# Electrical

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<td>POLE MOUNT SERVICE PANEL 100A, 120/240V, 1 PHASE STREET LIGHTING</td>
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<td>E7.8B</td>
<td>SERVICE PANELS</td>
<td>POLE MOUNT SERVICE PANEL 100A, 240/480V, 1 PHASE STREET LIGHTING</td>
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<td>E7.8C</td>
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<td>POLE MOUNT SERVICE PANEL 100A, 120/240V, 1 PHASE TS/SL COMBO</td>
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<td>E7.9A</td>
<td>SERVICE CABINETS</td>
<td>TYPICAL SERVICE KIOSK / CABINET</td>
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<tr>
<td>E7.9B</td>
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<td>SERVICE CABINET STANDARD 120/208V 3Ø, 4W STREET LIGHTING / TRAFFIC SIGNAL</td>
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<td>SERVICE CABINETS</td>
<td>SERVICE KIOSK STANDARD 600V 120/208V 3Ø, 4W</td>
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<td>E7.13</td>
<td>WIRING</td>
<td>25 CONDUCTOR SIGNAL CABLE COLOUR CODING</td>
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<td>E7.19</td>
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<td>E7.20</td>
<td>WIRING</td>
<td>POLE AND JUNCTION BOX PLACEMENT</td>
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<td>E7.21</td>
<td>WIRING</td>
<td>COMMUNICATIONS SYSTEM DUCTING</td>
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<td>E8.2</td>
<td>DETECTOR LOOPS</td>
<td>LOOP STUB</td>
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<td>E8.7</td>
<td>DETECTOR LOOPS</td>
<td>VEHICLE DETECTOR LOOP (TYP.)</td>
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<tr>
<td>E8.11</td>
<td>DETECTOR LOOPS</td>
<td>SYSTEM LOOP (TYP.)</td>
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NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. BASES TO BE STAMPED WITH DATE AND BASE TYPE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

COPPER GROUND ROD FOR TSMS COMM 16 DIA. X 1800

CONCRETE BASES
POURED IN PLACE CONCRETE CONTROLLER BASE

SCALE: N.T.S.
HILTI RED RING KWIK BOLT ANCHORS (3/8" x 3 1/2" LONG) TYPICAL

CABINET OUTLINE
CONDUIT NOT SHOWN (REFER TO CONDUIT FOOTPRINT DETAILS)

CONCRETE WORKING PAD

PLAN VIEW

CONCRETE BASE OUTLINE
CABINET OUTLINE

HYDRO GRD2 78
STREET LIGHTING
TRAFFIC SIGNAL
OTHER

CONDUIT SHALL EXTEND 100mm ABOVE TOP OF CONCRETE

FINISHED GRADE

CONCRETE BASE C/W 10M REBAR SPACED AT 300mm (TOP AND BOTTOM) AND CONCRETE WORKING PAD TO SUIT

GROUND ROD(S) OR PLATE FOR SERVICE BASE (SEE MMCD DRAWING E7.10 FOR DETAILS)

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. BASES TO BE STAMPED WITH DATE AND BASE TYPE.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.

CONCRETE BASES
POURED IN PLACE CONCRETE BASE FOR CABINETS

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D.EPA
SYNERTECH HIGH DENSITY POLYMER CONCRETE LID (TIER 22 LOAD RATED)

19mm RPVC CONDUCTOR SUPPORT BAR (1 REQUIRED)
RPVC BELL ENDS

SYNERTECH HIGH DENSITY POLYMER CONCRETE JUNCTION BOX
BOX TO SIT ON 150 x 300 x 50 CONCRETE BRICKS (TYPICAL 3 LOCATIONS) EQUALLY SPACED AROUND BOX

RPVC AND DB2 CONDUIT SEE NOTE 2 AND 3 FOR INSTALLATION
CLEAR DRAIN ROCK FACTORY BEND

ELEVATION

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMC09 AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. RPVC AND DB2 COM 53mm SIZE AND BELOW SHALL ENTER THE JB VERTICALLY.
3. 78 & 103mm DB2 COM SHALL HAVE FLARED ENDS AND ENTER THE JB FROM THE SHORT SIDE HORIZONTALLY.
4. 78 & 103mm RPVC COM SHALL HAVE FLARED ENDS AND ENTER THE JB FROM THE BOTTOM VERTICALLY.
5. ALL JB INSTALLATIONS NEAR BC HYDRO WOODEN POLES MUST BE MIN. 2m AWAY.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.
POLYMER CONCRETE JUNCTION BOX

