

Electrical Safety - Bushfire Mitigation Plan (BFMP)

Oaklands Junction Quarry 2023-2024

Revision 6

Australia



REVISION/CHECKING HISTORY

REV No.	AUTHOR	DATE	CHECKED BY	DATE	CHECKED BY	DATE
0	M Konstantinidis	13 Nov 2018	D Sheldon	21 Jan 2019	D Jones	-
1	M Konstantinidis	31 Jan 2019	D Sheldon	-	D Jones	-
2	M Konstantinidis	11 April 2019	D Sheldon	4 July 2019	D Jones	4 July 2019
3	P Maaten	29 th June 2020	D Sheldon	29 th June 20	D Jones	29 th June 20
4	M Konstantinidis	16 th July 2021	D Sheldon	16 th July 21	D Jones	16 th July 21
5	M Konstantinidis	14 th July 2022	D Sheldon	28 th July 2022	D Jones	28 th July 2022
6	M Konstantinidis	18th May 2023	D Sheldon	30 th May 2023	P Maaten	30 th May 2023
7						
8						
9						
10						
11						

REVISIONS

REV No.	DATE	DESCRIPTION OF CHANGE
0	13 Nov 2018	Development of document from draft for approval
1	31 Jan 2019	Updated post internal review for ESV comment
2	11 April 2019	Updated post initial ESV review
3	29 June 2020	20/21 Review – no changes
4	16 July 2020	21/22 Review & Updated following ICAM replace with Hfacs Work Permit change to Hazardous Work Permit INX change to Holcim Incident Management Data Inclusion of items post ESV review
5	14 July 2022	22/23 Review & Update
6	18 May 2023 28 August 2023	23/24 Review & Update Update post ESV review & comment
7		
8		
9		
10		
11		

Contents

1. Purpose	4
2. Scope	4
3. Responsible Authorities	4
3.1 Operations Manager	4
3.2 Quarry Manager	4
3.3 Chief Electrical Engineer	4
4. Prescribed Particulars	5
5. Accessibility of Documents	14
6. References	14
7. Exemptions	14
Appendix 1: Quarry Overhead Power lines Drawing	15
Appendix 2: Oaklands Junction Quarry – Locality Plan	17
Appendix 3: Inspection & Maintenance	17

Bushfire Mitigation Plan (BFMP)

1. Purpose

Comply with the requirements of relevant Victorian legislation.

Relevant Legislation and Regulations

- **Electricity Safety Act 1998 (Vic) (Version No 025)**
- **Electricity Safety (Bushfire Mitigation) Regulations 2013 (Version No 62)**

As a business that has electric power lines above the surface of the land and in a hazardous bushfire area, Holcim Oaklands Junction Quarry meets the definition of a “specified operator”.

2. Scope

This plan details the practices and procedures in place at HOLCIM Oaklands Junction Quarry for the prevention of fire caused by overhead electrical assets and the mitigation of any fire incident that may occur. As most of the “at risk” electrical equipment is operated by the quarry, the main responsibilities for this plan are with quarry personnel.

3. Responsible Authorities

3.1 Operations Manager

- a) Is accountable for the implementation of this BFMP
- b) Ensure that the processes and procedures required to comply with the applicable regulations are in place and followed;
- c) Ensure that this Electricity Safety – Bushfire Mitigation Plan is reviewed and updated at regular intervals in line with legislation, regulations and industry “Best Practices”; and
- d) Have an audit process in place to ensure that the regulatory requirements are being met.

3.2 Quarry Manager

- a) Is responsible for implementation of this BFMP
- b) Ensure that all operational personnel and contractors understand their responsibilities and comply with this plan;
- c) Ensure that a copy of the current plan is submitted to Energy Safe Victoria annually before 1 July each year: and
- d) Confirm that each submission gains ESV approval.

3.3 Chief Electrical Engineer

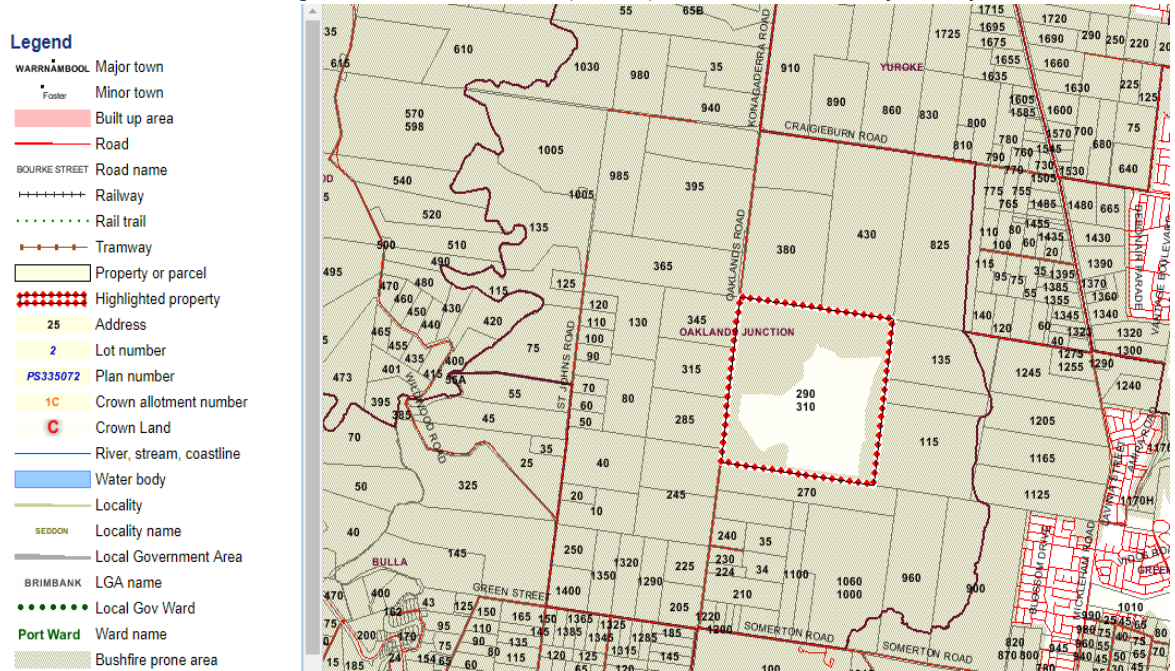
Ensure that this Electricity Safety – Bushfire Mitigation Plan is reviewed and updated annually to comply with the regulations and ensure that any changes to relevant operational procedures are compliant with the regulations and reflected in this Electricity Safety – Bushfire Mitigation Plan.

