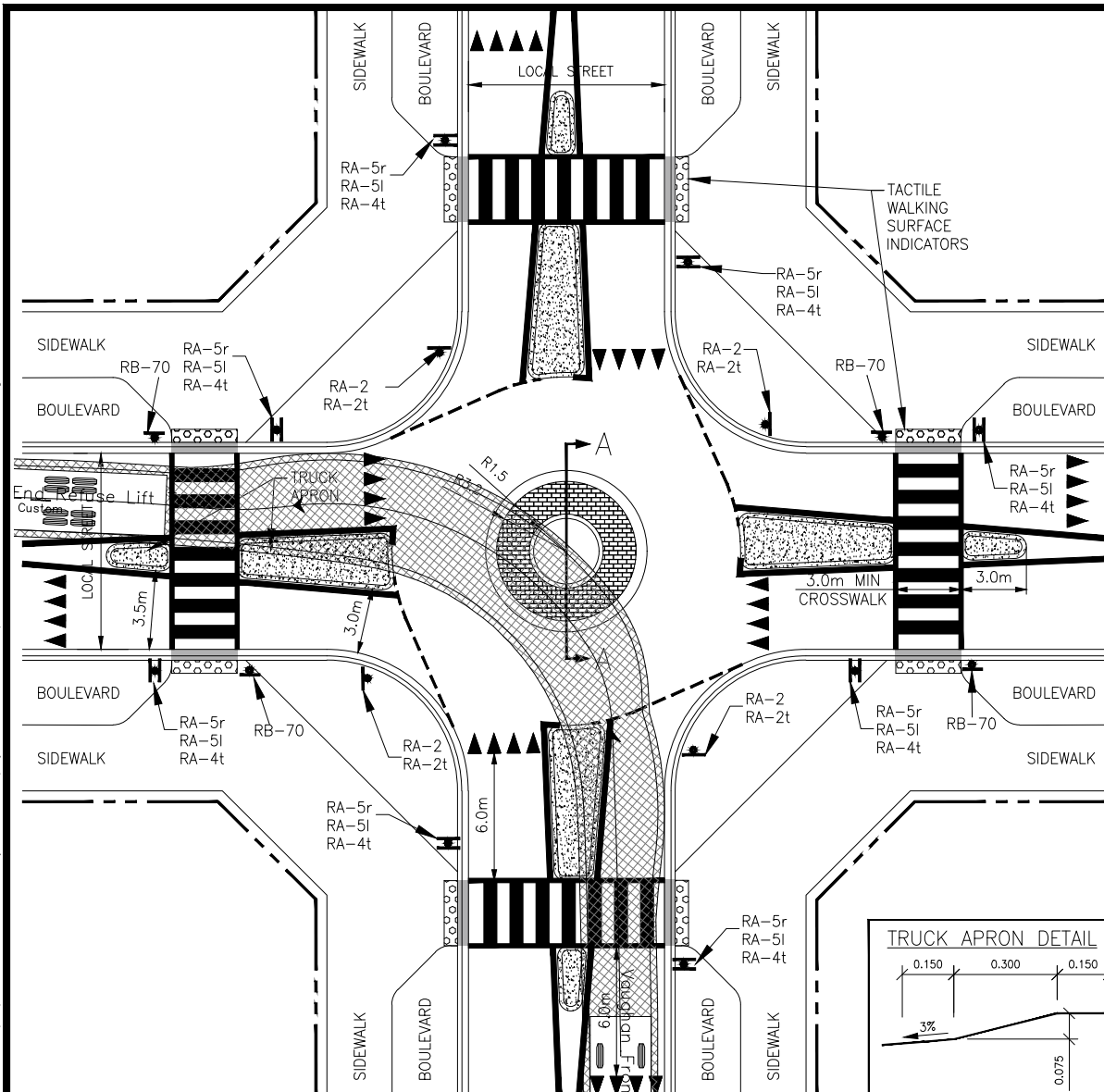


CITY OF VAUGHAN ENGINEERING STANDARD

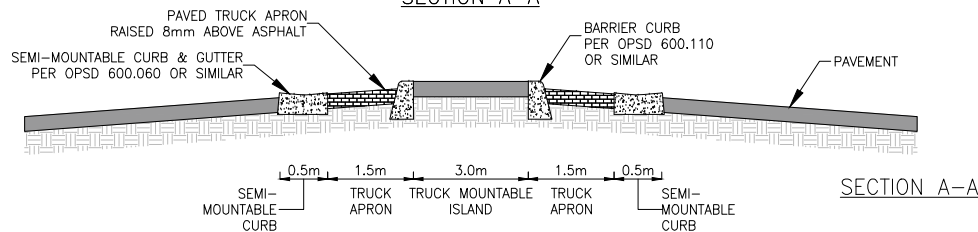
MINI-ROUNDABOUT

NOT TO SCALE
DESIGNED: _____ P.W.
REVISION: 1
DATE: JAN. 2013

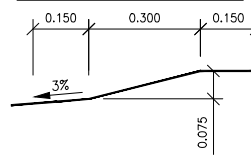
STD. DWG.
R-121a



SECTION A-A

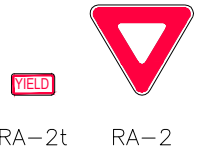


TRUCK APRON DETAIL



NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
6. COLOUR AND PATTERN OF IMPRESSED ASPHALT TO BE CONFIRMED WITH PUBLIC WORKS DEPARTMENT AND SPECIFIED IN CONTRACT.
7. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT OTM STANDARDS AND SPECIFICATIONS.
8. IF IMPLEMENTED, LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION
9. WC-15 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER OTM BOOK 18.
10. PARKING AND STOPPING SHOULD BE PROHIBITED 6.0M FROM THE EDGE OF THE SPLITTER ISLAND.



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1.	MODIFIED/UPDATED STANDARD	02/25
	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

MINI-ROUNDAOUT (W. TURNING MOVENT 1)

NOT TO SCALE

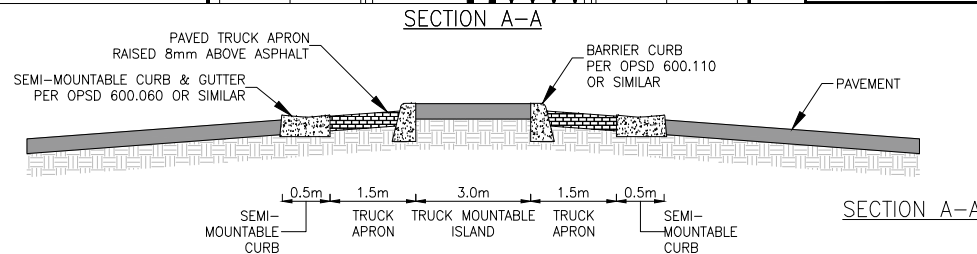
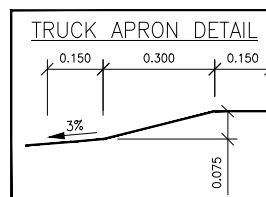
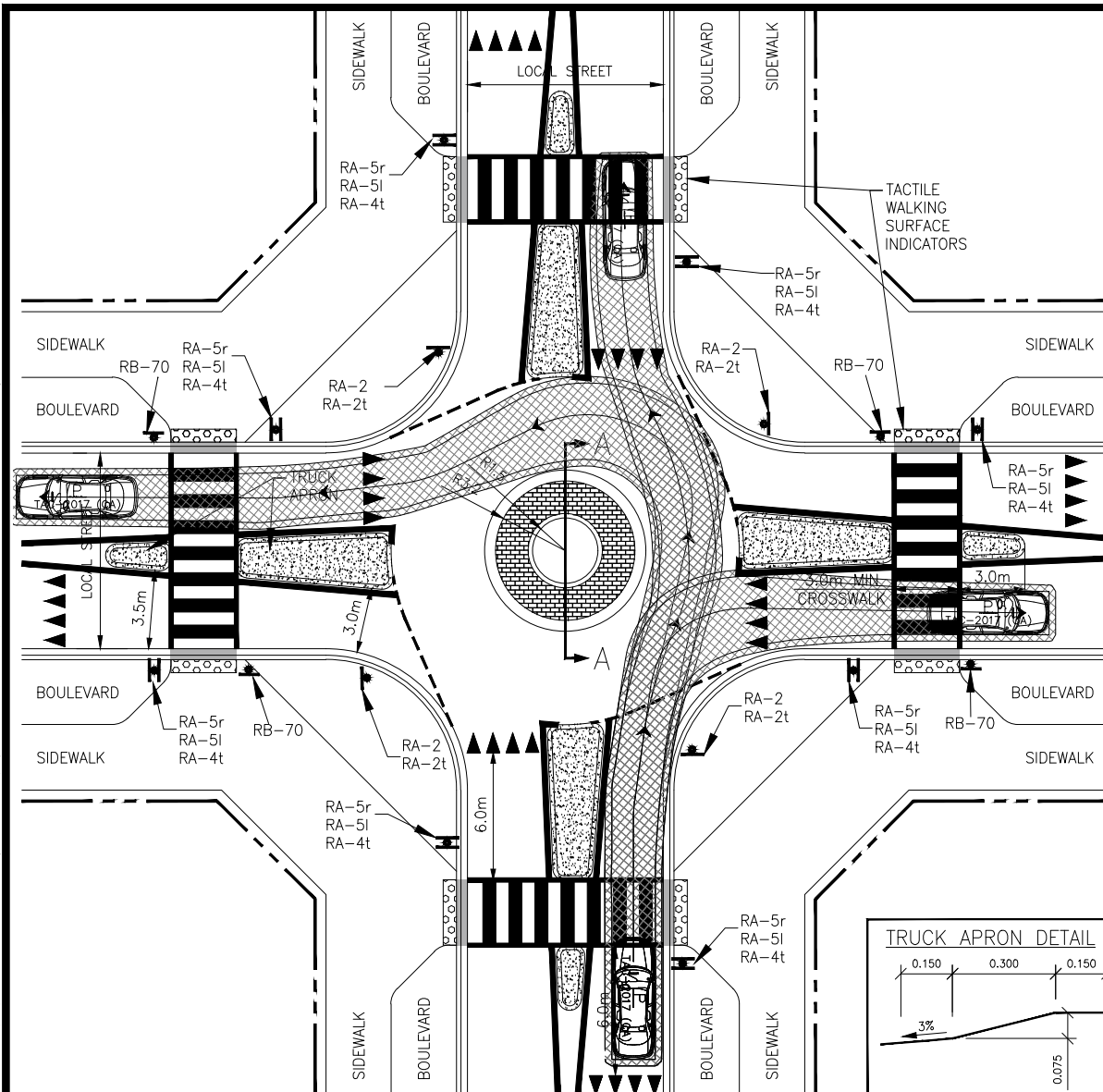
DESIGNED: P.W.

REVISION: 1

DATE: JAN. 2013

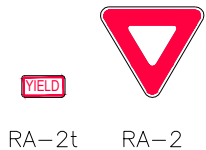
STD. DWG.

R-121b



NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
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8. IF IMPLEMENTED, LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION
9. WC-15 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER OTM BOOK 18.
10. PARKING AND STOPPING SHOULD BE PROHIBITED 6.0M FROM THE EDGE OF THE SPLITTER ISLAND.



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1.	MODIFIED/UPDATED STANDARD	02/25
	REVISIONS	



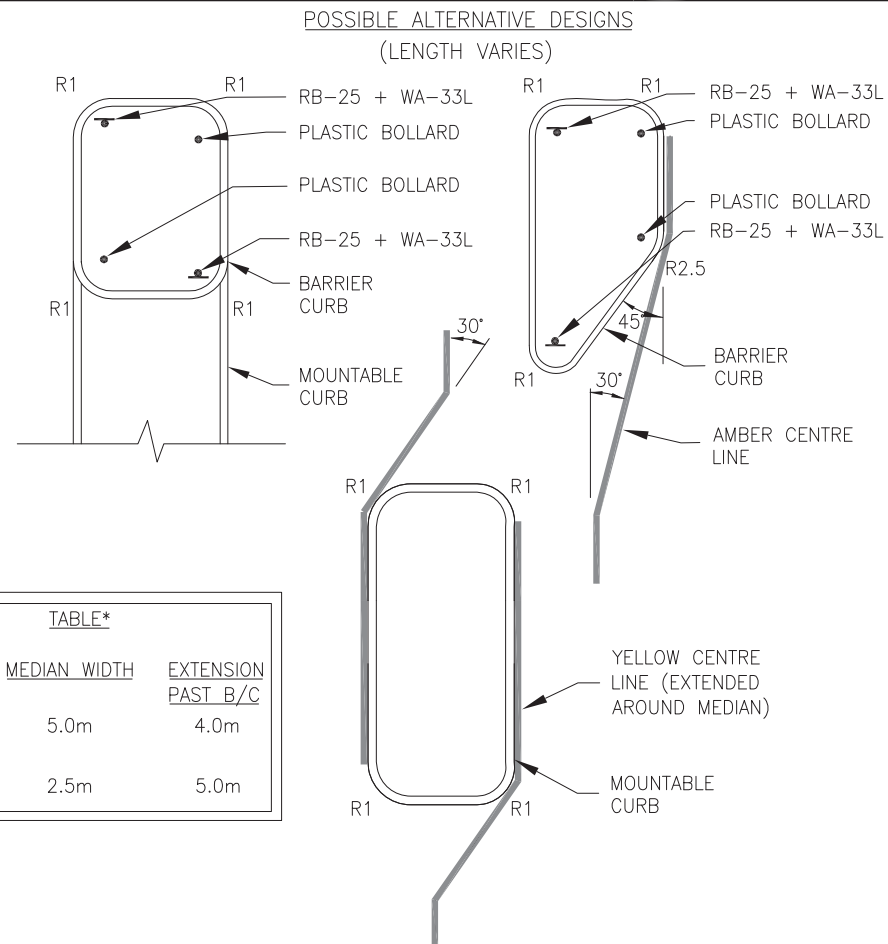
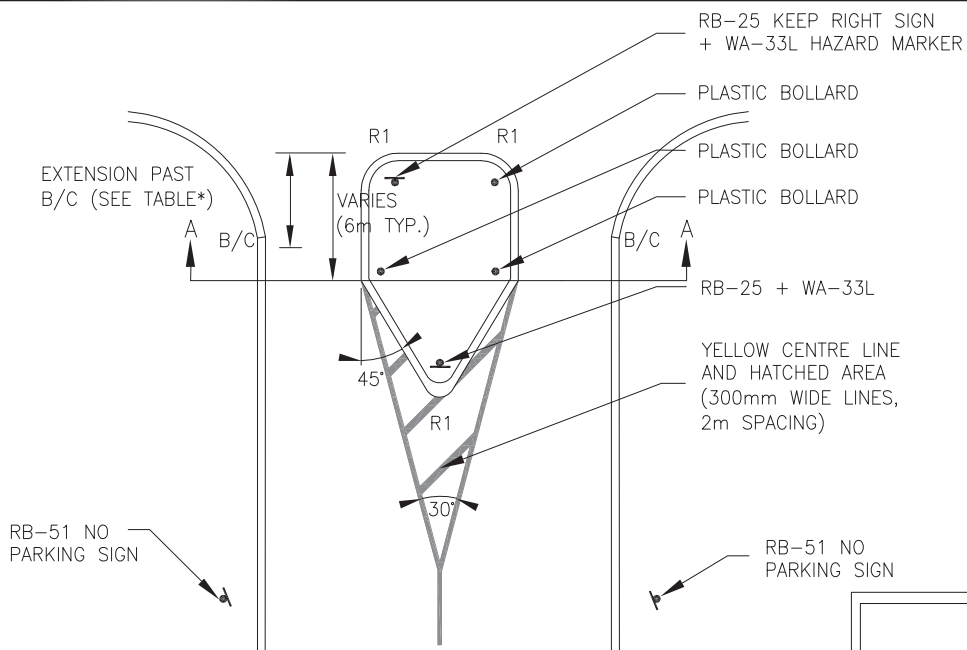
CITY OF VAUGHAN ENGINEERING STANDARD

MINI-ROUNDABOUT (W. TURNING MOVEMENT 2)

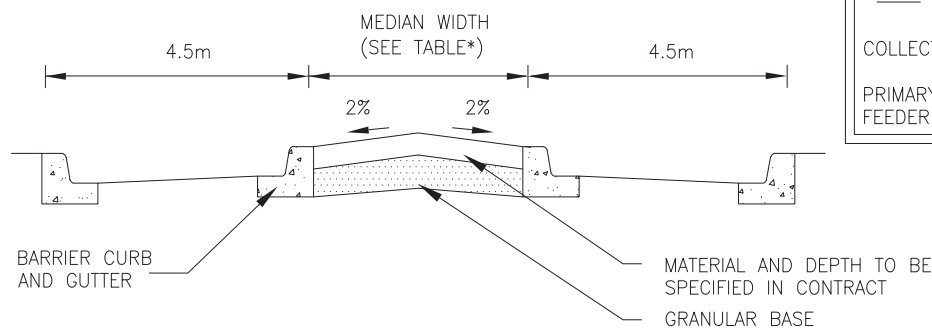
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REVISION: 1 DATE: JAN. 2013

STD. DWG.
R-121c

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TABLE*		
ROAD	MEDIAN WIDTH	EXTENSION PAST B/C
COLLECTOR	5.0m	4.0m
PRIMARY/FEEDER	2.5m	5.0m



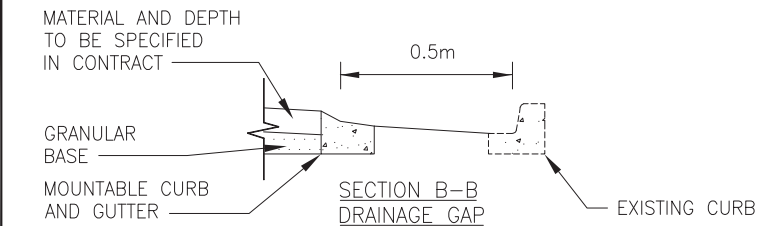
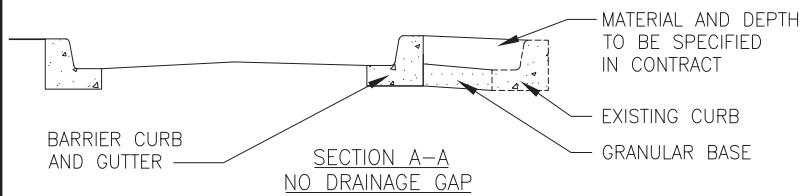
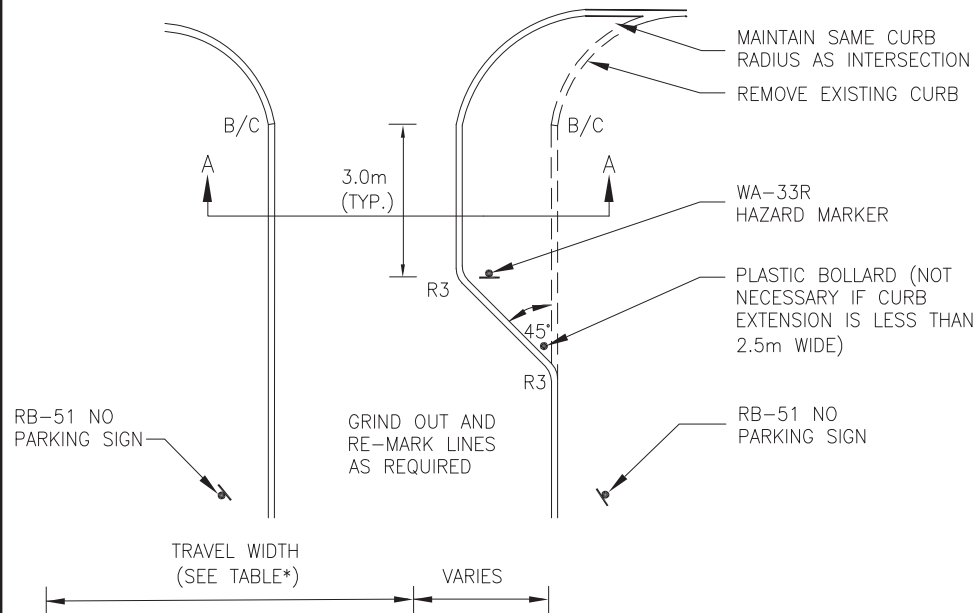
NOTES:

1. POST NO PARKING SIGNS 15m EITHER SIDE OF ALL MEDIAN TYPES (BOTH SIDES).
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. PLASTIC BOLLARD TYPE TO BE SPECIFIED IN CONTRACT.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. J-1.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

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REVISIONS		DATE
Vaughan The City Above Toronto		
ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
TRAFFIC CALMING MEDIANS		
NOT TO SCALE	DESIGNED: P.W.	STD. DWG.
REVISION: _____	DATE: MARCH 2004	J - 8

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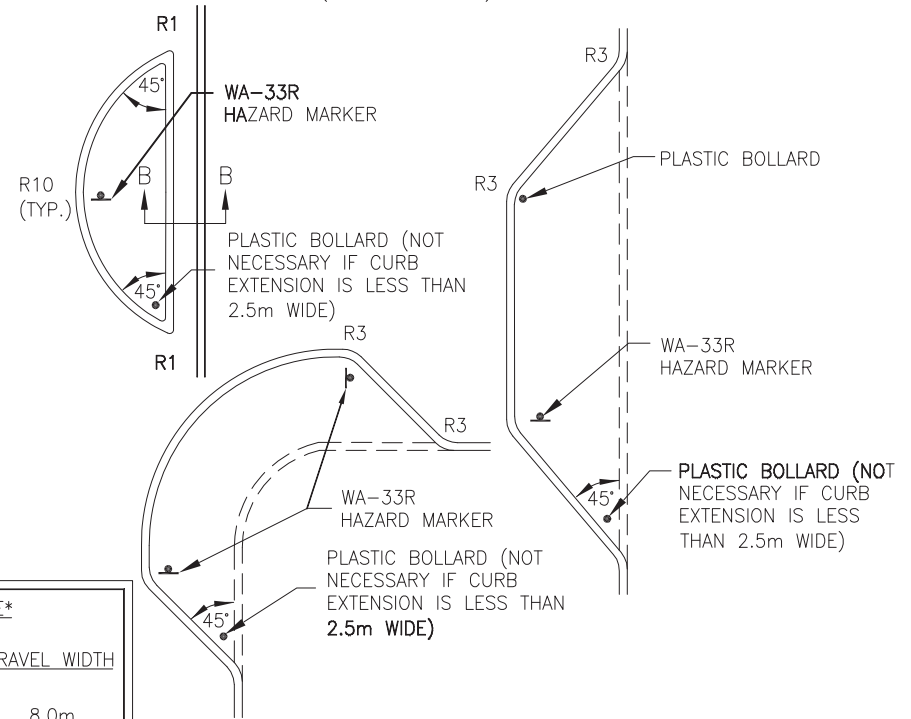
NOTES:

1. POST NO PARKING SIGNS 15m EITHER SIDE OF ALL CURB EXTENSION TYPES (BOTH SIDES).
2. ALL SIGNS TO BE HIGH INTENSITY REFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
3. PLASTIC BOLLARD TYPE TO BE SPECIFIED IN CONTRACT.
4. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH STD. DWG. J-1.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

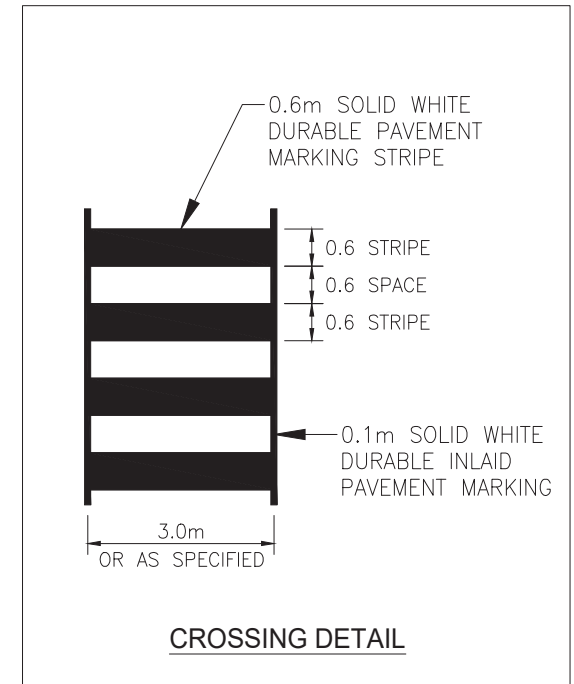
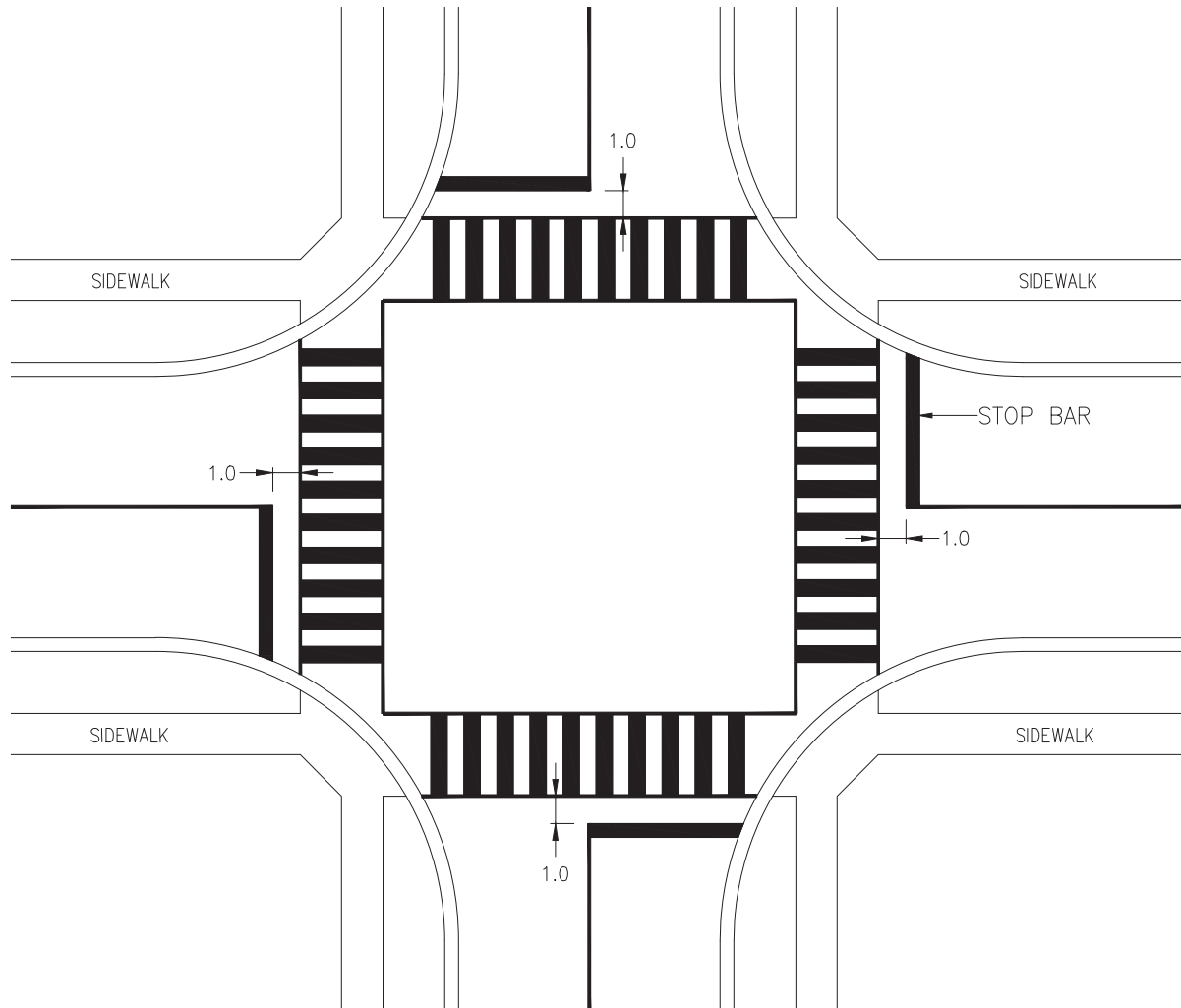
TABLE*	
ROAD	TRAVEL WIDTH
COLLECTOR	8.0m
PRIMARY/ FEEDER	7.0m
LOCAL	6.0m

POSSIBLE ALTERNATIVE DESIGNS (LENGTH VARIES)



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REVISIONS		DATE
Vaughan <i>The City Above Toronto</i>		
ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
CURB EXTENSIONS and ROAD NARROWINGS		
NOT TO SCALE	DESIGNED: _____ P.W.	STD. DWG.
REVISION: _____	DATE: MARCH 2004	J - 9

FILE: O:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\CoS\StandardDrawings_CAD_2021\R-124 - Ladder Pavement Marking at Signalized Intersection.dwg



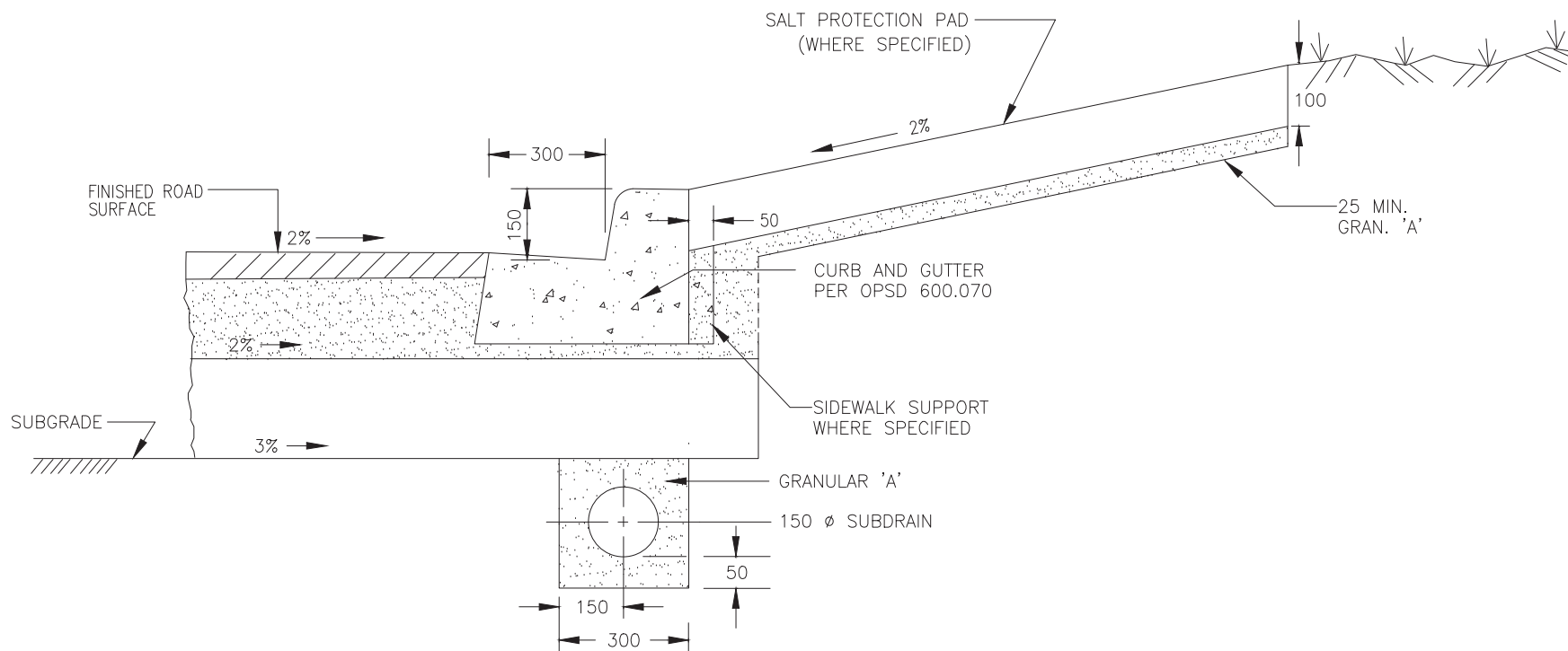
CROSSING DETAIL

m DIMENSIONS IN METRES
EXCEPT AS NOTED

NOTES

1. ALL PAVEMENT MARKINGS SHALL BE DURABLE INLAID AS PER CONTRACT SPECIFICATIONS, UNLESS DIRECTED OTHERWISE.
2. TO PREVENT SLIPPAGE, THE FIRST STEP FROM THE CURB SHOULD NOT LAND ON A PAINTED BAR.
3. AT SKEW ANGLE CROSSWALKS, LADDER CROSSWALK MARKINGS ARE TO BE INSTALLED PARALLEL TO THE TRAFFIC FLOW (ie. ANGLED FOR THE PEDESTRIAN)
4. THIS DETAIL IS TO BE USED AS A GUIDE ONLY AND WILL REQUIRE ADJUSTMENTS TO SUIT FIELD CONDITIONS.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
LADDER PAVEMENT MARKING DETAIL AT SIGNALIZED INTERSECTIONS		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	R - 124



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES

1. ALL SUBDRAIN CONNECTIONS TO BE MADE ON BOTH SIDES OF THE CATCH BASIN AND TO BE MORTARED AT THE INSIDE AND OUTSIDE OF THE CATCH BASIN WALLS UNLESS USING RUBBER GASKET CONNECTORS. THE SUBDRAIN SHALL BE CONTINUOUS PLUGGED WITH MANUFACTURED PLUG AT THE HIGH POINT WHERE THERE IS NO CATCHBASIN.
2. PIPE SHALL BE 150mm Ø POLYETHYLENE WRAPPED IN FILTER FABRIC.
3. FILTER FABRIC SHALL BE IN ACCORDANCE WITH ONTARIO PROVINCIAL STANDARD SPECIFICATIONS
4. SUBDRAIN SHALL BE PLACED UNDER ALL CURB AND GUTTER.

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	REVISIONS	DATE


VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

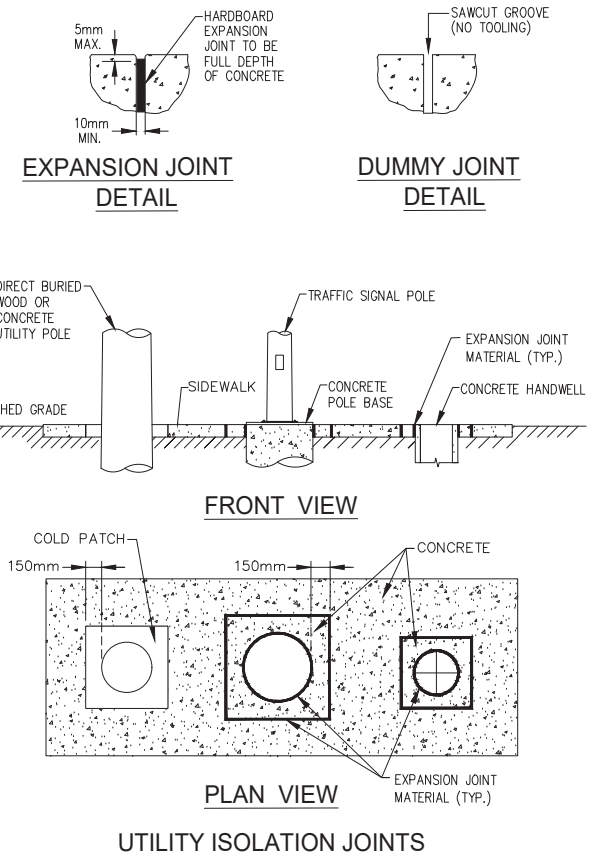
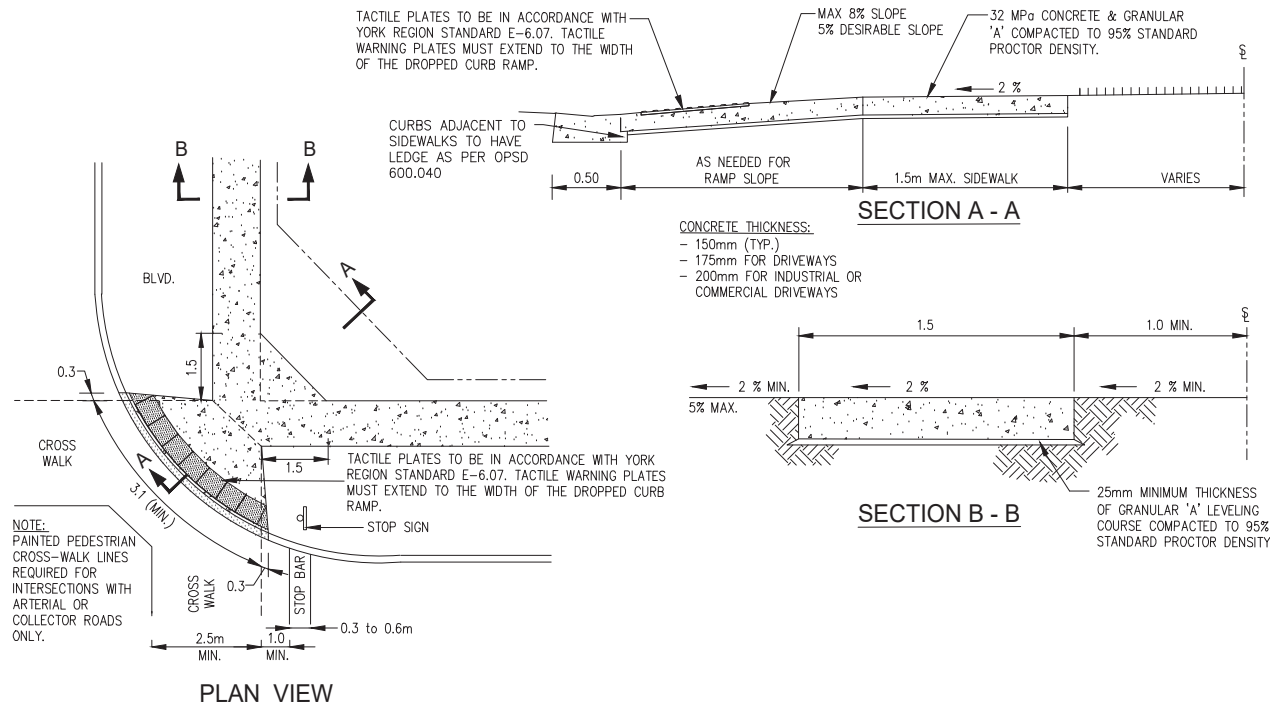
CURB AND SUBDRAIN DETAIL

NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: _____ DEC. 2020 _____	R - 126

R-127 - UNIT PAVER CROSSWALK DETAIL

CURRENTLY UNDER DEVELOPMENT

Refer to 2004 Published Edition. Should drawing not be available, please contact the Development Engineering Department at developmentengineering@vaughan.ca



NOTES

1. CSA A23-1.00 CLASS C2 (32 MPa) CONCRETE, MAXIMUM CEMENT/WATER RATIO 0.45 WITH 6% AIR ENTRAINMENT $\pm 1\%$.
2. WHERE SIDEWALK CONSTRUCTION INVOLVES CUT OR FILL, ADDITIONAL WIDENING MAY BE REQUIRED.
3. CONCRETE TO HAVE BROOM FINISH, PERPENDICULAR TO THE SIDEWALK LENGTH.
4. EXPANSION JOINTS TO BE LOCATED EVERY 6m AND WHERE CONCRETE PAVING ABUTS OTHER STRUCTURES OR BUILDINGS. THEY MUST BE OF A NON-EXTRUDED RESILIENT BITUMINOUS OR NON-BITUMINOUS MATERIAL - 10mm THICK.
5. INSTALL UTILITY ISOLATION JOINTS AT ALL NEW AND EXISTING UTILITY POLES, TRAFFIC SIGNAL POLES, HAND WELLS, MAINTENANCE HOLES, VALVE CHAMBERS, VALVE BOXES ACCORDANCE WITH YORK REGION STANDARD E-2.20 AND OPSD 310.040.
6. CONCRETE TO BE SPRAYED WITH WHITE PIGMENT CURING COMPOUND IMMEDIATELY AFTER FINISHING.
7. CAST IRON TACTILE PLATES TO BE IN ACCORDANCE WITH YORK REGION STANDARD E-6.07. TACTILE WARNING PLATES MUST EXTEND TO THE WIDTH OF THE DROPPED CURB RAMP.
8. ALL PERPENDICULAR TOOL MARKINGS FROM FINISHING TOOLS FOR EXPANSION JOINTS ARE TO BE BROOMED OUT SO NONE EXIST.
9. DUMMY JOINTS TO BE LOCATED AT INTERVALS OF 1.5m. THEY ARE TO BE SAWCUT TO 1/4 DEPTH OF CONCRETE, AFTER THE CONCRETE HAS PARTIALLY HARDENED.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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1.	REVISED STANDARD	NOV. 22
	REVISIONS	DATE



VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

SIDEWALK AND RAMP

(LOCAL ROAD RETROFIT ONLY)

NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: <u>2</u>	DATE: <u>DEC. 2020</u>	R - 128

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REVISIONS		DATE



VAUGHAN

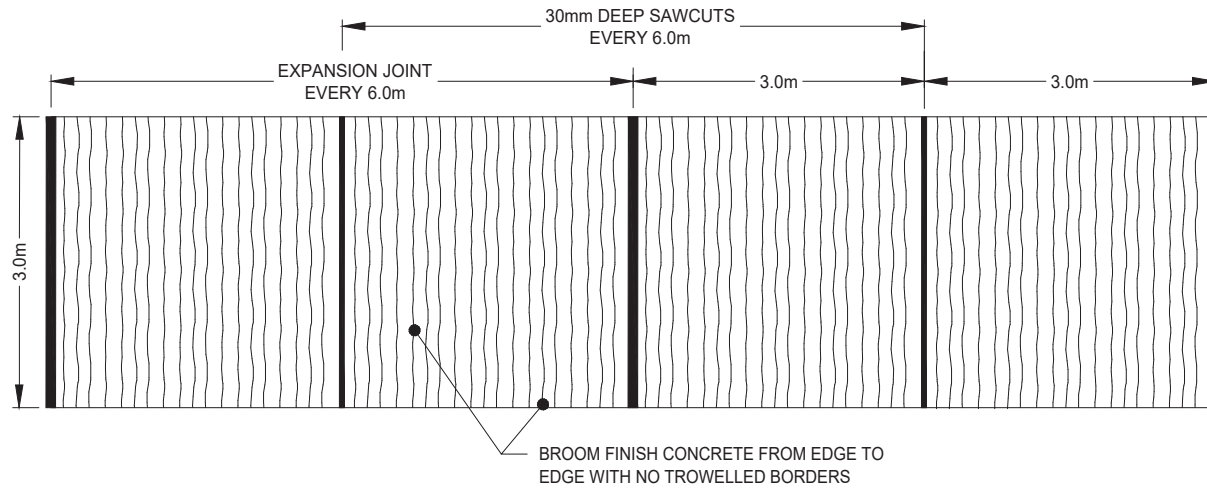
CITY OF VAUGHAN ENGINEERING STANDARD

WALKWAYS

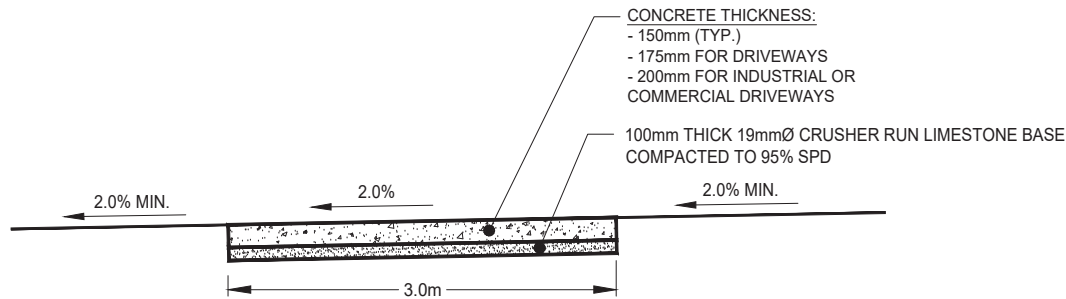
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REVISION: _____	DATE: DEC. 2020	

R-130 - BOLLARD DETAIL
CURRENTLY UNDER DEVELOPMENT

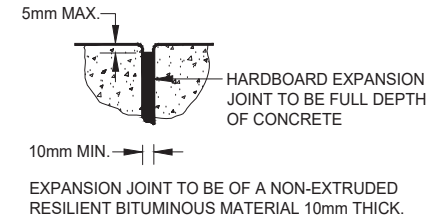
*Refer to 2004 Published Edition. Should drawing not be available, please contact the
Development Engineering Department at developmentengineering@vaughan.ca*



PLAN VIEW



SECTION VIEW



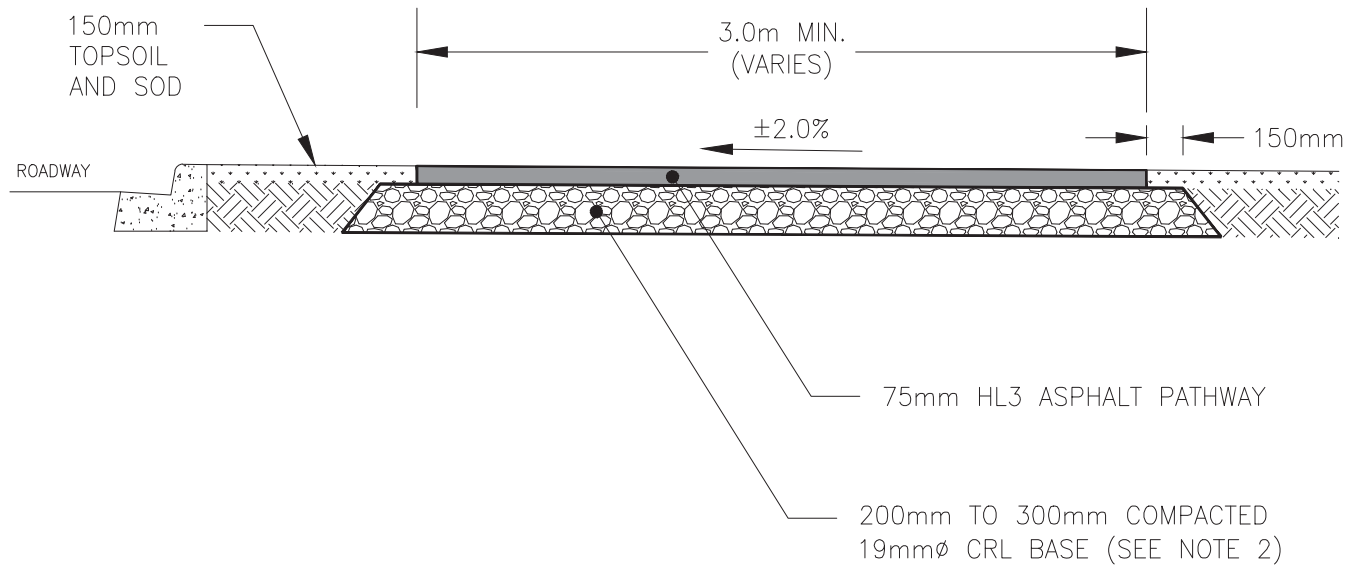
EXPANSION JOINT DETAIL

m DIMENSIONS IN METRES
EXCEPT AS NOTED

NOTES

1. CSA A23-1.00 CLASS C2 (32 MPa) CONCRETE, MAXIMUM CEMENT/WATER RATIO 0.45 WITH 6% AIR ENTRAINMENT $\pm 1\%$.
2. CONCRETE TO BE SPRAYED WITH WHITE PIGMENT CURING COMPOUND IMMEDIATELY AFTER FINISHING.
3. INTERSECTION RAMPS WITH TACTILE PLATES SHALL BE BUILT AS PER CITY OF VAUGHAN SIDEWALK AND RAMP STANDARD DRAWING R-128.
4. ALL PERPENDICULAR TOOL MARKINGS FROM FINISHING TOOLS FOR EXPANSION JOINTS ARE TO BE BROOMED SO NONE EXIST.
5. THE USE OF CONCRETE MULTI-USE PATH IS SUBJECT TO APPROVAL OF THE CITY.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
CONCRETE MULTI-USE PATH DETAIL		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: MAY 2022	R - 131



NOTES

1. PAVEMENT MARKINGS THROUGH INDUSTRIAL & COMMERCIAL DRIVEWAYS SHALL BE REQUIRED AS SPECIFIED.
2. GRANULAR AT EXISTING RESIDENTIAL DRIVEWAYS TO BE 300mm DEPTH AND ASPHALT 50mm HL8 BASE COURSE ASPHALT AND 25mm DEPTH HL-3F SURFACE COURSE ASPHALT.
3. A MULTI-USE OR CYCLE TRACK CROSSING THROUGH A INDUSTRIAL/COMMERCIAL/INSTITUTIONAL ENTRANCE SHALL HAVE 350mm COMPACTED DEPTH 50mm CRUSHER-RUN LESTONE, 125mm COMPACTED DEPTH 20mm CRUSHER RUN LESTONE BASE, 75mm DEPTH HL8 BASE COURSE ASPHALT AND 50mm DEPTH HL3 SURFACE COURSE ASPHALT.
4. ALL ASPHALT AND GRANULAR BASE THICKNESS SPECIFICATIONS ARE MINIMUM AFTER COMPACTION.
5. SLOPE SUBGRADE PARALLEL TO FINISHED GRADE (MIN. 2% SLOPE).
6. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ANY UNSUITABLE SUBGRADE MATERIAL SUCH AS TOPSOIL. REMOVE ALL EXCAVATED MATERIAL AND DISPOSE OF OFF SITE.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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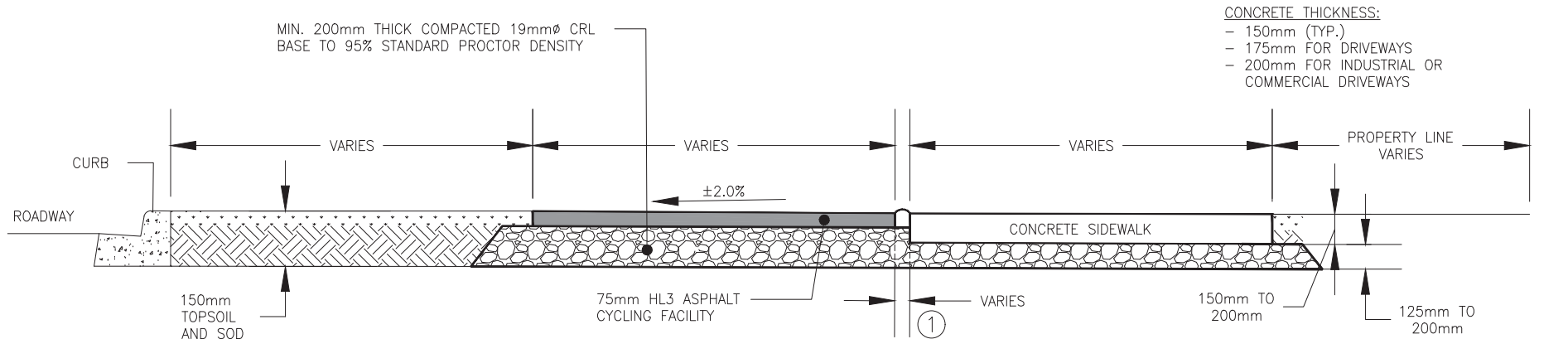


CITY OF VAUGHAN ENGINEERING STANDARD
ACTIVE TRANSPORTATION FACILITY
(MULTI-USE ASPHALT PATHWAY)

NOT TO SCALE APPROVED: _____
DESIGNED: _____ DATE: MAY 2022

STD. DWG.
R - 132

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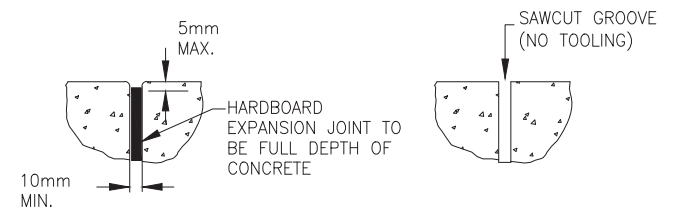
CONCRETE THICKNESS:
- 150mm (TYP.)
- 175mm FOR DRIVEWAYS
- 200mm FOR INDUSTRIAL OR COMMERCIAL DRIVEWAYS

CYCLING FACILITY NOTES:

1. BUFFER BETWEEN CYCLING FACILITY AND SIDEWALK PER ONTARIO TRAFFIC MANUAL BOOK 18 (CONTINUOUS BEVELLED CURB OR TACTILE BUFFER PER OTM BOOK 18)
2. PAVEMENT MARKINGS THROUGH INDUSTRIAL & COMMERCIAL DRIVEWAYS SHALL BE REQUIRED AS SPECIFIED.
3. GRANULAR AT EXISTING RESIDENTIAL DRIVEWAYS TO BE 300mm DEPTH AND ASPHALT 50mm HL8 BASE COURSE ASPHALT AND 25mm DEPTH HL-3F SURFACE COURSE ASPHALT.
4. A MULTI-USE OR CYCLE TRACK CROSSING THROUGH A INDUSTRIAL/COMMERCIAL/INSTITUTIONAL ENTRANCE SHALL HAVE 350mm COMPACTED DEPTH 50mm CRUSHER-RUN LIMESTONE, 125mm COMPACTED DEPTH 20mm CRUSHER RUN LIMESTONE BASE, 75mm DEPTH HL8 BASE COURSE ASPHALT AND 50mm DEPTH HL3 SURFACE COURSE ASPHALT.
5. ALL ASPHALT AND GRANULAR BASE THICKNESS SPECIFICATIONS ARE MINIMUM AFTER COMPACTION.

SIDEWALK NOTES:

1. CSA A23-1.00 CLASS C2 (32 MPa) CONCRETE, MAXIMUM CEMENT/WATER RATIO 0.45 WITH 6% AIR ENTRAINMENT $\pm 1\%$.
2. WHERE SIDEWALK CONSTRUCTION INVOLVES CUT OR FILL, ADDITIONAL WIDENING MAY BE REQUIRED.
3. CONCRETE TO HAVE BROOM FINISH, PERPENDICULAR TO THE SIDEWALK LENGTH.
4. EXPANSION JOINTS TO BE LOCATED EVERY 6m AND WHERE CONCRETE PAVING ABUTS OTHER STRUCTURES OR BUILDINGS. THEY MUST BE OF A NON-EXTRUDED RESILIENT BITUMINOUS OR NON-BITUMINOUS MATERIAL - 10mm THICK.
5. DUMMY JOINTS TO BE LOCATED AT INTERVALS OF 1.5m. THEY ARE TO BE SAWCUT TO 1/4 DEPTH OF CONCRETE, AFTER THE CONCRETE HAS PARTIALLY HARDENED.
6. CONCRETE TO BE SPRAYED WITH WHITE PIGMENT CURING COMPOUND IMMEDIATELY AFTER FINISHING.
7. CAST IRON TACTILE PLATES TO BE IN ACCORDANCE WITH YORK REGION STANDARD.
8. ALL PERPENDICULAR TOOL MARKINGS FROM FINISHING TOOLS FOR EXPANSION JOINTS ARE TO BE BROOMED OUT SO NONE EXIST.