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<th>JUNCTION BOX TYPE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>PART NUMBER</th>
<th>BRAND</th>
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<tr>
<td>TYPE 3 (279x457x457)</td>
<td>457</td>
<td>432</td>
<td>508</td>
<td>292</td>
<td>26</td>
<td>280</td>
<td>457</td>
<td>SYN 1118-18</td>
<td>OLD CASTLE SYNERTECH</td>
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<td>TYPE 4 (330x610x457)</td>
<td>457</td>
<td>534</td>
<td>636</td>
<td>356</td>
<td>50</td>
<td>331</td>
<td>584</td>
<td>SYN 1324-24</td>
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<td>TYPE 5 (432x762x610)</td>
<td>610</td>
<td>763</td>
<td>814</td>
<td>433</td>
<td>50</td>
<td>432</td>
<td>763</td>
<td>SYN 1730-24</td>
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<tr>
<td>TYPE 6 (610x914x610)</td>
<td>610</td>
<td>889</td>
<td>941</td>
<td>585</td>
<td>75</td>
<td>610</td>
<td>890</td>
<td>SYN 2436-24</td>
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NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. SHAFTS TO BE INSTALLED PLUMB.
3. ALL SHAFTS, ARMS AND EXTENSIONS TO BE SUPPLIED WITH A GALVANIZED FINISH, UNLESS OTHERWISE NOTED.
4. APPLY GREASE TO ANCHOR BOLT THREADS.
5. TOUCH UP ANY SCRATCHES IN GALVANIZED SURFACES WITH COLD GALVANIZING COMPOUND.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
## Standard Detail Drawings

**Drawing No.:** E4.23

### Table:

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<tr>
<th>QTY</th>
<th>ITEM No.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
<th>UNIT WEIGHT</th>
<th>TOTAL WEIGHT</th>
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<tr>
<td>1</td>
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<td>S15-22-AVA-A02</td>
<td>Bracket Arm, For Trolley Pole, City of Vancouver</td>
<td>See drawing S15-22-AVA-A02</td>
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<td>2</td>
<td>1</td>
<td>R20-65-3.00-C003</td>
<td>Arm, 76.2mm Sch 10 Pipe, OD=88.99mm, Thk=3.08mm</td>
<td>ASTM A53 Grade B</td>
<td>16.0</td>
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<td>3</td>
<td>1</td>
<td>P66-00-84X62X10</td>
<td>TENON PLATE, ROUND, OD=84mm, CO=62mm, THK=9.53mm</td>
<td>G40.21 300W</td>
<td>0.2</td>
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<tr>
<td>4</td>
<td>1</td>
<td>P65-60X230-001</td>
<td>TENON, HSS ROUND, OD=60mm, THK=3.99mm L=230mm</td>
<td>ASTM A500 GR.C</td>
<td>1.2</td>
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<td>5</td>
<td>2</td>
<td>H12-GS-2,020-10.00x8.86</td>
<td>U Bolt, Wire Dia=12.7mm, For Pole, Size= 254.0mm, Thread Length = 177.8mm, Galvanized Steel</td>
<td>SAE GR.5</td>
<td>0.9</td>
<td>1.8</td>
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<td>6</td>
<td>8</td>
<td>H40-A194-G0.500</td>
<td>NUT, HEAVY HEX, 12.7mm, GALV</td>
<td>ASTM A563 GRADE DH</td>
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<tr>
<td>7</td>
<td>8</td>
<td>H70-F436-G0.500</td>
<td>WASHER, FLAT, STRUCTURAL, 12.7mm, GALV</td>
<td>ASTM F436</td>
<td>0.0</td>
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<td>8</td>
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<td>H10-A325-0.500X2.00</td>
<td>BOLT HEX, 12.7mm x 50.8mm, GALV</td>
<td>ASTM A325 TYPE1</td>
<td>0.1</td>
<td>0.1</td>
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<td>9</td>
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<td>H70-PW-D001</td>
<td>Rectangular Washer Plate, Length=101.6mm, Width=38.1mm, Thk=7.9mm, Galv</td>
<td>G40.21 300W</td>
<td>0.2</td>
<td>0.4</td>
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<tr>
<td>10</td>
<td>1</td>
<td>R20-15-AVA-01</td>
<td>Curved Rod, Dia=38.1mm, Rod Dia=9.53mm</td>
<td>G40.21 300W</td>
<td>0.1</td>
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</table>

**Assembly Weight (kg):** 24.8

### Notes:

1. Refer to contract drawings, MMC and city construction specifications for further information.
2. All dimensions are in millimetres unless otherwise noted.

