

West Cliff Area 5 Longwall 38, Georges River Update Report

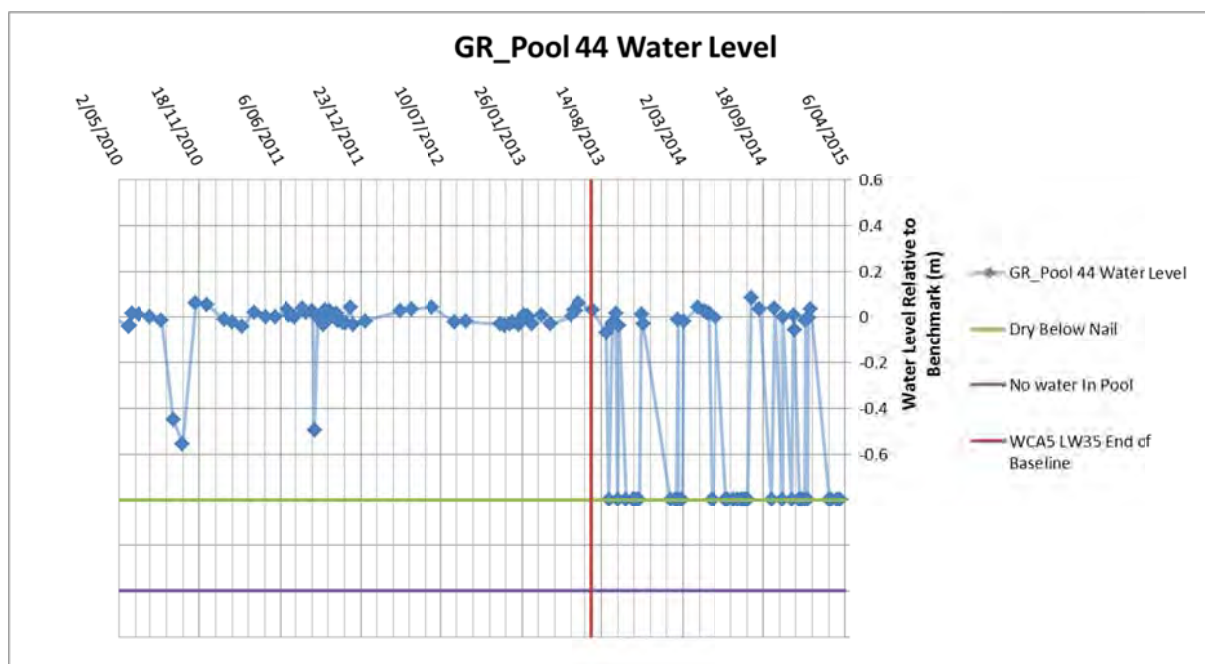
27th of March 2015

Monthly inspections of the Georges River adjacent to Longwall 32 to 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify potential subsidence impacts. Twice-weekly Inspections are currently in place to specifically monitor pool water levels at key sites. Inspections are conducted in accordance with the approved West Cliff Area 5 Longwalls 34 to 36 Subsidence Management Plan (SMP), West Cliff Area 5 Longwalls 37 and 38 Extraction Plan (EP) and Georges River Management Plan (GRMP).

A monthly inspection of the Georges River was carried out on the 24th of March 2015. Additional pool water level triggers were recorded, to those already targeted in the twice-weekly monitoring regime. A follow up inspection of key sites was undertaken on 26th March 2015, where some water levels had returned to above baseline levels. Details are included below with locations shown on Figure 1.

Update: Impact WCA5_LW35_025 (E297159, N6216601)

GR_Pool 44 remains 'Dry Below Nail' (Graph 1). This water level has been reported previously, is below baseline levels and is a trigger in the GRMP. Photos 1 and 2 show the latest pool conditions.



Graph 1: Water levels recorded in GR_Pool 44.



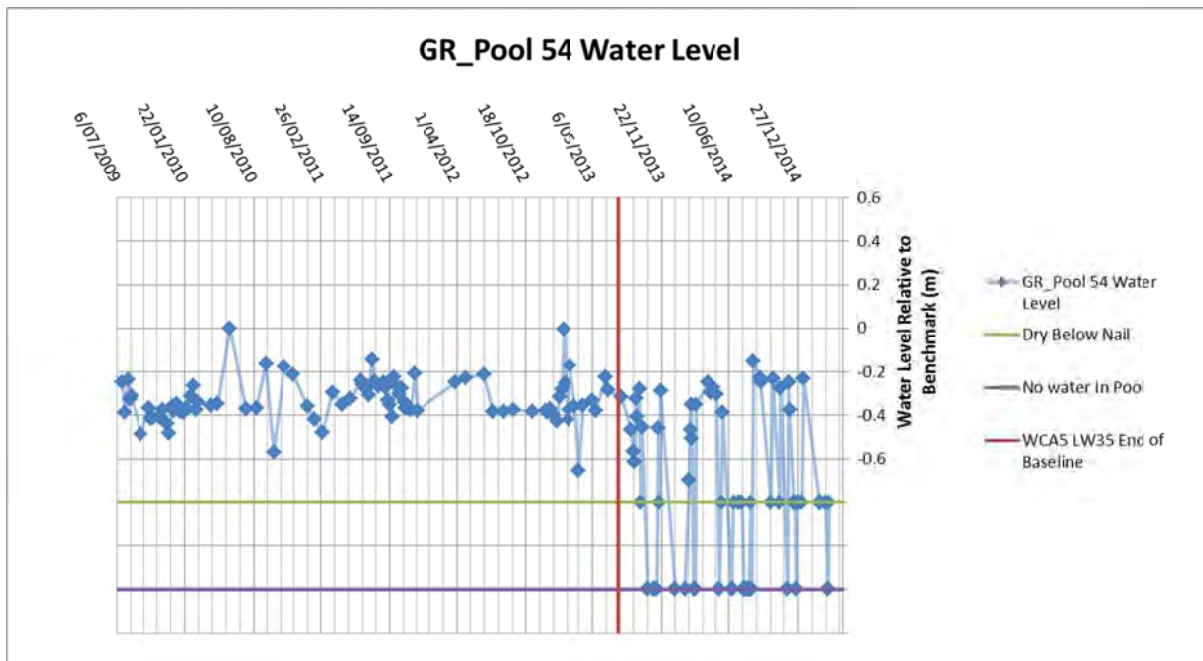
Photo 1: GR_Pool 44 looking upstream. Taken on 26/03/2015



Photo 2: GR_Pool 44 looking downstream. Taken on 26/03/2015

Update: Impact WCA5_LW35_007 (E296975, N6217204)

Water level in GR_Pool 54 remains below baseline. On the latest inspection the pool was 'Dry Below Nail' (Graph 2). This has been reported previously, is below the lowest level experienced in the baseline period and is a trigger according to the GRMP. Photos 3 and 4 show the latest pool conditions.



Graph 2: Water levels recorded in GR_Pool 54.



