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20 April 2021

NL200554

Huntlee Pty Ltd
Glenn Swan
PO Box 199
Branxton NSW 2335

Dear Glenn,

Re: Huntlee Residential Subdivision – Stage 1 Modification 14 (MP 10_0137 MOD14)

Northrop Consulting Engineers have prepared the following letter in response to the comments made by Planning Industry and Environment's Biodiversity and Conservation Division (BCD) dated 13 January 2021 in review of the Huntlee Residential Subdivision Stage 1 Modification 14 Application (MP 10_0137 MOD 14).

The purpose of this letter is to respond to these comments and provide additional information requested in relation to the stormwater and flooding comments. This letter should be read in conjunction with the updated reporting "Stormwater Management Strategy for Wine Country Drive – Large Lot Residential Subdivision for Huntlee Urban Release Area – Revision C" prepared by Northrop Consulting Engineers and dated 18 March 2021.

BCD's Recommendation – Flooding and Flood Risk – dated 13 January 2021

3. Recommendation 6 from BCD's original letter should be adequately addressed. In addition, a copy of the data obtained from the ARR 2019 data hub should also be provided with the revised assessment.

A revised response to recommendation 6 is provided below. Furthermore, a copy of the ARR Data Hub information has been provided in the revised report Appendix C.

4. Recommendation 7 from BCD's original letter should be adequately addressed.

A revised response to recommendation 7 is provided below.

5. Recommendation 8 from BCD's original letter should be adequately addressed.

A revised response to recommendation 8 is provided below.

6. The subdivision should be designed so that flood free access is provided to all lots for the 1% AEP event. Rising road access is also required to permit evacuation to a place of safety for all events up to and include the PMF event. The proponent should also determine if the diversion of flows for Lots 56 and 57 will impact the level of service of the road.

Road crossings and diversions have been included in the revised modelling which demonstrate they are able to convey the 1% AEP event. Further commentary is provided in Section 4.4.7 on page 27 of the report.

7. Recommendation 10 from BCD's original letter should be adequately addressed. In addition, the proponent should review the roughness values used in its hydrological model and outline how these values will be maintained in riparian areas in private ownership.

The response to Recommendation 10 has not changed. The updated hydrological roughness parameters have been presented in Table 3 of the report on page 13. Riparian corridors are to be placed within community title lots which will require the incorporation of adequate maintenance plans and regimes. Fencing across the creek lines will not be permitted under this title.

A revised response to recommendation 11 is provided below.

BCD's Recommendation – Flooding and Flood Risk – dated 19 September 2020

6. The MOD 14 flooding assessment should be updated to include concurrent flooding in Black Creek, revision of losses, revision of hydraulic roughness, inclusion of structures and blockage assessment. Resultant mapping should be provided showing an overlay of flooding against proposed lot and road locations.

The modelling has been revised to update the;

- **Initial losses** to reflect the agreement reached between Laurence Gitzel from Northrop and Angela Halcrow from DPIE. Correspondence provided in Appendix C of the revised report. Table 7 of the revised report on page 17 shows the ARR Data Hub losses compared to the Black Creek study and the values adopted for this assessment. A sensitivity analysis with zero initial loss has also been undertaken which demonstrates levels are generally within 250mm of one another.
- **Hydrological roughness** to reflect the agreement reached between Laurence Gitzel from Northrop and Angela Halcrow from DPIE. Correspondence provided in Appendix C of the revised report. Updated values are provided in Table 3 on page 13 and Table 4 on page 14.
- **Hydraulic roughness** to reflect the agreement reached between Laurence Gitzel from Northrop and Angela Halcrow from DPIE. Correspondence provided in Appendix C of the revised report. Hydraulic roughness values are provided in Table 5 on page 19, and a spatial distribution is included on Figure A3 and A3 in Appendix A.
- **Hydraulic structures** to be included in the modelling. A **blockage assessment** of these structures is included in Appendix B of the revised report. Hydraulic structures considered in the modelling are detailed in Table 9 on page 19 and Table 10 on page 20. Their locations are presented on Figure A3 and A3 in Appendix A.
- **Mapping** which includes the road and lot layout. This is included in Figure D1, D2, D3 and D4.

7. The proponent should revise flood modelling using the broader Black Creek flood model to determine if on-site detention can be removed from the proposal without causing additional flood impacts.

We await receipt of the appropriate model files from Council to undertake this assessment. Figure 6 and 7 on pages 23 and 24 of the report use hydrographs extracted from the Wateride files provided by Council for Black Creek. Again, we note that this has demonstrated that there is no impact on the regional event resulting from the omission of OSD from this development.

8. The proponent should prepare a floodplain risk management plan in consultation with Cessnock City Council and the Department to show how flood warning and emergency evacuation will be achieved for floods in excess of the 1% annual exceedance probability (AEP) event.

Commentary regarding evacuation is provided in Section 4.4.7 on page 27 of the report. Road access to Wine Country Drive is provided in the 1%AEP event.

9. The subdivision should be designed so that flood-free access is provided to all lots for the 1% AEP event. Rising road access is also required to permit evacuation of the area to a place of safety for all events up to and including the PMF event. A flood warning system may also be required to ensure that evacuation can take place before roads become impassable.

Road crossings have been included in the revised modelling which demonstrate they are able to convey the 1% AEP event. Further commentary is provided in Section 4.4.7 on page 27 of the report. Should a regional PMF occur, flood free land is available to the east of the development.

10. Riparian areas provide essential functions for flood and stormwater management for the Huntlee Subdivision and the proponent needs to demonstrate how these functions will be maintained if riparian areas are transferred from public to private ownership.

Riparian corridors are to be placed within community title lots. Management of the riparian corridors under the community title would restrict fencing, vegetation clearing and the erection of structures. Minimum offsets to the creek lines would need to be maintained by all future development or be subject to DPIE – Water approval. As proposed, flood free building envelopes are to be established for each lot as part of the subdivision design.

11. The Huntlee DCP 2013 should be extended to ensure that water sensitive urban design measures are enforced within the new development area. The proponent should also provide detail about how proposed on-site water treatment devices will achieve pollution reduction targets, how they will be maintained and how they will be imposed on privately owned sites.

We acknowledge that rainwater reuse tanks are not currently required under the Huntlee DCP. This does not however preclude Council from conditioning this requirement within the Development Application Consent of future dwellings within this precinct of the subdivision. Such a condition would not be considered irregular or atypical. Further to this, private maintenance of a rainwater tank for onsite reuse is common practice.

We trust the above meets with your requirements at this stage, should you have any questions or require further information, please don't hesitate to contact the undersigned on (02) 4943 1777.

Yours sincerely,

Prepared by:



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