ADDENDUM A – CLEAN WATER MANAGEMENT SYSTEM

1 CLEAN WATER MANAGEMENT

As described in Section 4.3.3 of the Water Management Plan (WMP), a series of temporary highwall structures, drains and pipelines will be used to divert clean water around the Maules Creek Coal Mine (MCCM) open cut and waste rock emplacements. Diverted water will be returned to the same management zone within the same water source from which it was diverted (i.e. the Maules Creek Water Source within the Maules Creek Tributaries Management Zone). This is consistent with the objective of the water management strategy described in the Maules Creek Coal Project Environmental Assessment.

1.1 HIGHWALL DAMS

The existing clean water management system will be augmented to include the construction of series of highwall dams along the eastern margin of the current open cut extent. Highwall dams 8, 9, 10 and 11 would intercept clean runoff from the ephemeral drainage lines which drain towards the open cut (Figure 1).

The eastern margin of the open cut is progressing upslope into undulating ridge lines with multiple small catchments. This ridge country prevents the design of a free-draining clean water management system, with elevation changes of +8 m to +20 m between the proposed highwall dams. As such, runoff collected in the highwall dams will be pumped from one dam to the next, to ultimately discharge the runoff into the existing eastern clean water drain, which reports to a tributary of Back Creek (Figure 1).

The highwall dam capacities and pump rates have been designed by WRM to achieve a target containment standard of 10% Annual Exceedance Probability (AEP). Design capacities and pump rates are presented in Table 1.

