

METROPOLITAN COAL LONGWALLS 305-307

**LONGWALL 307
EXTENSION SUBSIDENCE REVIEW REPORT**



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Suite 402, Level 4, 13 Spring Street
Chatswood NSW 2067
PO Box 302
Chatswood NSW 2057
Tel +61 2 9413 3777
enquiries@minesubsidence.com
www.minesubsidence.com



Jon Degotardi
Helensburgh Coal Pty Ltd
Metropolitan Colliery
PO Box 402
Helensburgh NSW 2508

Ref: MSEC1091 Revision A

Dear Jon,

**RE: Metropolitan Mine – Modified commencing end Longwall 307
Mine Subsidence Overview**

Metropolitan Coal is a wholly owned subsidiary of Peabody Energy Pty Limited (Peabody) and operates Metropolitan Colliery, which is located in the Southern Coalfield of New South Wales.

Metropolitan Coal has approval for the extraction Longwalls 305 to 307. Mine Subsidence Engineering Consultants (MSEC) prepared Report No. MSEC1057 (Rev. A) in support of the Extraction Plan application for Longwalls 305 to 307. Longwall 305 was completed in November 2020 and longwall 306 is scheduled to commence in early 2021.

Metropolitan Coal proposes to increase the length of Longwall 307 to the north (commencing end) by 50 m from the extent indicated in the Extraction Plan. The extent of Longwall 307 indicated in the Extraction Plan is referred to as the *Previous Layout* and the proposed increased extent of this longwall is referred to as the *Modified Layout* in this letter report.

The layout of Longwall 307 is shown in the attached Drawing No. MSEC1154-01. The overall void length (including the installation heading) of LW307 is 1,956 m based on the Previous Layout and 2,006 m based on the Modified Layout. The overall void width and chain pillar widths of this longwall do not change. The depth of cover above the commencing end of Longwall 307 varies from approximately 470 m to 490 m.

A *Study Area* has been defined as the zone where the predicted surface subsidence effects, based on the Modified Layout, are different to those predicted based on the Previous Layout. The Study Area has been based on the greater of the following:

- 26.5° angle of draw line from the commencing end of Longwall 307, based on both the original position (i.e. Previous Layout) and the modified position (i.e. Modified Layout); and
- the limit where the change in the predicted total vertical subsidence, due to the proposed modification to the longwall commencing ends, is greater than 20 mm.

The natural and built features located within the Study Area are shown in Drawings Nos. MSEC1154-02 and 03, respectively. The natural and built features located within the Study Area include:

- Swamps S71a, S71b, S72 and S73;
- Tracks and fire roads;
- Water main 1;
- Aboriginal Heritage sites (FRC87, 93, 94, 95, 101, 310, 311, 313 and 316);
- Tributaries;
- Woronora Reservoir; and
- Steep slopes.

The maximum predicted vertical subsidence due to the extraction of Longwall 307 does not change due to the proposed modification. Whilst the maximum predicted vertical subsidence does not change, the extent of subsidence increases slightly to the north due to the proposed modification.

The predicted 20 mm contours of total vertical subsidence based on the Previous Layout and Modified Layout are shown in Drawings Nos. MSEC1154-01 to 03. It can be seen from these drawings that the predicted 20 mm vertical subsidence contour increases as a result of the increase in length of Longwall 307. The predicted vertical subsidence for the natural and built features within the Study Area based on the Modified Layout are therefore slightly higher than those based on the Previous Layout. The majority of surface features are located away from the area of increased length, therefore the increases in predicted subsidence parameters are minor.

Similar to the maximum predicted vertical subsidence, the maximum predicted total tilt, curvatures and strains due to the extraction of Longwall 307 do not change due to the proposed modification. However, the locations of the longitudinal components of these parameters (i.e. orientated along the main longwall axis) move towards the north. This is illustrated in Fig. 1 and Fig. 2 which shows the predicted profiles of total vertical subsidence along Prediction Line 1 and Water Main 1. The location of prediction Line 1 is shown in Drawings Nos. MSEC1154-01 to 03.

The predicted tilts curvatures and strains for the natural and built features within the Study Area based on the Modified Layout decrease for some features and increase for other features depending on the location of the surface features.

The features within the study area are located away from the commencing end of Longwall 307. The resulting changes to the predicted subsidence parameters for the natural and built features within the Study Area due to the modified length of Longwalls 307 are therefore minor, and the assessed impacts for these features do not change. The management strategies and required monitoring therefore do not need to change.

I trust that this letter report is of assistance. If you have any questions, please do not hesitate to email or call me on (02) 9413-3777.

