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OFFICE OF
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Rail Incident Factual Statement

Clarence

4 July 2005

Fatality – Zig Zag Railway



RAIL INCIDENT FACTUAL STATEMENT

FATALITY

ZIG ZAG RAILWAY - CLARENCE

4 JULY 2005

OTSI File Ref: 04175

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**Office of Transport Safety Investigation
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Established on 1 January 2004 by the *Transport Administration Act 1988*, the Office is responsible for determining the causes and contributing factors of accidents and to make recommendations for the implementation of remedial safety action to prevent recurrence.

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The Office of Transport Safety Investigation also provides a Confidential Safety Information Reporting facility for rail, bus and ferry industry employees. The CSIRS reporting telephone number is 1800 180 828.

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1.0 FACTUAL INFORMATION

The Accident

About 4.00 pm on Monday 4 July 2005, the steam powered heritage locomotive operated by the Zig Zag Railway, with two carriages in train, passed the Top Points Signal Box (refer Figure 1) on its regular historic sightseeing tour. Subsequently, as the train rounded a right hand bend, the driver sighted a person lying across the railway line.

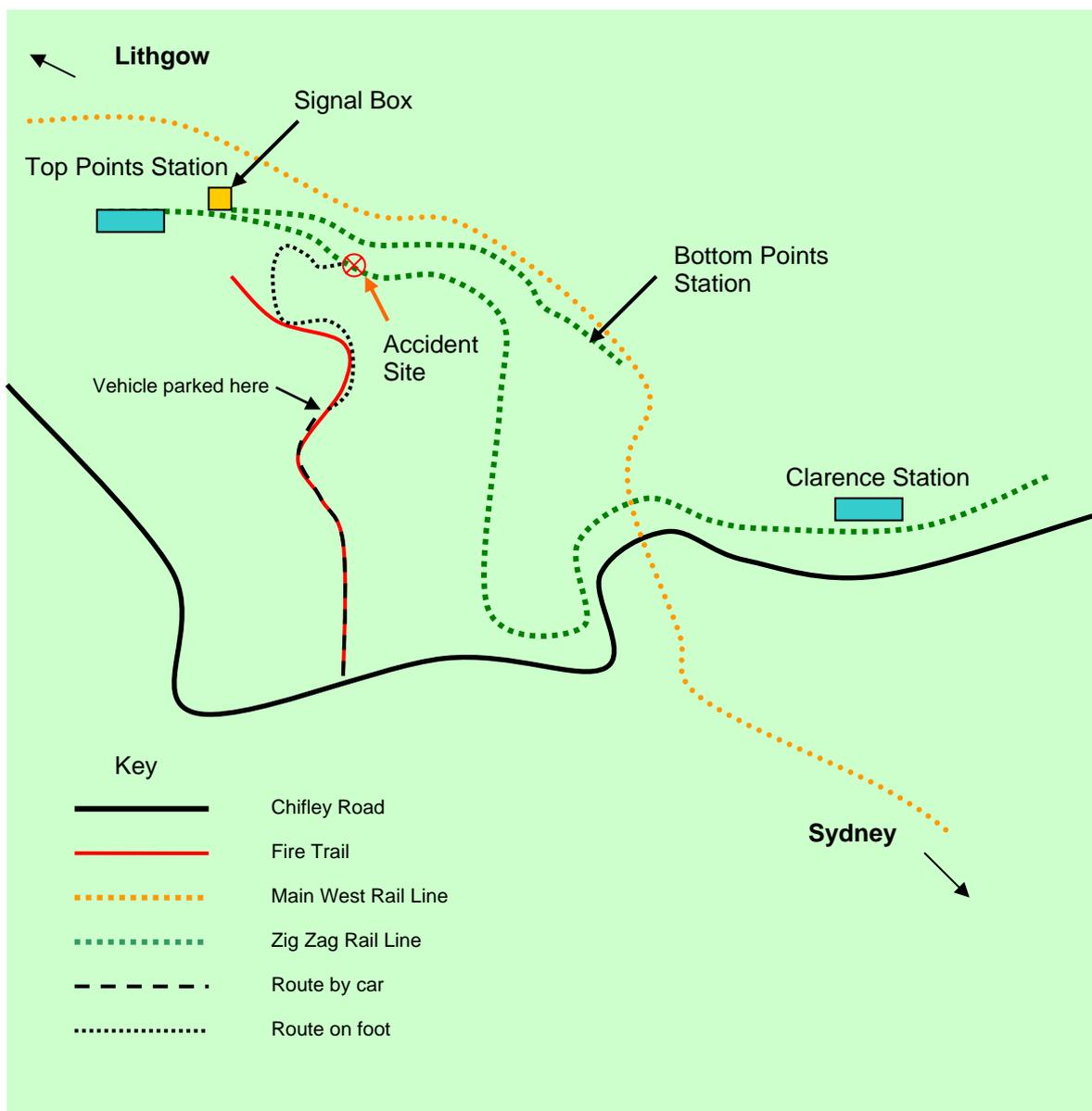


Figure 1 – Map of Zig Zag Railway.

At this point, the combination of track gradient, switch points location and the acceleration rate of the train, indicate that the train was travelling at approximately 15 km/h. At this speed, while operating on a 1 in 42 gradient, the train would have required approximately three car lengths to come to a stop.

Although the driver applied the brakes, by the time the train had come to a stop, it had passed over and cleared the body. The guard confirmed that a fatality had occurred.