CONCRETE EXPANSION
JOINT DETAIL

CONCRETE DUMMY
JOINT DETAIL

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EXCEPT AS NOTED

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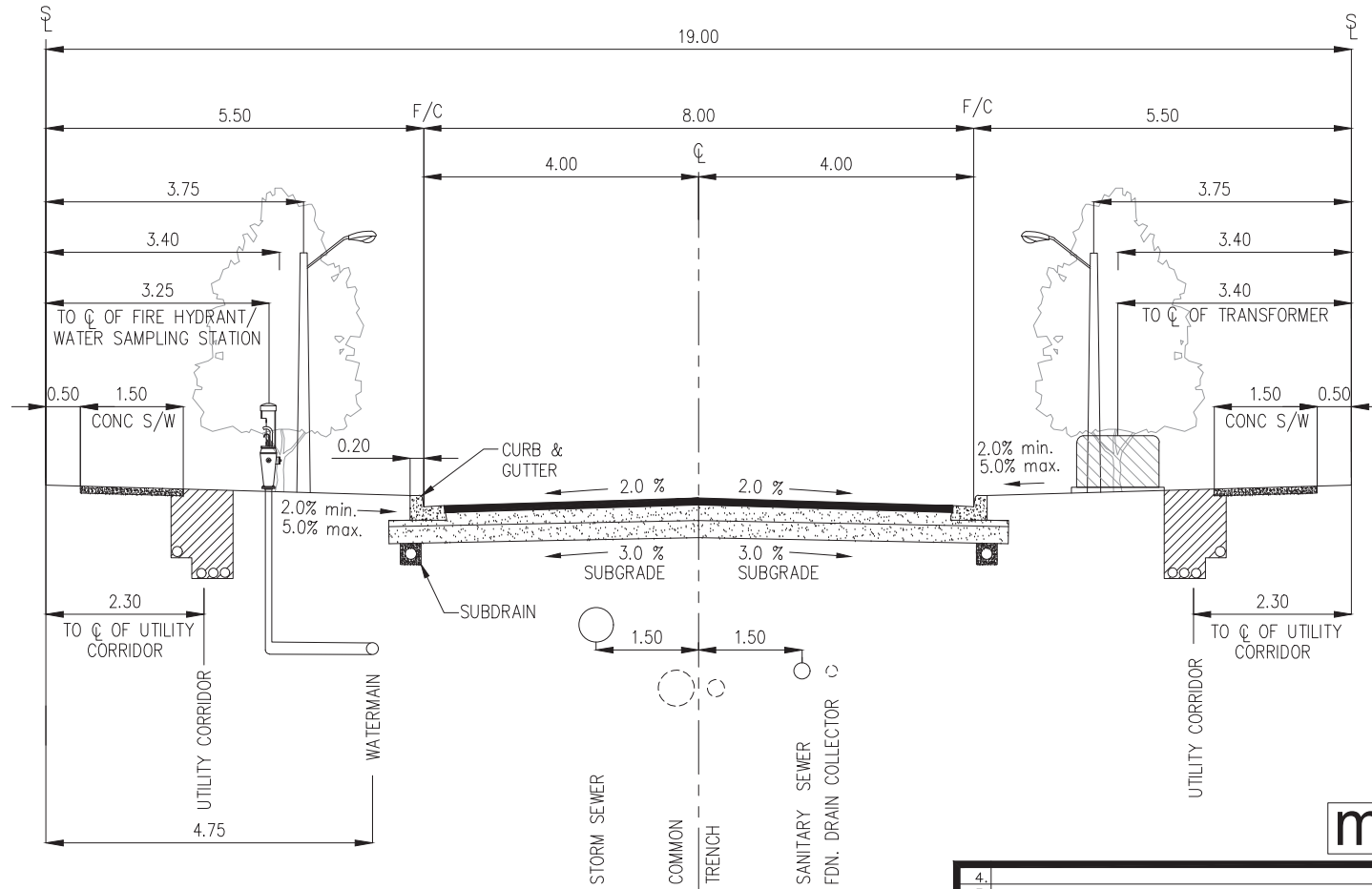


CITY OF VAUGHAN ENGINEERING STANDARD

PEDESTRIAN AND CYCLING FACILITIES

NOT TO SCALE APPROVED: _____
DESIGNED: _____ DATE: MAY 2022

STD. DWG.
R - 133

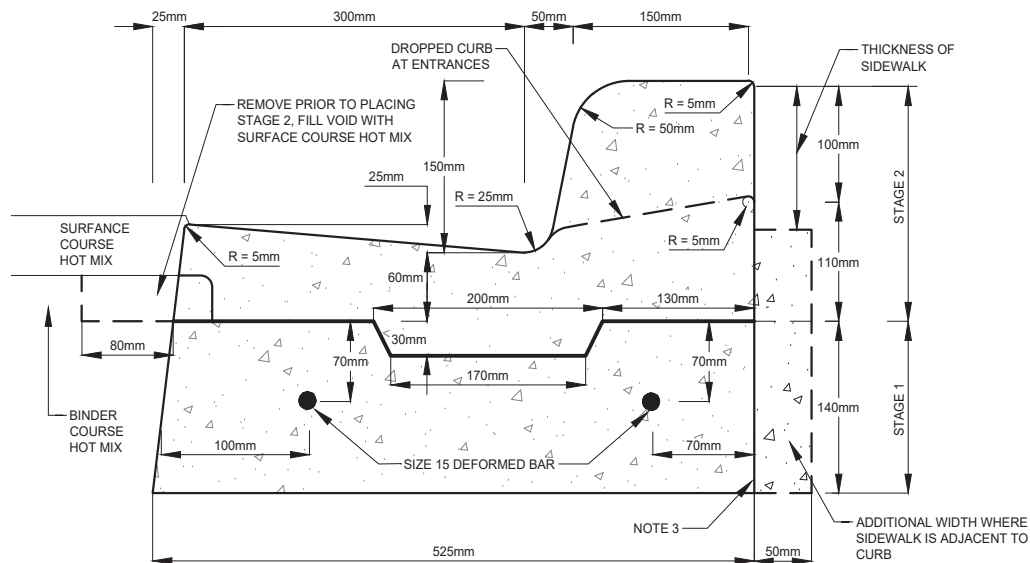


m DIMENSIONS IN METRES
EXCEPT AS NOTED

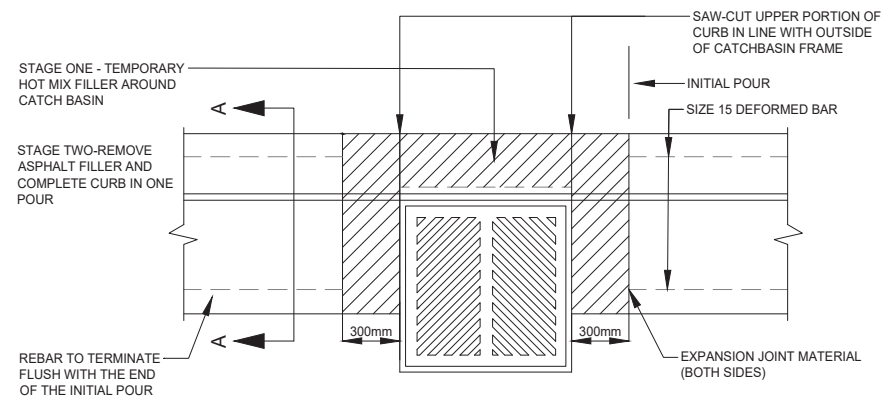
NOTES

1. PAVEMENT WIDTH IS DESIGNED TO ACCOMMODATE 2 TRAVEL LANES WITH 1 PARKING LANE.
2. PAVEMENT DESIGN SHALL CONFORM TO MINIMUM CITY STANDARDS AND/OR APPROVED GEOTECHNICAL REPORT.
3. ACTIVELY GROWING No. 1 NURSERY SOD TO BE LAID ON 150mm OF TOPSOIL, PROPERLY GRADED AND ROLLED.
4. DEPTH OF COVER ON ALL MUNICIPAL INFRASTRUCTURE SHALL CONFORM TO MINIMUM CITY STANDARDS.
5. IF TRANSFORMER IS ON SIDE LOT, TURN FOUNDATION 90° TO FACE ONCOMING TRAFFIC INSTALL 1.70m TO CENTER OF FOUNDATION.
6. TRANSFORMER FOUNDATION TO ABUT EDGE OF TRENCH.

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1.	STANDARD CREATED	JAN. 21
REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
MAJOR LOCAL ROAD		
19m R.O.W. - 8m PAVEMENT		
NOT TO SCALE	DESIGNED: ENG. DEPT.	STD. DWG.
REVISION: 01	DATE: JAN. 2021	R - 134



SECTION A-A



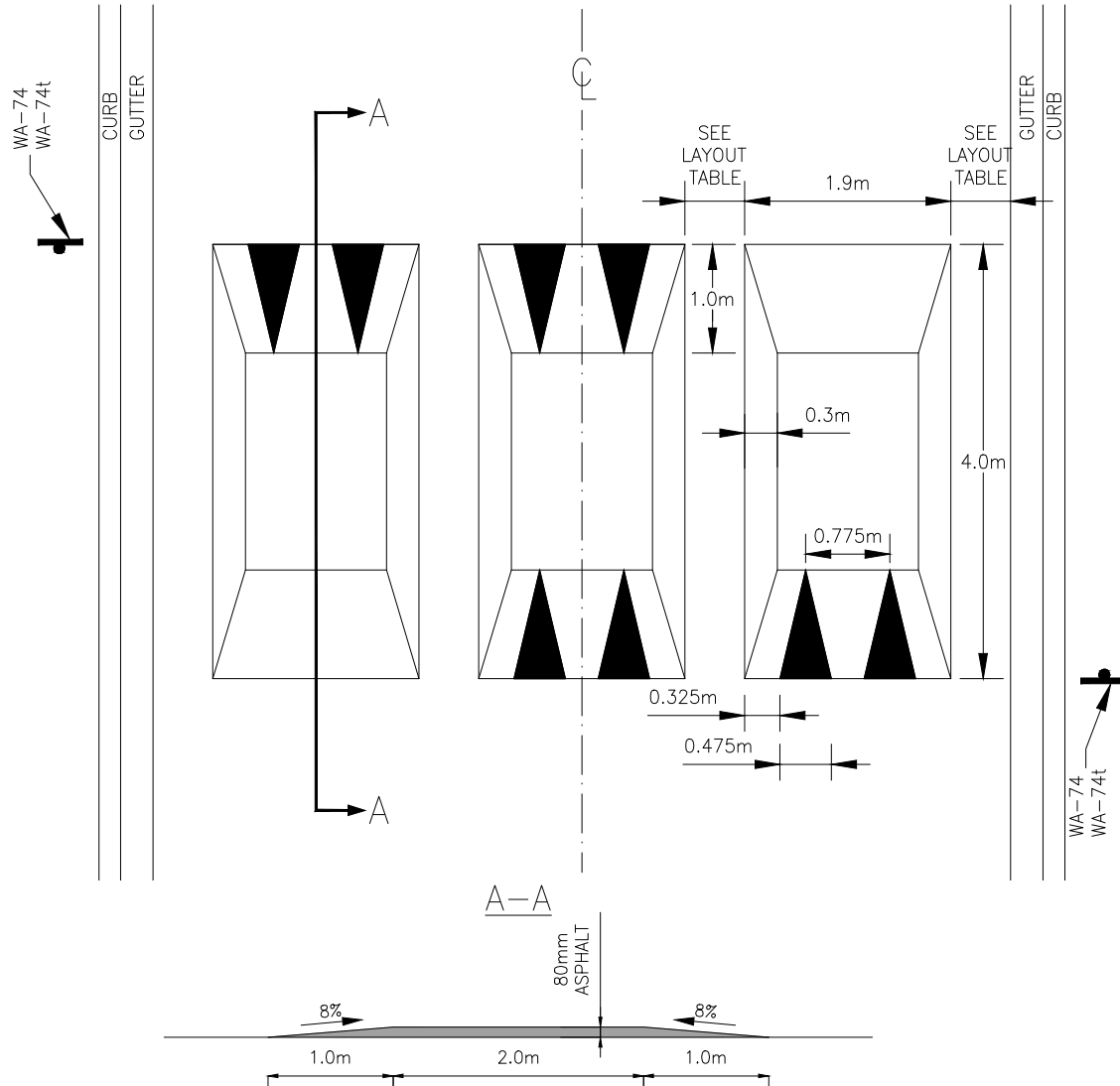
PLAN VIEW

NOTES:

1. FLEXIBLE AND COMPOSITE PAVEMENT SHALL BE 5mm ABOVE THE ADJACENT EDGE OF GUTTER.
2. WHERE THE SIDEWALK IS CONTINUOUS TO THE CURB, ENTRANCES LOWER THE HEIGHT OF THE ADDITIONAL CONCRETE AT THE REAR OF THE CURB TO 150mm.
3. FOR SLIPFORMING PROCEDURE, A 5% BATTER IS ACCEPTABLE.
4. TREATMENT AT ENTRANCES SHALL CONFORM WITH OPSD-351.01.
5. OUTLET TREATMENT SHALL CONFORM WITH OPSD-610 SERIES.
6. THE LENGTH OF TRANSITION FROM ONE CURB TO ANOTHER SHALL BE 3.0m. EXCEPT IN CONJUNCTION WITH GUIDE RAIL, IT SHALL CONFORM TO OPSD-900 SERIES.
7. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
8. BASE CURB IS TO BE FLUSHED THEN BLOWN OFF WITH PRESSURE AIR TO ENSURE A CLEAN DRY SURFACE.
9. ALL CONCRETE CSA, C-2, 32MPa.

mm DIMENSIONS IN MILLIMETERS
EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD		
2-STAGE CURB AND GUTTER		
NOT TO SCALE	DRAWN BY: <u>PC</u>	STD. DWG.
REVISION: _____	DATE: <u>JUN. 2023</u>	R - 135



LAYOUT TABLE

ROAD WIDTH EXCLUDING GUTTER	NUMBER OF CUSHIONS	DIMENSION	
		FROM GUTTER	BETWEEN CUSHIONS
7.0m	3	0.25m	0.4m
8.0m	3	0.7m	0.45m
9.0m	3	0.4m	1.25m
11.0m	4	0.5m	0.8m
13.6m	5	0.45m	0.8m
14.1m	5	0.5m	0.9m

DIMENSIONS NOTES:

- MINIMUM WIDTH BETWEEN FACE OF CURB AND SPEED CUSHION: 0.55m.
- MINIMUM WIDTH BETWEEN SPEED CUSHIONS: 0.45m, MAXIMUM: 1.25m.

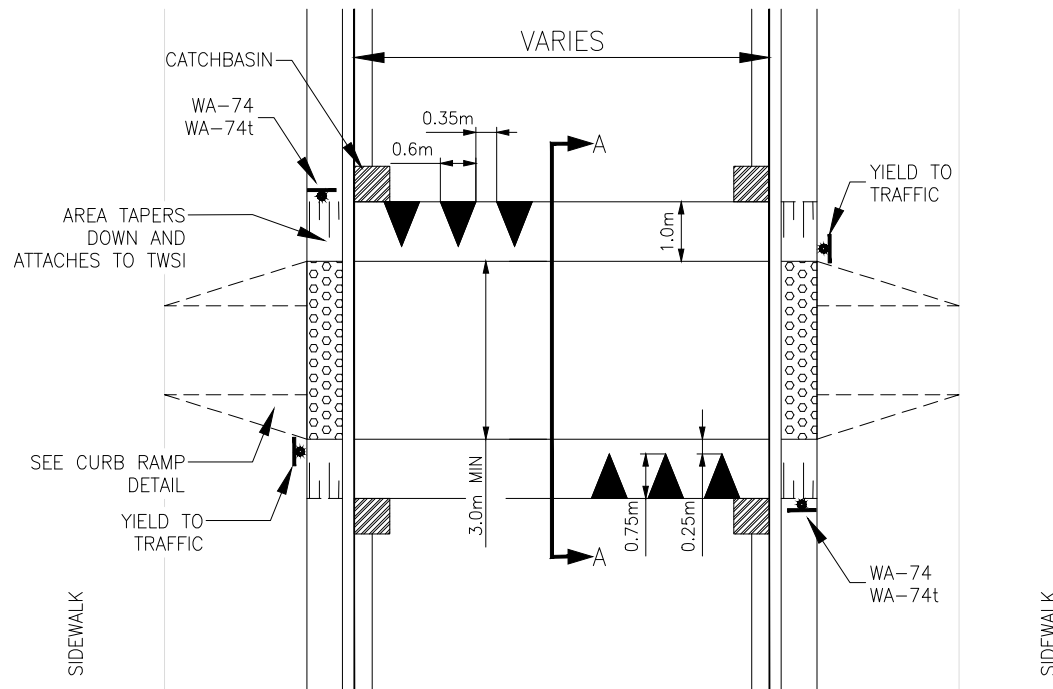
NOTES:

- MINIMUM 60m SPACING BETWEEN SPEED CUSHIONS.
- IMPLEMENT FOUR CUSHIONS IN LOCATIONS WHERE THE GAP BETWEEN THE CUSHIONS CAN ACCOMMODATE 0.4m ON BOTH SIDES.
- AVOID IMPLEMENTATION IN PROXIMITY TO DRIVEWAYS, INTERSECTIONS, AND/OR TRAFFIC SIGNALS.
- ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
- ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.
- IN LOCATIONS WHERE CENTRELINE WAS PAINTED, MARKING TO BE REINSTATED.
- IN LOCATIONS WHERE CENTRELINE WAS PAINTED, TRIANGLE SHOULD NOT BE PAINTED IN OPPOSING LANE.
- DESIGNER MAY NEED TO ADJUST CUSHION DESIGN IF THE LANE CONFIGURATION IS ASYMMETRIC.

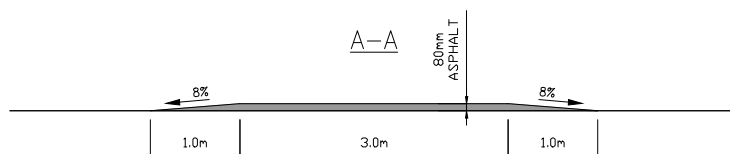
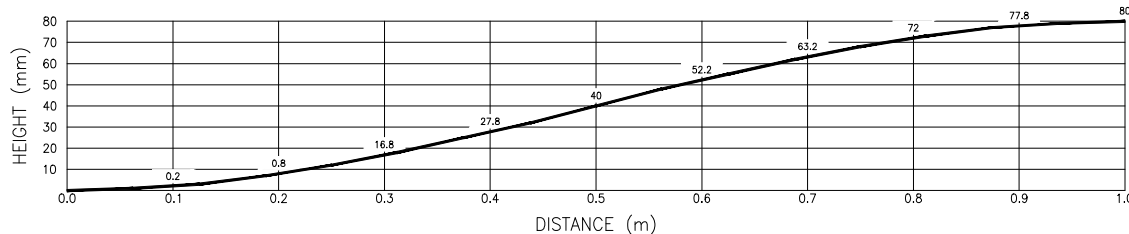


WA-74t WA-74

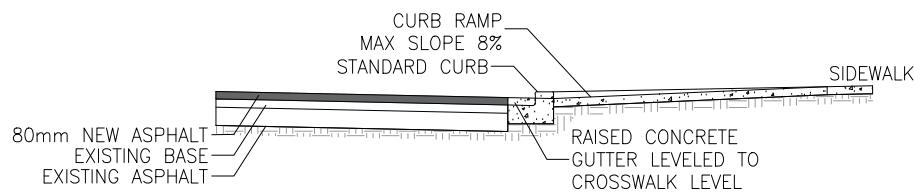
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REVISIONS		DATE
CITY OF VAUGHAN ENGINEERING STANDARD		
PERMANENT ASPHALT SPEED CUSHIONS		
NOT TO SCALE	DESIGNED: _____ P.W.	STD. DWG.
REVISION: _____ 0	DATE: _____ JAN. 2025	R-136



SINUSOIDAL SPEED HUMP DEVELOPMENT



CURB RAMP DETAIL



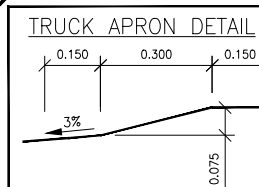
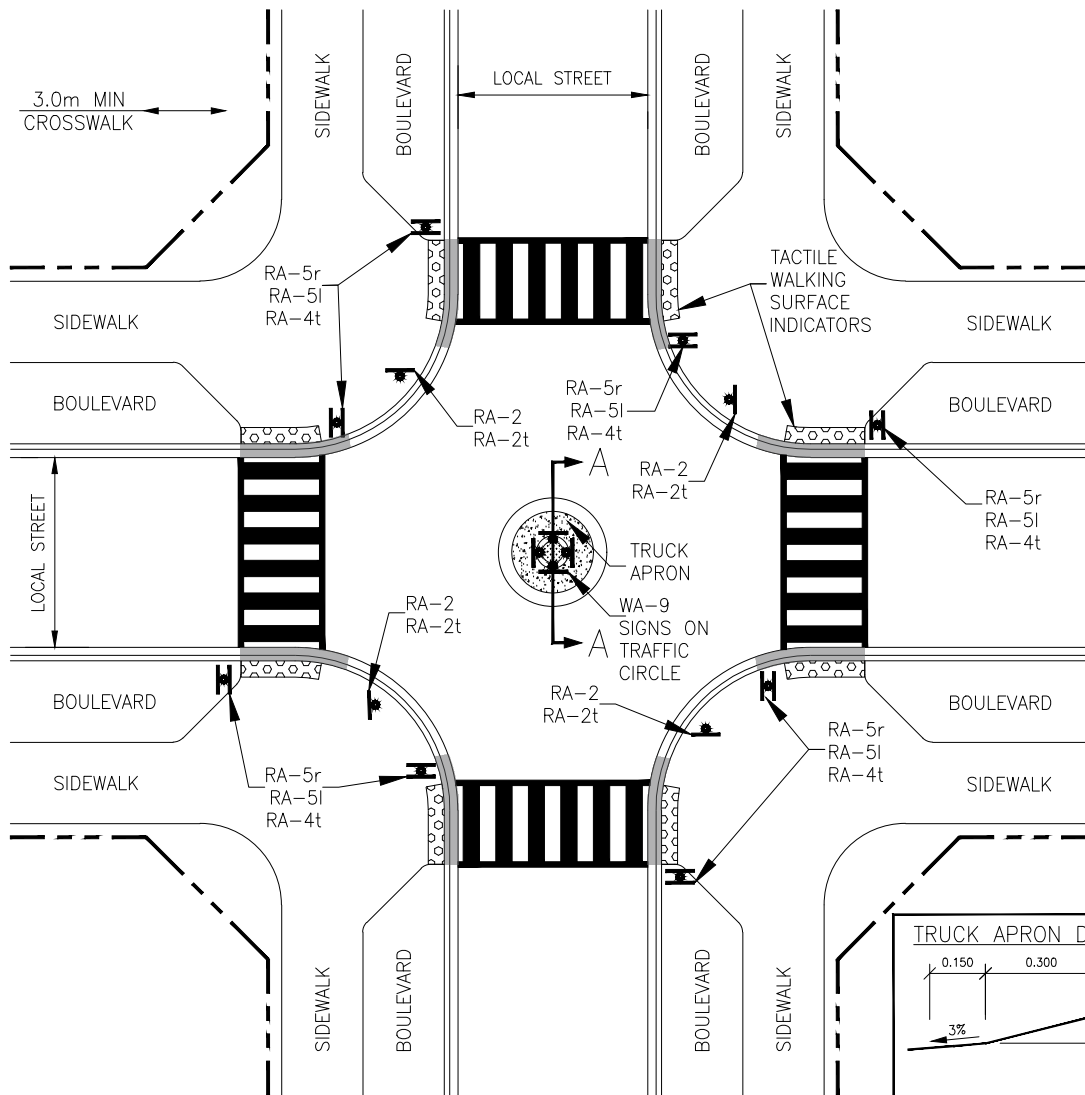
NOTES:

1. RAISED CROSSING TO BE IMPLEMENTED AT MIDBLOCK CONFIGURATION.
2. DRAINAGE NEEDS TO BE REVIEWED TO CONFIRM NEED FOR CATCH BASINS.
3. PAVEMENT MARKINGS AND SIGNAGE SHALL COMPLY WITH OTM BOOK 11.
4. TACTILE FEATURES PER AODA STANDARDS.
5. ADD THIRD PAVEMENT MARKING TRIANGLE ON EACH SIDE OF RAISED CROSSING IF ON COLLECTOR ROAD.
6. CATCH BASINS TO BE LOCATED AT BOTTOM OF RAMP, AS REQUIRED.
7. CHEVRON ARROWS DIMENSION: 0.75m HIGH BY 0.6m WIDE.
8. MIN 0.25m SPACE BETWEEN TOP OF RAMP AND CROSSWALK.
9. DESIGN SHALL HAVE REGARD FOR MANHOLE LOCATIONS AND OVERLAND FLOW ROUTES.
10. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE (OR EQUIVALENT) RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
11. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.

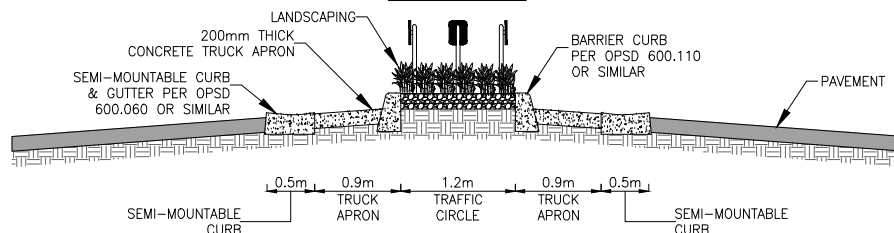


YIELD TO TRAFFIC WA-74t WA-74

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CITY OF VAUGHAN ENGINEERING STANDARD		
RAISED UNCONTROLLED MIDBLOCK CROSSING		
NOT TO SCALE	DESIGNED: P.W.	STD. DWG.
REVISION: 0	DATE: JAN. 2025	R-137



SECTION A-A



NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. TRAFFIC CIRCLE SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
6. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.
7. LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION.
8. WC-15 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER OTM BOOK 18. WA-39 SIGN CAN BE IMPLEMENTED IN ADVANCE OF THE CROSSING PER MUTCD.
9. CROSSINGS IMPLEMENTATION AND RELATED SIGNAGE SHOULD BE DETERMINED ON A CASE-BY-CASE BASIS ACCORDING TO OTM BOOK 15 AND ENGINEERING JUDGEMENT.
10. WC-27r SIGNS (PEDESTRIAN CROSSING AHEAD) TO BE PLACED 20-50m FROM THE CROSSING



WC-27r RA-4t RA-5l RA-5r RA-2t RA-2 WA-9

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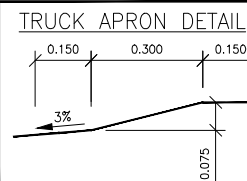
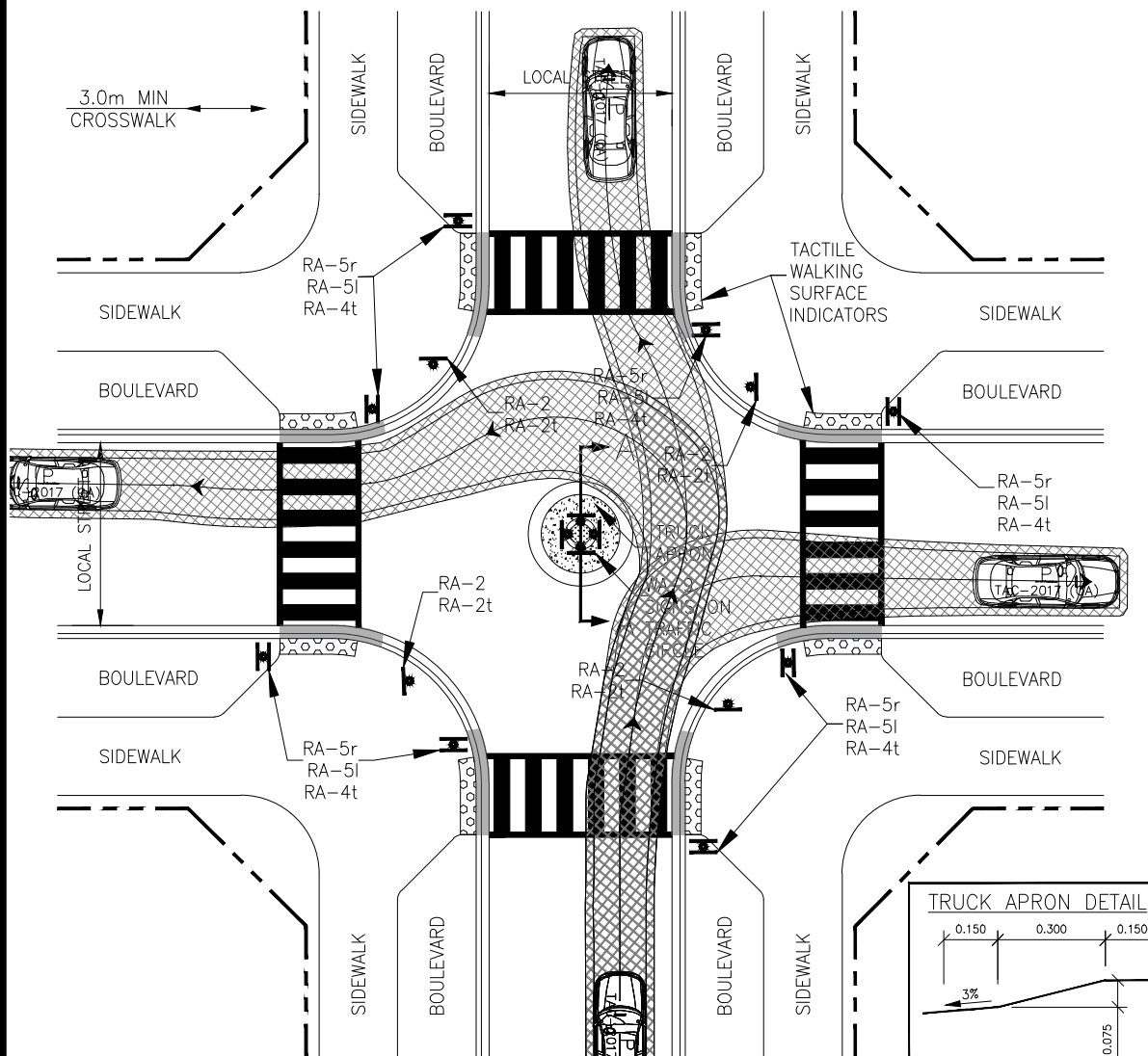


CITY OF VAUGHAN ENGINEERING STANDARD

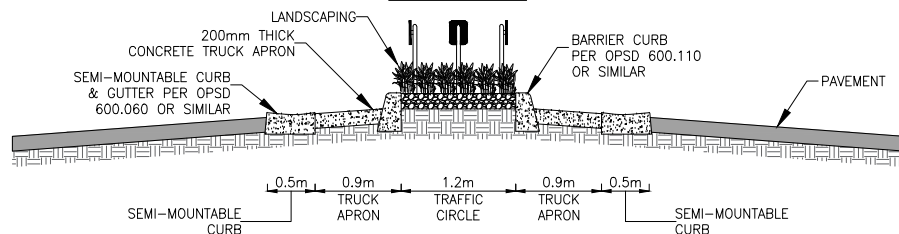
TRAFFIC CIRCLE

NOT TO SCALE DESIGNED: _____ P.W.
 REVISION: _____ 0 DATE: _____ JAN. 2025

STD. DWG.
R-138a



SECTION A-A



NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
6. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.
7. LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION



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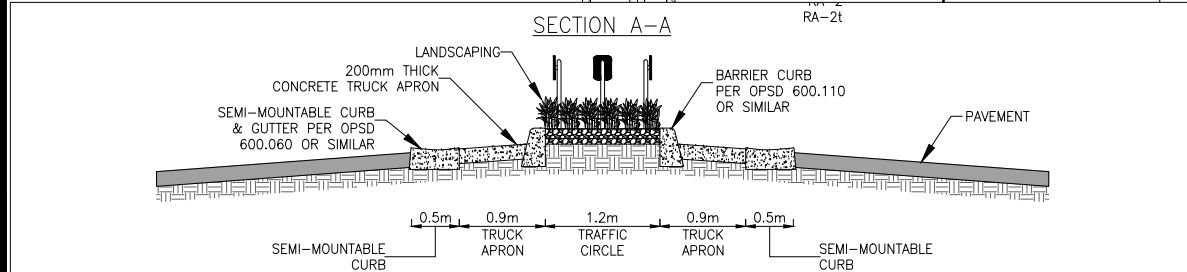
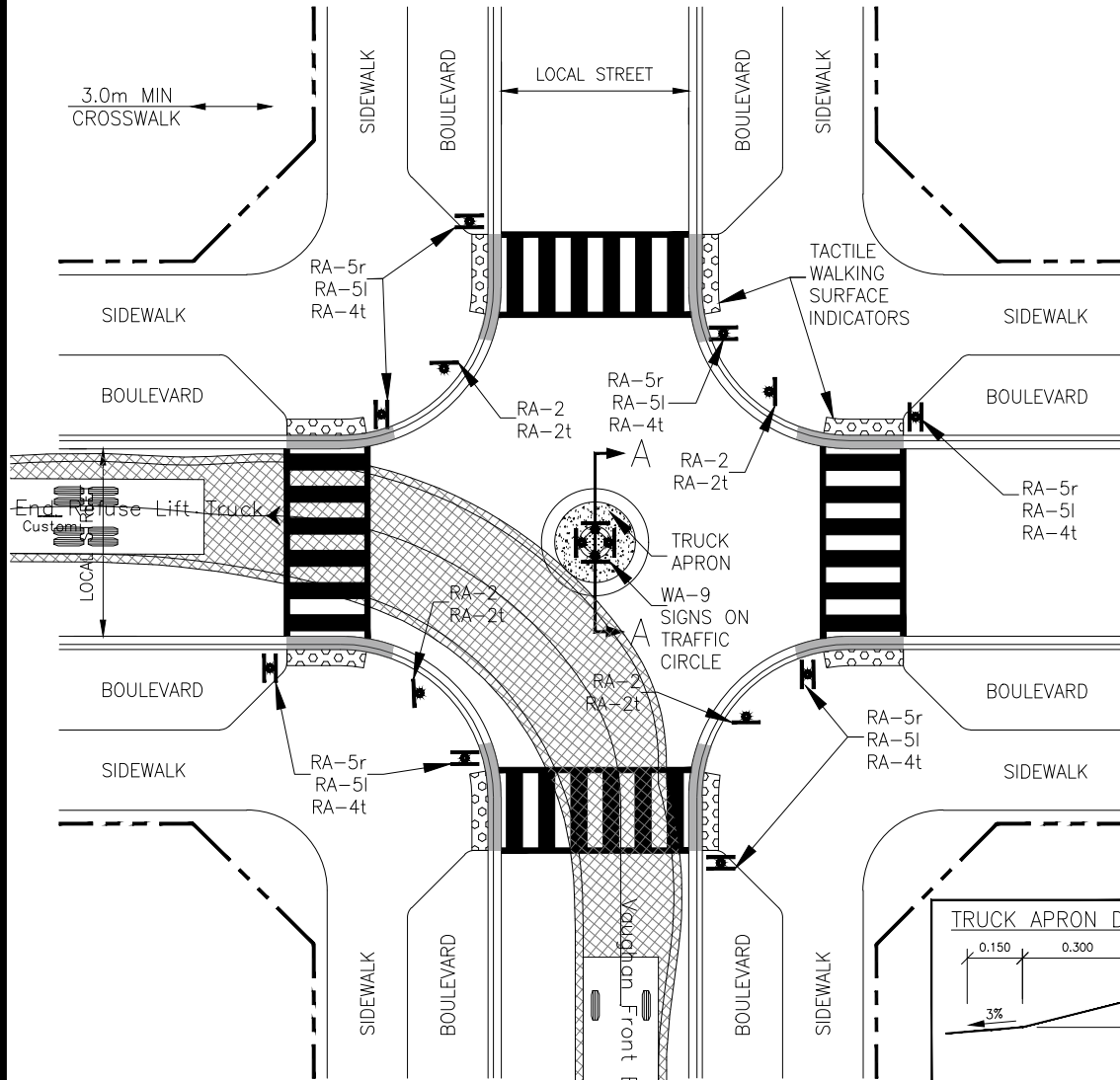


CITY OF VAUGHAN ENGINEERING STANDARD

TRAFFIC CIRCLE (W. TURNING MOVEMENT 1)

NOT TO SCALE DESIGNED: P.W.
REVISION: 0 DATE: JAN. 2025

STD. DWG.
R-138b



NOTES:

1. ALL DIMENSIONS ARE "TYPICAL" UNLESS OTHERWISE STATED. CURB RADII AND ROAD WIDTH TO COMPLY WITH CITY'S COMPLETE STREETS GUIDE.
2. ROUNDABOUT SIZE AND GEOMETRY SHALL BE CONFIRMED IN DETAILED DESIGN BASED ON CONNECTING ROADWAYS AND DESIGN VEHICLES.
3. ALL APPROACHES TO BE UNDER YIELD CONTROL.
4. DESIGN VEHICLE SHOULD CIRCULATE AROUND THE ISLAND WHILE CONTROL VEHICLE MAY NEED TO PASS OVER THE ISLAND.
5. ALL SIGNS TO BE HIGH INTENSITY DIAMOND GRADE & ANTI-GRAFFITI RETROREFLECTIVE SHEETING ON GALVANIZED U-CHANNEL POSTS.
6. ALL SIGN POSTS SHALL BE BREAKAWAY-TYPE IN ACCORDANCE WITH RELEVANT MTOD STANDARDS AND SPECIFICATIONS.
7. LANDSCAPING SHOULD NOT CAUSE SIGHTLINE OBSTRUCTION



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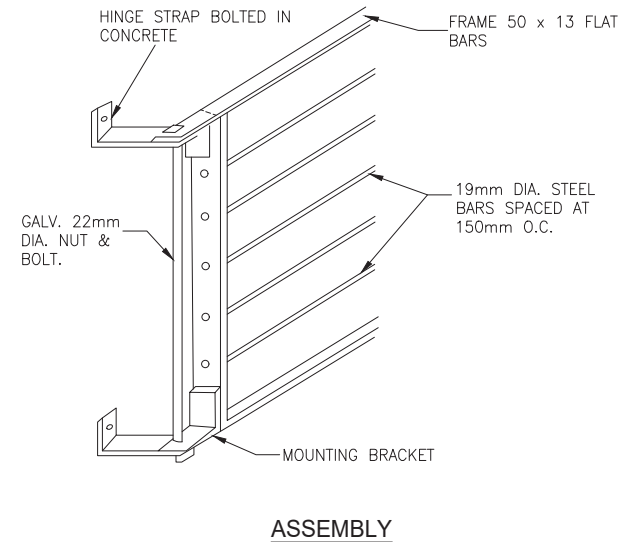
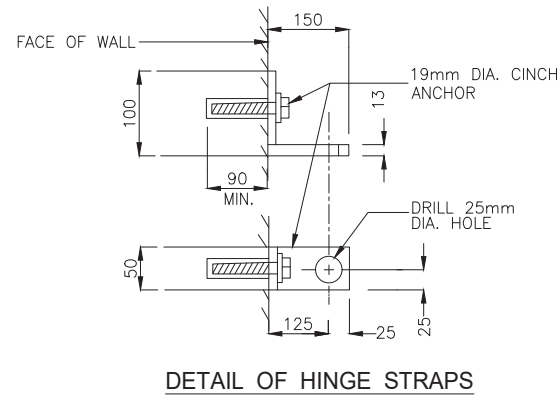
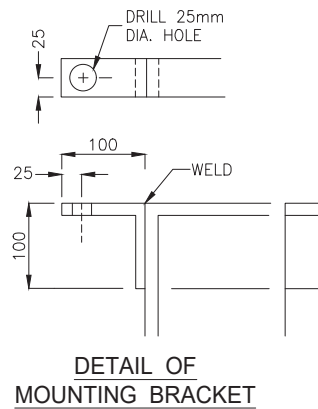
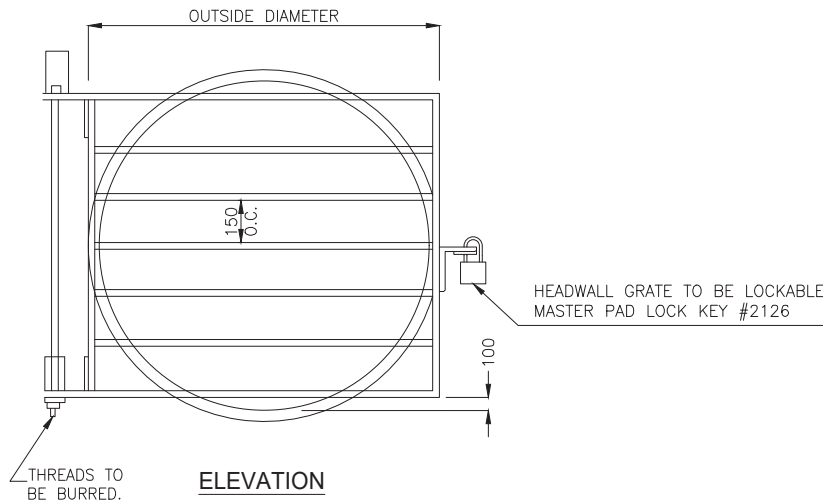
CITY OF VAUGHAN ENGINEERING STANDARD

TRAFFIC CIRCLE (W. TURNING MOVEMENT 2)

NOT TO SCALE DESIGNED: _____ P.W.
REVISION: _____ 0 DATE: _____ JAN. 2025

STD. DWG.
R-138c

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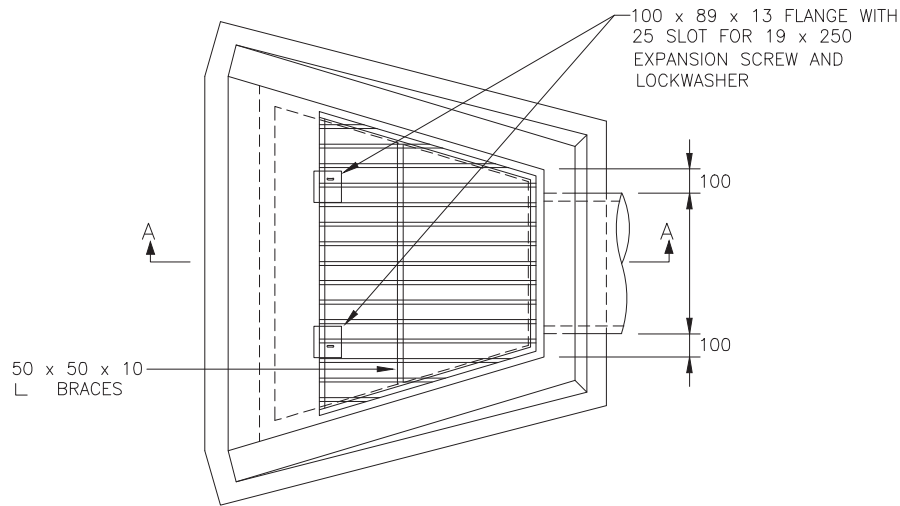
NOTES

1. FRAME, HINGE, STRAP, MOUNTING BRACKET AND STEEL RODS TO BE MEDIUM GRADE STEEL.
2. THE ENTIRE GRATE SHALL BE HOT DIPPED GALVANIZED.
3. ALL WELDS USED IN THE MANUFACTURE OF GRATES SHALL BE FULL STRENGTH WELDS.
4. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.
5. OUTFALL LARGER THAN 900mmØ SHALL BE DESIGNED SITE SPECIFICALLY AND APPROVED BY THE CITY.

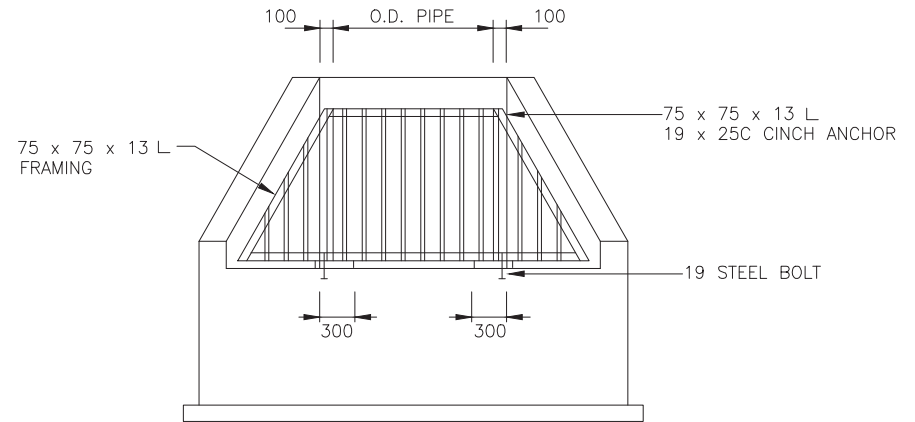
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CITY OF VAUGHAN ENGINEERING STANDARD		
OUTFALL GRATE MAX. 900mmØ		
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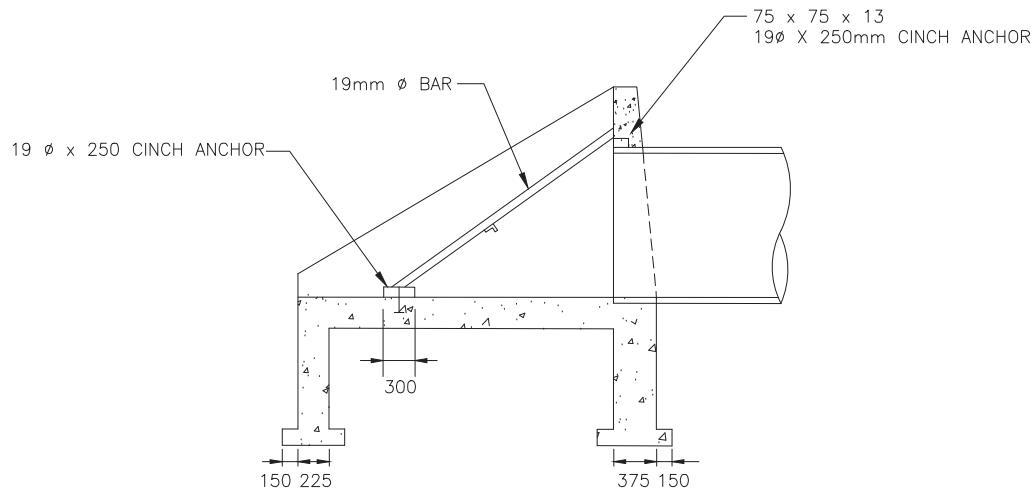
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PLAN



ELEVATION



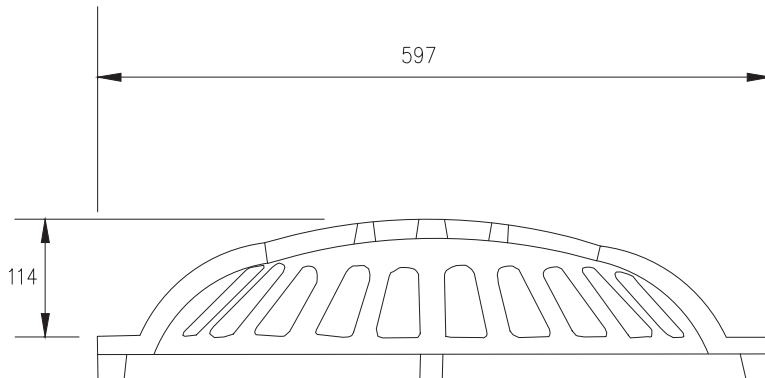
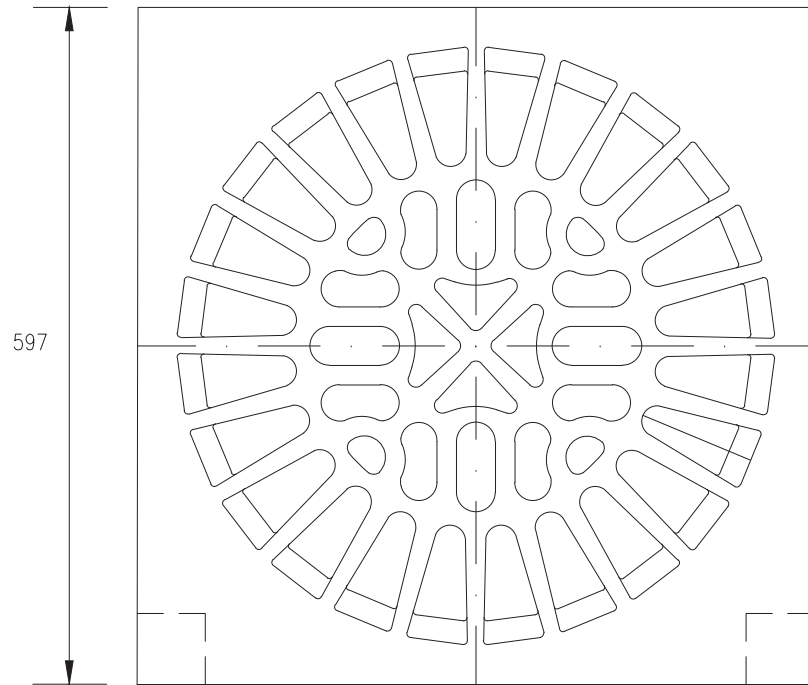
SECTION A-A

NOTES

1. ALL STEEL USED SHALL BE MEDIUM GRADE.
2. THE ENTIRE GRATE SHALL BE HOT DIPPED GALVANIZED.
3. ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL.
4. ALL WELDS USED IN THE MANUFACTURE OF THE GRADES SHALL BE CONTINUOUS FILET WELD 6mm THROAT WIDTH.
5. GRATING TO BE SPECIFICALLY DESIGNED FOR PIPES 1.0m DIA. OR LARGER.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
INLET GRATE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	S - 102

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

REAR YARD CATCHBASIN GRATE

NOT TO SCALE

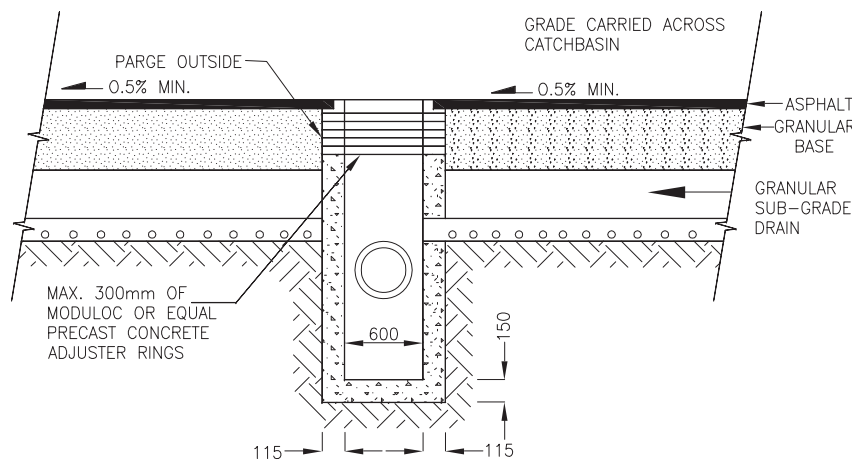
DESIGNED: _____

REVISION: _____

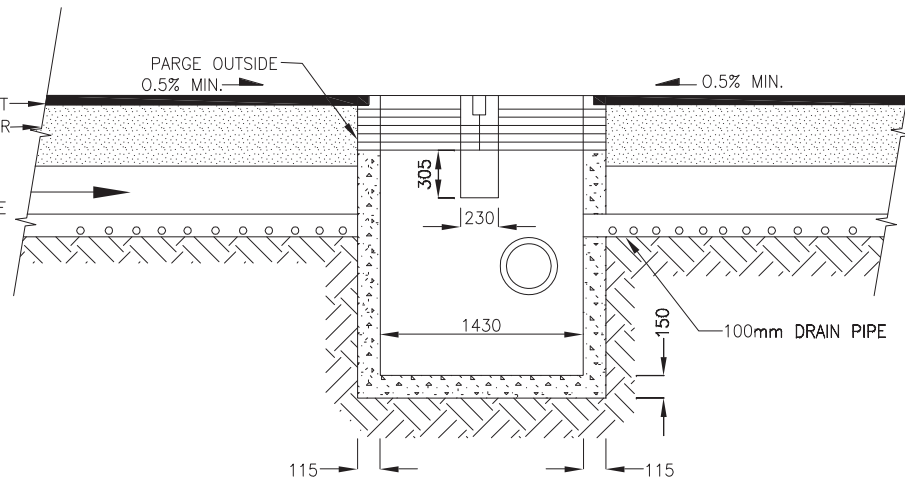
DATE: DEC. 2020

STD. DWG.

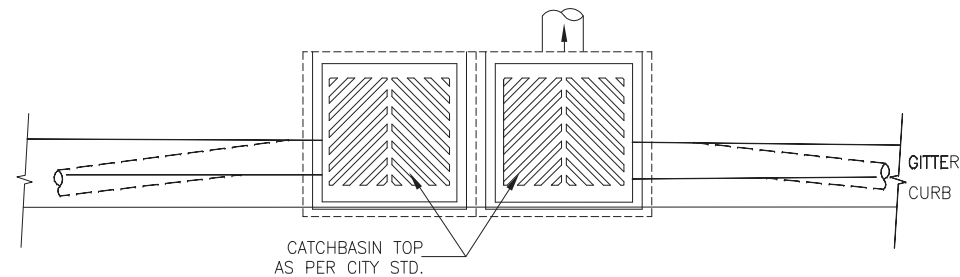
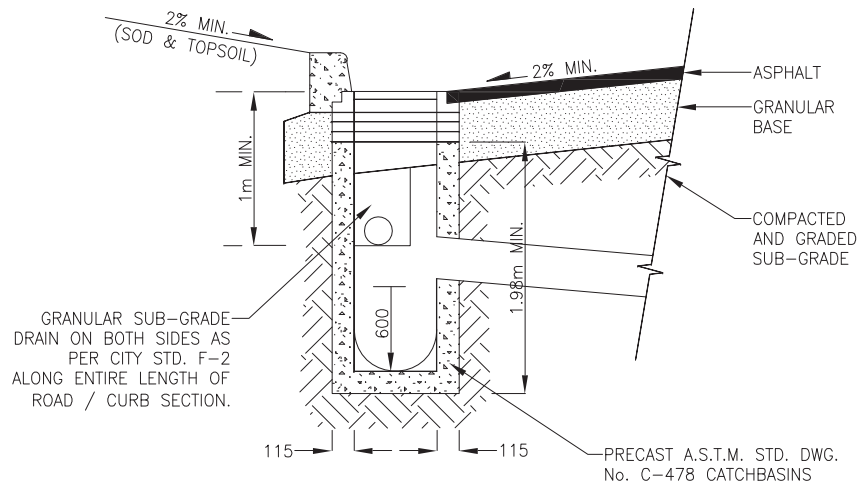
S - 103



SINGLE CATCHBASIN



DOUBLE CATCHBASIN

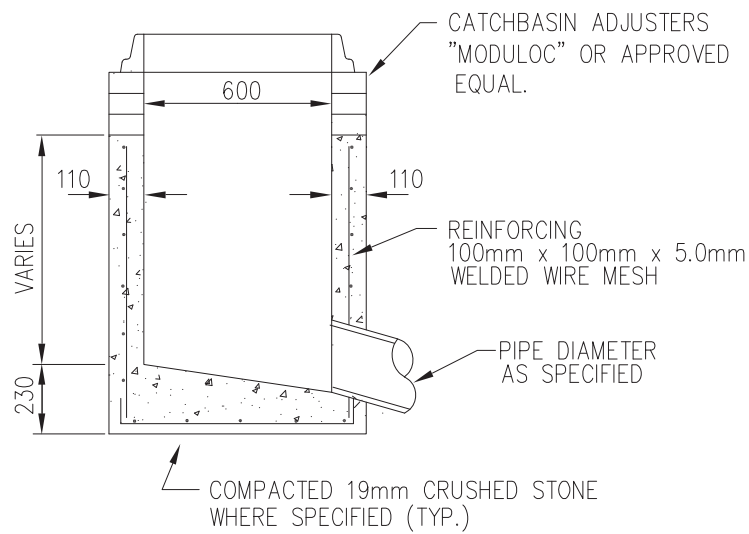


NOTES

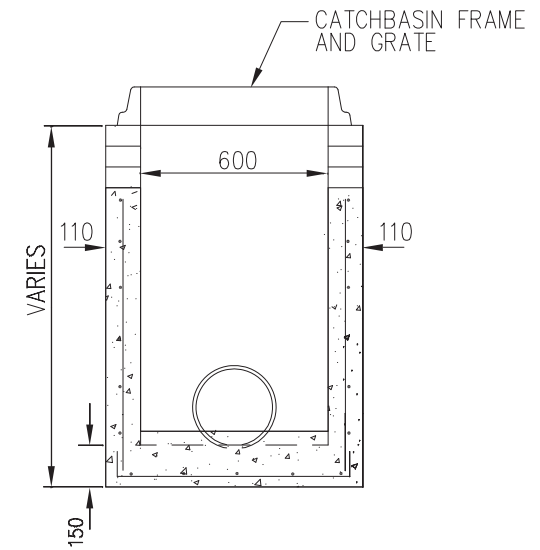
1. ALL WEEP HOLES AND LIFT HOLES TO BE PLUGGED AND MORTARED.
2. ALL GRANULAR BACKFILL TO BE PLACED TO 300mm MINIMUM THICKNESS ON ALL SIDES.
3. ALL GRANULAR BACKFILL TO BE COMPACTED TO 95% S.P.D.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

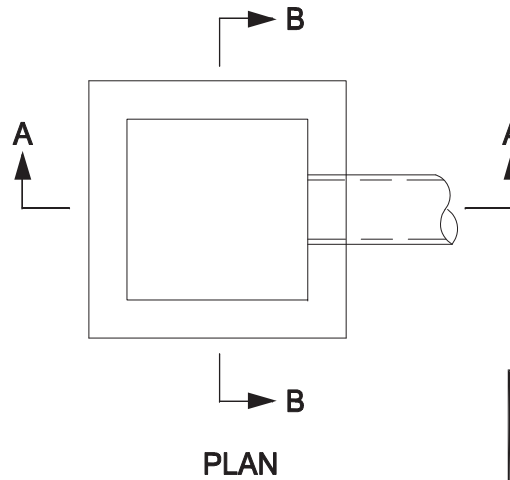
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REVISIONS		DATE
 City of Vaughan <i>The City Above Toronto</i>  ENGINEERING DEPARTMENT		
CITY OF VAUGHAN ENGINEERING STANDARD		
CATCHBASINS		
NOT TO SCALE		DESIGNED: <u>ENG. DEPT.</u>
REVISION: _____		DATE: <u>MARCH 2004</u>
		STD. DWG. K - 4



SECTION A-A



SECTION B-B



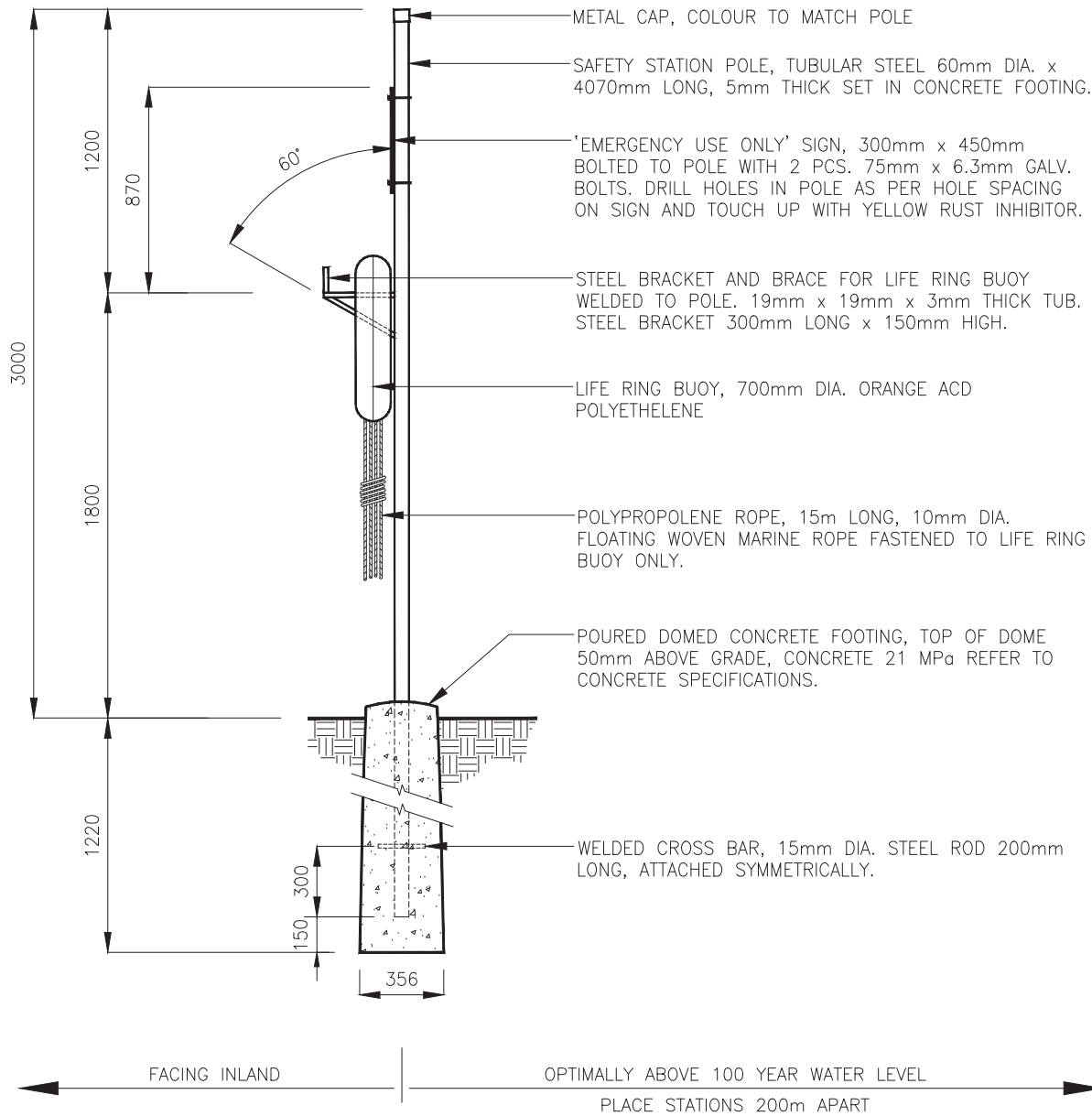
PLAN

NOTES

1. CATCHBASIN ADJUSTERS TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS. MINIMUM UNIT THICKNESS TO BE 50mm.
2. ALL JOINTS AND LIFTING HOLES TO BE COMPLETELY FILLED WITH A 1:3 MORTAR MIX AND POINTED BEFORE BACKFILLING.
3. REAR YARD CATCHBASINS TO BE OF THIS TYPE.