**Scale:** N.T.S.

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**Poles**

**Issue Date:** September 2018

**Approved by:** D. EPA
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

POLES
1.8M / 2.5M TROLLEY POLE LUMINAIRE ARM

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D. EPA
Galvanized steel pole (thickness varies)

Traffic signal or pedestrian head

Drill 320 hole in pole for pole plate nipple. Coat hole with cold galvanizing compound.

Elevation

Bicycle head

Item No. | QTY | Description
--- | --- | ---
1 | 1 | Single arm bracket (tubular) with wireway
2 | 1 | Single arm bracket (T section)
3 | 1 | Pole plate with nipple
4 | 1 | Pole plate with no nipple and slotted holes
5 | 6 | 7.9mmØ stainless steel nylock nut
6 | 2 | Stainless steel retaining washer
7 | 2 | Rubber gasket
8 | 4 | 19.1mm stainless steel banding

Notes:
1. Refer to contract drawings, MMCD and city construction specifications for further information.
2. Aim signal heads as directed by contract administrator.
3. All dimensions are in millimetres unless otherwise noted.

Scale: N.T.S.

Heads
Pole shaft signal head mounting

Issue date: September 2018
Approved by: D. EPA

Revision date approved: [Date]
BACKBOARD

CONNECT TO BRACKET BOLT
WITH RING TYPE CONNECTOR

CUT PIPE TO SUIT AND CAP

GALVANIZED STRANDED CABLE AND
CONNECTOR (MIN. 225kg LOADING
CAPACITY) OR CHAIN (3mm GALVANIZED
REGULAR LINK GRADE 30)

RUN THRU POLE AND CONNECT TO
BOND BOLT AT POLE HANDHOLE

BANDING STRAP. (SUPPLIED WITH
BRACKET) TIGHTEN AS PER
MANUFACTURERS RECOMMENDATIONS.

TYPICAL LOCATION
OF STRAIN RELIEF

DRILL & TAP HOLE IN POLE ARM AND
INSTALL STRAIN RELIEF CONNECTOR

No. 12 RWU90 BOND (GREEN WITH YELLOW TRACE)

DRILL & TAP HOLE IN POLE ARM AND
INSTALL 19.1mm0 INSULATED CHASE NIPPLE
FOR WIREWAY INTO BRACKET & POLE.

CAN BRACKET

WIREWAY

LEVEL, ADJUST AND
AIM SIGNAL HEAD

ADJUSTABLE BRACKET

LEAVE SLACK IN WIRING FOR
LEVELING AND ADJUSTMENT

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION
   SPECIFICATIONS FOR FURTHER INFORMATION.
2. AIM SIGNAL HEADS AS DIRECTED BY CONTRACT ADMINISTRATOR.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. ALL METAL PARTS THAT ELECTRICAL CONDUCTORS RUN THROUGH
   SHALL BE BONDED.
BACKBOARD

4X300mm PRIMARY SIGNAL HEAD

CONNECT TO BRACKET BOLT WITH RING TYPE CONNECTOR

CUT PIPE TO SUIT AND CAP

GALVANIZED STRANDED CABLE AND CONNECTOR (MIN. 225kg LOADING CAPACITY) OR CHAIN (3mm GALVANIZED REGULAR LINK GRADE 30)

RUN THRU POLE AND CONNECT TO BOND BOLT AT POLE HANDHOLE

POLE ARM

BANDING STRAP. (SUPPLIED WITH BRACKET) TIGHTEN AS PER MANUFACTURERS RECOMMENDATIONS.

TYPICAL LOCATION OF STRAIN RELIEF

DRILL & TAP HOLE IN POLE ARM AND INSTALL STRAIN RELIEF CONNECTOR

No. 12 RWU90 BOND (GREEN WITH YELLOW TRACE)

DRILL & TAP HOLE IN POLE ARM AND INSTALL 19.1mmØ INSULATED CHASE NIPPLE FOR WIREWAY INTO BRACKET & POLE.

