ENERGEX SPECIFICATION

1.0 INTRODUCTION

This specification caters for padmounted transformer stations on customers premises within property and not fronting road reserve.

Padmounted transformer foundations to be built according to site sketch and design standards contained in this document.

It is the responsibility of the customer's consultant to ensure that the information contained herein is passed on to the relevant contractors.

2.0 NEGOTIATIONS BETWEEN ENERGEX AND CUSTOMER

1. An application is made to ENERGEX giving information with regards to the size and type of load, site plans and drawings, and the location of the required supply.

2. If a substation is required, the substation site is agreed upon by ENERGEX and the customer.

3. ENERGEX accepts a site sketch detailing the substation construction details, specification, standard drawings (An RPEQ approved drawing may be required for structural plans).

4. ENERGEX prepares a Network Connection Contract with a request for payment (if required). Customer to accept Network Connection Contract and returns with any payment required.

5. Customer excavates PMT site, installs foundation and conduit trenches.

6. Customer leaves PMT site and conduit trench open for ENERGEX inspection as required..

7. ENERGEX inspects PMT site and conduit installation.

8. ENERGEX installs earthing and PMT cubicle

9. Customer installs their LV consumers mains

10. Customer reinstates PMT surface with concrete apron surround

11. ENERGEX energizes substation providing that:

    a. Customer responsibilities are fulfilled.
    b. All payments have been received (including storage fee if applicable).
    c. ENERGEX has a signed Network Connection Contract.
    d. ENERGEX easements secured (if required).

3.0 BUILDING GENERAL

3.1 Building Services:-

No services other than ENERGEX's electric lines and approved parts of the customer's electrical mains shall pass through or under the substation area.

3.2 Workmanship:-

Building work shall be completed in a neat tradesman like manner and shall be as detailed on the drawings.

3.3 Construction:-

All civil construction works must be undertaken in accordance with the requirements specified in ENERGEX Work Category Specification WCS61 "Underground Civil Construction".

The padmounted transformer site shall be prepared by the customer.
An access area of 4800mm x 5000mm is required for cabling, earthing, installation and safe operation of apparatus. Proposed overhangs must be approved by Energex & be greater than 5.0m above padmount site.

The transformer site shall be above the local flood level (Q100/DFL which ever is higher) with the top of the concrete plinth 25mm above the finished yard level.
Cable apertures through the precast concrete plinth shall be backfilled to 50mm from the top of plinth.

The concrete slab is to slope away from plinth falling at a slope of 1 in 25.

The transformer site shall be level ±25mm with a maximum cut and fill of ±150 mm and shall be concreted in accordance with ENERGEX Underground Distribution Construction Manual Sect C3.

Concrete filled 140mm OD 5.6mm thick galvanised steel pipes may be required outside the site for protection from vehicles in car parks, etc. Refer to ENERGEX Underground Distribution Construction Manual Section C3.

For a steep sloping site a retaining wall and guard rail will be required to be constructed by the customer. Refer to ENERGEX Underground Distribution Construction Manual.

4.0 ACCESS

4.1 Personnel:-

ENERGEX's staff shall have access to the substation at all times without having to enter security areas. The onus will be on the customer to maintain said access 24 hours a day, 7 days a week.

A minimum of 2.0 metres of clear access shall be provided in front of the substation cabinet. This will provide a safe working platform and access around the lockable doors when opened for emergency operations.

4.2 Heavy Equipment - Stable Ground Sites:-

Padmounted transformers are hauled by flat bed trucks and "Franna" style mobile cranes.

Any access or manoeuvring area which will be used for the purpose of off loading or loading transformers should be constructed to take a minimum loading of 31 tonnes in all weather conditions.

The headroom along the access route is required to be 5.0m with no obstructions over the crane manoeuvring area. The width of access required for reasonably straight routes should be increased on bends and in the manoeuvring area near the substation equipment doors required for the off loading of the transformer from the truck by the mobile crane.

Any reinstatement which may be necessary in the event of damage to concrete slab, paving tiles or road surfaces etc. is the responsibility of the owner of the property.

5.0 CABLE CONDUITS

All conduits, associated fittings and bends shall comply with the requirements of AS/NZS 2053 as specified by ENERGEX and shall be supplied and installed by the developer.
Conduits shall be securely sealed by builder to prevent ingress of dirt until cable installation by ENERGEX and then resealed by ENERGEX. All above ground conduits shall be U.V. stabalised.

Refer to ENERGEX Underground Distribution Construction Manual for details of conduit installation within the padmount transformer site.

Each conduit to be fitted with a 6mm braided polypropylene draw rope.

ENERGEX may need to install an earth wire and earth rods in conduit trenches from the substation site.

Polymeric cable protection cover shall be placed over all conduits and cables outside the electricity footpath alignment. To provide protection, electricity supply conduits and cables shall have polymetric cable protection covers placed 100mm above the top conduit face of the electricity supply conduits and cables. Cable protection covers shall be lapped when placed together; 100mm minimum along the logitudinal axis, 40mm minimum along the transverse axis and shall extend 40mm minimum past the external edges of the conduit/cable bank.