Yours sincerely,

Peter DeBono
Mine Subsidence Engineering Consultants

Attachments:

Fig. 1 Predicted profiles of vertical subsidence, tilt and curvature along Prediction Line 1 due to Longwall 307

Fig. 2 Predicted profiles of vertical subsidence, tilt and curvature along Water Main 1 due to Longwall 307

Drawing No. MSEC1154-01 Rev. A - General Layout

Drawing No. MSEC1154-02 Rev. A – Natural Features

Drawing No. MSEC1154-03 Rev. A – Built Features

Predicted Profiles of Conventional Subsidence, Tilt and Curvature along Prediction Line 1 due to LW307

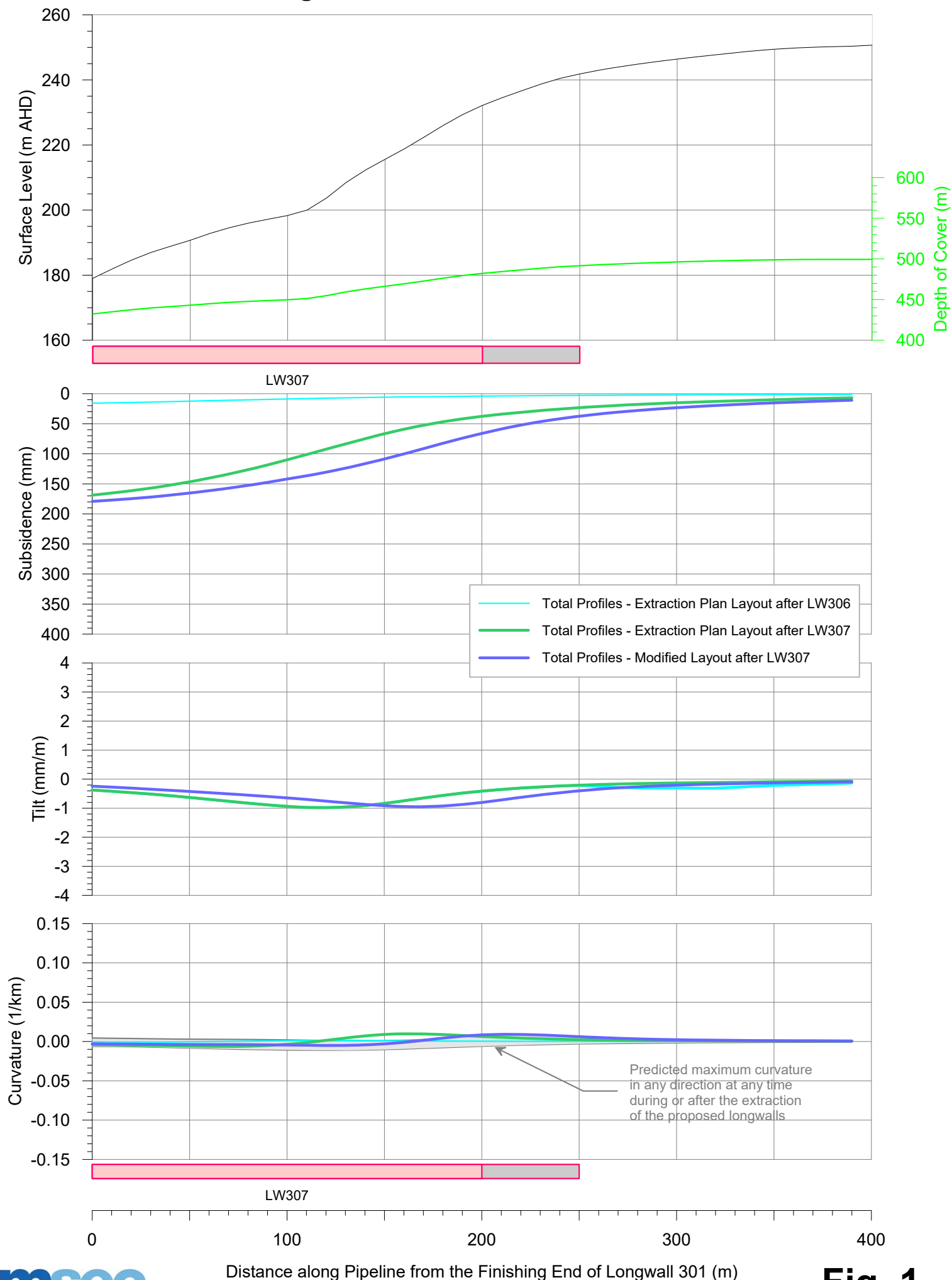


Fig. 1

Predicted Profiles of Conventional Subsidence, Tilt and Curvature along Water Main 1 due to LW307