Photo 3: GR_Pool 54 looking upstream. Taken on 26/03/2015

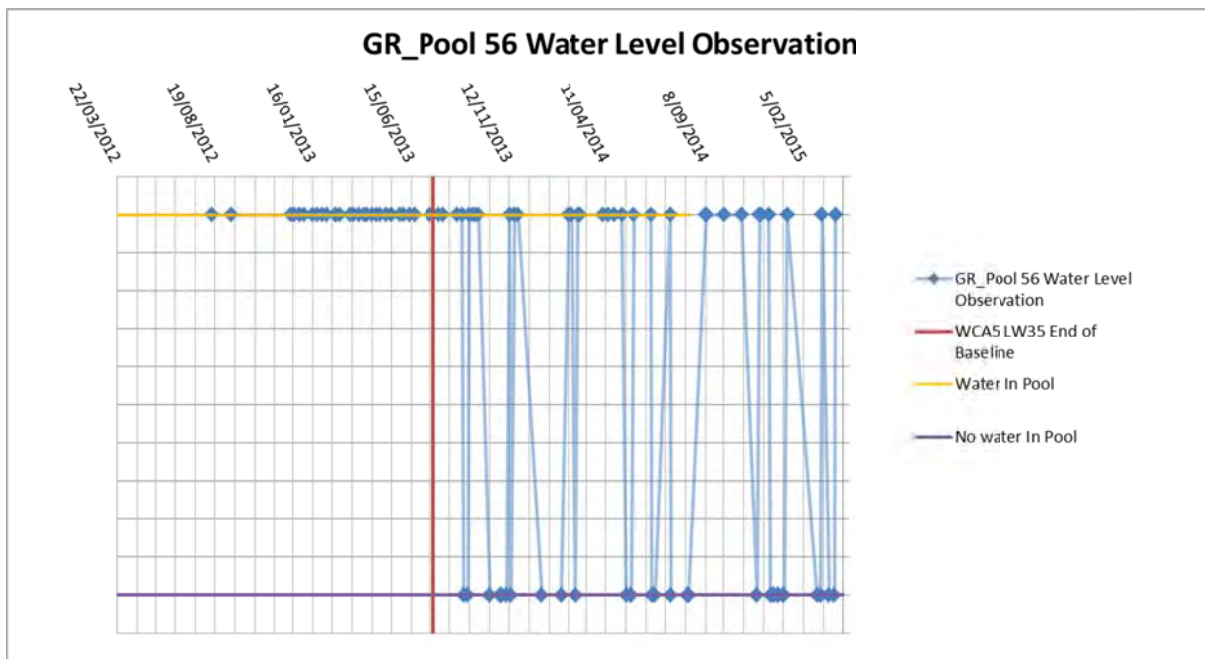


Photo 4: GR_Pool 54 looking downstream. Taken on 26/03/2015

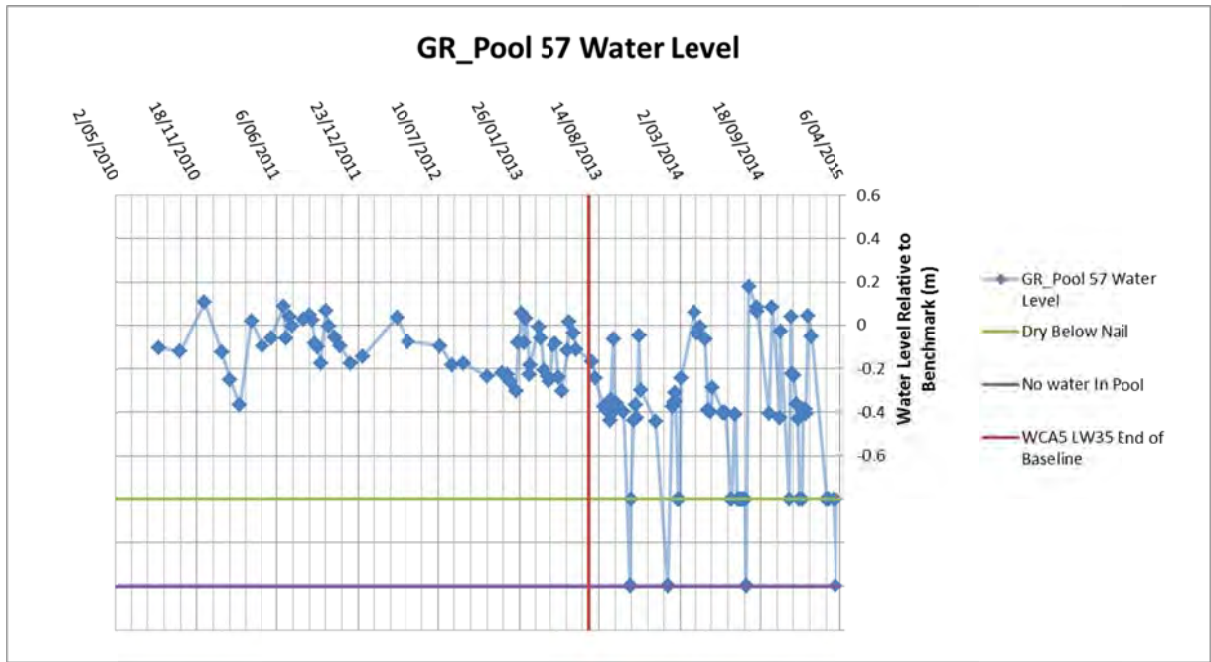
Update: Impact WCA5_LW35_012 (E296939, N6217250)

On the latest inspection GR_Pool 56 had surface water present (Graph 3). Photos 5 and 6 show the latest pool conditions.

On the latest inspection of GR_Pool 57, water level was recorded as 'Dry Below Nail' (Graph 4). This remains a trigger according to the GRMP. Photos 7 and 8 show the latest pool conditions.



Graph 3: Water levels recorded in GR_Pool 56



Graph 4: Water levels recorded in GR_Pool 57



Photo 5: GR_Pool 56 looking upstream. Taken on 26/03/2015



Photo 6: Looking downstream from GR_Pool 56. Taken on 26/03/2015

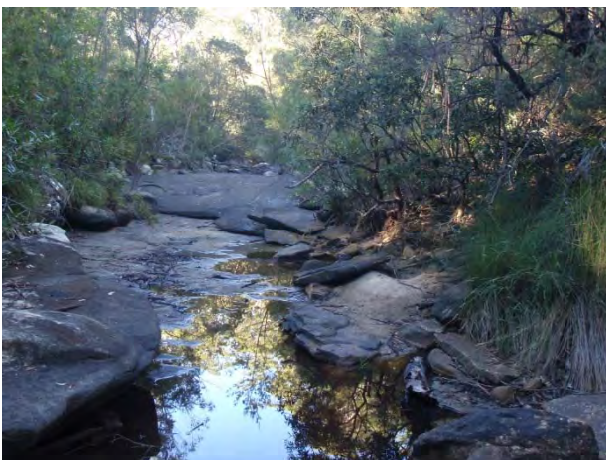


Photo 7: GR_Pool 57 looking upstream. Taken on 26/03/2015

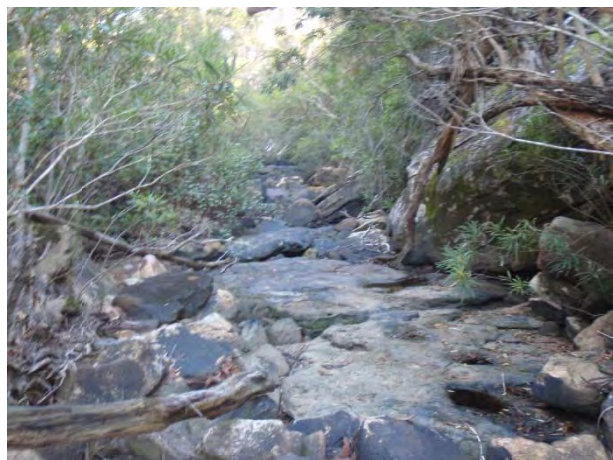
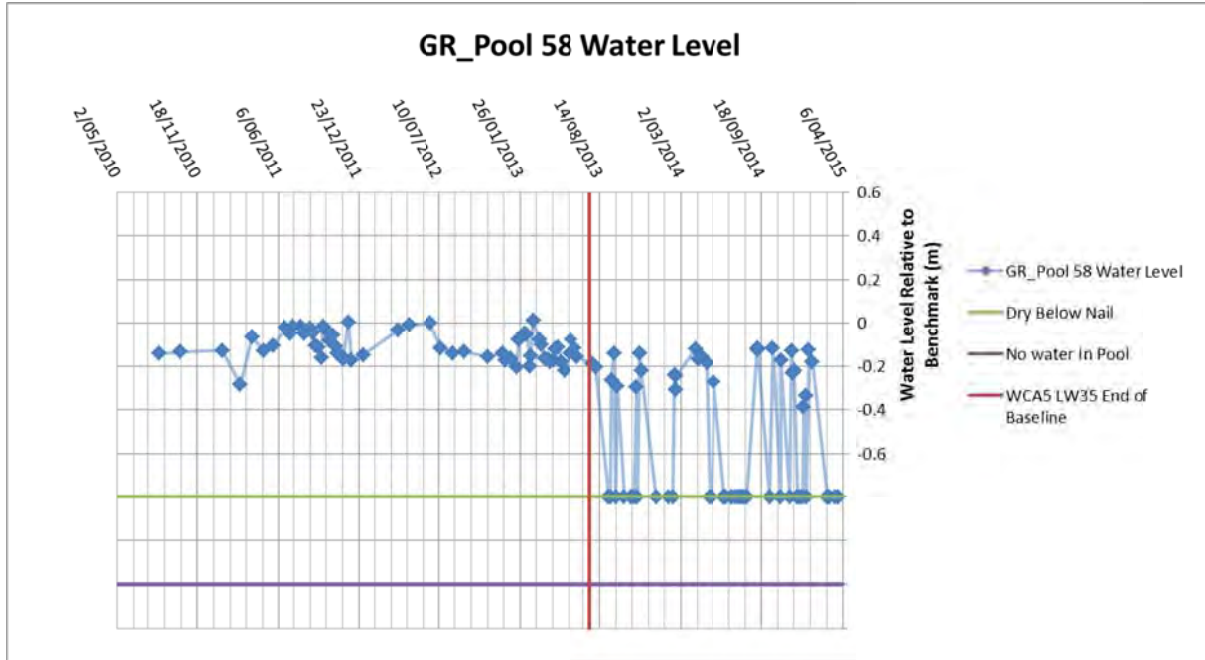