Polymeric cable protection cover shall be a minimum of 5mm thick as described in Australian Standard; AS/NZS 4702 for Polymeric Cable Protection Covers.
The supply of polymeric cable protection covers and marked plastic warning tape shall be the responsibility of the developer and they shall be manufactured and supplied in accordance with the ENERGEX Underground Distribution Construction Manual Section C6.

6.0 EARTHING

An earthing system consisting of driven earth rods, a continuous earth ring around the substation connecting the rods and earthing tails connected to ENERGEX equipment and gates will be installed by ENERGEX. The earthing system may be required to be extended into cable trenches adjoining the transformer site.

The builder shall notify ENERGEX's works co-ordinator one week prior to trench and site foundation excavation to allow the installation of the earthing system and location of the earthing tails for equipment earthing.

7.0 CUSTOMER'S CABLES

Where supply is made available from the LV busbars of the transformer, the customer shall supply all connectors, stainless steel bolts, nuts, washers, cable cleats and supports and connect to the terminals as directed by ENERGEX.

Where supply is made available from a circuit of a low voltage distribution board, the customer shall supply all connectors, stainless steel bolts, nuts, washers and connect to the terminals as directed by ENERGEX.

Under no circumstances shall the customer cabling pass though or under the padmounted transformer culvert, nor the culvert end wall "knock-out" sections be removed.

8.0 UNDERGROUND CABLE PITS

Refer to ENERGEX Underground Distribution Construction Manual Section C5 for concrete pits.

9.0 EASEMENTS

The builder/developer is to provide Energex initially with a written undertaking that the easements will granted so that the project may proceed during the design process. Easement shall cover the HV cable route, substation site and remote earth grid area (if applicable). The ENERGEX newtwork will not be commissioned until all the required easements have been registered.

The developer/builder is required to grant the easements as noted on the Easement/Site Plans referred to by ENERGEX in the Network Connection Contract prior to the supply being made available.

All costs associated with the registering, surveying, document perpetration etc shall be bourne by the builder/ developer.

The builder/developer shall Liaise with Energex's property department in relation to ensuring that all necessary documentation is completed. Contact Energex Property on propertyenquiries@energex.com.au including your project reference number.

The following general details will apply:
- all documents shall be acceptable to the Department of Natural Resources
- The grantee should be shown as "Energex Limited (ACN 078 849 055)"
- refer to Memorandum No 708346714 for underground electricity (memorandum is registered with Natural Resources)

The builder/developer will forward the document to Energex for review and execution. Energex will then return the documents to the builder/developer for registration with The department of Natural Resources.

The builder/developer is to return a copy of the Registration Confirmation Statement to Energex.

All private services easements must be registered prior to supply being made available to the future development sites.

10.0 RETAINING WALLS / FENCES

Retaining walls shall be installed where a change in ground level of 300mm or more occurs within 2000mm of the substation clearance zone. Fences shall be installed for:
- Residential areas (Typically 1200mm high)
- Sloping sites (either front to back or left-right).

Fences and Retaining walls shall be constructed to ENERGEX standards to satisfy minimum clearance zones of common earth configurations. Refer to section C3-1 for retaining wall construction notes. Alternative designs to those provided in this manual will require a Civil Engineer's Certification.

Safety fences shall comply with the requirements of the Workplace Health and Safety Act, AS1657 and AS1926 and all amendments.
Metal retaining wall fences shall be used in CMEN areas. (Refer UDCM C3.1 Sheet 6)

All retaining walls and safety fencing on private property shall be maintained by the owner at no cost to Energex.

All fencing materials shall be galvanised or finished in an equally durable manner. All chainwire and support wires shall be PVC coated and coloured black or green.

All elevated areas shall be provided with toe boards and infill type fencing.

11.0 ENERGEX COMMUNICATION CONDUIT

Conduit
ENERGEX communication conduit shall be white, Medium Duty (MD), UPVC to AS/NZS 2053, Energex Technical Specification TS270 and AS1345. Conduit couplings shall comply with all the above requirements.

Tracer/Draw Rope
The electricity communications conduit when installed shall be fitted with a continuous metallic tracer/draw rope suitable for passing an electricity current through to accurately identify the conduit.

Installation
ENERGEX communication conduit installation:
100mm conduit shall be located adjacent to the top Low Voltage conduits on the kerb side of the trench, between the LV conduits and any Public Lighting conduit.

ENERGEX ACCEPTANCE

NAME .....

OFFICE .....

SIGNED .....

DATE / /

ENERGEX takes no responsibility for the accuracy of the information provided on this drawing

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A	INFORMATION	23/02/2026

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ELECTRICAL DESIGN GROUP
ELECTRICAL BUILDING SERVICES CONSULTANTS
BRISBANE GOLD COAST

P.O.Box 15, Sherwood Q.4075
Phone: (07) 3278 4375
Email: brisbane@edg.net.au
Web: www.edg.net.au

PROJECT:
ORMISTON COLLEGE
EARLY LEARNING CENTRE

168 DUNDAS STREET WEST, ORMISTON

DRAWING:
ELECTRICAL SERVICES
ENERGEX PADMOUNT SUBSTATION
STANDARD NOTES

SCALE: NOT TO SCALE AT A1

PROJECT NO:	DRAWING NO:	REVISION:
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