4. Prescribed Particulars

a) The name address and telephone number of the specified operator;

Name: Holcim (Australia) Pty Ltd
ACN: 099 732 297
ABN: 87 099 732 297
Site Name: Oaklands Junction Quarry
Address: Oaklands Rd, Oaklands Junction VIC 3063
Phone No: (03) 9303 3201

The site is located in a high bushfire rated area (HBRA) under the Electricity Safety Act, Victoria.



Source: <http://services.land.vic.gov.au/maps/bushfire.jsp>

b) Person responsible for the preparation of the plan;

National CAPEX Project Manager
milton.konstantinidis@holcim.com
Ph (03) 9286 2506
3rd Floor, 290 Burwood Rd, Hawthorn VIC 3122

c) Persons responsible for carrying out the plan;

Quarry Manager
Peter.Maaten@holcim.com
Ph (03) 9303 3203
Oaklands Rd, Oaklands Junction VIC 3063

Quarry Maintenance Manager
gary.osborne@holcim.com
Ph (03) 9303 3208
Oaklands Rd, Oaklands Junction VIC 3063

d) Emergency contacts

Quarry Manager (24 hours x 7 days per week)
Peter.Maaten@holcim.com
Ph (03) 9303 3203 / 0402 227 105

Oaklands Rd, Oaklands Junction VIC 3063

OR

Quarry Maintenance Manager, Ph (03) 9303 3208

gary.osborne@holcim.com

Oaklands Rd, Oaklands Junction VIC 3063

e) Fire Policy;

To ensure that Holcim Oaklands Junction Quarry electrical infrastructure is maintained in a fire safe condition through regular inspection and asset maintenance to minimise the risk of fire ignition. A further aim of the policy is to minimise the risk to public safety and the effect of the electric lines on the vegetation.

f) The objectives of the plan;

The objective of this strategy is to ensure that the risk of fire starting from Holcim Oaklands Junction Quarry electrical assets is minimised. This will be carried out by ensuring the assets are in a fire-safe condition prior to, and maintained in this condition throughout the respective Declared Fire Danger Periods (DFDP's) as declared by the Country Fire Authority (CFA). Electric lines are to be kept well clear of vegetation and an inspection and maintenance of the assets will occur to minimise the risk to public safety and the effect of the electric lines on the vegetation.

g) Plan of the quarry showing overhead power lines;

The Holcim Oaklands Junction Quarry is a hard rock quarry located 25 km north of the Melbourne CBD.

The quarry operation is bound by Oaklands Road to the west and surrounded by rural land to the north, east and south, with a horse auction complex on the western side of Oaklands Road, directly opposite the operations. The site lies very close to Melbourne's Tullamarine Airport.

Quarry operations are licensed under Extractive Licence 714 (obtained in 1978) and permitted under Planning Permits also obtained in 1978. Work Authority 176 was issued in 1998, and revised 2004 and 2007, with the last Work Plan Variation, dated 2018.

Drawing of quarry showing all overhead power lines – Appendix 1

Site Locality Map - Appendix 2

h) Preventative strategies;

Vegetation is removed from the vicinity of Quarry power lines whenever it is identified as an issue and in accordance with the Holcim Electric Line Clearance Plan Rev 1 (Draft). This would be during routine inspections by trained Electrical Asset Inspectors and / or annual / ad hoc inspections by quarry electrical personnel during normal operating procedures.

Annually (pre summer each August-September) and during a declared fire danger period or total fire ban day(s) a risk assessment is conducted visually assessing the condition of the assets, assessing the potential for a tree or branch to fall onto the overhead power line or any other condition that could lead to a fire. From these assessments actions are determined such as removal of branches, trees or assessment by power authority if required.

Further and specifically to this site for selected lengths (where practical and vegetation exists) of the overhead power line within the quarry a 10m wide easement composed of a 100mm deep crushed rock base will be maintained.

The power lines are routinely inspected by contracted inspectors. All preventative maintenance activities and faults are recorded into the maintenance management system by Oaklands Junction staff, and managed through, the Computerised Maintenance Management System. This allows Oaklands Junction management to ensure any required inspection or maintenance activity is performed and it provides for an independent review of all reported faults as an audit of the inspection work.

In addition to the visual inspections outlined, the following service / maintenance activities are completed;

- LV Air Circuit Breaker Main Switches every 12 months
- DGA testing of Transformer Oil every 12 months unless there is an issue and shorter testing periods are recommended
- Pole Mounted Airbrake switches in a dusty environment every 12 months
- At intervals not exceeding 37 months from the date of the previous inspection, the following are completed;
 - Pole inspections
 - Pole Line Thermography
 - Pole line maintenance

A Risk Assessment is to be completed for each defect or non-compliance identified in accordance with the process outlined in SHE Guideline 2.01 (Risk Management Process).

		CONSEQUENCE				
		5 Disaster	4 Severe	3 Serious	2 Significant	1 Minor
LIKELIHOOD	A Certain	HIGH	HIGH	HIGH	MED	MED
	B Likely	HIGH	HIGH	MED	MED	LOW
	C Possible	HIGH	MED	MED	LOW	LOW
	D Unlikely	MED	MED	LOW	LOW	LOW
	E Rare	MED	LOW	LOW	LOW	LOW

The recommended timing for remedial actions are provided below, however these should be reviewed in conjunction with the risk assessment as well as other factors such as asset function and criticality, past failure history and various operational factors.

