



## **Contractor Information Pad Mount Transformer Installations**

### **GENERAL:**

ENWIN Utilities Ltd. will typically install and maintain a pad mounted transformer on the owner's property up to a maximum 2000 KVA at 347/600V or 1000 KVA at 120/208V if, in its judgment, the size and type of load warrants the supply of such transformation. The transformer will be sized to provide for the customer's present normal maximum meter demand load and an allowance for any reasonable load growth anticipated by the customer.

### **CONSTRUCTION NOTES:**

#### **Location**

The padmounted transformer shall preferably not be located within 6.1 m (20 feet) of openings, doors and windows. Since ENWIN uses transformers with an internal current limiting fuse and a pressure relief device, the minimum clearance required by code can be reduced to 3 meter (10 feet) subjected to ENWIN's approval on a case by case basis. The minimum clearance to be 3 meter (10 feet) access to the transformer opening, and a 1 meter (39 inches) clearance on all other sides.

In order to maintain the above noted clearances from buildings constructed on neighbouring properties, transformers must also be located no closer than 3 meter (10 feet) from all property lines.

At ENWIN's discretion the customer must provide and install Protective Bollards around the transformer.

#### **Grade**

The concrete pad must be within 50 mm to 150 mm (2" to 6") above the surrounding ground. The grade of this surrounding area should not be sloped in such a manner that run-off collects around the pad.

#### **Compaction Test**

Compaction test reports as specified on the ENWIN padmount installation drawing.



**SUPPLIERS OF TRANSFORMER FOUNDATIONS:**

ENWIN approved Transformer foundations may be purchased from the following suppliers:

Porter Septic Tank R.R, #1 Lucknow, ON N0G 2H0 P: 519-528-3537 F: 519-528-2025	Underground Specialties 5340 Walker Road R.R.#1 Oldcastle, ON N0R 1L0 P: 737-1263	Babcock Concrete R.R.#5 Dresden, ON N0P 1M0 P: 1-800-463-7163 F: 1-519-683-2548
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**LABOUR AND MATERIALS PROVIDED BY ENWIN UTILITIES LTD.:**

- ENWIN Utilities Ltd. will provide and install transformer, Primary Cables and Step Potential Grounding.
- ENWIN will provide secondary paddles with eight holes on transformers 1,000 KVA and above and paddles with six holes on transformers less than 1,000 KVA. The paddles supplied with the transformer have 17mm holes by 44mm centres to comply with NEMA standards. (See details in appendix)
- ENWIN Utilities Ltd. will provide engineering and an installation drawing for the customer. This drawing should be studied very carefully. Any non-compliance will result in a refusal to connect by ENWIN. See attached sample drawing, NOT FOR CONSTRUCTION, for information only.
- ENWIN Utilities Ltd. will provide duct, duct sweeps, spacers and copper ground wire for installation by the customer. Please call your contact representative at ENWIN Utilities stock room at 251-7300 ext. 254 and advise two to three days in advance when you would like to pick up these items. The ENWIN Utilities stock room is located at 4545 Rhodes Drive. Material can be picked up between the hours of 8:30 to 11:00 and 13:00 to 15:00. A material list with a work order number must be presented at the stock room upon arrival. This material list will be provided to you along with the construction drawing. Be advised some items will be approximately twenty feet long please bring a vehicle to which such items can be secured in a safe manner. In most cases you will be expected to load the material onto your vehicle yourself. It is your responsibility to ensure that this material is secure before you move your vehicle.

**LABOUR AND MATERIALS PROVIDED BY THE CUSTOMER:**

The customer must provide excavation and backfilling, sand, concrete, transformer pad and foundations, installation of ducts, concrete encasement of ducts and reinstatement of sod from transformer site to lateral pole, protective bollards around the transformer, if required, and concrete pylon encasing duct at the lateral pole.



### **Paddle / Blade Extensions**

In cases where extensions are required it is up to the customer to provide them.

- The paddle/blade extensions should be made of copper, 1/2 inch thick with sufficient columns of 2 holes (NEMA Spacing) to accommodate the additional number of cables that the customer requires, plus an overlap on the transformer paddle of 4 holes (2 x 2 hole columns). These 4 holes can still be utilized to terminate cables by using longer bolts in those particular holes to make up for the additional thickness.
- It is the customer's responsibility to verify the hole spacing and match the actual drillings of the transformer spade itself. These 4 holes (overlap on the transformer spade) can still be utilized to terminate cables by using longer bolts in those particular holes to make up for the additional thickness. Also it is the customer's responsibility to ensure that their lugs need to be crimped if the cables are aluminum, but bolted are allowed if the cables are copper and they can be crimped as well for copper.
- Each cable terminator usually takes up 2 bolt holes in the same column (top & bottom), this ensures that there is maximum surface area contact between the terminator and the paddle. This will virtually eliminate a potential hot spot from occurring.
- A total of 4 paddle / blade extensions are required, one for each phase and one for the neutral.
- **Important Note:** The installation of additional conductors increases the weight of the cables pulling down on each paddle potentially damaging the paddle bushings where they extend out from the transformer. The contractor must ensure that the cables are adequately supported to eliminate stress on the paddles.

