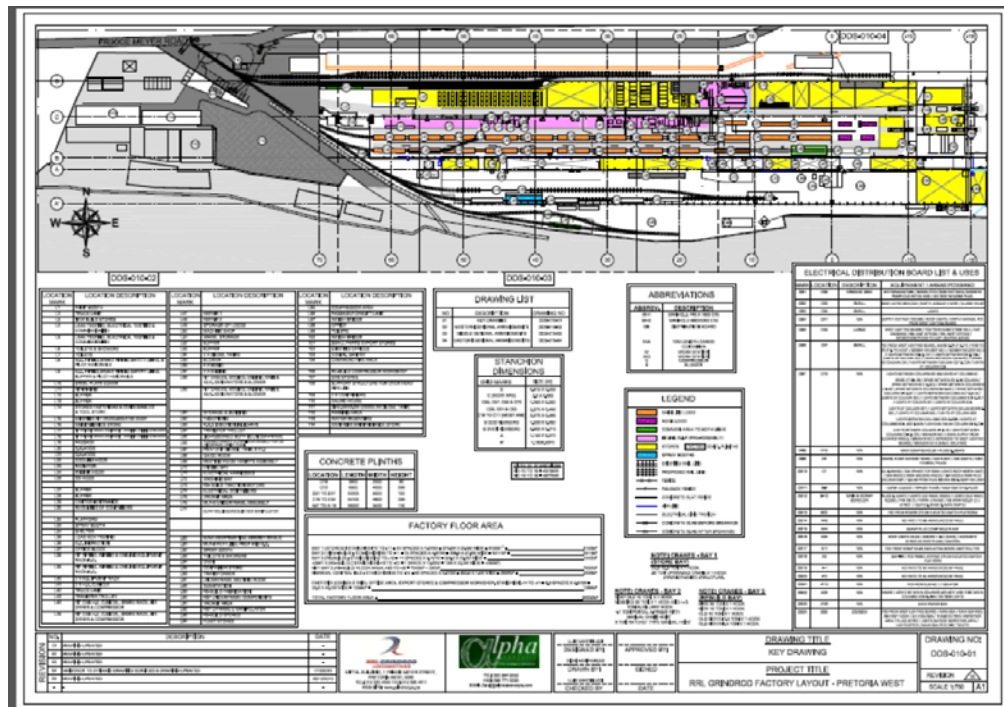


# Alpha Concepts Case Study for Production Capacity Improvement in Locomotive Build Company

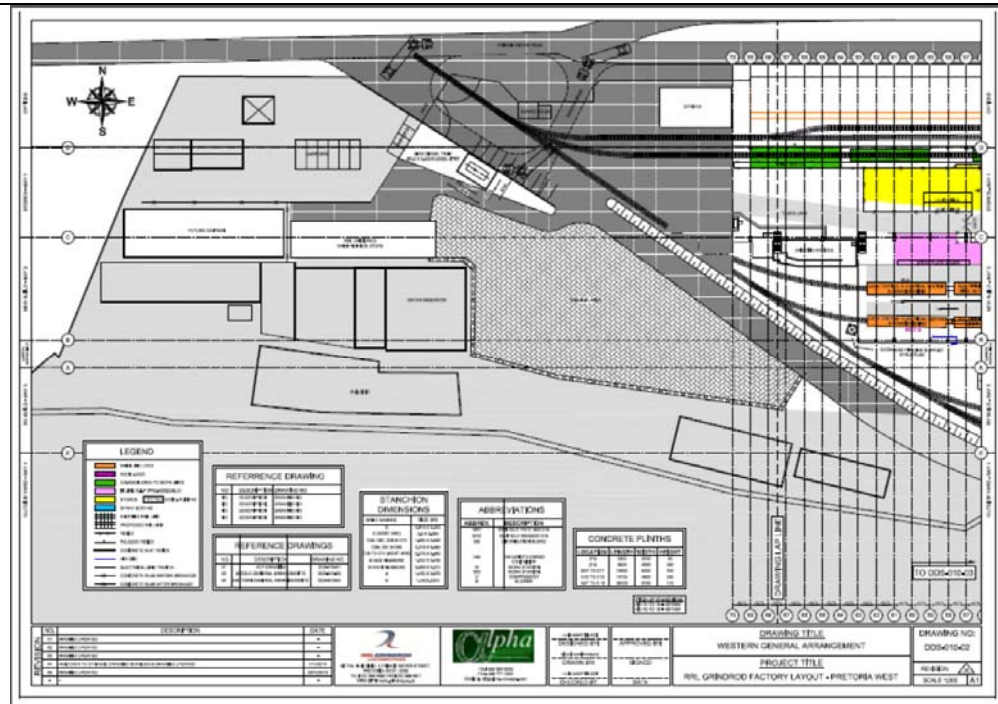


<b>Program</b>	Production capacity increase Project in Locomotive Manufacturing company
<b>Date Completed</b>	5 <sup>th</sup> February 2016
<b>Scope</b>	Production Capacity Increase
<b>KEY ACTIVITIES</b>	<ol style="list-style-type: none"> <li>1. Reviewed AS-IS production layout~ 2500 to3000 parts.</li> <li>2. TO-BE production line decomposed into nine cellular layouts</li> <li>3. Completed SimCAD Simulation on TO-BE layout to eliminate bottle necks, improve line balancing and material work follow</li> <li>4. Interviewed all section managers over a three-week period to ensure buy in on-boarding</li> <li>5. Identified Key equipment ~ commissioning and installation.</li> <li>6. Design, development and manufacture of special tools, jigs and fixtures.</li> <li>7. Implemented all works instructions, stand operating procedures.</li> </ol>
<b>FINDINGS AND OUTCOMES</b>	<ol style="list-style-type: none"> <li>8. Excess overtime.</li> <li>9. Production capacity limited to below 52 locomotives per year.</li> <li>10. Dis-organised work flows</li> <li>11. Cluttered works areas.