Due to the potential danger to passengers if they were detrained at this location, the train crew decided that the safest course of action for the passengers would be to proceed to the nearest station to detrain them. The train continued on to Clarence Station where the passengers were safely detrained.

Sequence of Events

The deceased was a volunteer worker at the Zig Zag Railway. He had visited staff at Clarence Station and had engaged in a number of conversations. The deceased departed Clarence Station by motor vehicle to return to Lithgow. He was accompanied by a friend who was able to report the sequence of events which transpired.

En route to Lithgow, the deceased and his companion decided to examine a vantage point for its suitability from which to take photographs of trains operating on the Zig Zag railway. To reach this location, they turned off the main road and drove down a fire trail. After driving for approximately 750 metres, they walked for approximately 250 metres to reach the vantage point. Refer to Figure 1 for a plan view of the area.

When they reached the vantage point, the deceased climbed down onto a rock shelf located directly above the railway line between Top Points and Clarence Station. His companion could not negotiate this descent and remained on higher ground. Sometime after, but before the train had passed the Top Points Signal Box, the rock shelf collapsed and the deceased fell onto the track below. Refer to Figure 2.

The deceased's companion observed him lying motionless across the track but was unable to descend the rock face to assist him or raise the alarm. Conscious of the scheduled movement of the train, the companion retraced his steps, running along the ridge line towards Top Points Station to raise the alarm and halt the train. He was unable to reach the Station in sufficient time to intervene and the deceased was struck by the train.