In general, it is recommend that:

- HIGH RISK** - Actions be implemented within 3 months, unless noted otherwise.
- MED RISK** - The risk should be reviewed and any mitigating actions deemed required should be implemented within 6 months.
- LOW RISK** - The risk should be reviewed and any mitigating actions deemed required should be implemented within 12 months.

Further supporting Holcim's commitment to bushfire mitigation, an isolation transformer was installed and commissioned in July 2022, as part of Holcim's requirements under the Victorian State Government's Rapid Earth Fault Current Limiter (REFCL) implementation. Concurrently with this project, Holcim has developed High Voltage Installation Safety Management Plan (HVISMP) and High Voltage Equipment Maintenance Schedule to support the ongoing inspection, testing and maintenance of Holcim's HV assets on site.

All areas of the network are accessible at all times.

To ensure BFMP strategies and activities are conducted; The BFMP will be treated as a secondary site approval document and will be subject to the full extent of SHE Guideline 6.01: Permits, Licences and Approvals. This means;

1. A hard copy of the plan will be added to the site's permit compliance folder and an electronic copy will be added to the approvals database.
2. Recurring action items within the plan will be scheduled and added to the site's obligation register. The obligation register is a Google Drive scheduling tool that allows the Quarry Manager to plan for upcoming actions and for Management to follow up any outstanding or overdue actions if they are not signed off as complete by the Quarry Manager by the due date.
3. Contents of the obligation register flow into the Permit Compliance Assessment requirements. This system requires all sites to carry out a full self-audit of their approvals on a 2 yearly basis.
4. Contents of the obligation register also flows into the Holcim Environmental Audit Plan that requires all operational sites to be audited by a 2nd or 3rd party auditor against both the relevant SHEMS and Approval requirements on a 5 yearly cycle.

i) Plan for inspection;

All overhead high voltage power lines are visually inspected annually (By Zinfra). This is scheduled to be completed during September/October each year.

This is managed by a time based routine within the Computerised Maintenance Management System.

j) Accreditation of Lines Inspectors;

HOLCIM Oaklands Junction Quarry does not directly employ linesmen. When the line inspections are due each year, an order is placed on an external service provider, for the inspection of the plant and equipment due that year.

As part of Holcim's 3.11 SHE Guideline – Electrical Safety;

All electrical work performed on site, shall be performed by appropriately authorised persons - where authorisations are provided site/business representatives based on qualifications/competencies and experience. Where work is to be performed by an apprentice, this work shall be suitably supervised by a fully qualified person.

Competency or Licence Code		
Authorisation	Pre-requisites	Theory and Assessment Progression
Non-Electrical Worker working in "Production type areas"	Nil	Holcim Electrical Awareness Training Refer: Attachment 3.11B - Electrical Awareness Training
Authorised Electrical Worker	Electrical Licence (or equivalent) Current LV Rescue & CPR Area Familiarisations	
Safety Observer (Electrical) / Electrical Support Worker	Current LV Rescue & CPR Area Familiarisations	
Switch Room Entry	Area Familiarisations	Holcim Electrical Awareness Training Refer: Attachment 3.11B - Electrical Awareness Training
High Voltage Switching		See below table
HV Switching Assistant	Authorised Electrical Worker 2 yearly in-house refresher 5 yearly full HV training	Successful completion of HV Switching Course – Nationally Accredited Area Familiarisations
HV Switching Operator	HV Switching Assistant 2 yearly in-house refresher 5 yearly full HV training	Successful completion of HV Switching Course – Nationally Accredited Area Familiarisations Justification of experience and competency
HV Switching Recipient	Authorised Electrical Worker	Successful completion of HV Switching Course – Nationally Accredited Area Familiarisations
HV Switching Coordinator	HV Switching Operator 2 yearly in-house refresher 5 yearly full HV training	Successful completion of HV Switching Course – Nationally Accredited Area Familiarisations Justification of experience and competency

Other personnel carrying out ad hoc inspections, as part of normal operational activities on the power distribution system, are trained to the required Units of Competency noted above as Electrical Operators and authorised by HOLCIM Oaklands Junction Quarry to operate the quarry high voltage power distribution system. This gives them knowledge of the required line clearances.

A requirement of a contractor performing HV asset inspections will be to have completed 22109VIC or UET20612 - Certificate II in ESI - Asset Inspection.

To confirm operators / inspectors have the appropriate up to date licensing and training, Holcim uses "Damstra".

Damstra provides real-time, web-based workforce management solutions (TWMS) to ensure a safe and compliant workforce. Damstra terminals are installed at all Holcim sites across Australia and New Zealand. All visitors to the site (including visiting Holcim employees) and contractors must sign in/out at the Damstra terminals.

With regards to Contractor Management, Holcim Australia and New Zealand uses TWMS and the Damstra terminals for on site visitor registration and as part of the SHE contractor management process to ensure only approved contractors access the site.

Contracting companies must register with Damstra to:

- complete Holcim questionnaire
- submit applicable insurances
- add employees that will be attending a Holcim site
- submit qualifications in line with their job role for verification (qualifications include trade certificates and licences, noting expiry dates)
- complete Holcim SHE inductions prior to attending site

k) Accreditation of other persons who will carry out works under this plan

All Contractor or employee qualifications are checked by the person responsible for the contract works under this plan, as part of the Contract Management Process and Holcim SHE Management process.

The Responsible Officer on site for the contract controls access to the site, monitors progress and checks on site activities

l) Operation and Maintenance Plans for at-risk electric lines;

i. in the event of a fire:-

In the event of a major fire within the business, the Emergency Procedures at Oaklands Junction Site (refer to 1.07 SHE Guideline – Emergency Response, First Aid & Injury Management, and Emergency Procedures Flip Chart) would be implemented and actions necessary to protect the Quarry's power systems.