</li> <li>12. No works area definitions</li> <li>13. No clear defined work in-progress segregation areas</li> <li>14. Wasted man hours due to personnel standing waiting for an assembly process to be completed.</li> <li>15. Materials and work in-progress spread through the factory.</li> <li>16. Poor house keeping.</li> </ol>
<b>IMPROVEMENTS AND RECOMMENDATIONS</b>	<ol style="list-style-type: none"> <li>17. Increased manufacturing capacity from 52 Locomotives per year to 106 locomotives per year</li> <li>18. Eliminated overtime</li> <li>19. Implemented designated work bays <ol style="list-style-type: none"> <li>a. Created work stations for the different process steps.</li> <li>b. Introduced buffer stations for in complete equipment supply or quality problems</li> </ol> </li> <li>20. Improved offline process work areas</li> <li>21. Improved House keeping</li> <li>22. Online job carding</li> <li>23. Online process quality control checking</li> <li>24. Conduct Time studies</li> </ol>
<b>FURTHER OPPORTUNITIES</b>	<ol style="list-style-type: none"> <li>25. Implement a functional Quality Management system.</li> <li>26. Implement Time standards.</li> <li>27. Production Line performance metrics.</li> <li>28. Insourcing rather than out sourcing of fabricated components.</li> </ol>

