

## Section D - Junction Pads

|                |                                           |                       |
|----------------|-------------------------------------------|-----------------------|
| <b>ES54 D0</b> | <b>General</b>                            |                       |
| D0-02          | General Notes                             |                       |
| <b>ES54 D1</b> | <b>Single-Phase Junction Kiosk</b>        |                       |
| D1-01          | Pad Construction and Installation Details | <b>OBSOLETE</b>       |
| D1-02          | Pad                                       |                       |
| <b>ES54 D2</b> | <b>Single-Phase Junction Boxes</b>        |                       |
| D2-02          | 332                                       | <b>Moved to B7-01</b> |
| D2-03          | 632                                       | <b>Moved to B6-02</b> |
| <b>ES54 D3</b> | <b>Three-Phase Junction Kiosk</b>         |                       |
| D3-01          | Pad                                       |                       |
| <b>ES54 D4</b> | <b>Three-Phase Junction Boxes</b>         |                       |
| D4-01          | 832                                       | <b>Moved to B5-02</b> |
| D4-02          | 1232                                      | <b>Moved to B4-02</b> |

|            |                                                                                                                          |                                                                                                      |                                                                                                   |                                                                                                   |                                    |            |        |
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| REVISIONS: | DESIGNED                                                                                                                 | RECOMMENDED                                                                                          | ACCEPTED                                                                                          | ENGINEER OF RECORD                                                                                | JUNCTION PADS<br>TABLE OF CONTENTS |            |        |
|            | <br>M. KELVIN                         | <br>L. STEVANOVIC | <br>F. DENNERT | <br>2017-02-15 |                                    |            |        |
|            | <b>DISTRIBUTION<br/>STANDARDS</b><br> | ISSUED: MAR 2016<br>REPLACES: OCT 2002<br>ORIGINALLY<br>ISSUED: NOV 1979                             |                                                                                                   |                                                                                                   | PAGE 1<br>OF 1                     | ES54 D0-01 | R<br>6 |

## Scope

This section covers the installation of medium voltage (primary) junction pads for installation of single-phase and three-phase junction kiosks.

Junction kiosks are used for branching and/or sectionalizing underground circuits. They contain 200 A loadbreak separable insulated connectors (SICs).

This section covers the physical size and weight of each structure, design load rating, and construction and installation details.

## Pad Location

Operational clearance is a critical consideration when determining the placement of junction pads. Power system workers operate 200 A loadbreak equipment while energized, using a hotstick. Workers must be able to assume an ergonomic operating position on level footing, without any obstructions or tripping hazards. Junction pads shall be located such that the unobstructed area is level and free of tripping hazards and/or other obstructions.