The site emergency team would work closely with any emergency services and if required the HV line will be de-energised if directed to do so. If deemed necessary the line will be inspected prior to re-energisation.

ii. during a day of Total Fire Ban:-

On a day of CFA-declared Total Fire Ban, any essential maintenance which is proposed to proceed is risk assessed to ensure that it did not constitute a fire risk.

iii. during a fire danger period:-

All inspections and high priority maintenance work would have been completed prior to the start of the fire danger period to minimise fire risk due to the power distribution network. Any required vegetation removal will also have been completed.

The quarry power distribution system ("at risk supply network") is expected to operate without substantial impairment.

All 'hot' work intended to be carried out on the Oaklands Junction Quarry requires a Hazardous Work Permit to be completed with risk assessment. Hot works are generally not expected to be carried out during total fire ban days. For the event of an emergency or critical maintenance Oaklands Junction Quarry may arrange permits allowing this work under particular circumstances.

m) Investigations, analysis and methodology to be adopted for the mitigation of the risk of fire ignition from at-risk electric lines;

All fires on site are recorded and investigated through the Oaklands Junction Quarry and Holcim incident management data system. Recommendations from the Holcim incident management data system are sent to the person responsible for action.

Note: At the time of preparation / revision of this plan no fire starts have occurred on site.

As per 5.01 SHE Guideline – Incident Reporting and Investigation, any fire event would be recorded and investigated.

The objective of this standard and guideline is to determine the contributing factors and causes of an incident and implement actions to prevent recurrence and reduce risk.

To achieve this objective, all incidents shall be reported immediately and recorded in the incident national database within 24 hours.

An investigation shall be completed on all incidents

Low Risk Investigations

For the purpose of low risk incidents, the “Immediate Actions” field will serve as the investigation of the incident. Where it is determined that a higher level investigation is needed, this incident shall be re-classified as a higher category incident.

Medium Risk Investigations

All medium risk incidents shall be investigated by a person who has completed the basic HFACS investigation training, the Holcim (ANZ) Investigation Training and following the steps as outlined in the “Incident Investigation Handbook”. These medium risk incident investigations are not required to be peer reviewed.

High Risk and Critical Investigations

For all high risk and critical incidents, a Human Factors Analysis and Classification System (HFACS) shall be conducted. The HFACS enables identification of systemic health, safety or environmental deficiencies, assists investigation teams to identify what really went wrong and ensures recommendations are focused on what needs to be done to prevent recurrence. It is directed towards building ‘error-tolerant’ defences against future incidents. The HFACS methodology sets out steps to guide the investigator sequentially through an investigation and includes event and condition charts and incident trees.

The outcomes and lessons from all investigations are shared with the business, and where required Holcim SHE Guidelines and/or standards are updated.

Achieving this objective will assist in reducing incidents and meet Holcim’s target of zeroHarm.

Further in the preparation of this BMP, Holcim reviewed other publically available BMPs identifying several design initiatives to limit the risk of fire ignition, that are also in place on site at Oaklands Junction;

1. All quarry feeders are installed with Sensitive Earth Leakage protection to protect personnel and plant in the event of a fault. This system limits the amount of energy delivered to an earth fault. By limiting the duration and magnitude of fault current, the chance of a fault causing a fire is minimised. Note: during days of total fire ban the protection system remains active.
2. The HV electrical line poles are of concrete construction with steel cross arms, providing greater durability and fire resistance than timber poles. There are 3 poles (installed post 2000) that are of timber construction leading to the location of the sand plant from the transport yard. An additional timber pole was “gifted” by Jemena to Holcim as part of the REFCL works in 2022.
3. A check of all fuses on site has confirmed that no Expulsion Drop Out (EDO) type K fuses remain from the original installation (known to start fires in the past). All fuses on site are Bussman powder type ‘British Standard Air Fuse Links’, except for those associated with the transport office transformer which are Boric acid and utilise the appropriate S&C fuse holders.

n) **Details of the processes and procedures by which the specified operator will;**

i. **Monitor the implementation of the bushfire mitigation plan**

As per Holcim's 3.11 SHE Guideline – Electrical Safety, no access or works to HV assets can be completed until a Hazardous Work Permit (HWP) has been completed along with a risk assessment and access permit.

As the PTW system requires formal supervision and inspection, monitoring of works as they progress and at completion will be completed.

Further specific actions identified in this BFMP complete with close out dates are uploaded into the site maintenance management system.

All asset issues or failures identified through routine inspections or otherwise are recorded in the Computerised Maintenance System operated by Holcim. Where the issue or failure poses a safety risk the item is also recorded as hazard in the Holcim incident management data system, and is managed in line with SHE Guideline 5.01 – Incident Reporting & Investigation.

Any item entered into the CMS enables Holcim to plan and track close out of all identified issues. Further it should be noted that the inspection process of assets is managed via the CMS in that a schedule for inspections is developed and the system automatically generates work orders when due for completion.

Any hazard entered into iCare is risk assessed complete with close out date and owner. Reports from iCare on open and closed hazards are developed for review by site, local and senior management.

ii. **Audit the implementation of the bushfire mitigation plan**

All elements of regulatory compliance are audited by Oaklands Junction internal auditors and regulators. These regulators have adopted a process of regular audits.

Site inspections specifically related to this BMP will be conducted both prior to and during the declared fire season.

As noted previously the implementation of the BFMP is audited by Holcim via the SHE Guideline 6.01: Permits, Licences and Approvals, meaning a;

1. A hard copy of the plan will be added to the site's permit compliance folder and an electronic copy will be added to the approvals database.
2. Recurring action items within the plan will be scheduled and added to the site's obligation register. The obligation register is a Google Drive scheduling tool that allows the Quarry Manager to plan for upcoming actions and for Management to follow up any outstanding or overdue actions if they are not signed off as complete by the Quarry Manager by the due date.
3. Contents of the obligation register flow into the Permit Compliance Assessment requirements. This system requires all sites to carry out a full self-audit of their approvals on a 2 yearly basis.
4. Contents of the obligation register also flows into the Holcim Environmental Audit Plan that requires all operational sites to be audited by a 2nd or 3rd party auditor against both the relevant SHEMS and Approval requirements on a 5 yearly cycle.

iii. **Identify any deficiencies in the plan or the plans effectiveness**

All fire policies and procedures are reviewed annually prior to the commencement of the Annual Fire Season declared for the Quarry.

