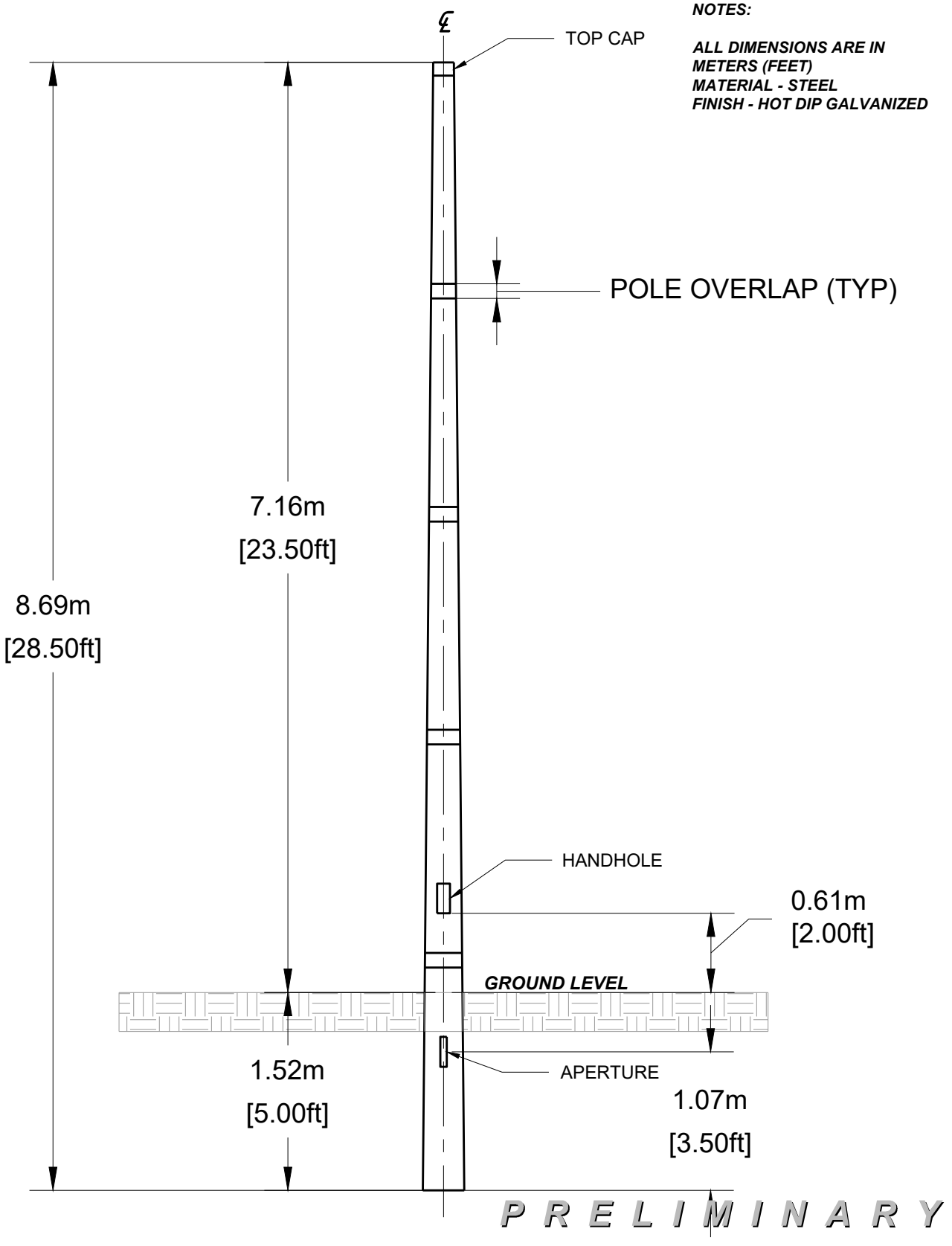
Appendix B –
Niagara Region Standard
Detailed Drawings

Updated: February 13, 2023

List of Drawings

Drawing Number	Detail	Revision Date
NRS 0000	Direct Buried Sectional Steel Pole	Nov 2021
NRS 2001	Pole Anchorage Assembly	Dec 2021
NRS 2002	Concrete Foundation for Traffic Poles	Dec 2021
NRS 2003	Type P44 Controller Cabinet Foundation	Aug 2021
NRS 2020	Junction Box and Duct Application	Jan 2021
NRS 2130	Supply Control Cabinet Installation (Direct Buried Pole)	Jun 2011
NRS 2131	Supply Control Cabinet Installation (Base Mounted Pole)	Jun 2011
NRS 2440	Supply Control Cabinet Assembly Type 1	Oct 2022
NRS 2441	Supply Control Cabinet Assembly Type 3S	Jan 2016
NRS 2520	Loop Detector Installation Details	Feb 2011
NRS 2521	Loop Detector Installation Details 2	Feb 2011
NRS 2522	Decorative Accessories on Roadway Lighting Pole	Feb 2016
NRS 2600	PXO Crossing – Level 2 Type B Sign Layout and Dimensional Detail	Oct 2022
NRS 2610	PXO Crossing – Level 2 Type C Sign Layout and Dimension Detail	Oct 2022
NRS 2620	PXO Crossing – Level 2 Type D Sign Layout and Dimension Detail	Oct 2022
NRS 2710	Signal Cable Colour Identification	Feb 2014
NRS 2800	PVC Conduit Installation Concrete Pole	Apr 2015
NRS 2810	PVC Conduit Installation Wood Pole	Apr 2015
NRS 2820	Duct Termination Concrete Pole	Apr 2015
NRS 3001	Tactile Surface Indicators – Blended Curbs Used at 4-Way Intersection with Standard Sidewalk	Apr 2014

Drawing Number	Detail	Revision Date
NRS 3002	Tactile Surface Indicators – Wraparound Blended Curb with Curb Face Sidewalk	Apr 2014
NRS 3002.5	Tactile Surface Indicators – Curb with Curb Face Sidewalk and Cross Walk at Intersection with Side Street Stop Control	Apr 2014
NRS 3003	Tactile Surface Indicators – Blended Curbs that are Aligned on the Same Axis	Apr 2014
NRS 3004	Tactile Surface Indicators – Blended Curbs to Facilitate Access to an Island	Apr 2014
NRS 3005	Tactile Surface Indicators – Walkway Through an Island that is at Level Road Surface	Apr 2014
NRS 3006	Tactile Surface Indicators – Blended Curbs Used at 4-way Intersection with Standard Sidewalk and Larger Curb Radius	Feb 2015
NRS 3007	Tactile Surface Indicators – Blended Curbs Used at 4-way Intersection with Sidewalk Apron and Larger Curb Radius	Mar 2018
	Road Cut Open Trench or Patch Reinstatement	
	Roadway Lighting Example	
Detail A	Typical Wiring Detail	Feb 2023
Detail B	Typical Duct and Handwell Layout	Feb 2023



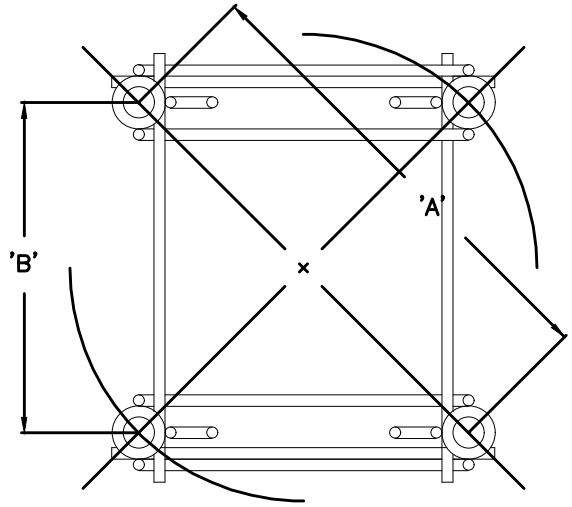
NOTES:

ALL DIMENSIONS ARE IN METERS (FEET)
MATERIAL - STEEL
FINISH - HOT DIP GALVANIZED

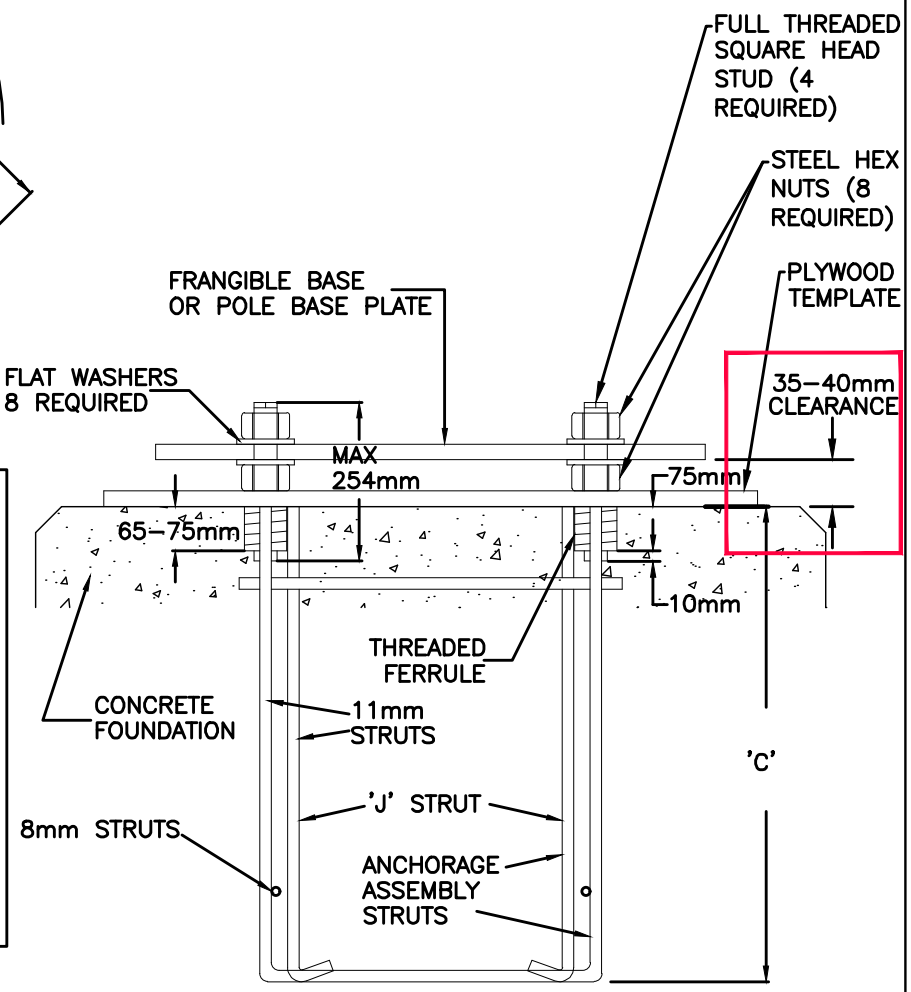
PRELIMINARY

DIRECT BURIED SECTIONAL STEEL POLE			
DATE: November 2, 2021	SCALE: NTS	Niagara Region PUBLIC WORKS	
UPDATED BY: A.S.	DRAWN BY: T.C	MODIFIED OPSD – N/A	NRS 0000

DRAWING FILE: P:\PW_SIGNALS\TRAFFIC SIGNAL STANDARDS MANUAL\APPENDICES\APPENDIX B – DETAIL DRAWINGS\dwg\NRS000_Direct Buried Sectional Steel Pole.dwg PLOTTED: Dec 03, 2021 – 12:29pm PLOTTED BY: CHATZIS



PLAN



PROFILE

INSTRUCTIONS:

1. DO NOT REMOVE STUDS FROM THREADED FERRULES.
2. PLACE ANCHORAGE IN FOOTING WITH WOOD TEMPLATE OVER FORMWORK.
3. TIE ANCHORAGE TO STEEL IN FOOTING.
4. TIE DUCTS TO ANCHORAGE.
5. LEVEL ANCHORAGE IN ALL DIRECTIONS WITH A CARPENTER'S LEVEL AND SECURE IN THE LEVEL POSITION PRIOR TO POURING CONCRETE TO THE TOP OF THE FORMWORK.
6. WHEN CONCRETE HAS ACHIEVED INITIAL SET REMOVE NUTS, WASHERS, AND WOOD TEMPLATE AND FINISH TOP OF CONCRETE.
7. REPLACE NUTS AND WASHERS AND HAND TIGHTEN.
8. SEAT STUDS 130mm ABOVE FINISHED CONCRETE FOUNDATION.

NOTES:

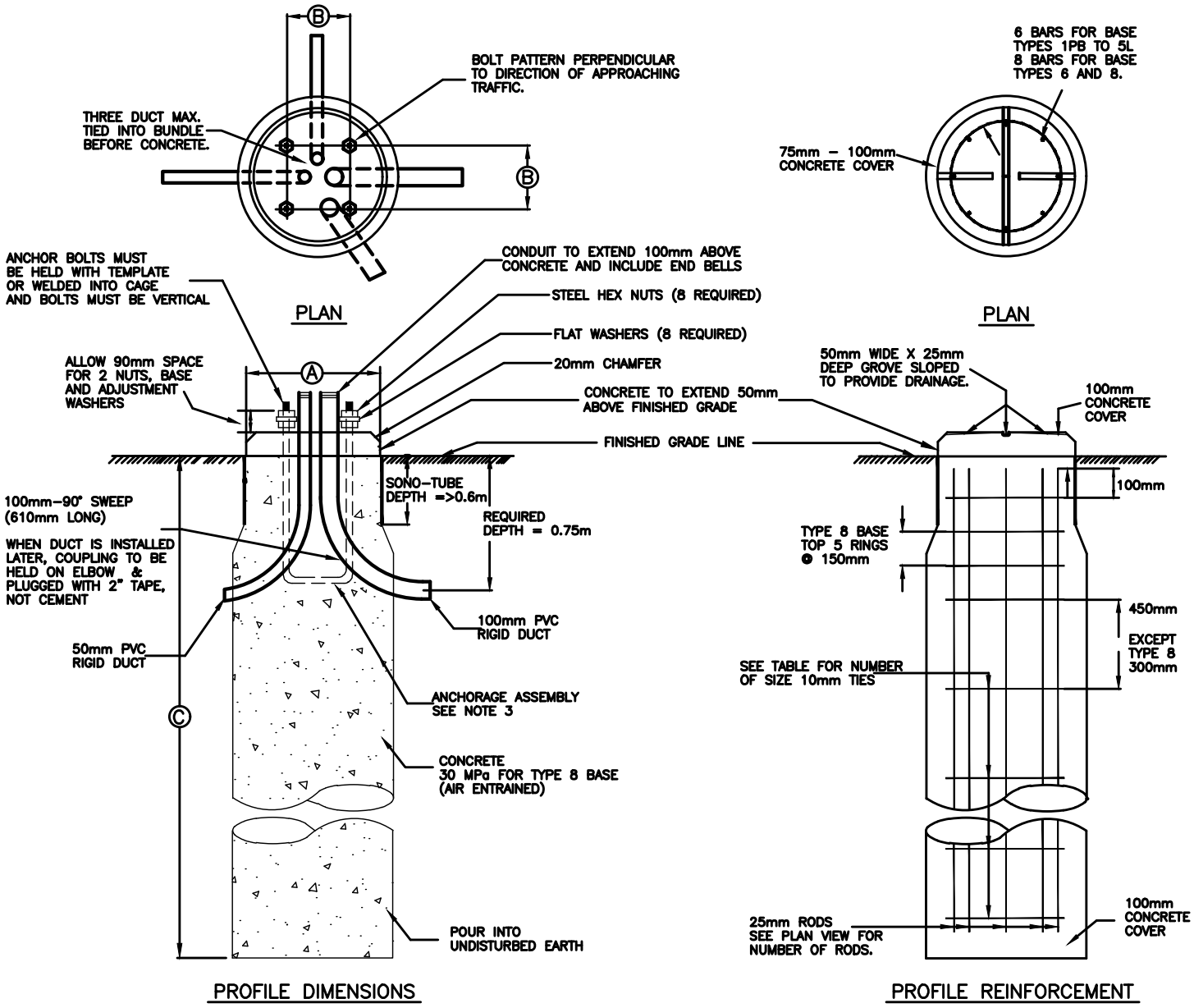
1. ASSEMBLY TO BE GALVANIZED ACCORDING TO CAN/CSA –G164–M92
2. STUDS TO BE HI–TENSILE MATERIAL
3. STUDS TO BE IMPERIAL THREAD

ASSEMBLY FOR BASE:	BOLT DIA.	BOLT CIRCLE 'A'		BOLT SPACING 'B'		ANCHORAGE DEPTH 'C'	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES
TYPE 1PB	3/4	190	7 1/2	140	5 1/2	305	12
TYPE 3	1	323	12 3/4	229	9	457	18
TYPE 5X (TC)	3/4	406	16	280	11	305	12
TYPE 5	1 1/4	395	15 1/2	280	11	457	18
TYPE 6	1 1/4	449	17 5/8	318	12 1/2	457	18
TYPE 8 (JUMBO)	1 1/4	592	23 11/32	419	16 1/2	760	30

ANCHORAGE ASSEMBLY

Niagara Region
PUBLIC WORKS

DATE: December 03, 2021	SCALE: NTS		
UPDATED BY: A.S	DRAWN BY: T.C	MODIFIED OPSD – 2215.02	NRS 2001



NOTES:
1. FOR DUCT SIZE SEE CONTRACT DRAWINGS.
2. FOR ANCHORAGE ASSEMBLY SEE NRS 2001.
3. ALL REINFORCING STEEL SHALL CONFORM TO C.S.A. G30.12M GRADE 400 MPa.
4. STUDS/BOLTS SHALL HAVE THE EXPOSED THREADS ABOVE THE FERRULE AND BE COATED WITH SILVER GRADE NEVERSEIZE.