## Selection Criteria

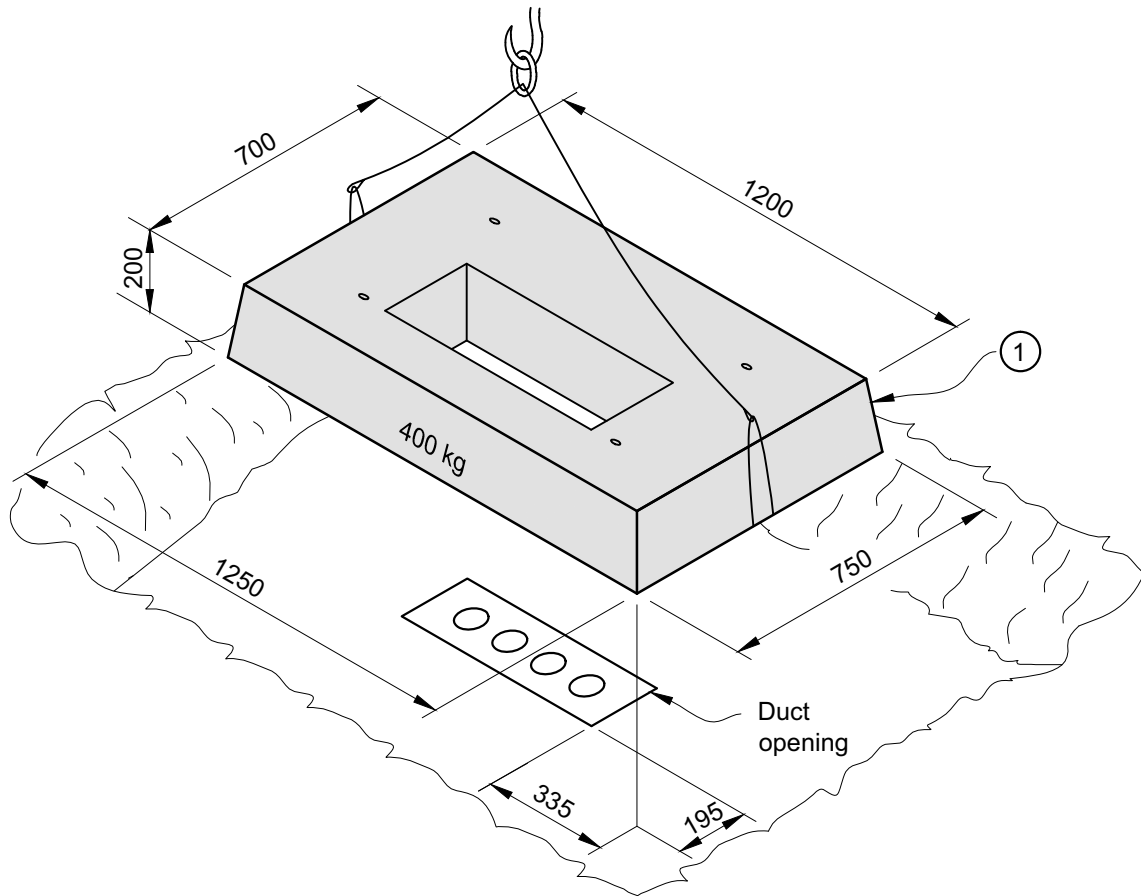
Functionally, the use of junction pads and junction boxes is equivalent. Junction boxes have many advantages in terms of aesthetics, immunity to traffic accidents, low risk of graffiti/vandalism, etc. However, there are situations where junction pads are preferred, specifically:

- High water table areas – if a box is installed in a high water table area, the box will usually be filled with water. This will accelerate galvanic corrosion and make inspection, maintenance and operation more difficult and time consuming. In the event of flooding, it may be impossible to access and operate the equipment.
- High snowfall areas – boxes are very difficult to locate and access when under snow and ice.
- Contaminated sites – old industrial areas, decommissioned mines, landfills, abandoned petrochemical storage sites (fuel stations), etc. may result in contaminated soil and/or groundwater. To help ensure worker safety and equipment reliability, such areas should use junction pads instead of junction boxes.