CAN BRACKET

WIREWAY

LEVEL, ADJUST AND AIM SIGNAL HEAD

ADJUSTABLE BRACKET

LEAVE SLACK IN WIRING FOR LEVELING AND ADJUSTMENT

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. AIM SIGNAL HEADS AS DIRECTED BY CONTRACT ADMINISTRATOR.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
4. ALL METAL PARTS THAT ELECTRICAL CONDUCTORS RUN THROUGH SHALL BE BONDED.
AUDIBLE SIGNAL HOUSING

KNUCKLE JOINT

RUBBER O-RING & SILICONE SEALANT

LOCKNUT

MOUNT AUDIBLE PEDESTRIAN SIGNAL ON PEDESTRIAN HEAD. ORIENT AUDIBLE SIGNAL DOWNWARD. (APPROX. 15 DEGREES) TYPICAL

CONNECT AUDIBLE SIGNAL CONDUCTORS INTO TERMINAL BLOCK IN PEDESTRIAN HEAD

ELEVATION

WISE THROUGH POLE WITH CONDUCTORS IN PEDESTRIAN SIGNAL HEAD

PEDESTRIAN HEAD

TO AUDIBLE SIGNAL EQUIPMENT

WIRING DIAGRAM

ELEVATION

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. AIM, CONNECT AUDIBLE SIGNAL AS PER MANUFACTURERS INSTRUCTIONS AND ADJUST VOLUME AS REQUIRED BY CITY TO SATISFACTION OF CONTRACT ADMINISTRATOR.
3. AUDIBLE SIGNAL TO 'CHIRP' FOR EAST TO WEST CROSSINGS & 'CUCKOO' FOR NORTH TO SOUTH CROSSINGS. AT INTERSECTIONS WHERE NORTH/SOUTH AND EAST/WEST ARE NOT EASILY DEFINED CONTACT CONTRACT ADMINISTRATOR FOR DIRECTION.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. AIM STREET SIGNS AS DIRECTED BY CONTRACT ADMINISTRATOR.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.

HEADS
OVERHEAD SIGN MOUNTING

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D. EPA
YELLOW BACKBOARD WITH 75mm YELLOW DIAMOND GRADE RETRO REFLECTIVE SHEETING BORDER

WHITE DIAMOND GRADE RETRO REFLECTIVE SURFACE ON SHEET ALUMINUM TAB

FLAT BAR SUPPORTS

BOLT CONNECTION DETAIL

PRIMARY FIRE SIGNAL HEAD
SUPPLEMENTARY TAB SIGN (ID-22SR OR ID-22SL) AS PER MUTCD

SECONDARY FIRE SIGNAL HEAD MOUNTING

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<th>DESCRIPTION</th>
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<td>1</td>
<td>BACKBOARD</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>FIRE SIGNAL SIGN</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>1150x30x5 GALVANIZED FLAT BAR</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>6.4mmx19.1mm STAINLESS STEEL ROUND HEAD BOLT (WITH FULL THREAD) 2 STAINLESS STEEL WASHERS, STAINLESS STEEL NUT AND NYLON WASHER</td>
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</table>

NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D. EPA
ALUMINUM BACK SUPPORT 1/4" x 1 1/2" WIDE

LEVEL

320

GALVANIZED STRANDED CABLE AND CONNECTOR (MIN. 225kg LOADING CAPACITY) OR CHAIN (3mm GALVANIZED REGULAR LINK GRADE 30)

TIGHTEN TENON BOLTS

ARM

DRILL & TAP 1/4" DIA BOLT -OR-
SIGNAL ARM C/W WELDED RING FOR SAFETY CABLE

600 O.D. x 180 LONG TENON ON POLE ARM

TENON MOUNT ELEVATOR PLUMBIZER

4 SECTION SIGNAL HEAD AND BACKBOARD WITH 75mm REFLECTIVE TAPE

ELEVATION

SCALE: N.T.S.

