



**UNDERGROUND
CONSTRUCTION MANUAL**

INTRODUCTION

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CONSTRUCTION MANUAL INTRODUCTION

This manual is intended primarily for use by construction and maintenance personnel and details the Ergon Energy standard constructions. The manual was compiled initially with input from representatives from each of the six regions of Ergon Energy.

Manufacturing/fabrication drawings are not included in this manual but are detailed in the Ergon Energy Distribution Network Hardware manuals that are available on the Intranet.

With co-operation between Line Design Standards and Field staff this manual, in conjunction with the Standard for Distribution Line Design Underground Manual STNW3369 Ver 1, will serve as a valuable instrument by which efficient and economic constructions complying with relevant codes of practice and guidelines can be constructed throughout Ergon Energy Corporations area of supply.

Difficulties with the adoption of this manual or suggestions for improvement should be entered on the Construction Standards Feedback Form NA000303F100 in accordance with the work flow diagram.

LINES DESIGN STANDARDS OFFICERS

- Carmelo Noel – Engineering Manager Distribution Network Standards – Ph. 4931 2459
- Adam Bletchly – Underground & Public Lighting Standards Engineer – Ph. 4931 2783
- Craig Avenell – Program Leader - Overhead Construction Standards – Ph. 4931 2782
- Paul De Sousa Roque – Senior Line Structure Engineer – Ph. 4931 2277
- Peter Beikoff – Lines Standards Officer – Ph. 4121 9526
- Darren Sayers – Estimating Systems Officer – Ph. 4931 2641
- Leon Burton – Lines Standards Drafter – Ph. 4931 2254
- Tim Borg – Lines Standards Drafter – Ph. 4931 2220
- Rao Margani – Sub-Transmission Standards Engineer – Ph. 4931 2336
- Kim Slater – Underground & Public Lighting construction standards officer – Ph. 4931 2280

Reporting a Problem or Improvement with the Construction Manuals Quick Reference Guide



▪ Purpose and scope

- To provide guidance for reporting a problem or improvement that has been identified within the Ergon Energy Overhead, Underground and Lighting Construction Manuals.

▪ Communication Flow

○ Peer Discussion

Any problem / improvement should be discussed with your peers in the first instance. This will determine whether or not a simple solution is available.

○ Construction Standards Feedback Form

Feedback Form, NA000303F100, should be initiated. This form should then be forwarded to the Team Leader for comment.

○ Team Leader Comment

Team Leaders should review any problems / improvements that are perceived by staff. If they can resolve the issue, the feedback form with comments should be returned to the originator.

The Team Leader should respond to this form within two weeks of receipt. If they are unable to resolve the issue, the feedback form should be forwarded to the Work Practices Co-ordinator for comment.

○ Work Practices Co-ordinator Comment

The Work Practices Operational Forum should review the problem / improvement. If able to be resolved through the forum, the Work Practices Co-ordinator should comment and forward the feedback form back to the originator via the Team Leader.

The Work Practices Co-ordinator should respond to this form within two weeks of receipt. If the issue is unable to be resolved, the coordinator should comment and forward the form to the Asset Management Line Standards Group.

○ Asset Management Line Standards Group Review and Comment

The Asset Management Line Standards Group will collate all problems / improvements that have not been able to be resolved during an earlier phase in the process. If the group considers that no action is required, an explanation of this decision will be recorded on the feedback form and returned to the originator via the Work Practices Co-ordinator and the Team Leader.

If the group decides that action is required, the relevant actions should be initiated. This intended action should be recorded on the feedback form and returned to the originator via the Work Practices Co-ordinator and the Team Leader. The Asset Management Line Standards Group should respond to this form within two weeks of receipt.

▪ Responsibilities

- Executive General Manager Asset Management is the Process Owner responsible for approving this Reference document.
- Manager Engineering Line Design Standards is responsible for maintaining this Reference document.
- Manager Engineering Line Design Standards is the Subject Matter Expert (SME) for the content of this Reference document.

▪ References

- [NA000303F100](#). Construction Standards Feedback (Form)

Construction Standards Feedback Form



ROUTE	1.	Team Leader	<input type="checkbox"/>
	2.	Work Practices Co-ordinator Field Support	<input type="checkbox"/>
	3.	Asset Management Line Standards Group	<input type="checkbox"/>

All issues must be communicated on this form and followed up with an e-mail if required.