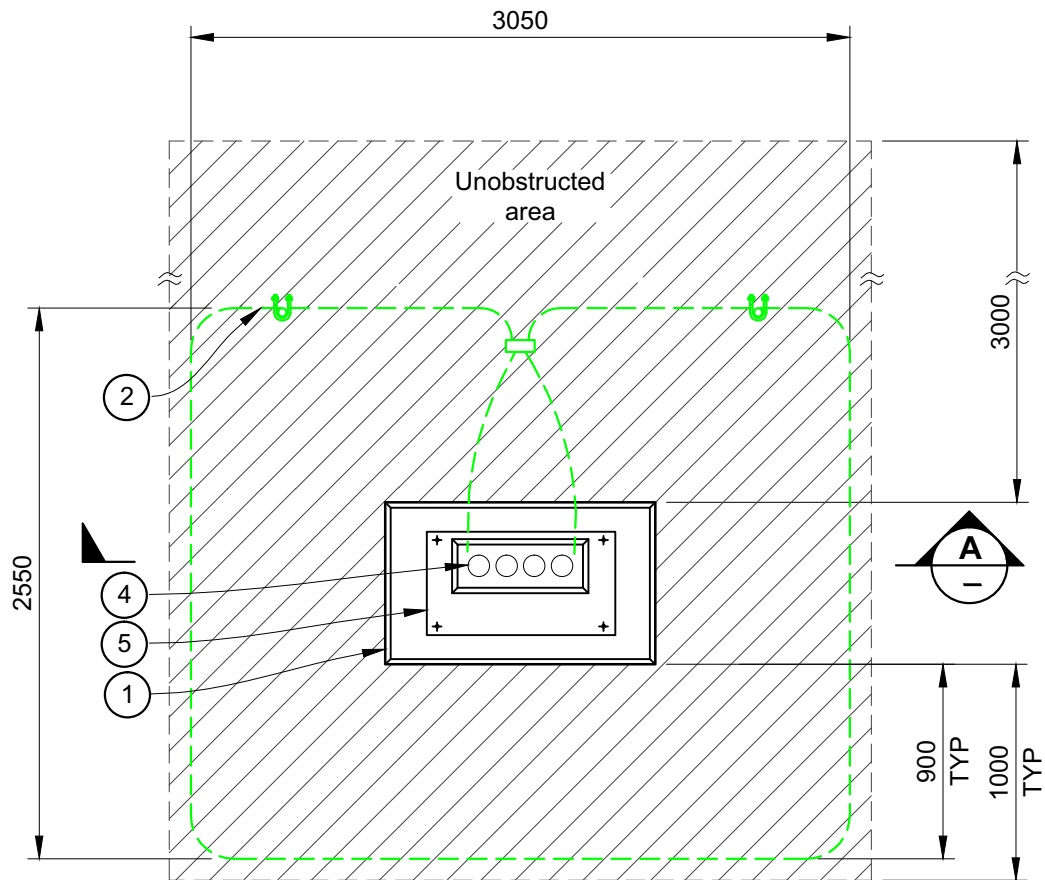
Refer to ES54 Section B for more information on junction boxes.

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| DESIGNED<br><br>M. KELVIN |                                                                                                                  | RECOMMENDED<br><br>L. STEVANOVIĆ |                                                                     | ACCEPTED<br><br>F. DENNERT |                | ENGINEER OF RECORD<br><br>2017-02-15 |            | JUNCTION PADS<br>GENERAL NOTES |   |   |  |
| REVISIONS:                                                                                                   | DISTRIBUTION<br>STANDARDS<br> |                                                                                                                     | ISSUED: MAR 2016<br>REPLACES: N/A<br>ORIGINALLY<br>ISSUED: MAR 2016 |                                                                                                               | PAGE 1<br>OF 1 |                                                                                                                         | ES54 D0-02 |                                | R | 0 |  |

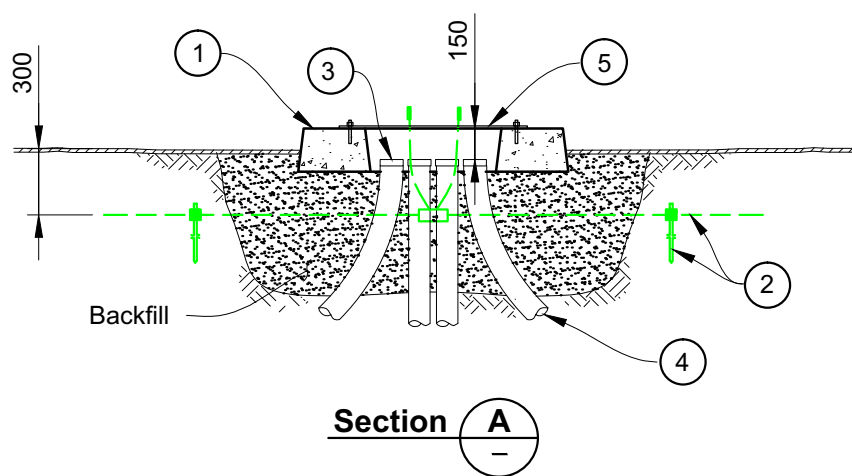
REVISIONS: R.1 - UNOBSERVED AREA REVISED. MAR '16 MK