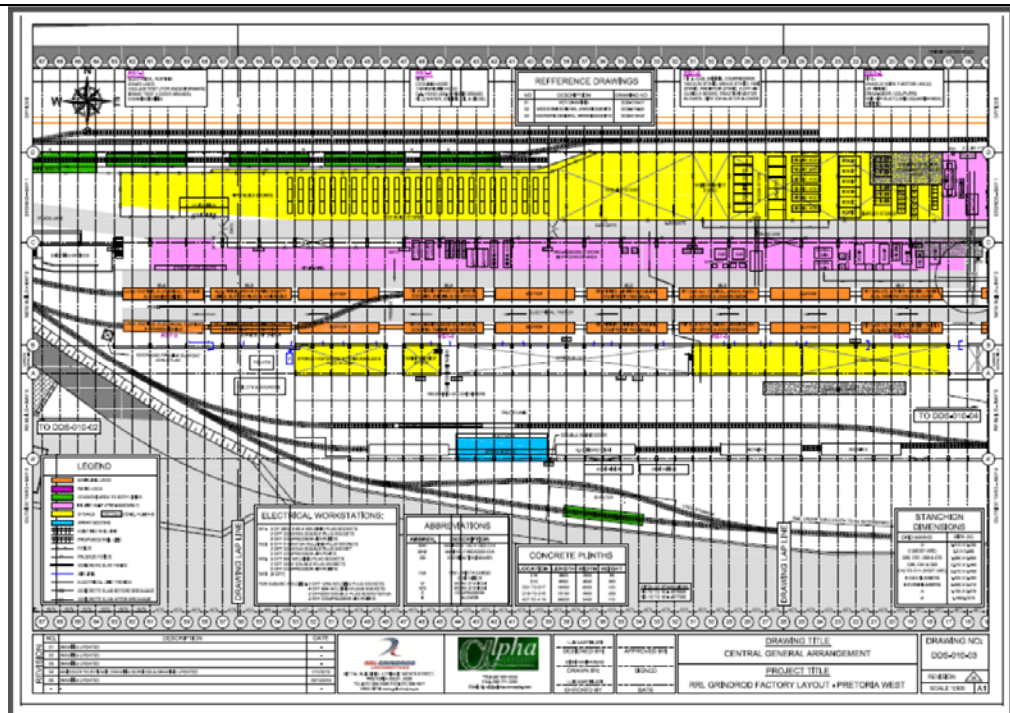
**Total Factory  
Layout**



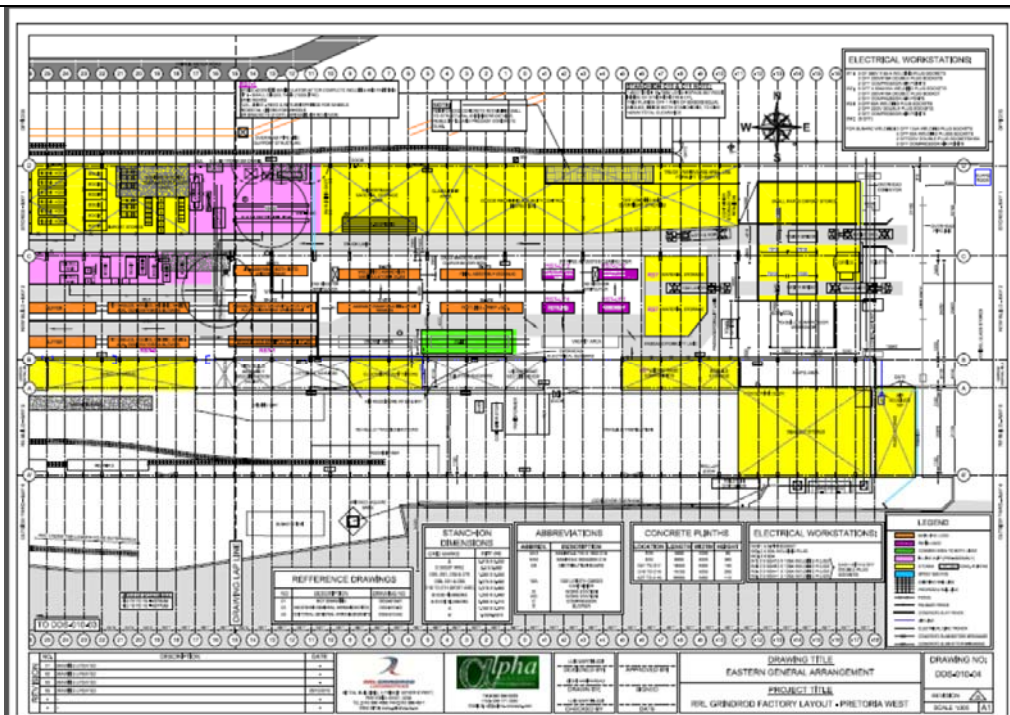
**Factory layout  
Western Side**



Factory Layout  
Central



Factory Layout  
Eastern side





[illegible]