Work Practices Co-ordinator O/H or U/G Operational forum – fieldstandards@ergon.com.au

Refer to the flow diagram on page 2 for the communication flow of this form.

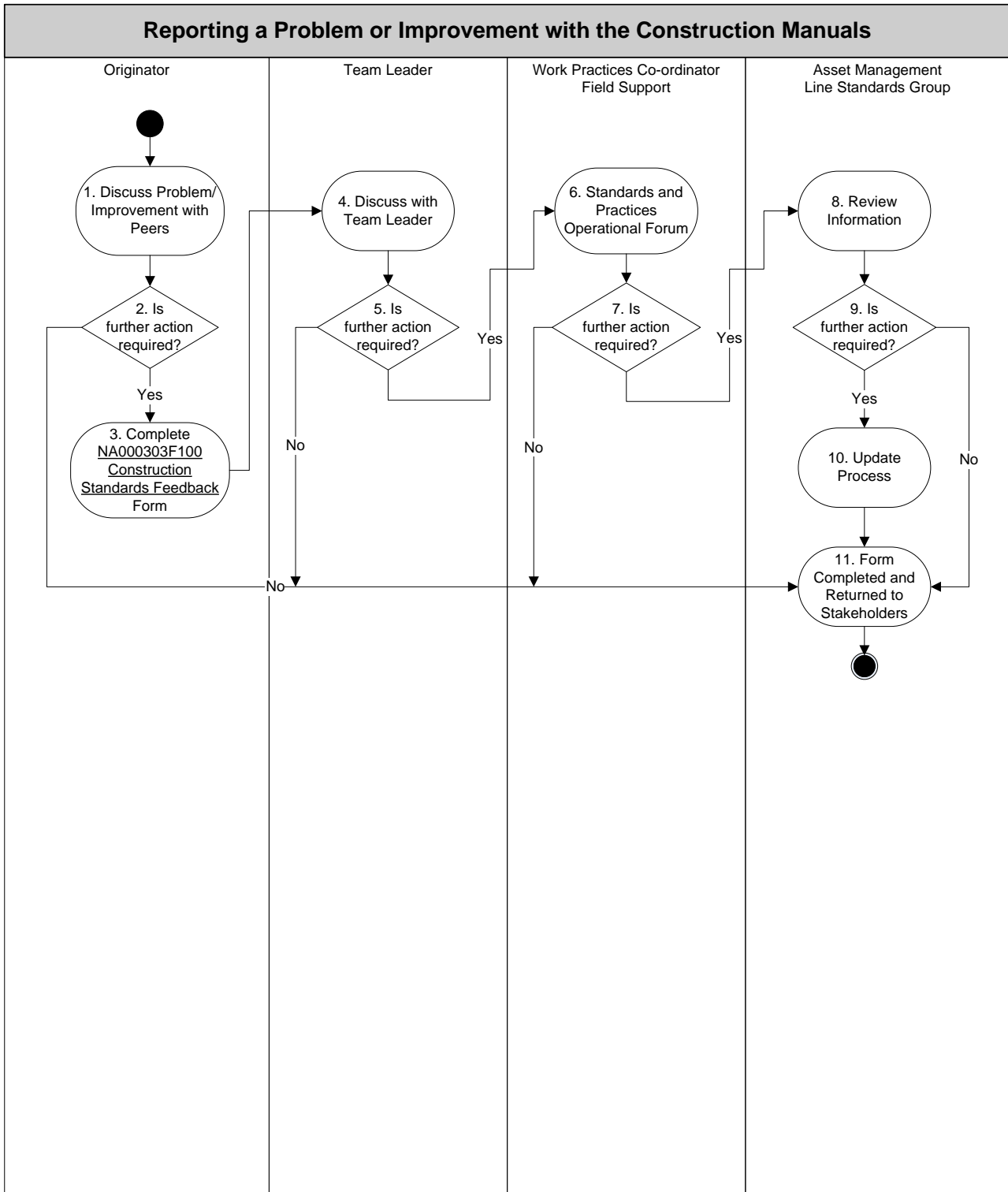
Name of originator			Position		
Region		Depot / Location		Date	
Construction Manual			Drawing / Page number		
Description of problem / improvement					
Remedy / suggestion					
Team leader comments					
Name		Title		Date	
Work practices operational forum comments:					
Name		Title		Date	
Asset Management Line Standards Group's comments					
Name		Title		Date	

Photographs or other supporting material may be attached if required.