In addition business processes ensure the update of policies and procedures based on input from any incident investigations, internal audits, external audits, regulator reviews, etc., by logging and monitoring of action items using the Holcim incident management data system.

The regulatory audits relating to fire preparedness conducted by regulators can also identify deficiencies in the plans or systems in use on site. Recommendations from the regulators are enforceable and have to be complied with.

iv. **Change the plan and the plans implementation to rectify any deficiencies identified**

As noted in point iii), the business has a process to capture and implement improvements for policies and procedures based on findings, recommendations and / or employee suggestions.

v. **Monitor the effectiveness of inspections carried out under the plan**

Contractors employed to perform inspections are regularly checked and audited.

Holcim procedures require a Responsible Officer to check the contractor on site and confirm that all health and safety requirements are being met, that the contractors' personnel are qualified and licensed for the work they are performing, and documented work procedures are being followed to the required standard.

To assist, Holcim utilises an online system (Damstra) to record and track currency of all contractor qualifications. All contractors upon arrival to site are required to sign into a Damstra terminal prior to commencement, at which point the currency of all required training, licensing, qualification etc. is checked.

Post completion of any HV asset inspection, a report is generated and reviewed with either the site quarry manager or maintenance manager to ensure a thorough inspection of all assets was completed and that a full understanding of the outcomes and actions is understood. Further to this regular oil sampling and analysis is conducted to determine the condition of transformers.

The information generated from the HV asset inspections and transformer oil analysis, then feeds into the asset strategy that has been developed for HV assets.

vi. **Audit the effectiveness of inspections carried out under the plan**

All elements of regulatory compliance are audited by Oaklands Junction internal auditors and various regulators. This would include both the processes used and documentation created under point (v).

All faults identified by the inspectors would be planned for rectification by Oaklands Junction employees and as a result physically inspected by Oaklands Junction employees. This allows HOLCIM Oaklands Junction Quarry to audit the findings of the contracted inspectors.

o) **The policy in relation to assistance to be provided to fire control authorities in the investigation of fires near the specified operator's at-risk electric lines**

Holcim and its contractors will provide all necessary assistance to fire control authorities with respect to investigation of fires near its assets. As indicated previously Holcim will liaise with local fire authorities prior to and during any fire investigation or danger period

If the CFA required access to the power line corridor they would have full access.

The Oaklands Junction Quarry site has a 50,000 litre water truck on site manned which can be used in response to a fire, as well as heavy earth moving machinery and quarry materials.

All buildings have fire extinguishers located in and around them. Also there is typically a significant volume of water contained in dams on site that is readily accessible.

Contact to the CFA is made by dialling our site emergency number or you can call 000. All employees are trained as per our emergency management plan.

If there was a serious incident on site the CFA would work closely with our management team as per our crisis management plan.

5. Accessibility of Documents

- The current approved version of this document is kept on the site
- A copy of the version approved by ESV is placed on site at the Oaklands Junction's Quarry.
 - As per the Electrical Safety Act 1998 Version 071 Clause 83BA Paragraph (1) – BushFire Mitigation Plans, this plan will be reviewed and re-submitted prior to 1st July in each year.
 - An electronic copy is assessable via the following link;
<https://www.holcim.com.au/oaklands-junction-quarry>
- Holcim's principal state office is located at 290 Burwood Rd, Hawthorn VIC 3122
- Office hours are 8:30am to 4:30pm.

6. References

SHE Guidelines

- 1.05 SHE Guideline – Contractor Safety Management (September 2019)
- 1.07 SHE Guideline – Emergency Response, First Aid & Injury Management (September 2018)
 - Emergency Procedures Flip Chart - Oaklands Junction Quarry
- 2.01 SHE Guideline - Risk Management Process (August 2022)
- 3.09 SHE Guideline - Hot Works (July 2021)
- 3.11 SHE Guideline - Electrical Safety (March 2022)
- 5.01 SHE Guideline – Incident Reporting & Investigation (November 2021)
- 6.01 SHE Guideline – Permits, Licences & Approvals (June 2021)
- Occupational Health and Safety Regulations 2017

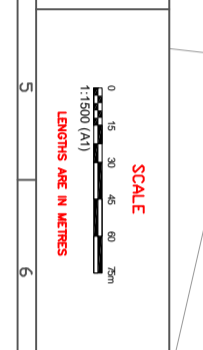
7. Exemptions

At the time of this plan Holcim no ESV exemptions have been requested or granted for this site.

Appendix 1: Quarry Overhead Power lines Drawing

Line (feeder) denomination	Jemena feeder C0011	
Voltage (kV)	22	22
No. Spans	23	3
Length (m)	1546	270
Insulated Conductor (Y/N)	N	N
If insulated, type of insulated conductor		
No. Poles	23	3
Pole material	Concrete 1 x Wood	Wood
Year of construction	1988/89 1988	2001

- NOTES
1. HV SWITCHBOARD RATED UP TO 36 kV WITH METERING/PROTECTION/ISOLATION
 2. 22 kV / 22 kV 4000 kVA ISOLATION TRANSFORMER RATED UP TO 33 kV
 3. 22 kV HV SWITCHBOARD FOR SITE NETWORK PROTECTION & NEW T1A INDOOR DRY TYPE TRANSFORMER 22 kV / 400V



REV	DESCRIPTION	DRN	CHK	APP	DATE
A	PRELIMINARY ISSUE	CG	AJ		04/12/2018
B	MINOR CHANGES	HV	AJ		28/03/2019
C	MINOR CHANGES	HV	AJ		01/04/2019

THIS DRAWING AND THE TECHNICAL CONTENT HEREIN IS THE PROPERTY OF HDLCIM AND MUST NOT BE COMMUNICATED, COPIED OR REPRODUCED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF HDLCIM. UNAUTHORIZED USE, DAMAGING OR CLAIMED