POLE HEIGHT	BASE TYPE	DIAMETER Ⓐ	BOLT SPACING Ⓑ	DEPTH Ⓒ MIN	ROD LENGTH	NO. OF TIES
1.83m	1	305mm	140mm	1.22m	N/A	N/A
N/A	5X	610mm	280mm	1.22m	N/A	N/A
5.56m	3	610mm	230mm	2.15m	1.90m	4
8.92m	5	610mm	280mm	2.45m	2.20m	5
10.52m	6	760mm	318mm	2.60m	2.40m	5
6.93m	8	900mm	420mm	3.10m	2.90m	13

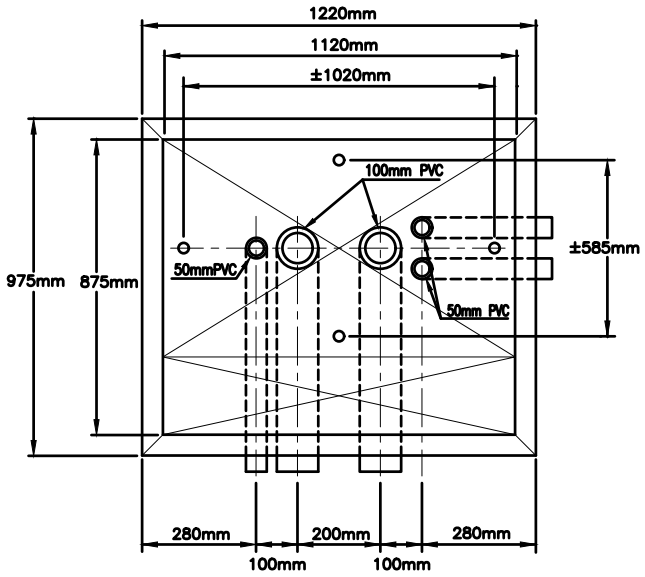
CONCRETE FOUNDATION FOR TRAFFIC POLES (TYPICAL)

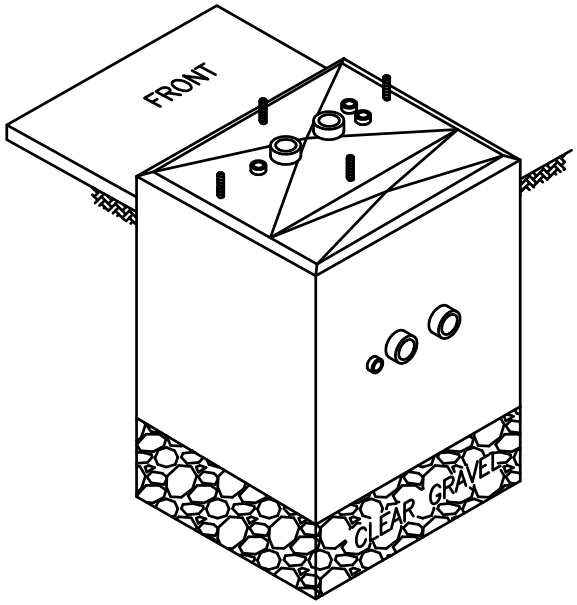
DATE: December 03, 2021 | SCALE: NTS

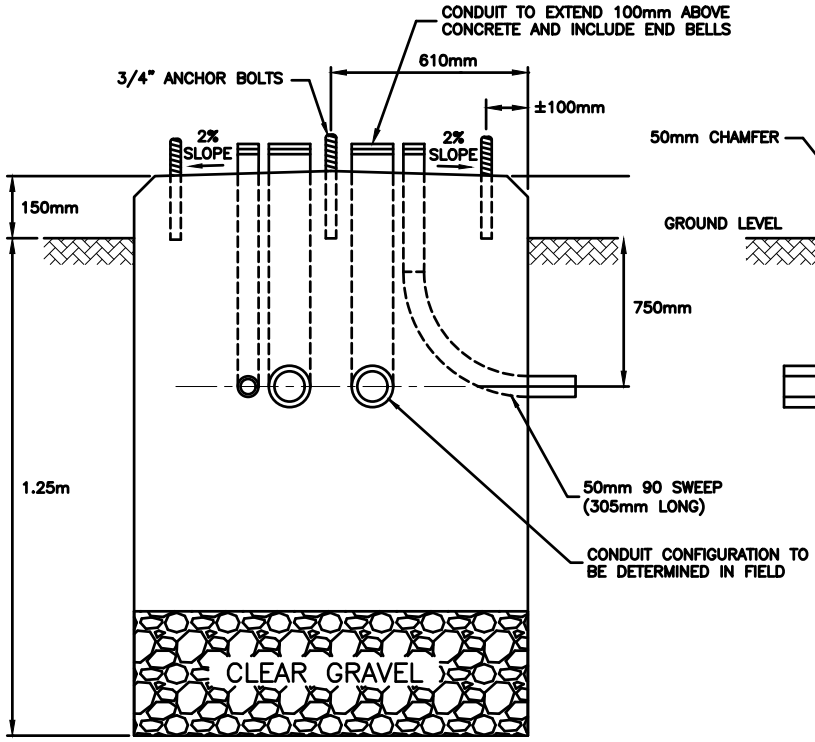
UPDATED BY: A.S | DRAWN BY: T.C

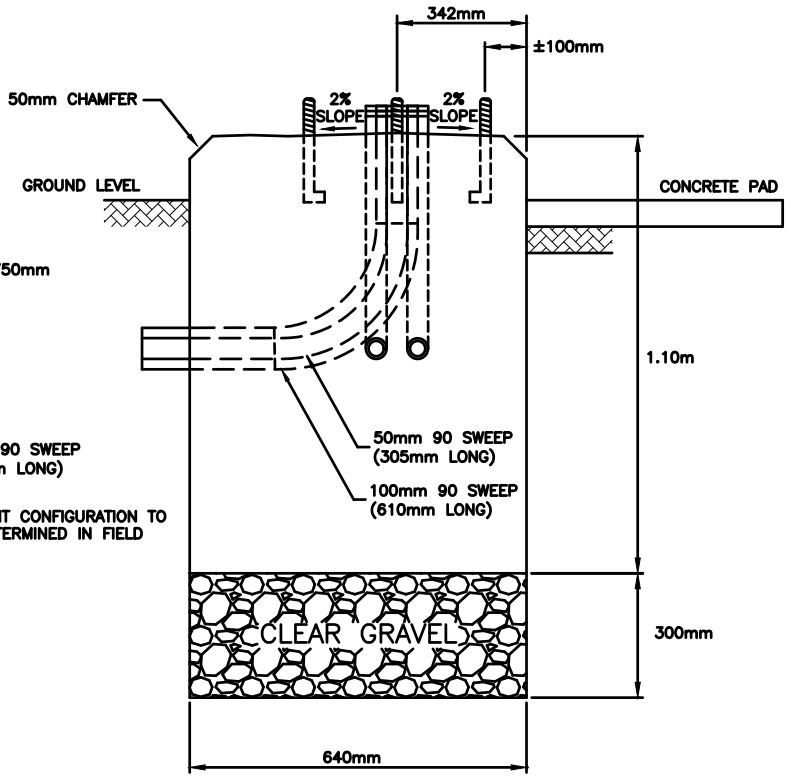
Niagara Region
PUBLIC WORKS

NRS 2002









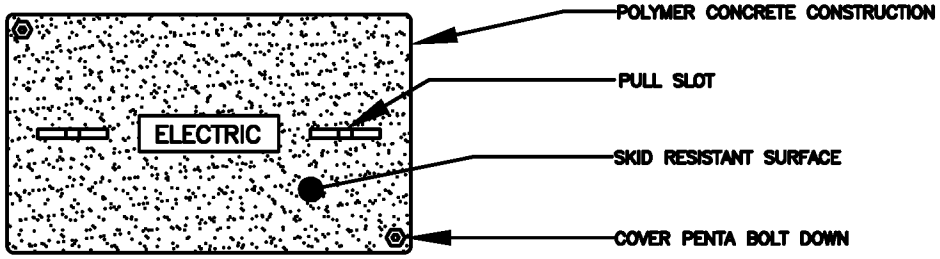
NOTES:
1. CONCRETE BASE TO PROJECT 150mm (6") ABOVE ADJACENT GROUND LEVEL ON 300mm (12") OF CLEAR STONE.
2. CONCRETE BASE TO BE 30 MPa.
3. WHERE DUCT TO BE INSTALLED AT A LATER TIME, COUPLINGS TO BE HELD ON ELBOW & PLUGGED WITH 50mm TAPE, NOT CEMENT.
4. 0.6m X 1.2m X 150mm (6") CONCRETE PAD TO BE POURED AT GRADE LEVEL IN FRONT OF CABINET DOOR FOR SERVICING.

TYPE P44 CONTROLLER CABINET FOUNDATION

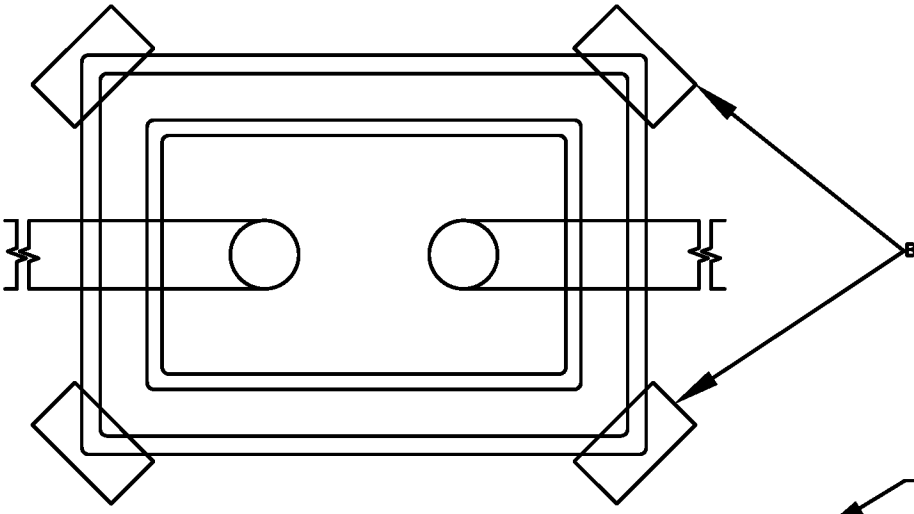
Niagara Region
PUBLIC WORKS

DATE: August 31, 2021	SCALE: NTS		
UPDATED BY: TC	DRAWN BY: MTK		NRS 2003-P

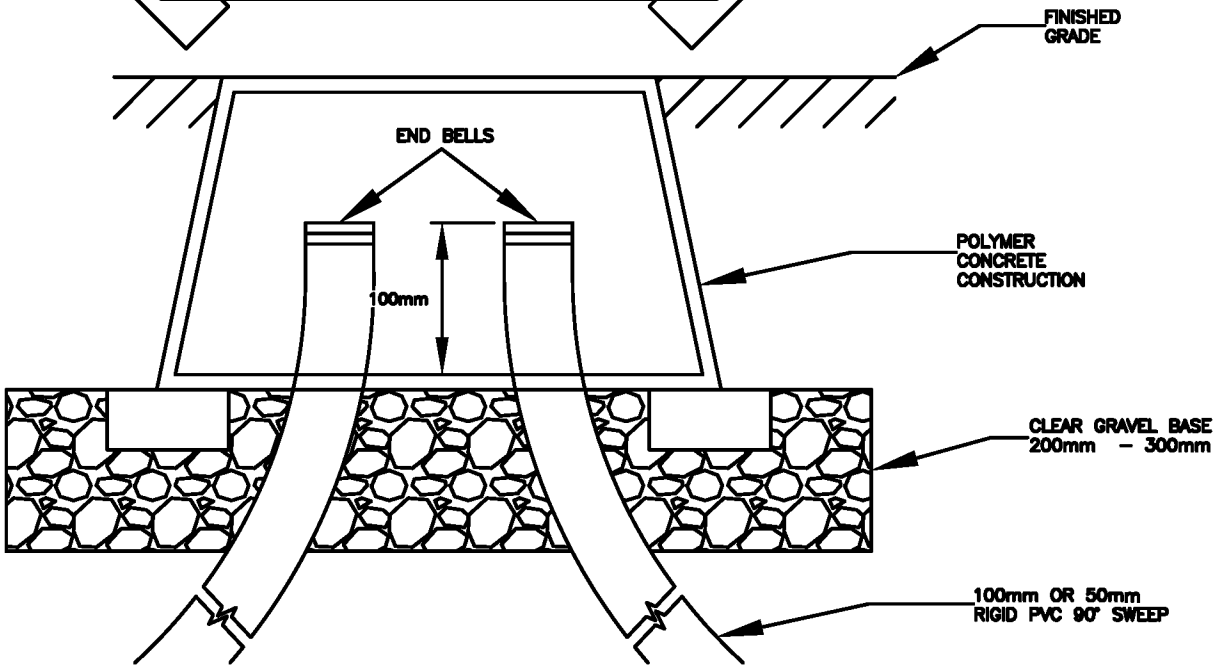
BOX COVER



PLAN



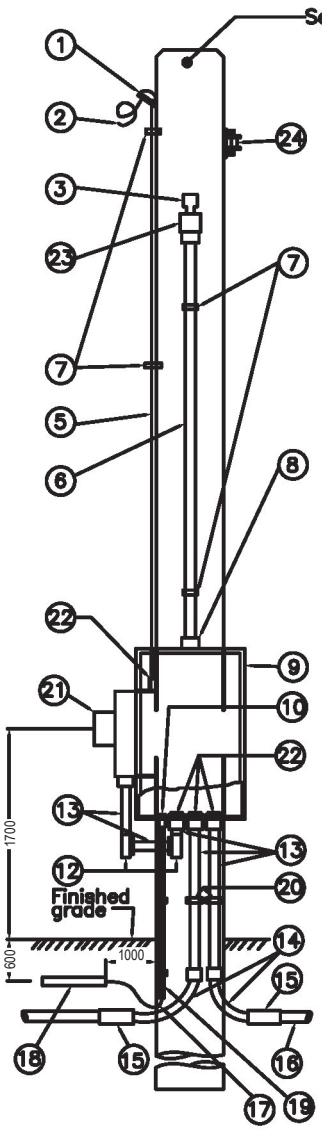
PROFILE



NOTE: ALL DIMENSIONS ARE APPROXIMATE.
JUNCTION BOX NOT TO BE CUT OR ALTERED IN ANY WAY.

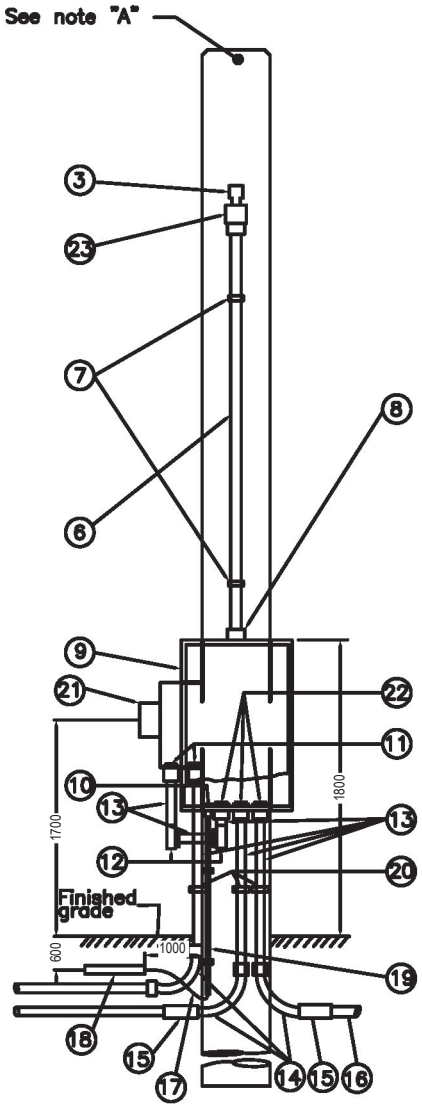
TYPICAL JUNCTION BOX AND DUCT APPLICATION

DATE: January 28, 2021	SCALE: NTS	Niagara Region PUBLIC WORKS	
UPDATED BY: T.C	DRAWN BY: T.C		NRS 2020



OVERHEAD SUPPLY INSTALLATION

1. Service entrance fitting, 50mm, rigid PVC
2. #2 B/W (2 Black & 1 White) cable for connection to incoming supply
3. Photoelectric controller with socket
4. 3 #12 AWG, low voltage cable
5. Conduit, 50mm, rigid PVC
6. Conduit, 32mm, rigid PVC
7. 20mm Stainless Steal Band
8. Meter hub, 32mm, rigid PVC
9. Supply control cabinet
10. Terminal adapter and locknut, 19mm rigid PVC
11. Terminal offset and locknut, 50mm, rigid PVC
12. LB, 50mm, rigid PVC
13. 50mm rigid PVC
14. 90° elbow, 50mm, rigid PVC
15. Adapter coupling, 50mm, rigid PVC to polyethylene pipe
16. Polyethylene pipe, 50mm
17. #6 AWG green ground copper wire
18. 1 Ground Plate
19. 20mm rigid PVC
20. 50mm Expansion Joint Coupling
21. Hydro meter base
22. Meter hub, 50mm, Rigid PVC
23. 4X4X4 PVC
24. SINGLE POINT RACK C/W INSULATOR



UNDERGROUND SUPPLY INSTALLATION

NOTES:

A Supply control cabinet shall be mounted to a type 6 direct buried pole.

B Incoming and out going cable sizes and orientation of cabinet are shown elsewhere in the contract.

C For supply control cabinet schematic wiring diagram refer to NRS 2440.

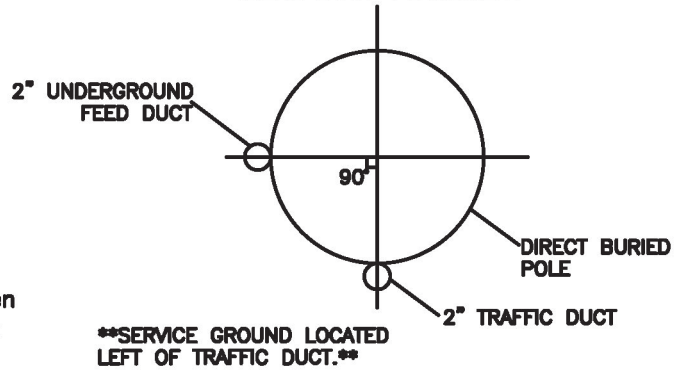
D Mount the supply cabinet to the pole by using applicable mounting brackets and stainless steel strapping.

E All dimensions are in millimetres or metres unless otherwise shown.

F Pole Handhole shall be placed 180° to 2" traffic duct. Then 2" underground supply duct shall be placed 90° CCW from center of 2" traffic duct.

G All conduits shall be continuous except at expansion coupling location. All bends shall be made in the field unless otherwise approved.