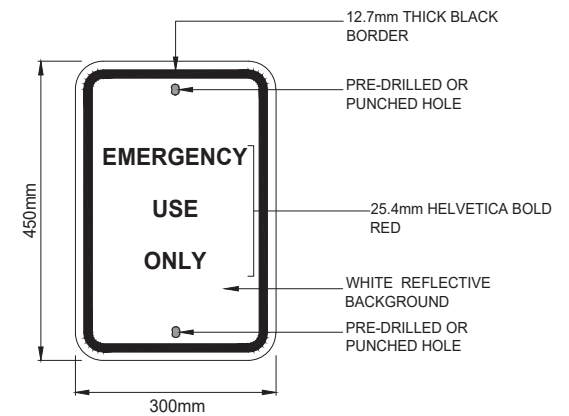
mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE
 ENGINEERING DEPARTMENT CITY OF VAUGHAN ENGINEERING STANDARD PRECAST CATCHBASIN WITHOUT SUMP		
NOT TO SCALE		DESIGNED: <u>ENG. DEPT.</u>
REVISION: _____		DATE: <u>MARCH 2004</u>
		STD. DWG. K - 5



NOTES

1. FINISH OF POST AND ALL OTHER STEEL COMPONENTS AND FITTINGS TO BE SAFETY YELLOW GLOSS ENAMEL POWDER COAT APPLICATION. PRIOR TO POWDER COATING, ALL SURFACES TO BE CHEMICALLY CLEANED AND TREATED WITH PARKER BONDERITE AND CHLOROTHENE SOLVENT OR APPROVED EQUAL. POWDER COATING MUST BE A POLYESTER 2000 SERIES APPLIED IN A THICKNESS OF 4-5 MILS BY ELECTROSTATIC COAT AND OVEN CURED TO A SMOOTH AND EVEN SURFACE.
2. NO PLASTIC COMPONENTS ARE TO BE USED EXCEPT WHERE NOTED.



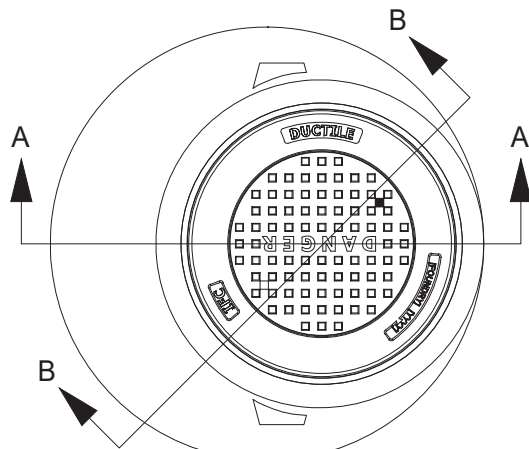
mm DIMENSIONS IN MILLIMETRES EXCEPT AS NOTED

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
SAFETY STATION		
FOR PONDS AND WATERWAYS		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	S - 107

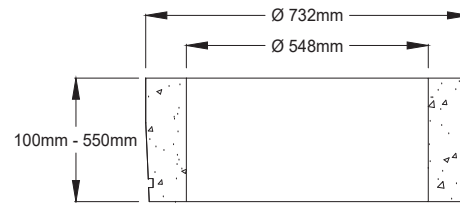
S-108 - SIDE INLET CATCHBASIN DETAILS

CURRENTLY UNDER DEVELOPMENT

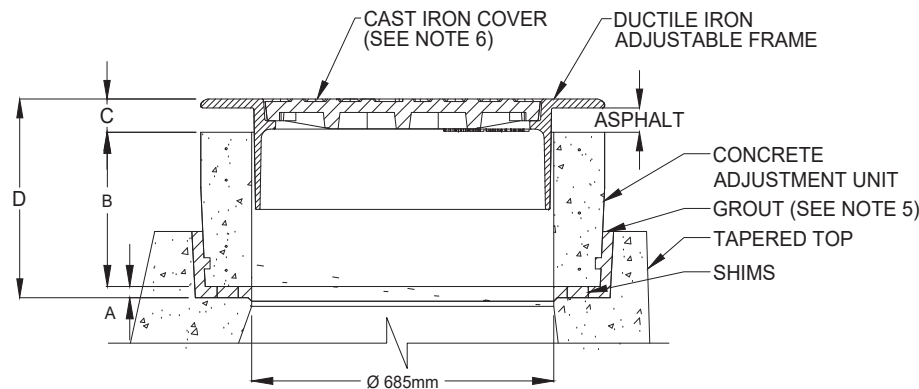
Refer to 2004 Published Edition. Should drawing not be available, please contact the Development Engineering Department at developmentengineering@vaughan.ca



TOP VIEW



CONCRETE ADJUSTMENT UNIT

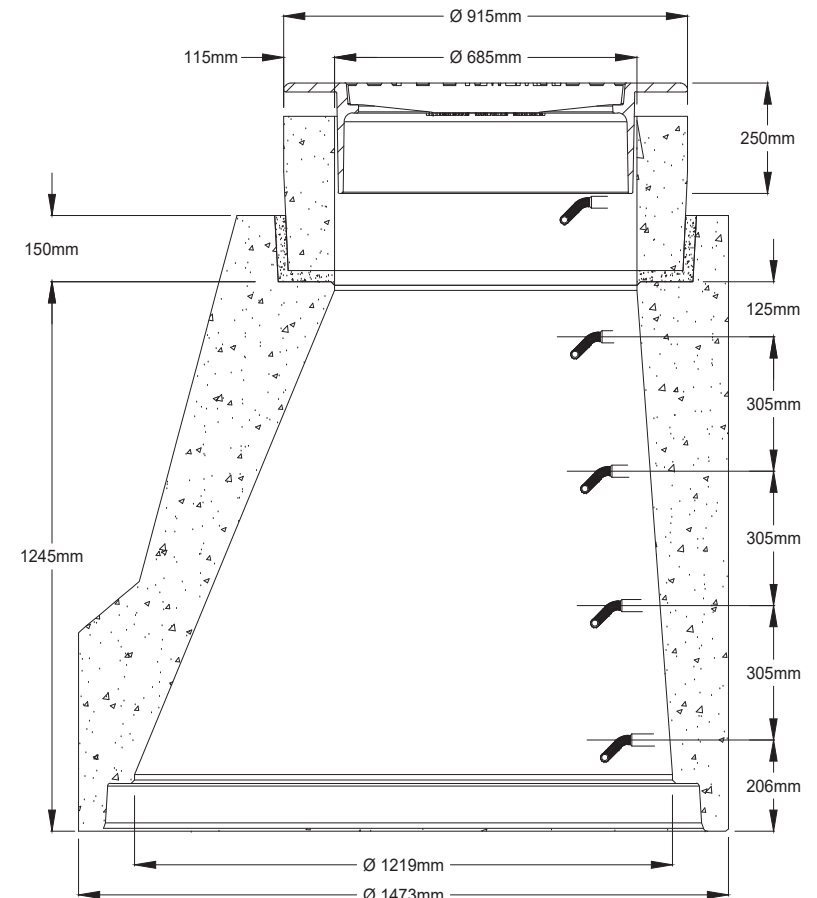


SECTION B-B

DIMENSION	NOTES
A	ADJUSTMENT RANGE: 25mm - 100mm
B	STANDARD HEIGHT, CONCRETE ADJUSTMENT UNIT: 350mm. ALSO AVAILABLE: 100, 150, 200, 250, 300, 400, 450, 500, 550mm
C	DUCTILE IRON FRAME ADJUSTMENT RANGE: 70 - 200 mm.
D	OVERALL ADJUSTMENT: MIN 195 mm (USING 100mm C.A.U.) AND MAX 850 mm (USING 550mm C.A.U.)

NOTES:

1. MINIMUM CONCRETE STRENGTH AT 28 DAYS: 30 MPa.
2. REINFORCEMENT: AS PER CSA A257.4 - 09.
3. 25 mm MINIMUM COVER ON ALL REINFORCING STEEL.
4. CONCRETE ADJUSTMENT UNIT CAN BE ORIENTED TO SUIT HEIGHT AND ANGLE REQUIRED. UNIT DEPICTED IS 350mm.
5. GROUT REQUIREMENTS: NON-SHRINK; MINIMUM 50 MPa AT 28 DAYS; TO BE INSTALLED ONLY AS PER MANUFACTURER APPLICATION GUIDELINES.
6. COVER DEPICTED IS PER OPSD 401.01, TYPE A. OTHER OPS-COMPLIANT COVERS AVAILABLE.



SECTION A-A

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DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

IFC MAINTENANCE HOLE
TAPERED TOP ASSEMBLY

NOT TO SCALE

DESIGNED: _____

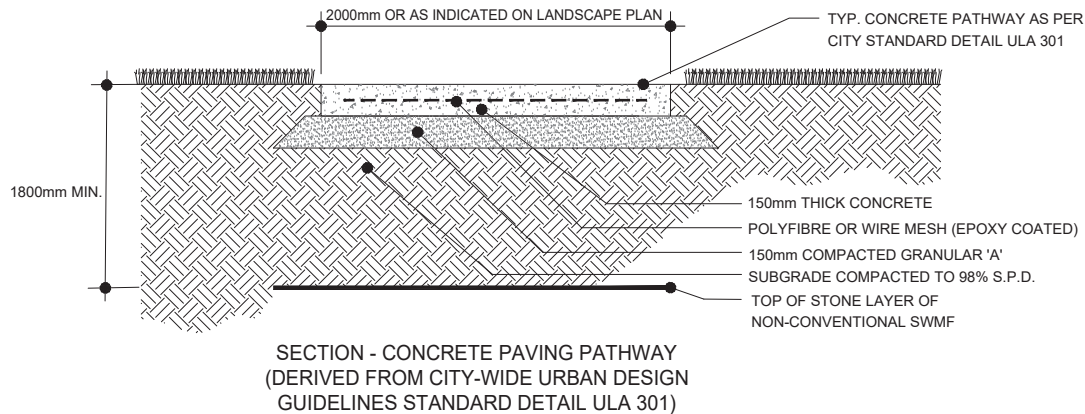
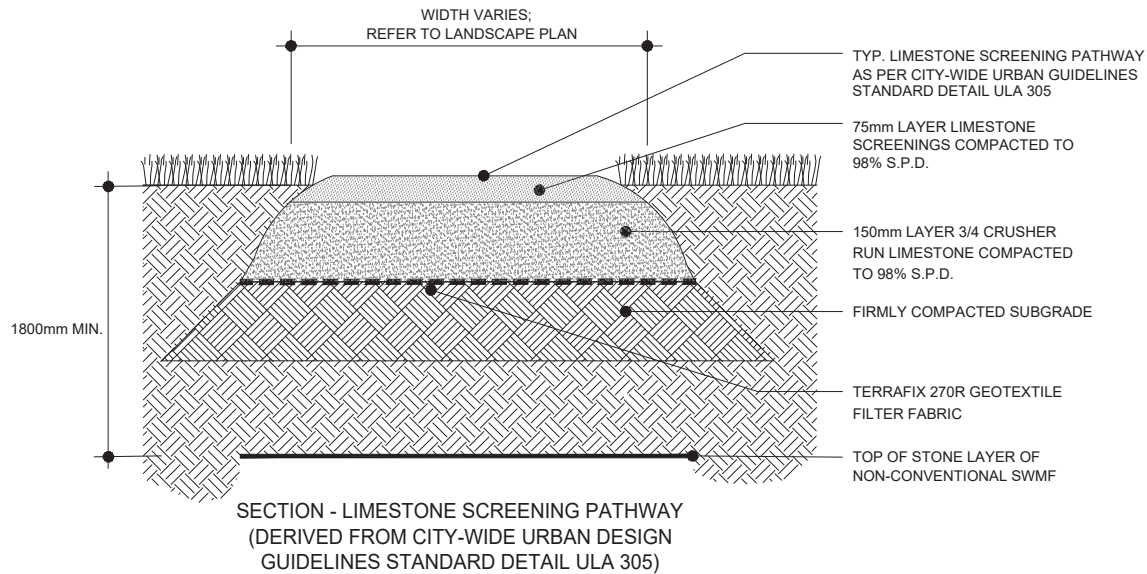
REVISION: _____

DATE: JUN. 2023

STD. DWG.

S - 109

Acad File: C:\Users\vaughan\City of Vaughan\City Standards - General\Design Criteria 2025\Draw - Standards\LA-110 - Pathway (Typ.) Above a Non-conventional SWMF 1 - New.dwg



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
3. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO PATHWAYS ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 301 AND 305 FOR PAVING DETAILS

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

PATHWAY (TYP.)
ABOVE A NON-CONVENTIONAL SWMF

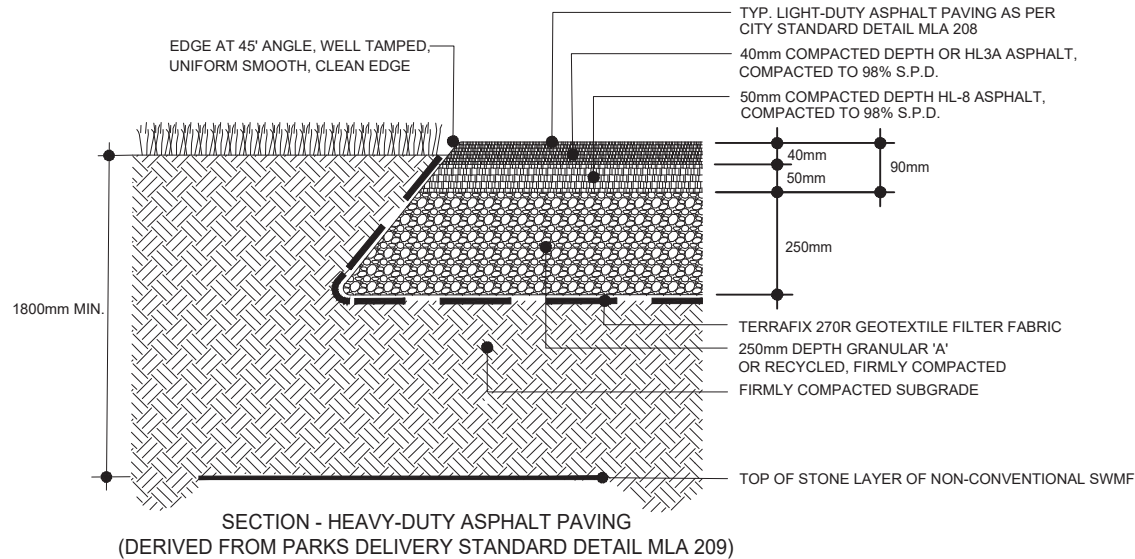
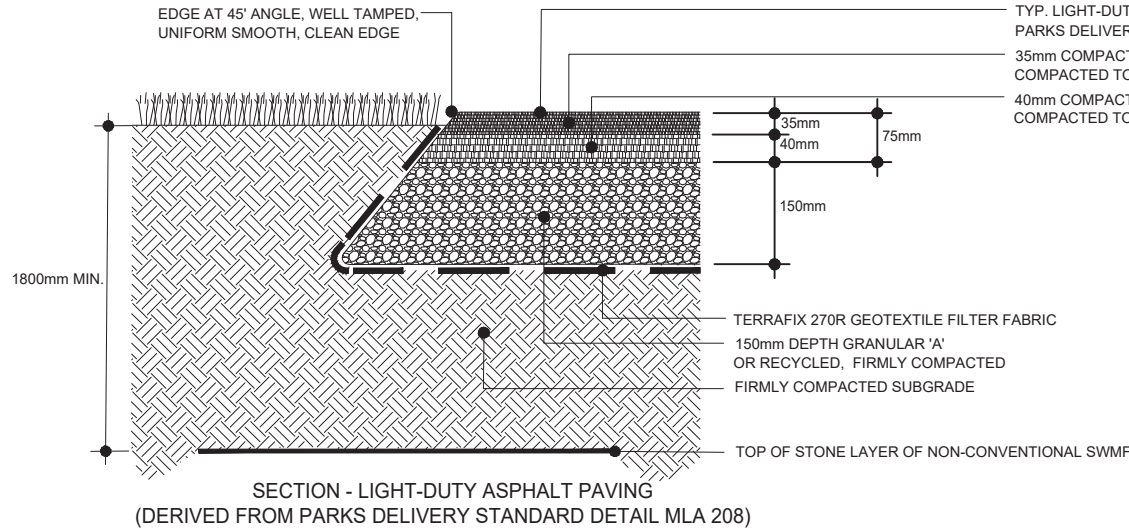
NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 110

Acad File: C:\Users\vaughan\Documents\CITY OF VAUGHAN\City Standards - General\Design Criteria 2020\Draw - Standards\LDPS-111 - Pathway (Typ.) - Above a Non-conventional SWMF 1A - Rev.dwg



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
3. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO PATHWAYS ABOVE NON-CONVENTIONAL SWMF LOCATED WITHIN PARK. REFER TO PARKS DELIVERY STANDARD DETAILS MLA 208 AND 209 FOR PAVING DETAILS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

ASPHALT PATHWAYS (TYP.)
ABOVE A NON-CONVENTIONAL SWMF
LOCATED WITHIN PARK

NOT TO SCALE

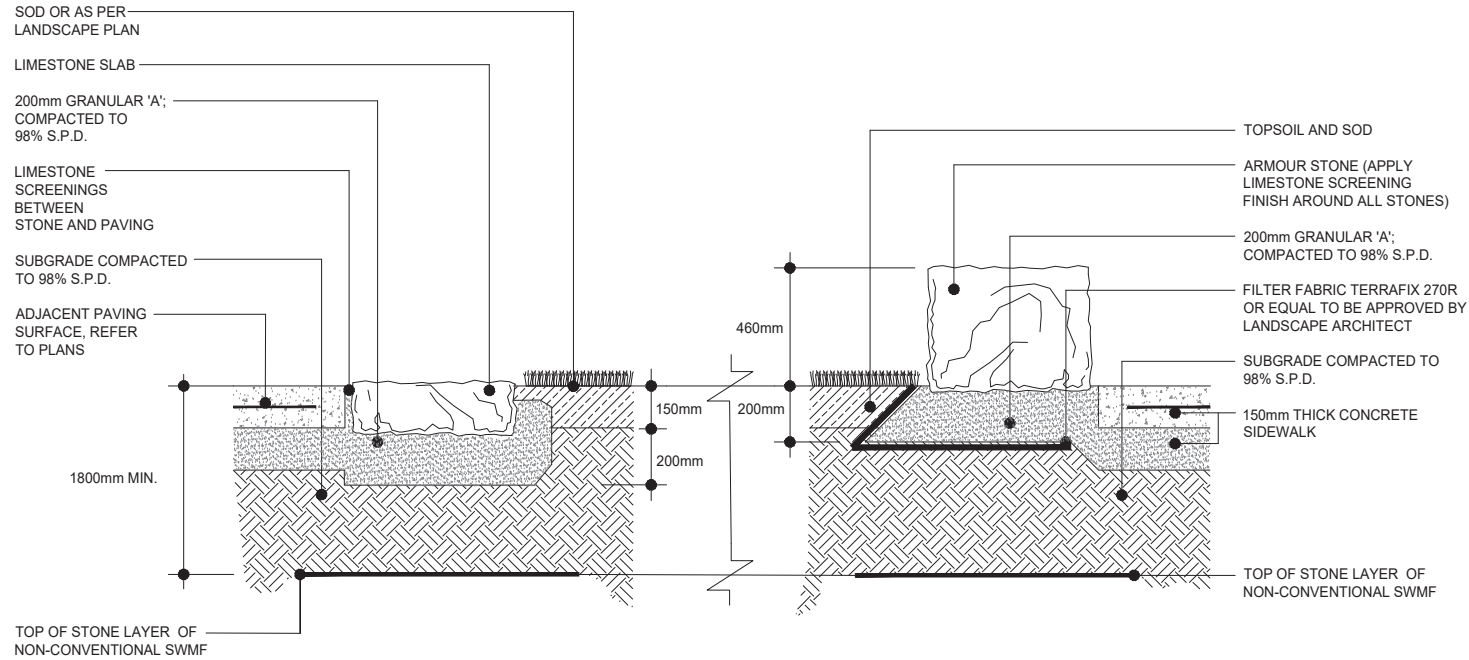
DESIGNED: _____

STD. DWG.

REVISION: _____

DATE: JAN. 2025

S - 111



**SECTION - STEPPING STONE
ADJACENT WALKWAY**
(DERIVED FROM CITY-WIDE URBAN DESIGN
GUIDELINES STANDARD DETAIL ULA 311)

**SECTION - ARMOUR STONE WITH
P-I-P CONCRETE SIDEWALK**
(DERIVED FROM CITY-WIDE URBAN DESIGN
GUIDELINES STANDARD DETAIL ULA 309)

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

**ARMOUR STONE (TYP.) DETAIL
ABOVE A NON-CONVENTIONAL SWMF**

NOT TO SCALE

DESIGNED: _____

REVISION: _____

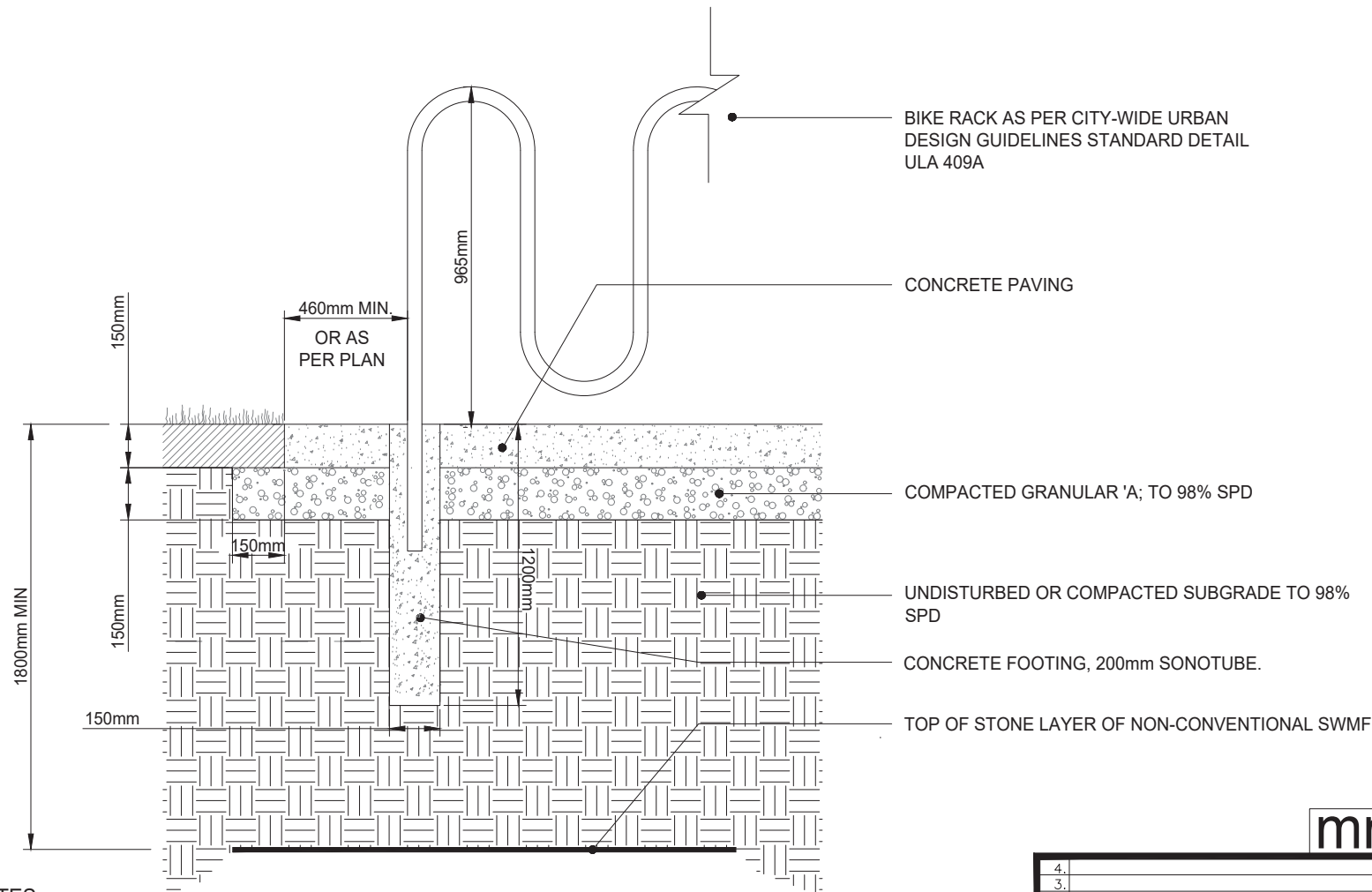
DATE: JAN. 2025

STD. DWG.

S - 112

NOTES:

1. ALL STONES TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. ALL QUARRY STONE TO HAVE SPLIT OR NATURALLY WEATHERED FACES; NO EXPOSED DRILL MARKINGS.
3. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.



NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. REFER TO LAYOUT PLAN FOR PLACEMENT/LOCATION OF BIKE RACK.
3. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
4. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO BIKE RACKS ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 409A FOR BIKE RACK DETAILS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

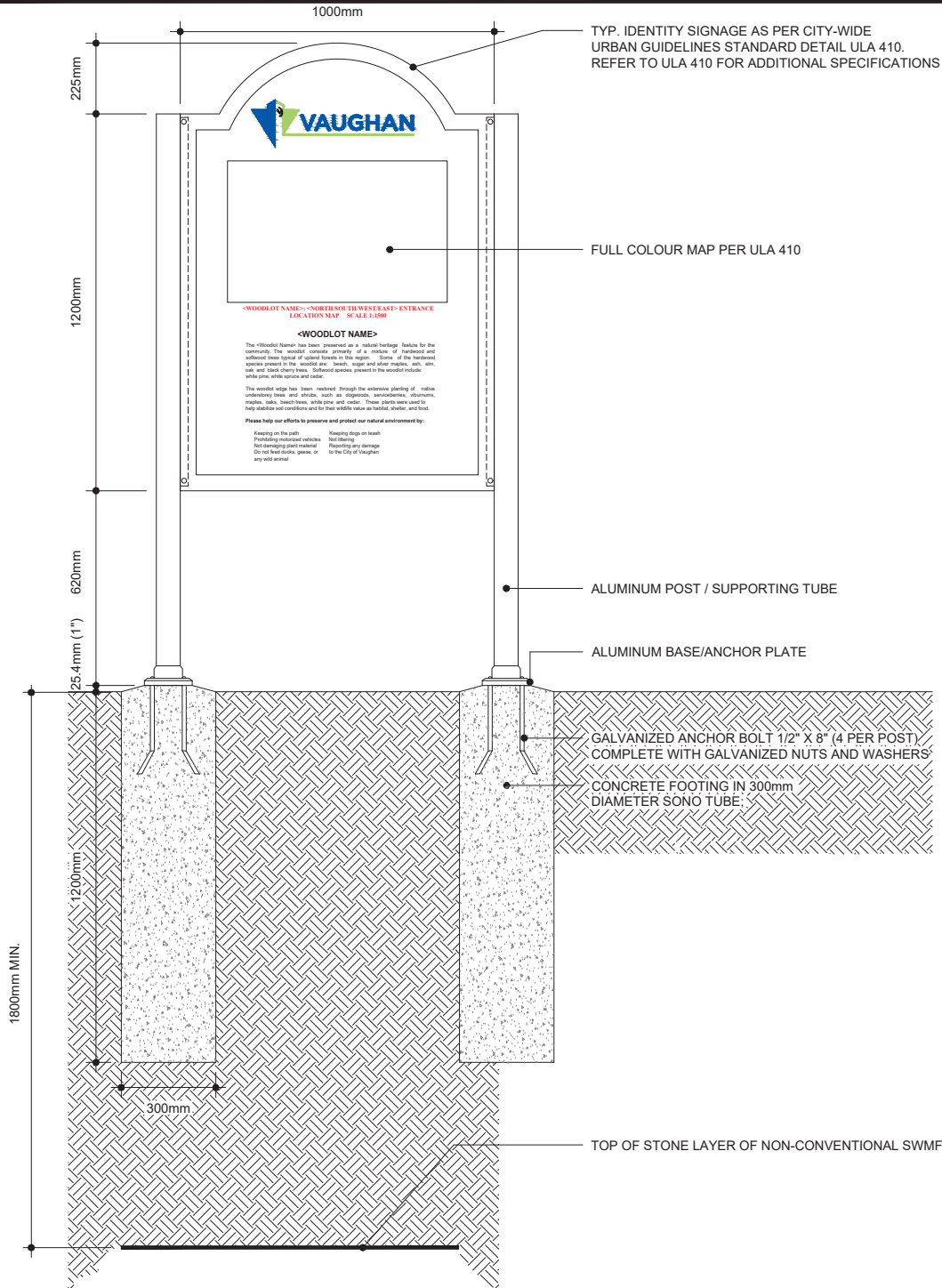
BIKE RACK DETAIL (TYP.) ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 113



NOTES:

1. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO IDENTIFY SIGNAGE ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 410 FOR FURTHER DETAIL.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PALN OF SUBDIVISION, AS APPLICABLE.

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EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD

**IDENTITY SIGNAGE (TYP.)
ABOVE A NON-CONVENTIONAL SWMF**

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 114

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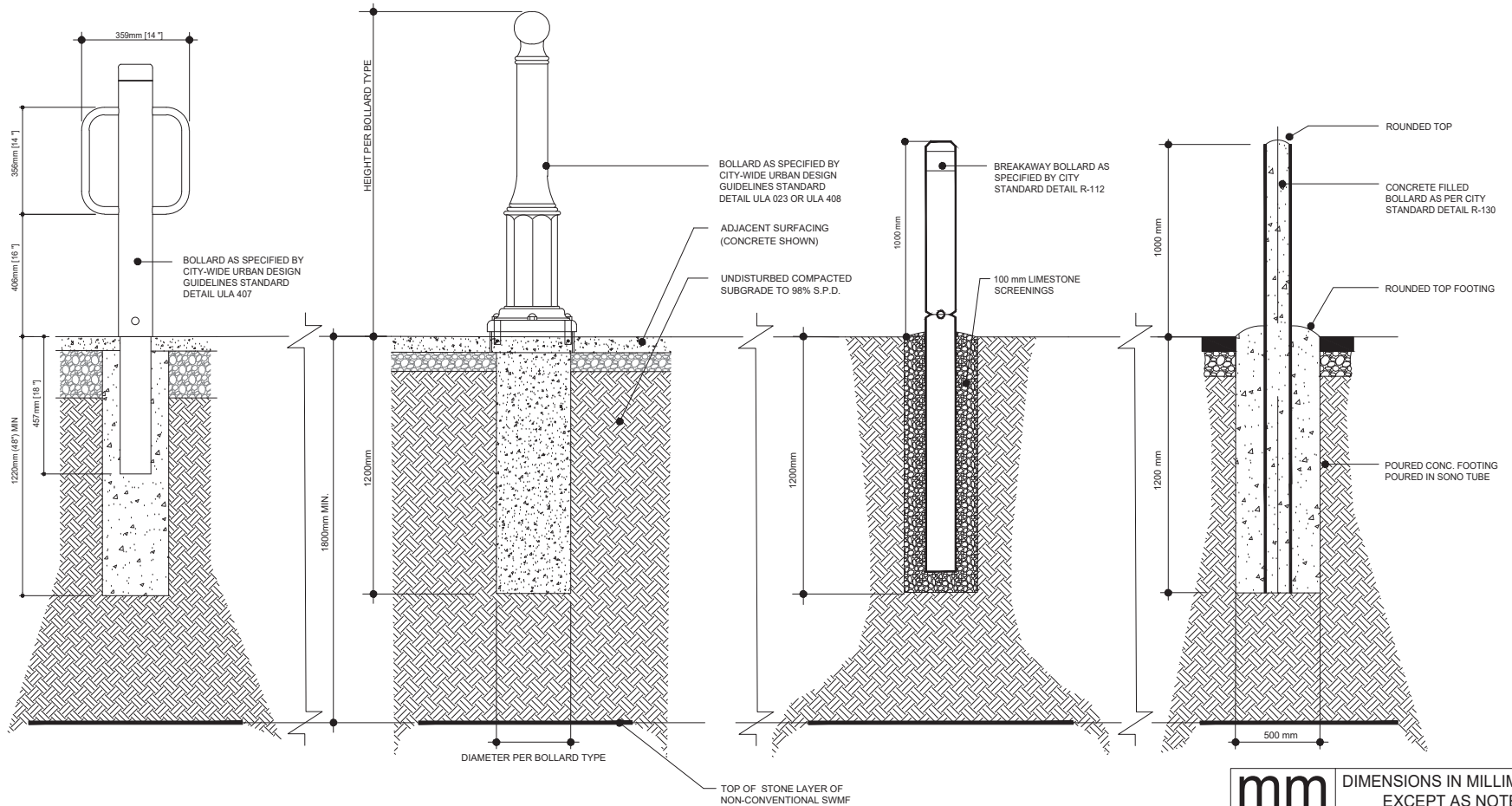

VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

GATE (TYP.)

ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE	DESIGNED: _____	STD. DWG. S - 115
REVISION: _____	DATE: _____ JAN. 2025 _____	



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO BOLLARDS ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAILS ULA-023, 407 AND 408 FOR BOLLARD DETAILS. REFER TO CITY STANDARD DETAIL R-112 FOR BREAKAWAY BOLLARD DETAILS. REFER TO CITY STANDARD DETAIL R-130 FOR CONCRETE BOLLARD DETAILS.

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CITY OF VAUGHAN ENGINEERING STANDARD

**BOLLARD (TYP.)
ABOVE A NON-CONVENTIONAL SWMF**

NOT TO SCALE

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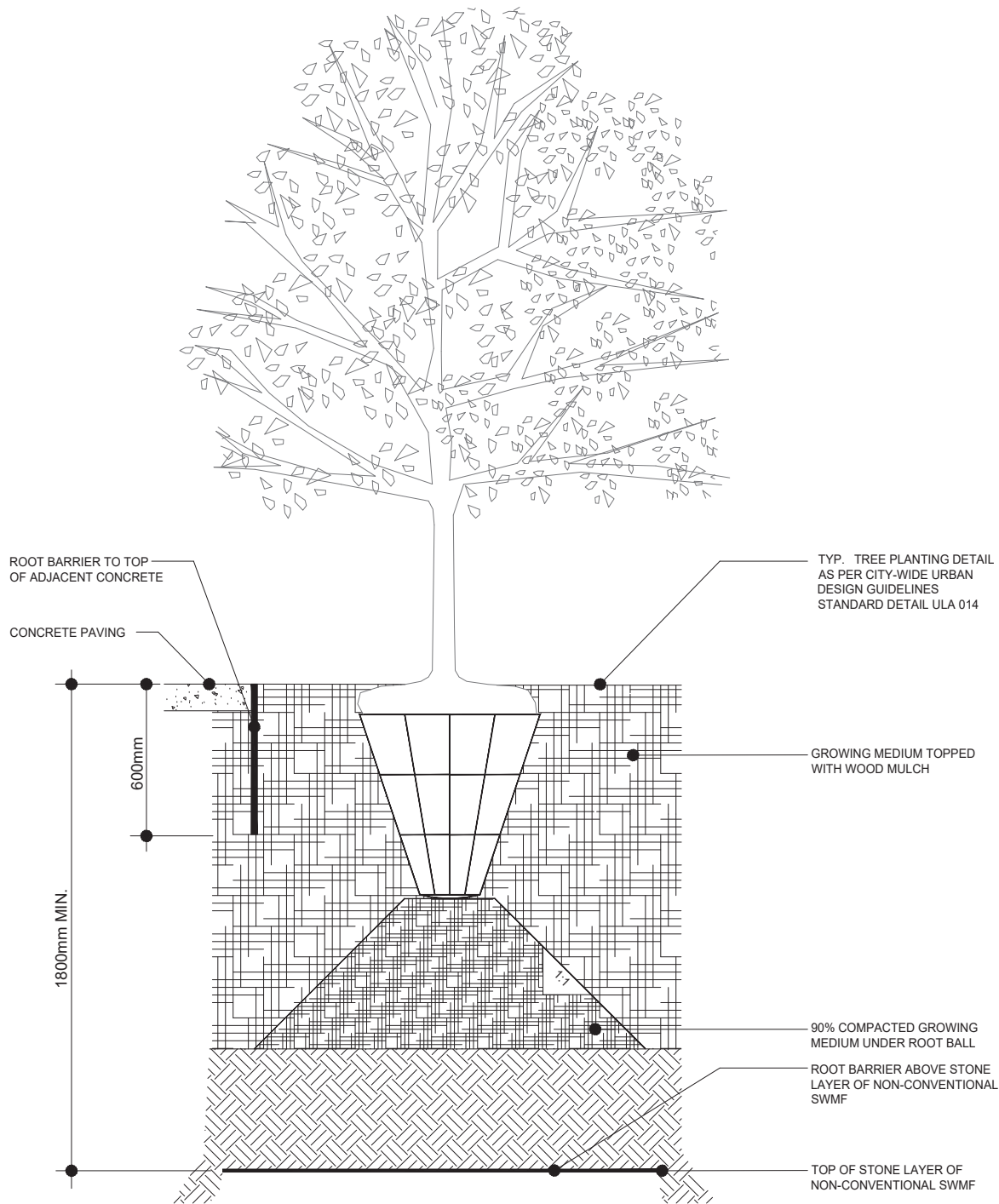
REVISION: _____

DATE: JAN. 2025

STD. DWG.

S - 116

Acad File: C:\Users\vaughan\OneDrive\Documents\City of Vaughan\City Standards - General\Design Criteria 2025\Draw - Standards\LA05-117 - Tree Planting (Typ.) Above a Non-conventional SWMF - Rev.dwg



NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DEIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO TREE PLANTING ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES VOLUME 2 ULA 014 FOR TREE PLANTING DETAILS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD

TREE PLANTING (TYP.) ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE

DESIGNED: _____

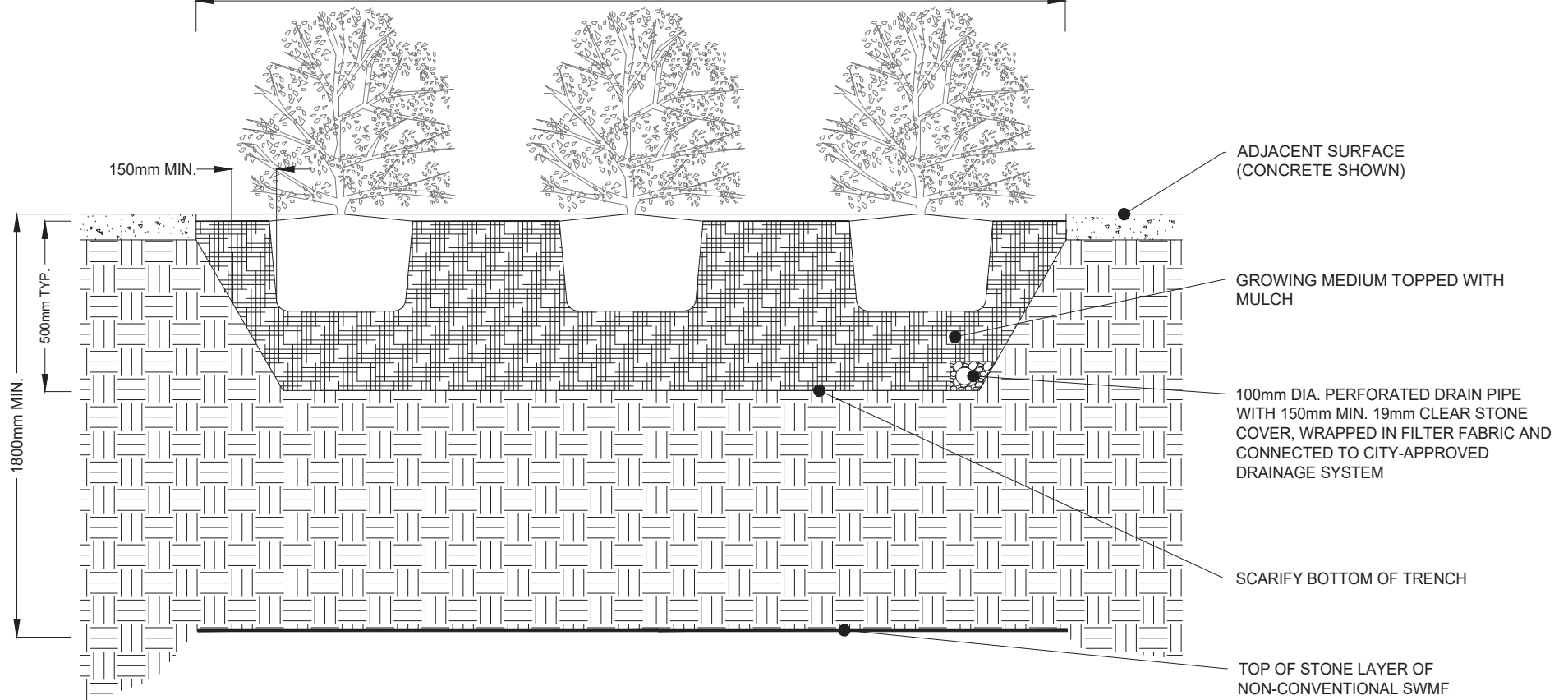
REVISION: _____

DATE: JAN. 2025

STD. DWG.

S - 117

TYPICAL SHRUB PLANTING DETAIL AS PER CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 015



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO SHRUB PLANTING ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 015 FOR SHRUB PLANTING DETAILS.

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CITY OF VAUGHAN ENGINEERING STANDARD

SHRUB PLANTING (TYP.)
ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE

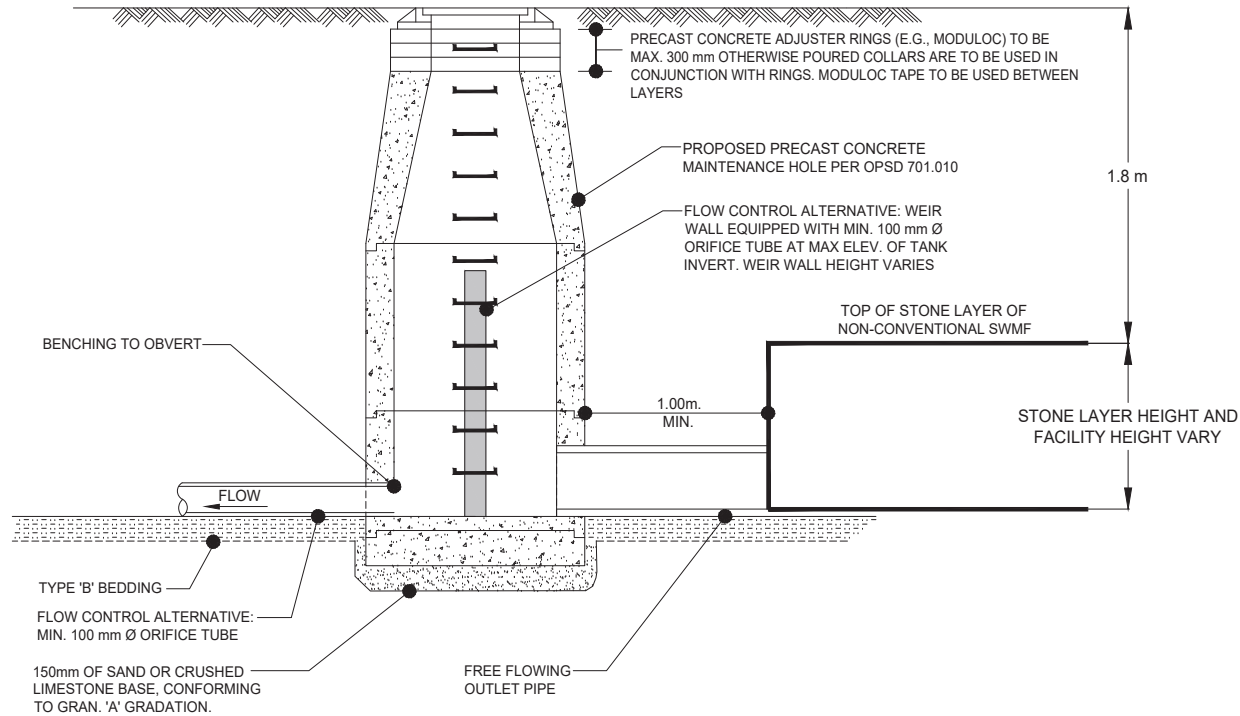
DESIGNED: _____

REVISION: _____

DATE: JAN. 2025

STD. DWG.

S - 118



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



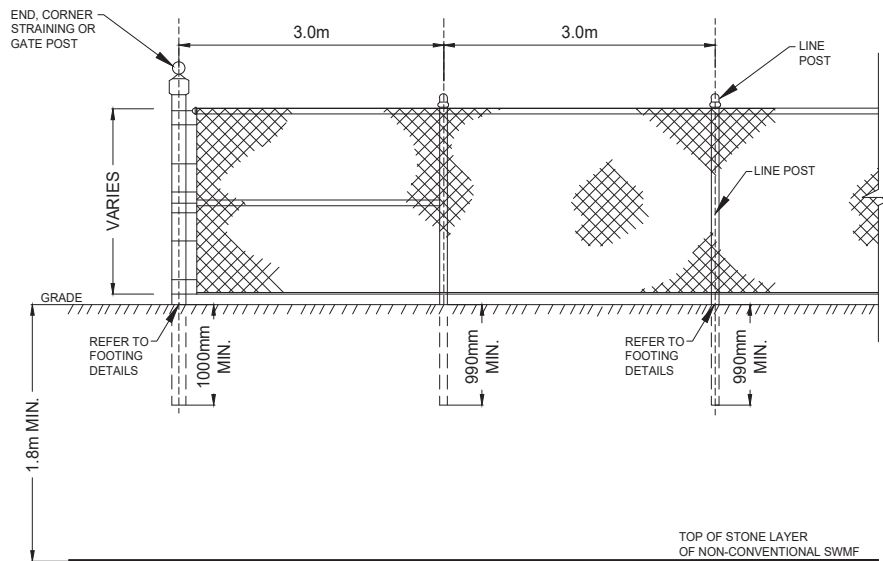
CITY OF VAUGHAN ENGINEERING STANDARD
EXAMPLE STORM CONNECTION DOWNSTREAM
FROM A NON-CONVENTIONAL SWMF

NOT TO SCALE DESIGNED: _____
REVISION: _____ DATE: JAN. 2025

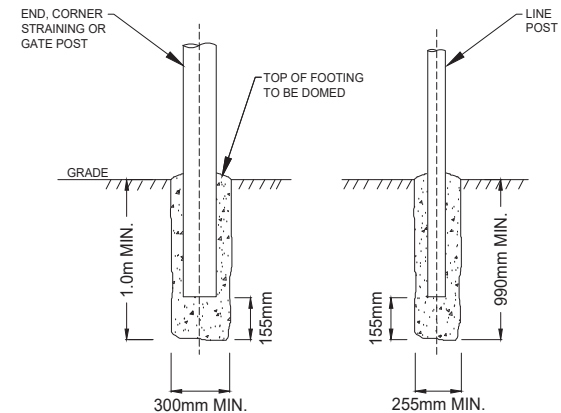
STD. DWG.
S - 119

NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO THE NON-CONVENTIONAL SWMF, DOWNSTREAM MANHOLE CONNECTIONS.
3. THIS DETAIL HAS BEEN DERIVED FROM CITY STANDARD DETAIL C-104.



FENCE DETAILS



FOOTING DETAILS

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO CHAIN LINK FENCES ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY STANDARD DETAIL FRW-101 FOR ADDITIONAL SPECIFICATIONS ON CHAIN LINK FENCES.

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CITY OF VAUGHAN ENGINEERING STANDARD

**CHAIN LINK SECURITY FENCE (TYP.)
ABOVE A NON-CONVENTIONAL SWMF**

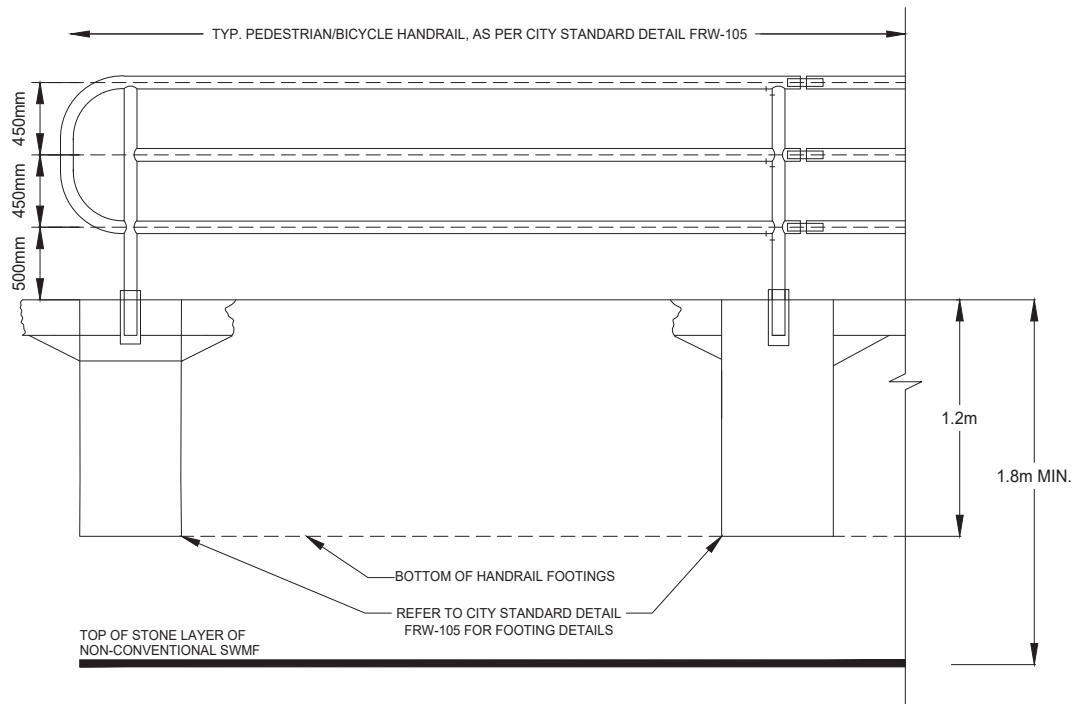
NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 120

Acad File: C:\Users\vaughan\OneDrive\City of Vaughan\City Standards - General\Design Criteria 2020\Draw - Standards\CDPS-121 - Pedestrian Bicycle Handrail (Typ.) Above a Non-conventional SWMF - New.dwg



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

PEDESTRIAN BICYCLE HAND RAIL (TYP.) DETAIL
ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE

DESIGNED: _____

REVISION: _____

DATE: JAN. 2025

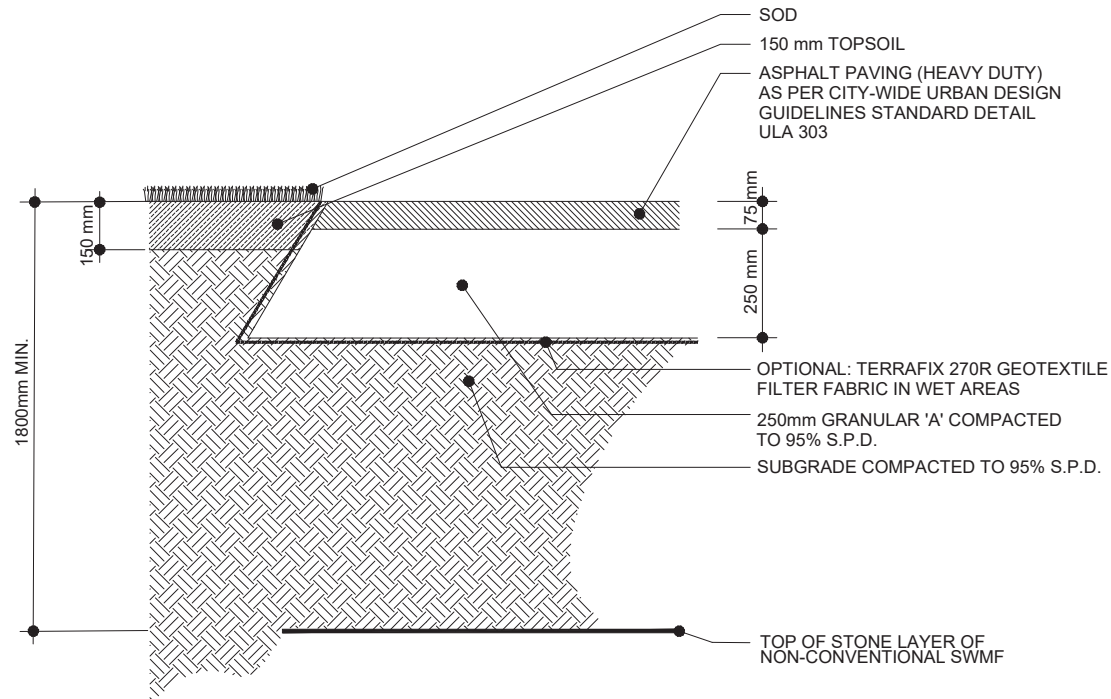
STD. DWG.

S - 121

NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO PEDESTRIAN/BICYCLE HANDRAILS ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY STANDARD DETAIL FRW-105 FOR ADDITIONAL SPECIFICATIONS ON HANDRAILS
3. THIS STANDARD TO BE USED IN PLACE OF OPSD 980.101 WHERE ADDITIONAL RAIL HEIGHT IS REQUIRED (SUCH AS BICYCLE TRAIL).

Acad File: C:\Users\vaughan\OneDrive\City of Vaughan\City Standards - General\Design Criteria 2025\Std - Standards\LAQS-122 - Asphalt Paving (Heavy Duty) (Typ) Above a Non-conventional SWMF - Hatching



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

ASPHALT PAVING - HEAVY DUTY (TYP.)
ABOVE A NON-CONVENTIONAL SWMF
LOCATED WITHIN ROW

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

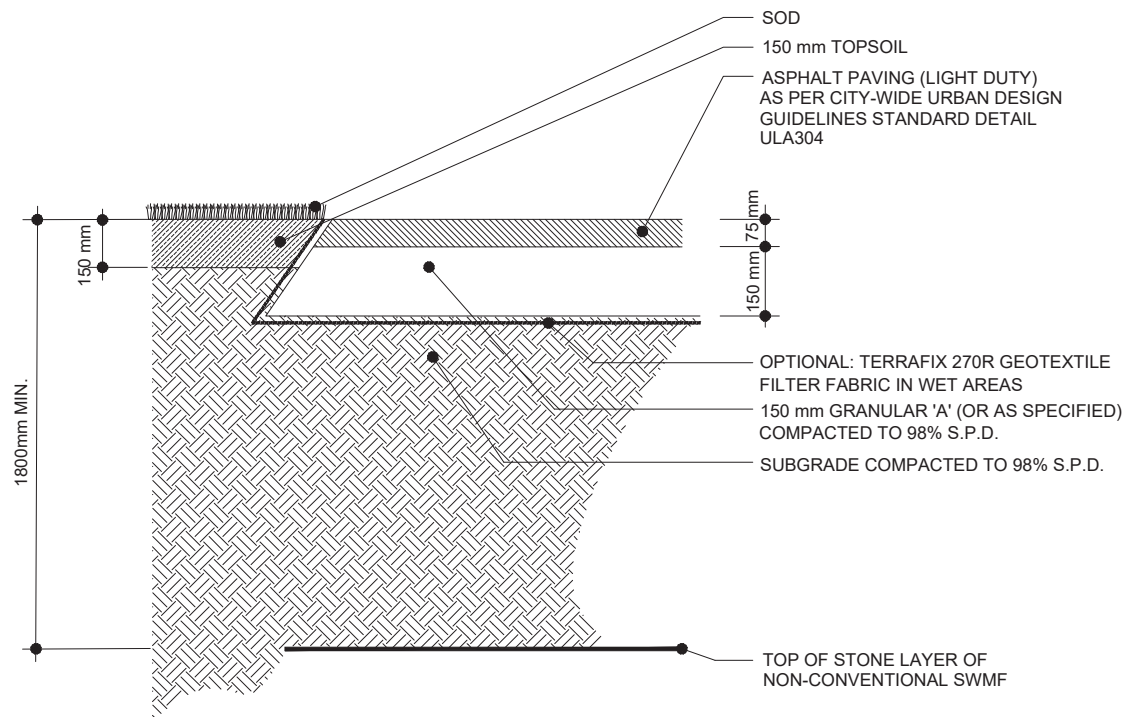
STD. DWG.

S - 122

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
3. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO PATHWAYS ABOVE NON-CONVENTIONAL SWMF LOCATED WITHIN ROW. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 303 FOR HEAVY-DUTY PAVING DETAILS.

Acad File: C:\Users\vaughan\OneDrive\Documents\City of Vaughan\City Standards - General\Design Criteria\2020\Draw - Standards\LA304-123 - Asphalt Paving (Light Duty) (Typ.) Above a Non-conventional SWMF - New.dwg



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

ASPHALT PAVING - LIGHT DUTY (TYP.)
ABOVE A NON-CONVENTIONAL SWMF
LOCATED WITHIN ROW

NOT TO SCALE DESIGNED: _____

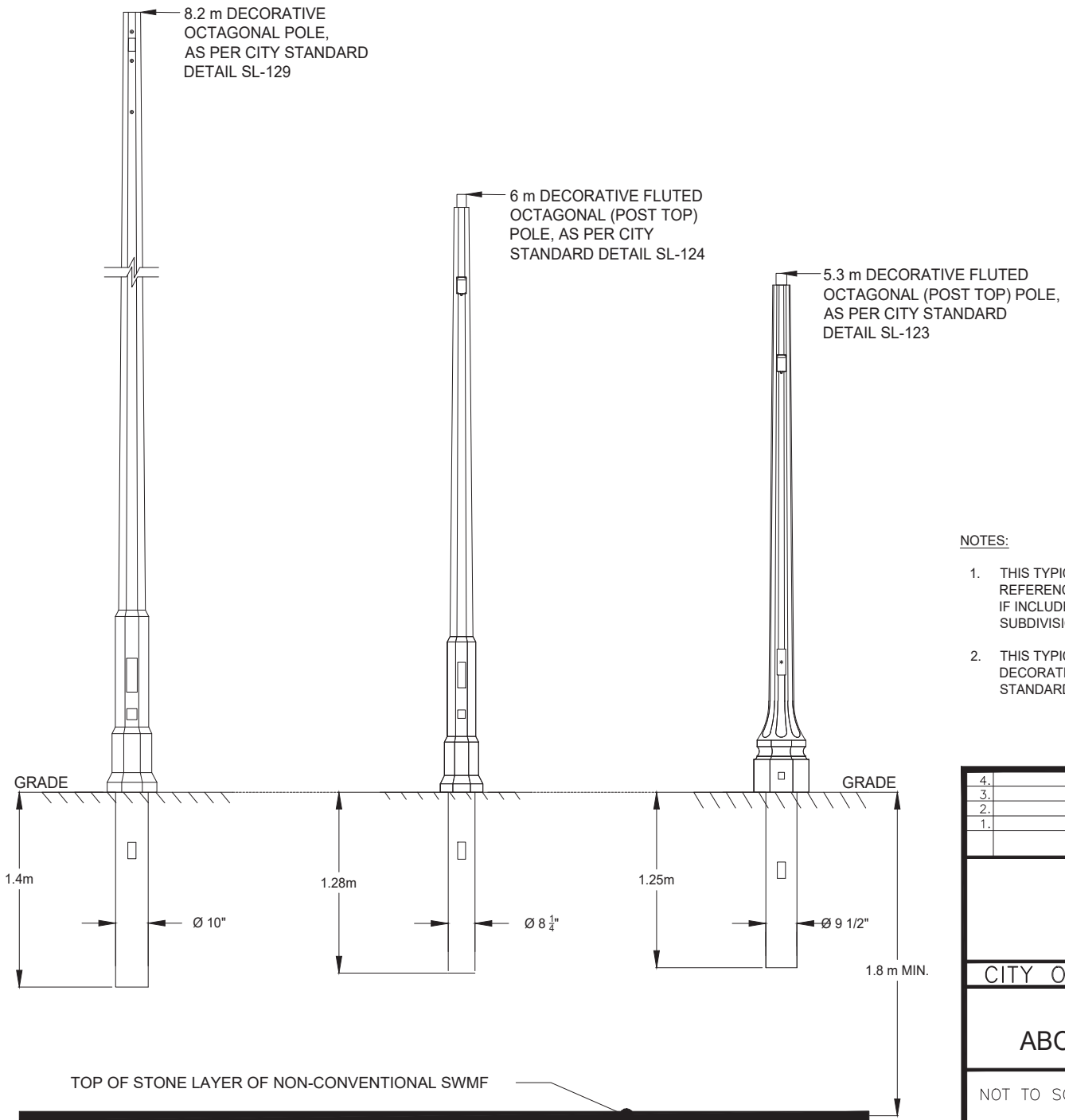
REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 123

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
3. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO PATHWAYS ABOVE NON-CONVENTIONAL SWMF LOCATED WITHIN ROW. REFER TO CITY-WIDE URBAN DESIGN GUIDELINES STANDARD DETAIL ULA 304 FOR LIGHT-DUTY PAVING DETAILS.



