

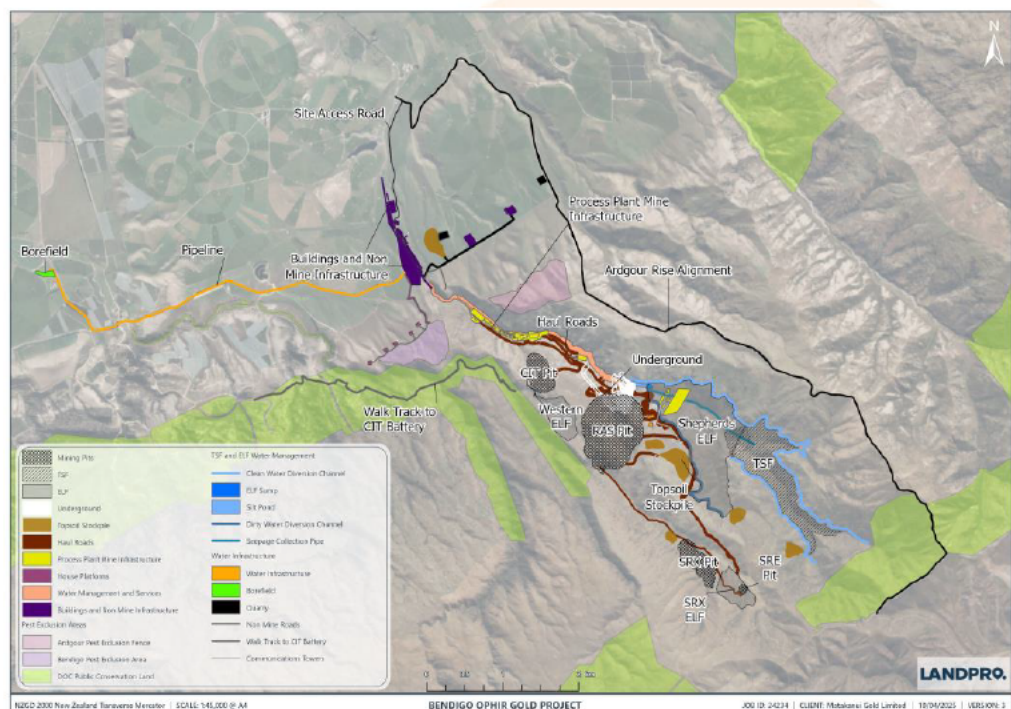
BENDIGO OPHIR GOLD PROJECT
THOMSON GORGE ROAD, CENTRAL OTAGO

EXTERIOR LIGHTING REPORT

Resource Consent Issue

September 2025

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1. EXECUTIVE SUMMARY

Cosgroves has been engaged by Matakanaui Gold Ltd. to review, provide comment and expert advice regarding the mitigation and effects of exterior lighting anticipated to be included within the proposed Bendigo Ophir Gold Project. This report concludes that the current mandatory requirements for compliance with the District Plan relate only to light spill limits, which will be achieved through the proposed conditions to mitigate lighting effects.

Exterior lighting is required for the practical and safe establishment and operation of buildings and equipment associated with the project. This report identifies a number of mitigating factors that can be employed to minimise the environmental impacts of exterior lighting, with consideration of spill light towards boundaries and neighbouring properties as well as upward spill light towards the night sky.

Consent conditions for the project should ensure that compliance with the District Plan is achieved as per Rule 12.7.6 which states:

"No activities shall result in greater than 10 lux spill (horizontal and vertical) of light onto any adjoining property or road, ...The amount of light that may be spilled onto a neighbouring property may be increased by not more than 100%, in cases where the activity on that neighbouring property is not residential."

2. PROJECT DESCRIPTION

Matakanaui Gold Limited ("MGL") is proposing to establish the Bendigo-Ophir Gold Project ("BOGP"), which comprises a new gold mine, ancillary facilities and environmental mitigation measures on Bendigo and Ardour Stations in the Dunstan Mountains of Central Otago. The project site is located approximately 20 km north of Cromwell and will have a maximum disturbance footprint of approximately 570 hectares.

The BOGP involves mining four identified gold deposits referred to as Rise and Shine ("RAS"), Come in Time ("CIT"), Srex ("SRX") and Srex East ("SRE"). The resources will be mined by open pit methods at each deposit within the project site, with underground mining methods also proposed to be utilised at RAS to access the deeper gold deposits. The majority of the mining activities, ancillary facilities and associated infrastructure will be located in the Shepherds Valley – which includes a conventional gold processing plant and water treatment plant, a tailing storing facility, two engineered landforms, internal haul roads, topsoil stockpiles, water pipelines, underground utilities and electrical supply - with non-operational infrastructure located on the adjoining Ardour Terrace. The BOGP also involves the taking of groundwater from the Bendigo Aquifer for use in mining-related activities and the realignment of Thomson Gorge Road via Ardour Station.

3. LIGHTING REQUIREMENTS

This report shall support the overall Assessment of Environmental Effects, to be submitted within the application for Resource Consent.

The Resource Consent assessment shall consider the impacts of proposed exterior lighting, and the resulting environmental effects of the project. Preliminary engagement with Central Otago District

Council (CODC) has included discussions around exterior lighting requirements to comply with the current District Plan.

CODC has confirmed that the current mandatory requirements for compliance with the District Plan relate only to spill lighting limits, as further described within Section 5.

A recent change and addition to the District Plan includes a section specifically on lighting in relation to a 'Dark Sky Reserve' (see <https://darksky.org/>). The town of Naseby and immediate surrounds, some 60km from the Project, have been recently identified/proposed as a new Dark Sky Reserve and a set of requirements for exterior lighting have been developed to support this. These requirements do not apply to the project area; however, they provide a useful reference for consideration in the design of exterior lighting.

CODC and their independent lighting consultant have provided further comment following the initial submission of this report. In response to this review process, this report has been updated to provide

- a) Further description of visibility and amenity effects of night-time lighting, with reference to the landscape and visual impact assessment completed by others, as well as project staging and how this affects potential obtrusive effects of the exterior lighting.
- b) Reference to, and further consideration of, ecological reports for the project completed by others with regards to potential impact of exterior lighting on the local ecology and proposed mitigation measures.
- c) Further detail regarding the proposed use of mobile lighting rigs/towers.
- d) Consideration of vehicular lighting and a summary of proposed mitigation measures.
- e) Reference to, and clarification on the proposed implementation of, "AS/NZS 4282: 2023 - Control of the Obtrusive Effects of Outdoor Lighting" for the assessment and guidance towards mitigation of potential obtrusive effects of the exterior lighting related to this project.