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| DESIGNED<br><br>M. KELVIN     | RECOMMENDED<br><br>L. STEVANOVIC | ACCEPTED<br><br>F. DENNERT | ENGINEER OF RECORD<br><br>2017-02-15 | SINGLE-PHASE JUNCTION KIOSK PAD |                   |
| DISTRIBUTION<br>STANDARDS<br> |                                                                                                                     | ISSUED: MAR 2016<br>REPLACES: DEC 1998<br>ORIGINALLY<br>ISSUED: DEC 1998                                      |                                                                                                                         | PAGE 1<br>OF 3                  | ES54 D1-02.01     |
|                                                                                                                  |                                                                                                                     |                                                                                                               |                                                                                                                         |                                 | <sup>R</sup><br>1 |



Plan



Section A

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| DISTRIBUTION<br>STANDARDS<br> |                                                                                                                     | ISSUED: MAR 2016<br>REPLACES: DEC 1998<br>ORIGINALLY<br>ISSUED: DEC 1998                                      |                                                                                                                         | PAGE 2<br>OF 3                  | ES54 D1-02.02 |
|                                                                                                                  |                                                                                                                     |                                                                                                               |                                                                                                                         | R<br>1                          |               |

## Notes

1. Above-ground equipment protection shall comply with ES54 U2-02.
2. Excavation and backfilling shall comply with W1-01.
3. Grounding shall comply with ES54 R1-01.
4. Duct entry shall comply with H1-03.

## Bill of Material

| Item | Description           | Catalogue ID | Quantity              | Supplied By |
|------|-----------------------|--------------|-----------------------|-------------|
| 1    | Precast concrete pad  | 400-0840     | 1                     | BC Hydro    |
| 2    | Grounding kit         | 412-0015     | 1                     | BC Hydro    |
|      | 5/8" x 8' ground rod  | 420-1093     | 2                     | BC Hydro    |
|      | 14 m counterpoise     | 412-0013     | 1                     | BC Hydro    |
| 3    | 75 mm duct caps       | 401-0173     | Specified by Designer | Contractor  |
| 4    | 75 mm duct, 90° elbow | 400-4021     | Specified by Designer | Contractor  |
| 5    | Plywood cover         | N/A          | 1                     | Contractor  |