IDEAL DUCT PLACEMENT



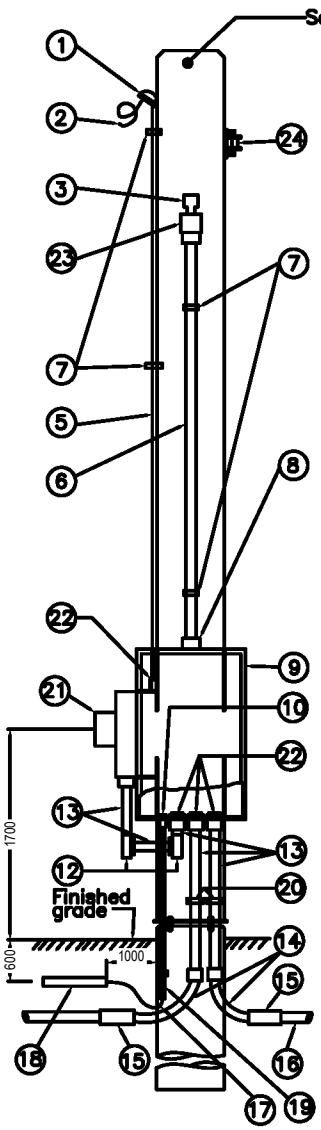
SUPPLY CONTROL CABINET INSTALLATION

OVERHEAD AND UNDERGROUND SERVICES FOR DIRECT BURIED POLE

DATE: June 29, 2011	SCALE: NTS
UPDATED BY: H.D.M.	DRAWN BY: T.C

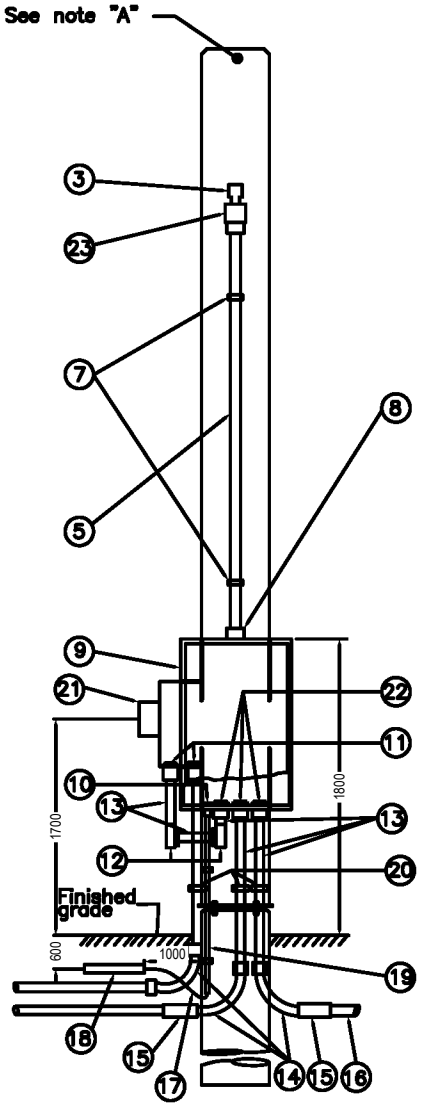
Niagara Region
PUBLIC WORKS

NRS 2130



OVERHEAD SUPPLY INSTALLATION

1. Service entrance fitting, 50mm, rigid PVC
2. #2 B/W (2 Black & 1 White) cable for connection to incoming supply
3. Photoelectric controller with socket
4. 3 #12 AWG, low voltage cable
5. Conduit, 50mm, rigid PVC
6. Conduit, 32mm, rigid PVC
7. 20mm Stainless Steal Band
8. Meter hub, 32mm, rigid PVC
9. Supply control cabinet
10. Terminal adapter and locknut, 19mm rigid PVC
11. Terminal offset and locknut, 50mm, rigid PVC
12. LB, 50mm, rigid PVC
13. 50mm rigid PVC
14. 90° elbow, 50mm, rigid PVC
15. Adapter coupling, 50mm, rigid PVC to polyethylene pipe
16. Polyethylene pipe, 50mm
17. #6 AWG green ground copper wire
18. 1 Ground Plate
19. 20mm rigid PVC
20. 50mm Expansion Joint Coupling
21. Hydro meter base
22. Meter hub, 50mm, Rigid PVC
23. 4X4X4 PVC
24. SINGLE POINT RACK C/W INSULATOR



UNDERGROUND SUPPLY INSTALLATION

NOTES:

A Supply control cabinet shall be mounted to a base mounted pole.

B Incoming and out going cable sizes and orientation of cabinet are shown elsewhere in the contract.

C For supply control cabinet schematic wiring diagram refer to NRS 2440.

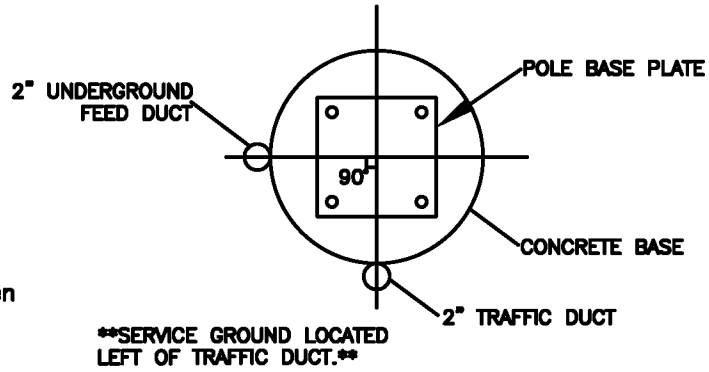
D Mount the supply cabinet to the pole by using applicable mounting brackets and stainless steel strapping.

E All dimensions are in millimetres or metres unless otherwise shown.

F Pole Handhole shall be placed 180° to 2" traffic duct. Then 2" underground supply duct shall be placed 90° CCW from center of 2" traffic duct.

G All conduits shall be continuous except at expansion coupling location. All bends shall be made in the field unless otherwise approved.

IDEAL DUCT PLACEMENT

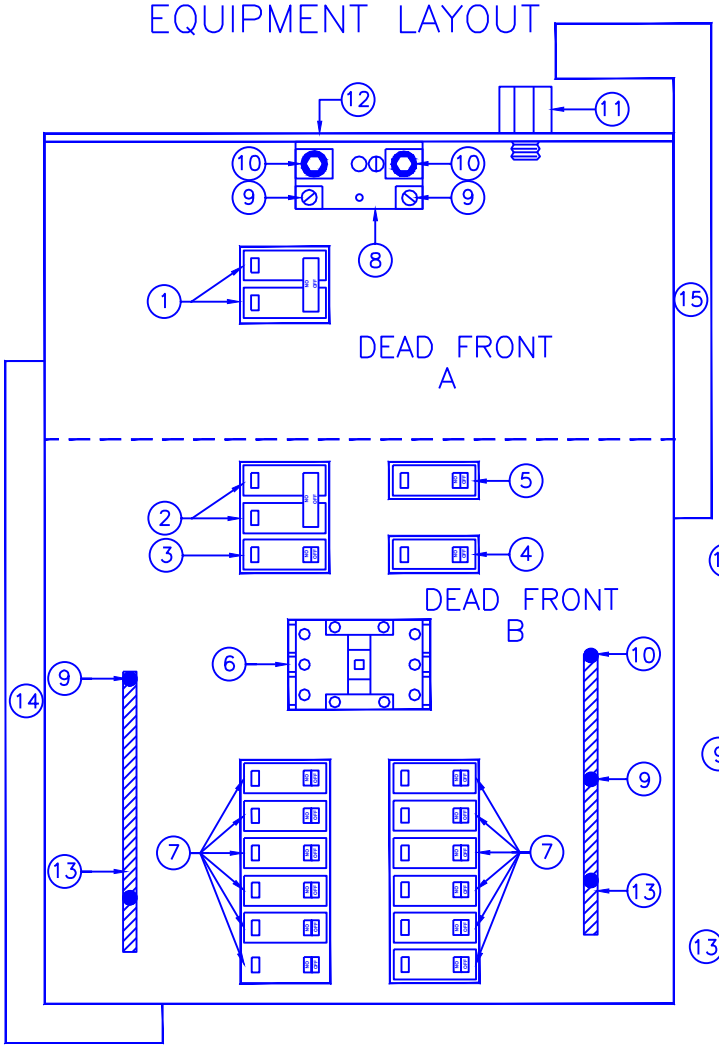


SUPPLY CONTROL CABINET INSTALLATION

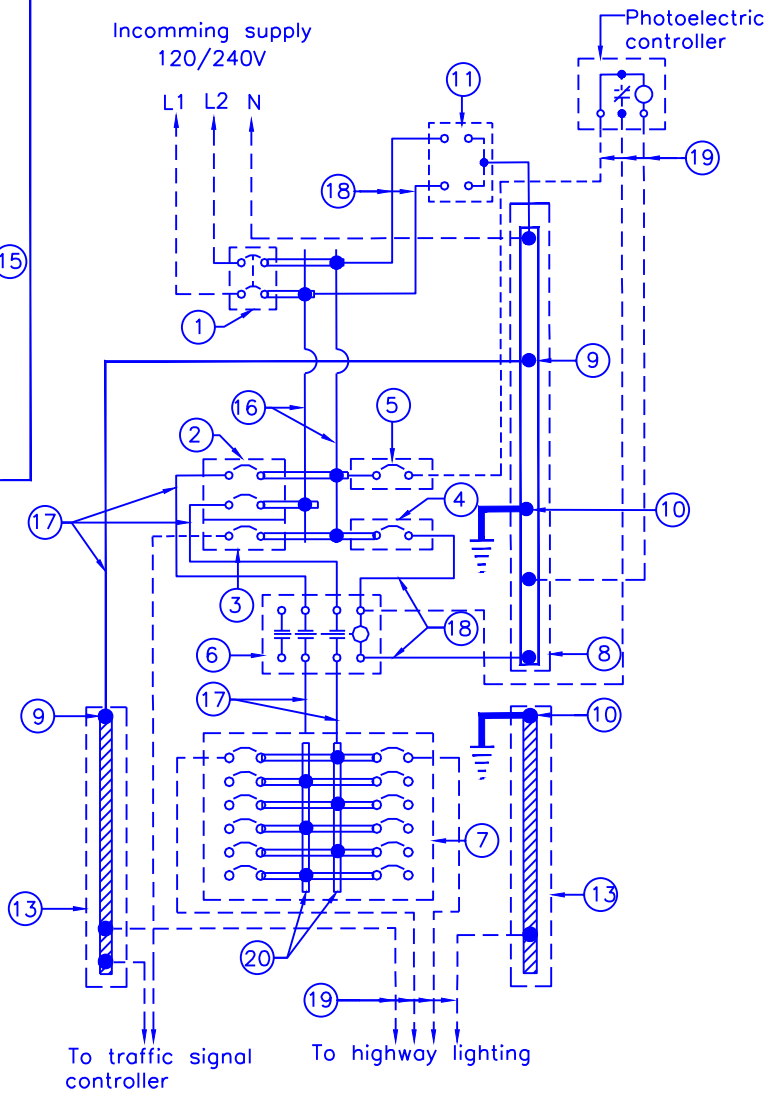
OVERHEAD AND UNDERGROUND SERVICES FOR BASE MOUNTED POLE

DATE: June 29, 2011	SCALE: NTS	Niagara Region PUBLIC WORKS	
UPDATED BY: H.D.M.	DRAWN BY: T.C		NRS 2131

EQUIPMENT LAYOUT



SCHEMATIC WIRING DIAGRAM



ELECTRICAL EQUIPMENT LIST

1. Main circuit breaker – 100A, 2–pole.
2. Lighting circuit breaker – 60A, 2–pole.
3. Traffic signal circuit breaker – 1–pole, ampacity as specified
4. Circuit breaker used for relamping – 15A, 1–pole.
5. Circuit breaker for photoelectric controller – 15A, 1–pole.
6. Lighting contactor – 60A, 2–pole, 120V coil
7. Branch circuit breakers – 30A, 1–pole. number of breakers as specified
8. Solid neutral assembly – 100 A minimum, copper
9. Ground lug for NO. 6 AWG stranded copper ground wire.
10. Ground lug for No. 2/0 AWG stranded copper ground wire
11. Secondary lightning arrester, 650V, 2–pole.
12. Drip shield.
13. Secondary neutral and ground bus according to CSA, and as specified
14. Primary barrier.
15. Secondary barrier.
16. No. 3 AWG RWU90 wire or copper bus bar
17. No. 6 AWG RWU90 wire
18. No. 12 AWG RWU90 wire
19. Field wiring
20. Copper bus bar

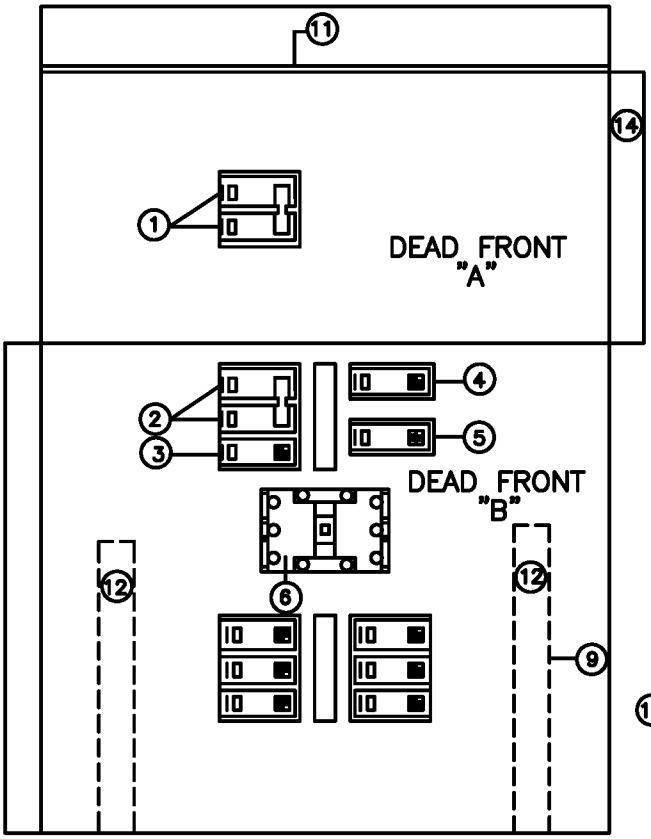
NOTE:
This NRS shall be read in conjunction with OPSD 2440.040, 2440.050, and 2440.060.

SUPPLY CONTROL CABINET ASSEMBLY TYPE 1

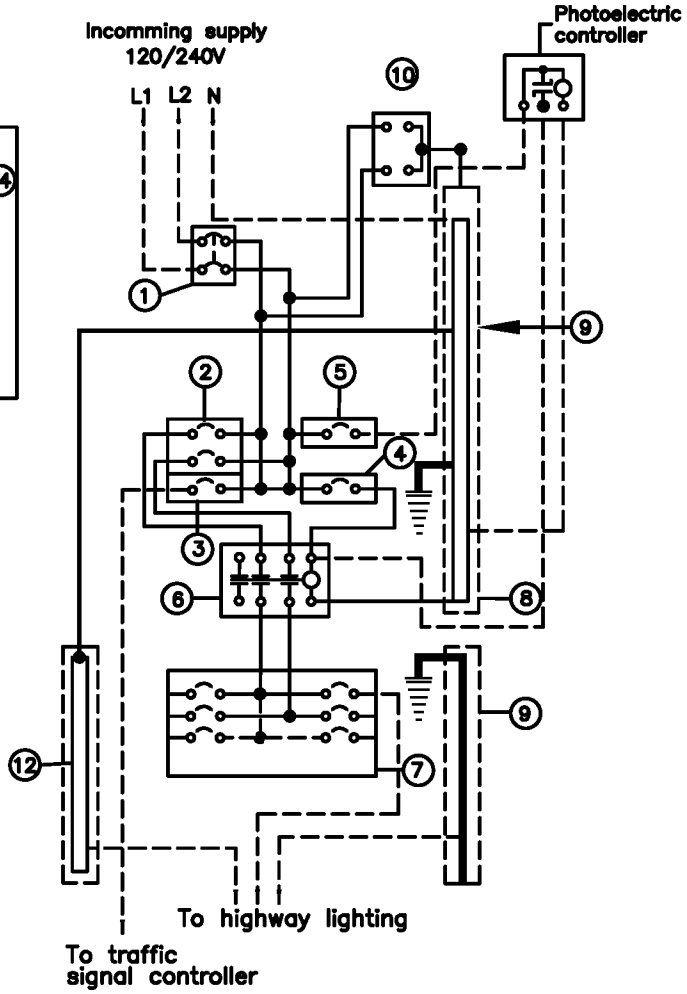
120/240, 100A, 1–PHASE, 3–WIRE

DATE: October 11, 2022	SCALE: NTS	Niagara Region PUBLIC WORKS
UPDATED BY: N.R.L	DRAWN BY: T.C	NRS 2440

EQUIPMENT LAYOUT



SCHEMATIC WIRING DIAGRAM



ELECTRICAL EQUIPMENT LIST

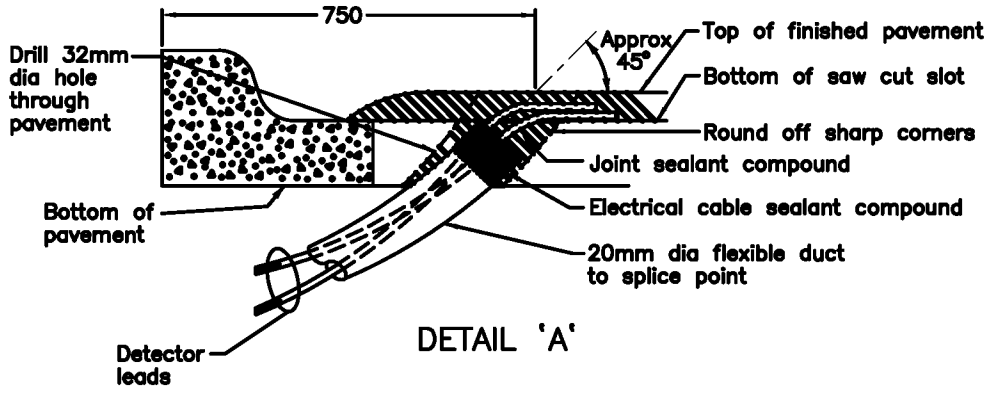
1. Main circuit breaker – 240V, 60A, 2–pole.
2. Lighting circuit breaker – 240V, 60A, 2–pole.
3. Traffic signal circuit breaker – 120V, 40A, 1–pole.
4. Circuit breaker used for relamping – 120V, 15A, 1–pole.
5. Circuit breaker for photoelectric controller – 120V, 15A, 1–pole.
6. Lighting contactor – 240V, 60A, 3–pole, 120V coil.
7. Branch circuit breakers – 120V, 30A 1–pole, 120V, 20A 1–pole and 1 120V, 15A 1–pole
8. Solid neutral assembly – 100 A minimum
9. Ground lug for #6 AWG stranded copper ground wire.
10. Secondary lightning arrester, 650V, 2–pole.
11. Drip shield.
12. Secondary neutral and ground bus according to CSA, ESA and project requirements.
13. Primary barrier.
14. Secondary barrier.

LEGEND:

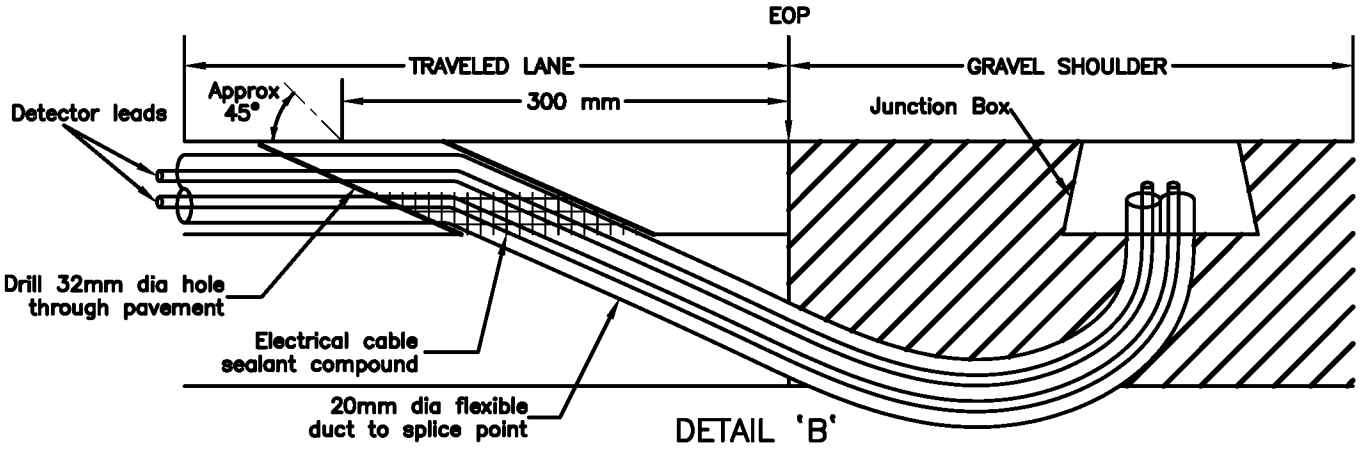
- Denotes terminal connection.
- Denotes #4 AWG RWU90 wire.
- Denotes #12 AWG RWU90 wire.
- Denotes field wiring (sizes as indicated elsewhere on the contract drawings).
- Denotes Ground bus.