4. LIGHTING VISIBILITY AND AMENITY EFFECTS

The landscape consultant, Boffa Miskell, has completed a comprehensive report covering the impacts of the project on the surrounding landscape including visual impacts to nearby locations. This report is titled "Bendigo Ophir Mine – Landscape, Natural Character and Visual Effects Assessment" which is accompanied by a secondary document "Visual Simulations" which illustrates the various project areas and their visibility from various viewing locations.

Exterior lighting is not directly covered within the scope of this report; however it provides an understanding of the project site and surrounding landscape which is directly relevant to understanding the expected visibility and amenity effects of the proposed exterior lighting. Parts of the site will not be visible from several viewing locations, especially once mining pits and engineered landforms (ELF's) are established. Assessment of lighting visibility should also consider the overall project staging, as outlined in section 7.

The following mitigation measures are proposed to be included within the lighting design to limit visibility and amenity effects of the exterior lighting installation:

- Luminaires to be selected/specified with zero upward waste light ratio (UWLR) to minimise upward spill light and direct sky glow, which could impact astrological viewing amenity.
- Wide area lighting will not be directed onto large open areas of light-coloured surfaces such as concrete, to minimise indirect/reflected sky glow.

- It is worth noting that most exterior lighting used at night will be directly associated with mining operations and that the primary rock material which shall be excavated for mining activities is Central Otago schist which is a darkish-grey colour.
- Exterior lighting to areas and buildings not directly involved in 24/7 operations, such as the 'Ardgour Terraces' area, will not be operated overnight and motion sensors will be used to further reduce potential amenity effects whilst still providing lighting for health and safety requirements when/where needed.
- As far as is reasonably practicable, exterior lighting shall be directed, positioned and orientated so as to minimise spilled light (horizontal and vertical), sky glow and distant observer glare. All lighting, fixed and mobile, shall be directed (as far as reasonably practicable) inwards towards the project site rather than across work areas in positions where they are likely to also be visible to neighbours and/or distant observers.
- Mobile lighting shall only be used within active work areas and will not be left operating unnecessarily in non-active areas.

Appended to this report are mark-ups of some Visual Simulation sheets, relating to selected viewing locations. The mark-ups include commentary regarding the expected lighting impact related to key project activities. These are provided to assist in explaining the expected visibility and amenity effects of the proposed exterior lighting.

5. ECOLOGICAL CONSIDERATIONS

The project Ecologist, Alliance Ecology, has completed the following reports and assessments for the project in relation to potential ecological impact and associated mitigation strategies:

- Avifauna Management Plan
- Avifauna Values Assessment
- Terrestrial Invertebrate Management Plan

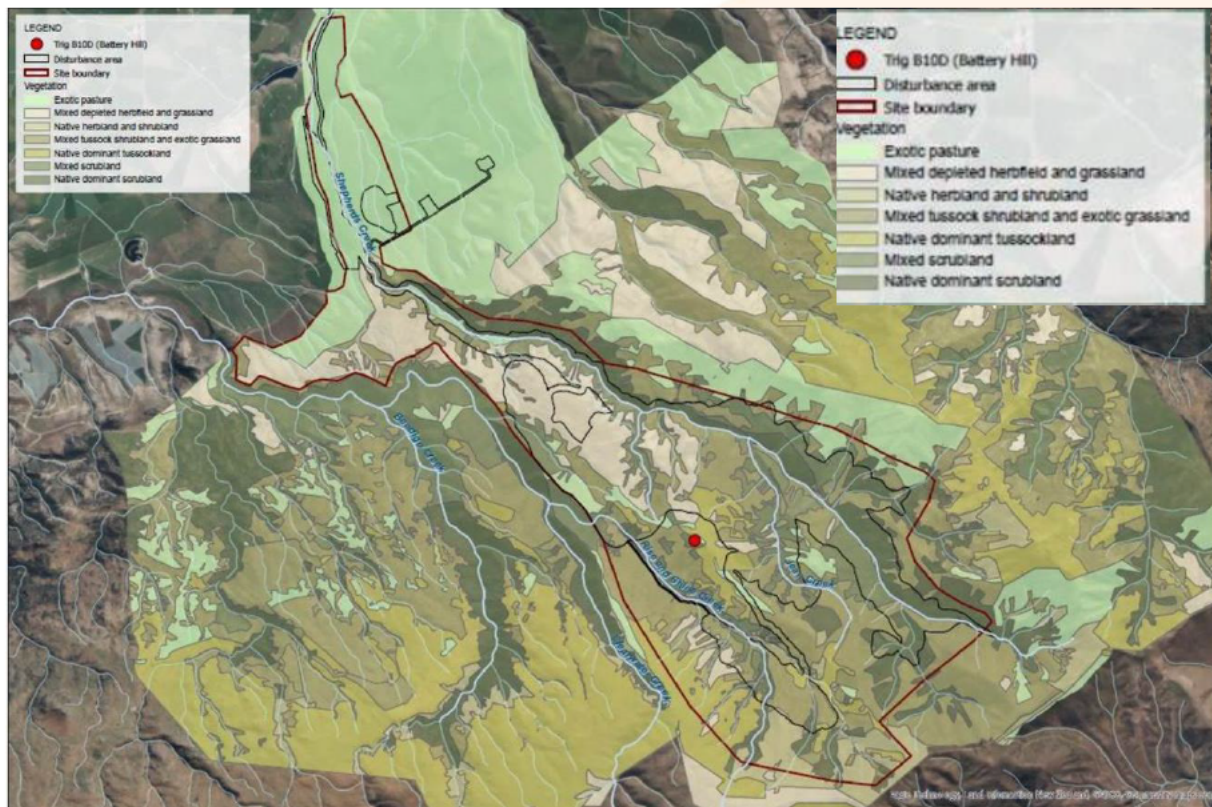
These reports include general operational measures which are proposed to mitigate potential ecological impacts, such as not disturbing any nesting birds which may be present within the project site. The Invertebrate Management Plan identifies specific, highly sensitive areas, notably the 'Cushionfields' which is in relative proximity to the Come-In-Time mining pit and the process plant area.

