APPENDIX D: MODELLING QUALITY REPORT
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INTRODUCTION

A detailed TUFLOW model of the Sideling Creek River (SID) minor basin has been developed as part of Moreton Bay Regional Council’s (MBRC) Regional Floodplain Database (RFD) Stage 2 project.

This technical note is prepared to demonstrate that the performance of the SID model is suitable for the intended use and the associated model outputs can be adopted by MBRC for the RFD to deliver reliable flood information across the SID minor basin.

MODEL PERFORMANCE

Model stability, warning messages and mass errors were monitored throughout model simulation periods to ensure that the model performance was acceptable. Careful attention has been paid to ensure that flood water flowing through the 1D structure elements in the model as well as flowing across the floodplain in the 2D domain were stable during model simulation period.

Overland flow hydrographs were checked at key locations in the floodplain (PO lines) and the Sideling Creek Dam to ensure the simulation has well passed beyond the peak throughout the SID study area, especially the downstream boundary at the spillway of Sideling Creek Dam.

To demonstrate there are no significant loss or gain of flood volumes during model runs, a check of the mass balance of the flood volumes for the three selected critical durations of the 10Yr, 100Yr ARI and PMF flood events has been undertaken and presented in the following Table 1.
Table 1: Mass Balance Check

<table>
<thead>
<tr>
<th>Event</th>
<th>10Yr ARI</th>
<th>100Yr ARI</th>
<th>PMF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Duration</td>
<td>060M</td>
<td>180M</td>
<td>360M</td>
</tr>
<tr>
<td>Volume at Start (m³)</td>
<td>9612415</td>
<td>9612415</td>
<td>9612415</td>
</tr>
<tr>
<td>Volume at End (m³)</td>
<td>10150121</td>
<td>10388068</td>
<td>10412879</td>
</tr>
<tr>
<td>Total Volume In (m³)</td>
<td>3382970</td>
<td>4937983</td>
<td>6468904</td>
</tr>
<tr>
<td>Total Volume Out (m³)</td>
<td>2712465</td>
<td>4215151</td>
<td>5763934</td>
</tr>
<tr>
<td>Volume Error (m³)</td>
<td>-132798</td>
<td>52822</td>
<td>95494</td>
</tr>
<tr>
<td>Final Cumulative ME (%)</td>
<td>-1.31%</td>
<td>0.51%</td>
<td>0.78%</td>
</tr>
</tbody>
</table>

The above table shows that there is no significant loss or gain of flood volume during the modelling and the mass balance errors are within the range of -1.78% to +0.78% for the selected critical duration runs of the three design events.

**CONCLUSIONS**

The quality of the SID model run has been reviewed. It is considered that the overall model performance is suitable for the intended use and the associated model outputs can be adopted for the MBRC RFD to deliver reliable flood information across the Sideling Creek minor basin.
APPENDIX E: FLOOD MAPS – 100 YEAR ARI
APPENDIX F:  MODEL SENSITIVITY ANALYSIS MAPS