SUPPLY CONTROL CABINET ASSEMBLY TYPE 3S 120/240, 100A, 1–PHASE, 3–WIRE

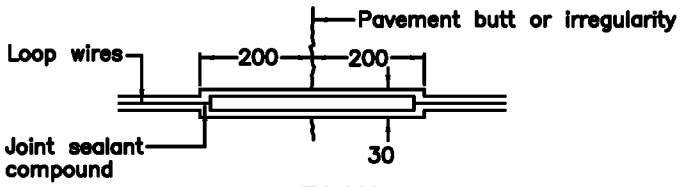
DATE: January 29, 2016	SCALE: NTS	Niagara Region PUBLIC WORKS
UPDATED BY: A.S	DRAWN BY: T.C	NRS 2441



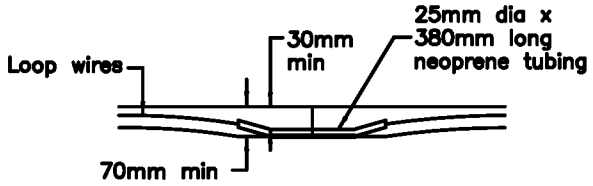
DETAIL 'A'



DETAIL 'B'

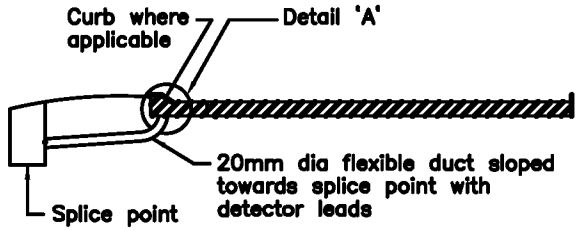


PLAN

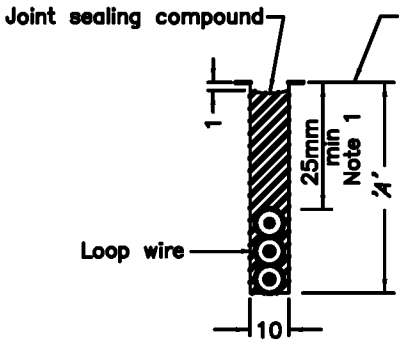


ELEVATION

DETAIL—PAVEMENT BUTT OR IRREGULARITY



SECTION A—A



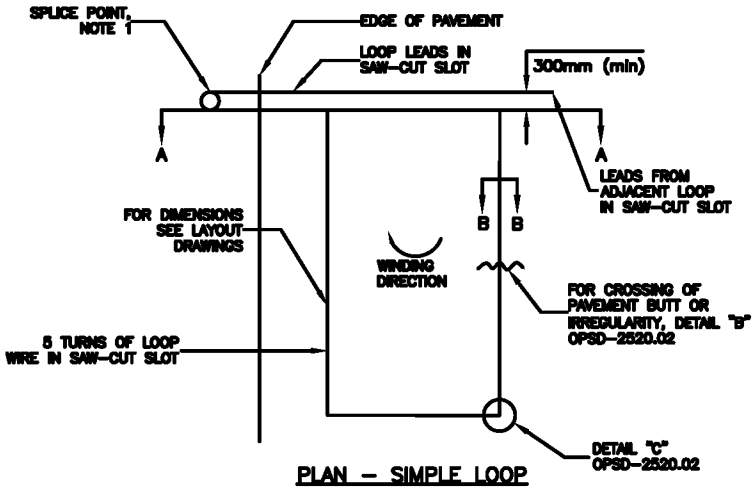
Number of Loop Wire	'A' mm min.
1	55
2	55
3	55
4	60
5	65
6	70

SECTION B—B

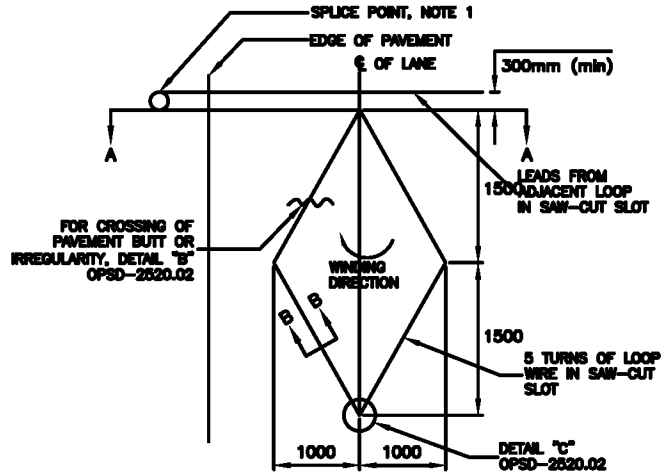
NOTES:

1 Where cable is installed prior to the finished top course paving, the maximum depth of cover shall be 100mm.
2 This drawing shall be read in conjunction with OPSD—2520.01.
3 All dimensions are in millimetres or metres unless otherwise shown.
4 All loops shall be tested and tagged with impedence reading.
5 Loop leads shall be twisted together a minimum of 5 turns per foot exiting the loop.

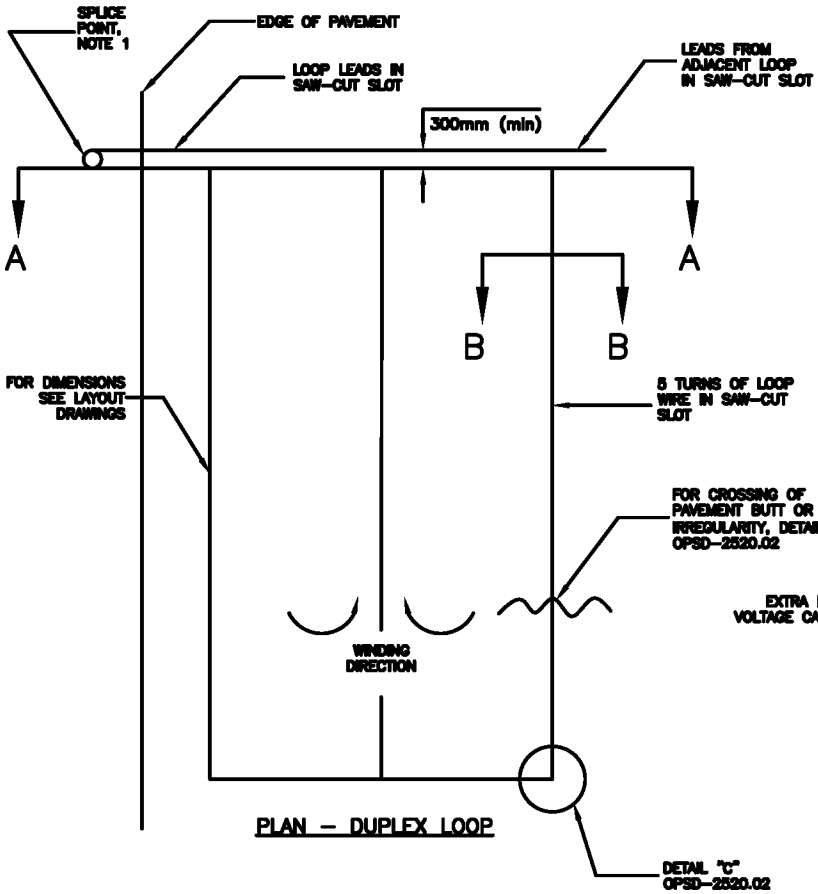
LOOP DETECTOR INSTALLATION DETAILS		Niagara Region PUBLIC WORKS	
DATE: February 11, 2011	SCALE: NTS		
UPDATED BY: H.D.M.	DRAWN BY: T.C	MODIFIED OPSD – 2520.02	NRS 2520



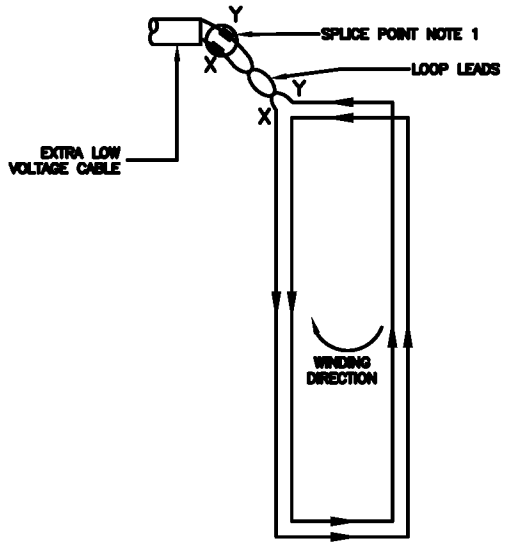
PLAN – SIMPLE LOOP



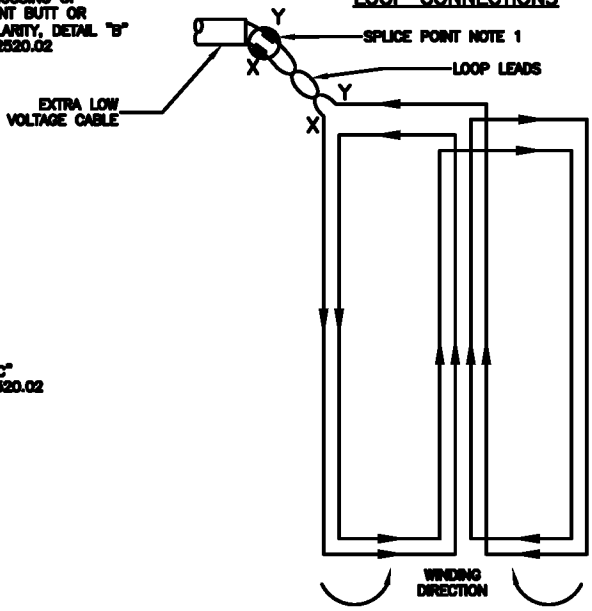
PLAN – DIAMOND LOOP



PLAN – DUPLEX LOOP



SIMPLEX/DIAMOND LOOP CONNECTIONS

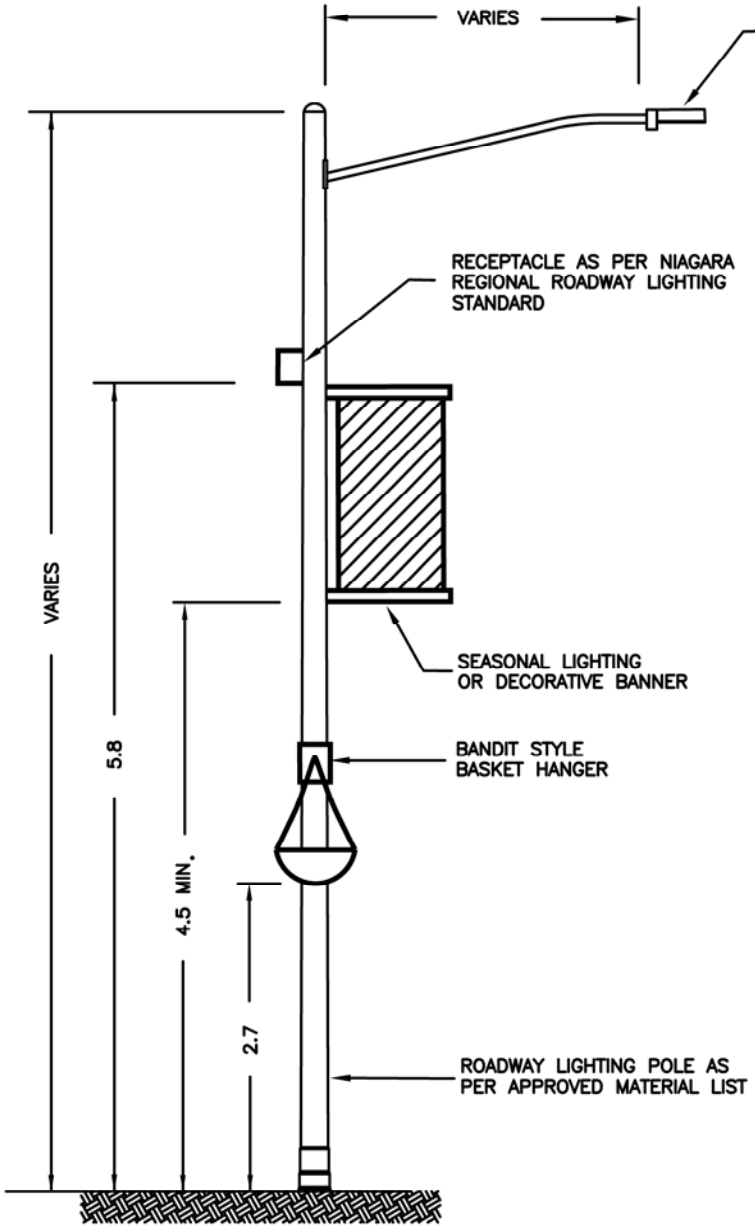


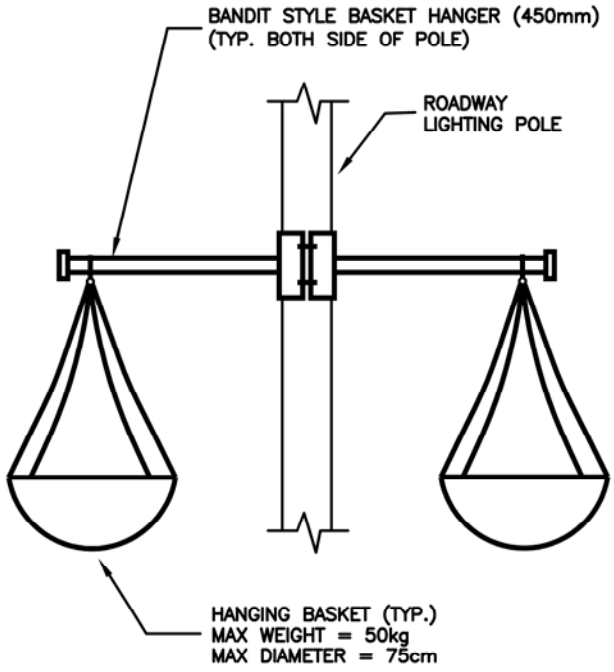
DUPLEX LOOP CONNECTIONS

NOTES:

1 FOR LOCATION OF JUNCTION BOX OR POLE SPLICE REFER TO LAYOUT DRAWINGS.
A FOR SECTIONS A–A & B–B, REFER TO OPSD–2520.02.
B FOR SPLICE TO EXTRA LOW VOLTAGE CABLE, REFER TO OPSD–2530.01.
C ALL DIMENSIONS ARE IN MILLIMETERS OR METERS UNLESS OTHERWISE SHOWN.

LOOP DETECTOR INSTALLATION DETAILS 2		Niagara Region PUBLIC WORKS	
DATE: February 11, 2011	SCALE: NTS		
UPDATED BY: H.D.M.	DRAWN BY: T.C	MODIFIED OPSD – 2520.01	NRS 2521





HANGING BASKET DETAIL

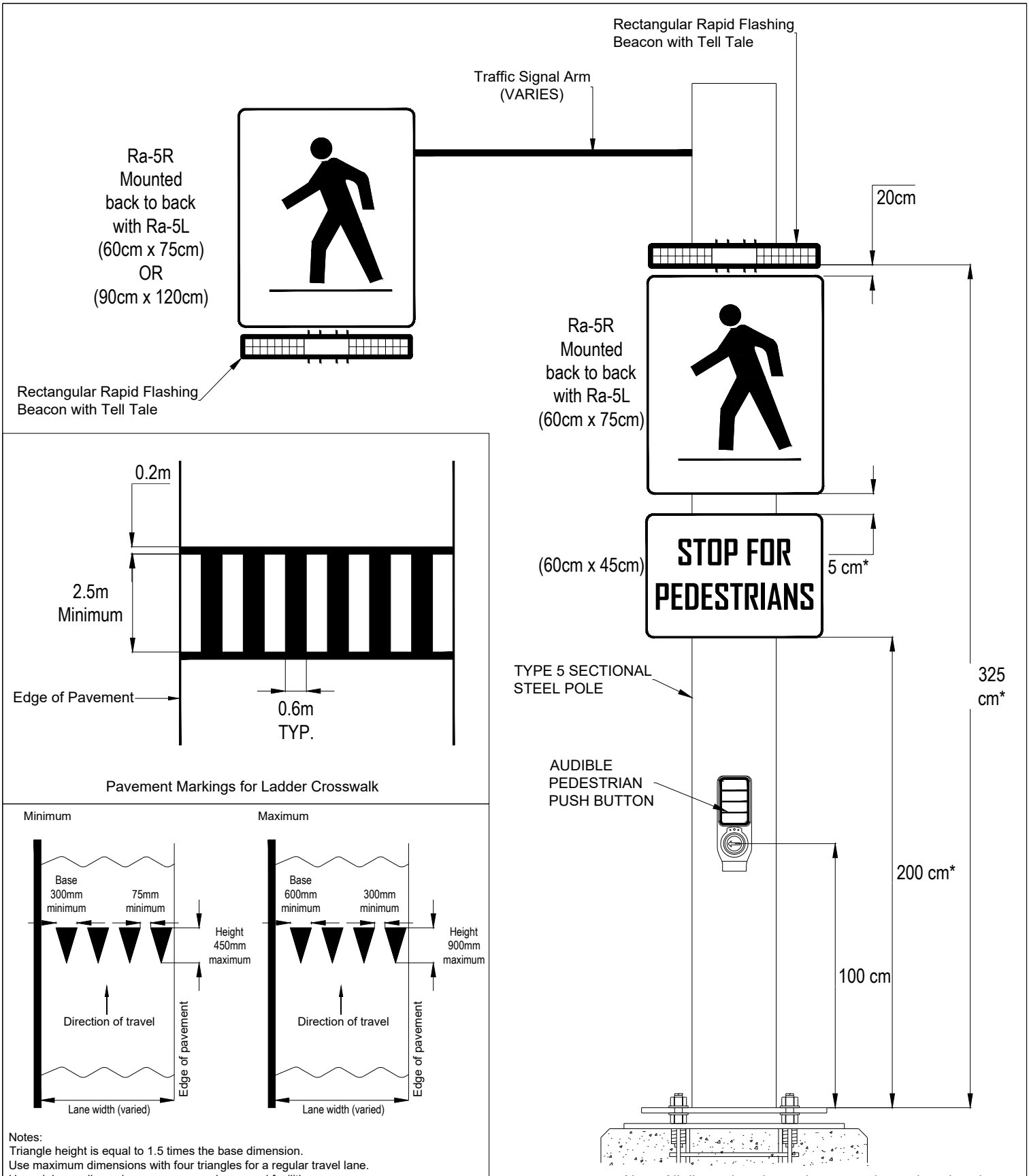
NOTES:

A. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN

B. POLES ARE TO BE PRE–DRILLED FROM THE MANUFACTURER FOR ALL WIRING APERTURES, BRACKETS AND BANNER ARMS

C. ALL CONNECTION HARDWARE AND APPURTENANCES MUST BE APPROVED BY NIAGARA REGION

DECORATIVE ACCESSORIES ON ROADWAY LIGHTING POLE		Niagara Region PUBLIC WORKS
DATE: FEBRUARY 26, 2016	SCALE: N.T.S	
UPDATED BY: B.D.C	DRAWN BY: B.D.C	NRS 2522



Pavement Markings for Ladder Crosswalk

Notes:
Triangle height is equal to 1.5 times the base dimension.
Use maximum dimensions with four triangles for a regular travel lane.
Use minimum dimensions on narrower, low speed facilities.