The following mitigation measures are proposed to be included within the lighting design to limit ecological impacts of the exterior lighting installation:

- Luminaires to be selected/specified with zero upward waste light ratio (UWLR) to minimise upward spill light and direct sky glow.
 - As described above in Section 4, indirect sky glow is also minimised.
- It is generally proposed that lighting specifications shall include a light source with a colour temperature of 3000K, or lower.
 - However, this may not be appropriate for undertaking specific tasks such as plant maintenance or drilling, where high visibility is necessary for practicality and health and safety reasons. The detailed design will identify locations where more intensive lighting is required for safe operation.

- As described above in Section 4, exterior lighting to areas and buildings not directly involved in 24/7 operations will not be operated overnight.
- As far as is reasonably practicable, exterior lighting shall be directed inwards towards working areas and not towards the general surrounding landscape.
 - In particular, lighting shall be directed away from highly sensitive areas in relation to invertebrates (such as the Cushionfields) far as is reasonably practicable. Sharp cut-off light fittings shall be used to manage/minimise light spill, particularly to these areas.

In the figure below, the 'Mixed depleted herbfield and grassland' category is the 'Cushionfields'



6. LIGHTING STRATEGY BY AREA AND TYPE

The below descriptions outline the proposed lighting strategy for each area of the project. Further detail shall be determined during the detailed design of buildings, plant/process areas and mining sites. Computer modelling shall be completed for the proposed lighting solutions to help determine final light fitting positions and specifications, and to demonstrate compliance, as further described within Section 9.

6.1. Construction Phase

- Building construction is not intended to be 24/7 operation and so can generally be expected to have minimal impact in relation to exterior lighting. Any use of exterior lighting would only be late afternoon/evening and early morning during the darker winter months.

- Any lighting which may be used during the construction phase of buildings would be mobile wide area lighting (refer further description below).

6.2. 'Ardgour Terraces' Area

- The Ardgour Terraces, incorporating the administration office building, site infrastructure and laydown area etc., shall generally utilise discrete and low-output building mounted lighting, supported by bollards or similar if/where required for safe orientation around the area. Uncontrolled floodlighting, for example, will not be used.
- Lighting controls are also proposed to be incorporated, to switch lighting off after normal operating hours. Where some lighting is required for safe movement/operation during hours of darkness, it is proposed that motion sensors shall be used, so that lighting can still be provided when and where needed, but isn't left on unnecessarily for areas that are not occupied.

6.3. Plant and Infrastructure/Process Areas

- Plant and Infrastructure areas of the project site are proposed to use a combination of fixed and mobile wide area lighting (refer further description below).
- Any fixed wide area lighting would utilise optically-controlled light fittings, with zero UWLR and sharp cut-off to minimise horizontal and vertical light spill.
- Where appropriate, lighting controls will be considered for these areas also.
- The workshop area adjacent to the process plant is proposed to use motion sensors for any required exterior lighting.

6.4. Access Roads and Operational Mining Areas

- Access roads will not generally be lit, vehicles will rely on headlights for visibility.
- Operational Mining areas of the project site will use customised mobile wide area lighting, as/where required (refer further description below).

6.5. Mobile Lighting

- Light fitting specifications shall be selected to comply with Resource Consent requirements; it is proposed that mobile lighting rigs/towers shall be customised or retro-fitted with optically-controlled light fittings, with zero UWLR and sharp cut-off to minimise horizontal and vertical light spill.
- Mobile lighting shall only be used within active work areas and will not be left operating unnecessarily in non-active areas.
 - It is estimated that during the Construction Phase there may be approximately 10-15 No. mobile lighting rigs/towers operating across the site at any one time and this number would reduce to 8-10 No. once the Construction Phase is completed, i.e. during normal ongoing mining operations.
- An installation methodology shall be developed to help ensure that the use of mobile lighting is in accordance with the mitigation strategies as outlined in sections 4 and 5 above.

6.6. Vehicular Lighting

- Vehicle headlights and safety beacons will be necessary for practicality and health & safety of mining operations.
- The visibility of these will be mitigated by landforms such as bunding to the haul road which will shield the headlights of many vehicles from surrounding areas, as well as formation of mining excavations and engineered landform structures once established.
- Similarly to mobile lighting rigs, vehicular lighting will only be used in active work areas and not left on unnecessarily in other areas.
- The project includes a diversion of the public road which currently runs through the project site, resulting in higher visibility of general public traffic to surrounding areas. However, night-time public traffic along this road is considered very minimal and so the visual impact of this road diversion at night is expected to be almost zero.

7. PROJECT STAGING

In considering the impacts of exterior lighting, it is helpful to also understand the staging of various work areas within the overall project site as this gives context and a clearer picture of the likely impact of exterior lighting at any one time, over the course of the whole project timeline. Other documentation is available to explain the overall project timeline and works area programming in further detail, but the following gives a high-level summary:

1. Initial Mine setup

- Worker's accommodation and Office areas established.
- Excavation from the top of the Rise & Shine Pit (RAS).
- Overburden will go towards the establishment of engineered landforms, the 'WELF', 'ELF' and to 'Shepherds Creek' and 'TSF' simultaneously.
- The RAS and WELF will be visible and have an elevation of around RL700-750m.
- The WELF has a capacity of 5 million cubic metres and will be rehabilitated after approximately 2 years.

2. Early - Mid Mine Life

- Once the WELF has been rehabilitated, all overburden from the RAS Pit is directed to the ELF.
- It will be approximately the middle of the overall mine life/timeline before the ELF is high enough to be seen from outside the project boundary.
- By this time there will only be small stages of the RAS excavated that will be visible from afar; other areas will be within excavated zones and therefore shielded from view.

3. Mid - End of Mine Life

- The Come in Time Pit (CIT) will be excavated simultaneously with RAS.
- All overburden waste will go to the ELF.
- CIT is one of the most highly visible areas from outside the project footprint.

4. Final Stages

- Overburden from RAS will be used to backfill the exhausted CIT pit (which will be visible).
- The SRX pit and SRE pit to the south of RAS will be mined.
 - i. These pits are in a valley and are not visible from any neighbouring residence or common vantage point.