NOTES:

1. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
2. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO DECORATIVE POLES ABOVE NON-CONVENTIONAL SWMF. REFER TO CITY STANDARD DETAILS: SL-123, SL-124 AND SL-129 FOR POLE DETAILS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

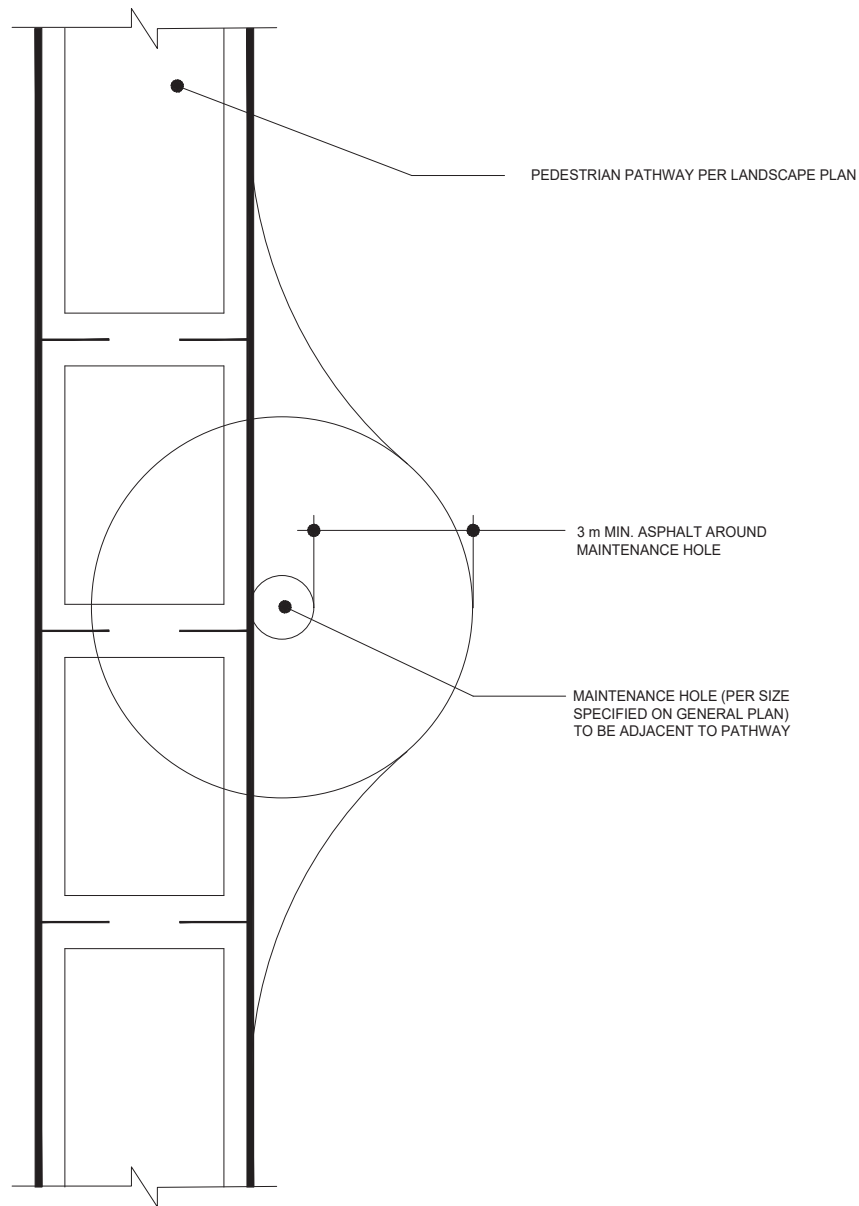
DECORATIVE POLE (TYP.)
ABOVE A NON-CONVENTIONAL SWMF

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 124



NOTES:

1. PATHWAY TYPE SHALL BE SPECIFIED IN LANDSCAPE PLAN
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.
3. THIS TYPICAL DETAIL IS INTENDED TO DISPLAY DETAILS WITH RESPECT TO MAINTENANCE HOLES FOR NON-CONVENTIONAL SWMF. REFER TO RELEVANT CITY STANDARDS FOR PAVING/PATHWAY DETAILS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD

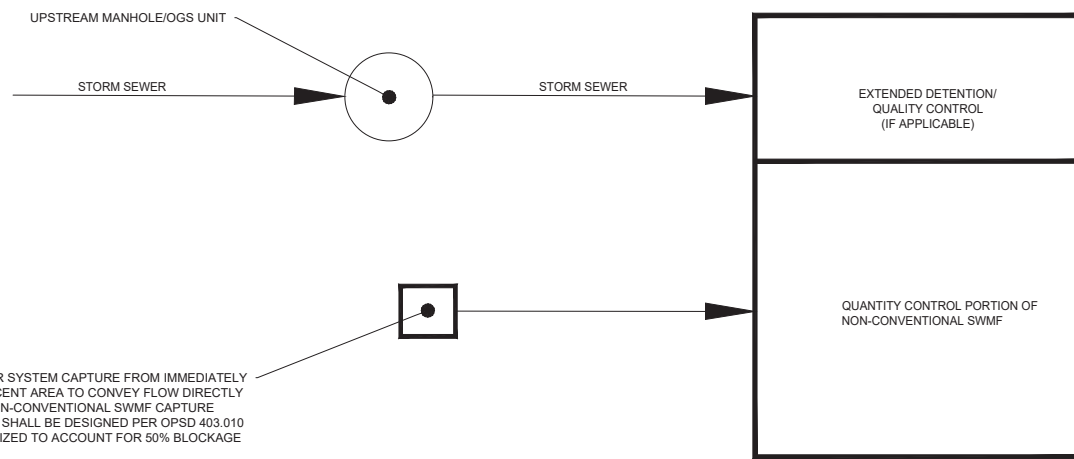
**MAINTENANCE HOLE BUMP OUT FROM
PEDESTRIAN PATH FOR NON-CONVENTIONAL SWMF**

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 125



PLAN VIEW - NON-CONVENTIONAL SWMF
INLET SAMPLE CONFIGURATION

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



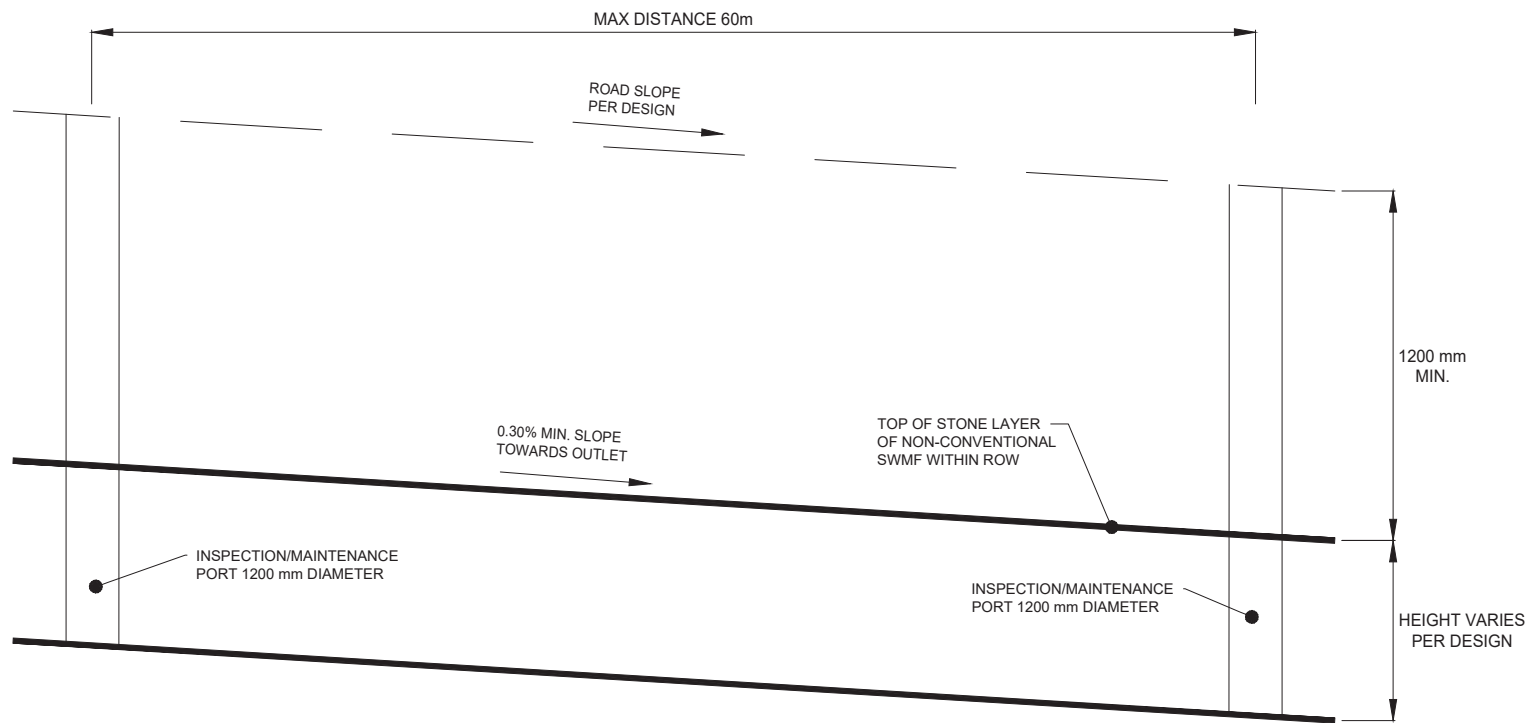
CITY OF VAUGHAN ENGINEERING STANDARD
CONCEPTUAL STORM SEWER CONNECTION
TO NON-CONVENTIONAL SWMF DETAIL

NOT TO SCALE DESIGNED: _____
REVISION: _____ DATE: JAN. 2025

STD. DWG.
S - 126

NOTES:

1. DETAIL REPRESENTS MAXIMUM DEPTH TO NON-CONVENTIONAL SWMF'S WITHIN PROPOSED ROW'S AND MAXIMUM INSPECTION/MAINTENANCE PORT SPACING.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

CONCEPTUAL NON-CONVENTIONAL
SWMF WITHIN ROW LAYOUT

NOT TO SCALE DESIGNED: _____

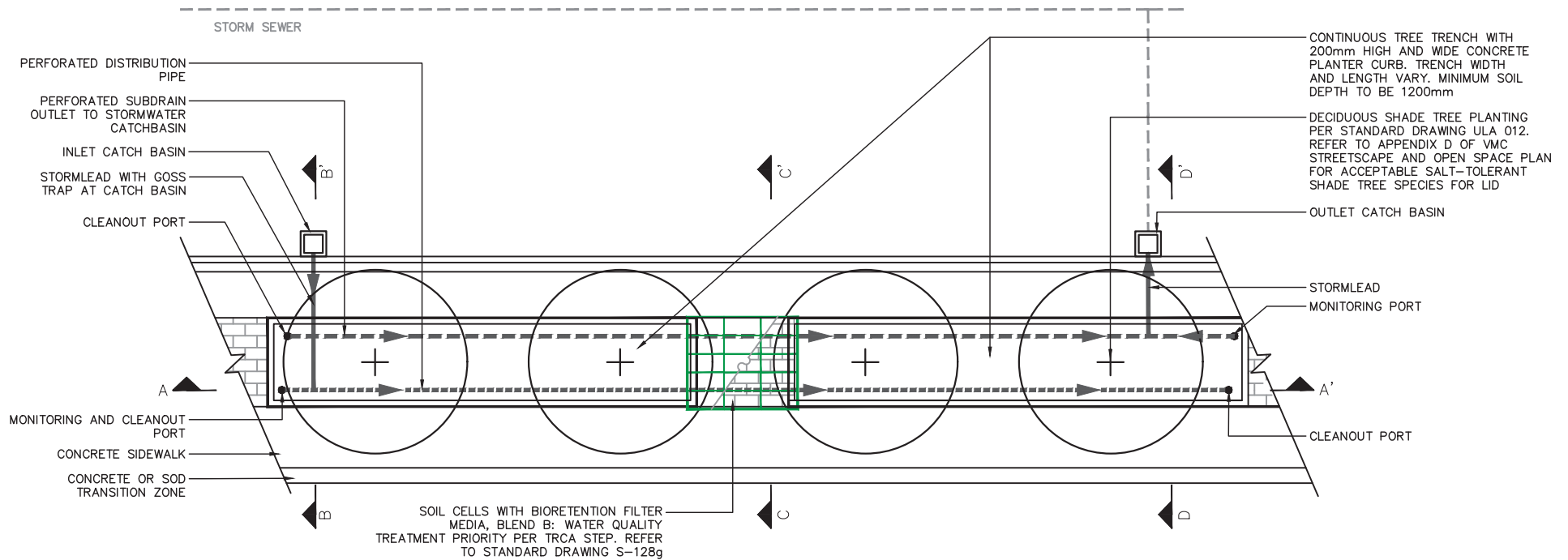
REVISION: _____ DATE: JAN. 2025

STD. DWG.

S - 127

NOTES:

1. DETAIL REPRESENTS MAXIMUM DEPTH TO NON-CONVENTIONAL SWMF'S WITHIN PROPOSED ROW'S AND MAXIMUM INSPECTION/MAINTENANCE PORT SPACING.
2. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAIL MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER IF INCLUDED AS PART OF THE SITE PLAN APPLICATION OR DRAFT PLAN OF SUBDIVISION, AS APPLICABLE.



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. ALL MEASUREMENTS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. STORMWATER MANAGEMENT TREE TRENCH TO PROVIDE WATER QUALITY CONTROL VIA FILTRATION FOR RIGHT-OF-WAY RUNOFF AND SUPPORT TREE HEALTH AND GROWTH.
3. APPLICANT IS REQUIRED TO PROVIDE SUPPORTING CALCULATIONS FOR QUALITY CONTROL INCLUDING LID FOOTPRINT AND/OR DEPTH. REFER TO STANDARD DRAWING S-128f FOR TRCA LID SIZING CALCULATOR.
4. EACH TREE TO HAVE ACCESS TO A MINIMUM FOR 20M³ OF BIORETENTION MEDIA IN A SHARED TREE PLANTER OR 30M³ IN A STANDALONE TREE PLANTER, AS PER CITY OF VAUGHAN STANDARD DETAIL ULA 014.
5. MONITORING AND CLEANOUT PORTS ARE TO BE CAPPED AND SECURED WITH VANDAL-PROOF FASTENERS.
6. ENSURE LID DESIGN ALLOWS FOR DRAINAGE AWAY FROM ANY EXISTING OR PROPOSED BUILDINGS.
7. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAILED DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER.
8. REFER TO THE CITY OF VAUGHAN'S ENGINEERING DESIGN CRITERIA, SECTION 1.3.6.2 STORMWATER MANAGEMENT TREE TRENCH FOR ADDITIONAL INFORMATION.

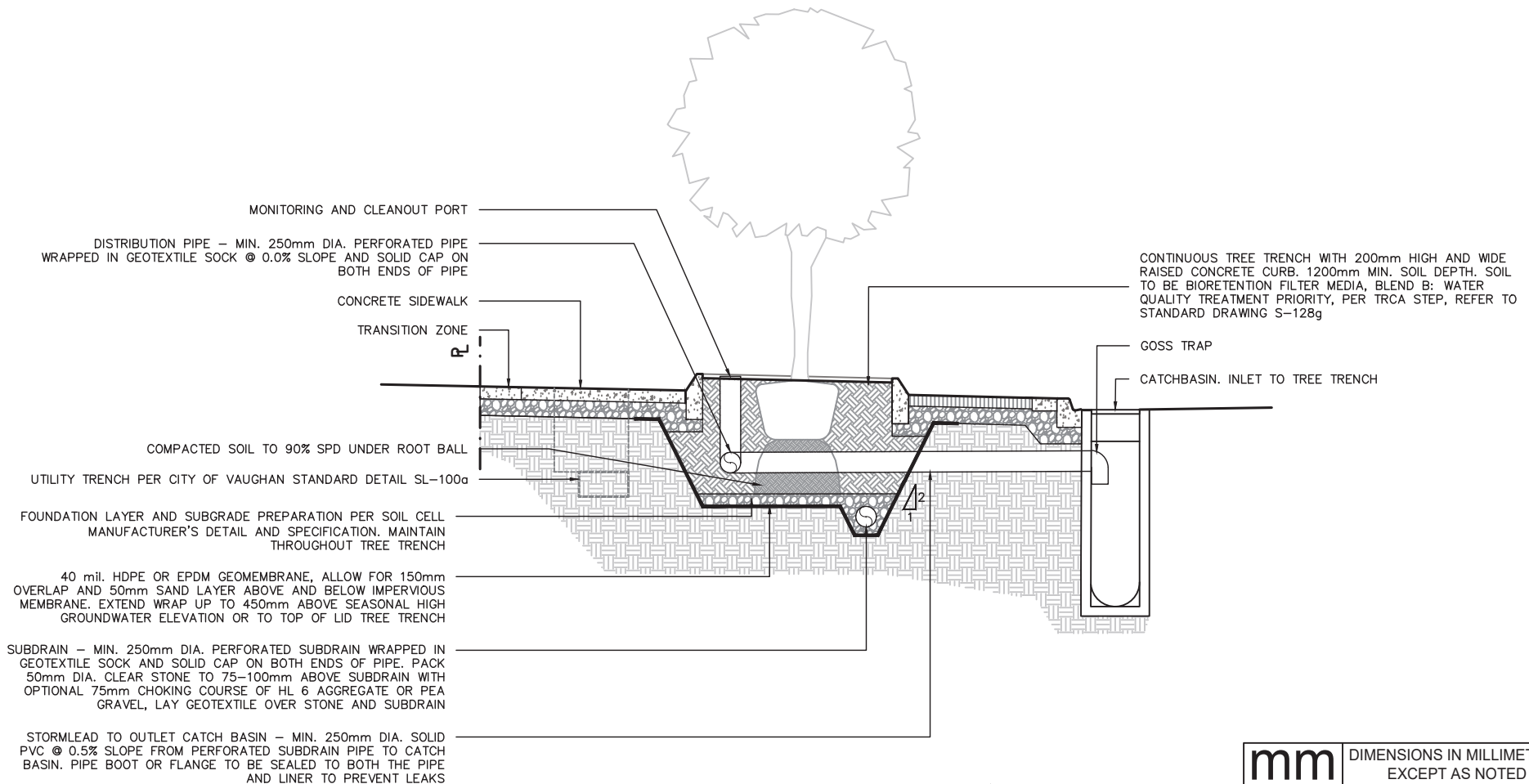
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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD
STORMWATER MANAGEMENT TREE TRENCH
PLAN VIEW

NOT TO SCALE
DESIGNED: PPSP
REVISION: _____ DATE: AUG. 2025

STD. DWG.
S - 128a



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. ALL MEASUREMENTS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. STORMWATER MANAGEMENT TREE TRENCH TO PROVIDE WATER QUALITY CONTROL VIA FILTRATION FOR RIGHT-OF-WAY RUNOFF AND SUPPORT TREE HEALTH AND GROWTH.
3. APPLICANT IS REQUIRED TO PROVIDE SUPPORTING CALCULATIONS FOR QUALITY CONTROL INCLUDING LID FOOTPRINT AND/OR DEPTH. REFER TO STANDARD DRAWING S-128f FOR TRCA LID SIZING CALCULATOR.
4. EACH TREE TO HAVE ACCESS TO A MINIMUM FOR 20M³ OF BIORETENTION MEDIA IN A SHARED TREE PLANTER OR 30M³ IN A STANDALONE TREE PLANTER, AS PER CITY OF VAUGHAN STANDARD DETAIL ULA 014.
5. MONITORING AND CLEANOUT PORTS ARE TO BE CAPPED AND SECURED WITH VANDAL-PROOF FASTENERS.
6. ENSURE LID DESIGN ALLOWS FOR DRAINAGE AWAY FROM ANY EXISTING OR PROPOSED BUILDINGS.
7. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAILED DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER.
8. REFER TO THE CITY OF VAUGHAN'S ENGINEERING DESIGN CRITERIA, SECTION 1.3.6.2 STORMWATER MANAGEMENT TREE TRENCH FOR ADDITIONAL INFORMATION.

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CITY OF VAUGHAN ENGINEERING STANDARD

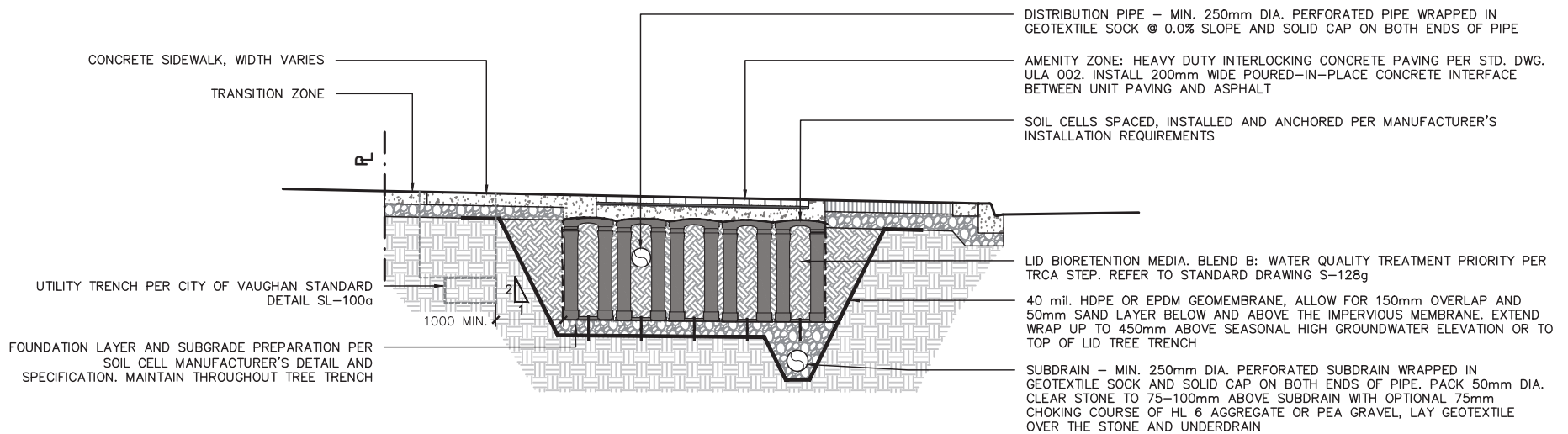
STORMWATER MANAGEMENT TREE TRENCH

INLET CROSS-SECTION

NOT TO SCALE DESIGNED: PPSP

REVISION: _____ DATE: AUG. 2025

STD. DWG.
S - 128c



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. ALL MEASUREMENTS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. STORMWATER MANAGEMENT TREE TRENCH TO PROVIDE WATER QUALITY CONTROL VIA FILTRATION FOR RIGHT-OF-WAY RUNOFF AND SUPPORT TREE HEALTH AND GROWTH.
3. APPLICANT IS REQUIRED TO PROVIDE SUPPORTING CALCULATIONS FOR QUALITY CONTROL INCLUDING LID FOOTPRINT AND/OR DEPTH. REFER TO STANDARD DRAWING S-128f FOR TRCA LID SIZING CALCULATOR.
4. EACH TREE TO HAVE ACCESS TO A MINIMUM FOR 20M³ OF BIORETENTION MEDIA IN A SHARED TREE PLANTER OR 30M³ IN A STANDALONE TREE PLANTER, AS PER CITY OF VAUGHAN STANDARD DETAIL ULA 014.
5. MONITORING AND CLEANOUT PORTS ARE TO BE CAPPED AND SECURED WITH VANDAL-PROOF FASTENERS.
6. ENSURE LID DESIGN ALLOWS FOR DRAINAGE AWAY FROM ANY EXISTING OR PROPOSED BUILDINGS.
7. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAILED DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER.
8. REFER TO THE CITY OF VAUGHAN'S ENGINEERING DESIGN CRITERIA, SECTION 1.3.6.2 STORMWATER MANAGEMENT TREE TRENCH FOR ADDITIONAL INFORMATION.

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CITY OF VAUGHAN ENGINEERING STANDARD

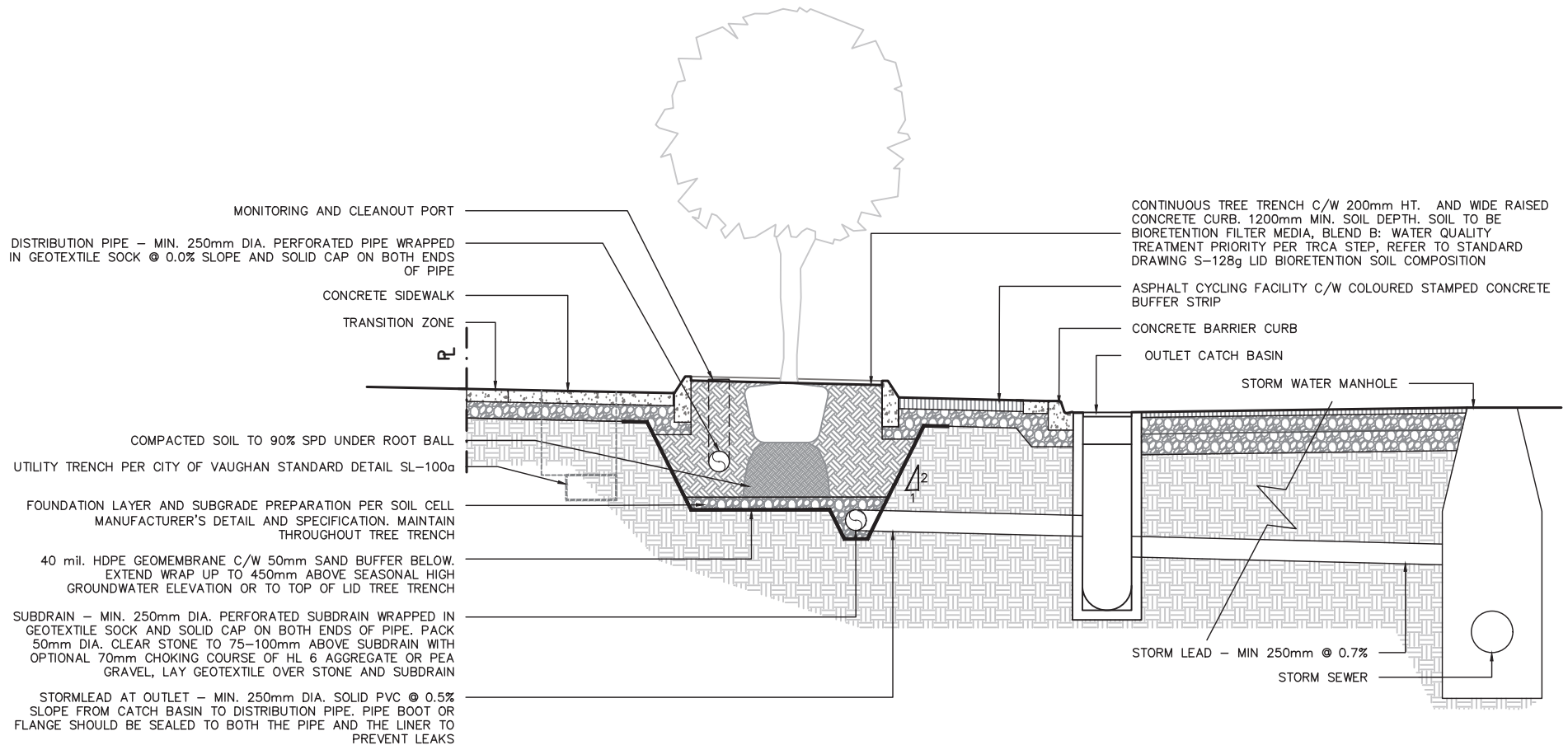
STORMWATER MANAGEMENT TREE TRENCH

SOIL CELL CROSS-SECTION

NOT TO SCALE DESIGNED: PPSP

REVISION: _____ DATE: AUG. 2025

STD. DWG.
S - 128d



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

NOTES:

1. ALL MEASUREMENTS IN MILLIMETERS UNLESS STATED OTHERWISE.
2. STORMWATER MANAGEMENT TREE TRENCH TO PROVIDE WATER QUALITY CONTROL VIA FILTRATION FOR RIGHT-OF-WAY RUNOFF AND SUPPORT TREE HEALTH AND GROWTH.
3. APPLICANT IS REQUIRED TO PROVIDE SUPPORTING CALCULATIONS FOR QUALITY CONTROL INCLUDING LID FOOTPRINT AND/OR DEPTH. REFER TO STANDARD DRAWING S-128f FOR TRCA LID SIZING CALCULATOR.
4. EACH TREE TO HAVE ACCESS TO A MINIMUM FOR 20M³ OF BIORETENTION MEDIA IN A SHARED TREE PLANTER OR 30M³ IN A STANDALONE TREE PLANTER, AS PER CITY OF VAUGHAN STANDARD DETAIL ULA 014.
5. MONITORING AND CLEANOUT PORTS ARE TO BE CAPPED AND SECURED WITH VANDAL-PROOF FASTENERS.
6. ENSURE LID DESIGN ALLOWS FOR DRAINAGE AWAY FROM ANY EXISTING OR PROPOSED BUILDINGS.
7. THIS TYPICAL DETAIL IS PROVIDED FOR DESIGN DIRECTION AND IS FOR REFERENCE ONLY. DETAILED DESIGN MUST BE CERTIFIED BY A PROFESSIONAL ENGINEER.
8. REFER TO THE CITY OF VAUGHAN'S ENGINEERING DESIGN CRITERIA, SECTION 1.3.6.2 STORMWATER MANAGEMENT TREE TRENCH FOR ADDITIONAL INFORMATION.

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CITY OF VAUGHAN ENGINEERING STANDARD		
STORMWATER MANAGEMENT TREE TRENCH		
OUTLET CROSS-SECTION		
NOT TO SCALE	DESIGNED: <u>PPSP</u>	STD. DWG. S - 128e
REVISION: _____	DATE: <u>AUG. 2025</u>	

LID NOTE:

1. LID SIZING BASED ON TRCA'S STEP SIZING TOOL, ACCESSIBLE VIA THE FOLLOWING LINK:
https://wiki.sustainabletechnologies.ca/wiki/Bioretenction:_Sizing_and_modeling
USING THE "Download the infiltration practice sizing tool" TAB AT THE BOTTOM OF THE WEBPAGE.
2. SCREENCAPTURE BELOW IS PROVIDED FOR REFERENCE ONLY.
3. SWM TREE TRENCH MUST BE STAMPED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER FOR THE DESIGN OF THE LID.

A		B	C	D	E	F	G	H	I
1 Runoff is directed to a surface ponding area			Find BMP area		Find required BMP depth		Runoff is directed to an Internal Water Storage (IWS) Reservoir		
2 Size surface ponding footprint area, A_p (m ²) based on volume required to capture design storm runoff			Size based on required storage reservoir footprint area, A_s (m ²)		Size based on required active storage reservoir depth, d_s (m)		Size based on required active storage reservoir footprint area, A_s (m ²)		
3 $A_p = (i^*D^*A_i)/(d_p + (K^*D))$			$A_s = (i^*D^*A_i)/(d_s + (f^*D))$		$d_s = D^*[(R^*i) - f]^*1/n$		$A_s = (i^*D^*A_i)/[d_s + (f^*D)]$ (see Depth of infiltration practice is constrained, and/or Drainage area and infiltration practice footprint area are fixed equations)		
5 Catchment impervious area, A_i (m ²)			1000	Catchment impervious area, A_i (m ²)	1000	Catchment impervious area, A_i (m ²)	1000		
6 Effective depth of surface ponding, d_p (m)			0.2	Depth of the active storage reservoir, $d_s = (f^*t)/n$ (m)	0.36	Ratio of catchment impervious area to practice permeable (footprint) area, R	6		
7 Measured infiltration rate of native soil, f (mm/h)			5	Measured infiltration rate of native soil, f (mm/h)	5	Measured infiltration rate of native soil, f (mm/h)	5		
8 Infiltration safety factor, z			2.5	Infiltration safety factor, z	2.5	Infiltration safety factor, z	2.5		
9 Design storm duration, D (h)			4	Design storm duration, D (h)	4	Design storm duration, D (h)	4		
10 Design storm intensity, i (mm/h)			6.25	Design storm intensity, i (mm/h)	6.25	Design storm intensity, i (mm/h)	6.25		
11 Minimum saturated hydraulic conductivity of filter media, K_f (mm/h)			75	Porosity of Internal Water Storage (IWS) Reservoir fill material, n	0.4	Porosity of Internal Water Storage (IWS) Reservoir fill material, n	0.4		
12 Required surface ponding area, A_p (m ²)			50.00	Required storage reservoir footprint area, A_s (m ²)	164.47	Required active storage reservoir depth, d_s (m)	0.36		
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14									
15 Design infiltration rate of the native soil, $f' = (f/1000)/z$ (m/h)			0.002	Design infiltration rate of the native soil, $f' = (f/1000)/z$ (m/h)	0.002	Design infiltration rate of the native soil, $f' = (f/1000)/z$ (m/h)	0.002		
16 Estimated time required to drain surface ponding assuming 1D drainage (h)			2.7	Estimated time required to drain the Internal Water Storage (IWS) Reservoir assuming 1D drainage (h), $(d_s^*n)/f'$	72.0	Estimated time required to drain the storage reservoir assuming 1D drainage (h), $(d_s^*n)/f'$	71.0		
17 Ratio of catchment impervious area to practice permeable (footprint) area or I/P ratio, R			20	Ratio of catchment impervious area to practice permeable (footprint) area or I/P ratio, R	6	R^*i (m/h)	0.038		
18 Total water storage volume required, $i^*D^*A_i$ (m ³)			25.0	Total water storage volume required, $i^*D^*A_i$ (m ³)	25.0	$(R^*i) - f$ (m/h)	0.0355		
19 Water depth drained by percolation through the filter media during the design storm, K^*D (m)			0.300	Water storage depth of Internal Water Storage (IWS) Reservoir, $d_s = d_s^*n$ (m)	0.144	$D^*[(R^*i) - f]$	0.142		
20				Water depth drained by infiltration during design storm, f^*D (m)	0.008	Adapted from CIRIA C753 'The SUDS Manual' (2015)			
21				Infiltration water storage + drainage depth, $d_i + (f^*D)$ (m)	0.152				
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CITY OF VAUGHAN ENGINEERING STANDARD
STORMWATER MANAGEMENT TREE TRENCH
TRCA LID SIZING CALCULATOR

NOT TO SCALE DESIGNED: PPSP
REVISION: _____ DATE: AUG. 2025

STD. DWG.
S - 128f

BIORETENTION MEDIA:

1. LID BIORETENTION MEDIA IS TO BE "BIORETENTION FILTER MEDIA, BLEND B" AS PER CITY OF TORONTO STANDARDS, BASED ON TORONTO AND REGION CONSERVATION AUTHORITY'S (TRCA) SUSTAINABLE TECHNOLOGY EVALUATION PROGRAM (STEP), TO PROVIDE WATER QUALITY WHILE SUPPORTING TREE GROWTH.
2. BELOW GRAPHIC IS PROVIDED FOR REFERENCE ONLY.

For bioretention and rain gardens requiring high infiltration or pre-treatment mix to the following proportions, by volume:

Topsoil	2 parts topsoil
Coarse sand	3 parts sand
Organic components	1 part organic soil components (leaf and yard waste compost and/or pine bark fines)

The growing medium shall meet the following parameters:

Media specification	Site-specific goal	
	Infiltration *Above mix proportions may need to be adjusted to accommodate a greater proportion of sand.	Treatment
Soil particle size distribution		
Sand (0.05 – 2 mm.)	75-90%	65-75%
Silt (0.002 - 0.05 mm)	7-22%	13-30%
Clay (< 0.002 mm)	3-15%	3-15%
Gravel (2.0 – 64 mm.)	less than or equal to 10%	
Chemical analysis	pH: 6.0 – 8.0	
Plant Available Nutrient Levels (ppm)		
Phosphorous	10 – 40	
Potassium	80 – 250	
Calcium	< 5000	
Magnesium	100 – 300	
Percent organic matter	3-10%	
Hydraulic conductivity, saturated, sample compacted to 75-85% maximum dry density.	0.0021-0.0083 cm/s (75-300 mm/h)	6.9 x 10-4 -0.0021 cm/s (25-75 mm/ h)
Cation exchange capacity	> 10 meq/100 g	> 10 meq/100 g

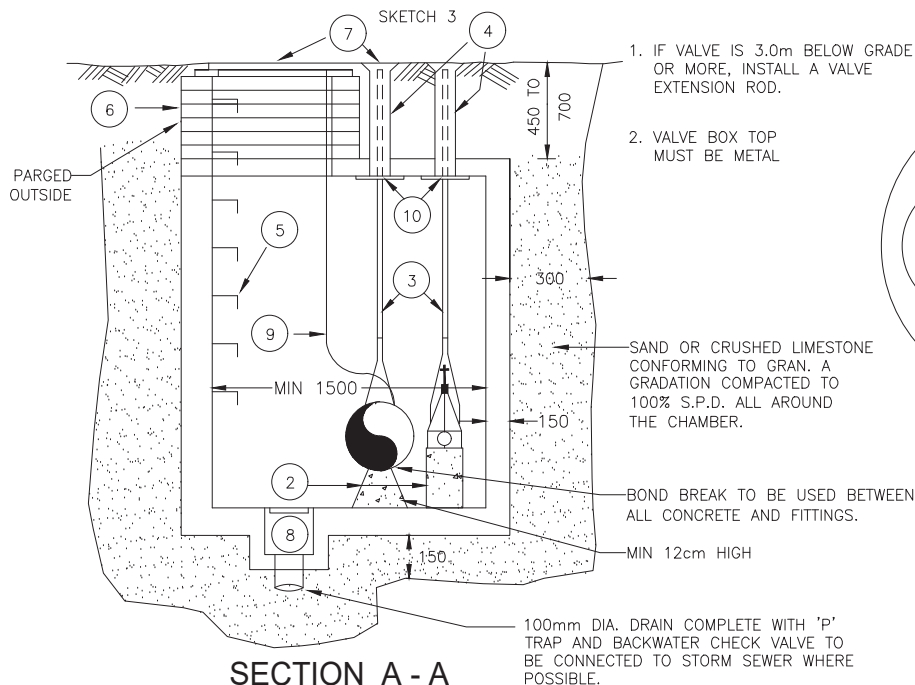
Notes: ¹ The component mix above is generated from the Sustainable Technologies Evaluation Program (STEP) for filter media:
wiki.sustainabletechnologies.ca/wiki/Bioretenion:_Filter_media

² The media specifications above are generated from the CSA W-200-18 Design of Bioretention Systems.

³ Contractors should note that where test results fall outside of specified ranges, the Contract Administrator will examine the extent of variance, as well as any recommendations from the testing laboratory, and determine whether the soil will be accepted, amended or rejected.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE
 VAUGHAN		
CITY OF VAUGHAN ENGINEERING STANDARD		
STORMWATER MANAGEMENT TREE TRENCH BIORETENTION MEDIA		
NOT TO SCALE	DESIGNED: PPSP	STD. DWG. S - 128g
REVISION: _____	DATE: AUG. 2025	



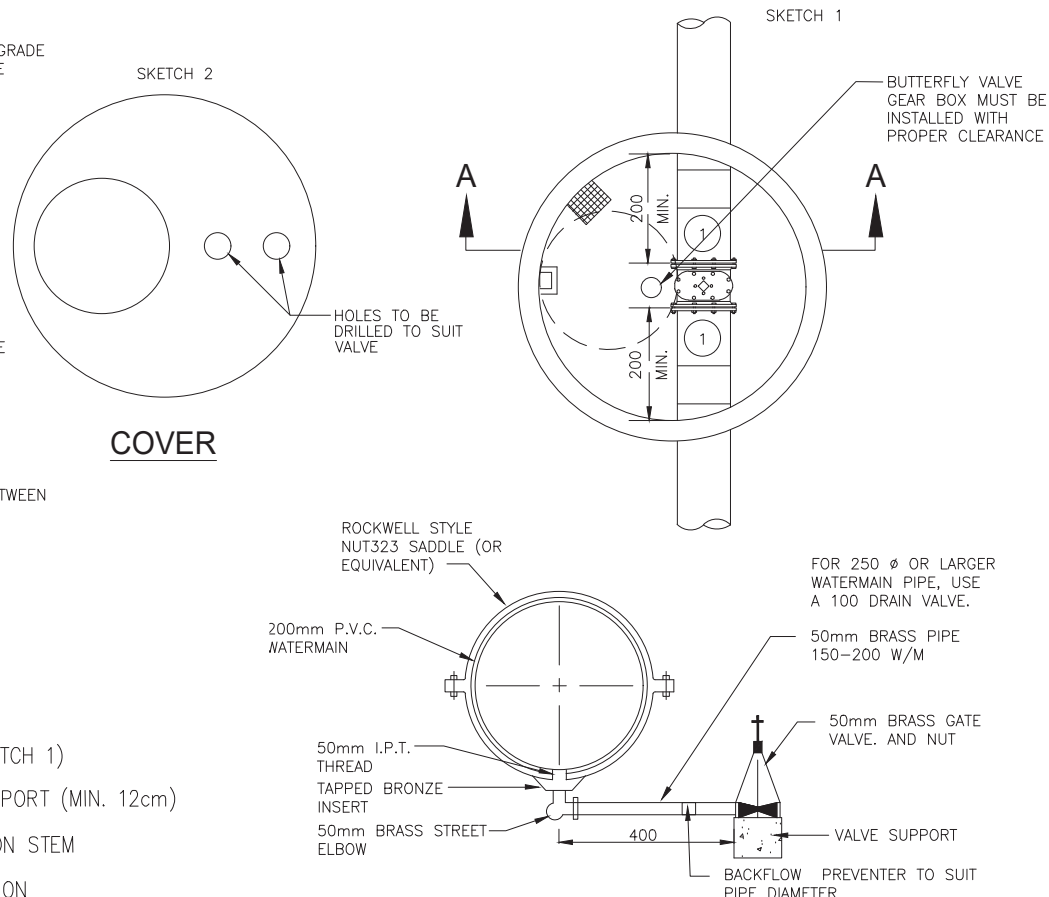
SECTION A - A

NOTES

1. CHAMBER TO BE DESIGNED FOR H2O LOADING AT 300mm COVER.
2. VALVES SHALL BE FLANGED TYPE, COMPLETE WITH MECHANICAL JOINT FLANGE ADAPTER.
3. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS.
4. LINE VALVES TO OPEN CLOCKWISE EAST OF HWY. 400 OR NORTH OF RUTHERFORD RD., ALL OTHERS TO OPEN COUNTER-CLOCKWISE. (SEE STD. DWG. W-110)
5. FOR PRE-CAST CHAMBER ALL JOINTS SHALL BE SET IN A MORTAR BED AND PARGED OUTSIDE.
6. VALVES UP TO AND INCLUDING 400 mm DIAMETER SHALL BE GATE VALVES OF THE RESILIENT WEDGE TYPE, AWWA STANDARD C509. VALVES LARGER THAN 400mm SHALL BE BUTTERFLY VALVES OR AS SPECIFIED BY THE CITY.
7. RESTRAINTS REQUIRED INSIDE CHAMBER. RESTRAINTS OUTSIDE CHAMBER REQUIRED IN ACCORDANCE WITH STD. DWG. W-105.

LEGEND

- ① WATERMAIN PIPE (SKETCH 1)
- ② CONCRETE VALVE SUPPORT (MIN. 12cm)
- ③ SOLID STEEL EXTENSION STEM
- ④ VALVE BOX TOP SECTION
- ⑤ ALUMINUM RUNGS AS PER OPSD 406.010
- ⑥ PRECAST CONCRETE ADJUSTER RINGS
TO BE MAX. 300 mm OTHERWISE POURED COLLARS
ARE TO BE USED IN CONJUNCTION WITH RINGS.
- ⑦ VALVE CHAMBER FRAME & COVER TO BE AS PER
OPSD 401.010, LABELLED WATER SET TO FINISHED GRADE.
- ⑧ 400 x 400 x 150 DEEP SUMP WITH
REMOVABLE GALVANIZED GRATE.
- ⑨ BRING TRACER WIRE (AWG #9) TO MODULOC UNDER
LID WITH ELECTRICAL CLIP ENDS ATTACHED/FASTENED
TO THE TOPMOST PORTION OF THE CHAMBER WALL
- ⑩ 6.5m GALV. STEEL PLATE GUIDE
FOR STEM EXTENSION PER OPSD 1101.020
- ⑪ VALVE CHAMBER COVER & VALVE BOXES TO BE
SET TO FINISH GRADE.



DRAIN VALVE DETAIL WHEN REQUIRED

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CITY OF VAUGHAN ENGINEERING STANDARD

SINGLE VALVE IN CHAMBER

NOT TO SCALE DESIGNED:

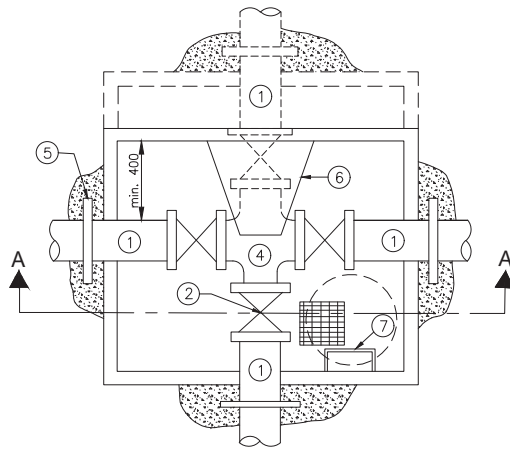
REVISION: DATE: DEC. 2020

STD. DWG.

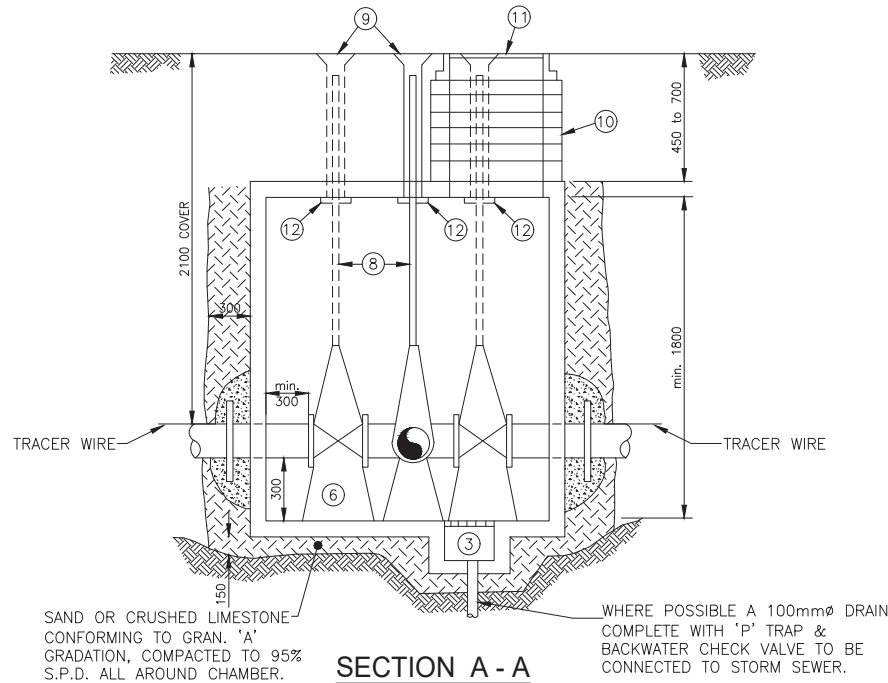
W - 101

mm

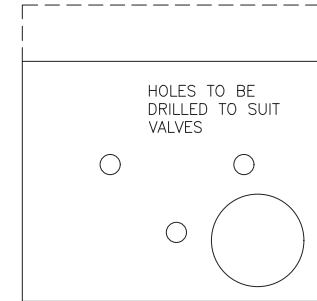
DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



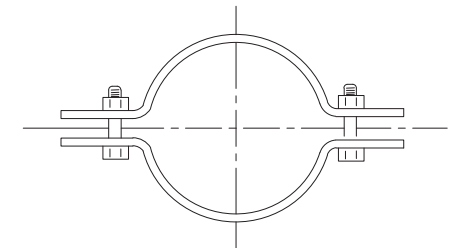
PLAN



SECTION A - A



COVER



TYPICAL PIPE ANCHOR

NOTES

1. CHAMBER TO BE DESIGNED FOR H₂O LOADING AT 300mm COVER.
2. VALVES SHALL BE FLANGED TYPE, COMPLETE WITH MECHANICAL JOINT FLANGE ADAPTER.
3. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS.
4. LINE VALVES TO OPEN CLOCKWISE EAST OF HWY. 400 OR NORTH OF RUTHERFORD RD., ALL OTHERS TO OPEN COUNTER-CLOCKWISE. (SEE STD. DWG. W-110)
5. FOR PRE-CAST CHAMBER, ALL JOINTS SHALL BE SET IN A MORTAR BED AND PARGED OUTSIDE.
6. RESTRAINTS REQUIRED INSIDE CHAMBER. RESTRAINTS OUTSIDE CHAMBER REQUIRED IN ACCORDANCE WITH STD. DWG. W-105.
7. VALVES UP TO AND INCLUDING 400mm DIA. SHALL BE GATE VALVE OF THE RESILIENT WEDGE TYPE. TYPE AWWA STANDARD C509. VALVES LARGER THAN 400mm SHALL BE BUTTERFLY VALVE OR AS SPECIFIED BY THE CITY
8. USE CONCRETE JOINT TAPE BETWEEN LAYERS OF GRADE ADJUSTMENT UNITS.

LEGEND

- | | |
|---|---|
| <ol style="list-style-type: none"> ① PIPE SECTIONS WITH UNIFLANGE FITTINGS THROUGH CHAMBER WALLS. ② FLANGE GATE VALVES ③ 300x300x150 DEEP SUMP WITH REMOVABLE GLAVANIZED GRATE ④ FLANGE TEE OR CROSS ⑤ PIPE ANCHOR EMBEDDED IN CONCRETE ⑥ POURED CONCRETE SUPPORT AND THRUST BLOCKS WITH BOND BREAK FOR VALVES, TEES & CROSSES. ⑦ ALUMINUM RUNGS AS PER OPSD 406.010 | <ol style="list-style-type: none"> ⑧ SOLID STEEL EXTENSION STEM. ⑨ VALVE BOX TOP SECTION, EACH VALVE SET TO FINISH GRADE ⑩ PRECAST CONCRETE ADJUSTER RINGS TO BE MAX. 300 mm OTHERWISE POURED COLLARS ARE TO BE USED IN CONJUNCTION WITH RINGS. ⑪ VALVE CHAMBER FRAME & COVER TO BE AS PER OPSD 401.010, LABELLED WATER SET TO FINISHED GRADE. ⑫ 6.5mm GALV. STEEL PLATE GUIDE FOR STEM EXTENSION PER O.P.S.D. 1101.020. ⑬ TRACER WIRE (AWG #9) - INDEPENDENT TRACER WIRE ON EACH SECTION OF PIPE & LABELLED. |
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mm DIMENSIONS IN MILLIMETRES EXCEPT AS NOTED

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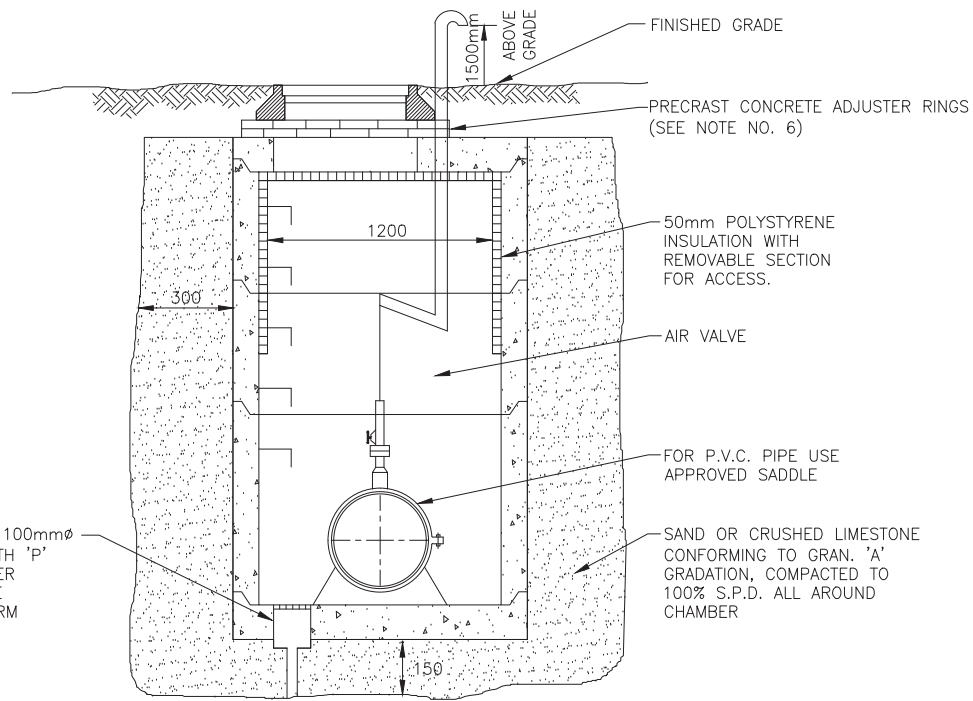


CITY OF VAUGHAN ENGINEERING STANDARD

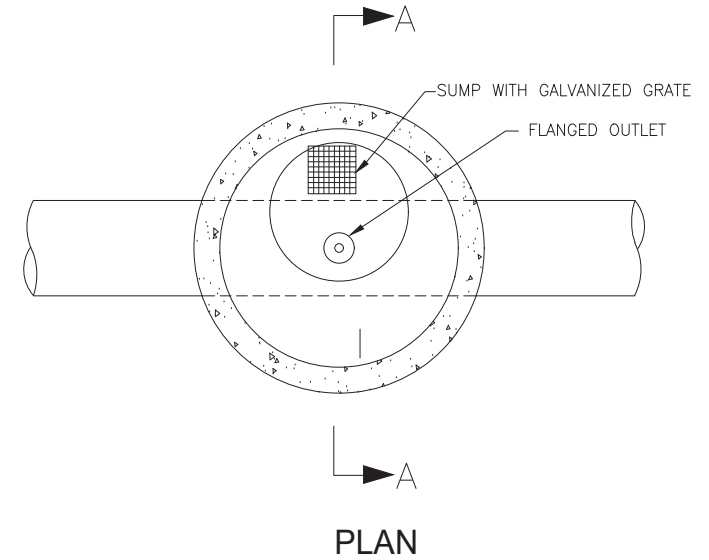
MULTIPLE VALVE CHAMBER

NOT TO SCALE
DESIGNED: _____
REVISION: _____ DATE: DEC. 2020

STD. DWG.
W - 102



SECTION 'A-A'



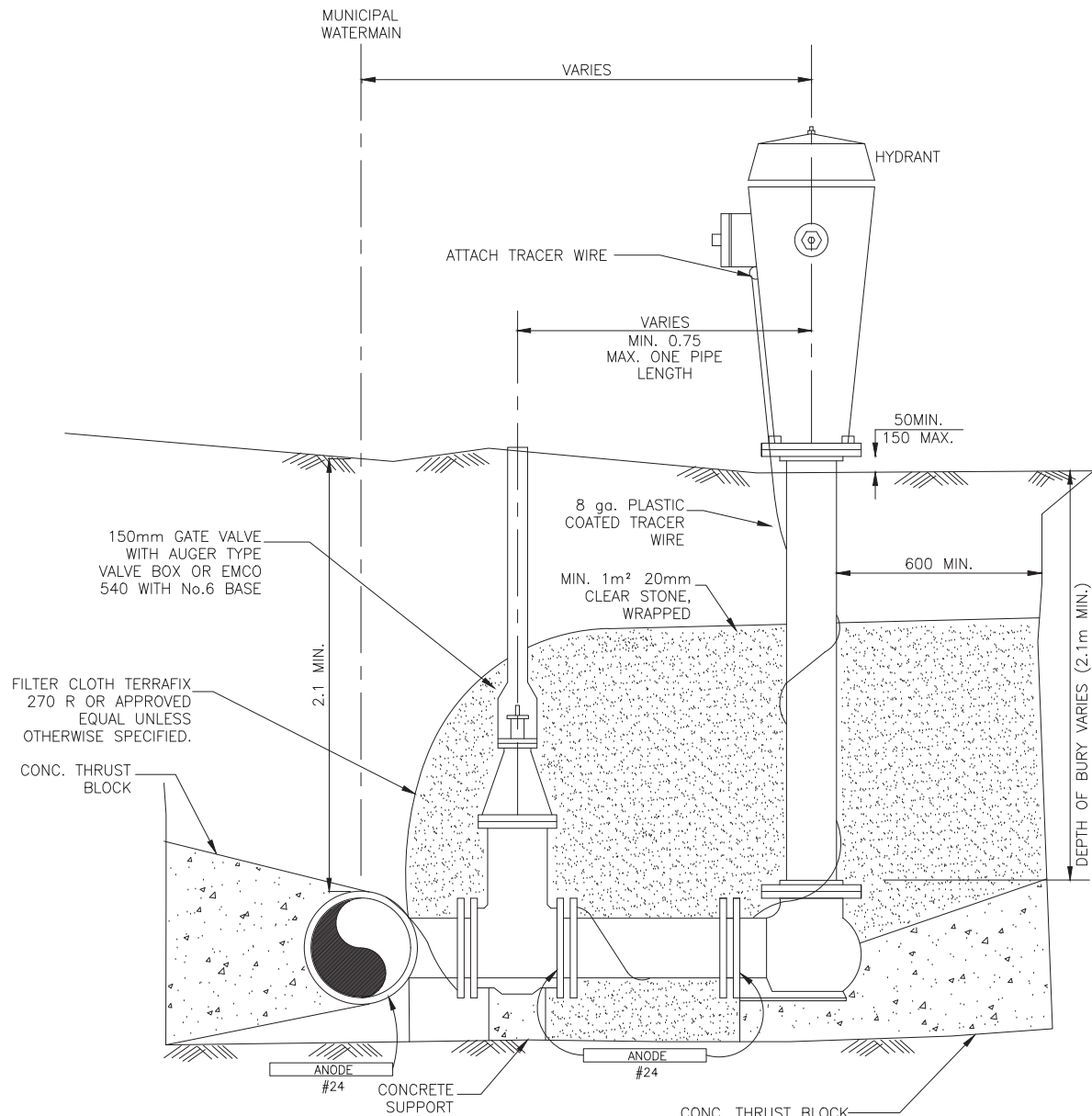
PLAN

NOTES

1. 25mm, 50mm AND 75mm AIR RELEASE/VACCUM VALVE TO BE STAINLESS STEEL FOR SEWAGE APPLICATIONS.
2. GATE VALVE & AIR VALVE TO BE INSULATED WITH FOAMGLASS OR APPROVED EQUAL.
3. FOR PRECAST CHAMBERS ALL JOINTS SHALL BE SET IN A MORTAR BED AND PARGED OUTSIDE.
4. CONTINUOUS RUBBER GASKET BETWEEN PRECAST LAYERS.
5. AIR VENTS TO BE INSTALLED IN BOULEVARD SECTION.
6. PRECAST CONCRETE ADJUSTER RINGS (E.G. MODULOC) TO BE MAX. 300mm OTHERWISE POURED COLLARS ARE TO BE USED IN CONJUNCTION WITH RINGS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD		
AIR RELEASE VALVE CHAMBER		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	W - 103



NOTES

1. ALL HYDRANTS LEADS TO BE 150mm DIA.
2. HYDRANTS TO BE DARLING "CENTURY" OR APPROVED EQUAL.
3. VALVE SHALL BE CONNECTED DIRECTLY TO MUNICIPAL WATERMAIN ANCHOR TEE UNLESS OTHERWISE DIRECTED BY THE CITY.
4. CONCRETE TO BE 20 MPa AT 28 DAYS.
5. ALL CONCRETE THRUST BLOCKS TO BE POURED AGAINST UNDISTURBED GROUND.
6. STONE SHALL BE COMPLETELY ENVELOPED BY FILTER CLOTH.
7. ALL HYDRANTS TO OPEN COUNTER CLOCKWISE.
8. DEPTH OF HYDRANT VARIES ACCORDING TO LOCAL TOPOGRAPHY.
9. 100mm DIA. STORZ CONNECTION ON PUMPER NOZZLE.
10. STORZ CONNECTIONS TO FIRE HYDRANTS TO BE PAINTED BLACK.
11. SECONDARY VALVES TO OPEN CLOCKWISE EAST OF HWY. #400 OR NORTH OF RUTHERFORD ROAD. ALL OTHERS TO OPEN COUNTERCLOCKWISE.
12. DRAIN HOLES TO BE PLUGGED IN AREAS WHERE HYDRANT VALVES ARE INSTALLED BELOW THE GROUND WATER TABLE.
13. CATHODIC PROTECTION REQUIRED ON ALL METALLIC FITTINGS.
14. POLYETHYLENE BOND BREAKER TO BE USED BETWEEN CONCRETE AND FITTINGS.
15. SECONDARY VALVES TO BE LOCATED IN BLVD. (NOT ON ROAD) AND SET TO FINISH GRADE.
16. ONCE THE TRACER WIRE HAS BEEN INSTALLED AND CONSTRUCTION IS COMPLETE, A CONTINUITY TEST SHOULD BE CONDUCTED TO CONFIRM THAT THE TRACER WIRE IS CONTINUOUS AND REMAINS INTACT. IF THERE IS A BREAKAGE IN THE WIRE, THE CONTRACTOR IS RESPONSIBLE TO REPLACE IT AT THEIR OWN COST.