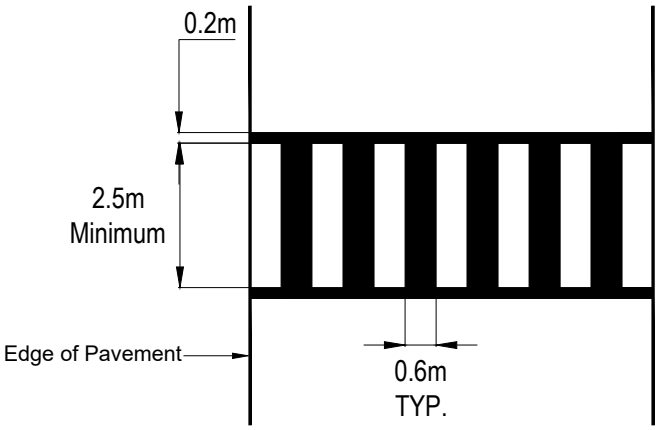
Yield to Pedestrian Line

Note: All dimensions in centimeters unless otherwise shown.
* Ideal mounting heights whenever possible.
* Dimensions may vary slightly by location

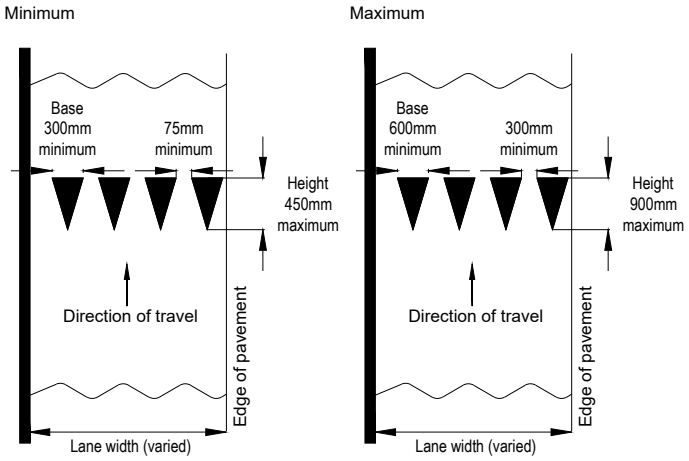
PXO CROSSING – LEVEL 2 TYPE B SIGN LAYOUT AND DIMENSION DETAIL

Niagara Region
PUBLIC WORKS

DATE: October 4, 2022	SCALE: NTS		
UPDATED BY: TC	DRAWN BY: TC	MODIFIED OPSD – N/A	NRS 2600

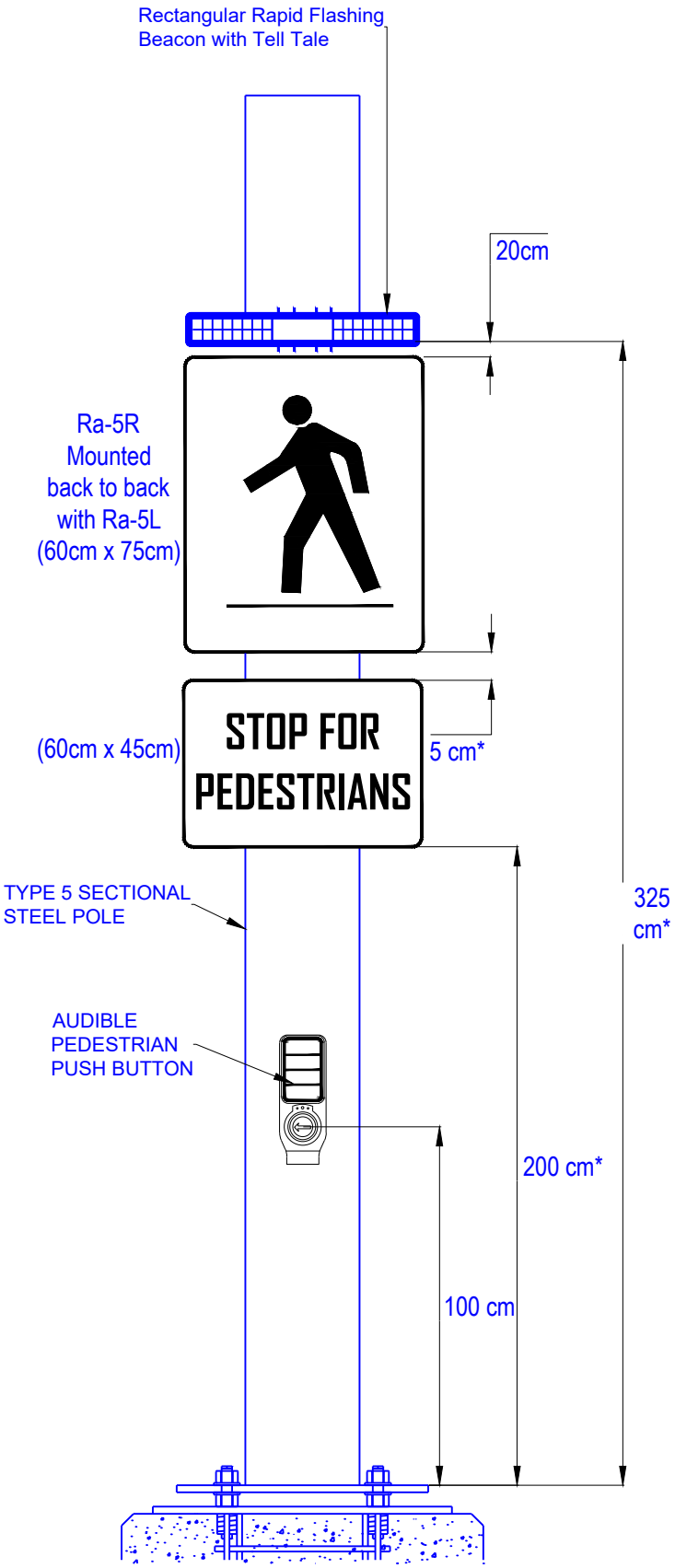


Pavement Markings for Ladder Crosswalk



Notes:
Triangle height is equal to 1.5 times the base dimension.
Use maximum dimensions with four triangles for a regular travel lane.
Use minimum dimensions on narrower, low speed facilities.

Yield to Pedestrian Line

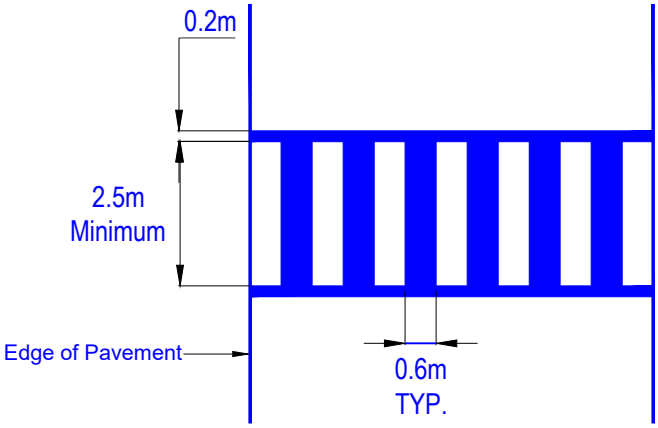


Note: All dimensions in centimeters unless otherwise shown.
* Ideal mounting heights whenever possible.
* Dimensions may vary slightly by location

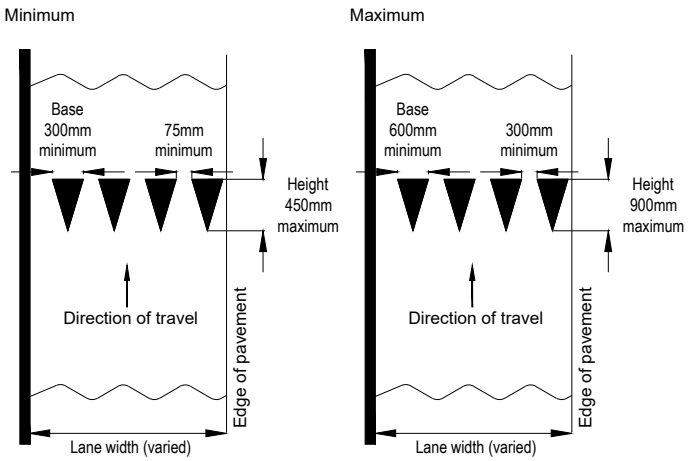
PXO CROSSING – LEVEL 2 TYPE C SIGN LAYOUT AND DIMENSION DETAIL

Niagara Region
PUBLIC WORKS

DATE: October 4, 2022	SCALE: NTS		
UPDATED BY: ___	DRAWN BY: N.R.L	MODIFIED OPSD – N/A	NRS 2610

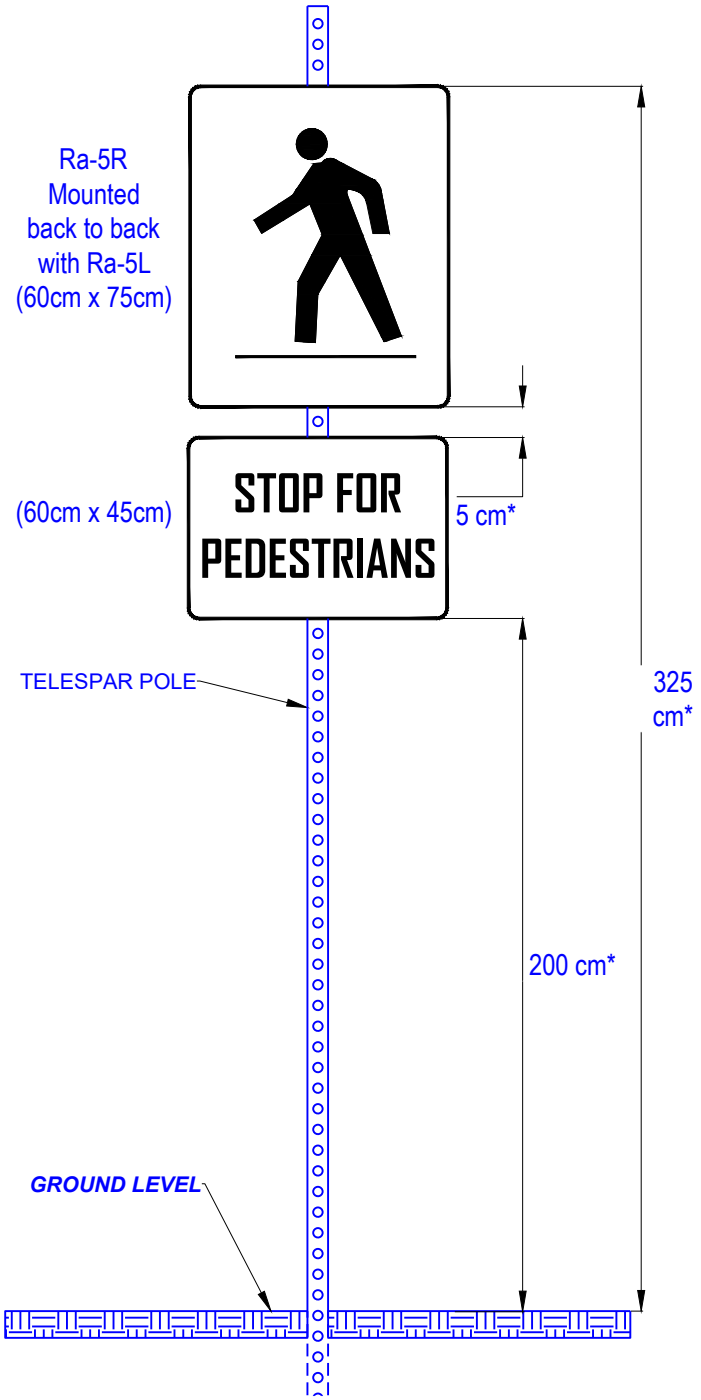


Pavement Markings for Ladder Crosswalk



Notes:
Triangle height is equal to 1.5 times the base dimension.
Use maximum dimensions with four triangles for a regular travel lane.
Use minimum dimensions on narrower, low speed facilities.

Yield to Pedestrian Line

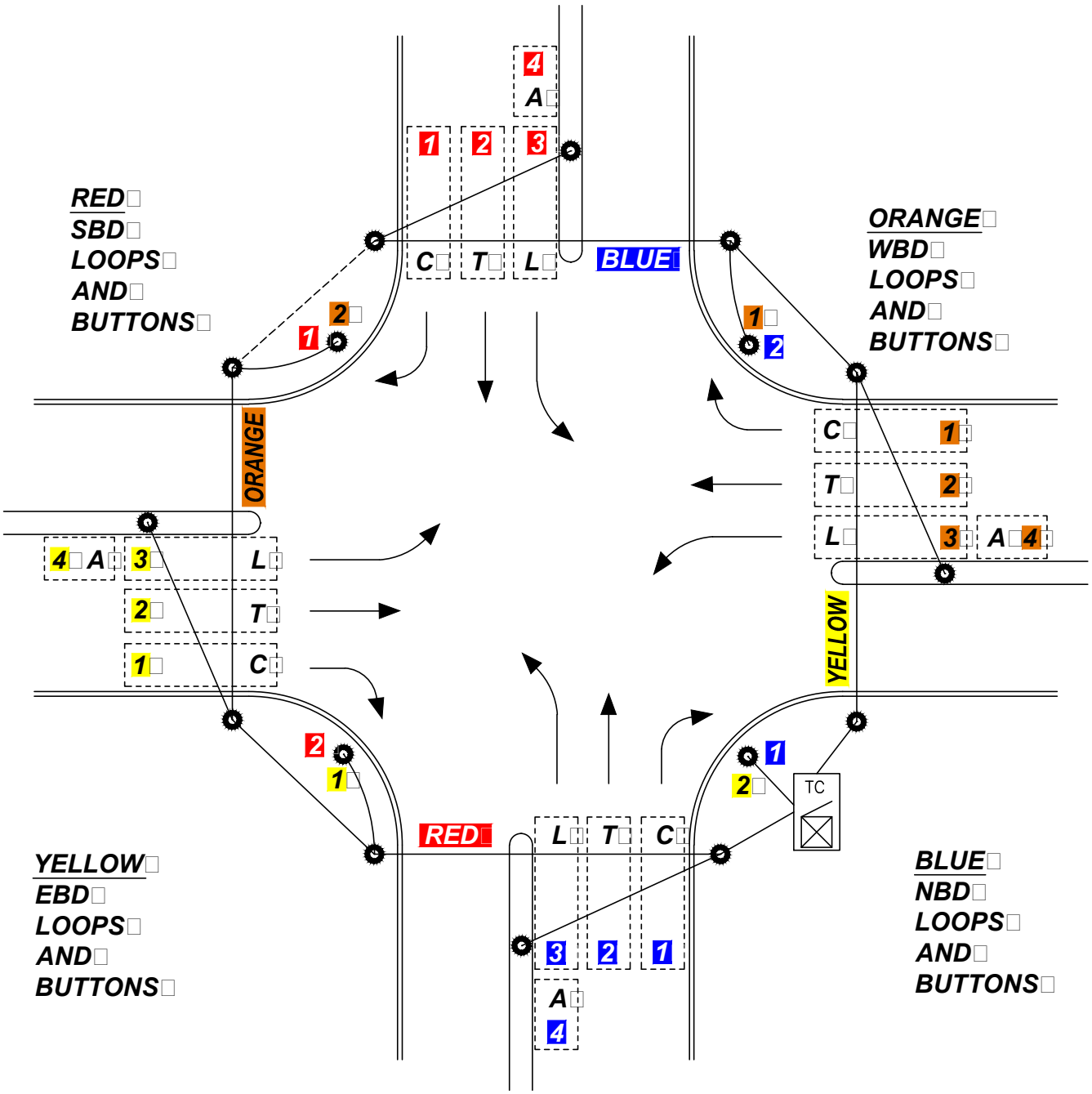


Note: All dimensions in centimeters unless otherwise shown.
* Ideal mounting heights where ever possible.
* Dimensions may vary slightly by location.

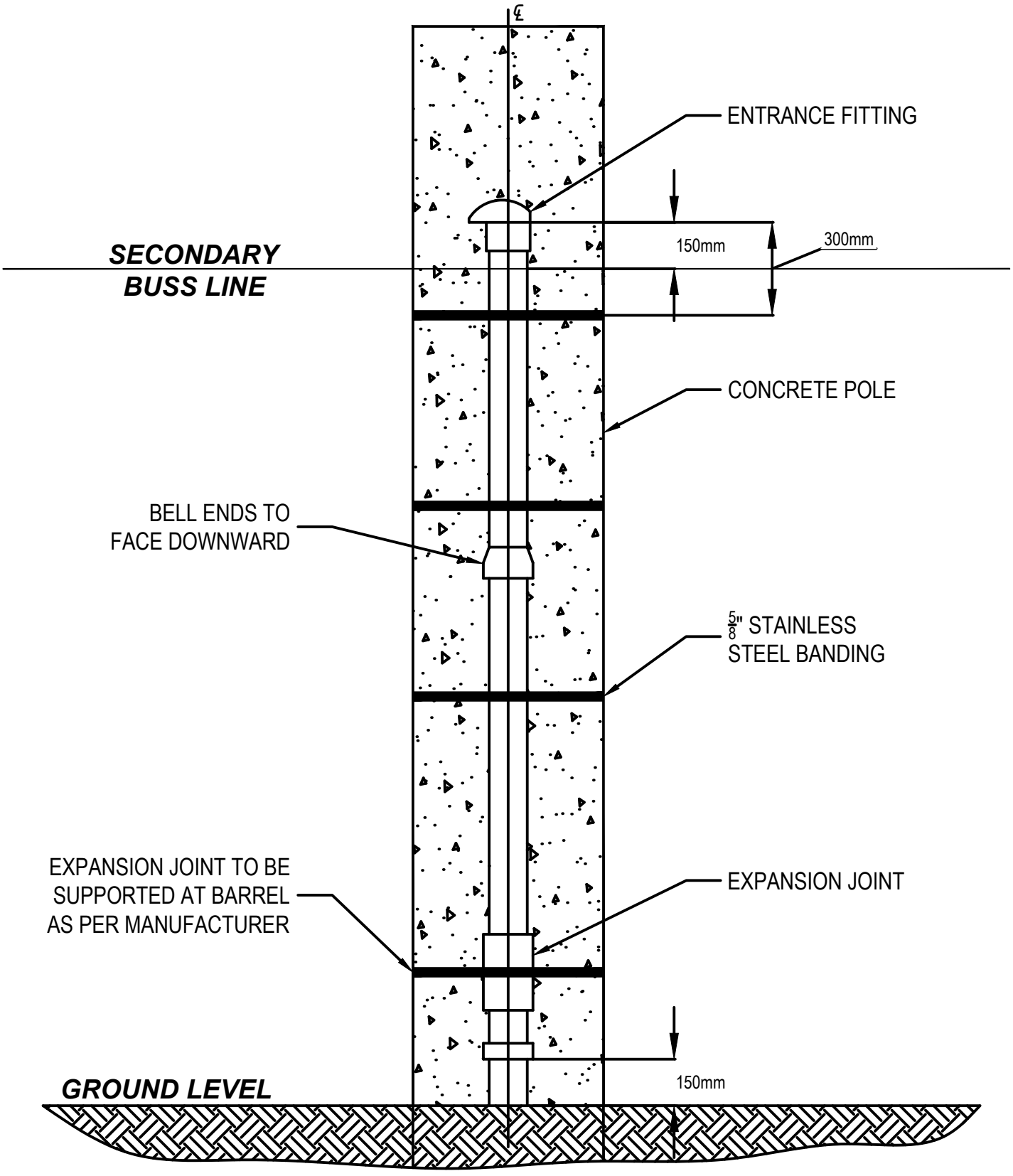
PXO CROSSING – LEVEL 2 TYPE D SIGN LAYOUT AND DIMENSION DETAIL