HEADS
TENON MOUNT ELEVATOR PLUMBIZER INSTALLATION DETAILS

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D.EPA
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<th>DESCRIPTION</th>
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<td>PLUMBIZER BRACKET</td>
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<td>2</td>
<td>3/4&quot;Ø x 1&quot; STAINLESS STEEL BOLT</td>
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<td>3</td>
<td>2</td>
<td>3/4&quot;Ø x 1 3/4&quot; STAINLESS STEEL BOLT, LOCK WASHER AND FLAT WASHER</td>
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<tr>
<td>4</td>
<td>1</td>
<td>3 - 1/2&quot;Ø x 3 1/2&quot; LONG STAINLESS STEEL BOLT AND CAGE</td>
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<td>5</td>
<td>2</td>
<td>RUBBER GASKET</td>
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<td>6</td>
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<td>9.5mm THICK CAST ALUMINUM RETAINING WASHER</td>
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<td>7</td>
<td>3</td>
<td>STAINLESS STEEL LOCK WASHER</td>
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<td>8</td>
<td>3</td>
<td>1/2&quot; STAINLESS STEEL NYLOCK NUTS</td>
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**Signal Head**
- Connect to (4) with Ring Type Connector
- Bond Wire - No. 12 RWU90 Green with Yellow Trace

**Detail**
- Plumbizer Bracket
- Signal Head
- Bolt Cage
- Rubber Gasket
- Retaining Washer
- Lock Washers
- Nylock Nuts

**Scale:** N.T.S.

**Heads**

**Tenon Mount Elevator Plumbizer Installation Details**

**Issue Date:** September 2018

**Approved By:** D. EPA
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.

2. MATERIAL: 12 GA STAINLESS STEEL.

3. FRONT COVER TO BE CLOSED BY STAINLESS STEEL TAMPER PROOF SCREWS.

4. POWDER COATED COV GREENRAL 6005 (UNLESS OTHERWISE SPECIFIED).

5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.
NOTE: LABEL GROUND FACTORY WIRES CONDUCTOR "MAIN SYSTEM GROUND"

NOTE: POWDER-COATED VAN. GREEN (RAL 6005) UNLESS OTHERWISE SPECIFIED.

COV METAL POLE MOUNT DESIGN DETAIL "A"

WOOD POLE MOUNT DESIGN DETAIL "B"

**TABLE**

<table>
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<td>CSA TYPE 3R ENCLOSED - 812.8mm x 304.8mm x 203.2mm</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>H.O.A. - IDEC 3 POS. SELECTOR SWITCH #ASD320N c/w EXTRA CONTACT BLOCK - #BST-001</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>WEIDMULLER TERMINAL BLOCKS - (9 - #102890 #12 - #2AWG) (1 - #102030 #18 - #6)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>ILSCO COPPER GROUND BAR - 13 POINT</td>
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<tr>
<td>5</td>
<td>1</td>
<td>ILSCO - ISOLATED NEUTRAL BLOCK - #M8074 (1 - MAIN LUG - 300MCM - #6) (7 - #14 - #6)</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>EATON LIGHTING CONTACTORS - 20A. 3P. 120V. COIL #XTE012B10A</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>ANDVANCE PROTECTION &quot;SPD&quot; - #S50A120V2PN/W/10</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>SCHNIEIDER 100A. 120/240V. 1PH. 3W. COMBINATION LOAD CENTER - 100A. MAIN BREAKER - #CQO116M100C100 (COPPER BUS) - C/W BRANCH BREAKERS. (1 - 15A. 1P #QO115) (7 - 20A. 2P. #QO220)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>T &amp; B 2&quot; SNAP IN PLASTIC BUSHING - #3215</td>
</tr>
</tbody>
</table>

**NOTES:**
1. FACTORY PRE-WIRED SERVICE PANEL
2. CSA CERTIFIED
3. TO BE MADE OF 14GA. S/S
4. TO BE POWDER-COATED - GREEN - RAL6005
5. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.

**SCALE:** N.T.S.
**WOOD POLE MOUNT DESIGN DETAIL "B"**

**WOOD POLE MOUNT DESIGN DETAIL "A"**

**NOTES:**
1. FACTORY PRE-WIRED SERVICE PANEL
2. CSA CERTIFIED
3. TO BE MADE OF 14GA. S/S
4. TO BE POWDER COATED - GREEN - RAL6005
5. REFER TO CONTRACT DRAWINGS, MMC AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
WOOD POLE MOUNT
DESIGN DETAIL "B"

COV METAL POLE MOUNT
DESIGN DETAIL "A"

