# MISALIGNMENT/BUCKLE REPORT

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. | CORRIDOR | | | | |  | | | | | | | | | | | | | | | | | 2. | | | ARTC TRACK BASE CODE | | | | | | | | |  | | | | | | | | 3. | | DATE | | | |  | | |
| 4. | LINE |  | | | | | | | | | | | | | | | | | | | | | | | | | | BETWEEN | | | |  | | | | | | AND | |  | | | | | | | | | | | |
| 5. | KILOMETRAGE | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | 16 | SLEEPER CONDITION | | | | | | | | | | | | | | | | | |
| 6. | TRACK | | Single | | | | | | | | | | Up Main | | | | | | | | | | | | | | Dn Main | | | | | |  | Good for 5 years | | | Split | | | Broken or Rotten | | | | | | | | | | Other  N/A | |
|  | Up Sub | | | | | | | | | | | | Dn Sub | | | | | | | | | | | | | | Crossing Loop | | | | | | 17 | ANCHOR PATTERN | | | 1:1 | | 1:2 | | | | | 1:3 | | 1:4 | | | | Other N/A | |
|  | Up Local/Relief | | | | | | | | | | | | Dn Local/Relief | | | | | | | | | | | | | | Siding or Refuge | | | | | | 18 | AMBIENT AIR TEMPERATURE at time of buckle | | | | | | | | | | | | | | | | | |
| 7. | METHOD OF DETECTION | | | | | | | | | | | | | | | | | | Team Manager/WGL/Track worker | | | | | | | | | | | | | |  | Act | | | Est. | | | | | | | Temperature | | | | | | | °C |
|  | Loco Crew | | | | | | | Track Patrol | | | | | | | | | | | | | | Other Please outline | | | | | | | | | | | 19 | RAIL TEMPERATURE | | | | | | | | | | °C | | | | | | | |
| 8. | TIME DETECTED | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | 20 | TRACK DISTURBANCE | | | | | | | | | | | | | | | | | |
| 9. | REPORTED TO | | | | | | | | Team Manager/WGL/Track worker | | | | | | | | | | | | | | | | | | | | | | | |  | Ballast Cleaning | | | Manual Resleepering | | | | | | | | | | Surfacing | | | | |
|  | Station Master | | | | | | | | | | | Track Inspector/Engineer | | | | | | | | | | | | | | | | | | | Other | |  | Tie and Surfacing | | | | | | | Other  Please outline | | | | | | | | | | |
| 10 | MISALIGNMENT DESCRIPTION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | LAST OCCASION | | | | | | | | | | | | | | | | | |
|  | LENGTH | | | m | | | | | | | | | Length of misalignment in metres (Multiple of 5m) | | | | | | | | | | | | | | | | | | | |  | 0-1Mth | | 1-2Mths | | | | | | 2-3Mths | | | | | Over 3Mths | | | | |
|  | DISPLACEMENT | | | | | | | | | | mm | | | | | | | | | | Lateral displacement in mm  Photos of misaligned track to be attached. | | | | | | | | | | | | 21 | BALLAST | | | | | | | | | | | | | | | |  | |
|  |  | | | | | | | | | |  | | | | | | | | | |  | | | | | | | | | | | |  | Shoulder Deficiency | | | | | | | | | | | | | | | |  | |
|  |  | | | | | | | | | |  | | | | | | | | | |  | | | | | | | | | | | |  | Crib Deficiency | | | | | | | | | | | | | | | |  | |
|  |  | | | | | | | | | |  | | | | | | | | | |  | | | | | | | | | | | |  | Ballast clean | | | | | | | | | | | | | | | |  | |
| 11 | RADIUS | | 0 - 400m | | | | | | | | | | | | | 401 - 800m | | | | | | | | | | | | | 801 - 1600m | | | | 22 | **RAIL ADJUSTMENT** Is rail out of adjustment? | | | | | | | | | | | | | | | |  | |
|  | Over 1600m | | | | | | | | | | | | | | | | Straight | | | | | | | | | | | | | | | | 23 | **RAIL CREEP** Have rails crept? | | | | | | | | | | | | | | | |  | |
| 12 | RAIL SECTION (kg/m) | | | | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | 24 | **ANCHORS** Were any anchors ineffective? | | | | | | | | | | | | | | | |  | |
| 13 | LENGTH OF RAIL | | | | | | | | | | | | | Less than 13.7m | | | | | | | | | | | | | | | | 13.7 - 55m | | | 25 | **FASTENINGS** Were any fastenings ineffective? | | | | | | | | | | | | | | | |  | |