Niagara Region
PUBLIC WORKS

DATE: October 4, 2022	SCALE: NTS		
UPDATED BY: ___	DRAWN BY: TC	MODIFIED OPSD – N/A	NRS 2620



SIGNAL CABLE COLOUR IDENTIFICATION		Niagara Region PUBLIC WORKS	
DATE: February 25, 2014	SCALE: NTS		
UPDATED BY: A.S.	DRAWN BY: M.K	MODIFIED OPSD – N/A	NRS 2710

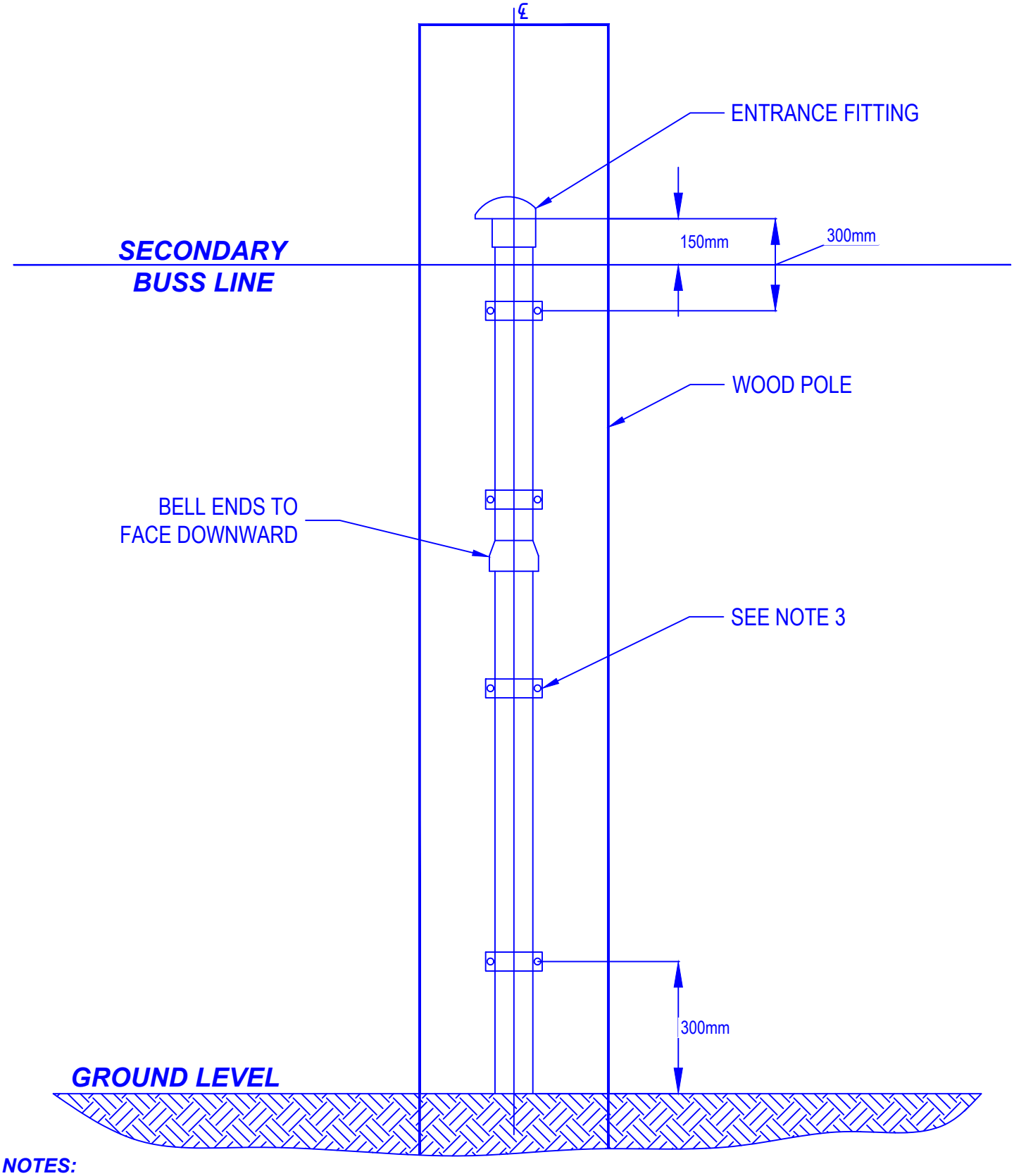


NOTES:

1. CONDUIT TO BE INSTALLED ON OPPOSITE SIDE OF TRAFFIC FLOW (WHERE POSSIBLE).

2. CONDUIT TO BE SUPPORTED AS PER OEC 12 (1114).

PVC CONDUIT INSTALLATION CONCRETE POLE		Niagara Region PUBLIC WORKS	
DATE: APRIL 28, 2015	SCALE: NTS		
UPDATED BY: GW	DRAWN BY: TC	MODIFIED OPSD – N/A	NRS 2800



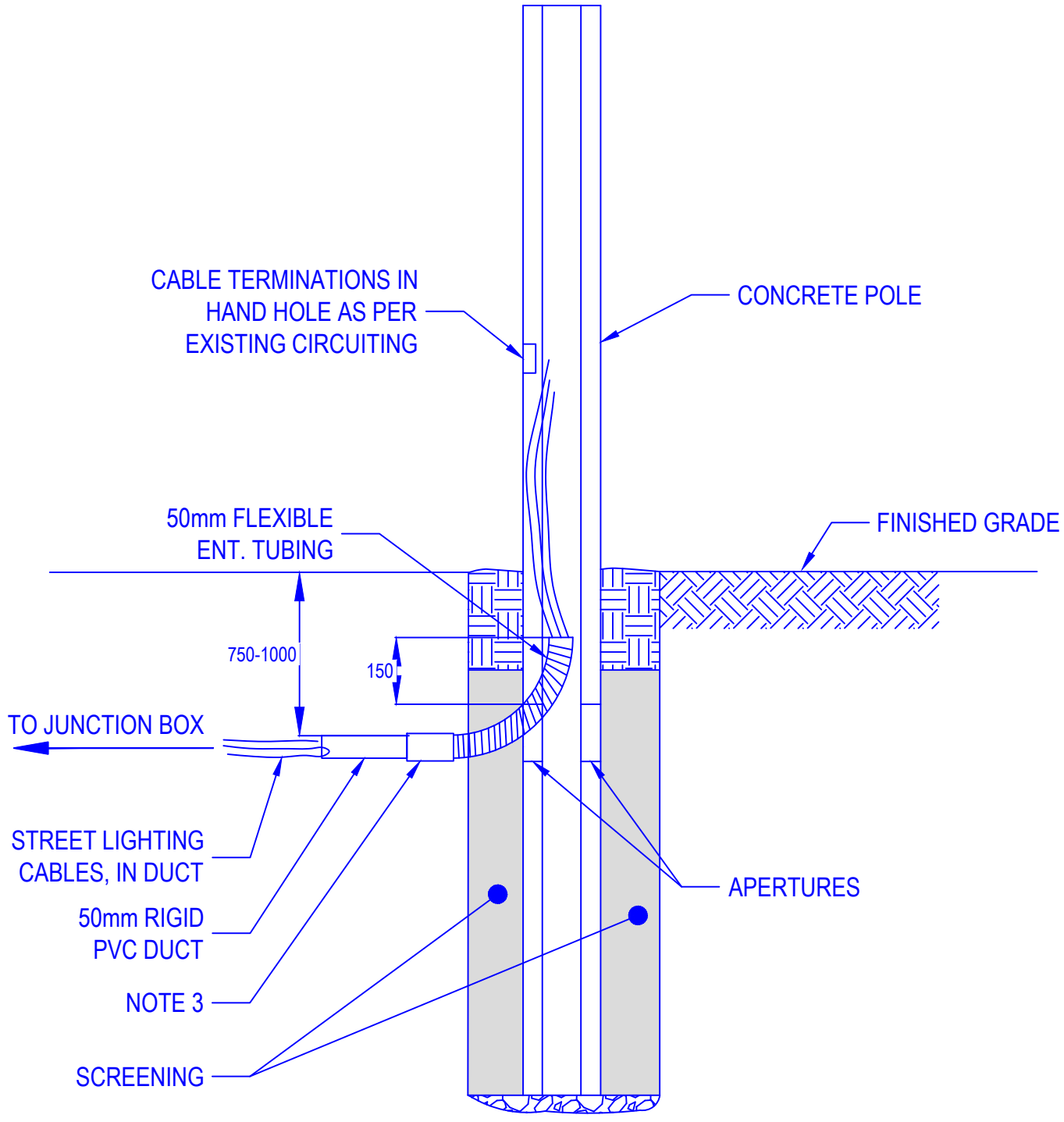
NOTES:

1. CONDUIT TO BE INSTALLED ON OPPOSITE SIDE OF TRAFFIC FLOW (WHERE POSSIBLE).

2. CONDUIT TO BE SUPPORTED AS PER OEC 12 (1114).

3. PVC COATED METAL TWO HOLE STRAPS, ONE TRADE SIZE LARGER THAN CONDUIT USING $\frac{1}{4}$" X 3" GALVANIZED LAG SCREWS.

PVC CONDUIT INSTALLATION WOOD POLE		Niagara Region PUBLIC WORKS	
DATE: APRIL 28, 2015	SCALE: NTS		
UPDATED BY: GW	DRAWN BY: TC	MODIFIED OPSD – N/A	NRS 2810



NOTES:

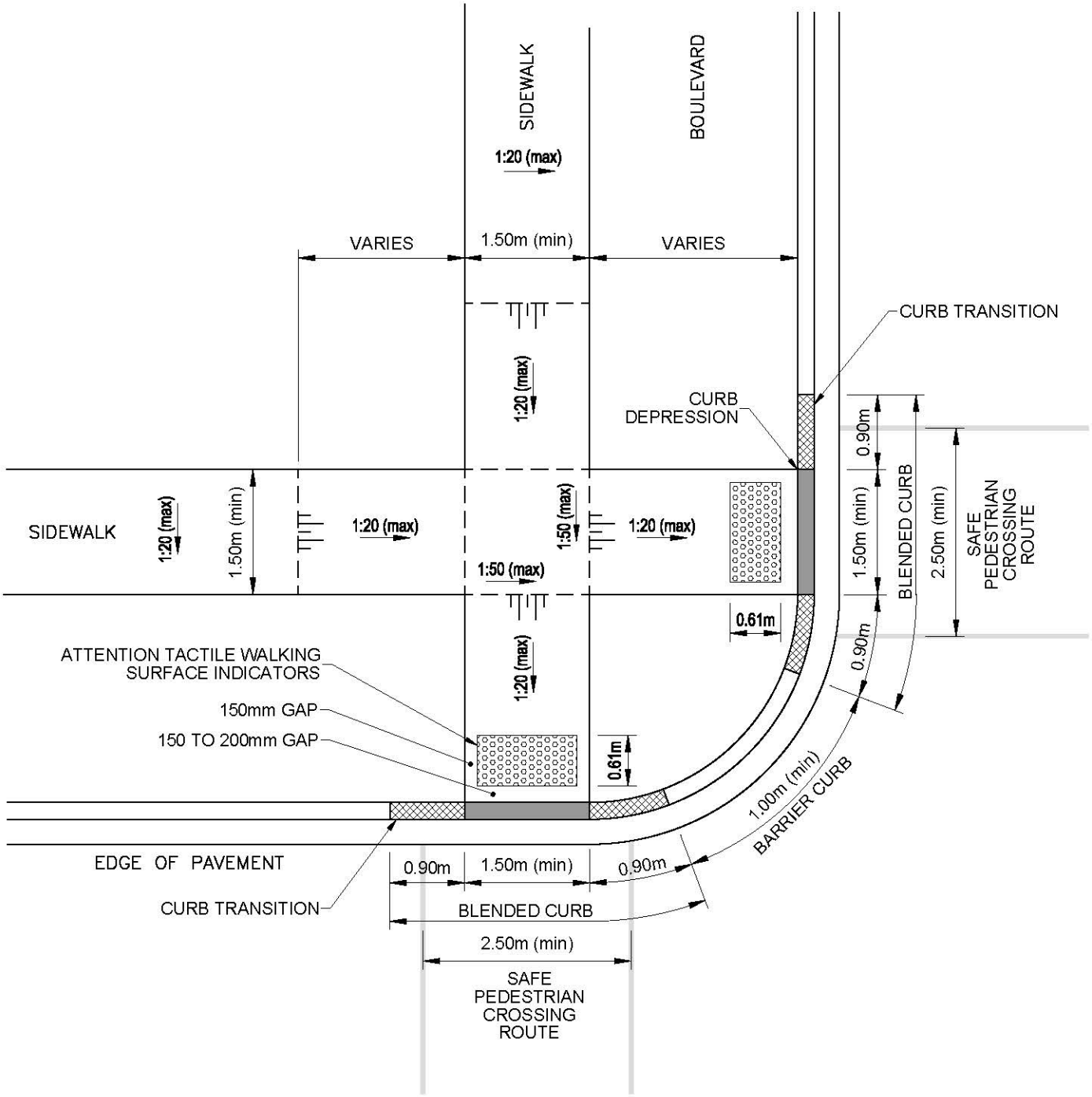
1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS (mm) UNLESS OTHERWISE INDICATED.

2. AREAS DISTURBED BY POLE INSTALLATION SHALL BE REINSTATED TO MATCH SURROUNDING EXISTING CONDITIONS.

3. RIGID PVC DUCT SHALL BE CONNECTED TO FLEXIBLE TUBING WITH IPEX ARIG-20 (OR APPROVED EQUAL) ADAPTER BY SOLVENT WELD.

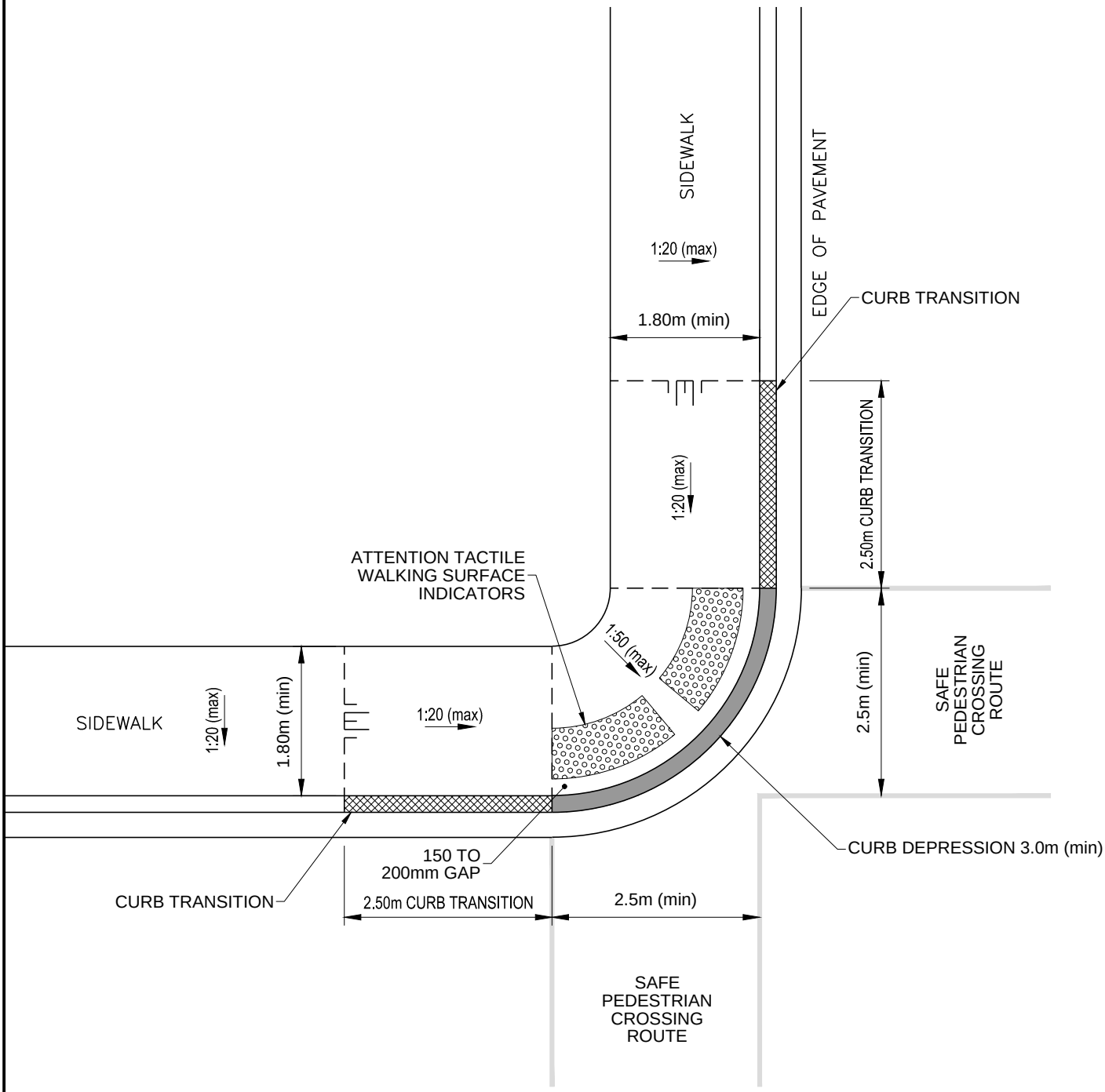
4. SCREENING TO BE USED AS BACKFILL.