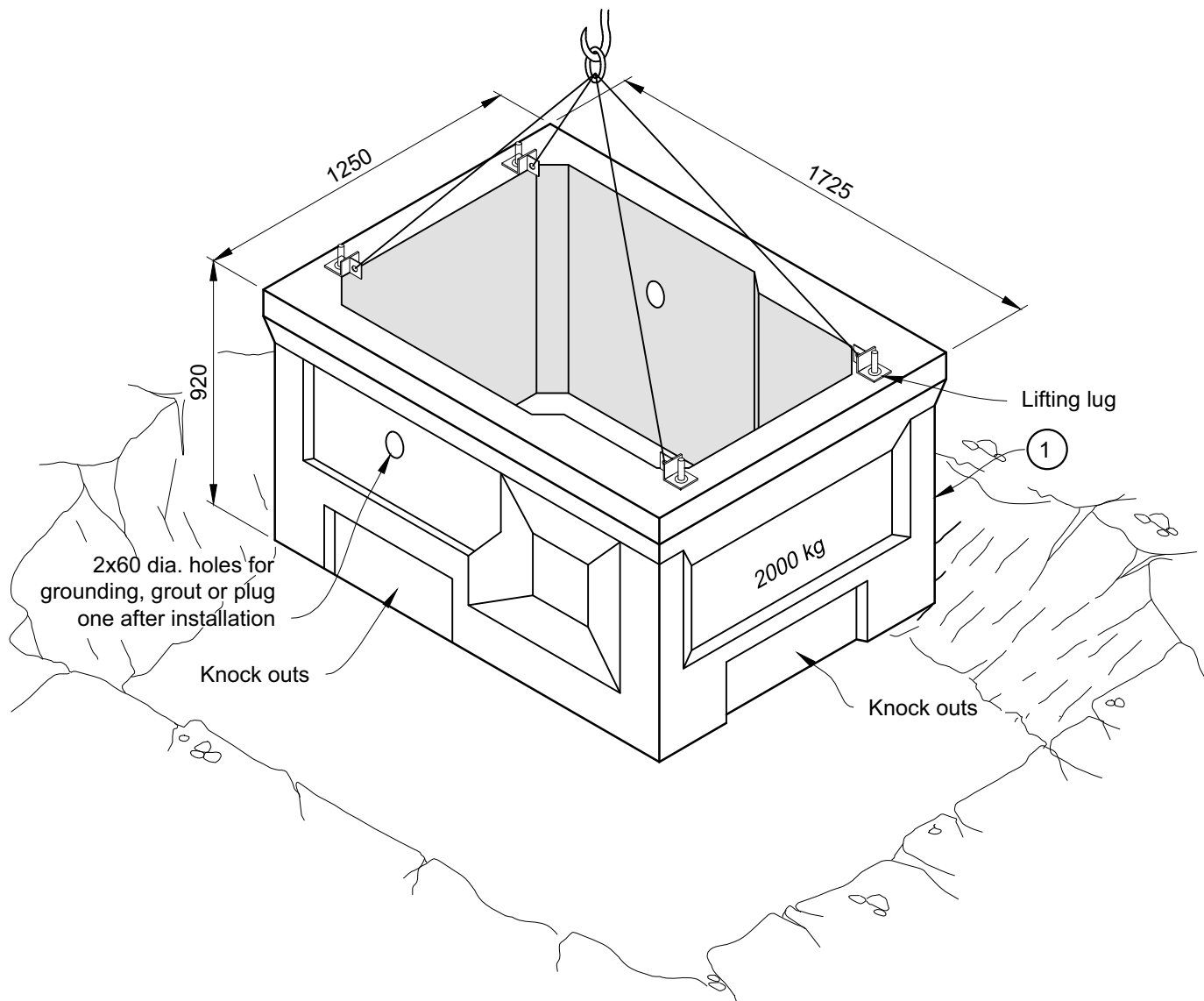
## Reference Standards

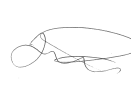
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| ES54 H1-03 | Duct Entry at Pads                                     |
| ES54 R1-01 | Grounding of Pad-Mounted Equipment in Public Corridors |
| ES54 U2-02 | Above-Ground Equipment, Mechanical Protection          |
| ES54 W1-01 | Excavation and Backfill                                |
| ES53 D1    | Single Phase Junction Kiosk                            |