### **REQUIREMENTS FOR DELIVERY OF TRANSFORMER:**

- Customer to have signed copy of commercial connection agreement and have provided with a cheque or purchase order (if required)
- ENWIN Utilities to provide a "for construction" drawing to the contractor.
- ENWIN indicate duct location on pole.
- Contractor to install foundation and ducts according to spec before pouring concrete the contractor contacts ENWIN Utilities for inspection of layout. (two days notice required)
- ENWIN Utilities Engineering Tech or supervisor to inspect duct and foundation and verify location.
- Contractor pours concrete on duct and lateral pole according to spec.
- Contractor removes the lid of the foundation and removes any water that may be in the foundation and advises ENWIN Utilities that civil work is done. At this point the contractor should also advise ENWIN Utilities if extensions to the secondary paddles are required indicating the number and size of cables per phase and for the neutral
- Contractor completes final site grade, leaving/digging a trench 300mm x 300mm x 900 mm around the perimeter of the foundation per drawing notes and details.



- ENWIN Utilities pulls primary cable and installs step potential grounding. ENWIN requires 3 to 5 days notice in order to insure work will be done promptly.

**Before** the transformer is installed the following items **must** be in place.

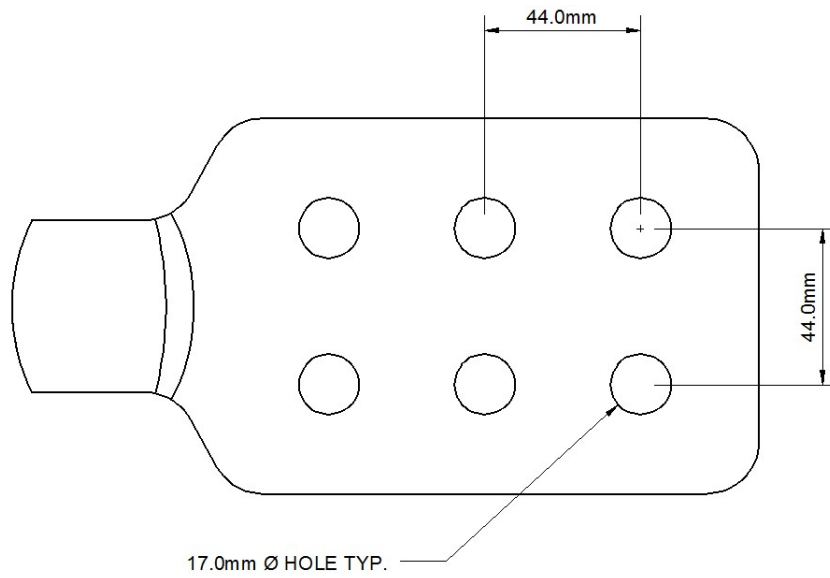
- 1) The customer's secondary cables must be installed, coiled and placed in the bottom of the transformer foundation. The cables should be long enough to rest on the bottom of the concrete foundation and to extend 2.14 m above the top of the transformer pad\*\*
- 2) Bollards must be installed\*\*
- 3) Compaction test results forwarded to ENWIN Utilities\*\*
- 4) Lid installed in the proper direction (as indicated by ENWIN) and lifting hooks are removed.

**Note** \*\* these items may be done before the installation of the primary cables.

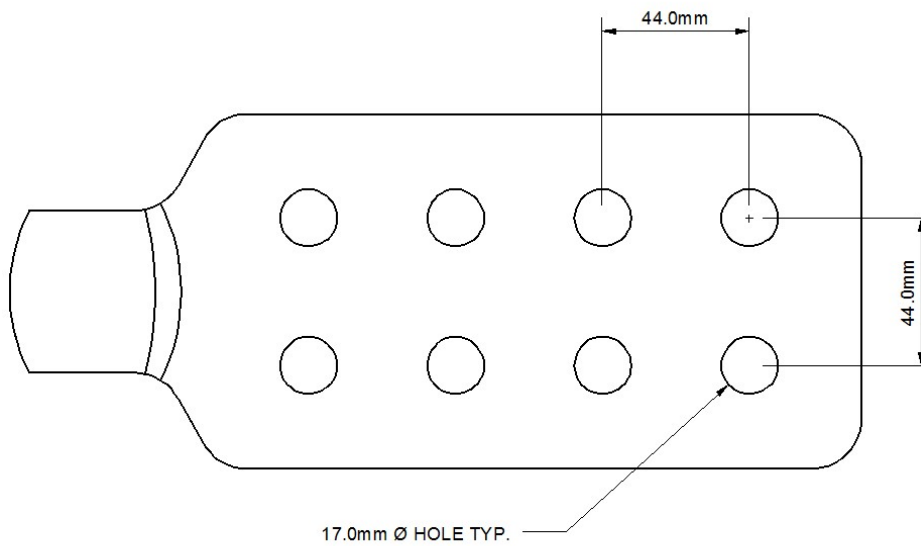
- ENWIN Utilities installs transformer. ENWIN requires 3 to 5 days notice in order to install transformer.
- Contractor attaches secondary cables (loosely bolted) to transformer using ½" stainless steel bolt of appropriate length, flat washers and lock washer.
- ENWIN Utilities receives connect order from ESA
- ENWIN Utilities makes permanent connections and energizes transformer - typically within 3 to 5 working days.
- Meters are installed



**APPENDIX**



**TRANSFORMER SECONDARY PADDLE**  
TYPICAL HOLE SIZE AND PLACEMENT  
(6 HOLE)



**TRANSFORMER SECONDARY PADDLE**  
TYPICAL HOLE SIZE AND PLACEMENT  
(8 HOLE)