DUCT TERMINATION CONCRETE POLE		Niagara Region PUBLIC WORKS	
DATE: APRIL 28, 2015	SCALE: NTS		
UPDATED BY: GW	DRAWN BY: TC	MODIFIED OPSD – N/A	NRS 2820



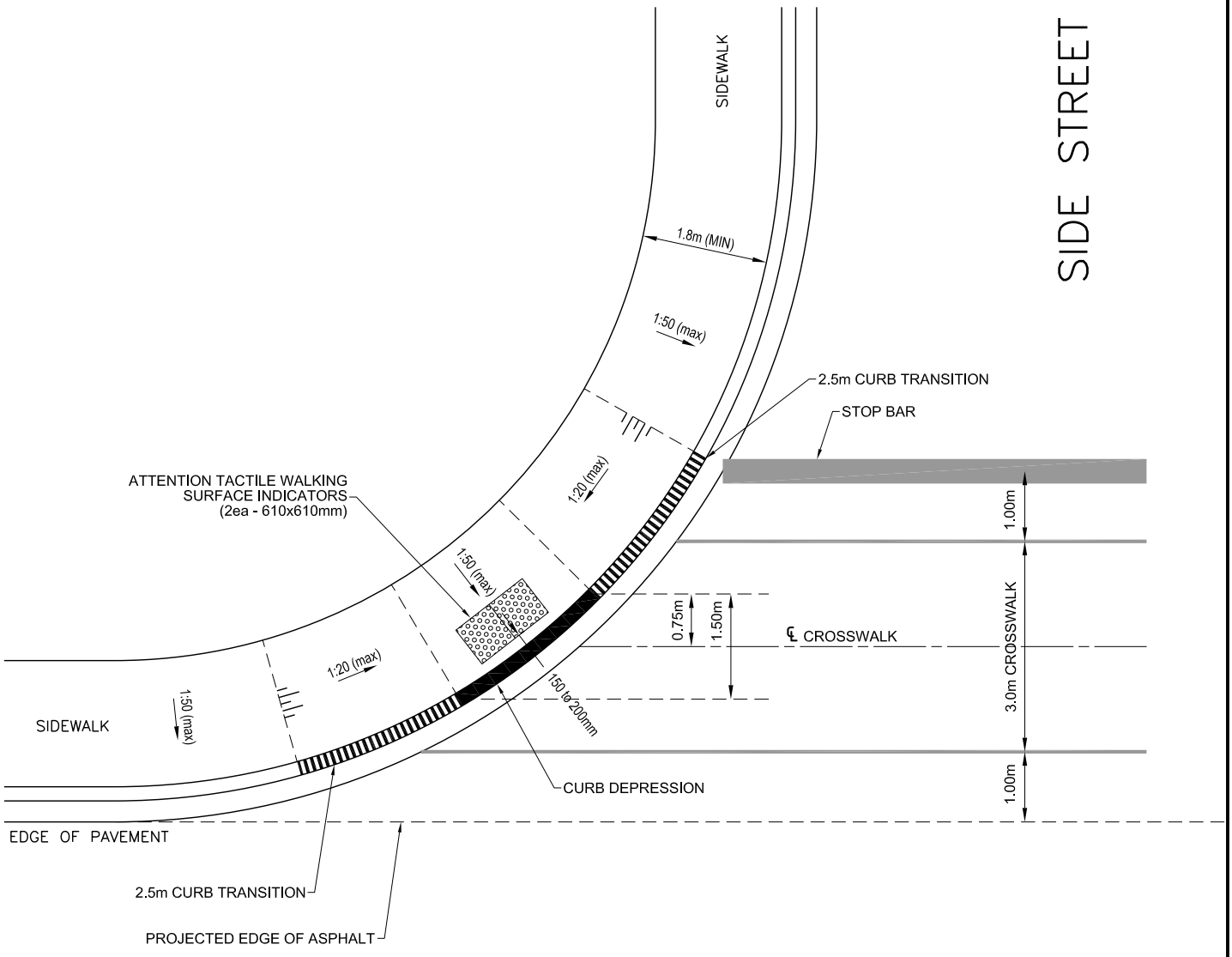
BLENDED CURBS USED AT 4-WAY INTERSECTION WITH STANDARD SIDEWALK

ATTENTION TACTILE WALKING SURFACE INDICATORS		NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE: APRIL 17 2014	SCALE: NTS		
APPROVED BY: FT	DRAWN BY: MTK		NRS 3001



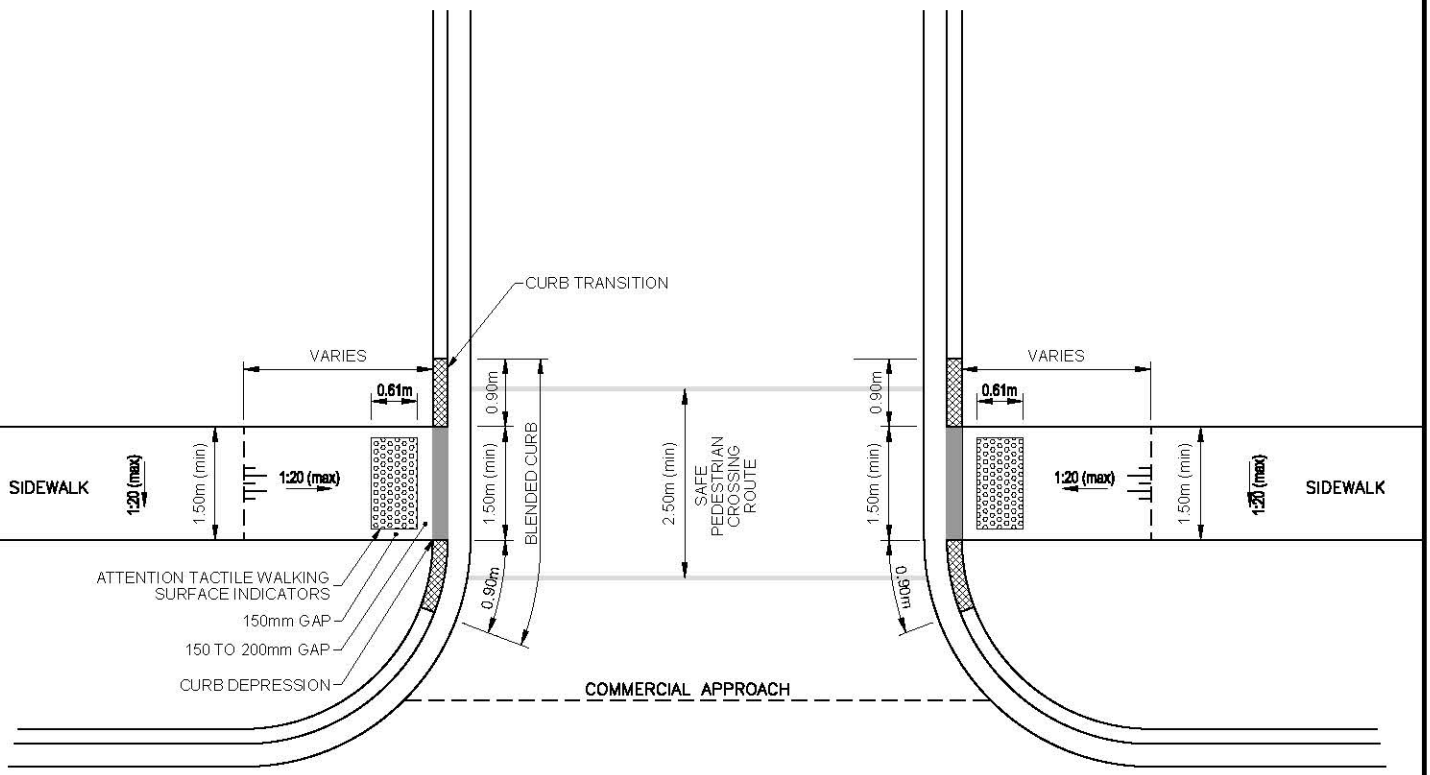
WRAPAROUND BLENDED CURB WITH CURB FACE SIDEWALK

ATTENTION TACTILE WALKING SURFACE INDICATORS				NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE:	APRIL 17 2014	SCALE:	NTS		
APPROVED BY:	FT	DRAWN BY:	MTK		NRS 3002



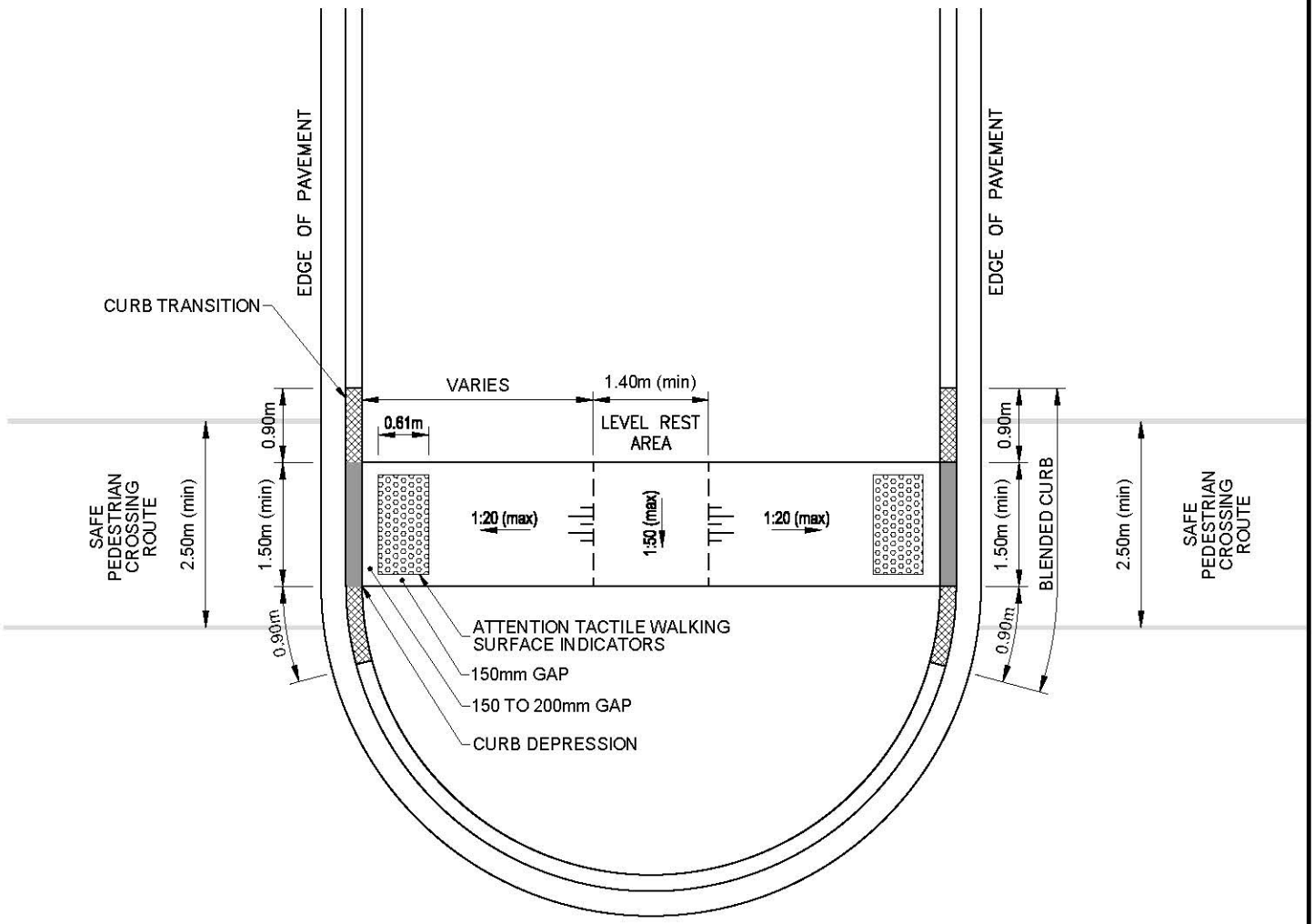
CURB FACED SIDEWALK AND CROSS WALK AT INTERSECTION WITH SIDE STREET STOP CONTROL

ATTENTION TACTILE WALKING SURFACE INDICATORS				
DATE:	MAR 06 2018	SCALE:	NTS	
APPROVED BY:	FT	DRAWN BY:	MTK	NRS 3002.5



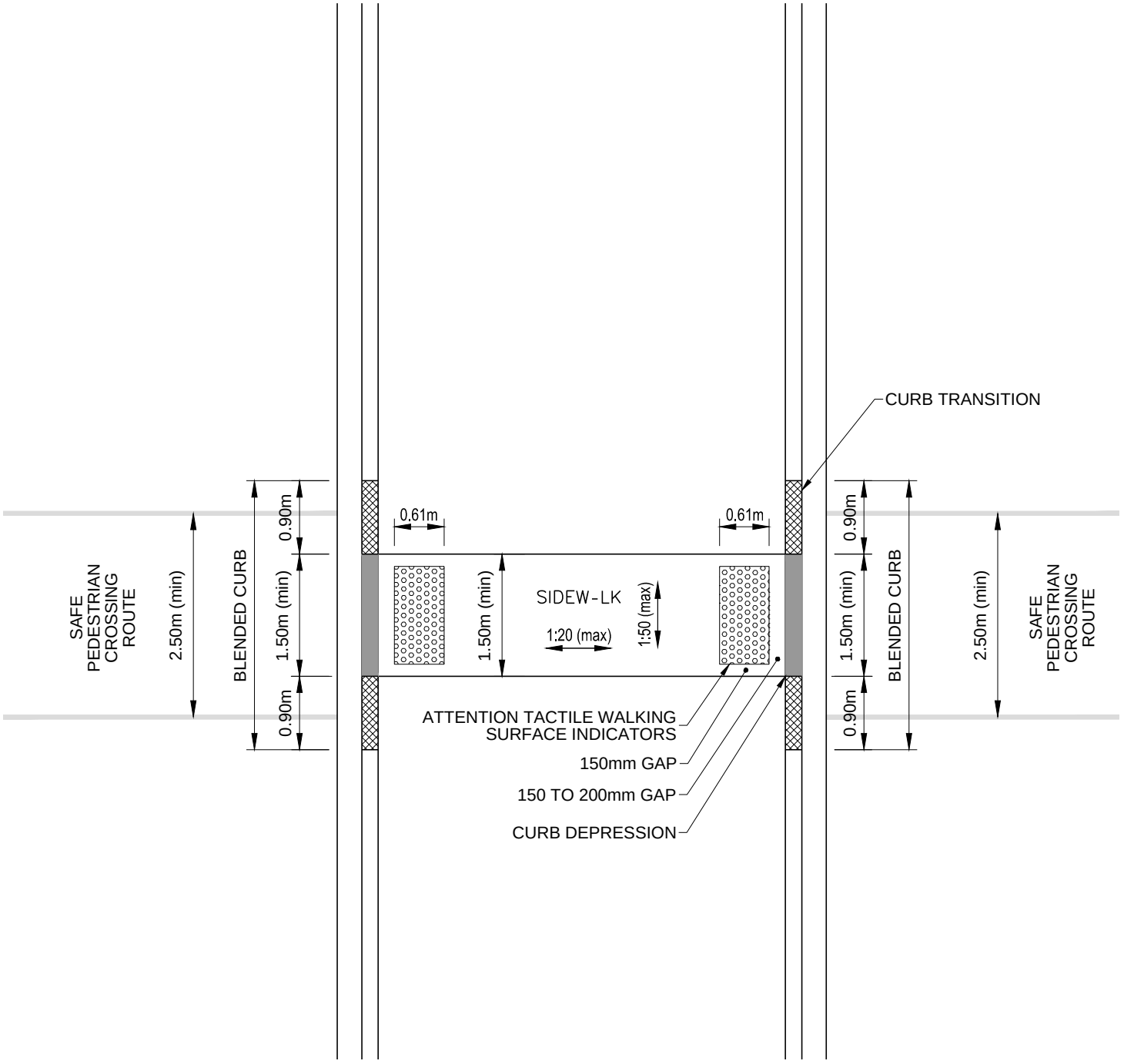
BLENDED CURBS THAT ARE ALIGNED ON THE SAME AXIS

ATTENTION TACTILE WALKING SURFACE INDICATORS				NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE:	APRIL 17 2014	SCALE:	NTS		
APPROVED BY:	FT	DRAWN BY:	MTK		NRS 3003



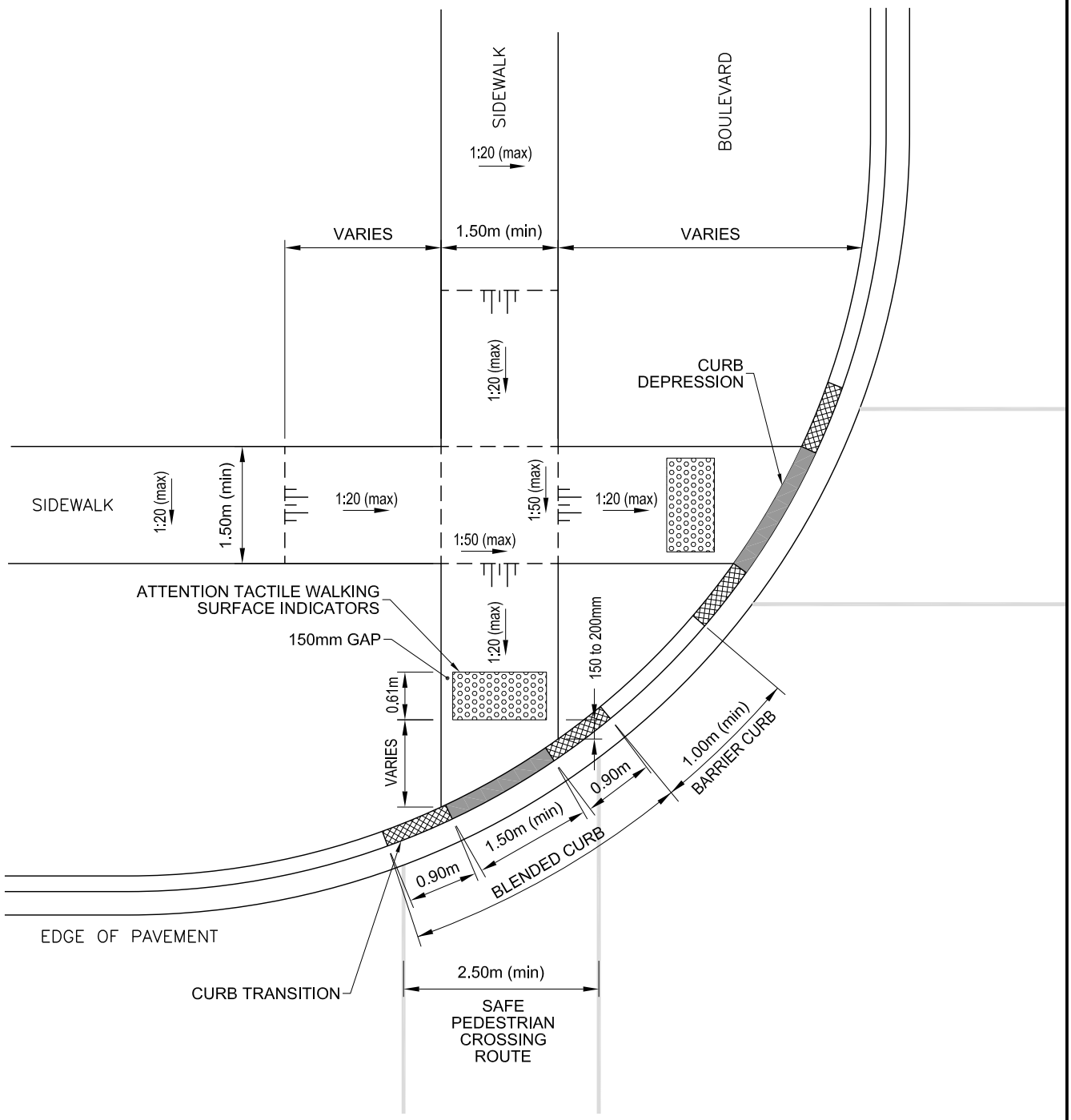
BLENDED CURBS TO FACILITATE ACCESS TO AN ISLAND

ATTENTION TACTILE WALKING SURFACE INDICATORS		NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE: APRIL 17 2014	SCALE: NTS		
APPROVED BY: FT	DRAWN BY: MTK		NRS 3004