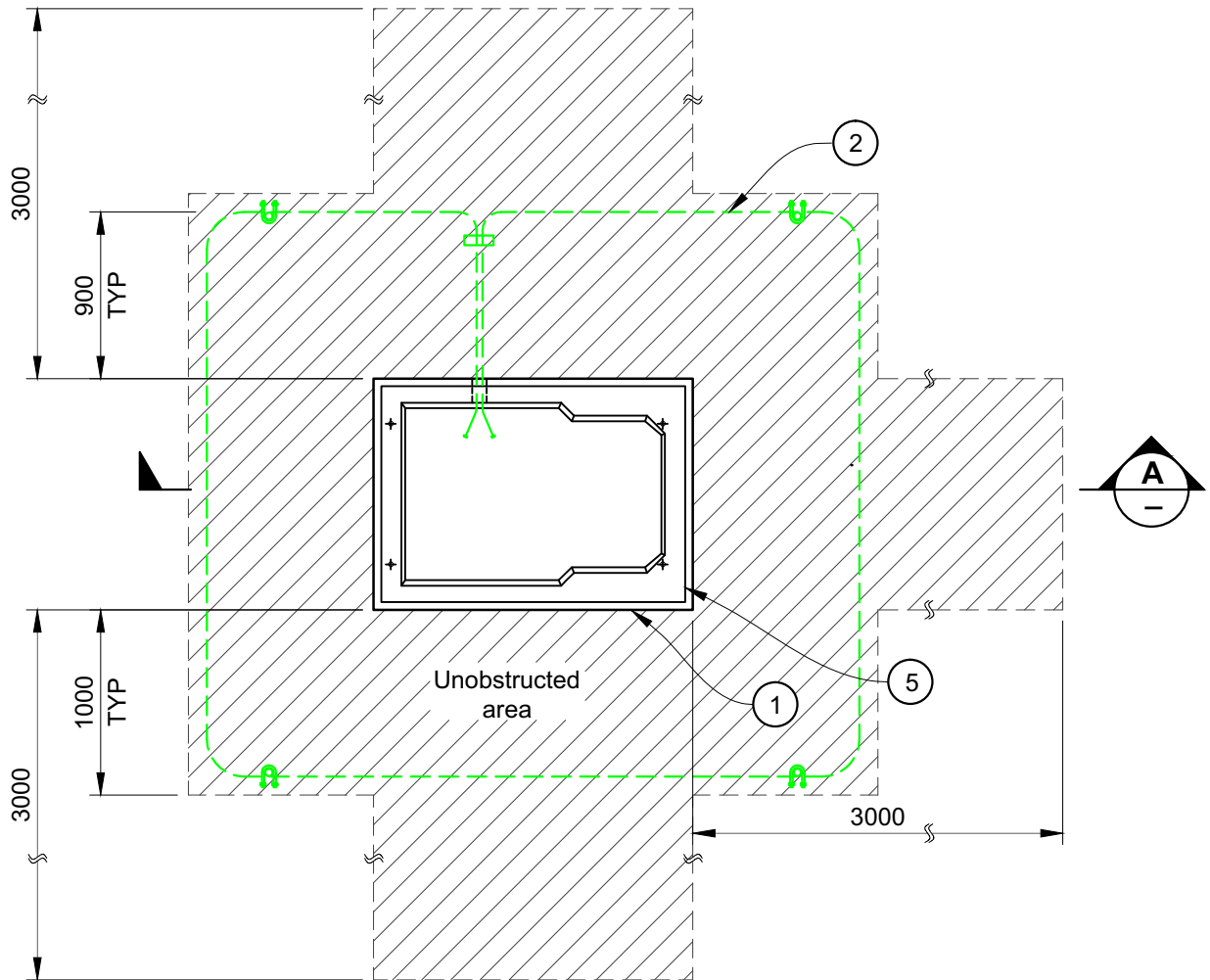
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| DESIGNED<br><br>M. KELVIN  | RECOMMENDED<br><br>L. STEVANOVIC | ACCEPTED<br><br>F. DENNERT | ENGINEER OF RECORD<br><br>2017-02-15 | SINGLE-PHASE JUNCTION KIOSK PAD |               |
| DISTRIBUTION STANDARDS<br> |                                                                                                                     | ISSUED: MAR 2016<br>REPLACES: DEC 1998<br>ORIGINALLY<br>ISSUED: DEC 1998                                      |                                                                                                                         | PAGE 3<br>OF 3                  | ES54 D1-02.03 |
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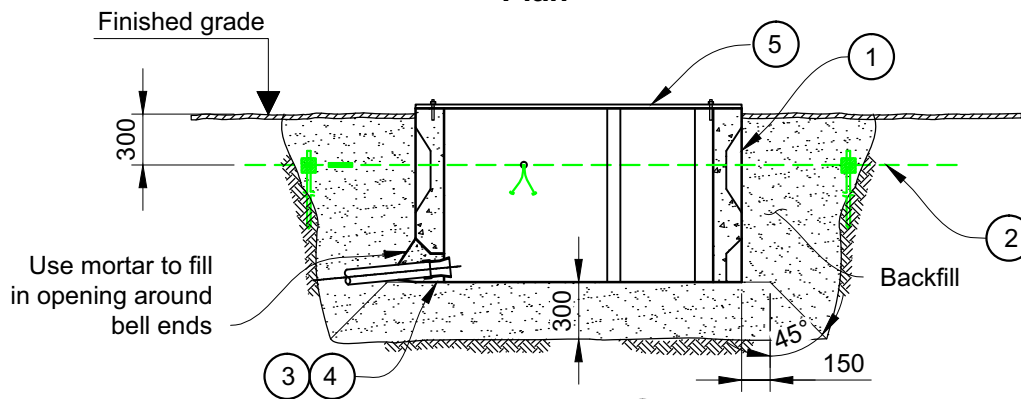
REVISIONS: R.6 - UNOBSERVED AREA REVISED. MAR '16 MK | R.7 - BOM REVISED. SEP '17 MK