8. COMPLIANCE WITH REQUIREMENTS

8.1. District Plan Requirements

Spill lighting requirements for compliance with the District Plan are as per [Rule 12.7.6](#) which states that:

“No activities shall result in greater than 10 lux spill (horizontal and vertical) of light onto any adjoining property or road,...The amount of light that may be spilled onto a neighbouring [property](#) may be increased by not more than 100%, in cases where the activity on that neighbouring [property](#) is not residential.”

The project will comply with this requirement, noting that the majority of activities are located well away from neighbouring property boundaries. Compliance of the final lighting proposal with this requirement will be demonstrated via computer modelling using specialist lighting simulation software, prior to commencing construction activities on site.

8.2. Dark Sky Reserve

As noted above, the Dark Sky Reserve Lighting requirements are not mandatory for the project area. However, they provide a useful reference for consideration to mitigate the environmental impacts/effects of exterior lighting.

It is proposed that the project shall work to achieve these requirements, during detailed design, modelling, and subsequent installation on site, as far as is reasonably practicable for the safe and efficient operation of project activities. The overview below indicates where MGL expects to be able to achieve the listed ‘Standards’ for Dark Sky Reserve Lighting.

LIGHT-S1

“All fixed exterior lighting shall be directed away from any adjacent roads, residential properties and lakes.”

- The detailed design is proposed to include full lighting modelling and calculations to demonstrate and ensure that the final design and implementation of lighting for the project achieves this requirement.
- It shall be communicated to the teams responsible for on-site installation and setting up of lighting (including mobile lighting plant) that this requirement is to be met.

LIGHT-S2

"All outdoor lighting shall be shielded from above the light in such a manner that the edge of the shield is below the light source."

- It is intended that the final specification and selection of light fittings will incorporate this requirement, as far as is reasonably practical.

LIGHT-S3

"Within the Dark Sky Precinct, all outdoor lighting shall have a colour temperature of light emitted of 3000K Kelvin or lower."

- It is generally proposed that lighting specifications shall include a light source with a colour temperature of 3000K.
- However, this may not be appropriate for undertaking specific tasks such as plant maintenance or drilling, where high visibility is necessary for practicality and health and safety reasons. The detailed design will identify locations where more intensive lighting is required for safe operation.

LIGHT-S4

"Only light-emitting diode, low pressure sodium and high-pressure sodium lamps shall be used."

- Only fittings using LED light sources would be proposed.

LIGHT-S5

"Within the Dark Sky Precinct, all outdoor lighting with a light output of 500 lamp lumens or greater shall be shielded or tilted so as to not emit any light at or above a horizontal plane measured at the light source."

- This is essentially covered by specification in compliance with standard S2, and so will be achieved as far as is reasonably practical.

LIGHT-S6

"Lighting shall be limited to a maximum of 12 lumens per m²"

- This requirement would be very limiting to any operational areas of the project and so it is not considered practical to achieve in all areas.
A number of mitigation measures are proposed in order to achieve this requirement where practicable:
 - Lighting levels will only exceed this value *when and where* required for operational practicality/health and safety.
 - Lighting exceeding this level will generally be within mining and process areas, well away from any neighbouring boundaries or public roads.
 - Light fittings used will still comply with LIGHT S1-S5 (as far as is reasonably practical), i.e. will generally be directed and shielded so as to mitigate/minimise light spill, distant observer glare and upward light into the sky.

8.3. Implementation of AS/NZS 4282:2023

"AS/NZS 4282: 2023 - Control of the Obtrusive Effects of Outdoor Lighting" is a non-mandatory but widely used industry standard which provides design guidance and methods of assessment in relation

to exterior lighting, particularly focused on mitigating potential obtrusive effects of lighting such as spilled light (horizontal and vertical), sky glow, and glare.

AS/NZS 4282:2023 will be used to inform the lighting design and to help finalise proposed light fitting specifications, locations, and installation details. The standard will be referred to with regards to mitigation strategies and assessment of lighting impacts, benchmarking against recommended levels for the relevant criteria/category and reporting on stated target values for Environmental Zone A2, and/or A1. Also note that there is no applicable 'curfew period' for this project.

The implementation of AS/NZS 4282 will be focussed on working to mitigate obtrusive lighting effects as far as reasonably practicable, rather than demonstrating compliance with set requirements.

The following sections of the standard are seen as particularly relevant to this project:

- *Section 2.3.1 - Effects on Residents*
- *Section 2.3.4 - Effects on the Night Sky (Sky Glow)*
 - *including all sub-sections 2.3.4.1 – 2.3.4.4, as applicable*
- *Section 2.3.5 - Effects on the Natural Environment*
- *Section 3.2.2 - Applicable Light Technical Parameters*
- *Section 3.3.1.3 - Calculation of Illuminance and Intensity in a Vertical Plane*
- *Section 3.3.1.8 - Upward Light Ratio*
- *Section 5 - Use of Computer Programs*
- *Appendix A - Design, Installation, Commissioning and Maintenance Guidelines*
 - *Including many/most sections within this Appendix for design guidance, as applicable*
- *Appendix B – Design Documentation*
 - *Noting, as mentioned above, that objectives shall be to mitigate obtrusive lighting effects as far as reasonably practicable*
- *Appendix C - Impact of Outdoor Lighting on Flora and Fauna*
 - *Shall be referred to for general guidance, as applicable*

9. DEMONSTRATING COMPLIANCE

As noted above, compliance of the final lighting proposal with the lighting requirements shall be demonstrated using specialist computer modelling software which shall simulate the use of specified light fittings using calculation files provided by lighting manufacturers and, preferably, 3D modelling of the project areas.

It should be noted that where accurate 3D modelling is not readily available, calculations shall use simplified forms of the project structures/landscape which shall still demonstrate compliance by incorporating all critical and relevant information.

Modelling to demonstrate that the final lighting proposal complies with the agreed requirements will be completed during the detailed design stage in coordination with finalised layouts for the various process areas, buildings and mining sites within the overall project site.

10. NEXT STEPS AND RESPONSIBILITIES

The below descriptions outline next steps for the project following the Resource Consent application, along with parties responsible for these actions.