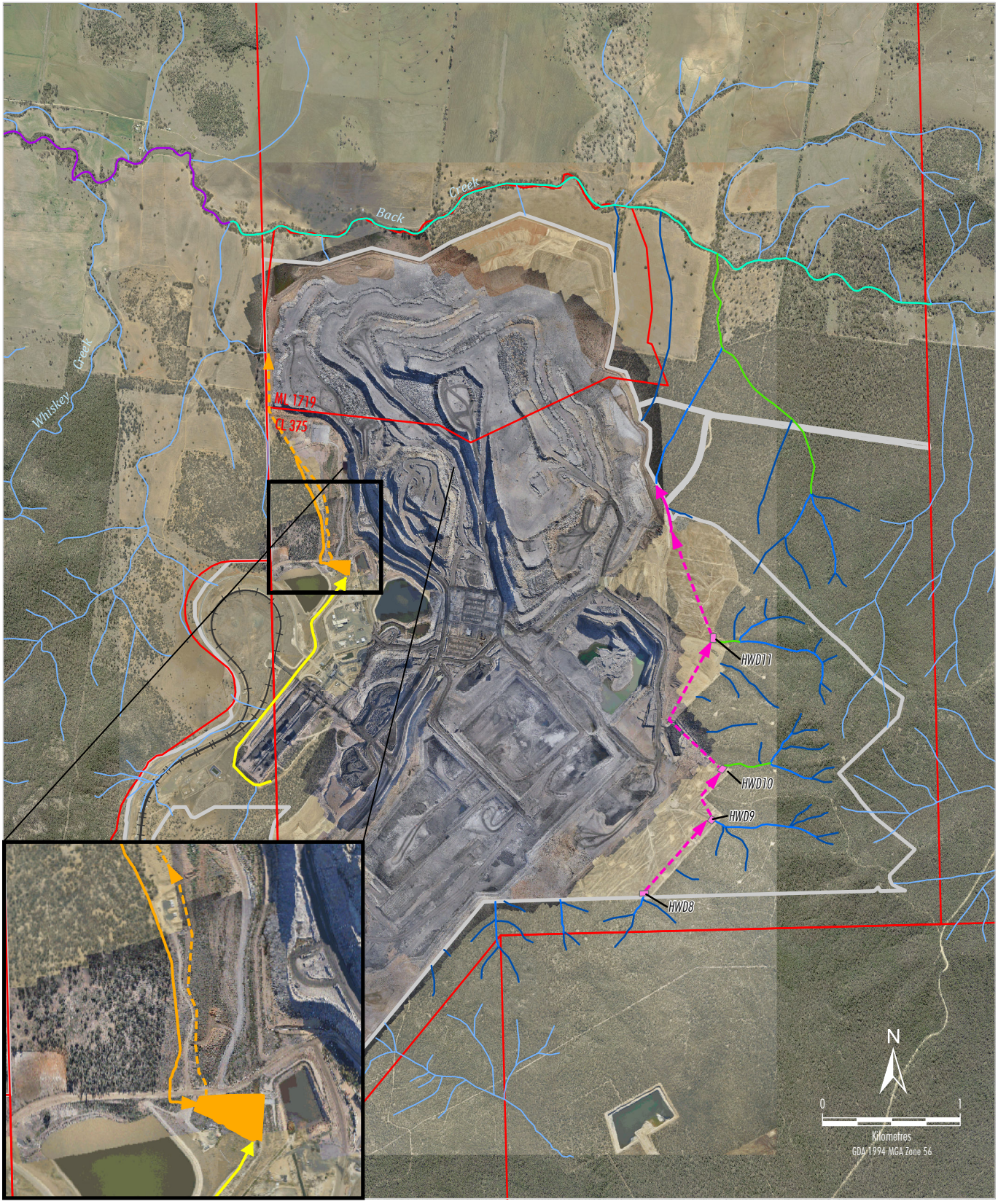
Table 1

Highwall Dam Design Criteria

Dam	Catchment Area (ha)	Capacity (ML)	Pump Rate (L/s)	Approximate Containment
HWD8	27.1	8	15	10% AEP
HWD9	49.0*	16	30	10% AEP
HWD10	47.3	20	30	10% AEP
HWD11	57.1	20	40	10% AEP

Source: WRM (2020).

*Catchment area reduces to 45.6 ha when HWD9 is relocated upslope in 2023.



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LEGEND

- Mining Tenement Boundary (ML & CL)
- Approximate Extent of Existing/Approved Surface Development
- Rail Line
- Watercouse/drainage feature (Hydroline)

Hydroline Strahler Order

- Order 1 Stream
- Order 2 Stream
- Order 3 Stream
- Order 5 Stream
- Order 6 Stream

- Proposed Eastern Clean Water Diversion Pipeline
- Proposed Highwall Dam
- Existing Eastern Clean Water Diversion
- Existing Western Clean Water Diversion
- Proposed Western Clean Water Diversion Dam
- Proposed Western Clean Water Diversion Pipeline
- Proposed Western Clean Water Diversion

Source: © NSW Spatial Services (2019); Whitehaven (2020); GHD (2020)
Orthophoto: Whitehaven Coal (2019, 2020)

WHITEHAVEN COAL

MAULES CREEK COAL MINE

Clean Water Management System

Figure 1

As the open cut progresses towards the east, the highwall dams and the catchments draining to them will be progressively consumed by the open cut. As this occurs, the pump and pipeline arrangements will be augmented to allow runoff from controlled catchments to continue to be diverted around the open cut. When required, the highwall dams will be progressively decommissioned when they are mined through.

It is noted that HWD9 will be relocated slightly upslope as mining progresses towards it in 2023 (the MCCM EPBC approval includes clearance limits which prevent HWD9 from being constructed in its final location until 2023).

Water levels within the highwall dams and pumped water volumes will be monitored and recorded. Pumps will be recorded with appropriate flow meters and loggers. Water level monitoring will inform when pumped transfers out of the dams are required.

1.2 WESTERN CLEAN WATER DIVERSION

The progressive development of the out-of-pit waste rock emplacement requires augmentation of the existing clean water diversion along the western margin of the MCCM. The existing diversion was a free-draining system which allowed upslope runoff to drain around the mining operation and report to a tributary of Back Creek. Progressive development of the waste rock emplacement will prevent a free-draining system from being operated due to topographical constraints.

To allow for ongoing management of the upslope catchment, a new clean water diversion dam will be constructed on the existing western clean water diversion, and a new clean water drain will be constructed to collect runoff from the undisturbed catchment in the north-western corner of CL 375 and direct it to the new clean water diversion dam (Figure 1). Runoff collected in the clean water diversion dam will be pumped via a pipeline around the toe of the waste rock emplacement to the discharge location on a tributary of Back Creek (Figure 1). The clean water diversion dam capacity and pump rate have been designed by WRM to achieve a target containment standard of 10% Annual Exceedance Probability (AEP). The design capacity and pump rate are presented in Table 2.

Table 2

Clean Water Diversion Dam Design Criteria

Dam	Catchment Area (ha)	Capacity (ML)	Pump Rate (L/s)	Approximate Containment
Clean Water Diversion Dam	200	15	400	10% AEP

Source: WRM (2020).