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| DESIGNED<br><br>M. KELVIN     | RECOMMENDED<br><br>L. STEVANOVIC | ACCEPTED<br><br>F. DENNERT | ENGINEER OF RECORD<br><br>2017-10-06 | THREE-PHASE JUNCTION KIOSK<br>PAD |               |
| DISTRIBUTION<br>STANDARDS<br> |                                                                                                                     | ISSUED: SEP 2017<br>REPLACES: MAR 2016<br>ORIGINALLY<br>ISSUED: OCT 1979                                      |                                                                                                                         | PAGE 1<br>OF 3                    | ES54 D3-01.01 |
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| DISTRIBUTION<br>STANDARDS<br> | ISSUED: SEP 2017<br>REPLACES: MAR 2016<br>ORIGINALLY<br>ISSUED: OCT 1979                                            |                                                                                                               |                                                                                                                         | PAGE 2<br>OF 3                    | ES54 D3-01.02 |
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## Notes

1. Above-ground equipment protection shall comply with ES54 U2-02.
2. Excavation and backfilling shall comply with W1-01.
3. Grounding shall comply with R1-01.
4. Duct entry shall comply with H1-03.

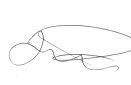
## Bill of Material

| Item | Description                                                 | Catalogue ID | Quantity              | Supplied By |
|------|-------------------------------------------------------------|--------------|-----------------------|-------------|
| 1    | Precast concrete pad c/w 4 lifting lugs and 2 pulling irons | 400-0850     | 1                     | BC Hydro    |
| 2    | Grounding kit<br>5/8" x 8' ground rod<br>18 m counterpoise  | 412-0015     | 2                     | BC Hydro    |
|      |                                                             | 420-1093     | 4                     | BC Hydro    |
|      |                                                             | 412-0014     | 1                     | BC Hydro    |
| 3    | 75 mm bell ends                                             | 401-0183     | Specified by Designer | Contractor  |
| 4    | 75 mm duct plugs                                            | 401-0197     | Specified by Designer | Contractor  |
| 5    | Plywood cover                                               | N/A          | 1                     | Contractor  |

## Reference Standards

|            |                                                        |
|------------|--------------------------------------------------------|
| ES54 H1-03 | Duct Entry at Pads                                     |
| ES54 R1-01 | Grounding of Pad-Mounted Equipment in Public Corridors |
| ES54 U2-02 | Above-Ground Equipment, Mechanical Protection          |
| ES54 W1-01 | Excavation and Backfill                                |
| ES53 D3    | Three-Phase Junction Kiosks                            |

REVISIONS: R.6 - UNOBSERVED AREA REVISED. MAR '16 MK | R.7 - BOM REVISED. SEP '17 MK

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| DISTRIBUTION<br>STANDARDS<br> |                                                                                                                     | ISSUED: SEP 2017<br>REPLACES: MAR 2016<br>ORIGINALLY<br>ISSUED: OCT 1979                                      |                                                                                                                         | PAGE 3<br>OF 3                    | ES54 D3-01.03 |
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