- Finalise building, process plant and mining site layouts for the project area, which shall be used to finalise exterior lighting locations – by **MGL Design Team**
- Complete preliminary lighting layouts and calculations/modelling for each area in accordance with lighting requirements, for internal review and coordination – by **Cosgroves**
- Finalise lighting layouts and calculations/modelling including light fitting specifications for each area to ensure that lighting is suitable for MGL operations and to demonstrate that the design complies with agreed lighting requirements – by **Cosgroves**
 - Note that this may be completed at different times for different project areas in accordance with the project programme
- Procure and install lighting on site, in accordance with final detailed design – by **MGL Construction Team**
- Provide assistance with review/commissioning of on-site lighting installation as required – by **Cosgroves**

APPENDIX A. EXAMPLE LIGHT FITTING SPECIFICATIONS

The attached specification sheets provide examples as an indication of the types of light fittings likely to be utilised for the project. Final specifications shall be confirmed during detailed design.

GINO 4 (GI-31641)



Product description

Clear diffuser - Down

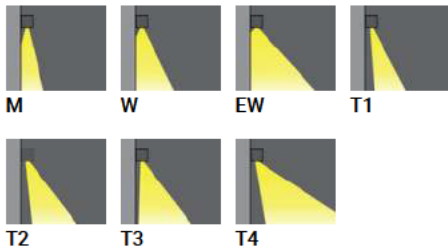
Example Specification - Low-output Wall Luminaire



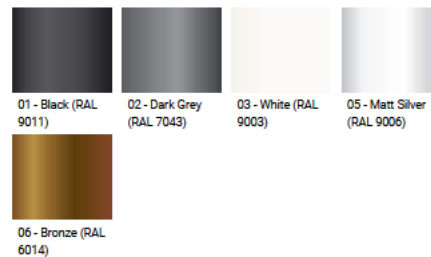
Luminaire Structure

- Die-cast aluminium housing and frame
- Pre-treated before powder coating ensuring high corrosion resistance
- Single cable entry
- Stainless steel fasteners in grade 304 with zinc flake coating (ZFC)
- Durable silicone rubber gasket
- Clear toughened glass
- Integral control gear
- Optional surface mounting box for easy wiring or conduit connection when wiring from behind is not possible

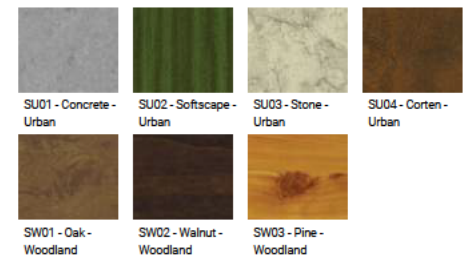
Optic



Product colour



Special finishes upon request



LIGHTZONE 2 (LZ-10894)



Product description

Ø160 - 885 mm - Straight

Example Specification - Bollard Luminaire



Luminaire Structure

- Die-cast aluminium housing
- Extruded aluminium column
- Pre-treated before powder coating ensuring high corrosion resistance
- Single cable entry

- One IP68 connector supplied with 0.2 m of 3x1.0 sqmm outdoor cable
- Stainless steel fasteners in grade 304 with zinc flake coating (ZFC)
- Durable silicone rubber gasket
- High-efficiency optical reflector

- Clear toughened glass
- Integral control gear

Optic



G

Product colour



01 - Black (RAL 9011) 02 - Dark Grey (RAL 7043) 03 - White (RAL 9003) 05 - Matt Silver (RAL 9006)



06 - Bronze (RAL 6014)

Special finishes upon request



SU01 - Concrete - Urban SU02 - Softscape - Urban SU03 - Stone - Urban SU04 - Corten - Urban



SW01 - Oak - Woodland SW02 - Walnut - Woodland SW03 - Pine - Woodland

BILLUND 5 (BIU-90016)



Product description

Medium - with CLO & Night dimming

Example Specification - Pole-top Area Luminaire



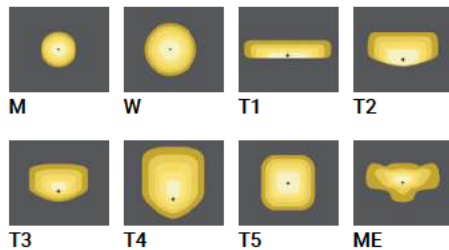
Luminaire Structure

- Die-cast aluminium housing
- Pre-treated before powder coating ensuring high corrosion resistance
- Thermal heat dissipation body
- Single cable entry
- One IP68 connector supplied with 0.3 m of 3x1.0 sqmm outdoor cable

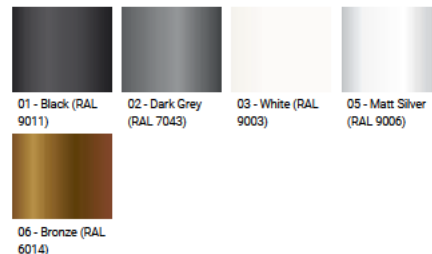
- Stainless steel fasteners in grade 304 with zinc flake coating (ZFC)
- Durable silicone rubber gasket
- Clear toughened glass
- High-efficiency polycarbonate lens
- Integral control gear

- Surge protection 10kV
- Constant lumen output (CLO) and Night-time dimming options