DESIGN	STATUS
A. JEFFREY DRAWN C. GUMPHREY	PRELIMINARY

HDLCIM (AUSTRALIA)
DAKLANDS JUNCTION QUARRY
RETICULATION DIAGRAM
DRAWING NUMBER
8614-DWG-251

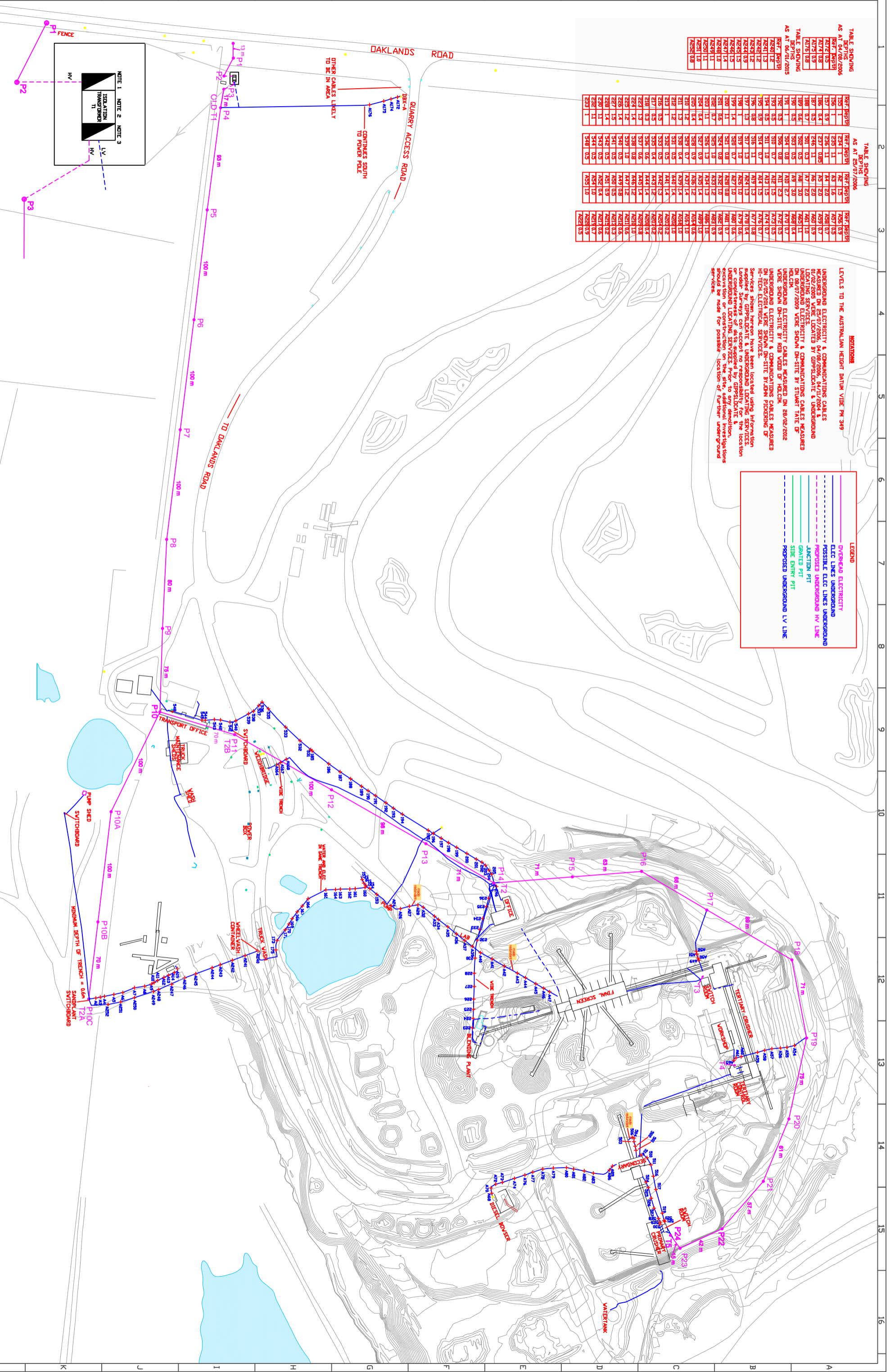


TABLE SPOTTING AS AT 04/08/2006

REF. HEIGHT	REF. POINT	AS AT 04/08/2006
72821.0	72821.0	72821.0
72821.1	72821.1	72821.1
72821.2	72821.2	72821.2
72821.3	72821.3	72821.3
72821.4	72821.4	72821.4
72821.5	72821.5	72821.5
72821.6	72821.6	72821.6
72821.7	72821.7	72821.7
72821.8	72821.8	72821.8
72821.9	72821.9	72821.9
72822.0	72822.0	72822.0
72822.1	72822.1	72822.1
72822.2	72822.2	72822.2
72822.3	72822.3	72822.3
72822.4	72822.4	72822.4
72822.5	72822.5	72822.5
72822.6	72822.6	72822.6
72822.7	72822.7	72822.7
72822.8	72822.8	72822.8
72822.9	72822.9	72822.9
72823.0	72823.0	72823.0
72823.1	72823.1	72823.1

NOTATIONS

LEVELS TO THE AUSTRALIAN HEIGHT DATUM VIDE PM 349

UNDERGROUND ELECTRICITY & COMMUNICATIONS CABLES MEASURED ON 28/07/2006, 04/08/2006, 04/11/2004 & UNDERGROUND LOCATING SERVICES. UNDERGROUND HV LINE MEASURED ON 28/07/2009 VIRE SHOWN ON-SITE BY STAFF TALE OF VIRE SHOWN ON-SITE BY ROB VIDD OF HDLCIM. UNDERGROUND ELECTRICITY & COMMUNICATIONS CABLES MEASURED ON 28/07/2004 VIRE SHOWN ON-SITE BY JDM PICKERING OF HDLCIM. UNDERGROUND LOCATING SERVICES SUPPLIED BY GIPPSLAND & UNDERGROUND LOCATING SERVICES. LONDON SURVEYS CAN ACCEPT NO RESPONSIBILITY FOR THE LOCATION OF UNDERGROUND SERVICES. Additional investigations excavation or construction on the site should be made for possible location of further underground services.