Figure 2 – Collapsed Rock Shelf



Figure 3 –View of Rock Face and Associated Debris

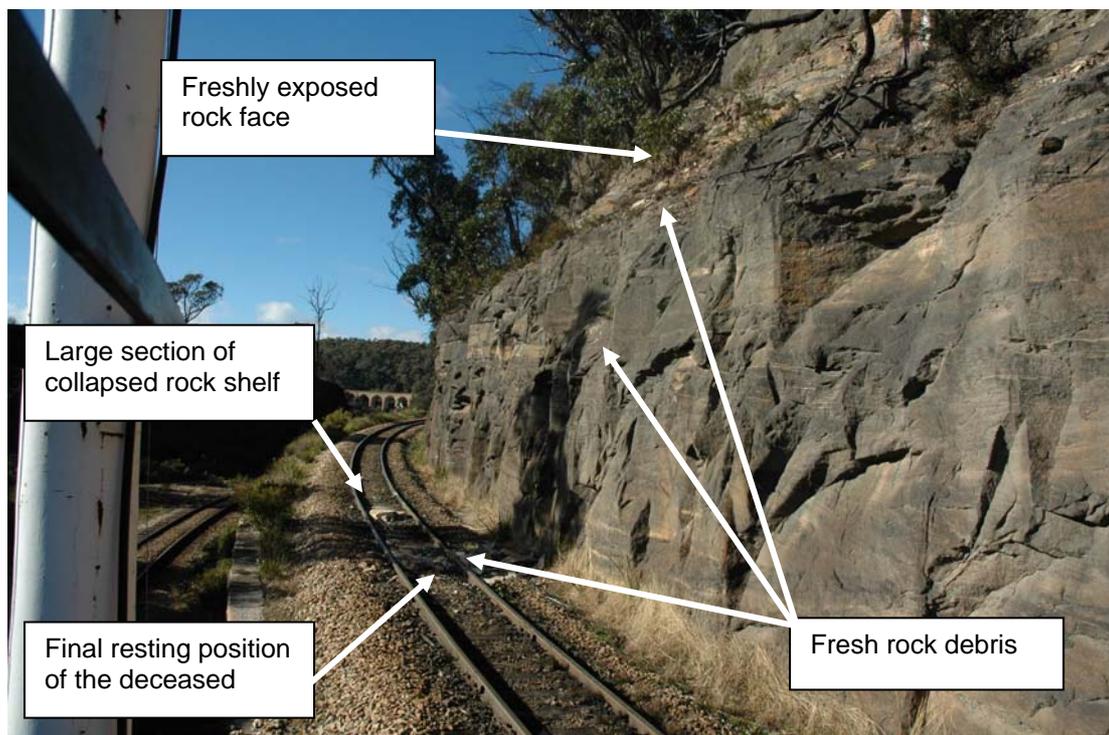


Figure 4 – Distant View of Rock Face and Rock Debris

The deceased fell approximately eight to ten metres from the rock ledge to the track surface. Markings on the ground were consistent with the deceased being rendered either unconscious or dead as a result of this fall. His motionless condition was corroborated by the observations of his companion. Refer to Figures 2, 3 and 4 for a pictorial representation of the collapsed rock ledge.

Safety Factors

The location of this fall was part way through a right hand bend in the rail track. The rock face on the right hand side of the track obscured the driver's vision of the track ahead. In addition, the nature of operating a steam locomotive requires the driver to constantly switch attention from the track ahead to the manual controls and gauges at the driver's operating station.

Vision from the locomotive is significantly restricted. Refer to Figures 5 and 6 for the forward view from the steam powered locomotive as it approached the accident site.

Despite the train operating and visibility limitations, and the restricted field of vision imposed by the terrain and track geometry, the driver did see the deceased across the track but the closing distance was insufficient to permit braking to stop before striking the deceased.



Figure 5 – Driver's Perspective Approaching Top Points Signal Box



Figure 6 – Driver's Perspective Approaching Accident Site.

The majority of the Zig Zag Railway corridor is unfenced as it is located within the boundaries of a 222 hectare crown land reserve which was dedicated in 1881 as a public recreation reserve. Unobstructed access to the track is possible, particularly to persons such as the deceased and his companion who are familiar with the geography and configuration of the local rail network.

Although this area has no security fencing, given the reasons and the measures the deceased went to in gaining access to the vantage point from which he fell, it is unlikely that security measures, such as fencing, would represent a deterrent barrier to prevent access to this area of the reserve.

2.0 Findings

The deceased was a heritage train enthusiast and a Zig Zag Railway volunteer. He was motivated by his interest in the Zig Zag train to photograph it in operation. To do so, he made his way to a relatively inaccessible vantage point above a section of the Zig Zag track by driving along a fire trail and trekking through bush on foot.

His access to the vantage point was not obstructed by rail corridor security fencing. Fencing off the designated public recreation reserve within the crown land through which the Zig Zag lines run is prohibited. Given his purpose and obvious determination to get from the main road to the railway track, it is unlikely that a fence would have inhibited his actions.

The deceased was struck by the Zig Zag train as he lay across the track in a motionless state. His position and condition across the track was caused by an eight to ten metre fall down a rock face when the rock ledge on which he had been standing collapsed.

The curves in the Zig Zag track, together with the ergonomics of the driver's operating station, impose limitations on the driver's visual perspective of the track ahead. In this case, these factors did not contribute to the initiating sequence of events, and even though the train struck the deceased, the actual cause of death is yet to be established.

Zig Zag Railway is an accredited Heritage Rail operator whose Safety Management Systems satisfy the requirements of the Independent Transport Safety and Reliability Regulator (ITSRR). It was accredited as a Heritage Isolated Railway on 18 May 1995 and continues to satisfy the terms and conditions of its accreditation.

3.0 Further Investigation

OTSI has concluded its investigation of this accident and determined that it does not require further investigation in accordance with s67 of the *Rail Safety Act*.

The NSW Police Force is preparing a brief of evidence for the Coroner.

A copy of this factual statement will be made available to the Coroner.