|  | 56 - 110m | | | | | | | 111 - 220m | | | | | | | | | | | | 221 - 500m | | | | | | | | | | | CWR | |  |  | | | | | | | | | | | | | | | |  | |
| 14 | SLEEPER TYPE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 26 | ALIGNMENT | | | | Was track off its correct alignment prior to the misalignment? | | | | | | | | | | | |  | |
|  | Timber | | | | Steel | | | | | | | | Concrete | | | | | | | | | | | | Low Profile Concrete | | | | | | | |  |  | | | |  | | | | | | | | | | | |  | |
|  | Timber/Steel interspersed | | | | | | | | | | | | | | | | | Timber/Concrete Interspersed | | | | | | | | | | | | | | | 27 | PAST HISTORY – Has this location been subject to previous misalignments/buckles in the past 3 years?  If so, please list details and dates: | | | | | | | | | | | | | | | | | |
| 15 | FASTENINGS | | | | | | Dogspikes, Sleeper Plates No Lockspikes | | | | | | | | | | | | | | | | | | | | | | | | | |  |  | | | | | | | | | | | | | | | | | |
|  | Dogspikes, Sleeper Plates Lockspikes | | | | | | | | | | | | | | | | | | | | | | | Dogspikes, No Plates | | | | | | | | |  |  | | | | | | | | | | | | | | | | | |
|  | Pandrol Clips | | | | | | | | | Other Resilient Fastenings. Name……….. | | | | | | | | | | | | | | | | | | | | | | | 28 | LAST TRAIN ID | | | | | | | | | | | | | |  | | | |

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| APPARENT CAUSES | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| CORRECTIVE ACTION TAKEN (TO RESTORE TRAFFIC) | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| STEEL REMOVED: | | | UP RAIL | **mm** | | | | |  | DN RAIL | mm | | RAIL TEMPERATURE | | | °C |
| SPEED RESTRICTION IMPOSED | | | | | **km/h** | | | |  | TRAIN DELAYS | |  | | | | |
| FURTHER CORRECTIVE ACTION PROPOSED | | | | | |  | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| COMMENTS | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | |
| TEAM MANAGER |  | | | | | | | | | | | | | | DATE |  |
| DELIVERY MANAGER OR NOMINATED REP | | | | | | |  | | | | | | | | DATE |  |
| CONCRETE SLEEPERED TRACK  Where WTSA is not applied as per ETM-06-08 Managing Track Stability, the following information should be attached (for the section of track affected):  Current Track Stability Management Plan (TSMP) for the site – mandatory requirement.  Outcomes from TSMP implementation e.g. measured SFT as determined by VERSE, RailFrame, etc – important requirement, if available.  Any evidence or measurements of rail or sleeper movement. Note: Creep measurements are not mandatory under ETM–06–08.  Any evidence of lack of effectiveness of fastenings – if relevant.  Track alignment information – this may be available from the most recent AK Car run. Very desirable information.  Any other factors that may have contributed to the buckle/misalignment.  Any suggested methods of preventing a re-occurrence. | | | | | | | | | | | | | | | | |
| NON-CONCRETE SLEEPERED TRACK  Where WTSA still applies as per ETM-06-09 Welded Track Stability Analysis: | | | | | | | | | | | | | | | | |
| TRACK STABILITY ANALYSIS - | | | | | | | | | | | | | | | | |
|  | | Calculations (%) | | | | | | | | | | | | | | |
|  | | Pre Summer | | | | | | Time of Misalignment | | | | | | After Repairs | | |
| Ballast | |  | | | | | |  | | | | | |  | | |
| Anchors | |  | | | | | |  | | | | | |  | | |
| Up Rail Adjust | |  | | | | | |  | | | | | |  | | |
| Dn Rail Adjust | |  | | | | | |  | | | | | |  | | |
| Track Disturbance | |  | | | | | |  | | | | | |  | | |
| Track Condition | |  | | | | | |  | | | | | |  | | |
| Location Factor | |  | | | | | |  | | | | | |  | | |
| Final Stability Loss | |  | | | | | |  | | | | | |  | | |
| Last TCI | |  | | | | | |  | | | | | |  | | |