LEGEND

(Solid Blue Line)	OVERHEAD ELECTRICITY
(Dashed Blue Line)	ELEC LINES UNDERGROUND
(Dotted Blue Line)	POSSIBLE ELEC LINES UNDERGROUND
(Dashed Green Line)	UNDERGROUND HV LINE
(Dotted Green Line)	JUNCTION PIT
(Dashed Red Line)	SIDE ENTRY PIT
(Dotted Red Line)	PROPOSED UNDERGROUND LV LINE

Appendix 2: Oaklands Junction Quarry – Locality Plan



Appendix 3: Inspection & Maintenance

HOLCIM QUARRY OAKLANDS JUNCTION 2021

HIGH VOLTAGE EQUIPMENT - MAINTENANCE REPORT 1635-RPT-900 (Extract)

Next Report Due 2024 (completed at intervals not exceeding 37 months from the date of the previous inspection)

4.0 OVERHEAD LINE MAINTENANCE

4.1 THERMOGRAPHY

On 14th April 2021 HotSpot Thermography (Wolfgang Forke) performed a complete thermography survey of the overhead line, pole mounted equipment, ground based transformers and main switchboards that were available for inspection.

Appendix D2 attached provides details of the thermography images taken and the resultant analysis.

The only issue reported can be found on Survey Sheet 21 associated with MSB1 cubicle 311-1M01 contactor BPBC06 which highlighted that the contactor bottom terminations (red phase in particular) are extremely hot.

The recommendation was to re lug the cables due to possible heat damage and consideration should be given to replacing the contactor due to possible internal heat damage.

4.2 POLE INSPECTION

On the 4th May 2021 UAM (Paul Clarkson) performed a pole inspection for all poles owned by Holcim. The following activities were undertaken on the day:

- Inspect and report on 24 poles
- Inspect test and treat three wooden poles

The pole number locations can be ascertained from the 22kV reticulation diagram and site layouts found attached in appendix A.

It was discovered that Pole 2 (Metering pole) belongs to Jemena and a visual inspection only was performed.

Appendix D3 contains the Pole inspectors report with the following issues to report:

- Pole 6 (P33453) has a hole in the concrete pole at the top, is considered serviceable and given a medium maintenance priority



- Pole 8 (P33455) has a hole at the top of the pole, is considered serviceable and given a medium maintenance priority.



- Pole 9 (PP33456) has a bee hive in the top of the pole, is considered serviceable and given a medium maintenance priority
- Pole 24 (P33473) has exposed concrete reo at the base of the pole and showing signs of rust. Was considered serviceable and given a medium maintenance priority
- Pole 10B (P32902) has a loose bolt on the cross arm bracket and was addressed during the pole line maintenance by Ohms on the 6th June 2021
- Pole 10C (PP32901) rubber boot is missing from a fuse and the airbrake switch operator handle earth strap connection has failed. Both of these issues were addressed on the 6th of June 2021 by Ohms.



Expectation from the industry is that a pole inspection is performed at least every four years.

4.3 OVERHEAD LINE MAINTENANCE

The Overhead line maintenance was performed during the HV shut on Sunday 6th June 2021 by OHMS (Overhead Maintenance Services). The following activities were undertaken on the day:

- Tighten and clean (Insulators) 27 poles during the shutdown
- Tighten and clean 4 aerial substations
- Tighten and clean 6 airbrake switches and underground cable heads
- Reconnect surge diverters

Refer to appendix D4 for the OHMS OHL inspection report.

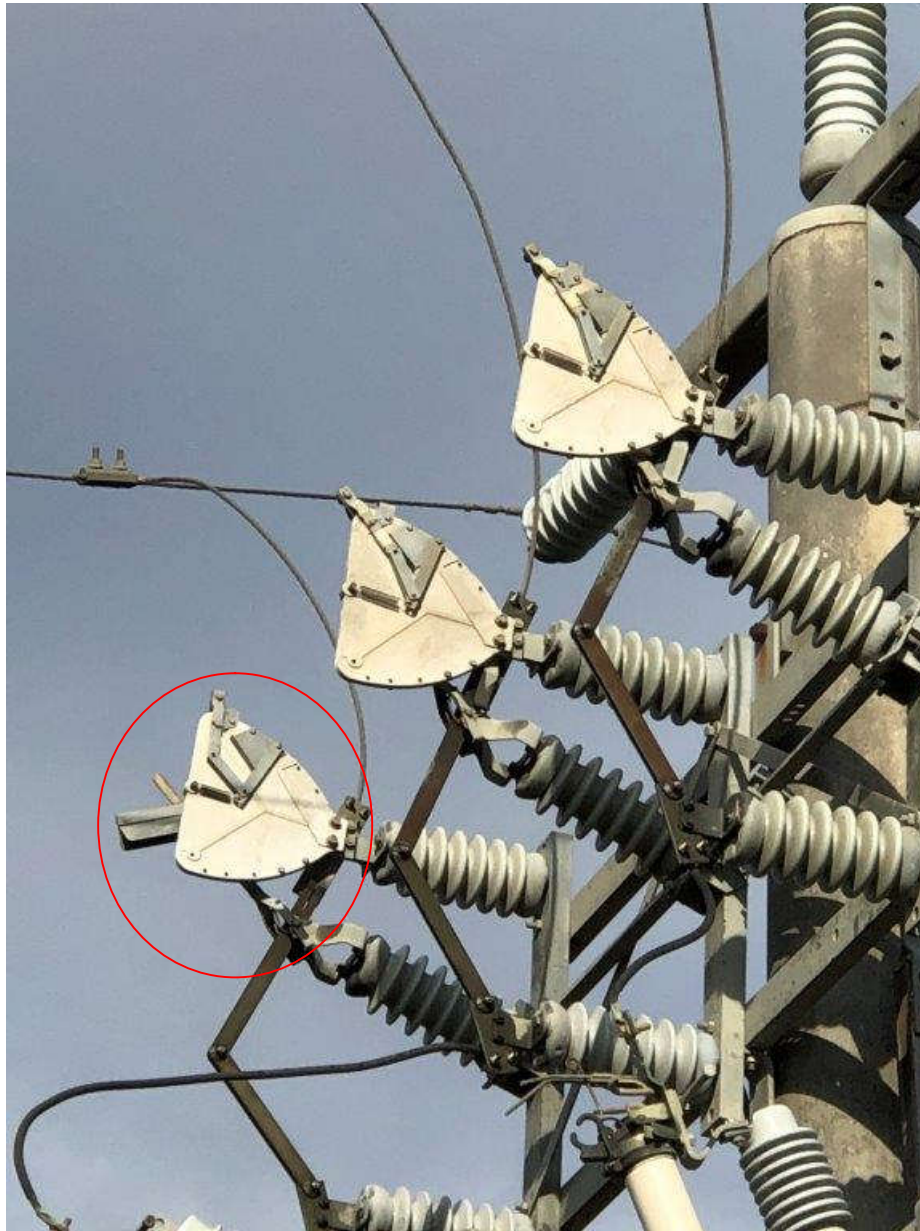
Poles 2 and 3 were visually inspected, but since the isolation point was the Nulec Auto Recloser on pole 3, maintenance of this pole was not possible. Note that when the REFCL associated isolation transformer is installed in 2022 this auto recloser will be retired.