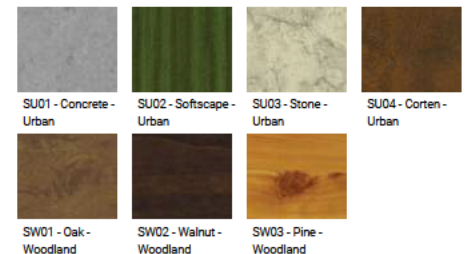
Optic



Product colour



Special finishes upon request





A-Series

R1 round



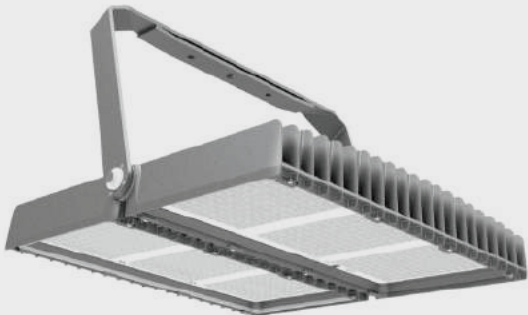
R1



R2

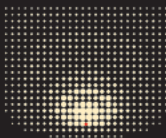


R4

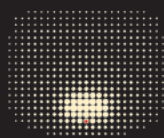


Precision lens optics

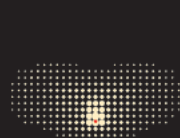
AG01
Symmetric Narrow 12°



AG02
Symmetric Medium 27°



AG03
Symmetric Flood 48°

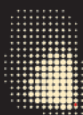


AG04
Symmetric Elliptical
10°x40°

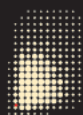


AG07
Symmetric Narrow 17°

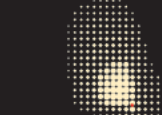
AP05
Asymmetric Extra Forward



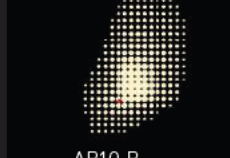
AP07
Asymmetric Extra Forward



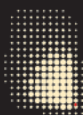
AS07
Asymmetric Side Throw



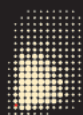
AS08
Asymmetric Side and Forward Throw



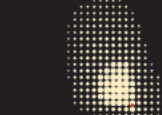
AP04-L
Asymmetric Extra Forward – Left



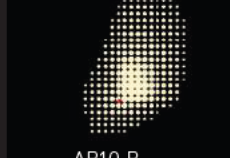
AP04-R
Asymmetric Extra Forward – Right



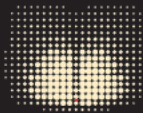
AP10-L
Asymmetric Extra Forward – Left



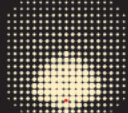
AP10-R
Asymmetric Extra Forward – Right



AP04-L/R
Asymmetric Extra Forward
Left/Right



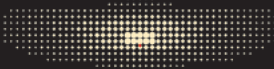
AP10-L/R
Asymmetric Extra Forward
Left/Right



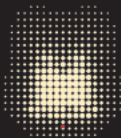
AH02
Symmetric Wide Flood 60°



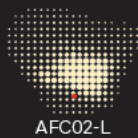
AS06
Asymmetric Extra Side Throw



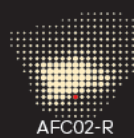
AFC01
Asymmetric Extra Forward



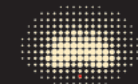
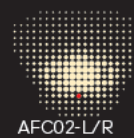
AFC02-L
Asymmetric Extra Forward
Left



AFC02-R
Asymmetric Extra Forward
Right



AFC02-L/R
Asymmetric Extra Forward
Left/Right



AF02
Asymmetric Wide Flood

Control protocols

ON/OFF	
1–10 V	
DALI 2	
Zhaga Book 18	
Line Switch	
DMX–RDM	

Programming options

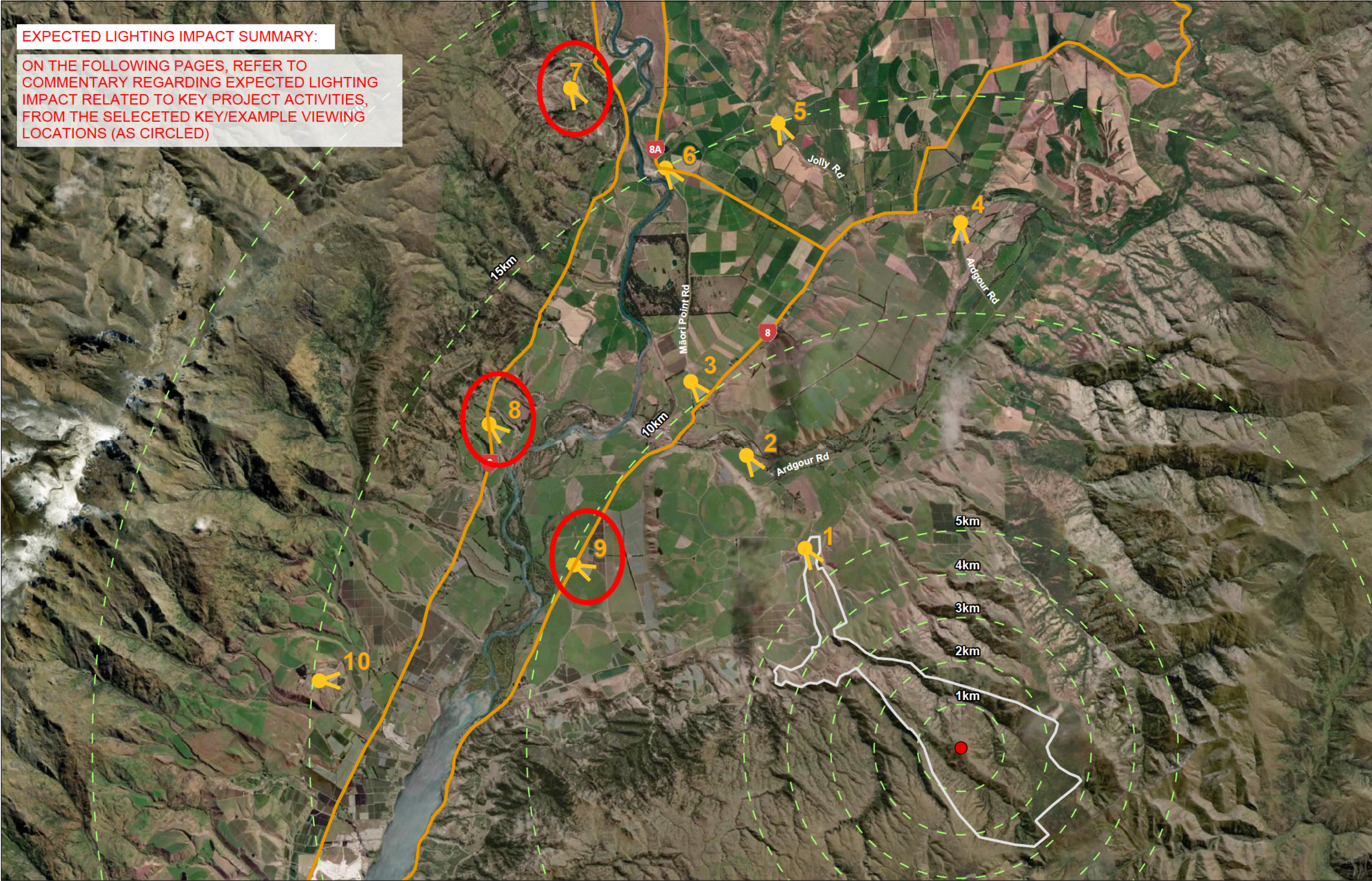
CLO Constant Lumen Output

Stand-alone

APPENDIX B. VISUAL SIMULATION SHEET MARKUPS

EXPECTED LIGHTING IMPACT SUMMARY:

ON THE FOLLOWING PAGES, REFER TO COMMENTARY REGARDING EXPECTED LIGHTING IMPACT RELATED TO KEY PROJECT ACTIVITIES, FROM THE SELECETED KEY/EXAMPLE VIEWING LOCATIONS (AS CIRCLED)



EXPECTED LIGHTING IMPACT SUMMARY:

CIT
MINE ACTIVE FROM MID-END MINE LIFE AND LARGELY VISIBLE WHILST ACTIVE. MOBILE LIGHTING SHALL BE USED, INSTALLATION METHODOLOGY SHALL DIRECT MOBILE LIGHTING TO BE ORIENTATED AND AIMED INWARDS TO SITE (i.e. AWAY FROM THIS VIEWPOINT) AS MUCH AS REASONABLY PRACTICABLE.

RAS
MINE ACTIVE THROUGHOUT MINE LIFE, PROGRESSIVELY IN STAGES. AS MINING EXCAVATION DEEPENS, MINING ACTIVITIES AND ASOCIATED LIGHTING SHALL BECOME INCREASINGLY SHIELDED FROM VIEW. MOBILE LIGHTING SHALL BE USED, INSTALLATION METHODOLOGY SHALL DIRECT MOBILE LIGHTING TO BE ORIENTATED AND AIMED INWARDS TO SITE (i.e. AWAY FROM THIS VIEWPOINT) AS MUCH AS REASONABLY PRACTICABLE, PARTICULARLY DURING EARLY STAGES WHEN MINING ACTIVITES MORE VISIBLE.

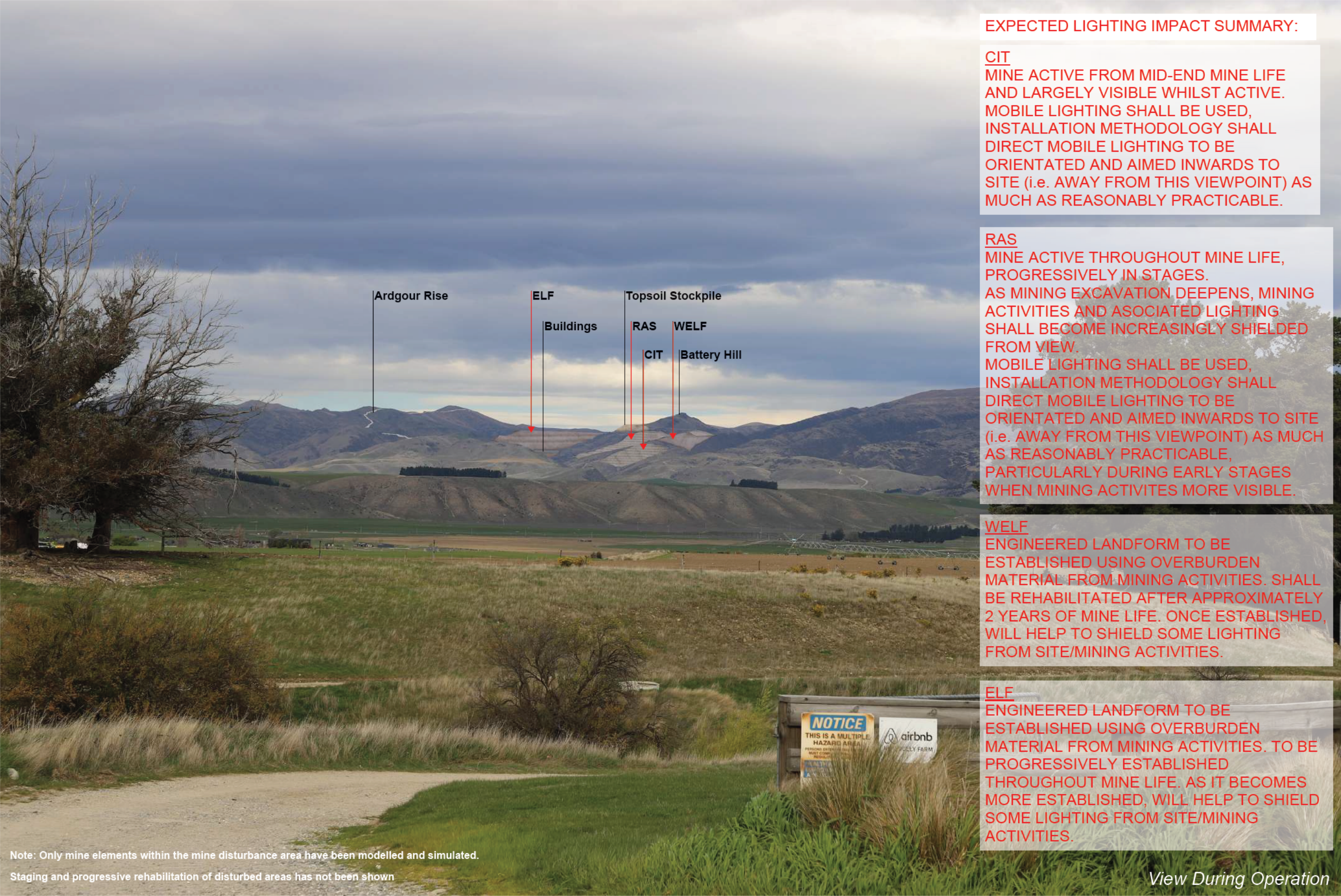
WELF
ENGINEERED LANDFORM TO BE ESTABLISHED USING OVERBURDEN MATERIAL FROM MINING ACTIVITIES. SHALL BE REHABILITATED AFTER APPROXIMATELY 2 YEARS OF MINE LIFE. ONCE ESTABLISHED, WILL HELP TO SHIELD SOME LIGHTING FROM SITE/MINING ACTIVITIES.