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CITY OF VAUGHAN ENGINEERING STANDARD

HYDRANT INSTALLATION

NOT TO SCALE DESIGNED: _____

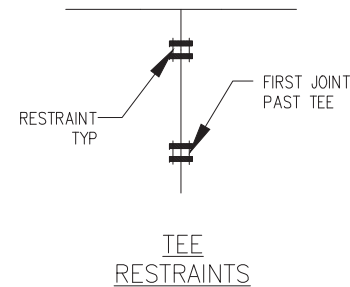
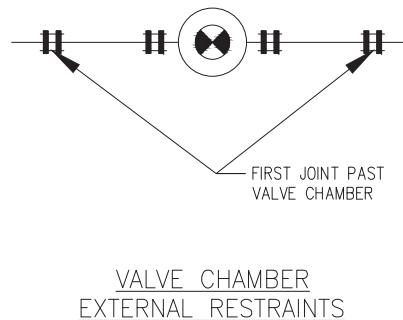
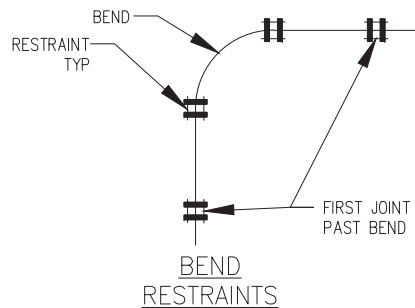
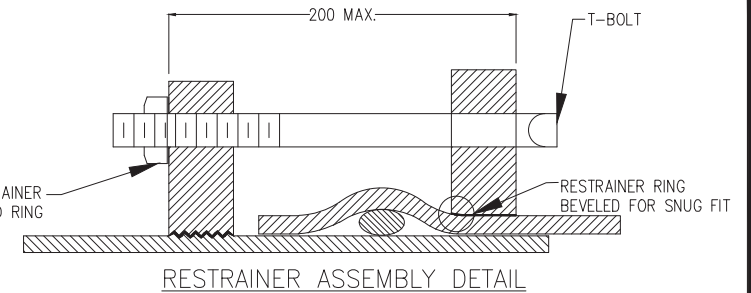
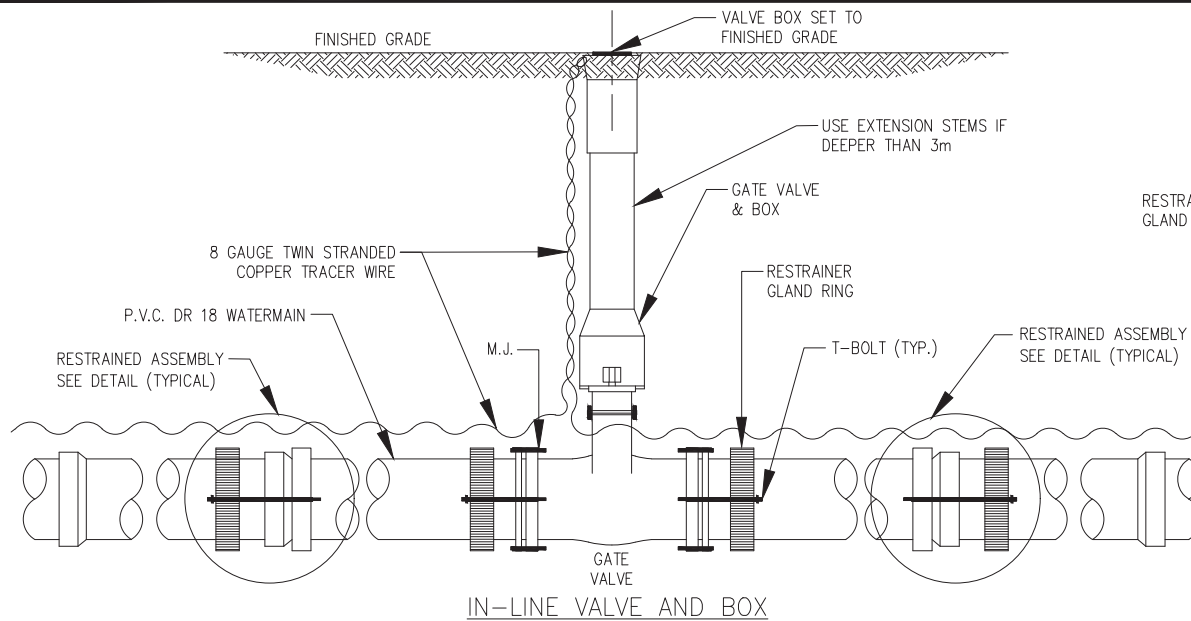
REVISION: DATE: DEC. 2020

STD. DWG.

W - 104

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

FILE: C:\Users\audimop\CITY OF VAUGHAN\City Standards - General\Design Criteria 2023\Dev - Standards\CD\W-105 - Restraining of PVC Watermain Valves & Fittings.dwg



NOTES

1. ALL JOINTS WITHIN 2 PIPE LENGTHS EACH SIDE FROM GATE VALVE SHALL BE RESTRAINED WITH MECHANICAL JOINT RESTRAINTS
2. MECHANICAL RESTRAINTS SHALL BE EITHER "UNIFLANGE" OR "MEGALUG" BRAND OR APPROVED EQUIVALENT, AND ARE TO BE USED AS FOLLOWS:

AT 45°, 22½°, AND 11¼° HORIZONTAL AND VERTICAL BENDS - ONE PIPE LENGTH EACH WAY;
AT TEES - TWO PIPE LENGTHS EACH WAY;
AT REDUCERS - TWO PIPE LENGTHS EACH WAY;
AT DEAD END - THREE PIPE LENGTHS;
AT VALVES - TWO PIPE LENGTHS EACH WAY (EXCLUDING VALVE CHAMBERS);

NOTE: JOINT RESTRAINTS ARE NOT REQUIRED FOR PIPES CONNECTED WITH HDD CONNECTION JOINTS. (E.G. TERRA BRUTE OR COBRA LOCK JOINTS).

3. CATHODIC PROTECTION (6 LB ANODE) REQUIRED ON ALL RESTRAINERS.
4. WATERMAIN TO BE RESTRAINED IN ALL FILL AREAS, AREAS ANTICIPATED TO BE DISTURBED AND OR AS DIRECTED BY THE CITY
5. WATER REPELLENT COATING WRAP ALL THROW AWAY VALVES AS PER SECTION 1.5.4.6 CORROSION PROTECTION OF METALLIC FITTINGS.

mm

DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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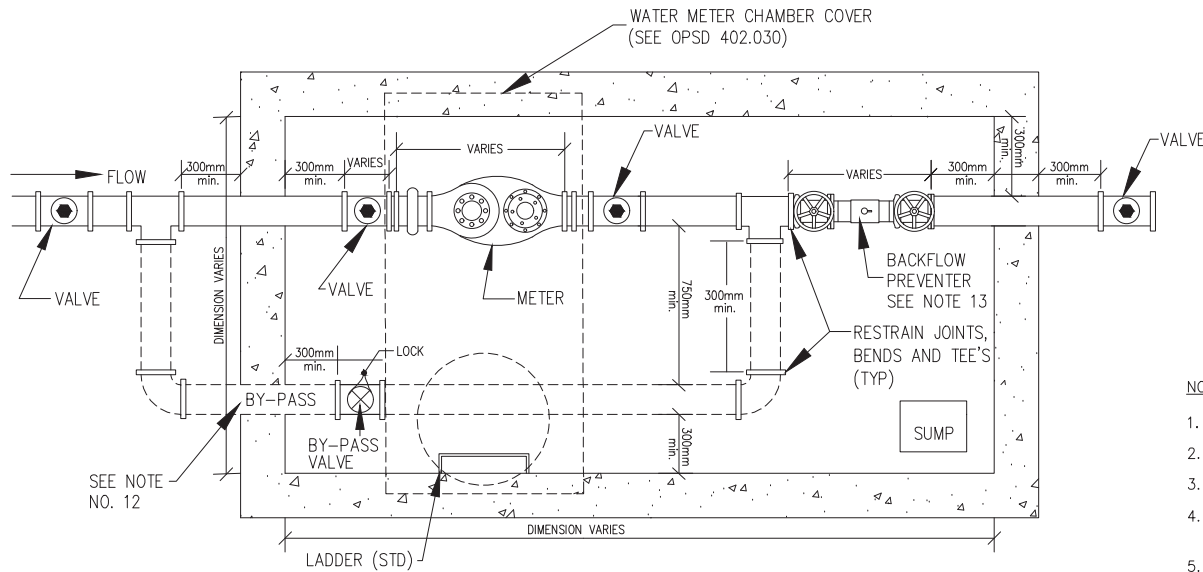


CITY OF VAUGHAN ENGINEERING STANDARD

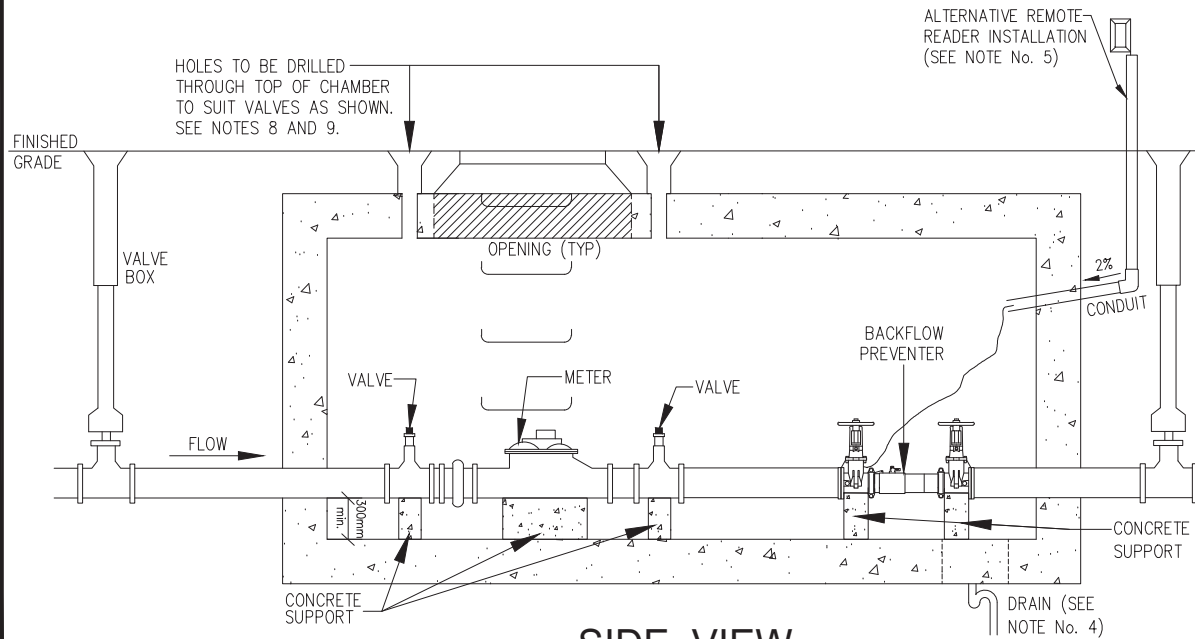
RESTRAINING OF P.V.C. WATERMAIN AT VALVES AND FITTINGS

NOT TO SCALE
DESIGNED: _____
REVISION: 1
DATE: DEC. 2020

STD. DWG.
W - 105



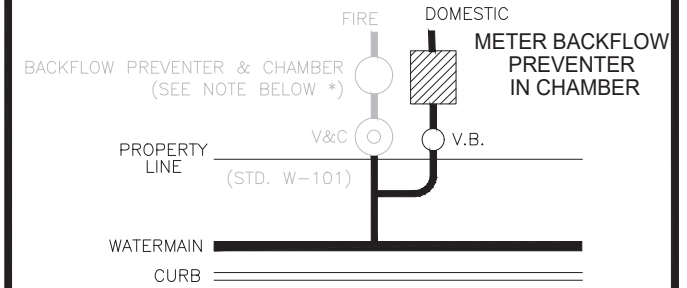
PLAN VIEW



SIDE VIEW

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

TYPICAL INSTALLATION



* BACKFLOW PREVENTER SHALL BE INSTALLED PER STD. W-111 WHEN HYDRANT CONNECTION IS PROPOSED FOR THE DEVELOPMENT

NOTES:

1. CONCRETE TO BE 32MPa COMPRESSIVE STRENGTH.
2. COPPER PIPE TO BE TYPE K.
3. CHAMBER COVER & FRAME TO BE 2 PIECE.
4. 100mm DIA. DRAIN COMPLETE WITH 'P' TRAP AND BACK WATER VALVE TO BE CONNECTED TO STORM SEWER.
5. 50mm CONDUIT TO BE INSTALLED FROM CHAMBER WALL TO AN ACCESSIBLE AND PERMANENT LOCATION APPROVED BY THE CITY.
6. CHAMBER TO BE DESIGNED FOR H2O LOADING AT 300mm COVER.
7. DIMENSIONS OF THE CHAMBER AND ALL INTERNAL CONNECTIONS SHALL BE VERIFIED BEFORE INSTALLATION.
8. VALVES TO BE EQUIPPED WITH KEY TYPE OPERATING NUT.
9. 6.5mm GALV. STEEL PLATE GUIDE FOR STEM EXTENSION PER O.P.S.D. 1101.020.
10. SEE STANDARD DRAWING W-101, W-107 & W-111 FOR ADDITIONAL NOTES.
11. BYPASS PIPE TO BE ONE (1) PIPE SIZE SMALLER THAN SERVICE CONNECTION OR MINIMUM 2" DIAMETER.
12. NO PERSON SHALL INSTALL OR PERMIT THE INSTALLATION OF A BYPASS UNLESS AUTHORIZED BY THE CITY AND THE BYPASS IS VALVED AND LOCKED BY THE CITY.
13. BACKFLOW DEVICE TO BE SELECTED, INSTALLED AND TESTED IN THE CONFORMANCE WITH CSA B64 "SELECTION INSTALLATION OF BACKFLOW PREVENTERS AND AS PER MANUFACTURE RECOMMENDATIONS".

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CITY OF VAUGHAN ENGINEERING STANDARD

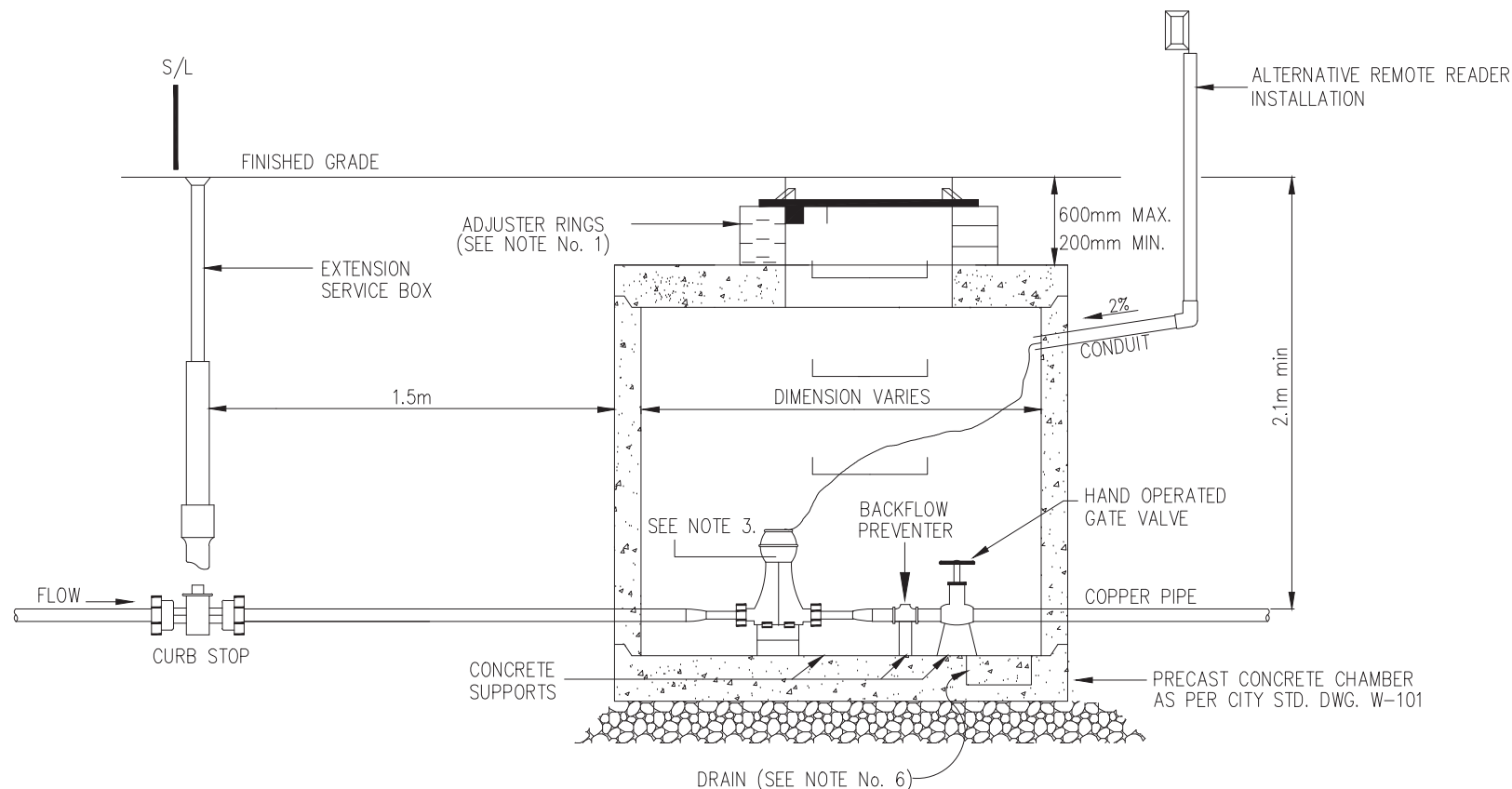
**METER, BACKFLOW PREVENTER
IN CHAMBER**

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: DEC. 2020

STD. DWG.

W - 106



NOTES

1. PRECAST CONCRETE ADJUSTER RINGS (E.G., MOUDLOC) TO BE MAX. 300 mm OTHERWISE POURED COLLARS ARE TO BE USED IN CONJUNCTION WITH RINGS. MODULOC TAPE TO BE PLACED BETWEEN RINGS.
2. 50mm CONDUIT TO BE INSTALLED FROM CHAMBER WALL TO AN ACCESSIBLE AND PERMANENT LOCATION APPROVED BY THE CITY.
3. REDUCERS AS REQUIRED FOR 40mm AND 50mm METER INSTALLATIONS.
4. 'FORD' LOC PAK COUPLING OR APPROVED EQUAL REQUIRED FOR 40mm AND 50mm METERS.
5. FOR PRE-CAST CHAMBER ALL JOINTS SHALL BE SET IN A MORTAR BED AND PARGED OUTSIDE.
6. 100mm DIA. DRAIN COMPLETE WITH 'P' TRAP AND BACK WATER VALVE TO BE CONNECTED TO STORM SEWER.
7. CONCRETE SUPPORTS TO BE 20MPa COMPRESSIVE STRENGTH.
8. COPPER PIPE TO BE TYPE K HARD.
9. SEE STANDARD DRAWING W-101, W-106 & W-111 FOR ADDITIONAL NOTES.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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CITY OF VAUGHAN ENGINEERING STANDARD

METER CHAMBER FOR COPPER SERVICES

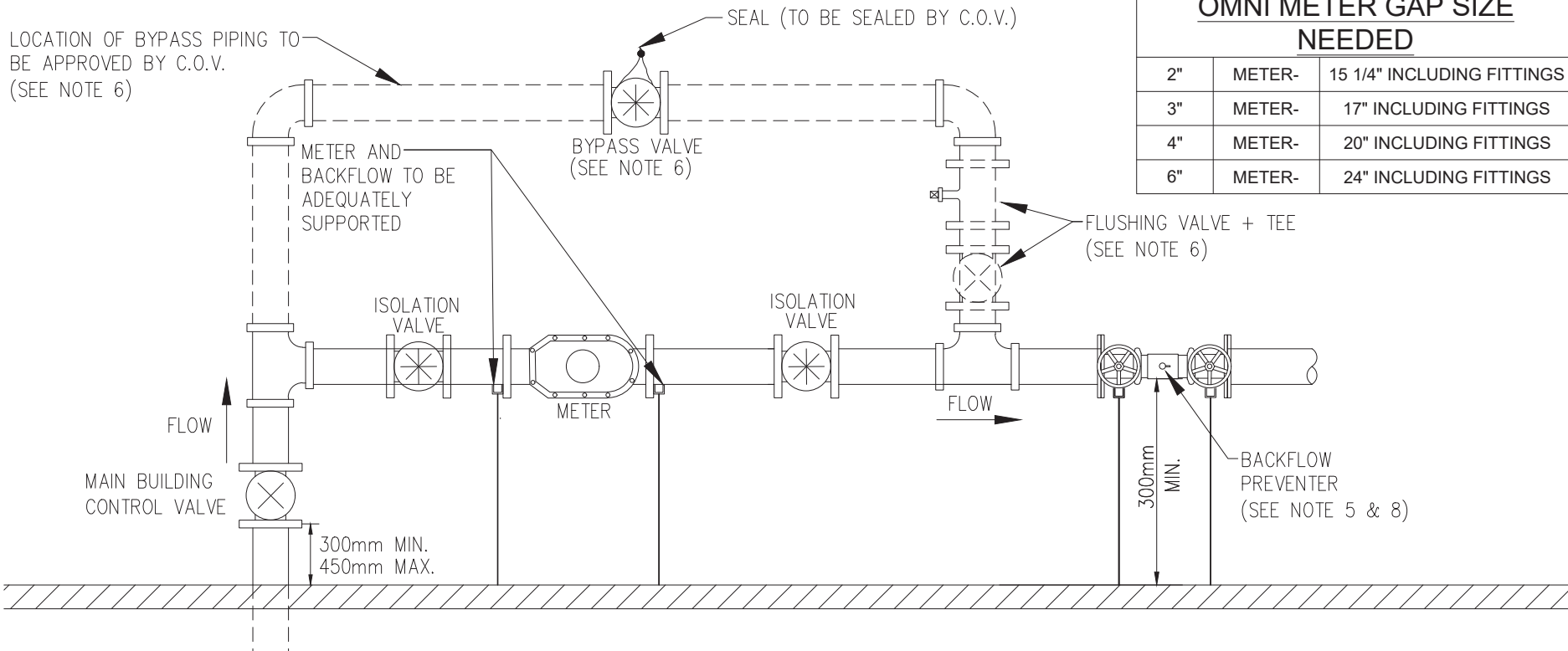
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REVISION: _____ DATE: DEC. 2020

STD. DWG.
W - 107

W-108 - INTENTIONALLY LEFT BLANK

Refer to 2004 Published Edition. Should drawing not be available, please contact the Development Engineering Department at developmentengineering@vaughan.ca

FILE: Q:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\CityStandardsDrawings_CAD_2021\W-109 - Industrial-Commercial Meter w. Backflow Preventer & Valve Installation.dwg



OMNI METER GAP SIZE NEEDED

2"	METER-	15 1/4" INCLUDING FITTINGS
3"	METER-	17" INCLUDING FITTINGS
4"	METER-	20" INCLUDING FITTINGS
6"	METER-	24" INCLUDING FITTINGS

NOTES:

- MUST HAVE FULLY FUNCTIONAL ISOLATION VALVES:
A) ON INLET SIDE TO METER
B) ON OUTLET SIDE TO METER
- SHALL BE NO CONNECTIONS BEFORE THE METER AND PREMISE BACKFLOW DEVICE.
- BYPASS NEEDED FOR SERVICES 2" AND GREATER. BYPASS PIPE TO BE ONE (1) PIPE SIZE SMALLER THAN SERVICE CONNECTION OR MINIMUM 2" DIAMETER.
- STRAINER NOT REQUIRED WITH OMNI METERS.
- BACKFLOW DEVICE TO BE SELECTED, INSTALLED AND TESTED IN CONFORMANCE WITH C.S.A. B64. SELECTION AND INSTALLATION OF BACKFLOW PREVENTERS AND AS PER MANUFACTURE RECOMMENDATIONS.
- NO PERSON SHALL INSTALL OR PERMIT THE INSTALLATION OF A BYPASS UNLESS AUTHORIZED BY THE CITY AND THE BYPASS IS VALVED AND LOCKED PROPERLY. IF APPROVED LOCKABLE FLUSHING VALVE AND TEE ARE TO BE INSTALLED.
- REMOTE READER TO BE ACCESSIBLE FROM OUTSIDE BUILDING.
- BACKFLOW DEVICE TO COMPLY WITH WITH BYLAW 004-2018 AS AMENDED.
- WHERE METER ROOM IS NOT ADJACENT TO AN OUTSIDE WALL OR IS BELOW EXTERIOR FINISHED GRADE, CONTRACTOR/APPLICANT SHALL PROVIDE A CONTINUOUS CONDUIT, COMPLETE WITH NYLON FINISH LINE FROM METER ROOM TO 1000mm ABOVE EXTERIOR FINISHED GRADE.
- BACKFLOW DEVICES ARE PERMITTED TO BE INSTALLED IN PARALLEL ARRANGEMENTS IN ORDER TO ALLOW UNINTERRUPTED SERVICE DURING BACKFLOW MAINTENANCE.
- ALL PIPING BETWEEN WATER METER AND BACFLOW DEVICE TO BE CLEARLY AND PERMANENTLY LABELLED "NO CONNECTION PERMITTED".

IF RP DEVICE IS INSTALLED DRAINAGE IS REQUIRED AS PER CSA B64. 10-17, 6.8.1 + 6.8.2

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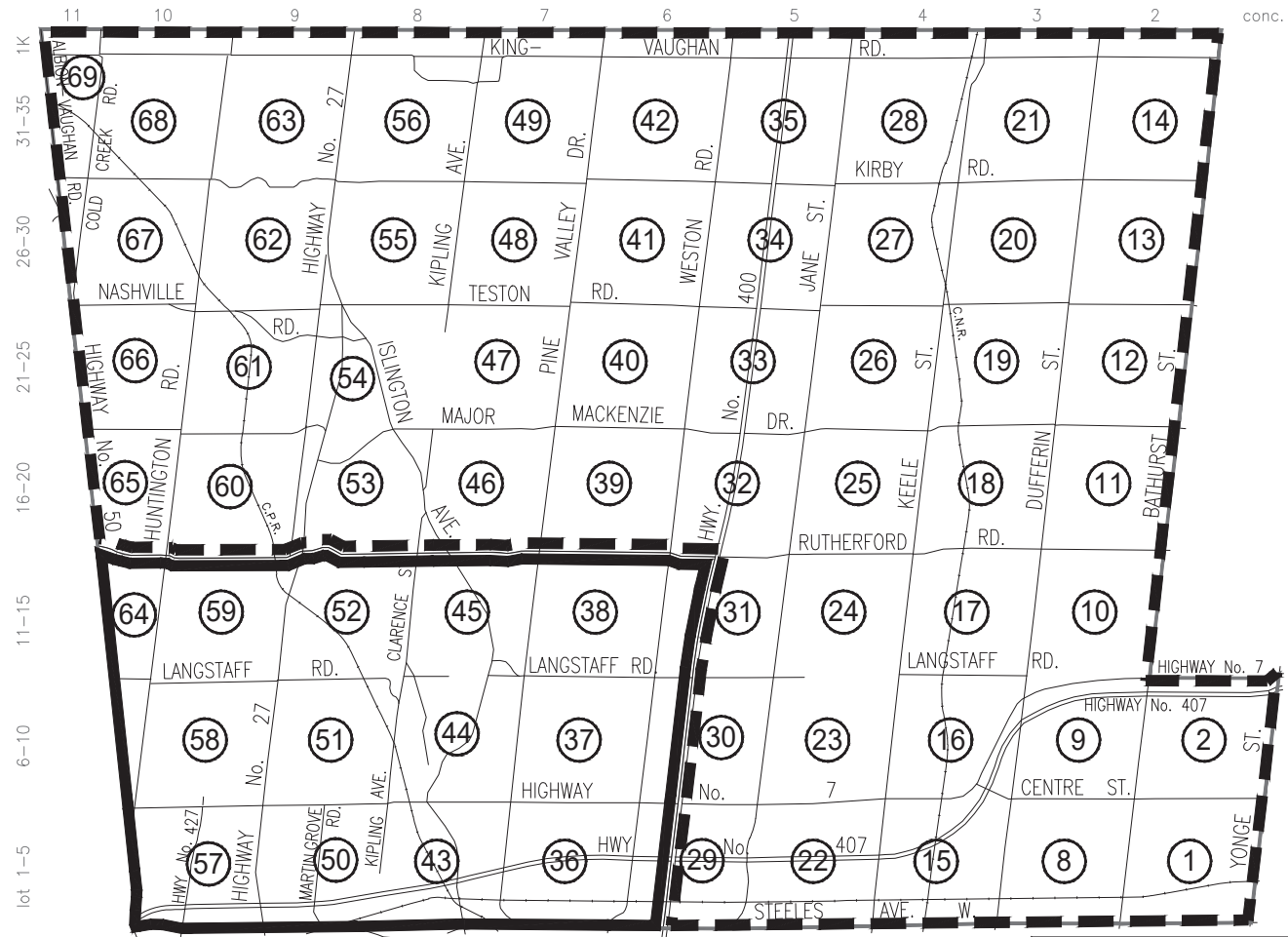
CITY OF VAUGHAN ENGINEERING STANDARD

INDUSTRIAL / COMMERCIAL METER with BACKFLOW PREVENTER AND VALVE INSTALLATION (METER ROOM)

NOT TO SCALE
DESIGNED: _____
REVISION: _____
DATE: DEC. 2020

STD. DWG.
W - 109

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



NOTE
NUMBERS IN CIRCLES ARE
DESIGNATED AS 'BLOCK'
NUMBERS.



TURN COUNTER-CLOCKWISE
LEFT TO OPEN
RIGHT TO CLOSE



TURN CLOCKWISE
RIGHT TO OPEN
LEFT TO CLOSE

NOTE

- ALL WATER, HYDRANT SEC. VALVES TO OPEN CLOCKWISE EAST OF HWY. 400 OR NORTH OF RUTHERFORD ROAD. ALL OTHERS TO OPEN COUNTER-CLOCKWISE.
- ALL HYDRANTS OPEN COUNTER CLOCKWISE

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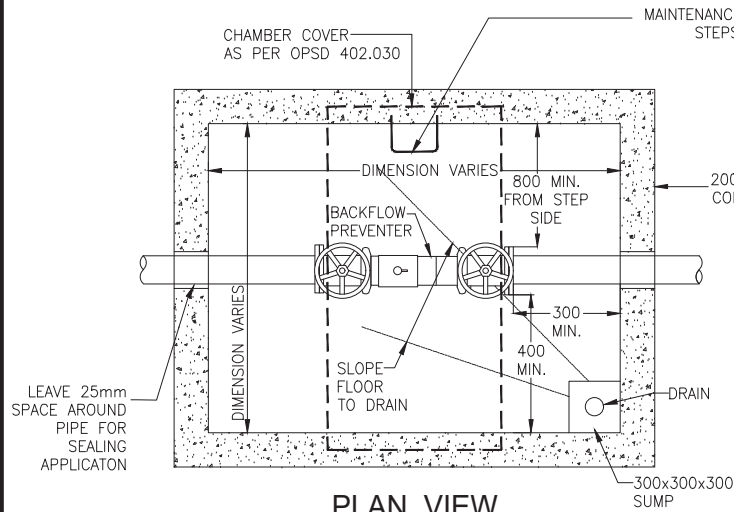
CITY OF VAUGHAN ENGINEERING STANDARD

WATER VALVE OPEN / CLOSE DIRECTION

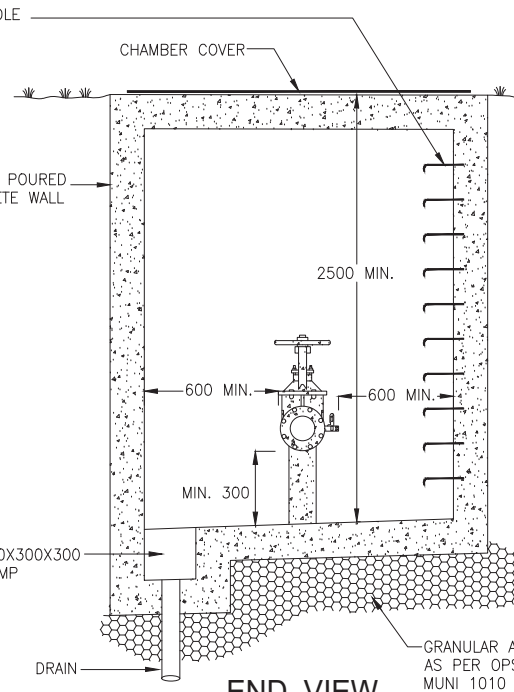
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STD. DWG.
W - 110

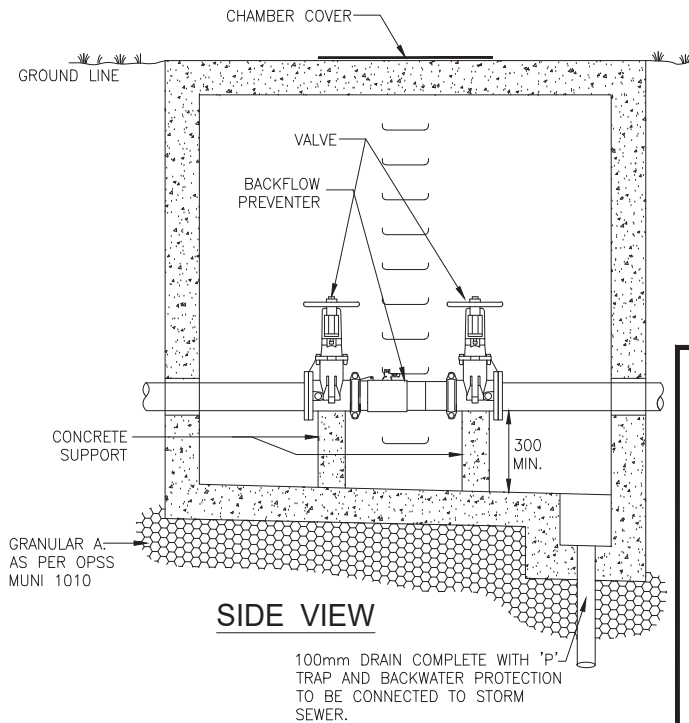
FILE: C:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria\2020-21\City Standards Update Folder\CoS\StandardDrawings_CAD_2021\W-111 - Backflow Preventer & Chamber.dwg



PLAN VIEW



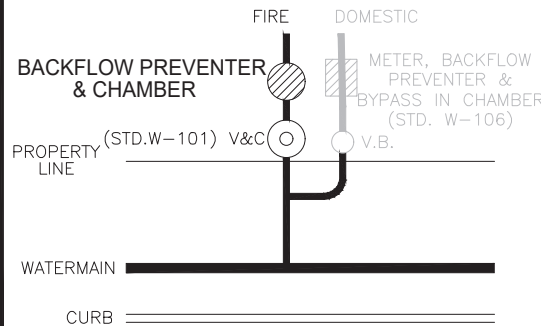
END VIEW



SIDE VIEW

100mm DRAIN COMPLETE WITH 'P' TRAP AND BACKWATER PROTECTION TO BE CONNECTED TO STORM SEWER.

TYPICAL INSTALLATION



NOTES:

1. BACKFLOW DEVICE TO BE SELECTED, INSTALLED AND TESTED IN CONFORMANCE WITH CSA B64 "SELECTION + INSTALLATION OF BACKFLOW PREVENTERS AND AS PER MANUFACTURER RECOMMENDATIONS.
2. BACKFLOW DEVICE TO COMPLY WITH BY-LAW 004-2018 AS AMENDED.
3. REDUCED PRESSURE ASSEMBLY (RP) BACKFLOW PREVENTER ARE NOT PERMITTED IN BELOW GROUND APPLICATIONS.
4. BACKFLOW DEVICE TO REMAIN ACCESSIBLE AT ALL TIMES.
5. THIS DRAWING INDICATES MINIMUM CLEARANCE AND ACCESS ONLY.
6. CHAMBER TO BE OF WATER TIGHT CONSTRUCTION.
7. 100mm DIA. DRAIN COMPLETE WITH 'P' TRAP AND BACK WATER PREVENTER VALVE TO BE CONNECTED TO STORM SEWER.
8. MAINTENANCE HOLE STEPS AS PER OPSD 405.020
9. TEST COCKS ARE TO BE PROTECTED WITH WATER TIGHT PLUGS.
10. MINIMUM DEPTH OF CHAMBER = 2.5 METRES.
11. AS PER ONTARIO BUILDING CODE SECTION 7.6.2.2:
A) EVERY POTABLE WATER SYSTEM THAT SUPPLIES A FIXTURE OR TANK THAT IS NOT SUBJECT TO PRESSURE ABOVE ATMOSPHERIC SHALL BE PROTECTED AGAINST BACK-SIPHONAGE BY A BACKFLOW PREVENTER.
B) WHERE A POTABLE WATER SUPPLY IS CONNECTED TO A TANK, COOLING JACKET, LAWN SPRINKLER SYSTEM, YARD HYDRANT OR OTHER DEVICE WHERE A NON-PORTABLE FLUID MAY BE UNDER PRESSURE THAT IS ABOVE ATMOSPHERIC OR THE WATER OUTLET MAY BE SUBMERGED IN THE NON-PORTABLE FLUID, THE WATER SUPPLY SHALL BE PROTECTED AGAINST BACKFLOW BY A BACKFLOW PREVENTER.
C) WHERE A HOSE BIB IS INSTALLED OUTSIDE A BUILDING, INSIDE A GARAGE, OR WHERE THERE IS AN IDENTIFIABLE RISK OF CONTAMINATION, THE POTABLE WATER SYSTEM SHALL BE PROTECTED AGAINST BY A BACKFLOW PREVENTER.
12. WHERE PRECAST CONCRETE ADJUSTER RINGS (E.G., MODULOC) ARE REQUIRED, THEY ARE TO BE MAX. 300 mm OTHERWISE POURED COLLARS ARE TO BE USED IN CONJUNCTION WITH RINGS.
13. THIS STANDARD APPLIES TO BUILDINGS WITH OUTSIDE HYDRANTS
14. DIMENSIONS OF THE CHAMBER AND ALL INTERNAL CONNECTION SHALL BE VERIFIED BEFORE INSTALLATION.

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DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



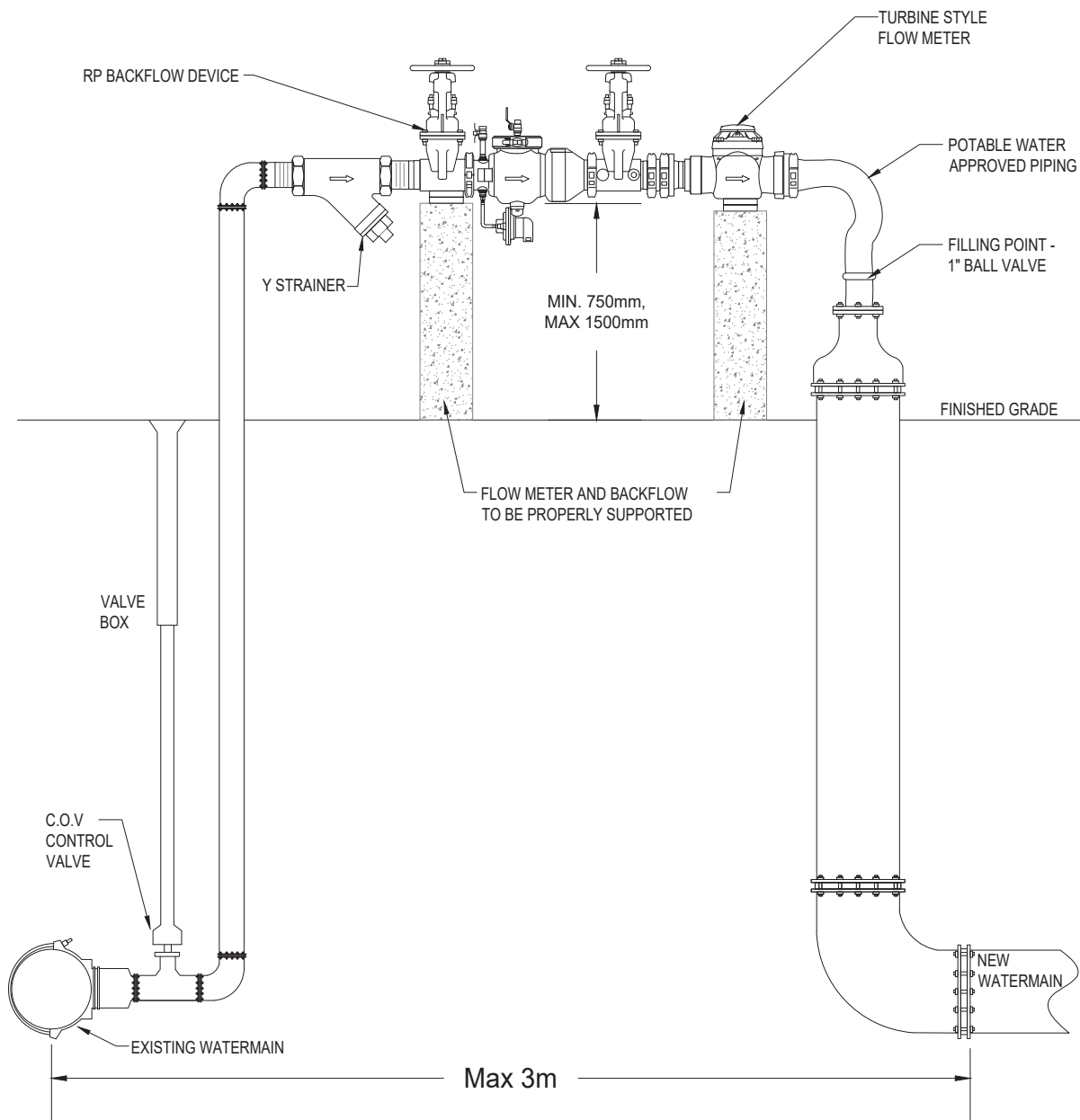
CITY OF VAUGHAN ENGINEERING STANDARD BACKFLOW PREVENTER & CHAMBER FOR 100mm THROUGH 300mm DOUBLE CHECK VALVE ASSEMBLY

NOT TO SCALE DESIGNED: _____
REVISION: _____ DATE: DEC. 2020

STD. DWG.
W - 111

W-112 - TEMPORARY SUPPLY AND DISINFECTION CONNECTION
CURRENTLY UNDER DEVELOPMENT

Refer to 2004 Published Edition. Should drawing not be available, please contact the Development Engineering Department at developmentengineering@vaughan.ca



CONNECTION SIZE

WATERMAIN SIZE	MIN. BYPASS SIZE
< 150mm	50mm
200mm - 400mm	100mm
> 450mm	Size to be approved by the City

NOTES:

1. BACKFLOW DEVICE MUST BE A REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP) AND IN CONFORMITY WITH CSA B64.10. BACKFLOW TO BE SUPPLIED AND TESTED BY APPLICANT.
2. BACKFLOW TO BE FIELD TESTED BY A CROSS-CONNECTION CONTROL SPECIALIST WITH VALID OWWA TESTER CERTIFICATE. CITY OF VAUGHAN OPERATOR TO WITNESS ALL FIELD TESTING OF THE BACKFLOW ASSEMBLY. BACKFLOW MUST BE RE-TESTED WHEN RELOCATED, REPAIRED OR REPLACED.
3. BACKFLOW DEVICE TO BE DISCONNECTED FROM BYPASS PIPING DURING WATERMAIN PRESSURE TESTS.
4. ALL NEW PIPING AND FITTINGS TO BE DISINFECTED WITH 1-5% SODIUM HYPOCHLORITE SOLUTION ACCORDING TO AWWA C651.
5. ONLY CITY OF VAUGHAN STAFF TO OPERATE HYDRANT & MUNICIPALITY OWNED VALVES. APPLICANT/CONTRACTOR ARE NOT PERMITTED TO TURN HYDRANT ON/OFF.
6. APPLICANT/CONTRACTOR TO BE RESPONSIBLE FOR ANY DAMAGE TO CITY OF VAUGHAN AND/OR PRIVATE PROPERTY.
7. FREEZING PROTECTION MUST BE PROVIDED AND INSTALLED BY THE APPLICANT WHEN APPLICABLE.

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

WATERMAIN BYPASS SETUP

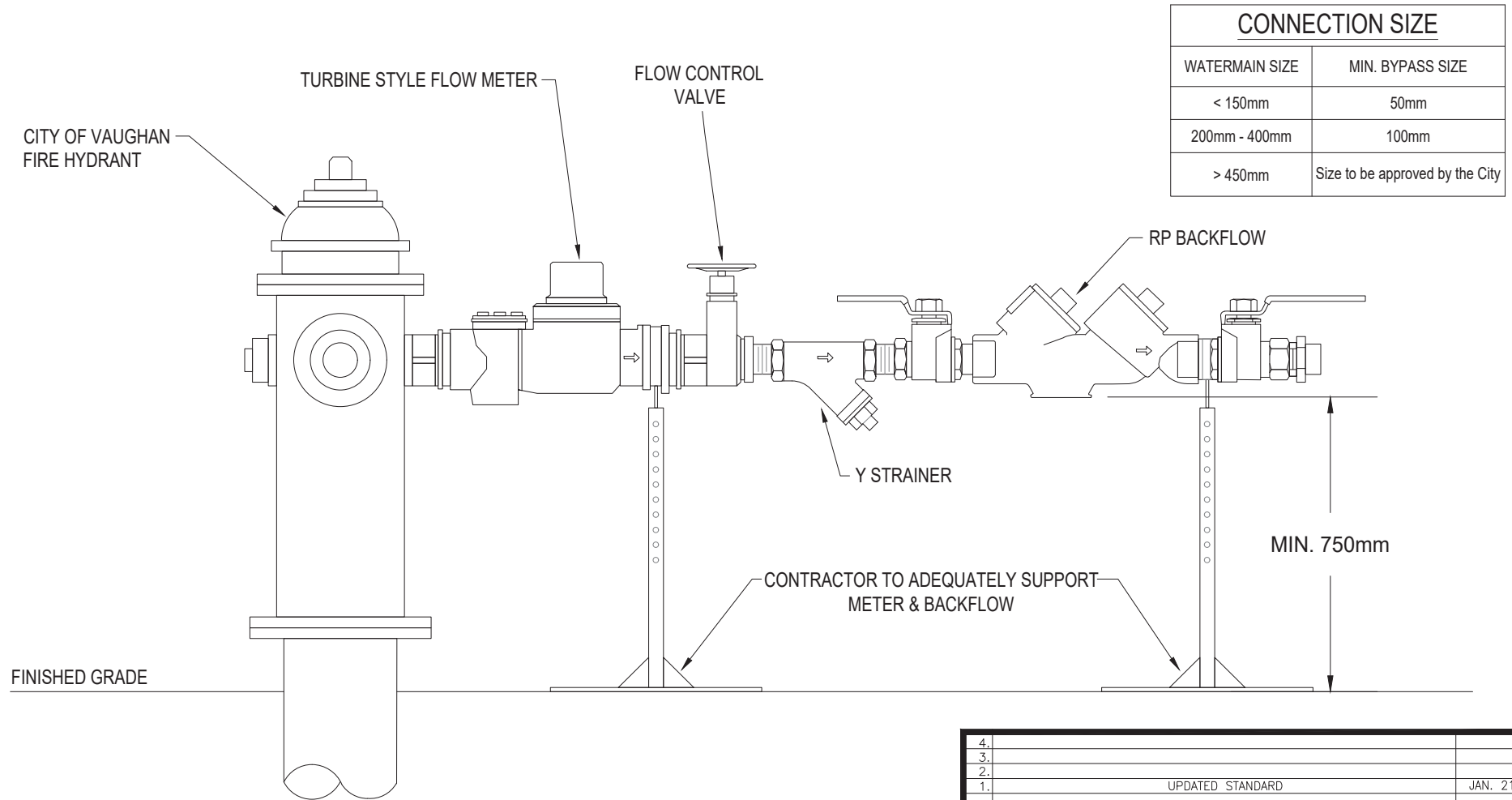
NOT TO SCALE DESIGNED: _____
 REVISION: _____ DATE: _____ JAN. 2021

STD. DWG.
W - 113

mm

DIMENSIONS IN MILLIMETRES
 EXCEPT AS NOTED

Acad File: \\vis2\Dept\Shore\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2016\City Standards Update Folder\CoVStandardDrawings_CAD_2021\W-114--.dwg



NOTES:

1. BACKFLOW DEVICE MUST BE A REDUCED PRESSURE PRINCIPLE ASSEMBLY (RP) AND IN CONFORMITY WITH CSA B64.10. BACKFLOW TO BE SUPPLIED AND TESTED BY APPLICANT.
2. BACKFLOW TO BE FIELD TESTED BY A CROSS-CONNECTION CONTROL SPECIALIST WITH VALID OWWA TESTER CERTIFICATE. CITY OF VAUGHAN OPERATOR TO WITNESS ALL FIELD TESTING OF THE BACKFLOW ASSEMBLY. BACKFLOW MUST BE RE-TESTED WHEN RELOCATED, REPAIRED OR REPLACED.
3. BACKFLOW DEVICE TO BE DISCONNECTED FROM BYPASS PIPING DURING WATERMAIN PRESSURE TESTS.
4. ONLY CITY OF VAUGHAN STAFF TO OPERATE HYDRANT & MUNICIPALITY OWNED VALVES. APPLICANT/CONTRACTOR ARE NOT PERMITTED TO TURN HYDRANT ON/OFF.
5. APPLICANT/CONTRACTOR TO BE RESPONSIBLE FOR ANY DAMAGE TO CITY OF VAUGHAN AND/OR PRIVATE PROPERTY.
6. FREEZING PROTECTION MUST ME PROVIDED AND INSTALLED BY THE APPLICANT WHEN APPLICABLE.