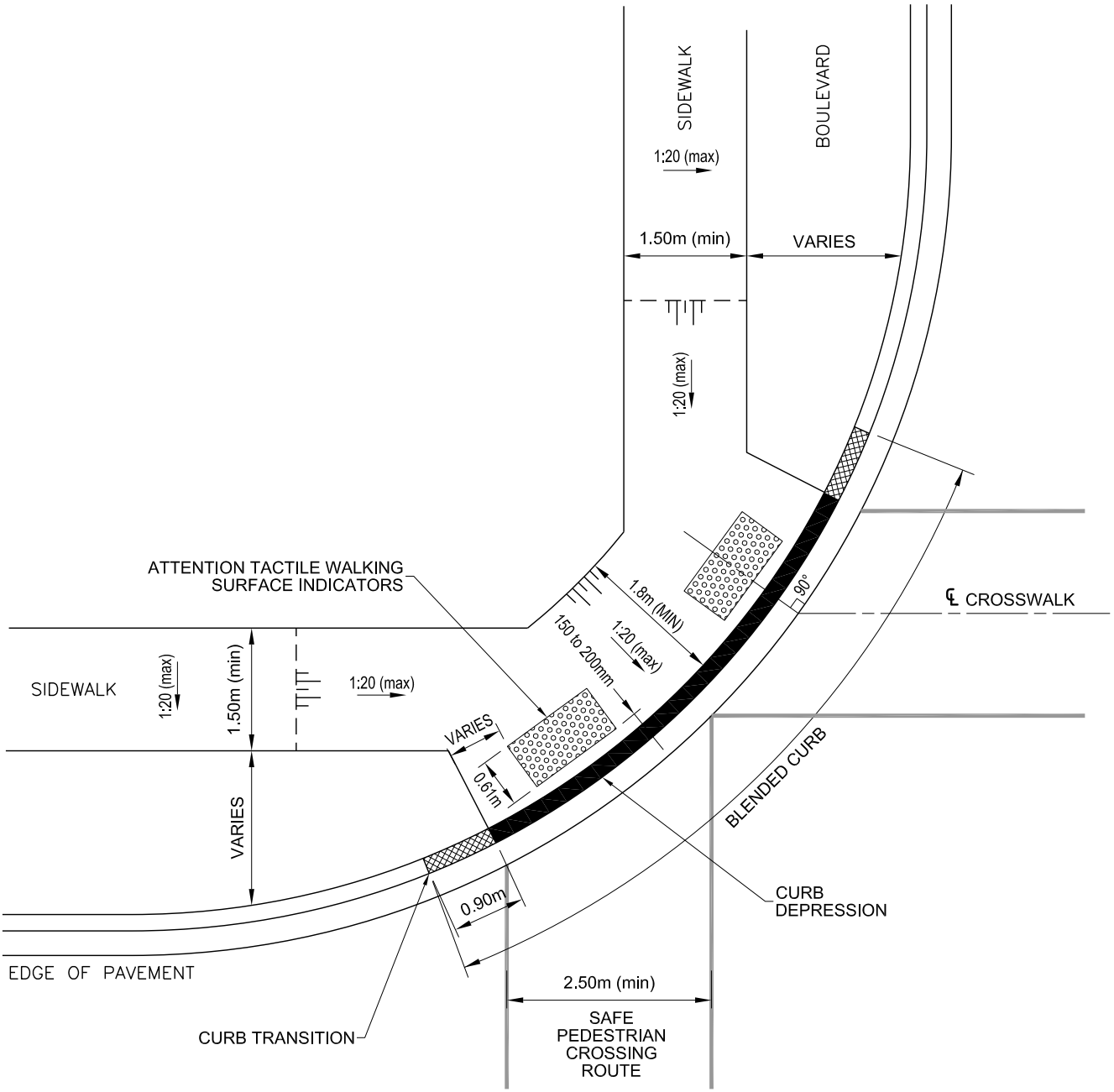
WALKWAY THROUGH AN ISLAND THAT IS LEVEL WITH ROAD SURFACE

ATTENTION TACTILE WALKING SURFACE INDICATORS		NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE: APRIL 17 2014	SCALE: NTS		
APPROVED BY: FT	DRAWN BY: MTK		NRS 3005



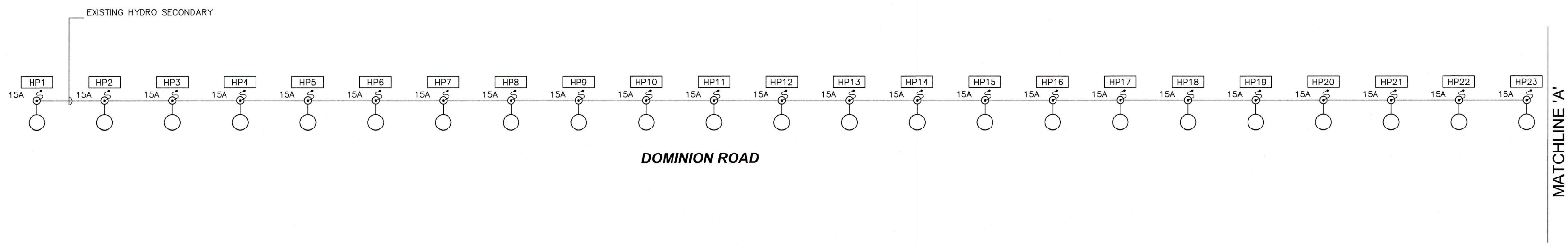
BLENDED CURBS USED AT 4-WAY INTERSECTION WITH STANDARD SIDEWALK AND LARGER CURB RADIUS

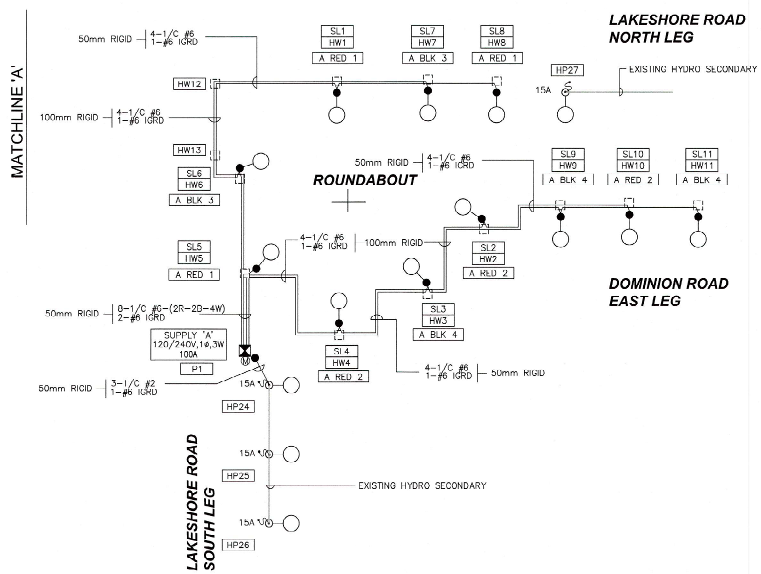
ATTENTION TACTILE WALKING SURFACE INDICATORS			NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS
DATE: FEB 19 2015	SCALE: NTS		
APPROVED BY: FT	DRAWN BY: MTK		NRS 3006



BLENDED CURBS USED AT 4-WAY INTERSECTION WITH SIDEWALK APRON AND LARGER CURB RADIUS

ATTENTION TACTILE WALKING SURFACE INDICATORS		NIAGARA PENINSULA STANDARD CONTRACT DOCUMENTS	
DATE: MAR 06 2018	SCALE: NTS		
APPROVED BY: FT	DRAWN BY: MTK		NRS 3007





LOADING TABLE SUPPLY 'A'				
MAIN BREAKER = 100 AMPS				
* CIRCUIT LOAD (W)	WATTAGE (W)	LOAD DESCRIPTION	CIRCUIT No.	BREAKER SIZE (A)
480	3 x 160	SL5, SL1, SL8	A RED 1	20
320	2 x 160	SL6, SL7	A BLK 3	20
480	3 x 160	SL4, SL2, SL10	A RED 2	20
480	3 x 160	SL3, SL9, SL11	A BLK 4	20

RED = 960 W
BLACK = 960 W

TOTAL LOAD = 1,760 W

LOADING TABLE HYDRO SUPPLY				
MAIN BREAKER = N/A				
* CIRCUIT LOAD (W)	WATTAGE (W)	LOAD DESCRIPTION	CIRCUIT No.	BREAKER SIZE (A)
4320	27 x 160	HP1, HP2, HP3....., HP27	N/A	N/A

RED = N/A
BLACK = N/A

TOTAL LOAD = 4,320 W

NO.	REVISION	DATE	INIT.
0	ISSUED FOR TENDER	2019-02-21	B.K.

NOTES/LEGEND

1 THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWER AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

2 PROPERTY LINES WERE PLOTTED USING REGISTERED PLANS AND BARS LOCATED IN THE FIELD. TO VERIFY THE ACCURACY OF THESE PROPERTY LINES, A LEGAL SURVEY SHOULD BE PERFORMED PRIOR TO CONSTRUCTION.

DRAFTING T.S.
DESIGN K.P.S.
CHECKED BY K.P.S.
APPROVED BY B.K.

B. A. KOLESNIK

Niagara Region
PUBLIC WORKS

AECOM
AECOM Canada Ltd.
30 Hannover Dr. Suite 3
St. Catharines, Ontario, Canada
L2W 0A1
T905.682.0212 F905.682.4495

CONTRACT 2016-T-116 (RN 16-16)
DOMINION ROAD RECONSTRUCTION
DOMINION ROAD

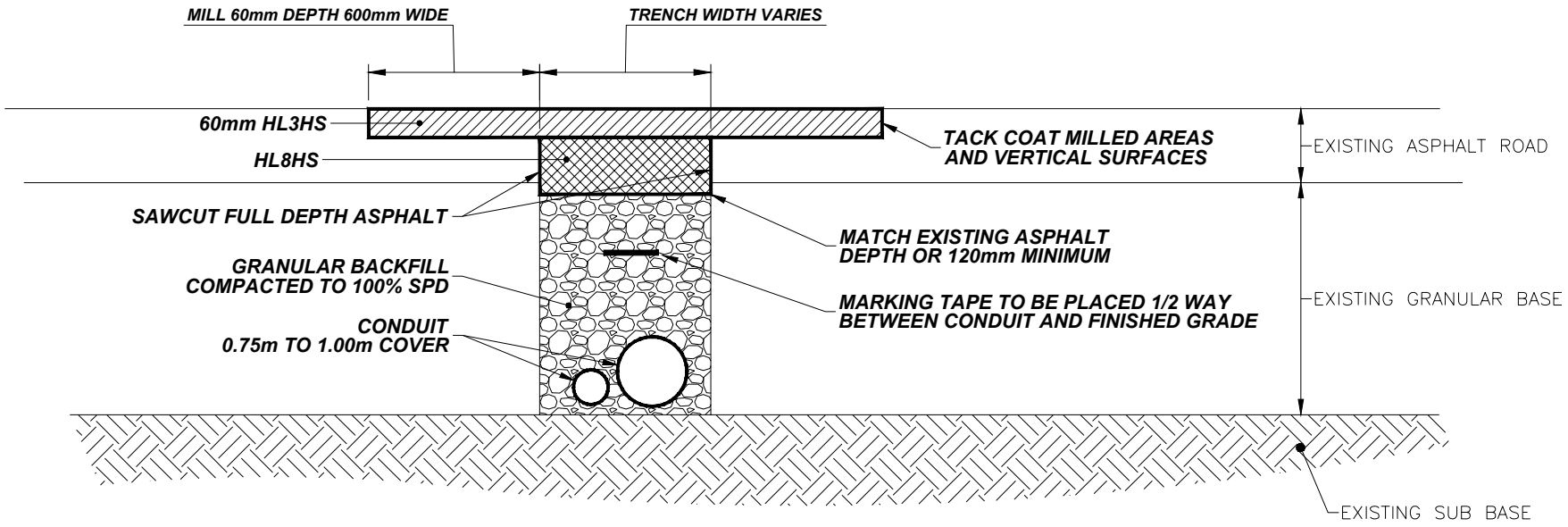
TOWN OF FORT ERIE
WIRING DIAGRAM

CONSULTANT FILE No. 60441652
DATE 2017-08-25
SCALE 0m 5m
REF. No. 2016-T-116
DWG No. E07
REV. 0

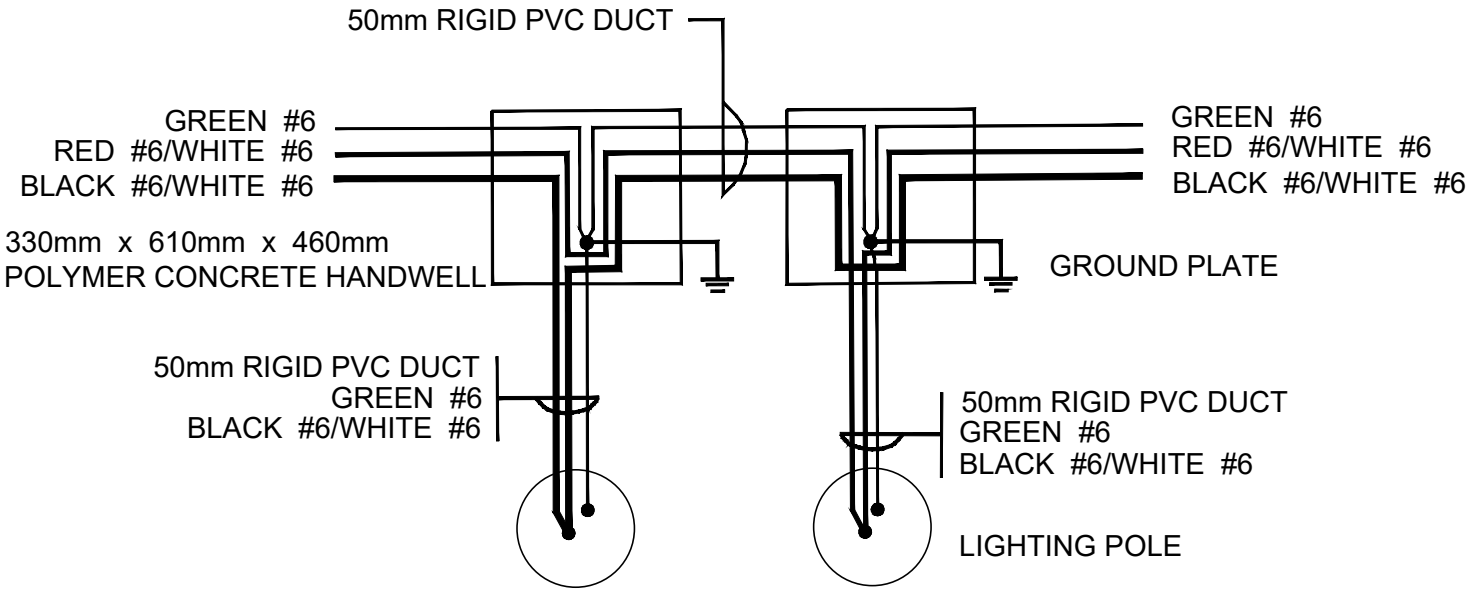
DRAWING FILE: P:\60441652_Dominion_Road\900-Work\910-CAD\20-SHEETS\E\Sonia Yu\Sheet E6.dwg PLOTTED: Feb 22, 2019 - 1:05pm PLOTTED BY: THARAKAN.SUTHANANTHA

ROAD CUT OPEN TRENCH OR PATCH REINSTATEMENT

ON EXISTING ROADS



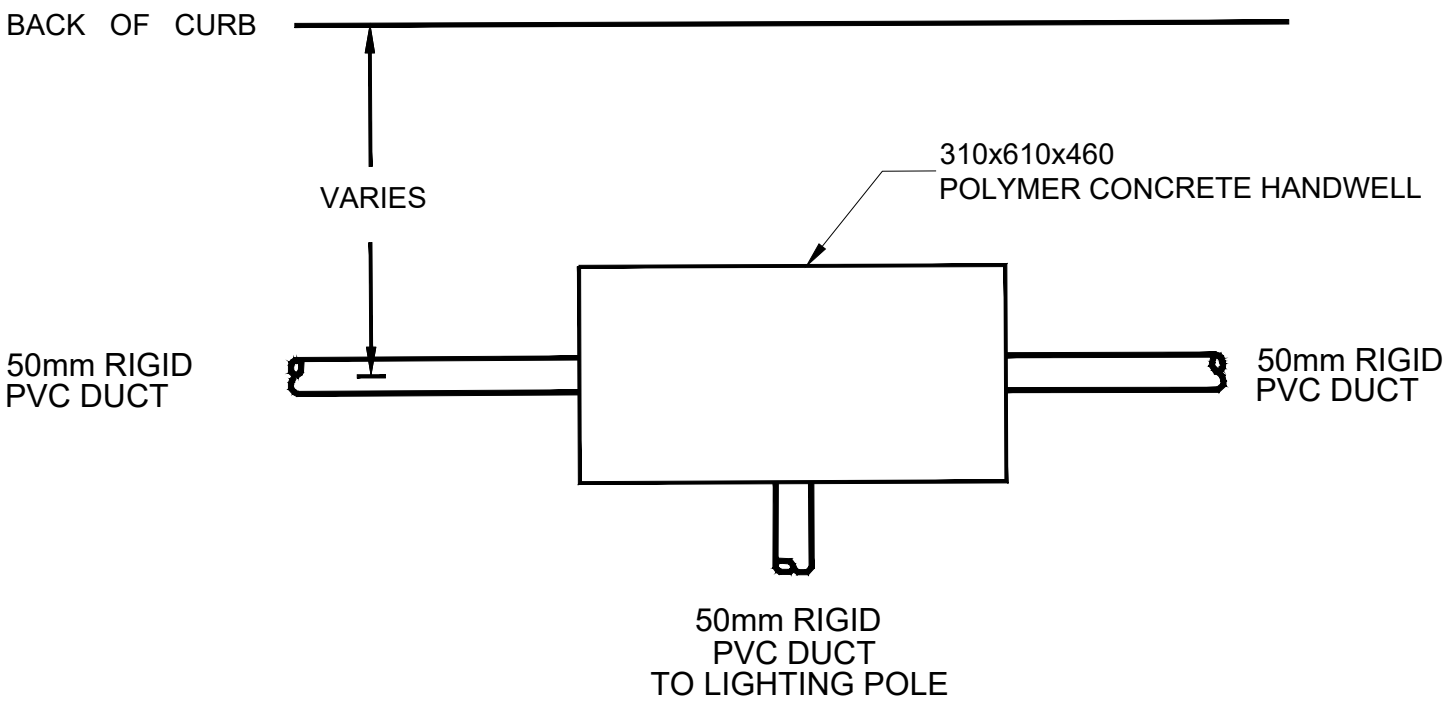
REFER TO TRAFFIC SIGNAL SUPPLEMENTARY SPECIAL PROVISIONS



DETAIL 'A'
TYPICAL WIRING DETAIL

N.T.S.

TYPICAL WIRING DETAIL		Niagara Region PUBLIC WORKS	
DATE: FEBRUARY 1, 2023	SCALE: NTS		
UPDATED BY: MC	DRAWN BY: MC		DETAIL A



DETAIL 'B'
TYPICAL DUCT AND HANDWELL LAYOUT

N.T.S.

TYPICAL DUCT AND HANDWELL LAYOUT		Niagara Region PUBLIC WORKS	
DATE: FEBRUARY 1, 2023	SCALE: NTS		
UPDATED BY: MC	DRAWN BY: MC		DETAIL B