Construction Standards Feedback Form



Communication Flow



CONSTRUCTION SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Pole	Pole	Pole
Pit	Pit	Pit
GMS Site	Pad	Pad
Tower	Tower	Tower
Fiska Box (or) Pillar	Pedestal	Comms Supply Cabinet
		Normal Pillar
		Link Pillar
		Cross Road Pillar
		Distribution Cabinet
		Commercial / Industrial
		Lid Pit
Pole Equipment	Cross Arm	Cross Arm
Pole Equipment	General Equipment	General Equipment
Bridge	General Equipment	General Equipment
Aerial Stay	Guy	Aerial Stay
Stay	Guy	Stay
Dist. Generation System	Energy Source	Distributed Generation
Generator	Energy Source	Power Station Generator
Earth Switch	Isolating Equipment Installation	Earth
HV Isolating Device	Isolating Equipment Installation	Switch
LV Isolating Device	Isolating Equipment Installation	Switch
TR Isolating Device	Isolating Equipment Installation	Switch
HV Spacer	Line Spacer	Line Spacer
LV Spacer	Line Spacer	Line Spacer
TR Spacer	Line Spacer	Line Spacer
Warning Device	Marker	Marker

CONSTRUCTION SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Transformer	Power Transformer Installation (or) 3w Power Transformer Installation	Step
		Metering Unit
		Voltage
		SWER Isolator
		Distribution
		Current
		Earthing
		Load Control
		Local Supply
		Power
		Regulator
Power		
Reactor	Regulating Equipment Installation	Reactor
Capacitor	Regulating Equipment Installation	Capacitor
Dist. Generation Site	Substation	Substation
Substation	Substation	Substation
Zone Substation Site	Substation (merged)	Not in EO Model
Substation	Composite Switch (RMUs)	Composite Switch
SWER Delimiter	Connector Point Installation	SWER Delimiter
Earth	Connector Point Installation	Earth
Earth Cable Joint	Connector Point Installation	Cable Joint
HV Cable Joint	Connector Point Installation	Cable Joint
HV Cable Termination	Connector Point Installation	Termination
LV Cable Joint	Connector Point Installation	Cable Joint
LV Cable Termination	Connector Point Installation	Termination
TR Cable Joint	Connector Point Installation	Cable Joint
TR Cable Termination	Connector Point Installation	Termination
Measuring Device	Substation	Substation
Fault Throw Switch	Substation	Substation
Surge Diverter	Substation (merged)	Not in EO Model
Protection	Composite Switch (RMUs)	Composite Switch

A ORIGINAL ISSUE

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APPROVED	<i>C. Noel</i>
DATE	02/02/17
PASSED	<i>A. Bletchly</i>
DRAWN	<i>T. Borg</i>

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COMMS LINE & CABLE SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Communications Cable	Communications Cable	Communications Cable
Communications Line	Communications Line	Communications Line

CONDUIT DUCTING SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Duct	Conduit	Not visible in Schedule

UNDERGROUND CABLE SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
HV Cable	Cable Segment	Not visible in Schedule
LV Cable	Cable Segment	Not visible in Schedule
TR Cable	Cable Segment	Not visible in Schedule
Earth Cable	Cable Segment	Not visible in Schedule

COMMS CONSTRUCTION SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Communications Joint	Communications Joint	Communications Joint
Communications Pit	Communications Pit	Communications Pit
Communications Site	Communications Site	Communications Site
Communications Equip.	Communications Equip.	Communications Equip.

PUBLIC LIGHT SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
Streetlight	Light	Not visible in Schedule

OVERHEAD CONDUCTOR SCHEDULE

Ergon 3.3 Object Name	Ergon EO 4.3.4 Object Name	Construction Class
HV Line	Wire Segment	Not visible in Schedule
LV Line	Wire Segment	Not visible in Schedule
TR Line	Wire Segment	Not visible in Schedule
Aerial Earth Wire	Wire Segment	Not visible in Schedule

A ORIGINAL ISSUE

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Ergon Energy Corporation Ltd
ABN 50 087 646 062

APPROVED *C. Noel*

DATE *02/02/17*

PASSED *A. Bletchly*

DRAWN *T. Borg*

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