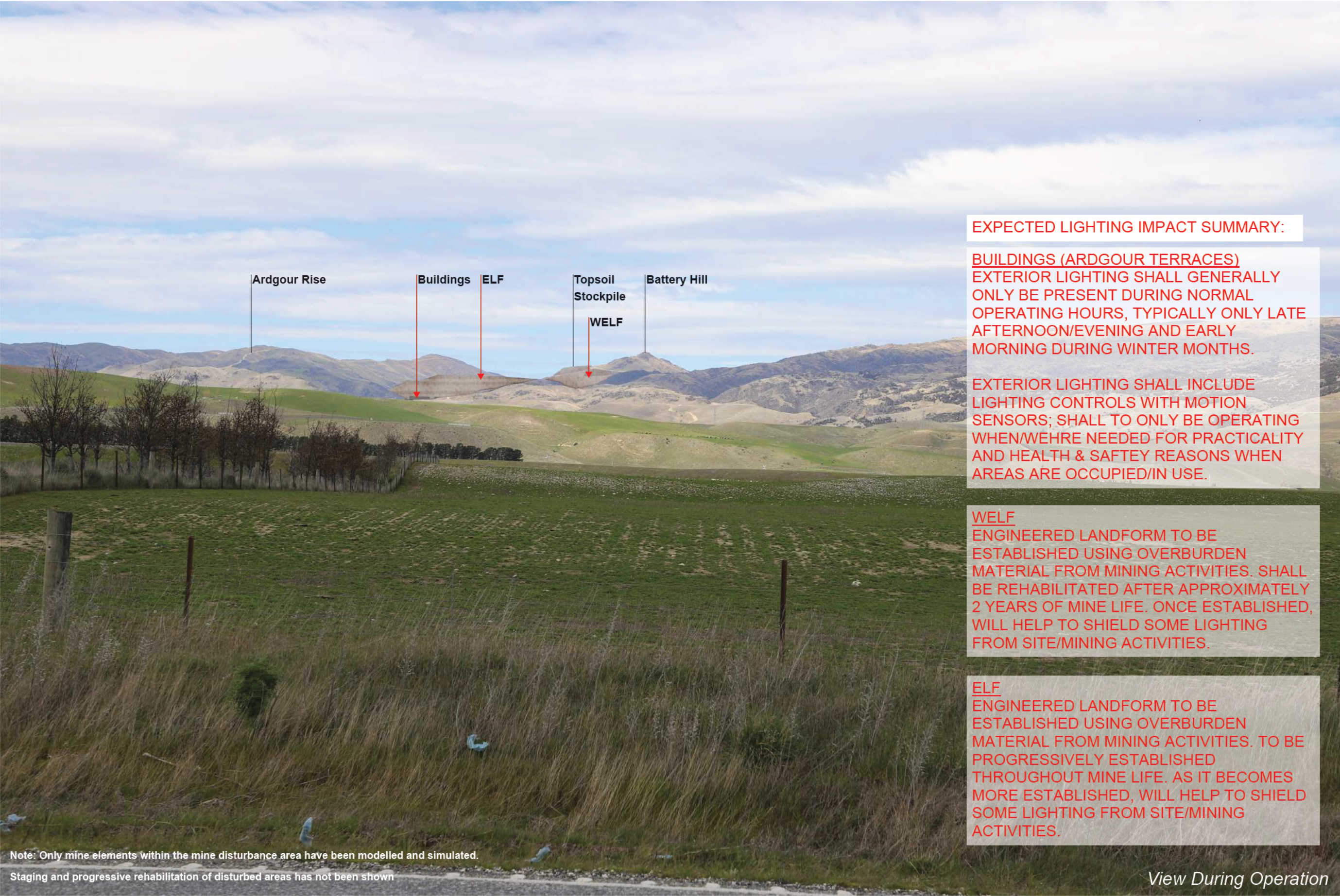
ELF
ENGINEERED LANDFORM TO BE ESTABLISHED USING OVERBURDEN MATERIAL FROM MINING ACTIVITIES. TO BE PROGRESSIVELY ESTABLISHED THROUGHOUT MINE LIFE. AS IT BECOMES PROGRESSIVELY MORE ESTABLISHED, WILL HELP TO SHIELD SOME LIGHTING FROM SITE/MINING ACTIVITIES.

Note: Only mine elements within the mine disturbance area have been modelled and simulated. Staging and progressive rehabilitation of disturbed areas has not been shown



View During Operation





EXPECTED LIGHTING IMPACT SUMMARY:

BUILDINGS (ARDGOUR TERRACES)
EXTERIOR LIGHTING SHALL GENERALLY ONLY BE PRESENT DURING NORMAL OPERATING HOURS, TYPICALLY ONLY LATE AFTERNOON/EVENING AND EARLY MORNING DURING WINTER MONTHS.

EXTERIOR LIGHTING SHALL INCLUDE LIGHTING CONTROLS WITH MOTION SENSORS; SHALL TO ONLY BE OPERATING WHEN/WEHRE NEEDED FOR PRACTICALITY AND HEALTH & SAFTEY REASONS WHEN AREAS ARE OCCUPIED/IN USE.

WELF
ENGINEERED LANDFORM TO BE ESTABLISHED USING OVERBURDEN MATERIAL FROM MINING ACTIVITIES. SHALL BE REHABILITATED AFTER APPROXIMATELY 2 YEARS OF MINE LIFE. ONCE ESTABLISHED, WILL HELP TO SHIELD SOME LIGHTING FROM SITE/MINING ACTIVITIES.

ELF
ENGINEERED LANDFORM TO BE ESTABLISHED USING OVERBURDEN MATERIAL FROM MINING ACTIVITIES. TO BE PROGRESSIVELY ESTABLISHED THROUGHOUT MINE LIFE. AS IT BECOMES MORE ESTABLISHED, WILL HELP TO SHIELD SOME LIGHTING FROM SITE/MINING ACTIVITIES.

Note: Only mine elements within the mine disturbance area have been modelled and simulated.
Staging and progressive rehabilitation of disturbed areas has not been shown

View During Operation