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**DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED**

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1.	UPDATED STANDARD	JAN. 21
	REVISIONS	DATE

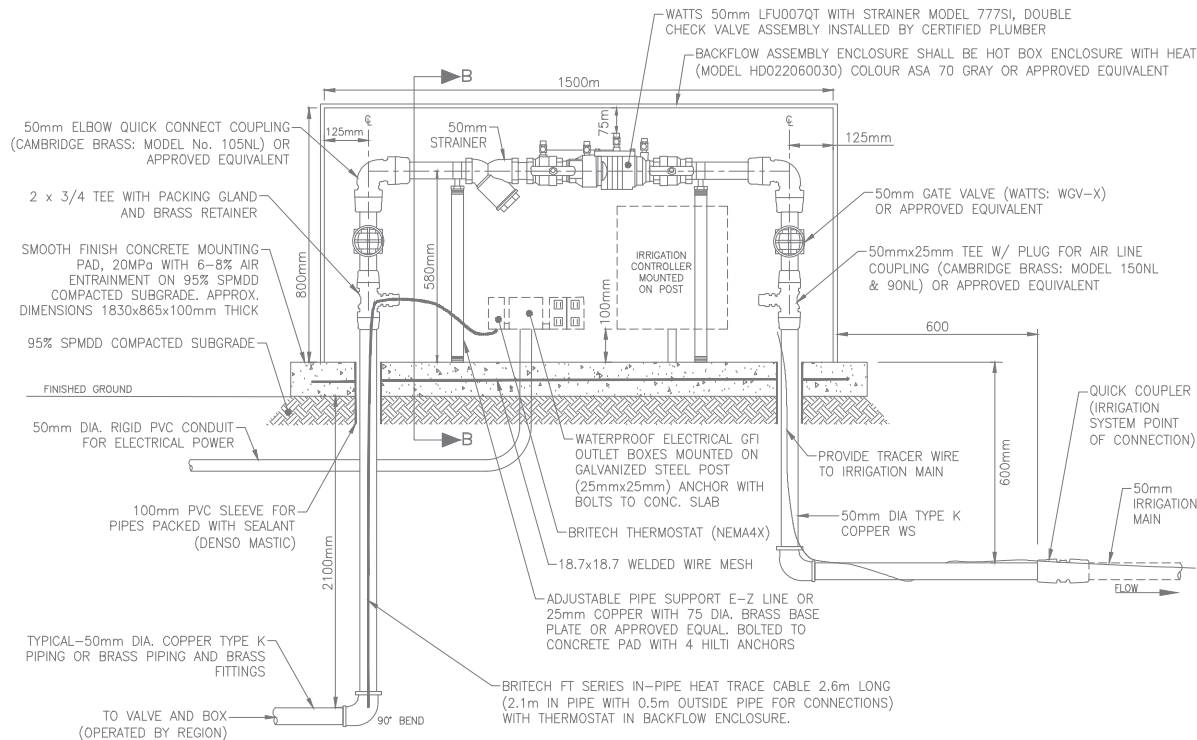


CITY OF VAUGHAN ENGINEERING STANDARD

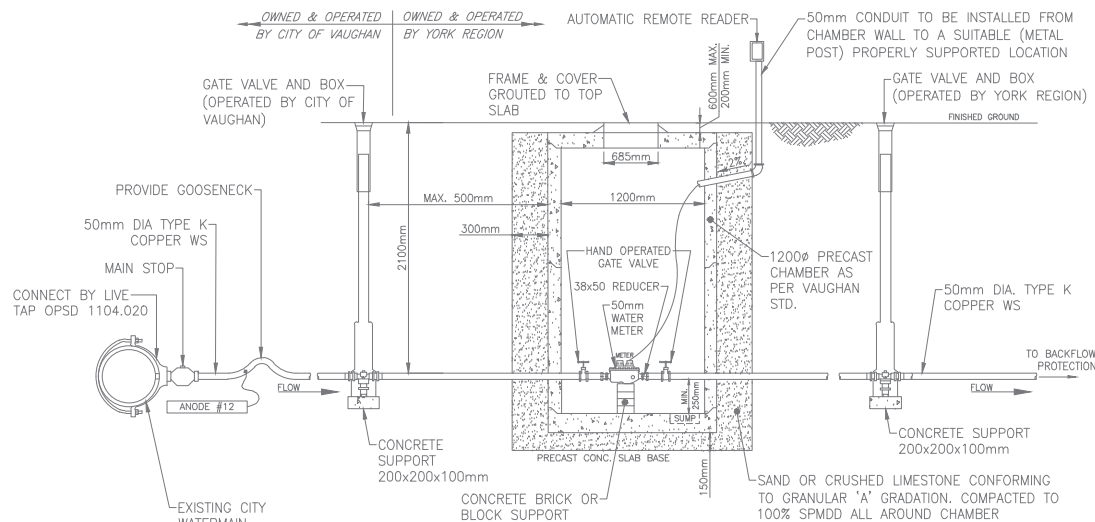
**FIRE HYDRANT CONNECTION WITH
METER AND BACK FLOW PREVENTER**

NOT TO SCALE
DESIGNED: DEPT. ENG.
REVISION: 01 DATE: JAN. 2021

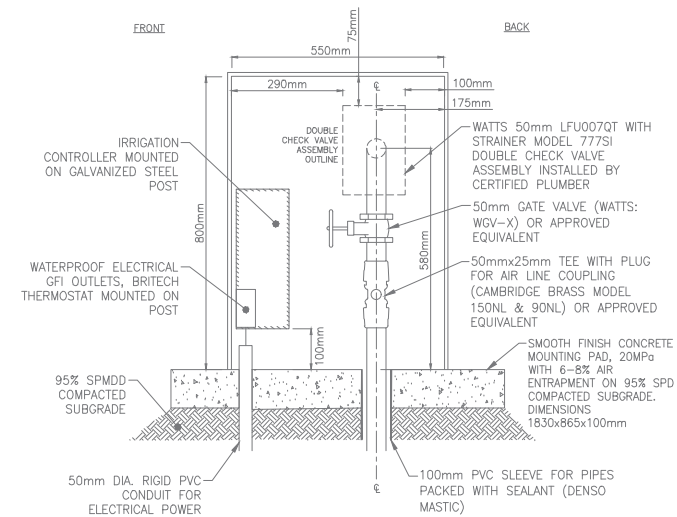
STD. DWG.
W - 114



BACKFLOW PROTECTION ASSEMBLY
OWNED BY YORK REGION



WATER METER CHAMBER ARRANGEMENT



SECTION 'B - B'
BACKFLOW PROTECTION ASSEMBLY

NOTES

1. 24LB ANODE COVERING AN AREA OF 150 LINEAR FEET TO BE INSTALLED FOR SERVICE PROTECTION, MIDPOINT ON LENGTH OF PIPE FROM WM TO CITY'S GATE VALVE.
2. SERVICE TO BE TURNED ON AND PRESSURE TESTED PRIOR TO BACKFILLING.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

AUTOMATED IRRIGATION SYSTEM

FOR YORK REGION LANDSCAPE MEDIANS

NOT TO SCALE

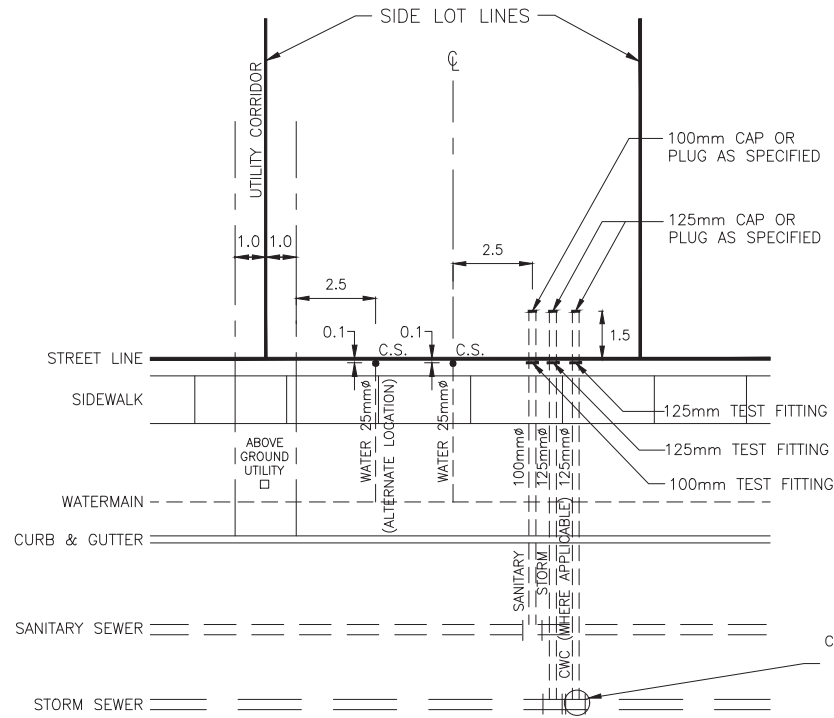
DESIGNED:

REVISION:

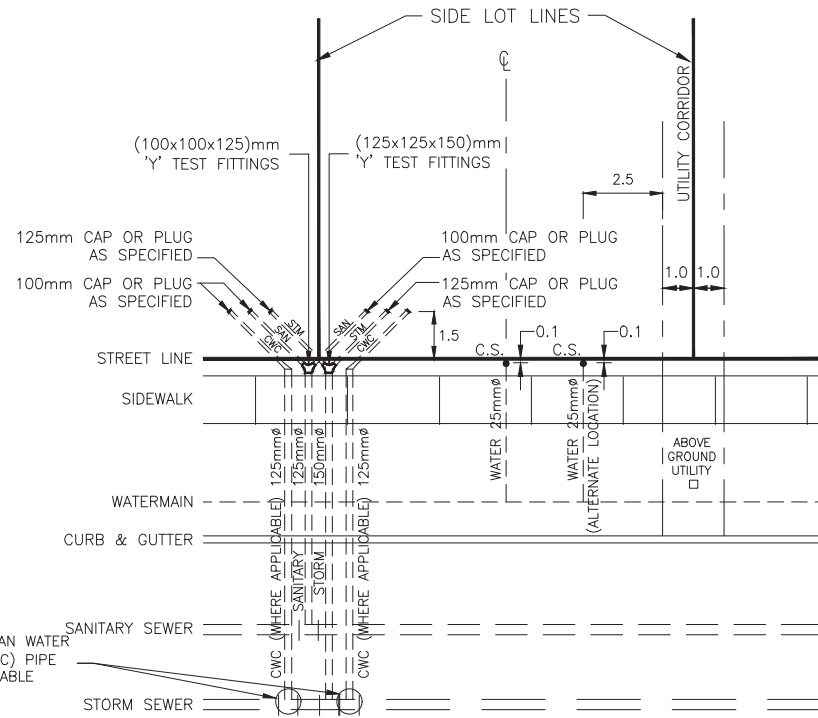
DATE: DEC. 2022

STD. DWG.

W-118



SINGLE SEWER & SINGLE WATER SERVICE



SINGLE WATER & DOUBLE SEWER SERVICE

NOTES

1. RESIDENTIAL DWELLING SHALL BE SERVICED WITH A MINIMUM 25mm (1") WATER SERVICE CONNECTION. DWELLING STRUCTURES THAT HAVE SPRINKLER SYSTEM AND/OR HIGH HYDRAULIC LOADS AND REQUIRE WATER SERVICE CONNECTION LARGER THAN 25mm (1") SHALL BE SUBJECT TO THE CITY'S APPROVAL.
2. WATER SERVICE CONNECTIONS AND CURB STOPS SHALL BE AS DETAILED ON O.P.S.D. 1104.010 OR 1104.020.
3. SANITARY AND STORM SERVICE CONNECTIONS SHALL BE AS PER O.P.S.D. 1006.010 OR 1006.020 EXCEPT THAT THE CONNECTIONS SHALL EXTEND 1.5m BEYOND THE PROPERTY LINE AND SHALL BE PLUGGED OR CAPPED AT THAT POINT.
4. ALL PVC SANITARY LATERAL PIPE SHALL BE GREEN IN COLOUR.
5. SANITARY TEST FITTINGS SHALL BE LETTERED 'SAN'. FITTINGS AND PLUGS SHALL BE AS PER CITY REQUIREMENTS.
6. ALL PVC STORM LATERAL PIPE SHALL BE WHITE IN COLOUR.
7. STORM TEST FITTING SHALL BE LETTERED 'STM'. FITTINGS AND PLUGS SHALL BE AS PER CITY REQUIREMENTS.
8. MARKERS SHALL BE PLACED AT ENDS OF 'SAN' AND 'STM' CONNECTIONS.
9. WATER SERVICE CURB STOP SHALL BE LOCATED IN THE GRASSED AREA OF THE R.O.W. ANY OTHER LOCATION SHALL BE SUBJECT TO THE CITY'S APPROVAL.
10. CWC SERVICE WITHIN LOT NOT TO BE INSTALLED UNTIL ROOF LEADERS ARE INSTALLED.
11. HOUSE ROOF LEADERS TO DISCHARGE A MINIMUM OF 1.5m FROM ALL BUILDINGS TO GROUND SURFACE BY MEANS OF A SPLASH PAD WHERE CWC ARE NOT AVAILABLE.

LEGEND

CWC - CLEAN WATER COLLECTOR

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

RESIDENTIAL SERVICE CONNECTIONS

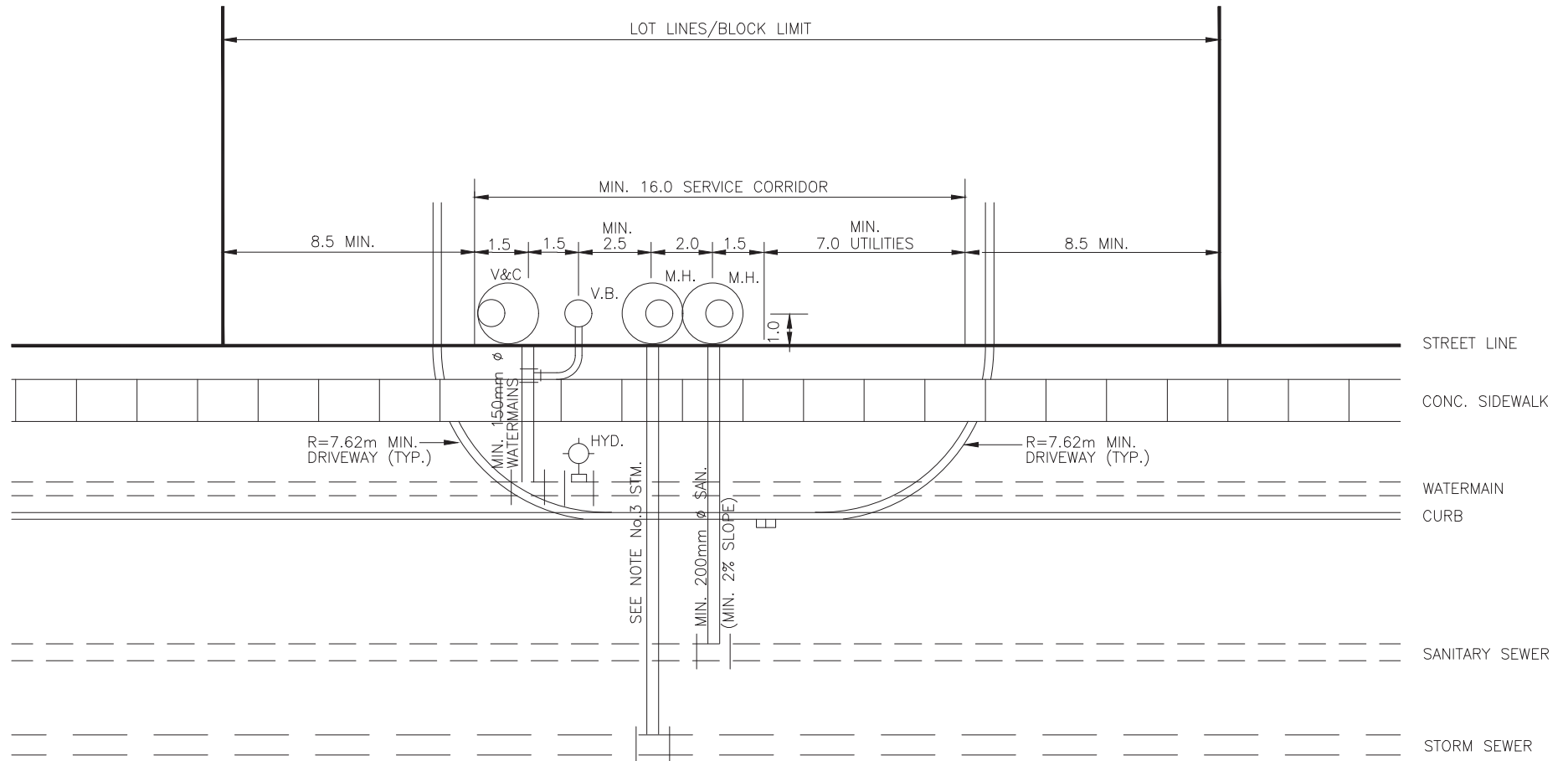
NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: DEC. 2020

STD. DWG.

C - 101

FILE: C:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria 2020-21\City Standards Update Folder\City Standards Drawings_CAD_2021\C-102 - Block Service Connections.dwg



NOTES

1. ABOVE GROUND UTILITIES TO BE LOCATED MINIMUM 1.0m FROM CURBS, SIDEWALK AND DRIVEWAYS.
2. MAINTENANCE HOLES AND VALVE CHAMBERS FOR SERVICE CONNECTIONS TO BE LOCATED AT 1.0m OFF STREET LINE ON PRIVATE PROPERTY.
3. STORM SEWER CONNECTIONS SHALL BE SIZED BASED UPON STORM WATER MANAGEMENT REQUIREMENTS. SEE STD. C-104.
4. WATER SERVICE CONNECTIONS SHALL BE AS DETAILED ON STANDARD DRAWING C-103.
5. CB TO BE LOCATED WITHIN SERVICE CORRIDOR.

m DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS		DATE



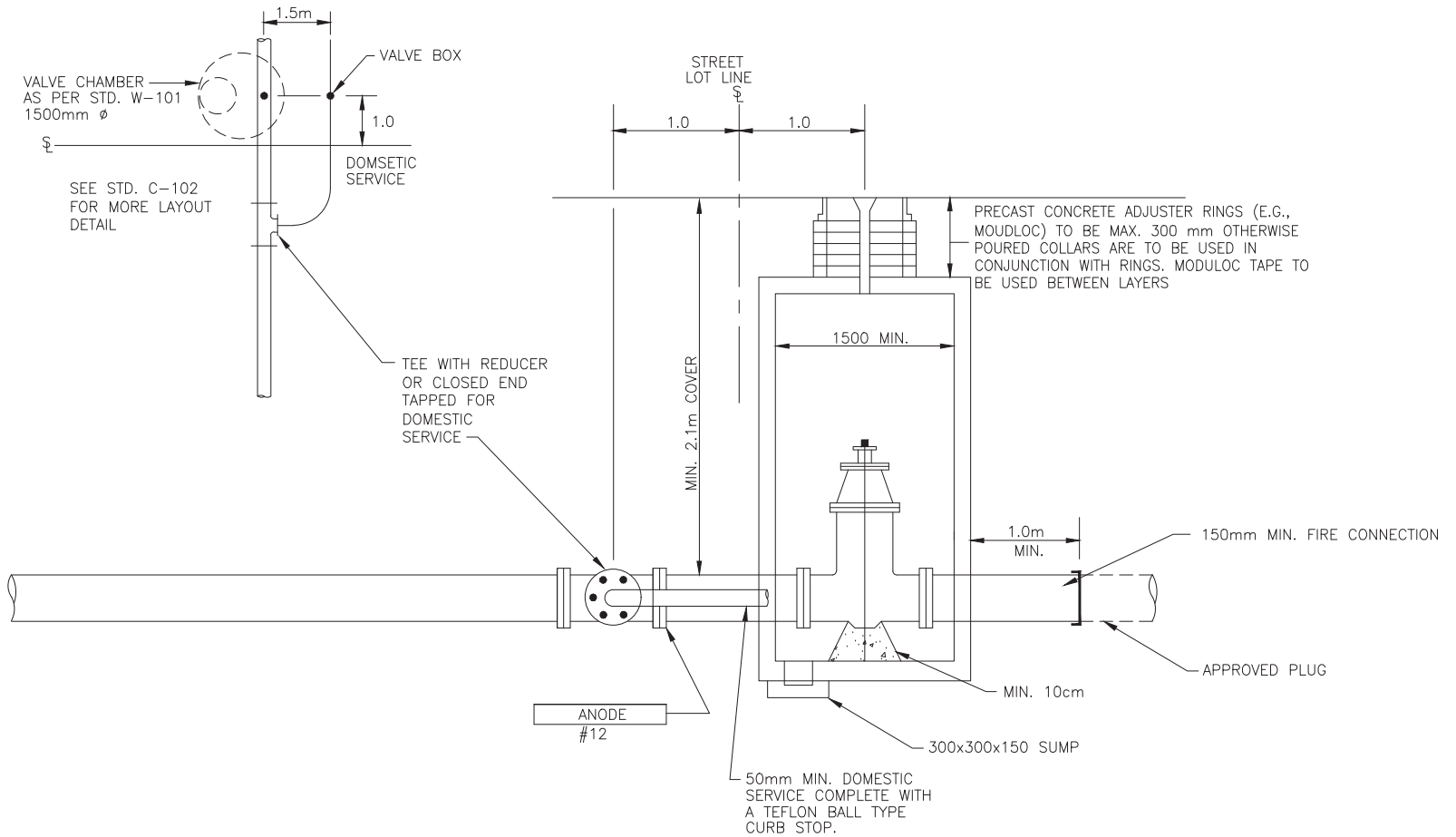
CITY OF VAUGHAN ENGINEERING STANDARD

BLOCK SERVICE CONNECTIONS

NOT TO SCALE DESIGNED: _____
REVISION: _____ DATE: DEC. 2020

STD. DWG.

C - 102



NOTES

1. BOND BREAKER TO BE USED BETWEEN ALL CONCRETE AND FITTINGS.
2. PROVIDE RESTRAINED MECHANICAL JOINTS OR SLIP-ON JOINTS WITH TIE RODS & CLAMPS AS REQUIRED.
3. THRUST BLOCKS SHALL NOT BE USED WITHIN VALVE CHAMBER.
4. THRUST BLOCKS SHALL NOT BE USED ON PVC WATERMAINS.



DIMENSIONS IN METRES
EXCEPT AS NOTED

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REVISIONS	
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CITY OF VAUGHAN ENGINEERING STANDARD

BLOCK WATER CONNECTION

NOT TO SCALE

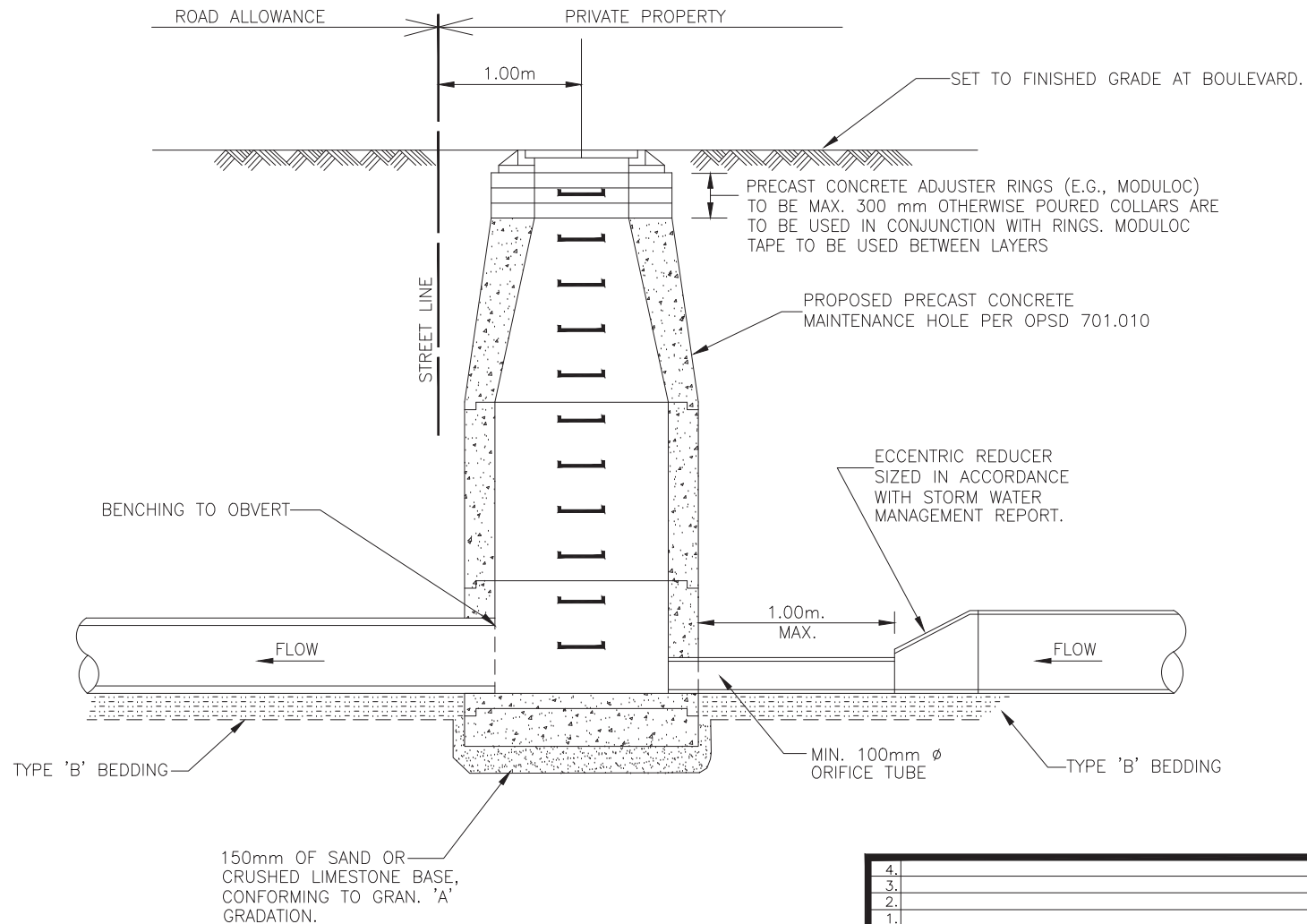
DESIGNED: _____

REVISION: _____

DATE: DEC. 2020

STD. DWG.

C - 103



NOTE

1. CAST IRON INTEGRATED FRAMES ARE ACCEPTABLE

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

STORM CONNECTIONS WITH ORIFICE CONTROL

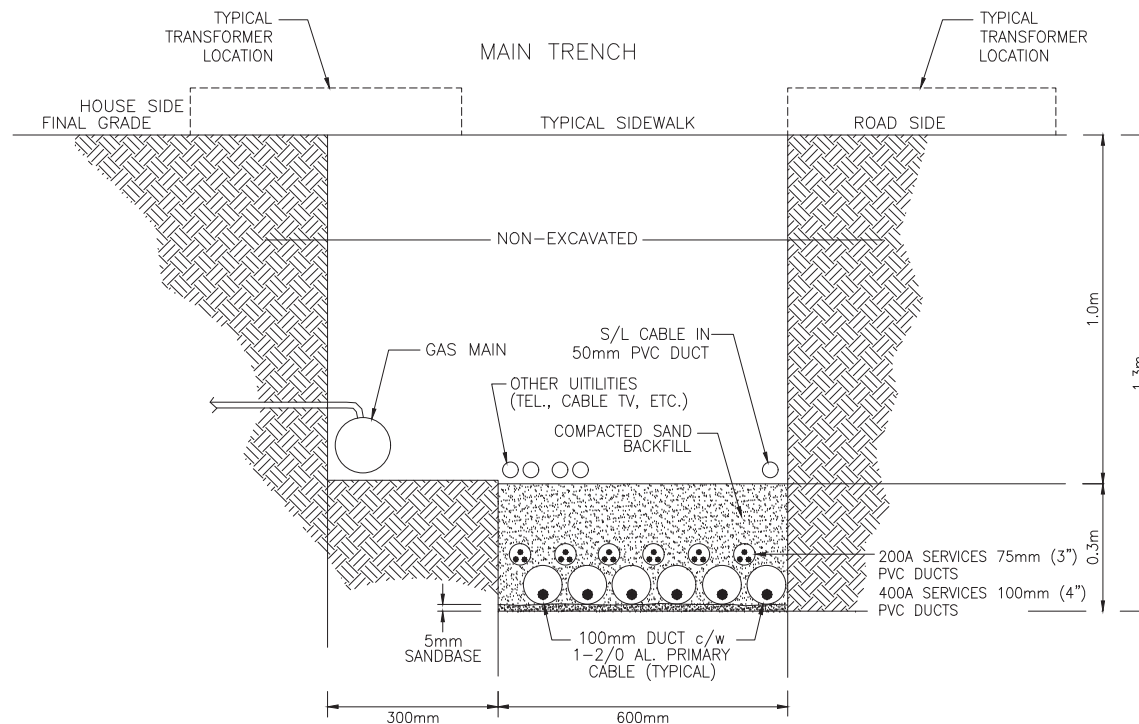
NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: DEC. 2020

STD. DWG.

C - 104

m DIMENSIONS IN METRES
EXCEPT AS NOTED

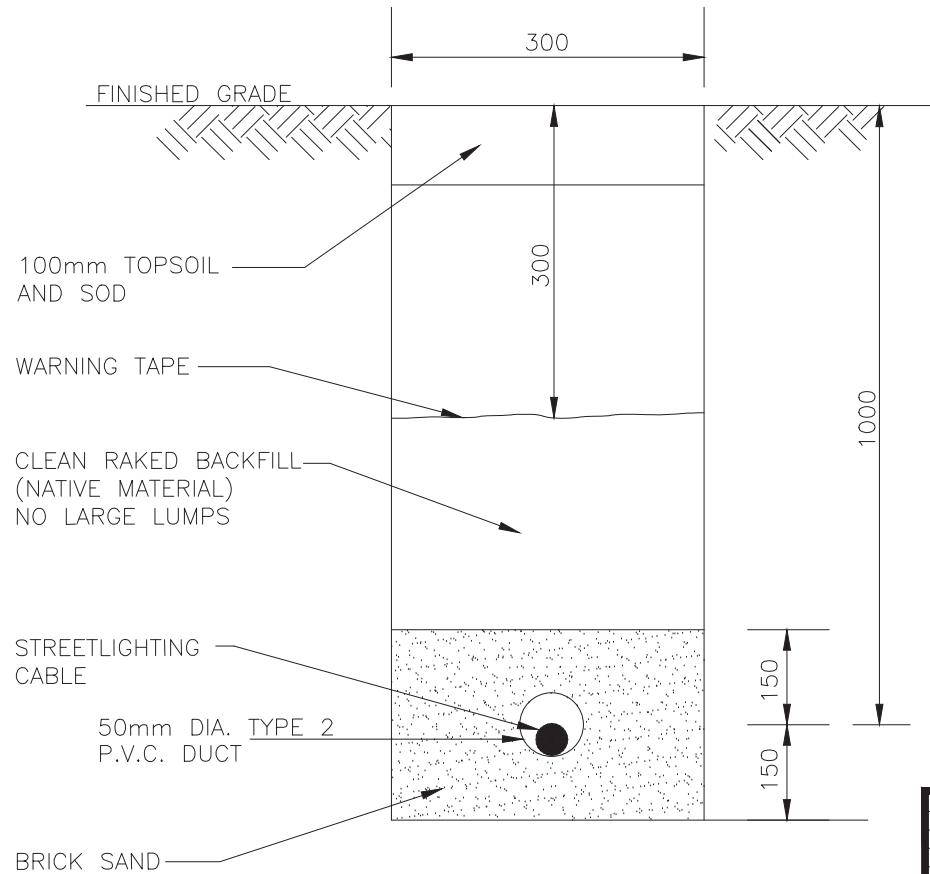


NOTES:



CITY OF VAUGHAN ENGINEERING STANDARD

NOT TO SCALE



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

STANDARD STREETLIGHTING TRENCH

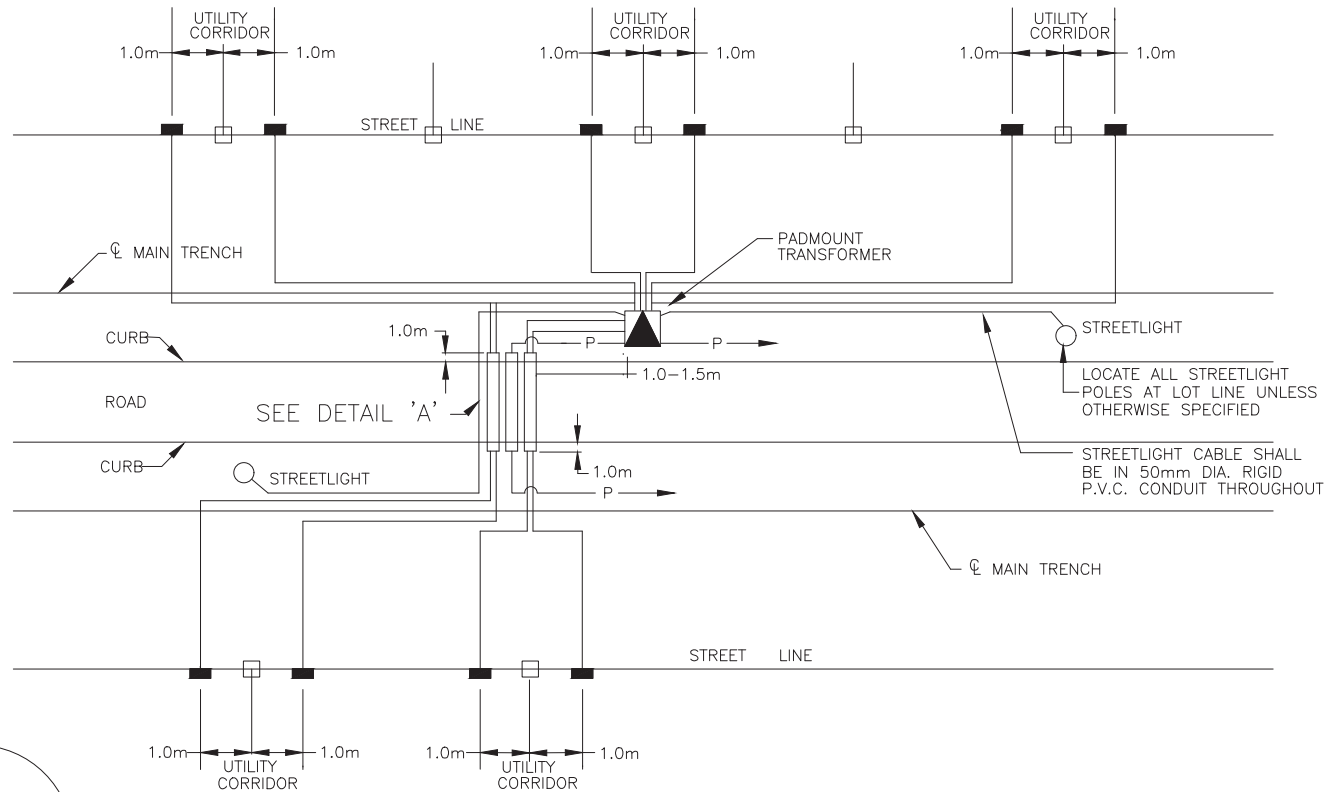
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DESIGNED: _____

REVISION: _____

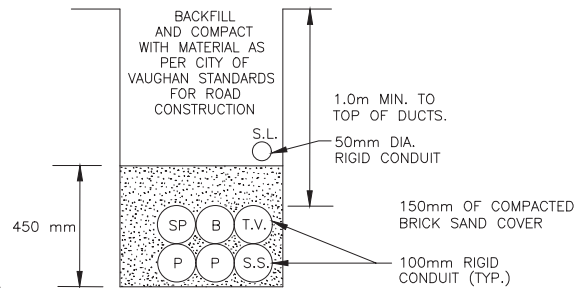
DATE: _____ 2022 _____

STD. DWG.
SL - 100b



DETAIL 'A'

TYPICAL DUCT ARRANGEMENT FOR DIRECT BURIED ROAD CROSSING DUCTS



DUCTS

- B - BELL CABLE
- T.V. - CABLE TELEVISION
- P - PRIMARY CABLE (1-PER DUCT)
- S.S. - SECONDARY SERVICE (MAX. -2 RUNS PER DUCT)
- S.L. - STREETLIGHT CABLE CONDUIT
- SP - SPARE CONDUIT

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

INSTALLATION OF STREETLIGHT CABLE AT ROAD CROSSINGS

NOT TO SCALE

DESIGNED: _____

REVISION: _____

DATE: 2022

STD. DWG.

SL - 101

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-
- TO LUMINAIRE
- STREETLIGHT POLE
- HAND WELL
- FUSE
- SPLIT BOLT CONNECTORS
- GROUND TERMINAL FOR STREETLIGHT POLE
- GRADE
- #12 B (HOT)
- #12 W (NEUTRAL)
- #12 LUMINAIRE GROUND
- #6 (HOT)
- #6 (NEUTRAL)
- BARE Cu. (GROUND)
- B
- W

NOTES:

-
- Diagram illustrating the wiring connections for a streetlight breaker assembly, showing the connection to the luminaire and the ground terminal for the streetlight pole.
- Labels and Connections:
- TO LUMINAIRE**: Indicated by a vertical line at the top of the diagram.
 - STREETLIGHT POLE**: Indicated by a vertical line on the right side of the diagram.
 - HAND WELL**: The enclosure housing the breaker and wiring connections.
 - FUSE**: Two fuses are shown in the top section of the hand well.
 - SPLIT BOLT CONNECTORS**: Two connectors are shown in the bottom section of the hand well, used for connecting the ground wires.
 - GRADE**: The ground level, indicated by a horizontal line with a hatched pattern.
 - Wiring Connections**:
 - #12 B (HOT)**: Connected to the top terminal of the left fuse.
 - #12 W (HOT)**: Connected to the top terminal of the right fuse.
 - #14 LUMINAIRE GROUND**: Connected to the bottom terminal of the right fuse.
 - #6 (HOT)**: Two hot wires connected to the bottom terminals of the fuses.
 - BARE Cu. (GROUND)**: A bare copper ground wire connected to the bottom terminal of the right fuse.
 - GROUND TERMINAL FOR STREETLIGHT POLE**: A terminal located on the right side of the hand well, connected to the ground wire.

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	REVISIONS	DATE

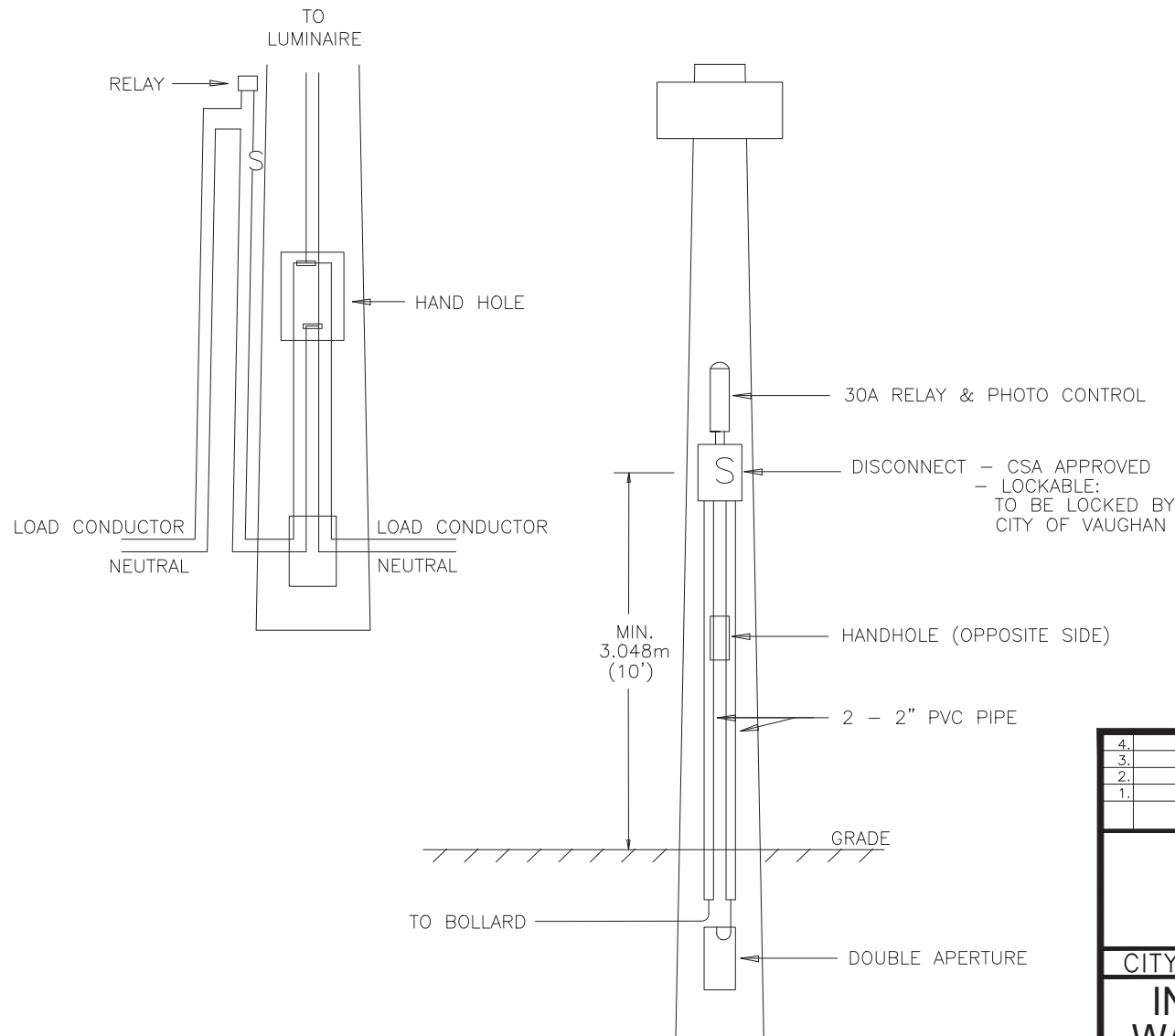


CITY OF VAUGHAN ENGINEERING STANDARD

STREETLIGHT WIRING CONNECTIONS

SL - 102

Acad File: C:\Users\vaughan\OneDrive - City of Vaughan\ - PP - Reg - Consult\Boulevard - Reg - Other\City MSL - Standardizing Standard\STREETLIGHT STANDARD - NPA\SL-103.dwg



NOTES

1. INSTALL EQUIPMENT ON OPPOSITE SIDE TO HANDHOLE.
2. CONTRACTOR TO LEAVE ENOUGH CONDUCTOR TO MAKE CONNECTIONS.

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

INSTALLATION OF BOLLARD WALKWAY LIGHT SERVICE AT STREETLIGHT POLE

NOT TO SCALE

DESIGNED: _____

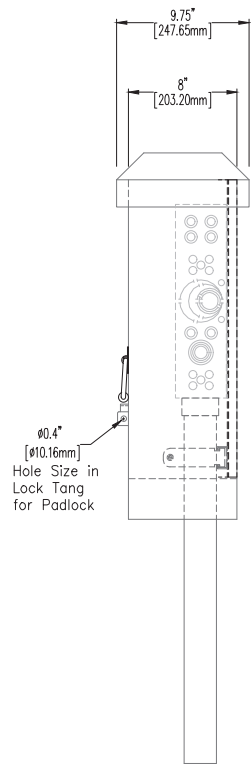
REVISION: _____

DATE: _____ 2022 _____

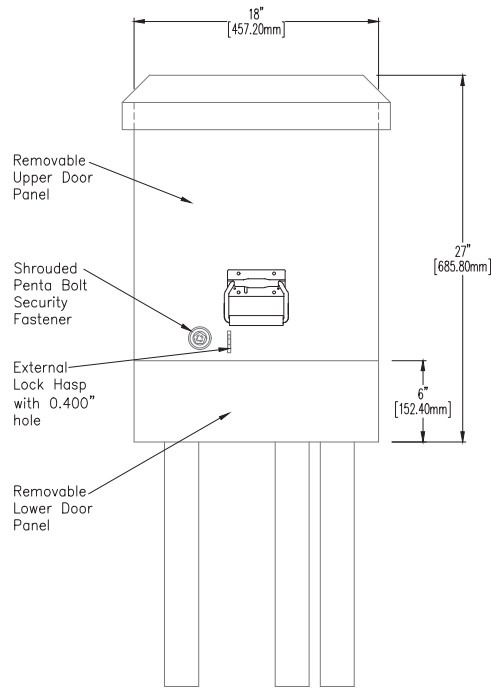
STD. DWG.

SL - 103

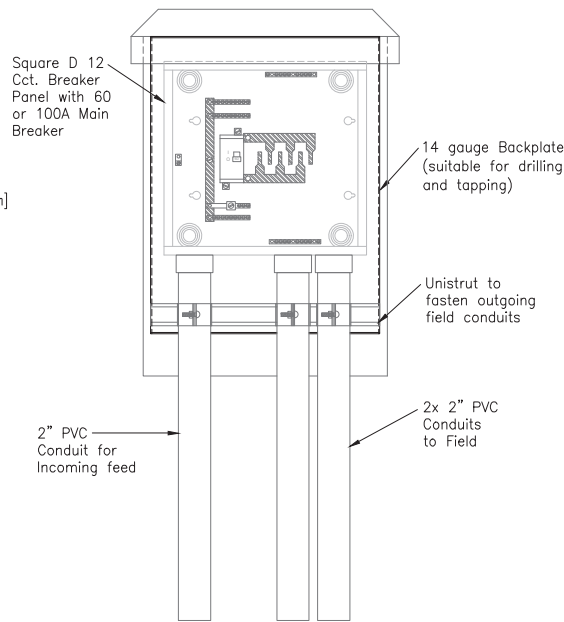
\\nas01\cadd\vaughan\cadd\vaughan - City of Vaughan\3 - PE - Reg - Consult\Drawn - h. Reg. Services - Map Aug 2022\3 - Reg - Draw\SL-105 - SL Pedestal Detail.dwg



RIGHT SIDE ELEVATION

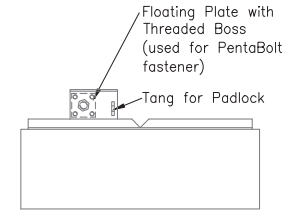


FRONT ELEVATION
WITH FRONT DOOR PANELS

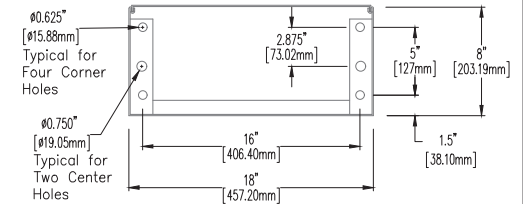


FRONT ELEVATION
FRONT DOOR PANELS REMOVED

ORDER INFORMATION		
ITEM:	AMPS	QUANTITY
MAIN BREAKER SIZE		1
SINGLE POLE BREAKER		
2 POLE BREAKER		



LOWER PANEL
(showing Pentabolt Assy and Lock Hasp)



BASE PLATE MOUNTING
DIMENSIONS

NOTES

1. PEDESTAL TO BE SUPPLIED WITH PENTA BOLT UNFASTENED.
2. PEDESTAL TO BE SUPPLIED WITHOUT A PENTA BOLT SOCKET WRENCH.
3. CITY OF VAUGHN SHALL SECURE THE PENTA BOLT ON PROJECT COMPLETION AND STREET LIGHTING ASSUMPTIONS BY THE CITY.

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REVISIONS		DATE

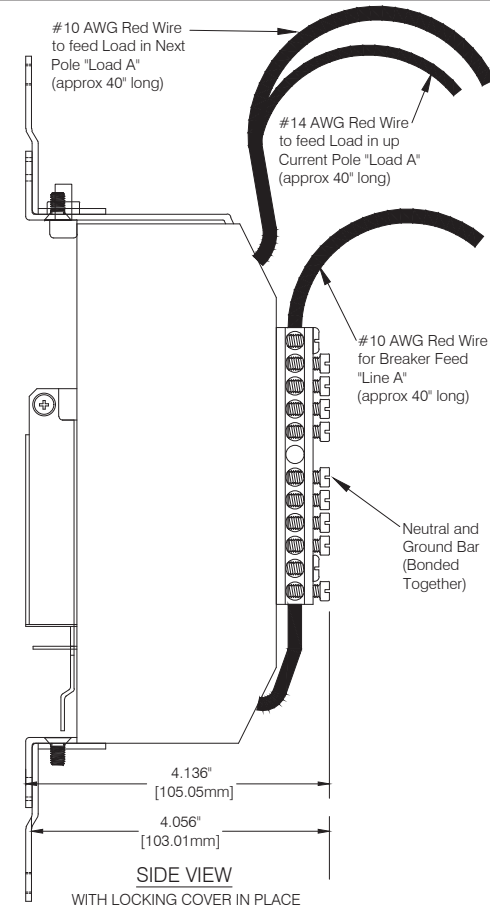
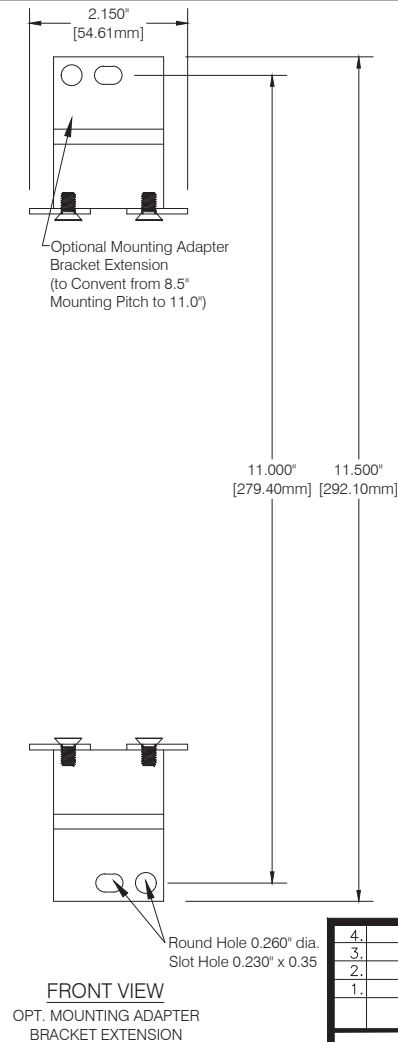
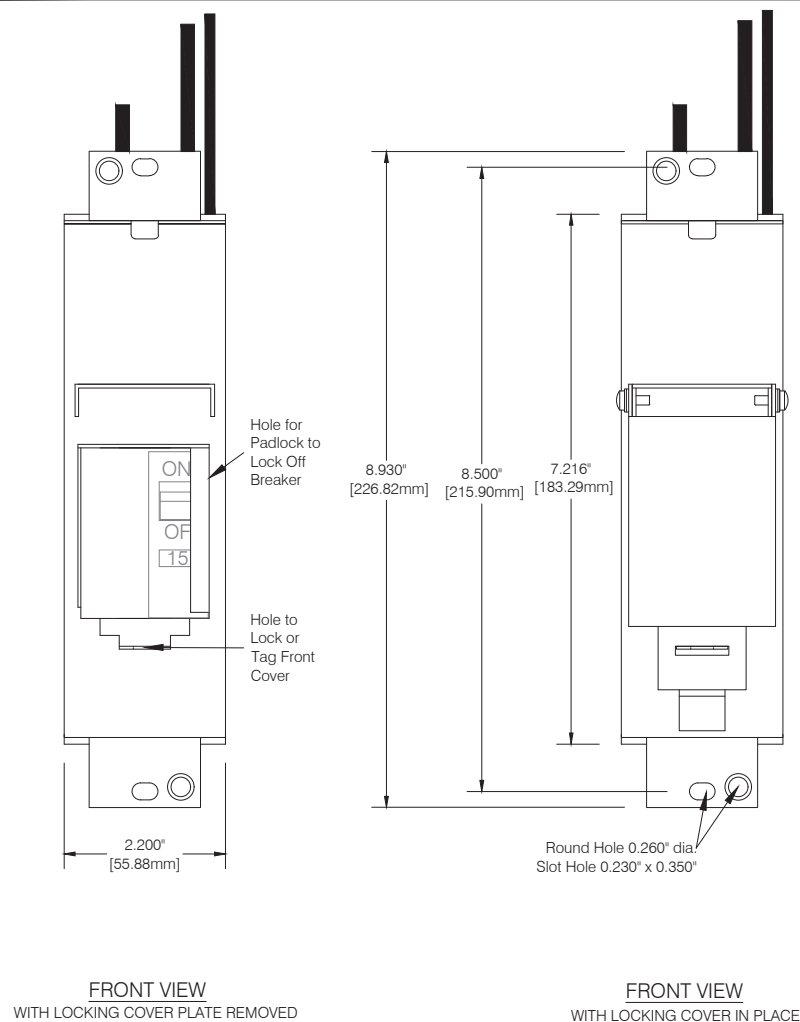


CITY OF VAUGHAN ENGINEERING STANDARD

STREETLIGHT PEDESTAL
DETAIL

NOT TO SCALE
DESIGNED: _____
REVISION: _____
DATE: _____ 2022

STD. DWG.
SL - 105



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1.	UPDATED STANDARD + MATERIAL NOTES	SEPT. 2025
	REVISIONS	DATE



CITY OF VAUGHAN ENGINEERING STANDARD

HAND HOLE BREAKER SL1-15

NOT TO SCALE

DESIGNED: TFMS

REVISION: 1

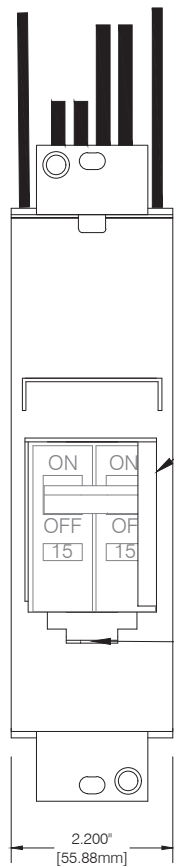
DATE: JAN. 2022

STD. DWG.

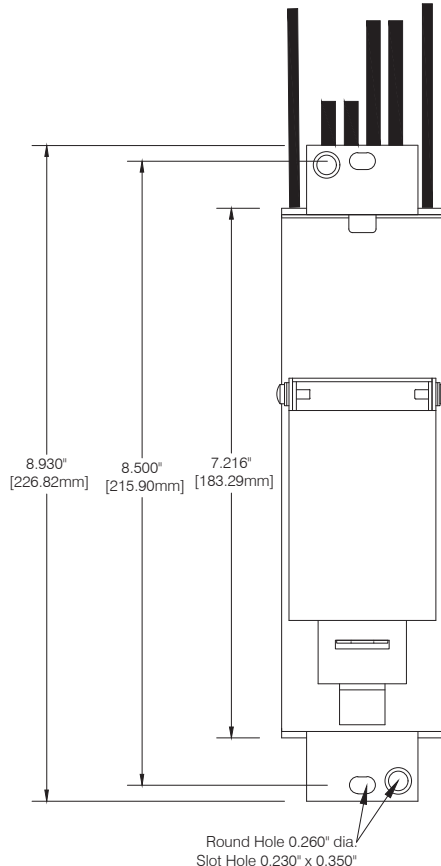
SL - 106

MATERIAL NOTES:

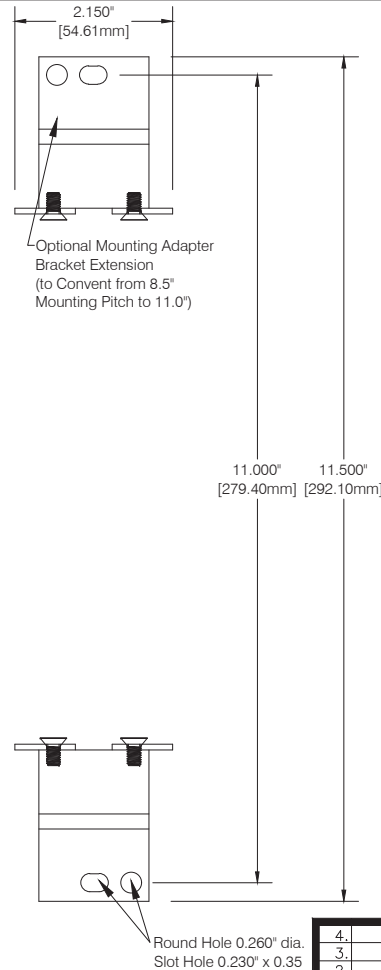
1. ENCLOSURE MAT'L: 14 GAUGE (0.083") THICK ZINC COATED (GALVANIZED) SHEET METAL.
2. PAINT COLOR: EQUIPMENT GREEN, DARK FOREST GREEN COLOR, PROTECH PS211G58 POWER COAT FINISH.
3. MAIN BREAKER: GE 15A, SINGLE POLE BREAKER. 22KA INTERRUPTING CAPACITY RATED.
4. LOAD NEUTRAL LUGS: 9 LUGS NEUTRAL BAR, #4 AWG TO #14 AWG CAPACITY.
5. IN POLE BREAKER SHALL BE IN ACCORDANCE WITH CSA AND ESA SPECIFICATIONS AND REQUIREMENTS.
6. AS MANUFACTURED BY PSI OR EQUIVALENT.



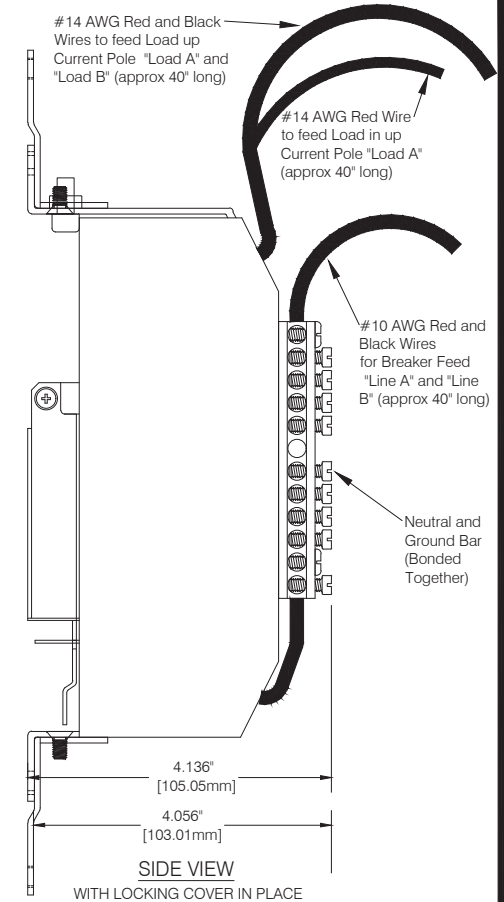
FRONT VIEW
WITH LOCKING COVER PLATE REMOVED



FRONT VIEW
WITH LOCKING COVER IN PLACE



FRONT VIEW
OPT. MOUNTING ADAPTER
BRACKET EXTENSION



SIDE VIEW
WITH LOCKING COVER IN PLACE

MATERIAL NOTES:

1. ENCLOSURE MAT'L: 14 GAUGE (0.083") THICK ZINC COATED (GALVANIZED) SHEET METAL.
2. PAINT COLOR: EQUIPMENT GREEN, DARK FOREST GREEN COLOR, PROTECH PS211G58 POWER COAT FINISH.
3. MAIN BREAKER: GE 15A, 2 POLE BREAKER. 22KA INTERRUPTING CAPACITY RATED.
4. LOAD NEUTRAL LUGS: 9 LUGS NEUTRAL BAR, #4 AWG TO #14 AWG CAPACITY.
5. IN POLE BREAKER SHALL BE IN ACCORDANCE WITH CSA AND ESA SPECIFICATIONS AND REQUIREMENTS.
6. AS MANUFACTURED BY PSI OR EQUIVALENT.

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1.	UPDATED STANDARD + MATERIAL NOTES	SEPT. 2025
	REVISIONS	DATE

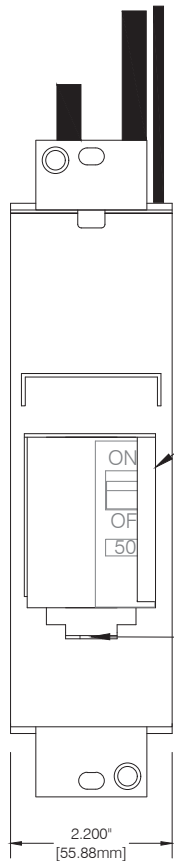


CITY OF VAUGHAN ENGINEERING STANDARD

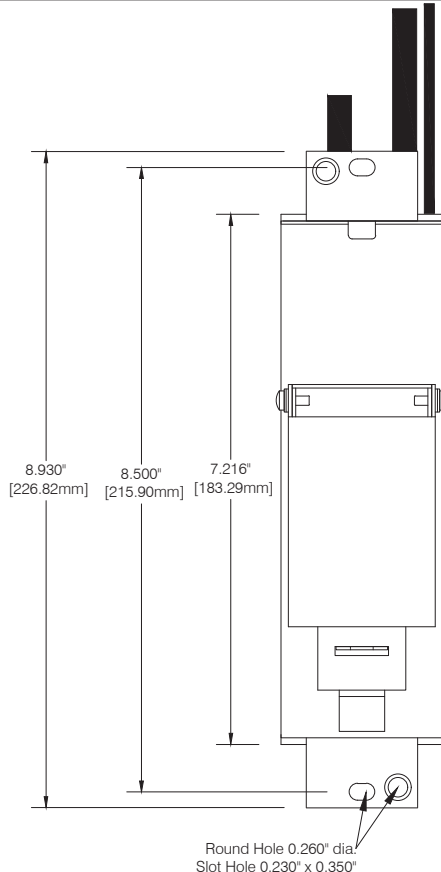
HAND HOLE BREAKER SL2-15

NOT TO SCALE
DESIGNED: TFMS
REVISION: 1
DATE: JAN. 2022

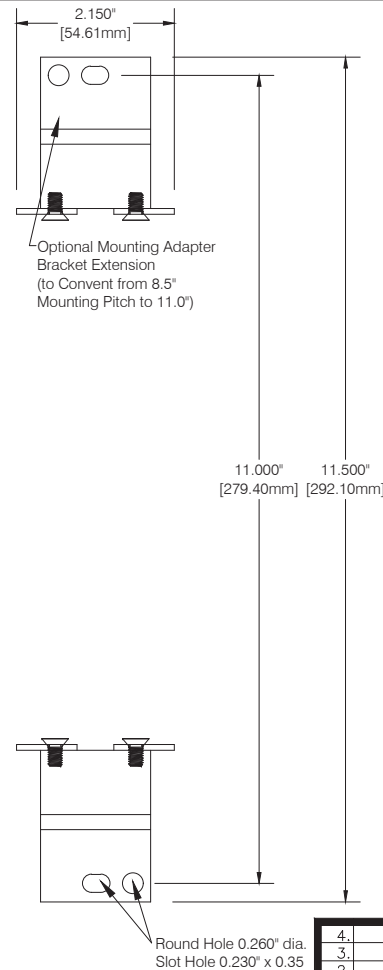
STD. DWG.
SL - 107



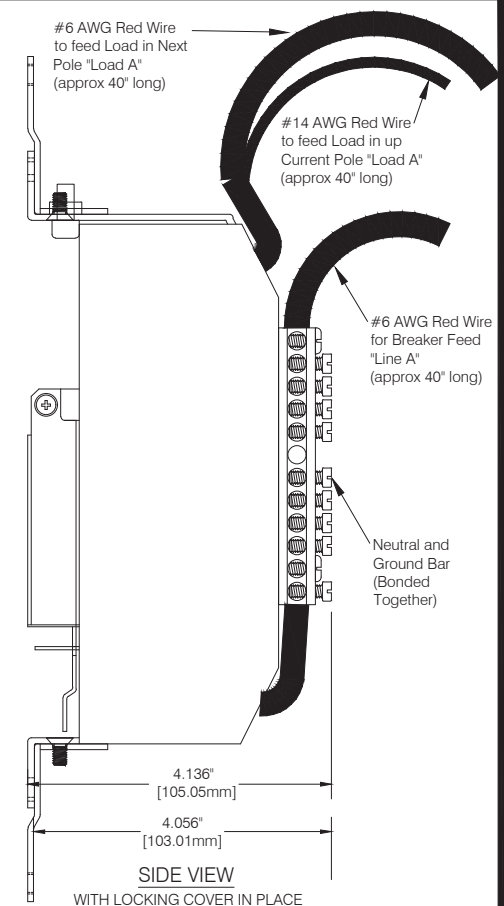
FRONT VIEW
WITH LOCKING COVER PLATE REMOVED



FRONT VIEW
WITH LOCKING COVER IN PLACE



FRONT VIEW
OPT. MOUNTING ADAPTER
BRACKET EXTENSION



SIDE VIEW
WITH LOCKING COVER IN PLACE

MATERIAL NOTES:

1. ENCLOSURE MAT'L: 14 GAUGE (0.083") THICK ZINC COATED (GALVANIZED) SHEET METAL.
2. PAINT COLOR: EQUIPMENT GREEN, DARK FOREST GREEN COLOR, PROTECH PS211G58 POWER COAT FINISH.
3. MAIN BREAKER: GE 50A, SINGLE POLE BREAKER, 22KA INTERRUPTING CAPACITY RATED.
3. LOAD NEUTRAL LUGS: 9 LUGS NEUTRAL BAR, #4 AWG TO #14 AWG CAPACITY.
4. IN POLE BREAKER SHALL BE IN ACCORDANCE WITH CSA AND ESA SPECIFICATIONS AND REQUIREMENTS.
5. AS MANUFACTURED BY PSI OR EQUIVALENT.