Pole 14 associated airbrake switch operator handle was split through and was replaced by a fibreglass version.



All airbrake switches were cleaned, aligned and lubricated profusely. This is the normal service requirement, however in the dusty Quarry environment all lubrication applied will attract dust quickly and within a short period of time the airbrake switches will seize.

Airbrake switches on Poles 14 and 17 still suffer from alignment issues and took several attempts to close all three switches (Phases) at the same time. Picture below shows the distant phase not aligning properly.



These airbrake switches must not be operated live.

Oaklands Junction, even after the installation of the Isolation transformer next year will still only have a single isolation point at the front of the property.

All parties (ARA, OHMS and PCS) involved recommend replacing these airbrake switches with pole mounted gas switches purely from a safety perspective which would also provide individual isolation for each transformer without having to isolate the entire site before operating one of the airbrake switches (Open or close).

Pole 21 (P33470) was visually inspected as access from the EWP truck was not possible.

Pole 22 (P33471) access was provided by the removal of the road embankment via a front-end loader, however this only provided access to the near side of the pole mounted equipment for cleaning and servicing. Refer photo.



ASSET INSPECTION REPORT

DATE
Tue 04/05/2021

INSPECTOR
Paul Clarkson

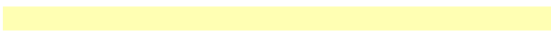
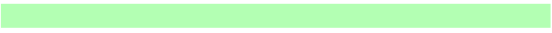
LOCATION
Holcim Quarries

INSPECTION FINDINGS	26 poles were inspected
	All poles are serviceable
	6 poles require maintenance

Legend					
W	Wood		GW gnd	Good Wood at ground level	S Serviceable
C	Concrete		GW 1m	Good Wood at 1 metre	LL Limited Life
St	Steel				US Unserviceable

ASSET INSPECTION REPORT

Pole Number	Type	Material	Species	Year	Size	Girth	GW gnd	GW 1m	Maintenance Priority	Maintenance / Comments	Condition
A054394	HV	W	GI	1988	12.5m, 12kN					Jemena pole - Visual inspection only	S
P33450	HV	C		1989	17ft, 12kN						S
P33451	Switch	C		1989	17ft, 12kN						S
P33452	HV	C		1989	17ft, 12kN						S
P33453	HV	C		1989	17ft, 12kN				Medium	Hole in concrete pole at top	S
A33454	HV	C		1989	17ft, 12kN						S
P33455	HV	C		1989	17ft, 12kN				Medium	Hole at top of pole	S
P33456	HV	C		1989	17ft, 12kN				Medium	Bees in pole	S
P33357	HV	C		1989	17ft, 12kN						S
P33473	HV	C		1988	12.5m, 12kN				Medium	Exposed reo at base of pole, signs of rust	S
P32903	HV	W	IB	2001	14m, 12kN	980					S
P32902	HV	W	SG	2001	14m, 8kN	990			Low	Loose bolt on X arm bracket	S
P32901	Sub	W		2001	14m, 8kN	990			High	Earth strap needs connecting switch handle, Rubber boot off fuse	S
P33458	Sub	C		1989	17ft, 12kN						S
A33459	HV	C		1989	17ft, 12kN						S
P33460	HV	C		1989	17ft, 12kN						S
P33461	Sub	C		1989	12.5m, 8kN						S
P33462	HV	C		1989	12.5m, 8kN						S
P33463	HV	C		1989	12.5m, 8kN						S
P33472	HV	C		1988	12.5m, 8kN						S
P33471	Switch	C		1988	12.5m, 8kN						S
P33470	HV	C		1988	12.5m, 8kN						S

 Monitoring
 Closed Out

ASSET INSPECTION REPORT

Pole Number	Type	Material	Species	Year	Size	Girth	GW gnd	GW 1m	Maintenance Priority	Maintenance / Comments	Condition
P33467	HV	C		1988	12.5m, 8kN						S
P33464	Switch	C		1989	12.5m, 8kN						S
P33466	Switch	C		1988	12.5m, 8kN						S
P33465	HV	C		1988	12.5m, 8kN						S

**HOLCIM QUARRY OAKLANDS JUNCTION 2023
Tree Assessment**

Notes:

- Last Assessment July 2022 assessment completed and no issues or actions identified
- 2023 Assessment due September 2023