Photo 8: GR_Pool 57 looking downstream. Taken on 26/03/2015

Update: Impact WCA5_LW35_022 (E296838, N6217364)

Water level in GR_Pool 58 remains 'Dry Below Nail' (Graph 5). This has been reported previously, is below the lowest level experienced in the baseline period and is a trigger according to the GRMP. Photos 9 and 10 show the latest pool conditions.



Graph 5: Water levels recorded in GR_Pool 58

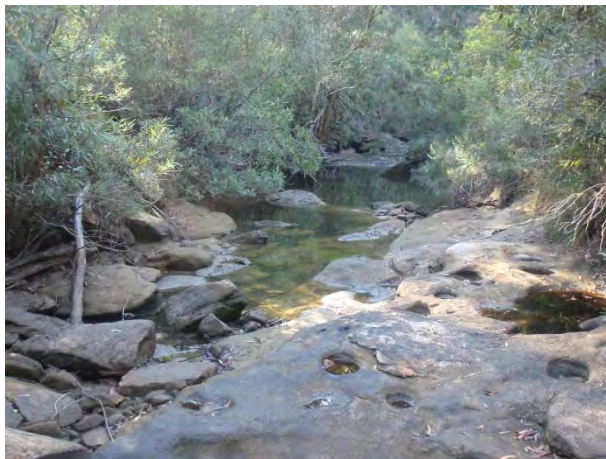


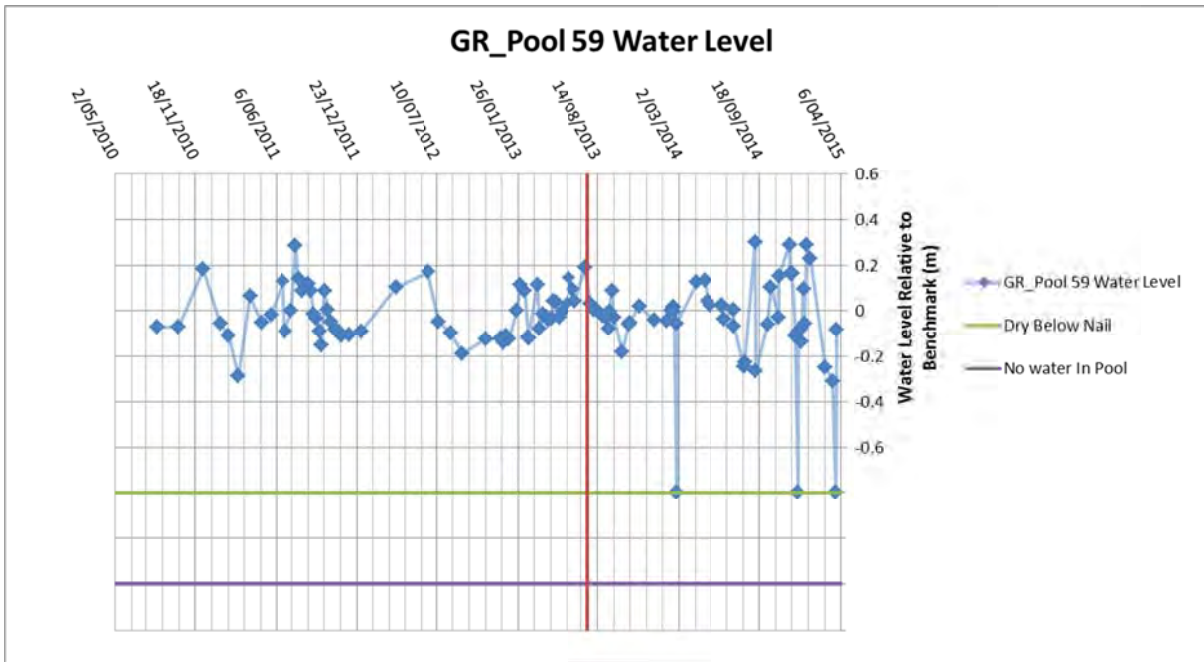
Photo 9: GR_Pool 58 looking upstream. Taken on 26/03/2015



Photo 10: GR_Pool 58 looking downstream. Taken on 26/03/2015

Update: Impact WCA5_LW35_029 (E296781, N6217482)

On the inspection carried out on 24th March 2015, water level in GR_Pool 59 was observed to be below baseline levels. This has been reported previously and is a trigger according to the GRMP. The follow up inspection on 26th March 2015 revealed that water level in the pool had returned to above baseline levels (Graph 6). Photos 11 and 12 show the latest pool conditions.



Graph 6: Water levels recorded in GR_Pool 59



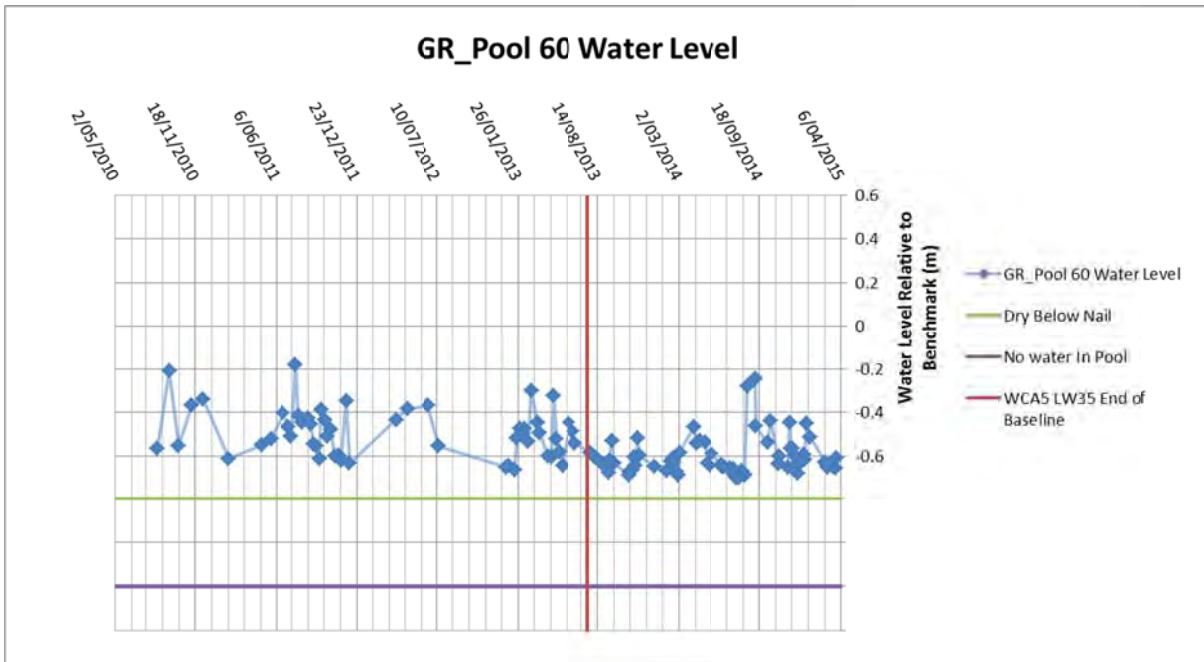
Photo 11: GR_Pool 59 looking upstream .Taken on 26/03/2015



Photo 12: GR_Pool 59 looking downstream. Taken on 26/03/2015

Update: Impact WCA5_LW35_023 (E296724, N6217605)

On the inspection carried out on 24th March 2015, water level in GR_Pool 60 was observed to be below baseline levels. This has been reported previously and is a trigger according to the GRMP. The follow up inspection on 26th March 2015 identified that water at returned to the pool above baseline levels (Graph 7). Photos 13 and 14 show the latest pool conditions.