<table>
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<tr>
<th>ITEM NO.</th>
<th>QTY</th>
<th>DESCRIPTION</th>
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<tr>
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<td>1</td>
<td>CSA TYPE 3R ENCLOSURE - 812.8mm x 304.8mm x 203.2mm</td>
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<td>1</td>
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<tr>
<td>3</td>
<td>16</td>
<td>WEIDMULLER TERMINAL BLOCKS - (9 - #102880 #12 - #2AWG) (3 - #102040 #14 - #6AWG) (1 - #102030 #18 - #6) (3 - #102020 #20 - #8AWG)</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>ILSCO COPPER GROUND BAR - 13 POINT</td>
</tr>
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<td>5</td>
<td>1</td>
<td>ILSCO - ISOLATED NEUTRAL BLOCK - #M8074 (1 - MAIN LUG - 300MCM - #6) (6 - #14 - 2/0) (10 - #14 - #6)</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>EATON LIGHTING CONTACTORS - 20A, 3P, 120V, COIL #XTCE012B10A</td>
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<tr>
<td>7</td>
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<td>ANDVANCE PROTECTION &quot;SPD&quot; - #S50A120V2PNW10</td>
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NOTES:
1. FACTORY PRE-WIRED SERVICE PANEL
2. CSA CERTIFIED
3. TO BE MADE OF 14GA S/S
4. TO BE POWDER COATED - GREEN - RAL6005
5. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.

SCALE: N.T.S.

SERVICE PANELS
POLE MOUNT SERVICE PANEL 100A, 120/240V, 1 PHASE TS/SL COMBO

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D. EPA
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.

SERVICE CABINETS
TYPICAL SERVICE KIOSK / CABINET

ISSUE DATE: SEPTEMBER 2018
APPROVED BY: D. EPA
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS SECTION 26 56 025 FOR FURTHER INFORMATION.
2. THREE 1P CB's TIED TOGETHER ON 1 PH CIRCUITS USING THE SAME NEUTRAL.
Notes:

1. Three 1P CBs tied together on 1P circuits using the same neutral.
2. Refer to contract drawings, MADC and city construction specifications section 26 56 02S for further information.

Scale: N.T.S.

Circuit Diagram for the typical tie on three 1P CB's. If common neutral is used.
# Traffic Signal Wiring Chart

## Phase and Crosswalks (Crosswalks Designated by Physical Location)

<table>
<thead>
<tr>
<th>North Bound Phase</th>
<th>Left Turn Phase</th>
<th>East Bound Phase</th>
<th>West Bound Phase</th>
<th>North Bound Red</th>
<th>North Bound Amber</th>
<th>North Bound Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Amber</td>
<td>Yellow</td>
<td>Orange</td>
<td>Orange</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>Green</td>
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<td>Red</td>
<td>Red</td>
<td>Red</td>
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<table>
<thead>
<tr>
<th>South Bound Phase</th>
<th>Left Turn Phase</th>
<th>South Bound Red</th>
<th>South Bound Amber</th>
<th>South Bound Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Amber</td>
<td>Orange</td>
<td>Orange</td>
<td>Orange</td>
<td>Blue</td>
</tr>
<tr>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Green</td>
<td>Red</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>East Bound Phase</th>
<th>Left Turn Phase</th>
<th>East Bound Red</th>
<th>East Bound Amber</th>
<th>East Bound Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Amber</td>
<td>Orange</td>
<td>Orange</td>
<td>Orange</td>
<td>Orange/Red</td>
</tr>
<tr>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
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<table>
<thead>
<tr>
<th>West Bound Phase</th>
<th>Left Turn Phase</th>
<th>West Bound Red</th>
<th>West Bound Amber</th>
<th>West Bound Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
<td>Red</td>
</tr>
<tr>
<td>Amber</td>
<td>Orange</td>
<td>Orange</td>
<td>Orange</td>
<td>Orange/Red</td>
</tr>
<tr>
<td>Green</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
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<table>
<thead>
<tr>
<th>North Bound Left Turn</th>
<th>South Bound Left Turn</th>
<th>East Bound Left Turn</th>
<th>West Bound Left Turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Bound Red/White</td>
<td>South Bound Red/White</td>
<td>East Bound Red/White</td>
<td>West Bound Red/White</td>
</tr>
<tr>
<td>Amber/Black</td>
<td>Amber/Red</td>
<td>Amber/Orange</td>
<td>Amber/Orange</td>
</tr>
<tr>
<td>Green/White</td>
<td>Green/White</td>
<td>Green/Red</td>
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</table>