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1.	UPDATED STANDARD + MATERIAL NOTES	SEPT. 2025
	REVISIONS	DATE

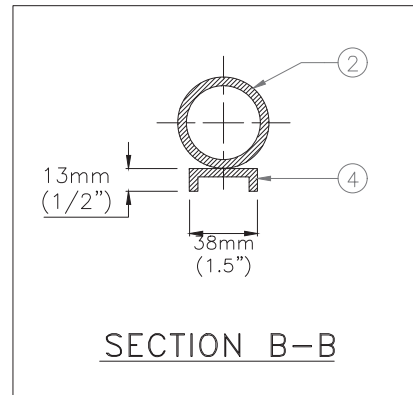
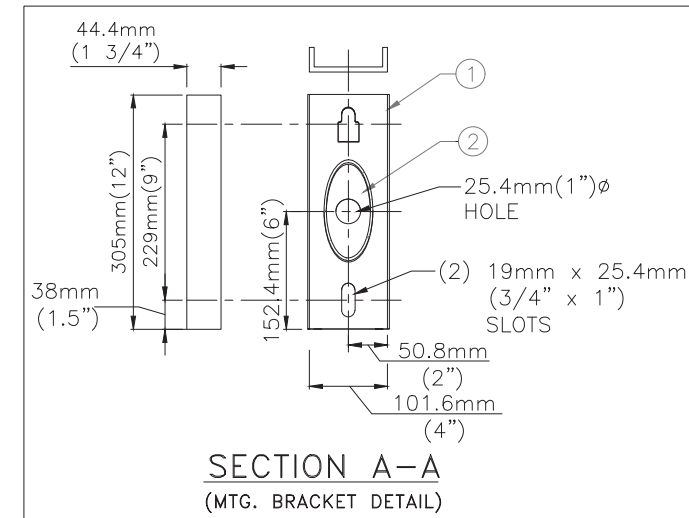
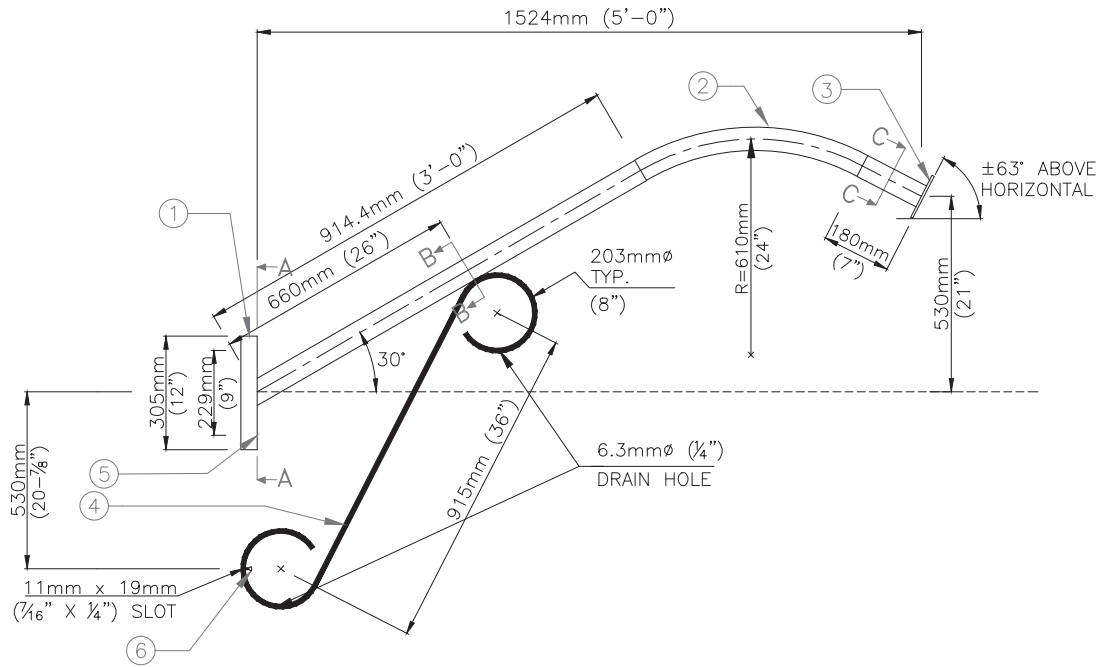


CITY OF VAUGHAN ENGINEERING STANDARD

HAND HOLE BREAKER SL1-50

NOT TO SCALE
DESIGNED: TFMS
REVISION: 1
DATE: JAN. 2022

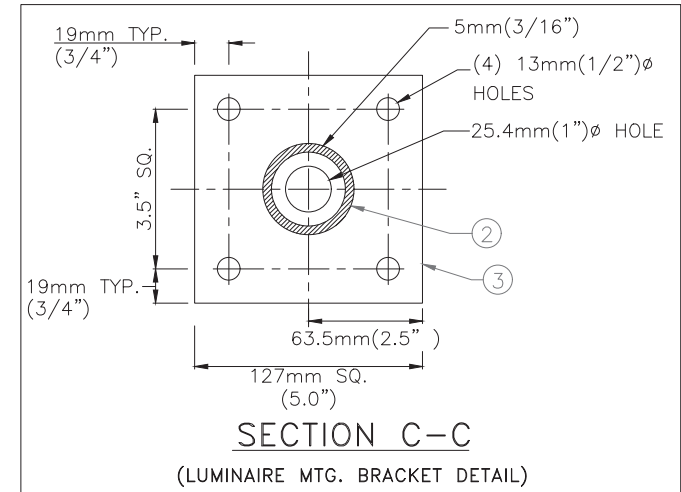
STD. DWG.
SL - 108



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

BILL OF MATERIAL			
ITEM #	PART DESCRIPTION	MATERIAL	QTY.
1	4" x 12" LONG CHANNEL	ALUM.	1
2	2.0" ALUMINUM PIPE	ALUM.	1
3	5" SQ. x 1/4" PLATE	ALUM.	1
4	1.5" CHANNEL	ALUM.	1
5	5/8" x 2.75" BOLTS & WASHERS	ST. STEEL	2
6	3/8" x 1.5" BOLT & WASHER	ST. STEEL	1

* MAXIMUM LUMINAIRE SIZE ALLOWABLE
50 lbs. - 3 sq.ft. EPA



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REVISIONS		DATE



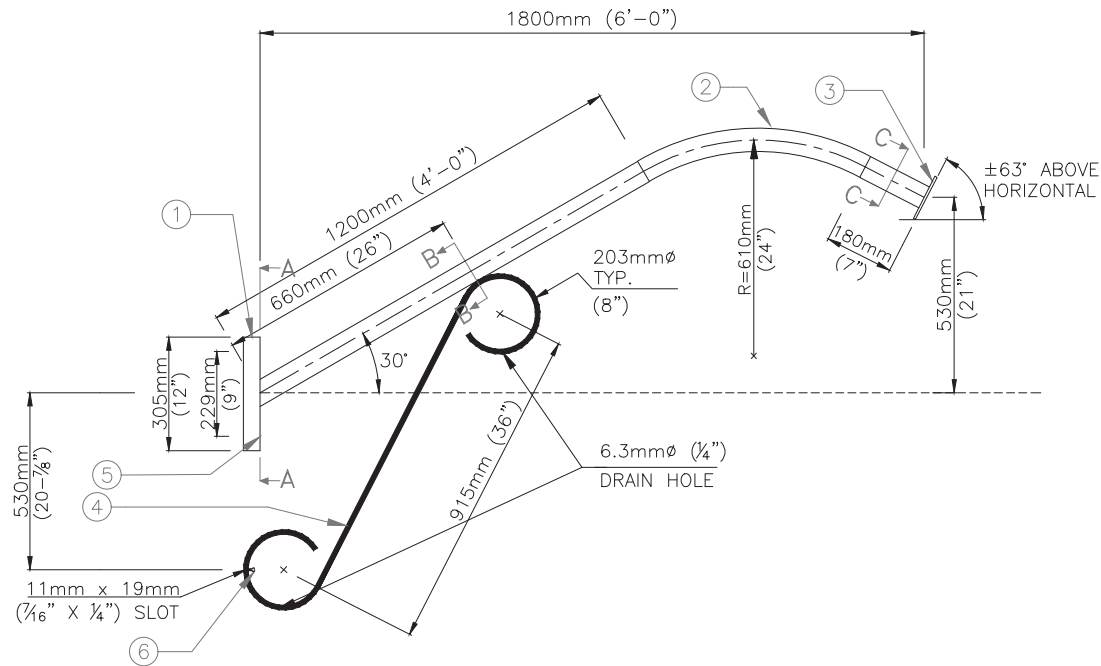
CITY OF VAUGHAN ENGINEERING STANDARD

1.5m (5') VICTORIAN SCROLL ARM

NOT TO SCALE
DESIGNED: _____
REVISION: _____ DATE: 2022

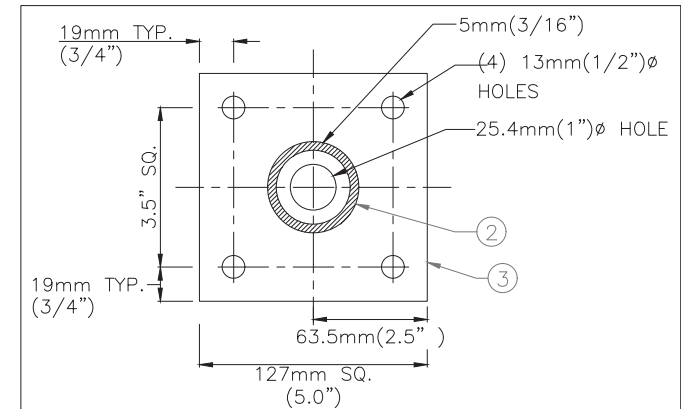
STD. DWG.
SL - 110

VICTORIAN SCROLL ARM

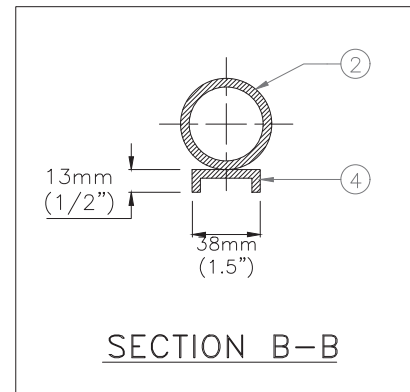
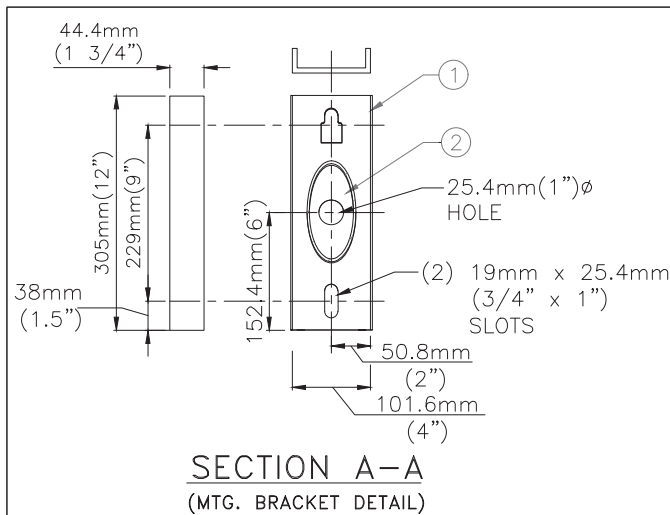


BILL OF MATERIAL			
ITEM #	PART DESCRIPTION	MATERIAL	QTY.
1	4" x 12" LONG CHANNEL	ALUM.	1
2	2.5" SCH. 40 ALUMINUM PIPE	ALUM.	1
3	5" SQ. x 1/4" PLATE	ALUM.	1
4	1.5" CHANNEL	ALUM.	1
5	5/8" x 2.75" BOLTS & WASHERS	ST. STEEL	2
6	3/8" x 1.5" BOLT & WASHER	ST. STEEL	1

* MAXIMUM LUMINAIRE SIZE ALLOWABLE
50 lbs. - 3 sq.ft. EPA



SECTION C-C
(LUMINAIRE MTG. BRACKET DETAIL)



mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE

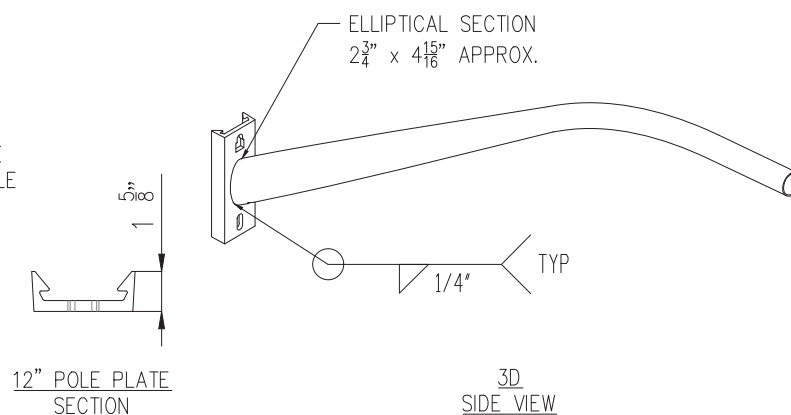
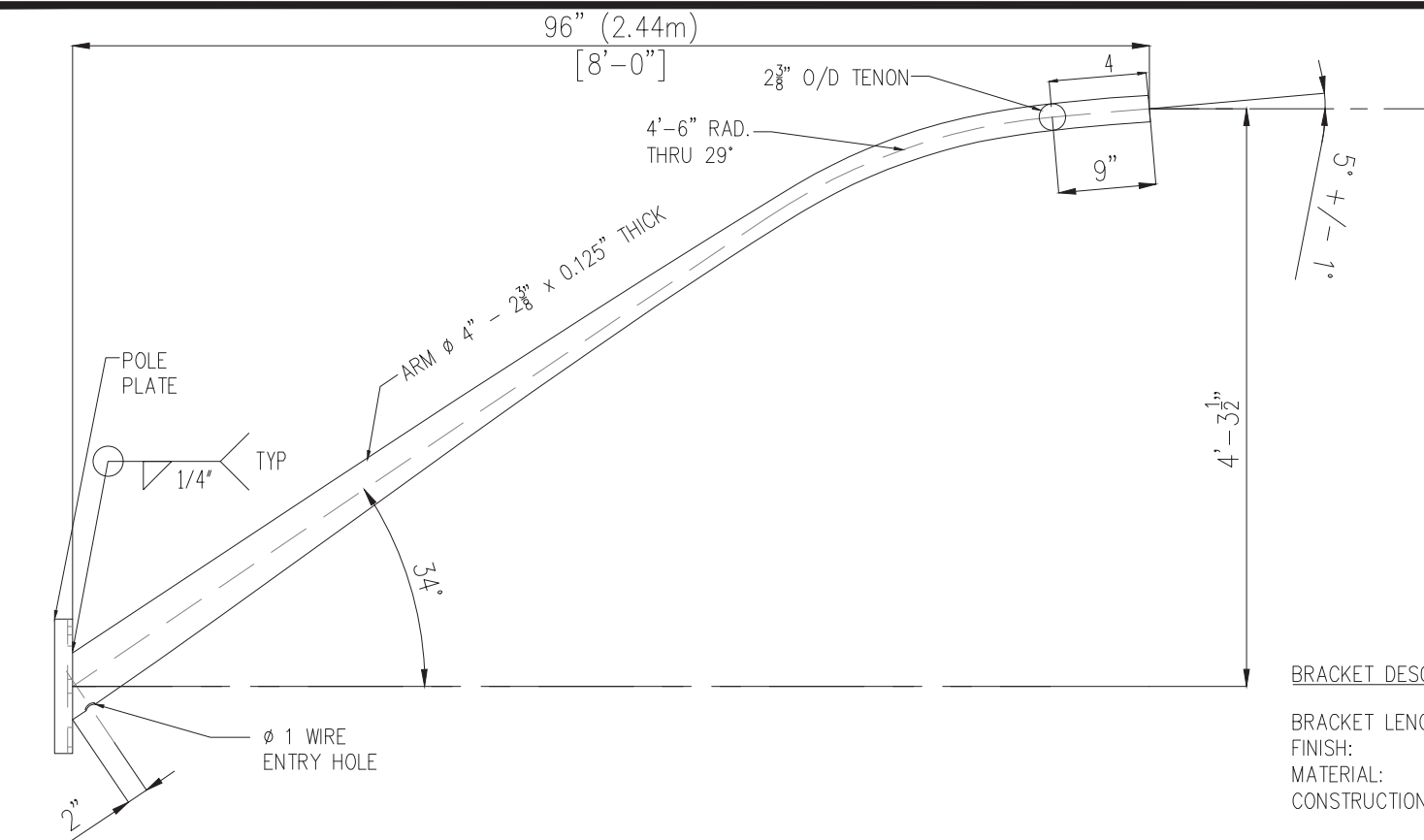


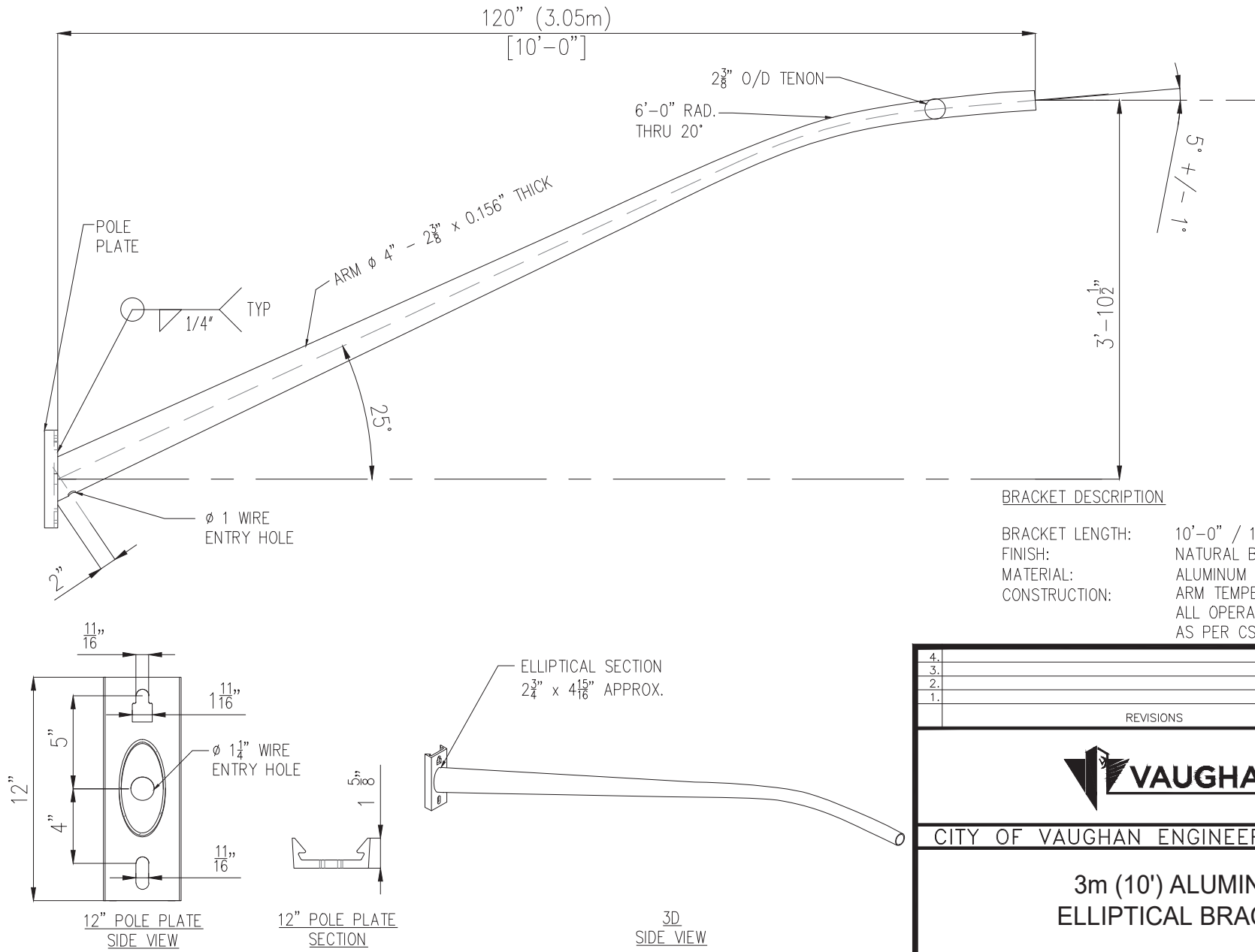
CITY OF VAUGHAN ENGINEERING STANDARD

1.8m (6')
VICTORIAN SCROLL ARM

NOT TO SCALE
DESIGNED: _____
REVISION: _____ DATE: 2022

STD. DWG.
SL - 111

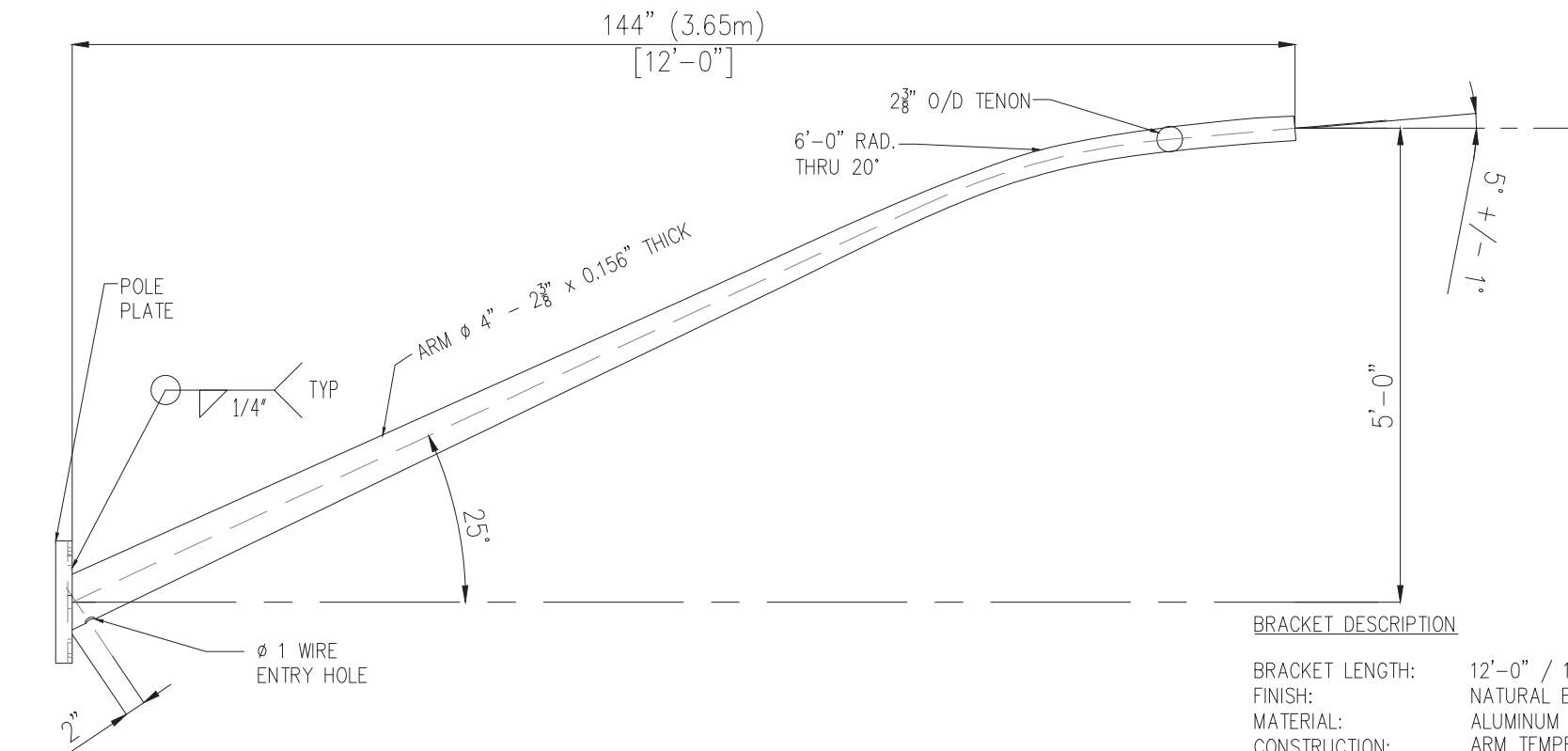




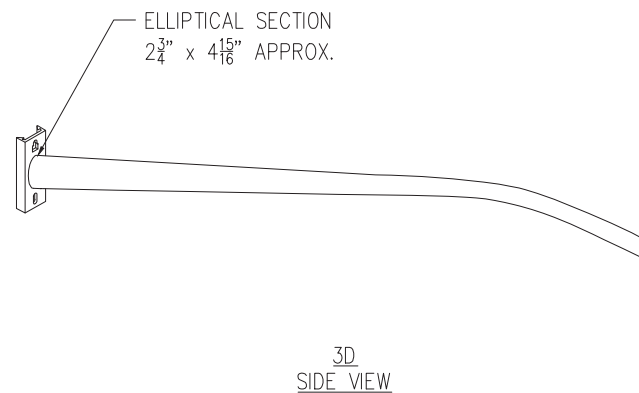
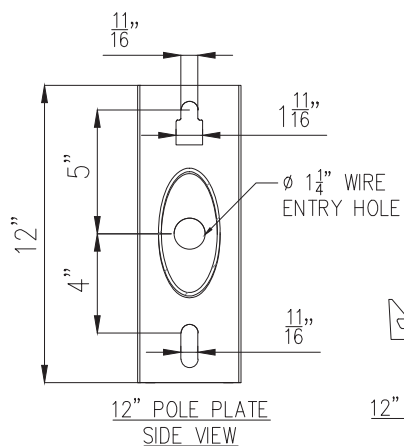
BRACKET DESCRIPTION

BRACKET LENGTH: 10'-0" / 120" / 3.05m
 FINISH: NATURAL BRUSH FINISH
 MATERIAL: ALUMINUM
 CONSTRUCTION: ARM TEMPERED: T6 - AFTER ALL OPERATIONS. ALL WELDING AS PER CSA 47.2

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
3m (10') ALUMINUM ELLIPTICAL BRACKET		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-115



BRACKET DESCRIPTION



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	REVISIONS	DATE

DATE _____

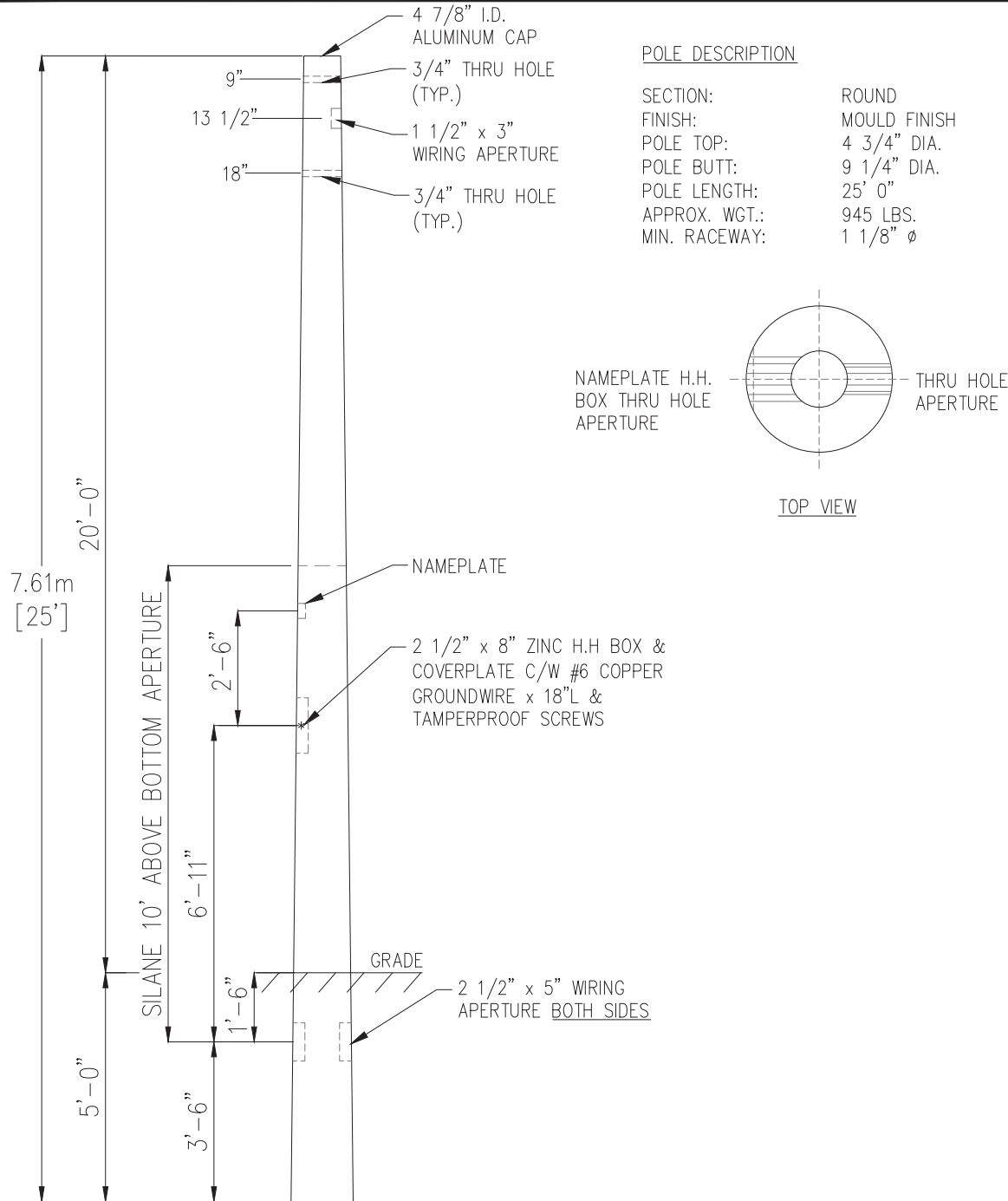
CITY OF VAUGHAN ENGINEERING STANDARD

3.65m (12') ALUMINUM ELLIPTICAL BRACKET

NOT TO SCALE

REVISION: _____

STD. DWG.



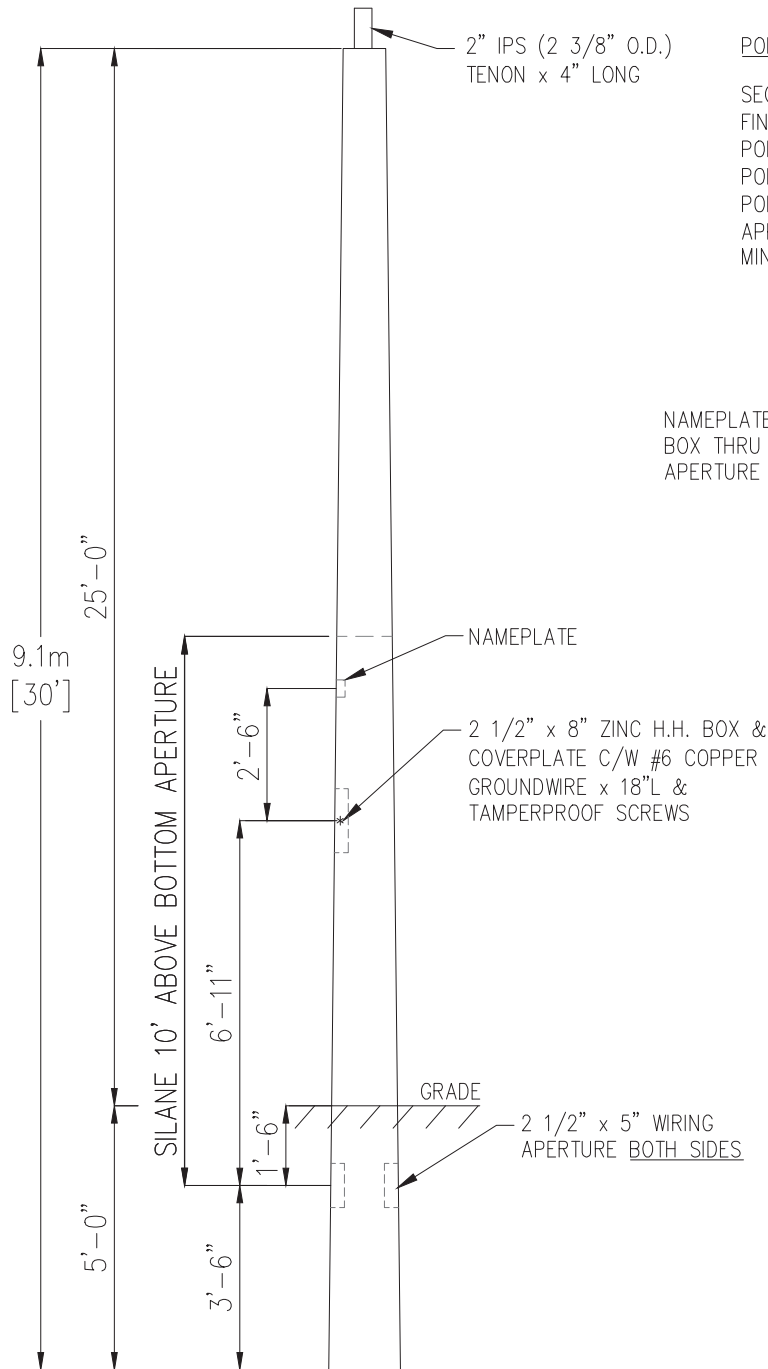
POLE DESCRIPTION

SECTION: ROUND
FINISH: MOULD FINISH
POLE TOP: 4 3/4" DIA.
POLE BUTT: 9 1/4" DIA.
POLE LENGTH: 25' 0"
APPROX. WGT.: 945 LBS.
MIN. RACEWAY: 1 1/8" Ø

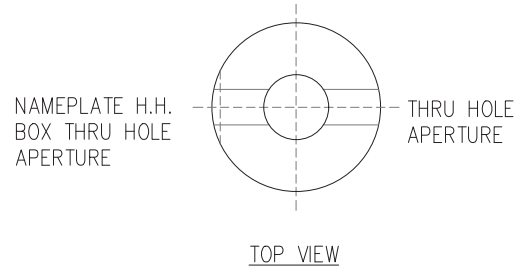
NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
7.6m (25') TAPERED ROUND CONCRETE POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-117

POLE DESCRIPTION

SECTION:	ROUND
FINISH:	MOULD FINISH
POLE TOP:	4 3/4" DIA.
POLE BUTT:	10 1/8" DIA.
POLE LENGTH:	30' 0"
APPROX. WGT.:	1,365 LBS.
MIN. RACEWAY:	1 1/8" ø



NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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	REVISIONS	DATE

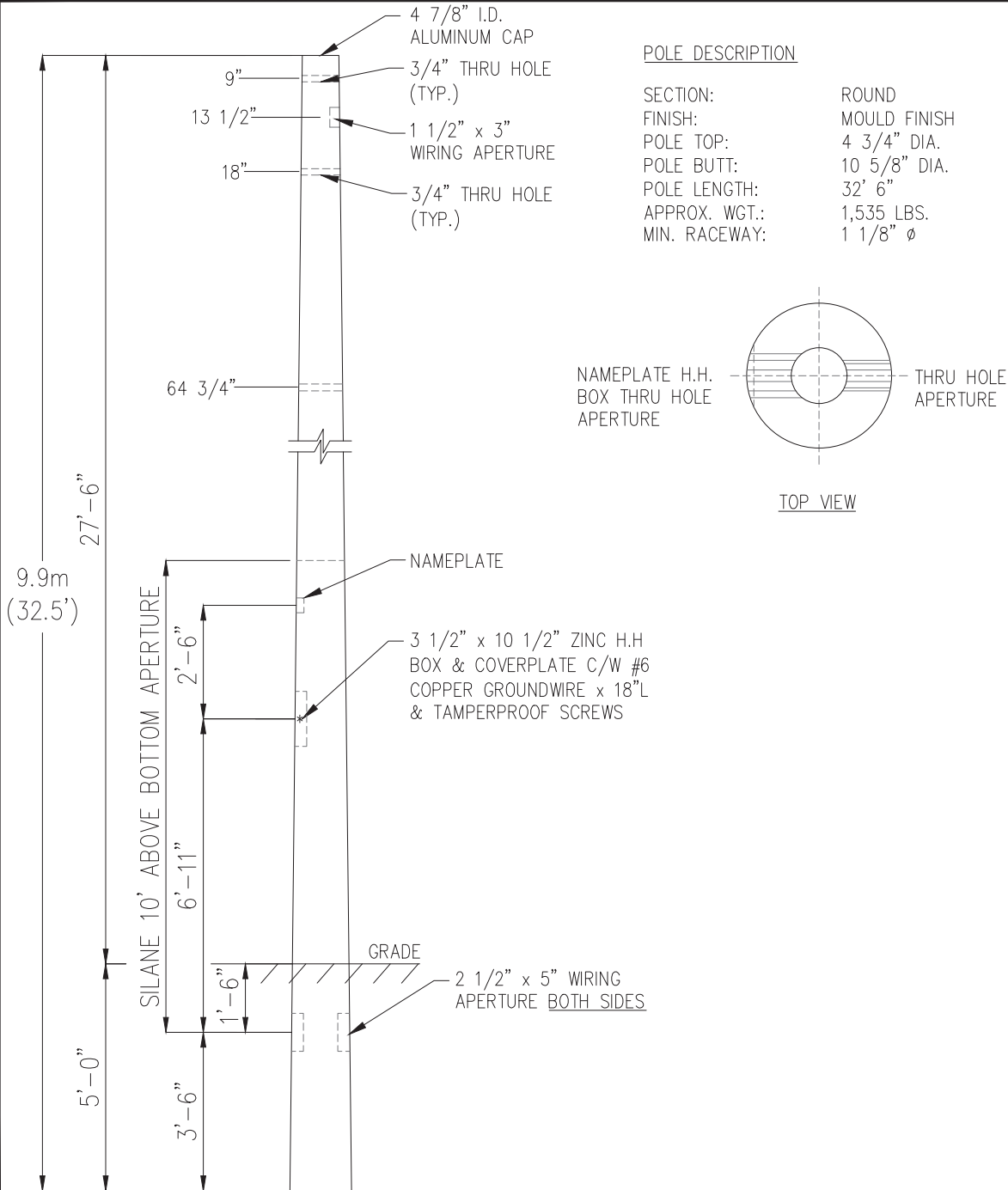


VAUGHAN

CITY OF VAUGHAN ENGINEERING STANDARD

**9.1m (30') TAPERED ROUND
CONCRETE POST TOP POLE**

NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-118
REVISION: _____	DATE: _____ 2022	



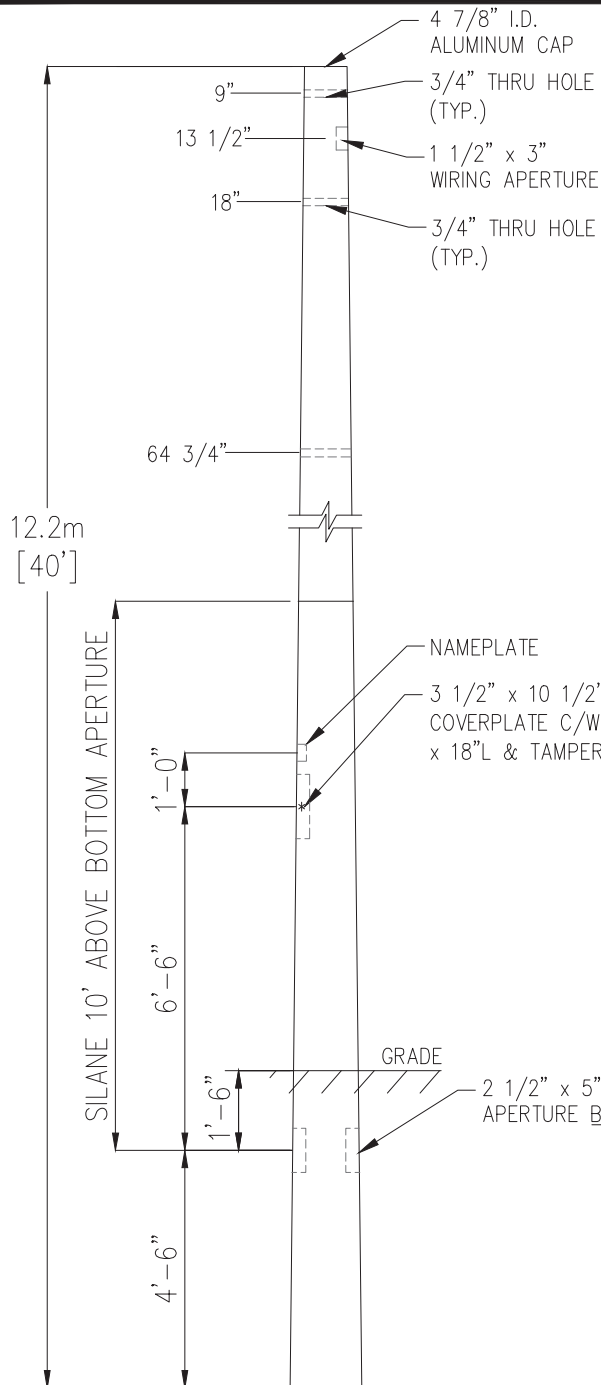
POLE DESCRIPTION

SECTION: ROUND
FINISH: MOULD FINISH
POLE TOP: 4 3/4" DIA.
POLE BUTT: 10 5/8" DIA.
POLE LENGTH: 32' 6"
APPROX. WGT.: 1,535 LBS.
MIN. RACEWAY: 1 1/8" Ø

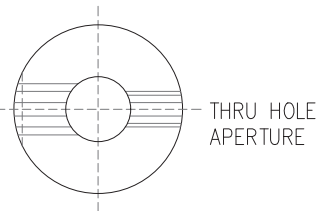
NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
9.9m (32.5') TAPERED ROUND CONCRETE POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-119



NAMEPLATE H.H.
BOX THRU HOLE
APERTURE



TOP VIEW

POLE DESCRIPTION

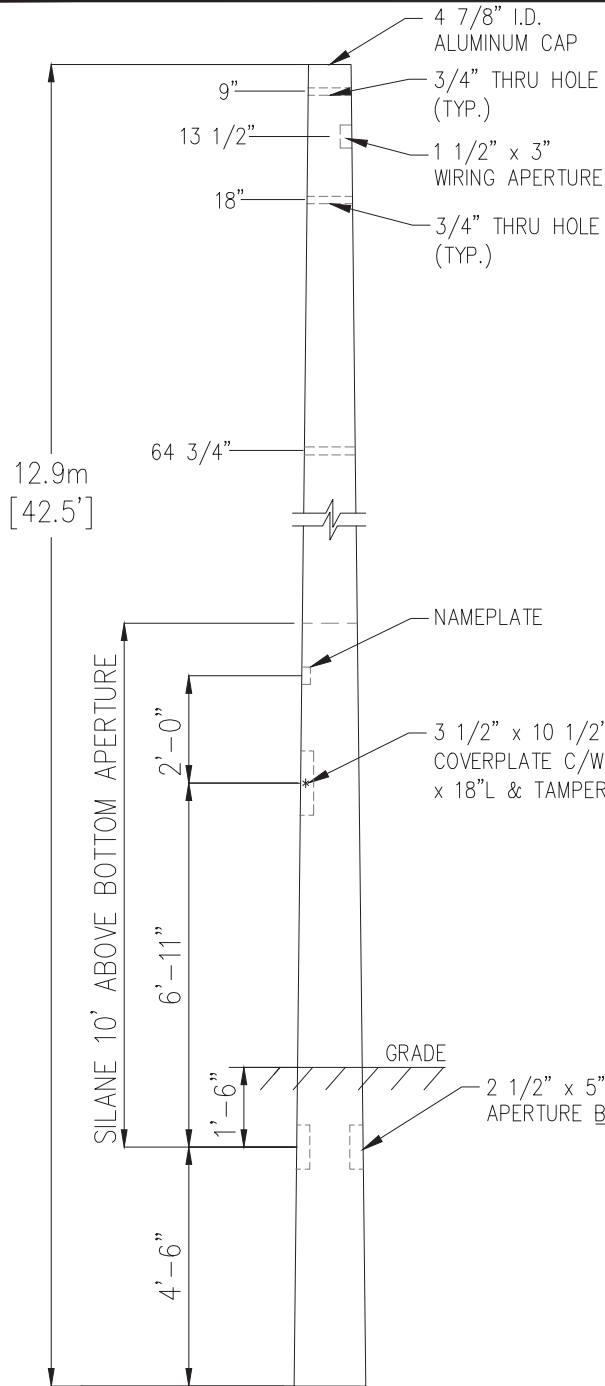
SECTION: ROUND
FINISH: MOULD FINISH
POLE TOP: 4 3/4" DIA.
POLE BUTT: 11 15/16" DIA.
POLE LENGTH: 40' 0"
APPROX. WGT.: 2,110 LBS.
MIN. RACEWAY: 1 1/8" Ø

NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
12.2m (40') TAPERED ROUND CONCRETE POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-120
REVISION: _____	DATE: 2022	

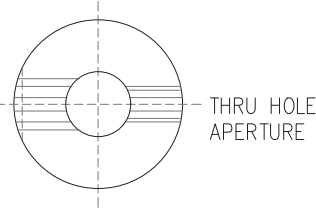
And File: C:\Users\vaughan\OneDrive - City of Vaughan\ - PC\DWG\SL-121 - In Rev. Services - Map Rev\2022\SL-121 - 42.5' (12.9m) Tapered Round Concrete Pole.dwg



POLE DESCRIPTION

SECTION: ROUND
FINISH: MOULD FINISH
POLE TOP: 4 3/4" DIA.
POLE BUTT: 12 1/2" DIA.
POLE LENGTH: 42' 6"
APPROX. WGT.: 2,320 LBS.
MIN. RACEWAY: 1 1/8" Ø

NAMEPLATE H.H.
BOX THRU HOLE
APERTURE

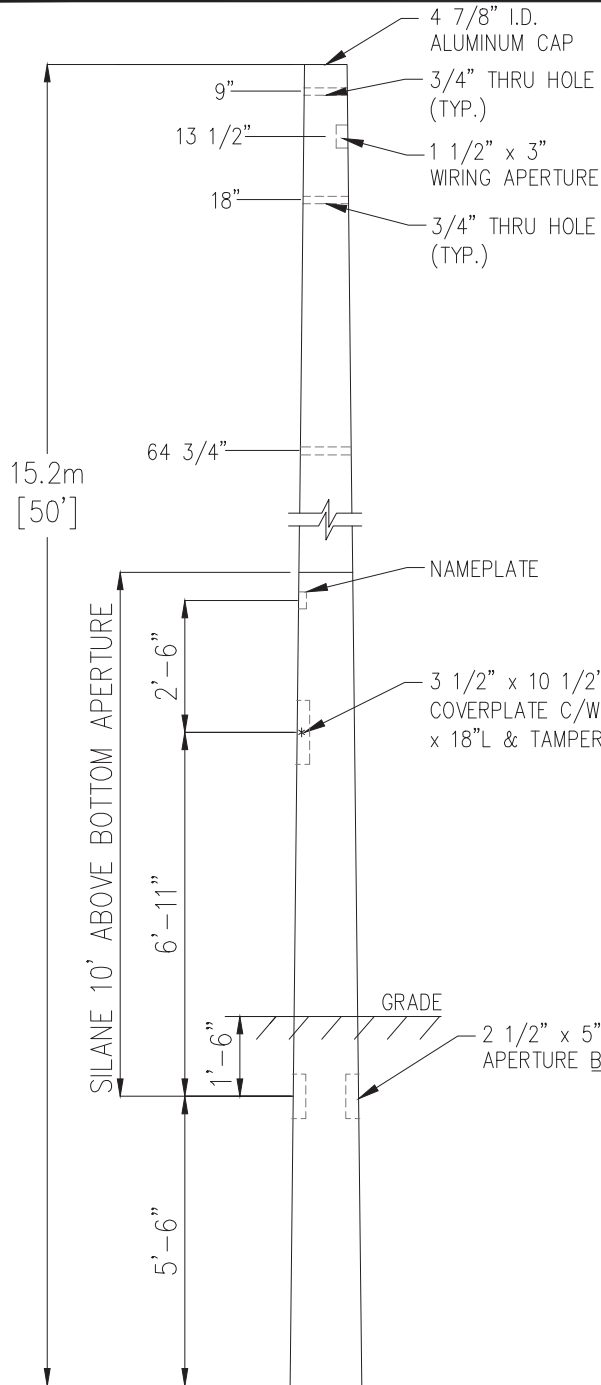


TOP VIEW

NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

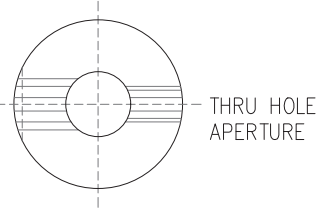
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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
12.9m (42.5') TAPERED ROUND CONCRETE POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-121



POLE DESCRIPTION

SECTION: ROUND
 FINISH: MOULD FINISH
 POLE TOP: 6 1/2" DIA.
 POLE BUTT: 15 1/2" DIA.
 POLE LENGTH: 50' 0"
 APPROX. WGT.: 4,500 LBS.
 MIN. RACEWAY: 1 1/8" Ø

NAMEPLATE H.H.
 BOX THRU HOLE
 APERTURE

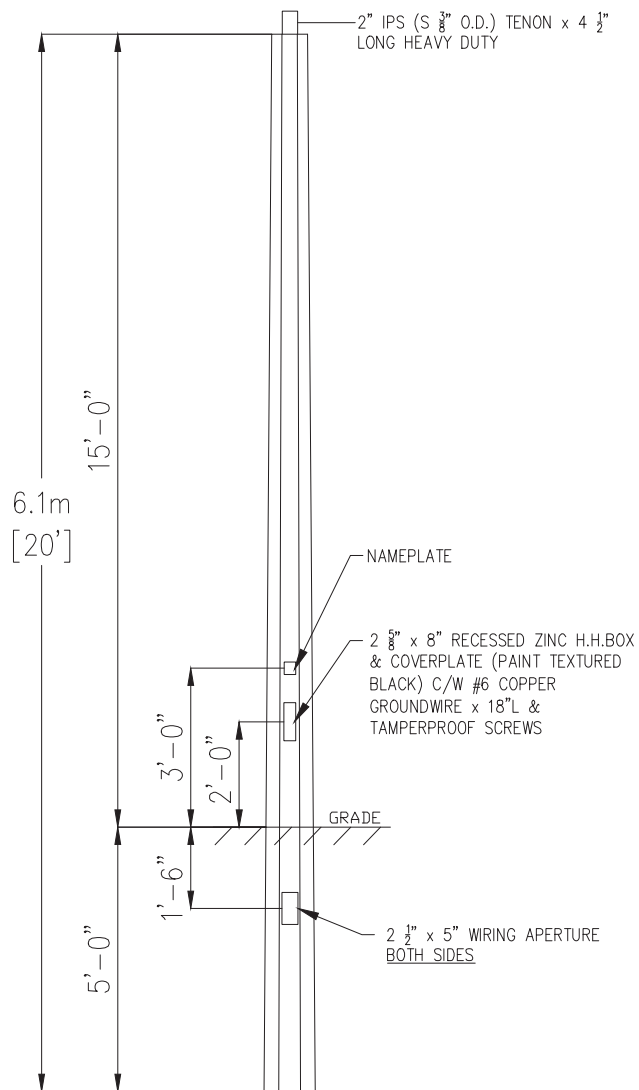


TOP VIEW

NOTES:

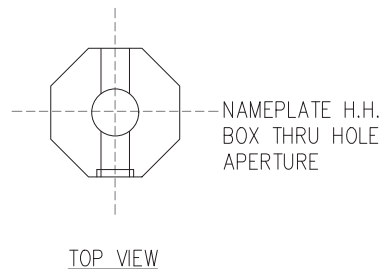
1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
15.2m (50') TAPERED ROUND CONCRETE POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-122



POLE DESCRIPTION

SECTION:	OCTAGONAL
FINISH:	ECLIPSE ETCHED
POLE TOP:	5 3/8" FL/FL
POLE BUTT:	7 7/8" FL/FL
POLE LENGTH:	20' 0"
APPROX. WGT.:	770 LBS.
MIN. RACEWAY:	1 1/8" Ø
COATING REQ.:	2 COATS ACRYLIC (FULL LENGTH)



NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

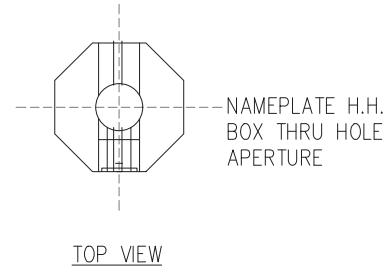
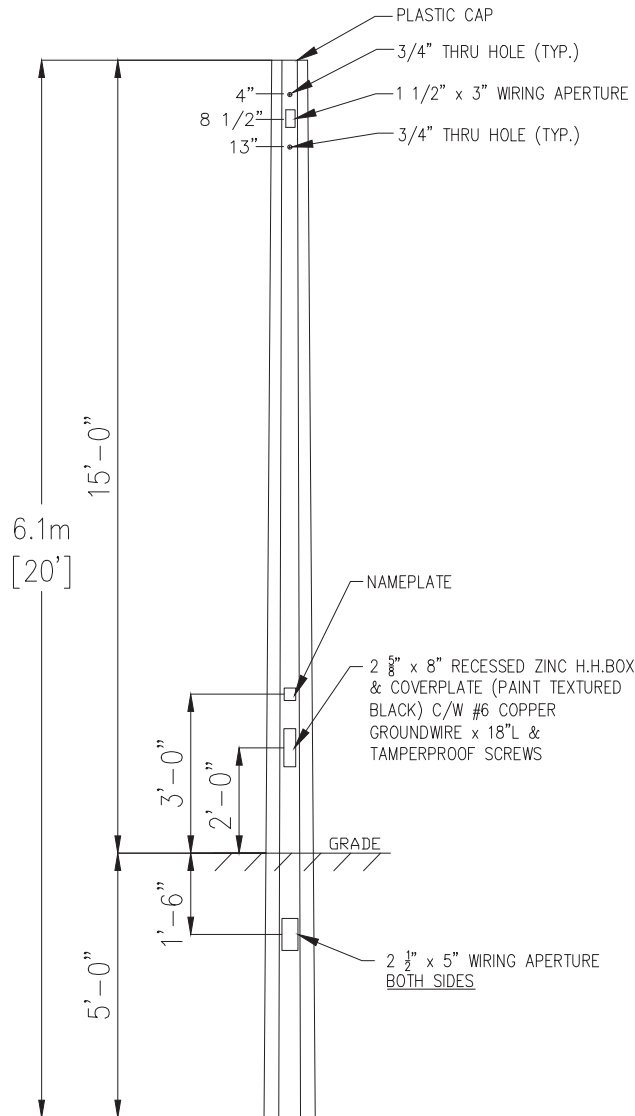
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	REVISIONS	DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
6.1m (20') TAPERED OCTAGONAL (POST TOP) POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: _____ 2022	SL-125

POLE DESCRIPTION

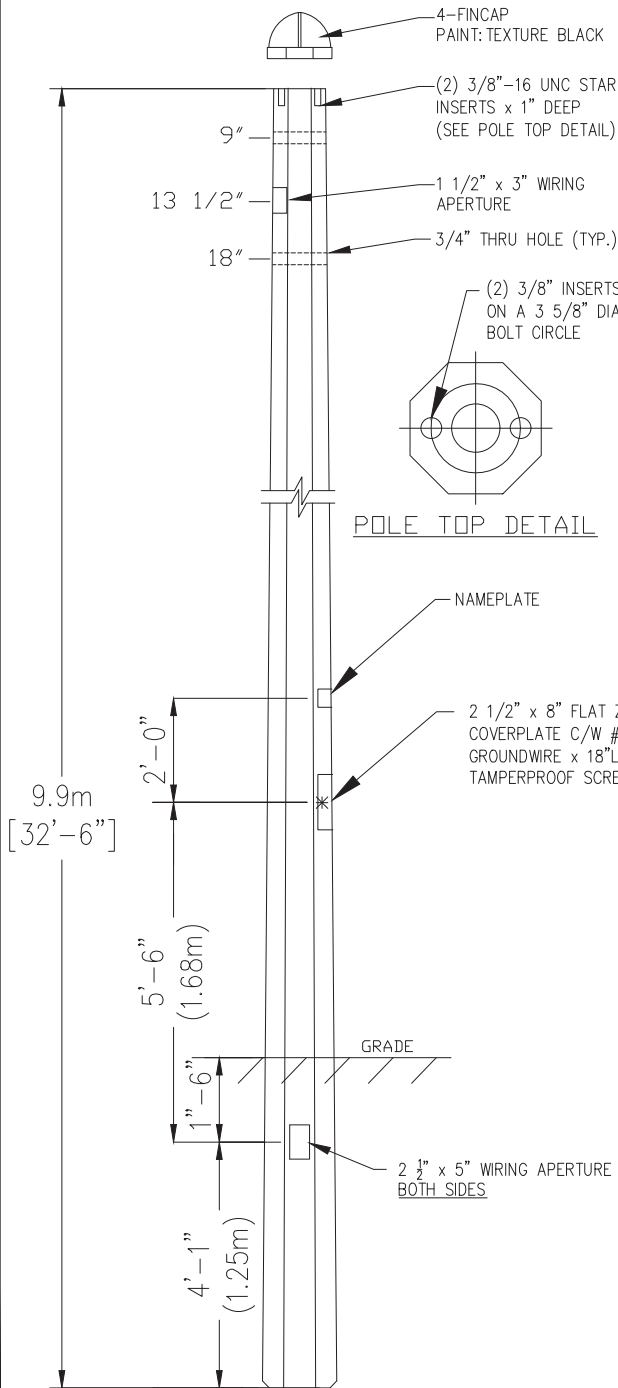
SECTION: OCTAGONAL
 FINISH: SALUKI BRONZE POLISHED
 POLE TOP: 5 3/8" FL/FL
 POLE BUTT: 7 7/8" FL/FL
 POLE LENGTH: 20' 0"
 APPROX. WGT.: 712 LBS.
 MIN. RACEWAY: 1 1/8" Ø
 COATING REQ.: 2 COATS ACRYLIC (FULL LENGTH)

NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

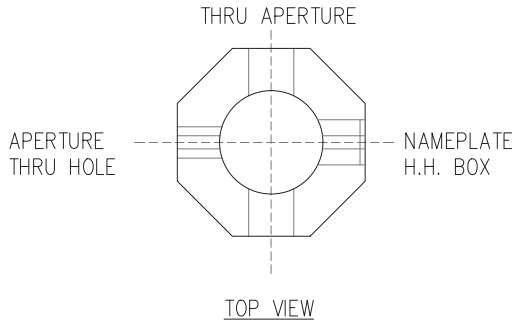


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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
6.1m (20') TAPERED OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-126
REVISION: _____	DATE: 2022	



POLE DESCRIPTION

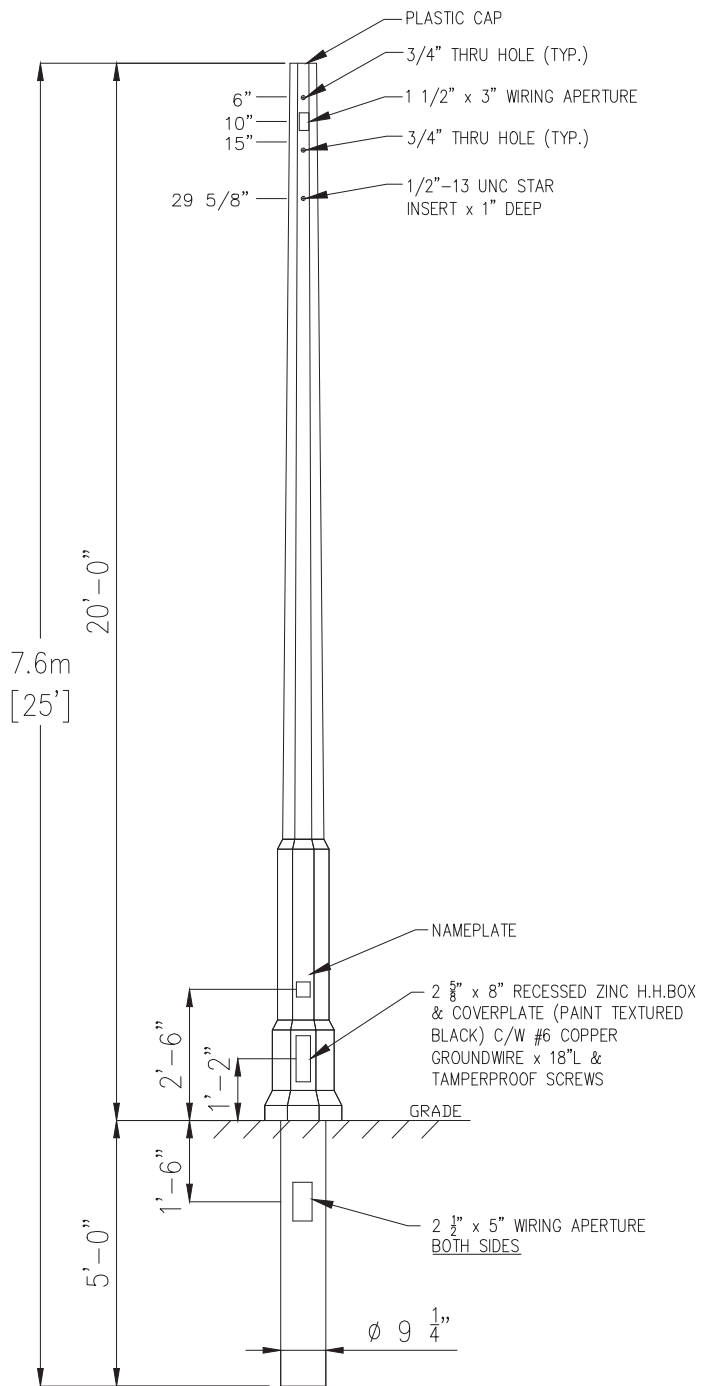
SECTION: OCTAGONAL
FINISH: ECLIPSE (BLACK) POLISHED
POLE TOP: 5 3/8" FL/FL
POLE BUTT: 9 7/16" FL/FL
POLE LENGTH: 32' 6"
APPROX. WGT.: 1,500 LBS.
MIN. RACEWAY: 1 1/8" Ø
COATING REQ.: 2 COATS ACRYLIC
(FULL LENGTH)



NOTES:

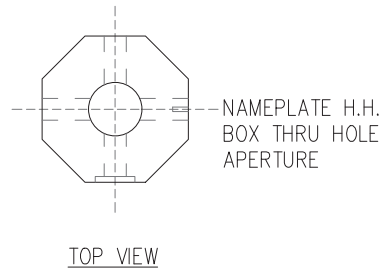
1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
9.9m (32.5') TAPERED OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-127
REVISION: _____	DATE: 2022	



POLE DESCRIPTION

SECTION:	OCTAGONAL
FINISH:	ECLIPSE POLISHED
POLE TOP:	4 3/4" FL/FL
POLE BUTT:	9 1/4" FL/FL
POLE LENGTH:	25' 0"
APPROX. WGT.:	1,200 LBS.
MIN. RACEWAY:	1 1/8" Ø
COATING REQ.:	2 COATS ACRYLIC (FULL LENGTH)

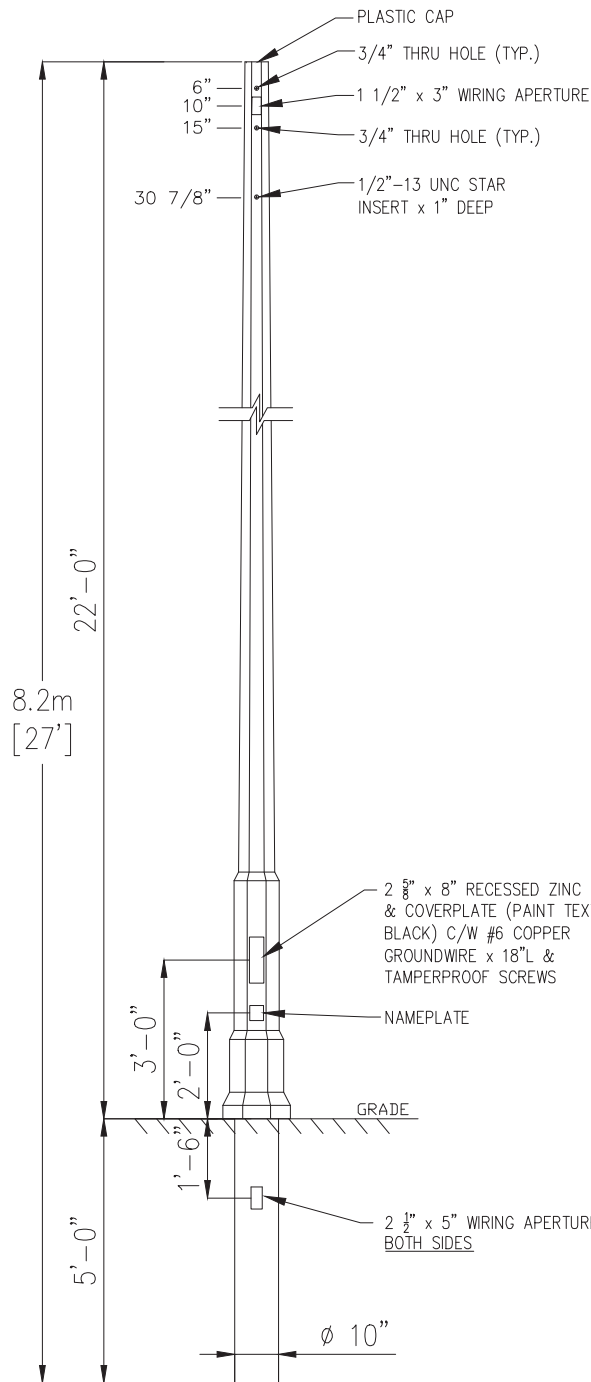


NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

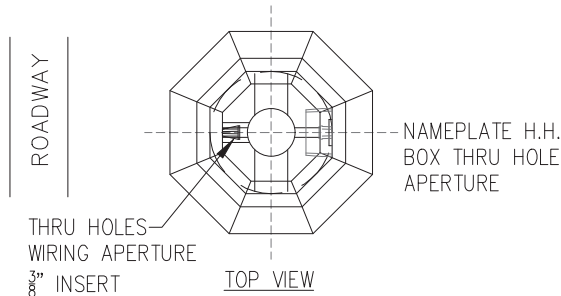
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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
7.6m (25') DECORATIVE OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: _____ 2022	SL-128

And File: C:\Infrastructure Delivery\Infrastructure Programming\VAUGHAN City Standard Design Office 2020\City Standard Update Folder\ConfidentialDesigns_040_2020\SL-129 - 27' (8.2m) Decorative Octagonal Pole.dwg



POLE DESCRIPTION

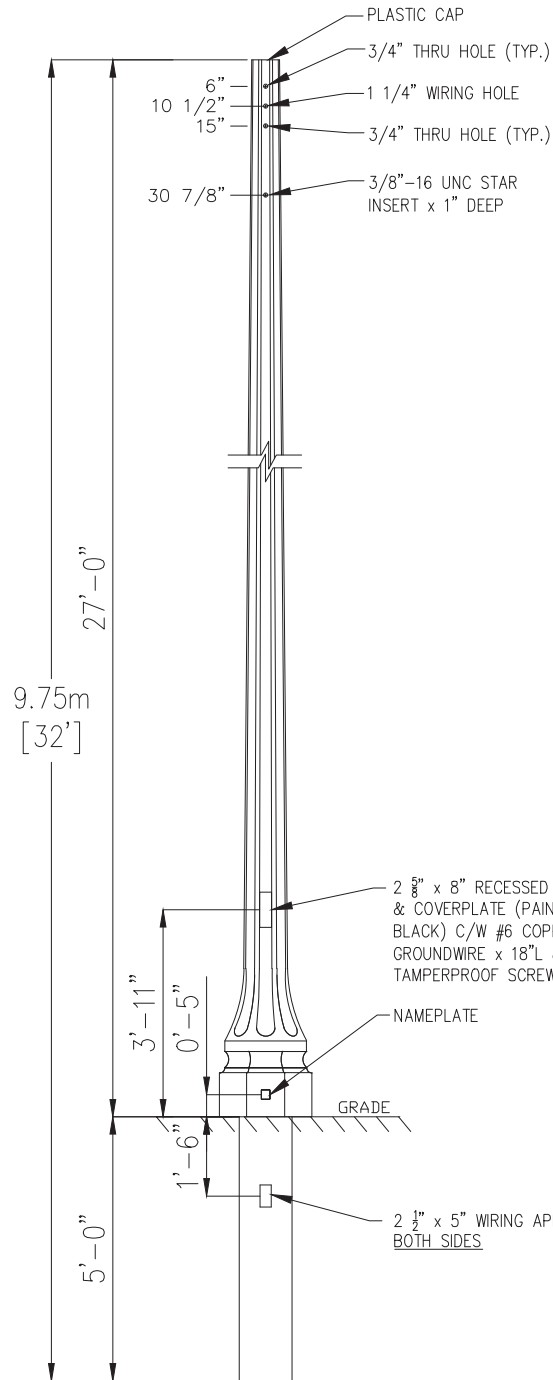
SECTION: OCTAGONAL
FINISH: ECLIPSE POLISHED
POLE TOP: 5 7/16" FL/FL
POLE BUTT: 10" FL/FL
POLE LENGTH: 27' 0"
APPROX. WGT.: 1,445 LBS.
MIN. RACEWAY: 1 1/8" Ø
COATING REQ.: 2 COATS ACRYLIC (FULL LENGTH)



NOTES:

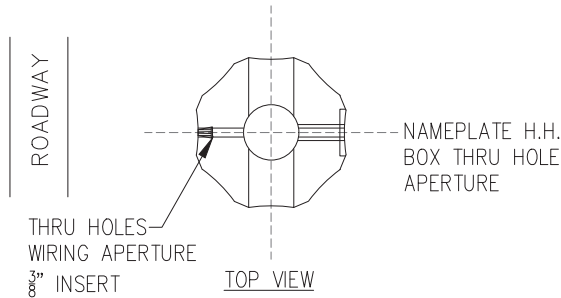
1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
8.2m (27') DECORATIVE OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-129



POLE DESCRIPTION

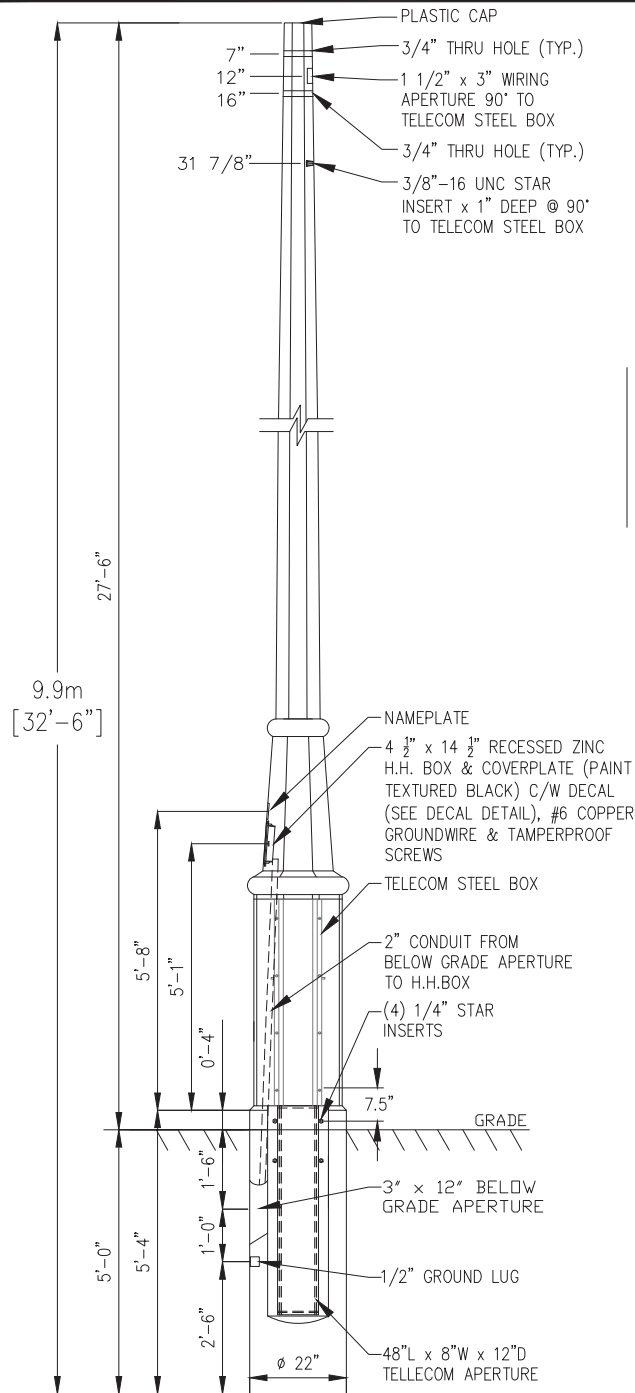
SECTION: OCTAGONAL
 FINISH: ECLIPSE POLISHED
 POLE TOP: 5 7/16" FL/FL
 POLE BUTT: 10" FL/FL
 POLE LENGTH: 27' 0"
 APPROX. WGT.: 1,445 LBS.
 MIN. RACEWAY: 1 1/8" Ø
 COATING REQ.: 2 COATS ACRYLIC (FULL LENGTH)



NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
9.75m (32') DECORATIVE FLUTED OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-130

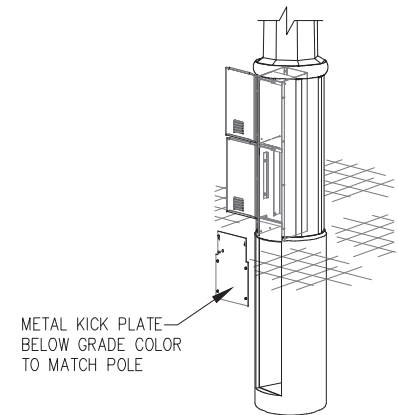
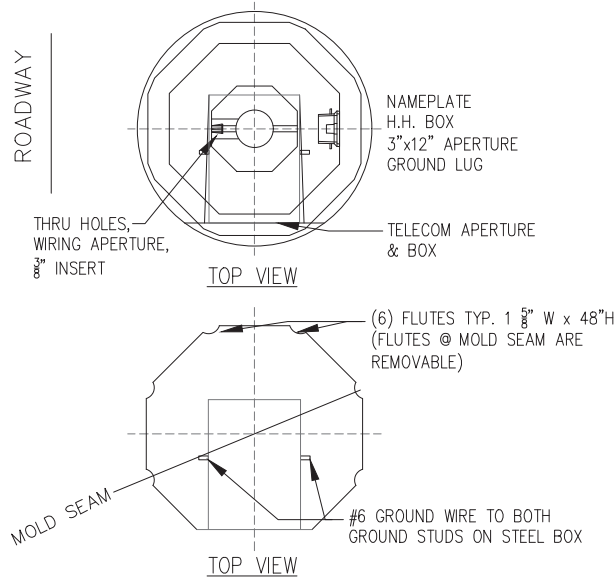


POLE DESCRIPTION

SECTION: OCTAGONAL
 FINISH: ECLIPSE ETCHED
 POLE TOP: 6 1/4" FL/FL
 POLE BUTT: 22" DIA.
 POLE LENGTH: 32' 6"
 APPROX. WGT.: 4,365 LBS.
 MIN. RACEWAY: 1 1/8" Ø
 COATING REQ.: 2 COATS ACRYLIC (FULL LENGTH)

NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.
4. METAL DOORS C/W HINGES. COLOR TO MATCH POLE.

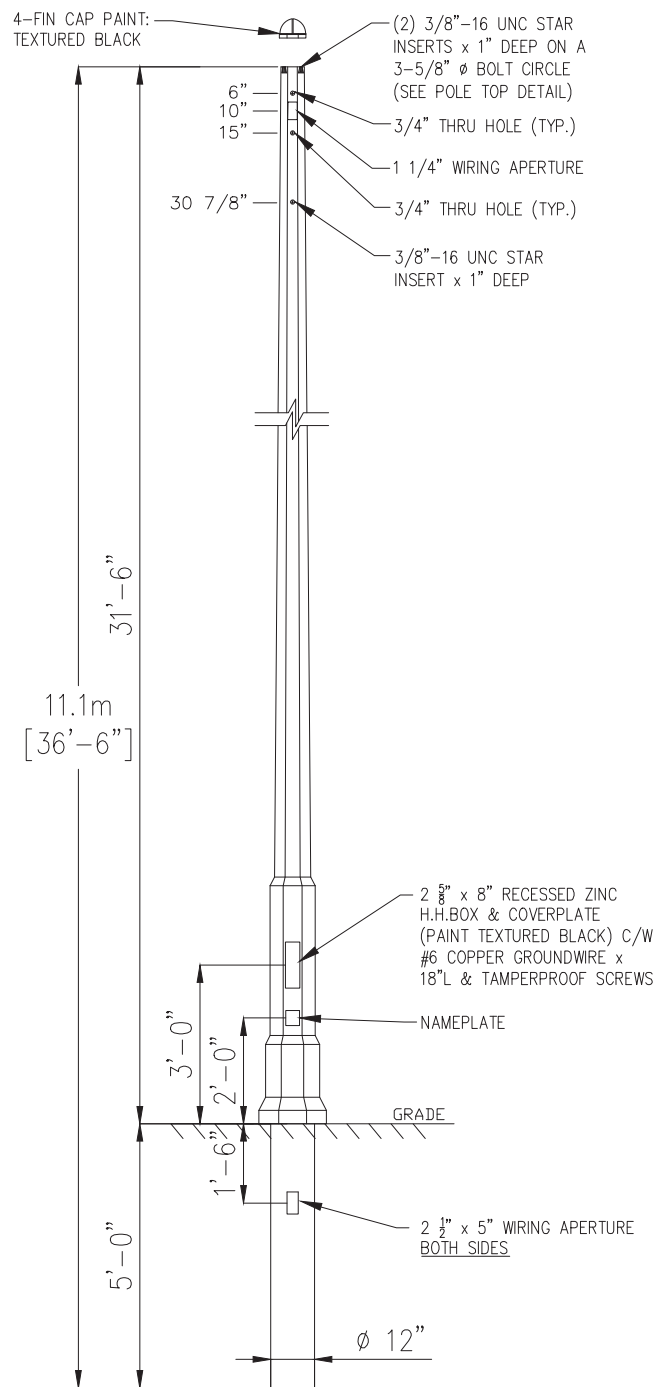


CABLE TV & TELEPHONE JOINT USE BOX WILL ACCEPT INSTALLATION OF COPPER, FIBER OR COAX EQUIPMENT FOR BOTH NARROWBAND & BROADBAND NETWORKS.



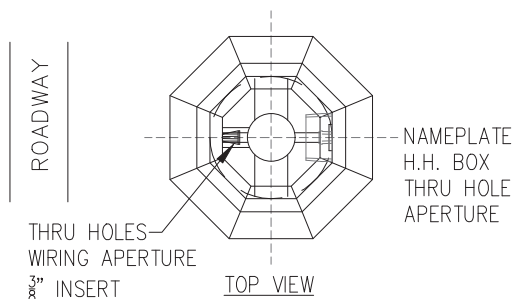
DECAL DETAIL

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
9.9m (32.5') DECORATIVE MULTI-UTILITY POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: 2022	SL-131



POLE DESCRIPTION

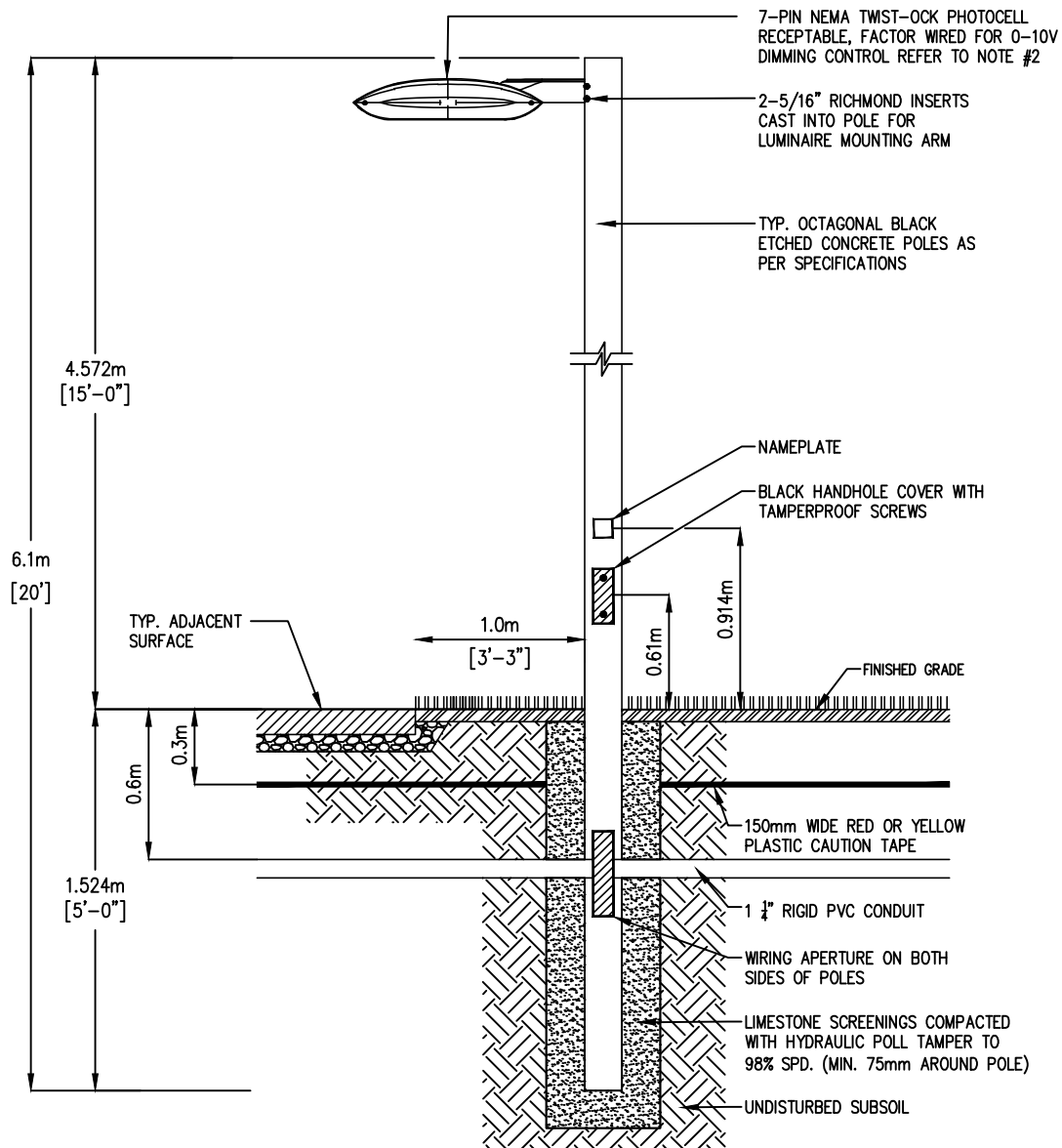
SECTION:	OCTAGONAL
FINISH:	ECLIPSE ETCHED
POLE TOP:	6 1/4" FL/FL
POLE BUTT:	22" DIA.
POLE LENGTH:	32' 6"
APPROX. WGT.:	4,365 LBS.
MIN. RACEWAY:	1 1/8" Ø
COATING REQ.:	2 COATS ACRYLIC (FULL LENGTH)



NOTES:

1. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
2. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
3. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
11.1m (36.5') DECORATIVE OCTAGONAL POLE		
NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-132
REVISION: _____	DATE: <u>2022</u>	

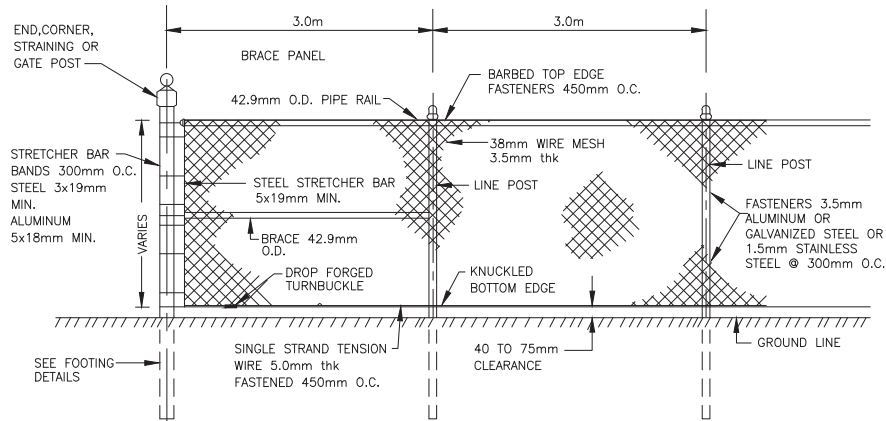


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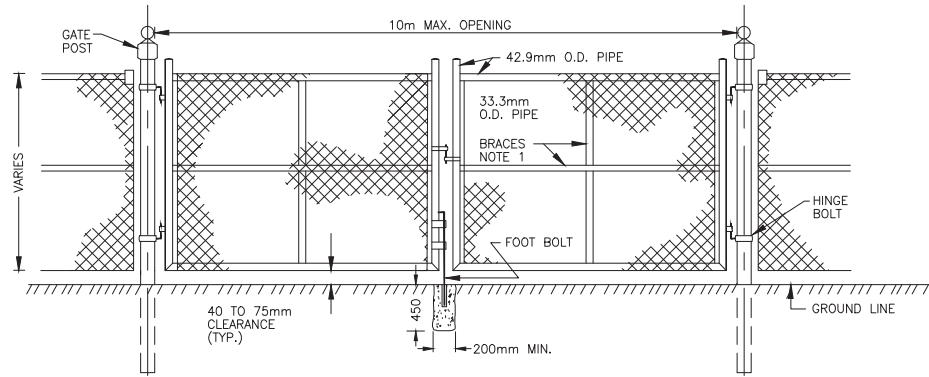
1. IN ACCORDANCE WITH E.S.A. STANDARDS AND SPECIFICATIONS, WARNING TAPE MUST BE PLACED 0.3m BELOW FINAL GRADE OVER ALL STREETLIGHT DUCTS INSTALLED IN AN OPEN TRENCH METHOD.
2. ALL FIXTURES MUST BE EQUIPPED WITH AN ANSI C136.41 COMPLIANT 7-PIN NEMA TWIST-LOCK PHOTOCELL RECEPTACLE, FACTORY WIRED FOR 0-10V DIMMING CONTROL.
3. CABLE RACEWAY IN POLE MUST BE OF SUFFICIENT DIAMETER TO ACCOMMODATE A DOUBLE RUN OF U/G CABLE UP TO THE HANDHOLE.
4. COPPER GROUND WIRE AT HANDHOLE IN ACCORDANCE WITH C.S.A. STANDARDS.
5. HANDHOLE AND NAMEPLATE TO BE ON HOUSE SIDE OF POLE.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
6.1m (20') POLE ASSEMBLY WALKWAY / PATHWAY LIGHTING		
NOT TO SCALE	DESIGNED: _____	STD. DWG. SL-133
REVISION: _____	DATE: 2023	

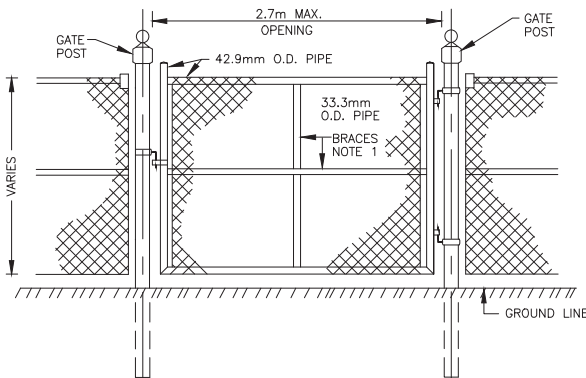
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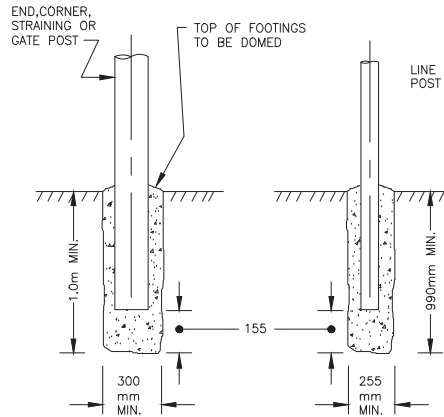
FENCE DETAILS



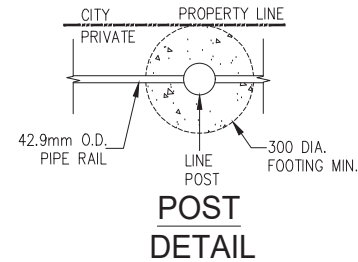
DOUBLE GATE



SINGLE GATE



FOOTING DETAILS



**POST
DETAIL**

NOTES

1. PIPE BRACES: GATE LEAVES UP TO 1.8m WIDE—REQUIRES HORIZONTAL BRACES ONLY.
2. POST LENGTH: FOR FABRIC WIDTHS GREATER THAN 1829mm THE POST SHALL BE INCREASED BY THE AMOUNT OF THE DIFFERENCE.
3. ALL FENCE COMPONENTS TO BE BLACK COATED VINYL.
4. BLACK FABRIC TO BE 3.5mm THICK WIRE WITH BLACK VINYL COATING.
5. ALL PIPING SHALL BE STANDARD CONTINUOUS WELD, SCHEDULE 40 PIPE, GALVANIZED. NO TUBING, CONDUIT OR OPEN SEAM MATERIAL WILL BE PERMITTED.

POST DETAILS			
DESCRIPTION	OD (mm)	LENGTH NOTE 2	
		STANDARD (m)	STANDARD WALLS(m)
LINE	60.3	2.7	2.0
END, CORNER, STRAINING AND GATE (5.5m MAX OPENING)	88.9	2.9	2.3
GATES (10m MAX OPENING)	114.3	2.9	—

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REVISIONS		DATE



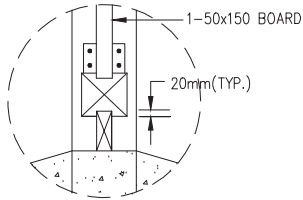
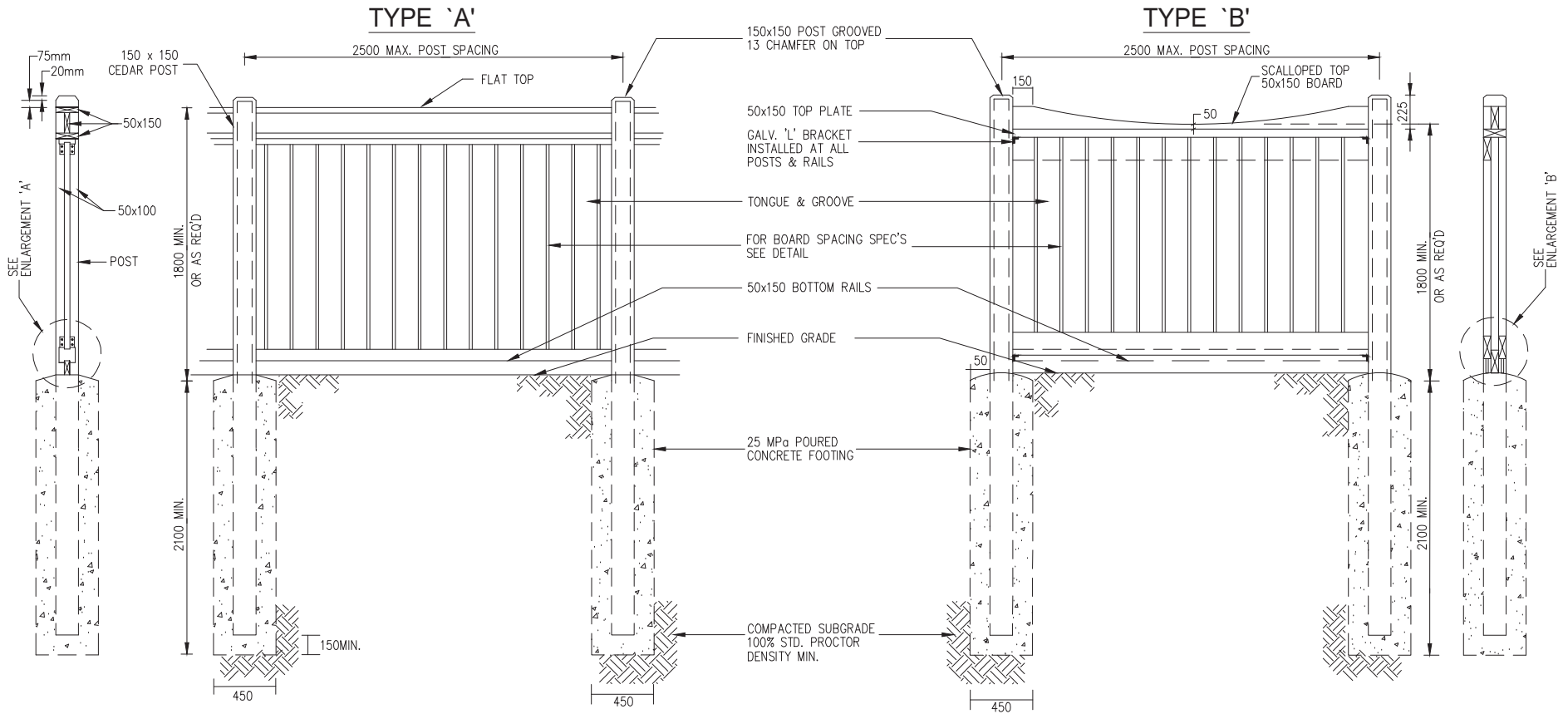
CITY OF VAUGHAN ENGINEERING STANDARD

CHAIN LINK SECURITY FENCE

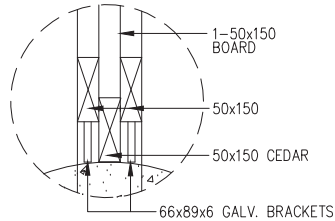
NOT TO SCALE
DESIGNED: _____
REVISION: _____ DATE: DEC. 2020

STD. DWG.
FRW - 101

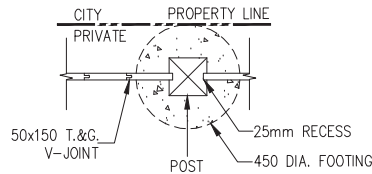
m DIMENSIONS IN METRES
EXCEPT AS NOTED



ENLARGEMENT 'A'



ENLARGEMENT 'B'



**TONGUE & GROOVE
DETAIL**

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

ACOUSTIC WOOD FENCE

NOT TO SCALE

DESIGNED: _____

REVISION: _____

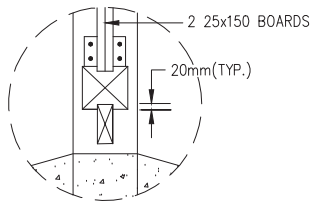
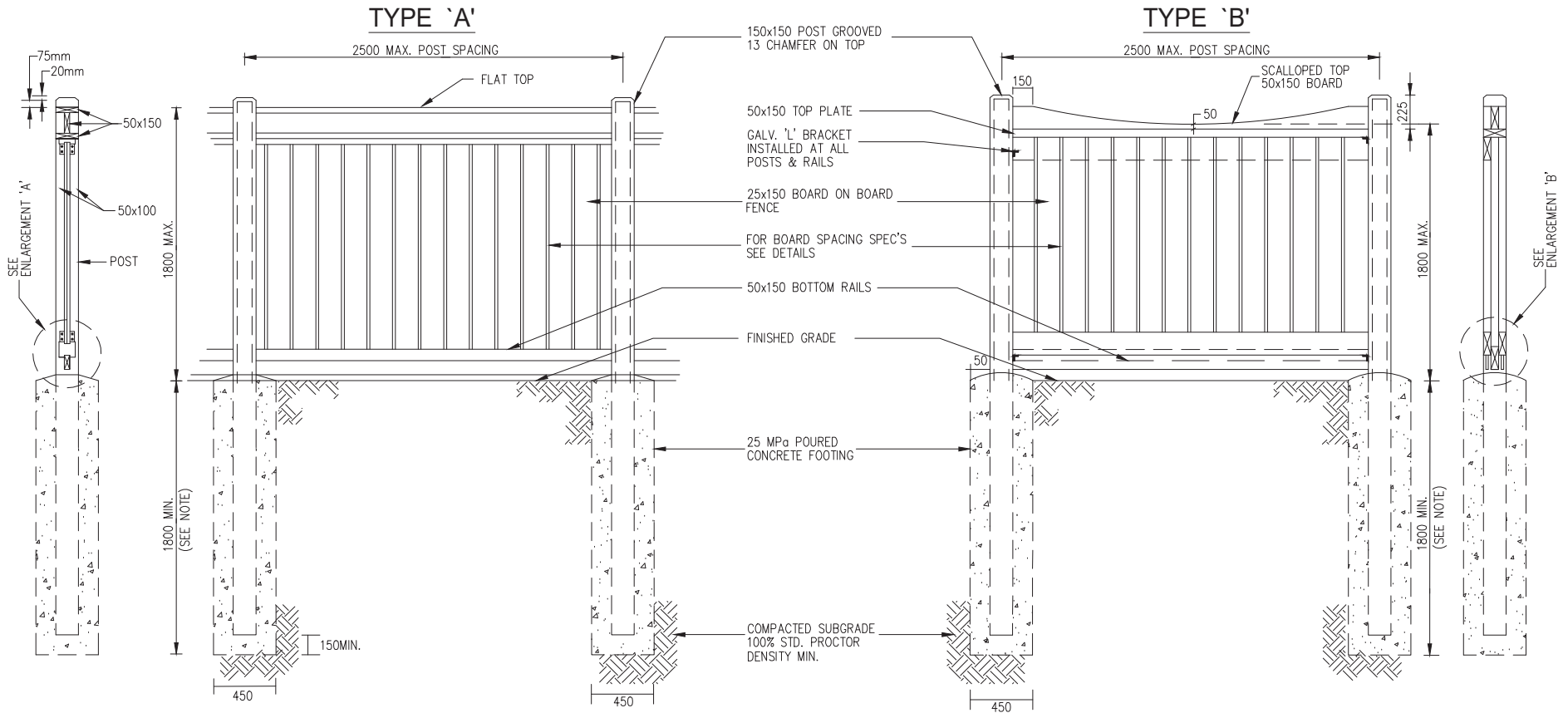
DATE: DEC. 2020

STD. DWG.

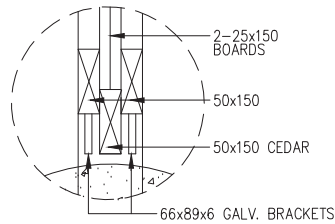
FRW - 102

NOTE

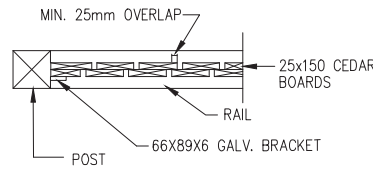
1. REFER TO STD. DWG. FRW-104 FOR SPECIFICATIONS.
2. FENCE HEIGHT HIGHER THAN 1.8m IS SUBJECT TO THE APPROVAL OF THE CITY.
3. FENCE POSTS TO BE INSTALLED AT ALL LOT CORNERS WHERE IT ABUTS ANOTHER PRIVATE PROPERTY



ENLARGEMENT 'A'



ENLARGEMENT 'B'



**BOARD ON BOARD
DETAIL**

NOTE

THE DEPTH IS TO BE 1800mm MINIMUM ON NATIVE SOIL.
FOR NON-NATIVE SOIL, OR FENCE HEIGHT GREATER THAN 1800mm,
THE DEPTH IS TO BE RECOMMENDED BY A PROFESSIONAL SOIL
ENGINEER.

REFER TO STD. DWG. FRW-105 FOR SPECIFICATIONS.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

PRIVACY WOOD FENCE

NOT TO SCALE DESIGNED: _____

REVISION: _____ DATE: DEC. 2020

STD. DWG.

FRW - 103

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NOTES

1. ALL WOOD SHALL BE WESTERN RED CEDAR, SELECTED MAINLY FOR GOOD APPEARANCE AND FREE OF WANE AND BARK POCKETS. ALL TORN GRAIN SHALL BE FREE, ELIMINATED BY SANDING AND PLANING. MEMBERS EXHIBITING MODERATE TO HEAVY KNOTS SHALL BE WELL DISTRIBUTED THROUGHOUT THE INSTALLATION. POST SHALL BE SELECT KNOTTY (NLGA131A) RETENTION OF 20KG/SQ M SURFACE DENSITY.
2. ALL WOOD SHALL BE DRESSED FOUR SIDES.
3. ALL TIMBER CUTS SHALL BE STRAIGHT AND PLUMB.
4. MOISTURE CONTENT OF WOOD SHALL NOT EXCEED 14% AT THE TIME OF CONSTRUCTION.
5. ALL WOOD TO BEAR GRADING STAMP OF C.I.S. CERTIFIED AGENCY.
6. TREAT BOTTOM SKIRT BOARD WITH C.C.A. PRESERVATIVE TO A RETENTION OF 4.0KG/M³.
7. ALL FENCES SHALL BE INSTALLED WITHIN 30 DAYS OF INSTALLATION, WEATHER PERMITTING.
8. STAIN FOR WOOD FENCE- STAIN SHALL CONSIST OF 2 COATS OF:
 - A BASE OF BLENDED RESINS AND OILS IN A WATER SUSPENSION.
 - SUSPENDED SOLIDS WHICH ARE NOT LESS THAN 21% AND NOT GREATER THAN 31% BY VOLUME.
 - V.O.C.'S (VOLATILE ORGANIC COMPOUNDS) WHICH ARE NOT IN EXCESS OF 350G/L IN ACCORDANCE WITH A.S.T.M. D-2369.
 - LEVELS OF LIQUID MICROBICIDES AND ANY OTHER POTENTIAL TOXIC SUBSTANCES WHICH ARE ENVIRONMENTALLY SAFE (NOT REQUIRING PROVINCIAL OR FEDERAL REGISTRATION).
 - NONE OF THE FOLLOWING HAZARDOUS SUBSTANCES:
 - * FOLPET [N-(TRICHLOROMETHYLTHIO) PHTHALIMIDE]
 - * BIS (TRIBUTYL TIN) OXIDE
 - * COPPER NAPHTHENATE
 - * COPPER 8 QUINOLINOLATE
 - * ZINC NAPHTHENATE
 - SUFFICIENT OXIDE PIGMENTS TO OBTAIN DESIRED COLOUR TONE AND LEVEL OF OPACITY (COLOUR TO BE APPROVED BY LANDSCAPE ARCHITECT).
9. SECTION OF POST IMBEDDED IN CONCRETE FOOTING TO BE DIPPED IN CREOSOTE.
10. LAG SCREWS AND BOLTS SHALL BE GALVANIZED AND CONFORM TO ASTM A307.
11. ALL GALVANIZING TO BE HOT DIPPED IN CONFORMANCE TO CSA STANDARD 6164.
12. THE ACOUSTIC FENCE SHALL HAVE A MINIMUM FACE DENSITY OF 20 kg/m².
13. ALL NAILS GALVANIZED ARDOX, CONFORMING TO CSA STANDARD, AND 75MM UNLESS NOTED OTHERWISE. ALL NAILS TO BE EVENLY SPACED AND SET NOT LESS THAN 25MM FROM EDGE OF ANY MEMBER.

RAILS - 3 NAILS TO POST AT EACH END, 3 NAILS THRU BOTTOM FRONT RAIL TO VERTICAL MEMBERS AND 3 NAILS TO SKIRT BOARD IN STAGGERED PATTERN. CONTINUE ->

SKIRT RAIL - 2 NAILS TO POST AT EACH END.

FACIA BOARD - 2 NAILS (50MM) EACH END TO VERTICAL MEMBERS AND 5 NAILS IN STAGGERED PATTERN ALONG BOARD.

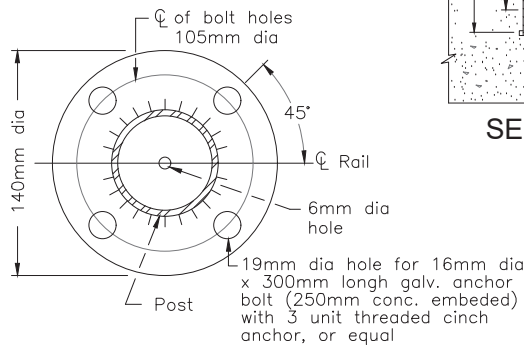
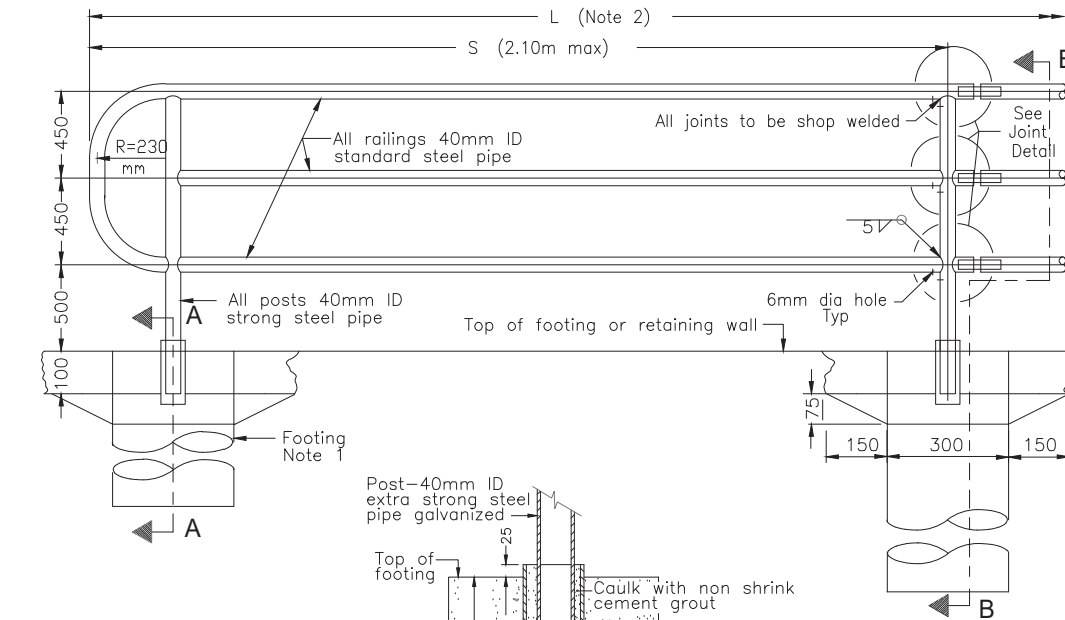
VERTICAL MEMBERS - 2 NAILS (88MM) TOP AND BOTTOM TO RAILS.

COPING - 2 NAILS THRU EDGES TO POST AT EACH END AND 6 NAILS THRU TOP TO VERTICAL MEMBERS.

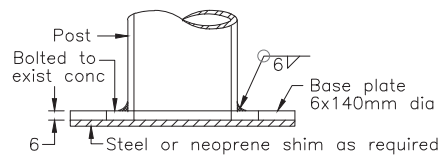
14. COUNTER-SINK ALL LAG SCREWS AND BOLTS AND DRIVE ALL NAIL HEADS BELOW SURFACE OF WOOD.
15. FOUNDATION DESIGN IS BASED ON AN ALLOWABLE SOIL PRESSURE OF 95KN/M². OBTAIN PROFESSIONAL SOIL ENGINEER'S APPROVAL BEFORE CASTING CONCRETE FOR FOUNDATION.
16. DESIGN WIND SPEED 80KM/HR, GUST TO 100KM/HR.
17. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPA IN 28 DAYS.
18. FOR ACOUSTIC FENCE, BOTTOM RAIL SHALL BE SET ON GRADE. WHERE DRAINAGE IS TO BE CONVEYED THROUGH THE BARRIER, THEN THE DESIGN SHALL COMPLY WITH STANDARD DESIGN CRITERIA FIG. I-6
19. FIRE HOSE ACCESS TO BE DESIGNED IN ACCORDANCE WITH O.P.S.D. 998.101 & 998.131.
20. FENCES CONSTRUCTED ON BERMS:
 - A) EXTEND FOOTINGS 300MM INTO UNDISTURBED SUB-GRADE.
 - B) COMPACT BERMS TO A MINIMUM OF 100% STANDARD PROCTOR DENSITY.
 - C) CONSTRUCT BERMS WITH A 1000MM FLAT TOP AND SIDE SLOPES NO STEEPER THAN 3:1.

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REVISIONS		DATE
		
CITY OF VAUGHAN ENGINEERING STANDARD		
ACOUSTIC / PRIVACY FENCE NOTES		
NOT TO SCALE	DESIGNED: _____	STD. DWG.
REVISION: _____	DATE: DEC. 2020	FRW - 104

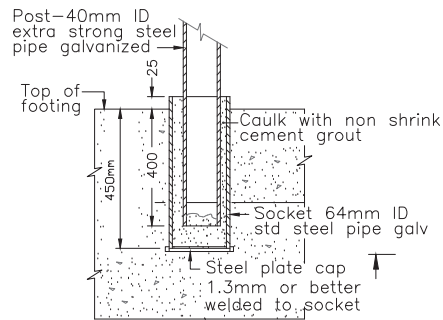
FILE: C:\Infrastructure Delivery\Infrastructure Programming\PMO\City Standards\Design Criteria\2020-21\City Standards Update Folder\CoVStandardDrawings_CAD_2021\FRW-105 - Pedestrian+Bicycle Hand Rail.dwg



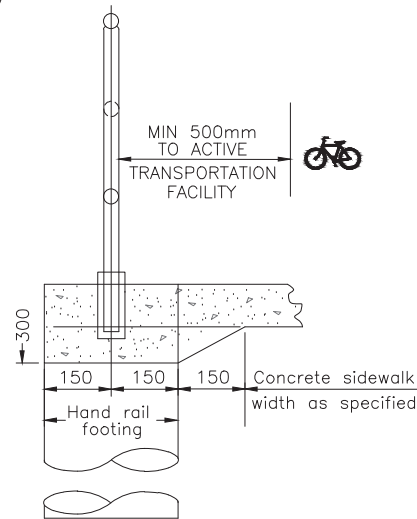
PLAN OF BASE PLATE



BASE PLATE ELEVATION
SECTION A-A



SECTION A-A
Enlarged



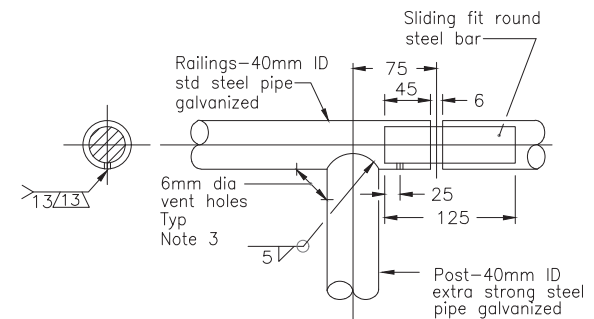
SECTION B-B

NOTE:

THIS STANDARD TO BE USED IN PLACE OF OPSD 980.101 WHERE ADDITIONAL RAIL HEIGHT IS REQUIRED (SUCH AS BICYCLE TRAIL).

NOTES:

- 1 Anchor leveling (base) plates for hand rail posts to be set in centre of 300mm dia.x1200mm deep conc. footings.
- 2 Number of panels= $\frac{\text{Total length(L)}-600\text{mm}}{\text{Length of panels(S)}}$
- 3 6mm dia holes are to permit gases to escape during galvanizing.
- A Class of concrete – 32MPa min after 28 days.
- B Hand rail to be hot dip – galvanized after fabrication in conformance with CSA G-164.
- C Posts shall be vertical. All exposed corners to be ground smooth.
- D Welding shall conform to the latest issue of CSA specification W59.
- E Pipe shall be supplied accordance with ASTM Designation A120.



TYPICAL JOINT DETAIL

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

PEDESTRIAN / BICYCLE HAND RAIL

NOT TO SCALE

DESIGNED: _____

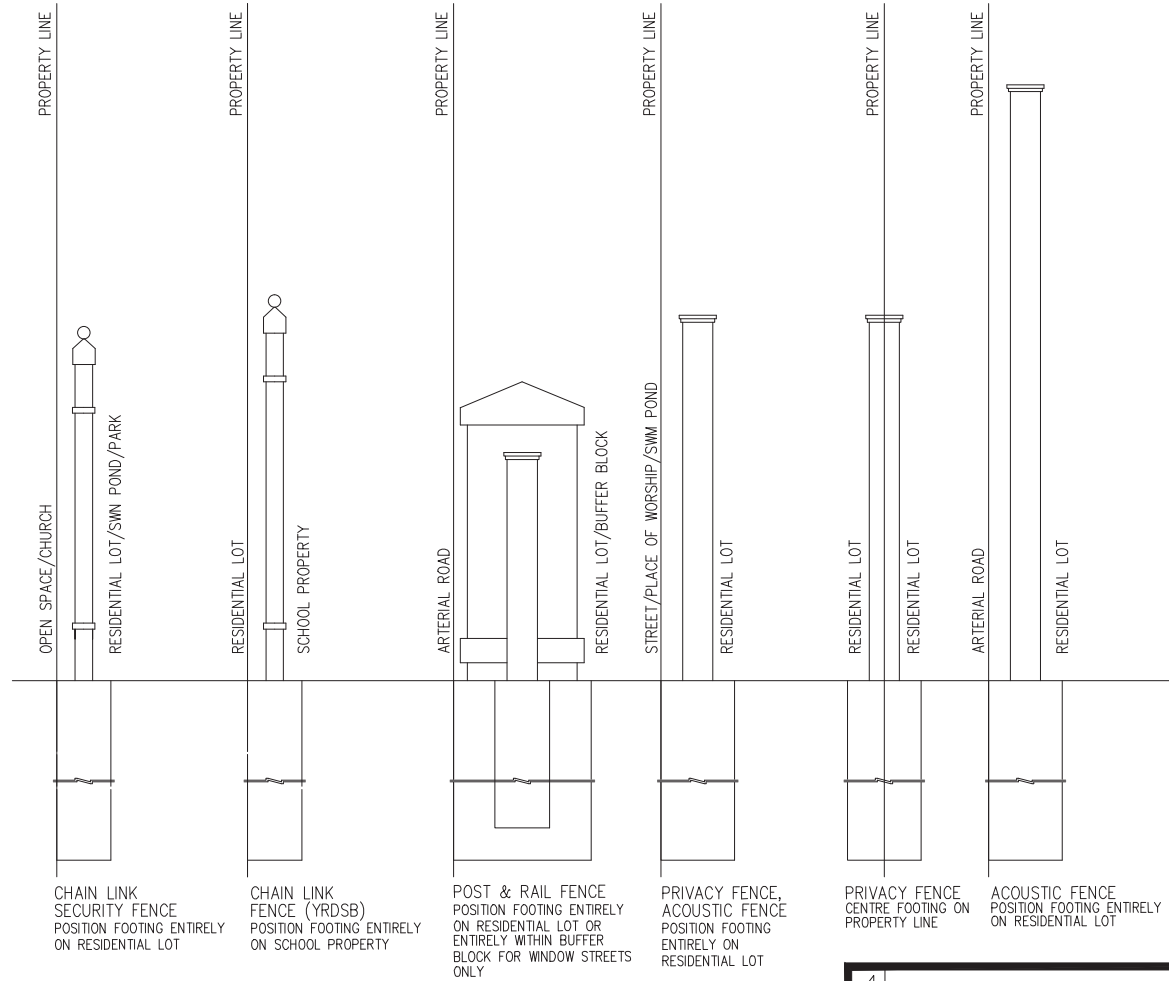
REVISION: _____

DATE: DEC. 2020

STD. DWG.

FRW - 105

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED



NOTES:

- ALL FENCE, INCLUDING THEIR FOOTINGS/FOUNDATIONS, MUST BE LOCATED ENTIRELY OUTSIDE OF ANY 0.3m RESERVES.

mm DIMENSIONS IN MILLIMETRES
EXCEPT AS NOTED

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REVISIONS		DATE



CITY OF VAUGHAN ENGINEERING STANDARD

FENCE TYPES & PLACEMENT

NOT TO SCALE DESIGNED: _____
REVISION: _____ DATE: DEC. 2020

STD. DWG.
FRW - 106