Graph 7: Water levels recorded in GR_Pool 60



Photo 13: GR_Pool 60 looking upstream .Taken on 26/03/2015



Photo 14: GR_Pool 60 looking downstream. Taken on 26/03/2015

Trigger Action Response Plan (TARP)

Pool water levels have previously been reported as Level 2, under the Georges River Trigger Action Response Plan (Appendix A, Table 1). The following actions are being implemented:

- Continue monitoring as required by the SMP (continue twice weekly inspections);
- Release additional water from BCD (when permitted).

An assessment of pool water level reduction and draft remedial works plan to restore pool water levels has been submitted for feedback.

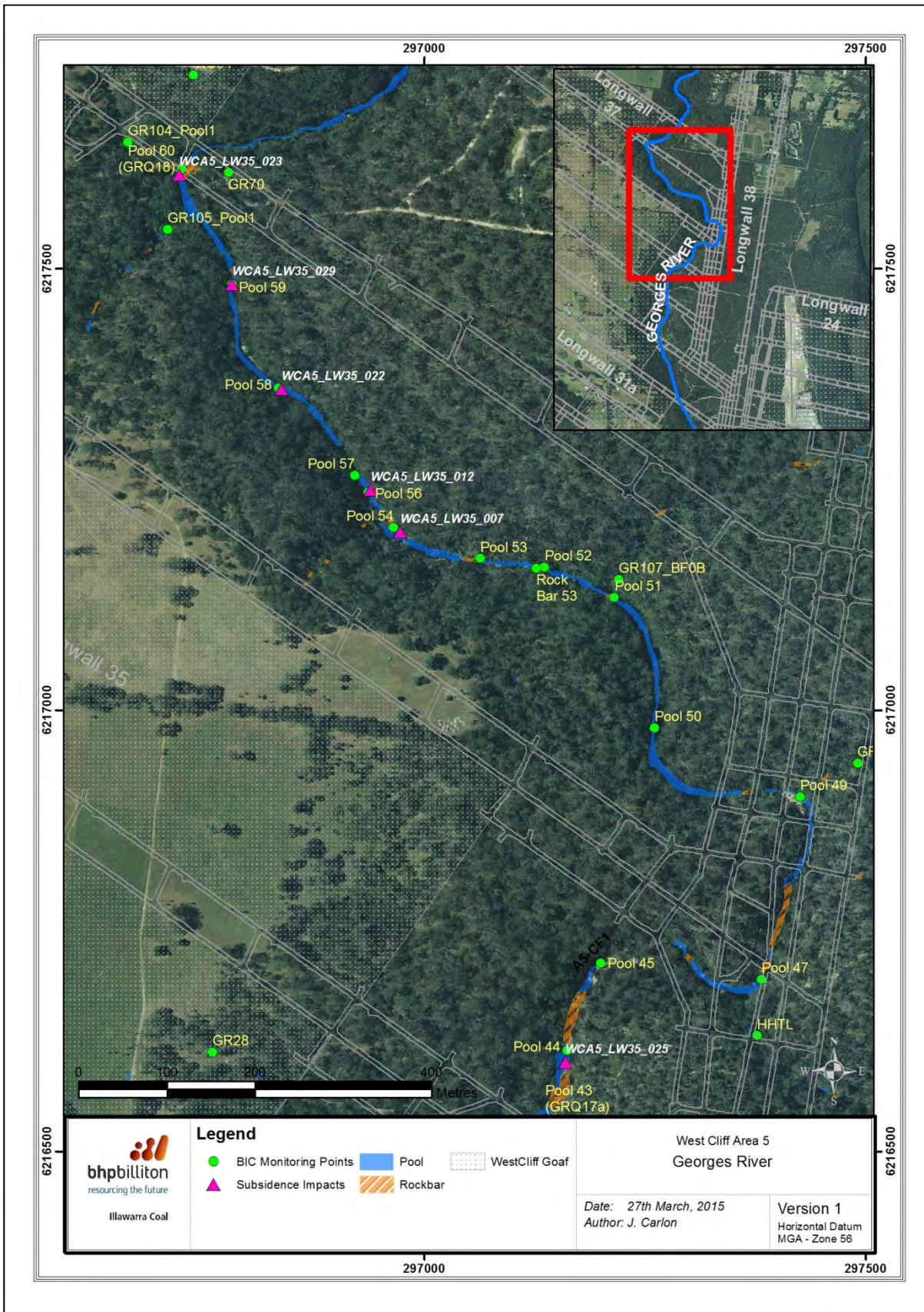


Figure 1: Sites discussed in this report, Georges.

Appendix A

Table 1: Georges River Trigger Action Response Plan

Georges River	Characteristics of level	Actions	Action by	Notification
Normal	<ul style="list-style-type: none"> • No observable mining induced fractures in rockbars or base of Georges River • No reduction in water level of mapped pools under similar flows comparing pre-mining and post-mining – pools generally full • Where no discharge from BCD occurs, Georges River becomes ephemeral - some pools drain naturally at pre-mining rate • Survey Cross Lines: <100mm closure measured 	<ul style="list-style-type: none"> • No remedial action necessary • Monthly review meeting • Continue monitoring program 	Manager Approvals	<p>None necessary</p> <p>Notify agencies for information only if BCD discharges reduce/cease and pool water levels drop due to natural causes</p>
Level 1 (Within Predicted Impact Criteria)	<ul style="list-style-type: none"> • Fracturing in rockbar or bed of the Georges River which does not cause reduction of water level in mapped pools, when comparing pre-mining baseline and post mining • Iron staining greater than pre-mining levels • Gas releases • Water chemistry parameters do not exceed first trigger point when comparing against upstream/downstream and/or pre-mining and post-mining results • Survey Cross Lines: >100mm closure measured as a result of LW35 - 36 	<ul style="list-style-type: none"> • No remedial action necessary • Monthly review meeting • Continue monitoring program • Increase Survey Monitoring Programme to weekly for all Georges River Cross Lines 	<p>Manager Approvals</p> <p>Manager Survey</p>	<p>Notify agencies of Level 1 impacts in monthly subsidence report</p>