<table>
<thead>
<tr>
<th>North Crosswalk</th>
<th>South Crosswalk</th>
<th>East Crosswalk</th>
<th>West Crosswalk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
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<tr>
<td>Don't Walk</td>
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<tr>
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</tr>
<tr>
<td>Blue/White</td>
<td>Blue/Black</td>
<td>Blue/White</td>
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<table>
<thead>
<tr>
<th>Audible Pedestrian Inhibits</th>
<th>North Crosswalk</th>
<th>South Crosswalk</th>
<th>East Crosswalk</th>
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</thead>
<tbody>
<tr>
<td>North Crosswalk Black</td>
<td>Blue/Grn</td>
<td>White/Blk</td>
<td>Black</td>
<td>Red/Blk</td>
</tr>
<tr>
<td>South Crosswalk Black</td>
<td>White/Blk</td>
<td>White/Blk</td>
<td>Black</td>
<td>Red/Blk</td>
</tr>
<tr>
<td>East Crosswalk Black</td>
<td>White/Blk</td>
<td>White/Blk</td>
<td>Black</td>
<td>Red/Blk</td>
</tr>
<tr>
<td>West Crosswalk Black</td>
<td>White/Blk</td>
<td>White/Blk</td>
<td>Black</td>
<td>Red/Blk</td>
</tr>
</tbody>
</table>

**Notes:**

1. Refer to contract drawings, MMCD, and city construction specifications for further information.
2. Cable to be polyethylene insulated polyvinyl chloride jacketed, black, rated at 600 volts.
3. Conductors to be No.14 AWG stranded.
4. Reference to CSA 22.2 - No. 239-97, IMSA Spec. 19-1.
NOTE:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
NOTES:
1. MINIMUM NUMBER AND SIZE OF COMM. CONDUIT FOR ROAD CROSSINGS AND RADII VARY AS REQUIRED BY THE CITY.
2. JB PLACEMENT IS DIAGRAMATIC ONLY. JB IS PREFERRED TO BE INSTALLED AT THE BACK OF WALK IF SPACE PERMITS.

SCALE: N.T.S.

POLE AND JUNCTION BOX PLACEMENT

D. EPA

APRIL 2019
**NOTES:**
1. **SUB TRUNK LINES AND INTERSECTION COMM. DUCT 2-78mm DB2 MIN.**
2. **MAIN AND SUB TRUNK LINE J.B. IN BETWEEN 243 VAULT SHALL BE No. 6. KEEP 243 VAULT AT INTERSECTION.**
3. **CONDUIT MUST BE STRAIGHT THROUGH BOX. NO 90° INTO No. 6 OR 243 BOXES FOR ALL 78mm AND 103mm CONDUITS.**

**SCALE:** N.T.S.

**WIRING**

**COMMUNICATIONS SYSTEM DUCTING**

**ISSUE DATE:** SEPTEMBER 2018

**APPROVED BY:** D. EPA
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. ONE LOOP STUB PER LANE.
3. ONE SPARE LOOP STUB.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SCALE: N.T.S.
CROSSWALK

STOP BAR

VEHICLE DETECTOR LOOP (TYP.)

JUNCTION BOX

NOTE:
MINIMUM 1-27mm POLYPIPE LOOP STUB
PER LANE FOR EACH SET OF LOOPS
AND ADD ONE LOOP STUB, SPARE

VEHICLE DETECTOR LOOP (TYP.)

1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. WHITE TAPE INDICATES THE BACK LOOP OF THE SET.
3. LANE 1 IS THE CURB (SLOW) LANE INCLUDING WHEN TAILS ARE FROM THE MEDIAN.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
5. CONSULT CITY FOR LOOP DESIGN WITH CONCRETE MEDIAN, SEPARATED BIKE LANE, LEFT TURN BUS LANE AND INTERSECTION SAFETY CAMERA.

SCALE: N.T.S.
NOTES:
1. REFER TO CONTRACT DRAWINGS, MMCD AND CITY CONSTRUCTION SPECIFICATIONS FOR FURTHER INFORMATION.
2. CONSULT CITY FOR SYSTEM LOOP LOCATION.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

SYSTEM LOOP:
- DIMENSIONS: 1.8m x 0.61m
- NUMBER OF TURNS DETERMINED BY LEAD IN CABLE LENGTH
- USE EBERLE DESIGN LOOP CALCULATOR
- MINIMUM 1-27mm POLYPIPE LOOP STUB PER LANE AND ADD 1 LOOP STUB, SPARE

SCALE: N.T.S.