Georges River	Characteristics of level	Actions	Action by	Notification
<p style="text-align: center;">Level 2 (Within Predicted Impact Criteria)</p>	<ul style="list-style-type: none"> • More than negligible diversion of flows or changes in the natural drainage behaviour of pools for less than 20% of the stream length subject to vertical subsidence >20mm e.g. fracturing in rockbar or bed of the Georges River which causes reduction of water level in mapped pools, which are unable to be maintained with intervention • More than negligible iron staining or gas releases for less than 20% of the stream length subject to vertical subsidence >20mm e.g. iron staining or gas releases resulting in a measurable ecological impact • More than negligible increase in water cloudiness for less than 20% of the stream length subject to vertical subsidence >20mm e.g. water cloudiness resulting in a measurable ecological impact • Survey Cross Lines: >200mm closure measured as a result of LW35 - 36 	<ul style="list-style-type: none"> • Increase monitoring/inspection frequency of key sites to twice weekly • Increase discharge from BCD to maintain pool water levels for ecosystem protection • Develop and following appropriate approvals implement remedial action such as manual crack filling with local materials e.g. sand and debris to reduce rockbar bypass flow • Review management options, including implementation of; measures to reduce the level of observed impacts and mine plan changes to ensure Level 3 impacts are not induced by future longwall(s) • Within three months of the completion of the longwall, assess the magnitude of pool water level reduction. If ongoing mining induced pool water level reduction is occurring, develop remedial works to restore pool water level. Implement remedial works as soon as subsidence movements within Area 5 that may affect the rehabilitation works are complete and appropriate approvals are in place • Develop and implement monitoring program to ensure effectiveness of remedial works if they are required 	<p>Manager Approvals</p>	<p>Notify agencies of Level 2 impacts within 24 hours of confirmation</p> <p>Notify agencies of gas release, iron staining and/or minor water quality changes in monthly report</p> <p>Confirm implementation of action(s) with agencies</p> <p>Notify relevant technical specialists</p> <p>Update progress in monthly subsidence report</p>
<p style="text-align: center;">Level 3 (Exceeding Predicted Impact)</p>	<p>Exceed Subsidence Impact Performance Measures as specified in the Bulli Seam Operations Project Approval (see Section 2 above),</p>	<ul style="list-style-type: none"> • Increase monitoring/inspection frequency of key sites to twice weekly • Increase discharge from BCD or Appin 	<p>Manager – Approvals</p>	<p>Notify agencies of Level 3 impacts within 24 hours of</p>

Georges River	Characteristics of level	Actions	Action by	Notification
Criteria)	<p>including:</p> <ul style="list-style-type: none"> • More than negligible diversion of flows or changes in the natural drainage behaviour of pools for more than 20% of the stream length subject to vertical subsidence >20mm e.g. fracturing in rockbar or bed of the Georges River which causes reduction of water levels in mapped pools, which are unable to be maintained with intervention • More than negligible iron staining or gas releases for more than 20% of the stream length subject to vertical subsidence >20mm e.g. iron staining or gas releases resulting in a measurable ecological impact • More than negligible increase in water cloudiness for more than 20% of the stream length subject to vertical subsidence >20mm e.g. water cloudiness resulting in a measurable ecological impact 	<p>East Main Dam to provide a minimum refuge water level in pools for minimum ecosystem protection</p> <ul style="list-style-type: none"> • Implement remedial action such as manual crack filling with sand or hand mortaring to reduce rockbar bypass flow • Review management options, including implementation of additional mitigation and contingencies measures to reduce the level of observed impacts (e.g. maintenance watering of aquatic plants and relocation of aquatic fauna) and mine plan changes to ensure further Level 3 impacts in other parts of the Georges River are not induced by future longwall (s) • Within three months of the completion of the longwall, assess the magnitude of pool water level reduction. If ongoing mining induced pool water level reduction is occurring, develop remedial works to restore pool water level. Implement remedial works as soon as subsidence movements within Area 5 that may affect the rehabilitation works are complete and appropriate approvals are in place • Develop and implement monitoring program to ensure effectiveness of remedial works 		<p>confirmation</p> <p>Confirm implementation of action(s) with agencies</p> <p>Notify relevant technical specialists</p> <p>Update progress in monthly subsidence report</p> <p>Provide completion report that demonstrates successful rehabilitation outcomes</p>

West Cliff Area 5 Longwall 38 Update Report 27th of April 2015

Monthly inspections of the Georges River adjacent to Longwall 32 to 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify potential subsidence impacts. Twice-weekly inspections are in place to monitor pool water levels at key sites. Inspections are conducted in accordance with the approved West Cliff Area 5 Longwalls 34 to 36 Subsidence Management Plan (SMP), West Cliff Area 5 Longwalls 37 and 38 Extraction Plan (EP) and Georges River Management Plan (GRMP).

An inspection of the Georges River was carried out on the 24th of April 2015. All pools which were previously reported with water level triggers were recorded above baseline levels. The river had very high flow and pool water levels could not be measured.

Fracturing to GR104, a tributary of Georges River, was observed. Details are included below with locations shown on Figure 1.

Pool Water Levels

Update: Impact WCA5_LW35_025 (E297159, N6216601)

GR_Pool 44 was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 1 to 4 show a comparison of the latest observed pool conditions to the previously reported low water levels.



Photo 1: GR_Pool 44 looking upstream. Taken on 26/03/2015



Photo 2: GR_Pool 44 looking downstream. Taken on 26/03/2015



Photo 3: GR_Pool 44 looking upstream. Taken on 24/04/2015

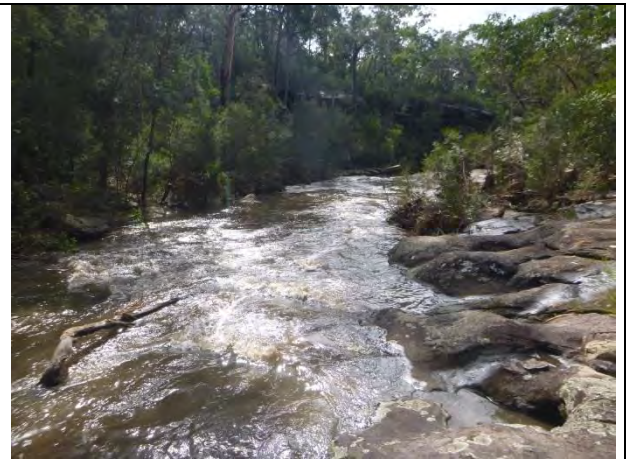


Photo 4: GR_Pool 44 looking downstream. Taken on 24/04/2015

Update: Impact WCA5_LW35_007 (E296975, N6217204)

GR_Pool 54 was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 5 to 8 show a comparison of the latest observed pool conditions to the previously reported low water levels.



Photo 5: GR_Pool 54 looking upstream. Taken on 26/03/2015



Photo 6: GR_Pool 54 looking downstream. Taken on 26/03/2015



Photo 7: GR_Pool 54 looking upstream. Taken on 24/04/2015



Photo 8: GR_Pool 54 looking downstream. Taken on 24/04/2015

Update: Impact WCA5_LW35_012 (E296939, N6217250)

GR_Pool 57¹ was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 9 to 12 show a comparison of the latest observed pool conditions to the previously reported low water levels.



Photo 9: GR_Pool 57 looking upstream. Taken on 26/03/2015



Photo 10: GR_Pool 57 looking downstream. Taken on 26/03/2015



Photo 11: GR_Pool 57 looking upstream. Taken on 24/04/2015



Photo 12: GR_Pool 57 looking downstream. Taken on 24/04/2015

Update: Impact WCA5_LW35_022 (E296838, N6217364)

GR_Pool 58 was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 13 to 16 show a comparison of the latest observed pool conditions to the previously reported low water levels.

¹ Corrected from the original report (finalised: 27/04/2015) which read GR_Pool 54 instead of the correct GR_Pool 57.



Photo 13: GR_Pool 58 looking upstream. Taken on 26/03/2015

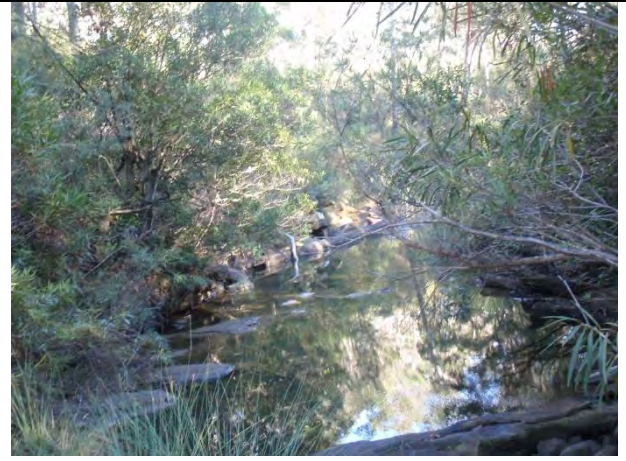


Photo 14: GR_Pool 58 looking downstream. Taken on 26/03/2015



Photo 15: GR_Pool 58 looking upstream. Taken on 24/04/2015



Photo 16: GR_Pool 58 looking downstream. Taken on 24/04/2015

Update: Impact WCA5_LW35_029 (E296781, N6217482)

GR_Pool 59 was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 17 to 20 show a comparison of the latest observed pool conditions to the previously reported low water levels.



Photo 17: GR_Pool 59 looking upstream. Taken on 26/03/2015

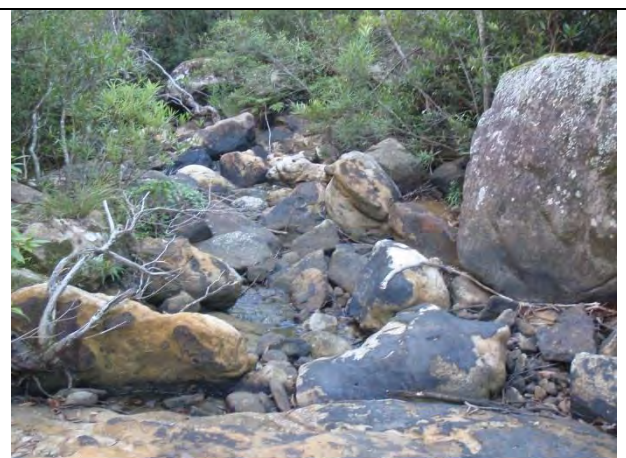


Photo 18: GR_Pool 59 looking downstream. Taken on 26/03/2015



Photo 19: GR_Pool 59 looking upstream. Taken on 24/04/2015



Photo 20: GR_Pool 59 looking downstream. Taken on 24/04/2015

Update: Impact WCA5_LW35_023 (E296724, N6217605)

GR_Pool 60 was observed to have high water level and flow. The water level was above the lowest level experienced in the baseline period. Photos 21 to 24 show a comparison of the latest observed pool conditions to the previously reported low water levels.



Photo 21: GR_Pool 60 looking upstream. Taken on 26/03/2015



Photo 22: GR_Pool 60 looking downstream. Taken on 26/03/2015



Photo 23: GR_Pool 60 looking upstream. Taken on 24/04/2015



Photo 24: GR_Pool 60 looking downstream. Taken on 24/04/2015

Rock Fracturing

Impact WCA5_LW38_001

Fracturing to a rockbar of tributary GR104 downstream from Impact WCA5_LW36_001 was identified during the inspection on 24 April 2015. The downstream section of the fracturing is up to 3m long and extends under a small step on the rockbar (Photo 25). Rock fragments up to 0.05m³ have been dislodged and transported downstream (Photos 26 and 27). The upstream section of the fracturing is up to 4m long, extending across the rockbar and under sediment on the southern bank of the tributary (Photos 28 to 30). Rock fragments up to 0.08m³ have been dislodged during the recent flood event.

Much of the vegetation and debris which covered the rockbar was removed during the flood event which enabled the rockbar and associated fracturing to be identified. It is likely that the fracturing occurred during the previous longwall.



Photo 25: WCA5_LW38_001- fracturing and uplift, looking across stream. Taken on 24/04/2015



Photo 26: WCA5_LW38_001- fracturing with dislodged rock fragment. Taken on 24/04/2015



Photo 27: WCA5_LW38_001- fracturing and dislodged fragments, looking downstream. Taken on 24/04/2015



Photo 28: WCA5_LW38_001- upstream section of fracturing, looking across stream. Taken on 24/04/2015



Photo 29: WCA5_LW38_001- upstream section of fracturing and dislodged rock, looking across stream. Taken on 24/04/2015



Photo 30: WCA5_LW38_001- upstream section of fracturing, extending in to sediment. Taken on 24/04/2015

Update: Impact WCA5_LW36_001

Fracturing and uplift to site GR104_Pool 1 was initially identified 19 September 2014. On the latest inspection changes to the fracturing were identified. The fracturing is now up to 4.5m long with multiple sections of uplift (Photos 31 to 33). Fractured rocks up to 0.07m³ have been dislodged and transported downstream due to the recent flood event (Photo 34). It is likely that the *recent* changes to this fracturing are due to the flood event and not additional subsidence. Flow is subsurface through the fracturing.



Photo 31: WCA5_LW36_001- fracturing and uplift looking upstream. Taken on 24/04/2015



Photo 32: WCA5_LW36_001- fracturing and uplift looking upstream. Taken on 24/04/2015



Photo 33: WCA5_LW36_001- fracturing to incised bedding plane. Taken on 24/04/2015



Photo 34: WCA5_LW36_001- dislodged rock fragment, looking downstream. Taken on 24/04/2015

Trigger Action Response Plan (TARP)

Pool water levels in the Georges River are above baseline levels. As a result, monitoring will revert to the schedule in the Georges River Management Plan (GRMP) and West Cliff LW37 and 38 Extraction Plan (EP).

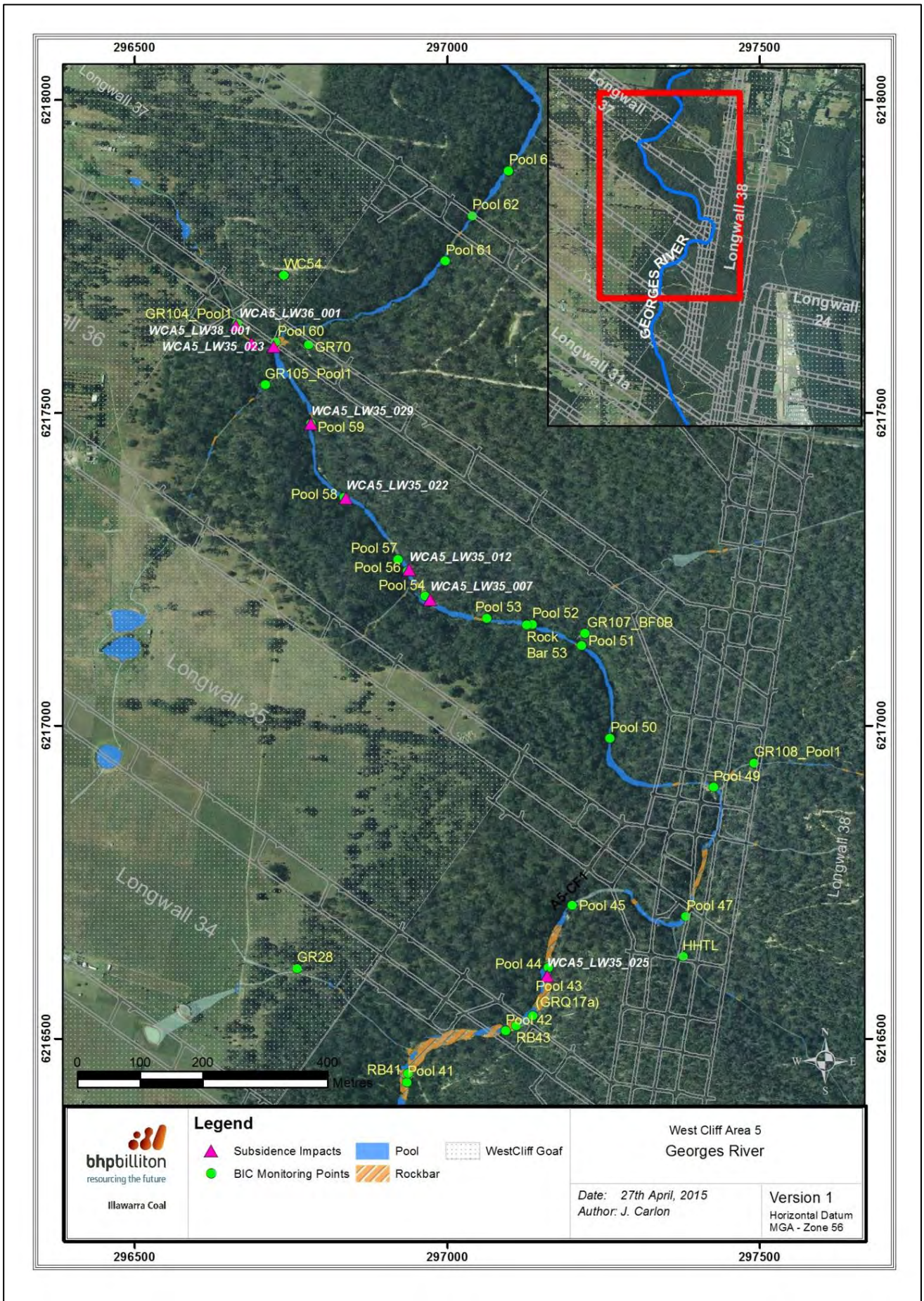


Figure 1: Sites discussed in this report, Georges River.

Appendix A

Table 1: Georges River Trigger Action Response Plan

Georges River	Characteristics of level	Actions	Action by	Notification
Normal	<ul style="list-style-type: none"> • No observable mining induced fractures in rockbars or base of Georges River • No reduction in water level of mapped pools under similar flows comparing pre-mining and post-mining – pools generally full • Where no discharge from BCD occurs, Georges River becomes ephemeral - some pools drain naturally at pre-mining rate • Survey Cross Lines: <100mm closure measured 	<ul style="list-style-type: none"> • No remedial action necessary • Monthly review meeting • Continue monitoring program 	Manager Approvals	<p>None necessary</p> <p>Notify agencies for information only if BCD discharges reduce/cease and pool water levels drop due to natural causes</p>
Level 1 (Within Predicted Impact Criteria)	<ul style="list-style-type: none"> • Fracturing in rockbar or bed of the Georges River which does not cause reduction of water level in mapped pools, when comparing pre-mining baseline and post mining • Iron staining greater than pre-mining levels • Gas releases • Water chemistry parameters do not exceed first trigger point when comparing against upstream/downstream and/or pre-mining and post-mining results • Survey Cross Lines: >100mm closure measured as a result of LW35 - 36 	<ul style="list-style-type: none"> • No remedial action necessary • Monthly review meeting • Continue monitoring program • Increase Survey Monitoring Programme to weekly for all Georges River Cross Lines 	<p>Manager Approvals</p> <p>Manager Survey</p>	<p>Notify agencies of Level 1 impacts in monthly subsidence report</p>

Georges River	Characteristics of level	Actions	Action by	Notification
<p style="text-align: center;">Level 2 (Within Predicted Impact Criteria)</p>	<ul style="list-style-type: none"> • More than negligible diversion of flows or changes in the natural drainage behaviour of pools for less than 20% of the stream length subject to vertical subsidence >20mm e.g. fracturing in rockbar or bed of the Georges River which causes reduction of water level in mapped pools, which are unable to be maintained with intervention • More than negligible iron staining or gas releases for less than 20% of the stream length subject to vertical subsidence >20mm e.g. iron staining or gas releases resulting in a measurable ecological impact • More than negligible increase in water cloudiness for less than 20% of the stream length subject to vertical subsidence >20mm e.g. water cloudiness resulting in a measurable ecological impact • Survey Cross Lines: >200mm closure measured as a result of LW35 - 36 	<ul style="list-style-type: none"> • Increase monitoring/inspection frequency of key sites to twice weekly • Increase discharge from BCD to maintain pool water levels for ecosystem protection • Develop and following appropriate approvals implement remedial action such as manual crack filling with local materials e.g. sand and debris to reduce rockbar bypass flow • Review management options, including implementation of; measures to reduce the level of observed impacts and mine plan changes to ensure Level 3 impacts are not induced by future longwall(s) • Within three months of the completion of the longwall, assess the magnitude of pool water level reduction. If ongoing mining induced pool water level reduction is occurring, develop remedial works to restore pool water level. Implement remedial works as soon as subsidence movements within Area 5 that may affect the rehabilitation works are complete and appropriate approvals are in place • Develop and implement monitoring program to ensure effectiveness of remedial works if they are required 	<p>Manager Approvals</p>	<p>Notify agencies of Level 2 impacts within 24 hours of confirmation</p> <p>Notify agencies of gas release, iron staining and/or minor water quality changes in monthly report</p> <p>Confirm implementation of action(s) with agencies</p> <p>Notify relevant technical specialists</p> <p>Update progress in monthly subsidence report</p>
<p style="text-align: center;">Level 3 (Exceeding Predicted Impact)</p>	<p>Exceed Subsidence Impact Performance Measures as specified in the Bulli Seam Operations Project Approval (see Section 2 above),</p>	<ul style="list-style-type: none"> • Increase monitoring/inspection frequency of key sites to twice weekly • Increase discharge from BCD or Appin 	<p>Manager – Approvals</p>	<p>Notify agencies of Level 3 impacts within 24 hours of</p>

Georges River	Characteristics of level	Actions	Action by	Notification
Criteria)	<p>including:</p> <ul style="list-style-type: none"> • More than negligible diversion of flows or changes in the natural drainage behaviour of pools for more than 20% of the stream length subject to vertical subsidence >20mm e.g. fracturing in rockbar or bed of the Georges River which causes reduction of water levels in mapped pools, which are unable to be maintained with intervention • More than negligible iron staining or gas releases for more than 20% of the stream length subject to vertical subsidence >20mm e.g. iron staining or gas releases resulting in a measurable ecological impact • More than negligible increase in water cloudiness for more than 20% of the stream length subject to vertical subsidence >20mm e.g. water cloudiness resulting in a measurable ecological impact 	<p>East Main Dam to provide a minimum refuge water level in pools for minimum ecosystem protection</p> <ul style="list-style-type: none"> • Implement remedial action such as manual crack filling with sand or hand mortaring to reduce rockbar bypass flow • Review management options, including implementation of additional mitigation and contingencies measures to reduce the level of observed impacts (e.g. maintenance watering of aquatic plants and relocation of aquatic fauna) and mine plan changes to ensure further Level 3 impacts in other parts of the Georges River are not induced by future longwall (s) • Within three months of the completion of the longwall, assess the magnitude of pool water level reduction. If ongoing mining induced pool water level reduction is occurring, develop remedial works to restore pool water level. Implement remedial works as soon as subsidence movements within Area 5 that may affect the rehabilitation works are complete and appropriate approvals are in place • Develop and implement monitoring program to ensure effectiveness of remedial works 		<p>confirmation</p> <p>Confirm implementation of action(s) with agencies</p> <p>Notify relevant technical specialists</p> <p>Update progress in monthly subsidence report</p> <p>Provide completion report that demonstrates successful rehabilitation outcomes</p>

Table 2: West Cliff Area 5 Longwall 37 and 38 Water TARP

Monitoring	Trigger	Action
WATER QUALITY		
Adjacent and downstream sites for Longwalls 37 and 38. <ul style="list-style-type: none"> • Georges River: <ul style="list-style-type: none"> - Pool 54 - Pool 64 - GR100 	Level 1 * <ul style="list-style-type: none"> • Temporary reduction in water quality (observed for 2 consecutive months) at any site when comparing the baseline period to mining period for that site i.e. : <ul style="list-style-type: none"> - pH drop between 0.5 and 1.0 units from the minimum baseline value 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR
	Level 2 * <ul style="list-style-type: none"> • Temporary reduction in water quality (observed for 2 consecutive months) at any site when comparing the baseline period to mining period for that site i.e.: <ul style="list-style-type: none"> - pH drop between 1.0 and 1.5 units from the minimum baseline value 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 1</i> • Review monitoring program • Notify relevant technical specialists and seek advice on any CMA required • Implement agreed CMAs as approved <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts</i></p>
	Level 3 * <ul style="list-style-type: none"> • Reduction in water quality (observed for more than 2 consecutive months) when comparing the baseline period to mining period for that site i.e.: <ul style="list-style-type: none"> - pH drop of 1.5 units from the minimum baseline value 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 2</i> • Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required • Invite stakeholders for site visit • Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> - Emplacement of sandstone rocks in constricted stream flow areas to increase the aeration capacity where it is appropriate to do so - Grouting of fractures which result in flow diversion • Completion of works following approvals • Issue CMA report within 1 month of works completion • Review the TARP and Management Plan in consultation with key stakeholders <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts</i></p>
	Exceeding Performance Measures <ul style="list-style-type: none"> • Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 3</i> • Investigate reasons for the exceedance • Update future predictions based on outcomes of the investigation • Provide environmental offset if CMAs are unsuccessful

Monitoring	Trigger	Action
GROUNDWATER		
<p>BHPBIC Piezometers:</p> <ul style="list-style-type: none"> • GR27 • GR28 • GR29 • GR70 • WC54 • WC95 <p>Private bores:</p> <ul style="list-style-type: none"> • GW32310 • GW72454 • GW105921 • GW108322 <p>Mine water budget</p>	<p>Level 1 *</p> <ul style="list-style-type: none"> • Increase in water flow from the goaf between 2.7-3 ML/day (20 day average) • 5.0 – 7.5 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period <p>Level 2 *</p> <ul style="list-style-type: none"> • Rise in water flow from the goaf between 3-3.4ML (20 day average) • 7.5 – 10 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period <p>Level 3 *</p> <ul style="list-style-type: none"> • Abnormal rise in water flow from the goaf >3.4ML (20 day average) • >10m reduction in the Hawkesbury Sandstone standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period • Total loss of groundwater level within a private bore <p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> • Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR <hr/> <ul style="list-style-type: none"> • <i>Actions as stated for Level 1</i> • Review monitoring program • Review impacts against the Performance Measures • Notify relevant technical specialists and seek advice on any CMA required • Implement agreed CMAs as approved <hr/> <ul style="list-style-type: none"> • <i>Actions as stated for Level 2</i> • Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required • Invite stakeholders for site visit • Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> - Any actions agreed to in the Property Subsidence Management Plan - Provision of alternate water supply where this has been impacted by mining • Completion of works following approvals • Issue CMA report within 1 month of works completion • Review the TARP and Management Plan in consultation with key stakeholders <hr/> <ul style="list-style-type: none"> • <i>Actions as stated for Level 3</i> • Investigate reasons for the exceedance • Update future predictions based on outcomes of the investigation • Provide environmental offset if CMAs are unsuccessful
APPEARANCE AND POOL WATER LEVEL		
<p>Georges River:</p> <ul style="list-style-type: none"> • All mapped pools in the mining area 	<p>Level 1 *</p> <ul style="list-style-type: none"> • Fracturing with no observable surface water diversion • Pool water level lower than baseline in any mapped pool located in the mining area (within 400m of the longwall) • Increase in turbidity, iron staining, algal growth, or other visible water quality parameters determined by comparing baseline photos with photos during the mining period 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR

Monitoring	Trigger	Action
	<p>Level 2 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in the majority of mapped pools located in the mining area (within 400m of the longwall) Fracturing with observable surface water diversion 	<ul style="list-style-type: none"> Actions as stated for Level 1 Review monitoring program Review impacts against the Performance Measures Notify relevant technical specialists and seek advice on any CMA required Implement agreed CMAs as approved <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Level 3 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in all mapped pools in the mining area (within 400m of the longwall) Fracturing with observable water diversion results in any mapped pool becoming dry during a mitigation flow in the River 	<ul style="list-style-type: none"> Actions as stated for Level 2 Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required Invite stakeholders for site visit Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> Grouting of fractures which result in flow diversion Completion of works following approvals Issue CMA report within 1 month of works completion Review the TARP and Management Plan in consultation with key stakeholders <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> More than negligible diversion of flows or changes in the natural drainage behaviour of pools over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in water cloudiness over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in iron staining over more than 20% of the stream length subject to vertical subsidence >20mm Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> Actions as stated for Level 3 Investigate reasons for the exceedance Update future predictions based on outcomes of the investigation Provide environmental offset if CMAs are unsuccessful

APPEARANCE AND POOL WATER LEVEL

Georges River:

- All mapped pools in the mining area

Level 1 *

- Fracturing with no observable surface water diversion
- Pool water level lower than baseline in any mapped pool located in the mining area (within 400m of the longwall)
- Increase in turbidity, iron staining, algal growth, or other visible water quality parameters determined by comparing baseline photos with photos during the mining period

- Continue monitoring program
- Report trigger to key stakeholders
- Summarise impacts and report in the End of Panel Report and AEMR

Level 2 *

- Pool water level lower than baseline in the majority of mapped pools located in the mining area (within 400m of the longwall)
- Fracturing with observable surface water diversion

- *Actions as stated for Level 1*
 - Review monitoring program
 - Review impacts against the Performance Measures
 - Notify relevant technical specialists and seek advice on any CMA required
 - Implement agreed CMAs as approved
- Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs*

Level 3 *

- Pool water level lower than baseline in all mapped pools in the mining area (within 400m of the longwall)
- Fracturing with observable water diversion results in any mapped pool becoming dry during a mitigation flow in the River

- *Actions as stated for Level 2*
 - Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required
 - Invite stakeholders for site visit
 - Develop site CMA (subject to stakeholder feedback). This may include:
 - Grouting of fractures which result in flow diversion
 - Completion of works following approvals
 - Issue CMA report within 1 month of works completion
 - Review the TARP and Management Plan in consultation with key stakeholders
- Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs*

	<p><i>Exceeding Performance Measures</i></p> <ul style="list-style-type: none"> • More than negligible diversion of flows or changes in the natural drainage behaviour of pools over more than 20% of the stream length subject to vertical subsidence >20mm • More than negligible increase in water cloudiness over more than 20% of the stream length subject to vertical subsidence >20mm • More than negligible increase in iron staining over more than 20% of the stream length subject to vertical subsidence >20mm • Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 3</i> • Investigate reasons for the exceedance • Update future predictions based on outcomes of the investigation • Provide environmental offset if CMAs are unsuccessful
--	---	---

* These may be revised in consultation with DP&I and DPI and other key stakeholders following analysis of natural variability within the pre-mining baseline data. These TARPs relate to West Cliff Area 5 Longwalls 37 and 38.

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection was carried out on the 3rd of August 2015. Two zones of fracturing were identified within GR108, a tributary of the Georges River (Figure 1).

Impact WCA5_LW38_002 (297635, 6216932)

Fracturing and extension of a bedding plane has been identified within Rockbar 6A of the tributary GR108. Maximum fracture measurements within the rockbar were approximately 1.4m long, 0.008m wide and 0.002m deep (Photos **Photo 1** and **Photo 2**). Extension of a bedding plane measured approximately 0.7m long, 0.008m wide and at least 0.025m deep (Photo 3). No flow was present at the time of inspection and minor iron staining was evident at the rockbar (**Photo 1**).



Photo 1 : WCA5_LW38_002 – Fracturing perpendicular to bedding plane. Taken on 03/08/2015.



Photo 2: WCA5_LW38_002 – Fracturing perpendicular to bedding plane. Taken on 03/08/2015.



Photo 3: WCA5_LW38_002 – Extension along bedding plane. Taken on 03/08/2015

Impact WCA5_LW38_003 (297520, 6216944)

A zone of fracturing and uplift has been identified within Channel 2 of tributary GR108 (Photo 4). The zone of fracturing is approximately 10m long by 2m wide (20m^2). Maximum length of fracturing is approximately 10m, with a width of 0.015m and a maximum measurable depth of 0.25m (Photos Photo 5 and Photo 6). Uplift is approximately 4m long, with 0.032m of uplift (Photos Photo 7 and Photo 8). No flow was present at the time of inspection, no iron staining was visible.



Photo 4: WCA5_LW38_003 – Fracturing and uplift within Channel 2. Taken on 03/08/2015.



Photo 5: WCA5_LW38_003 – Length of fracturing within Channel 2. Taken on 03/08/2015.



Photo 6: WCA5_LW38_003 – Widest and deepest crack within Channel 2. Taken on 03/08/2015.



Photo 7: WCA5_LW38_003 – Longest section of uplift within fracture zone. Taken on 03/08/2015.



Photo 8: WCA5_LW38_003 – Maximum uplift within fracture zone. Taken on 03/08/2015.

Table 1: Subsidence impacts recorded during Longwall 38, West Cliff Area 5. Highlighted cells show latest impacts.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel

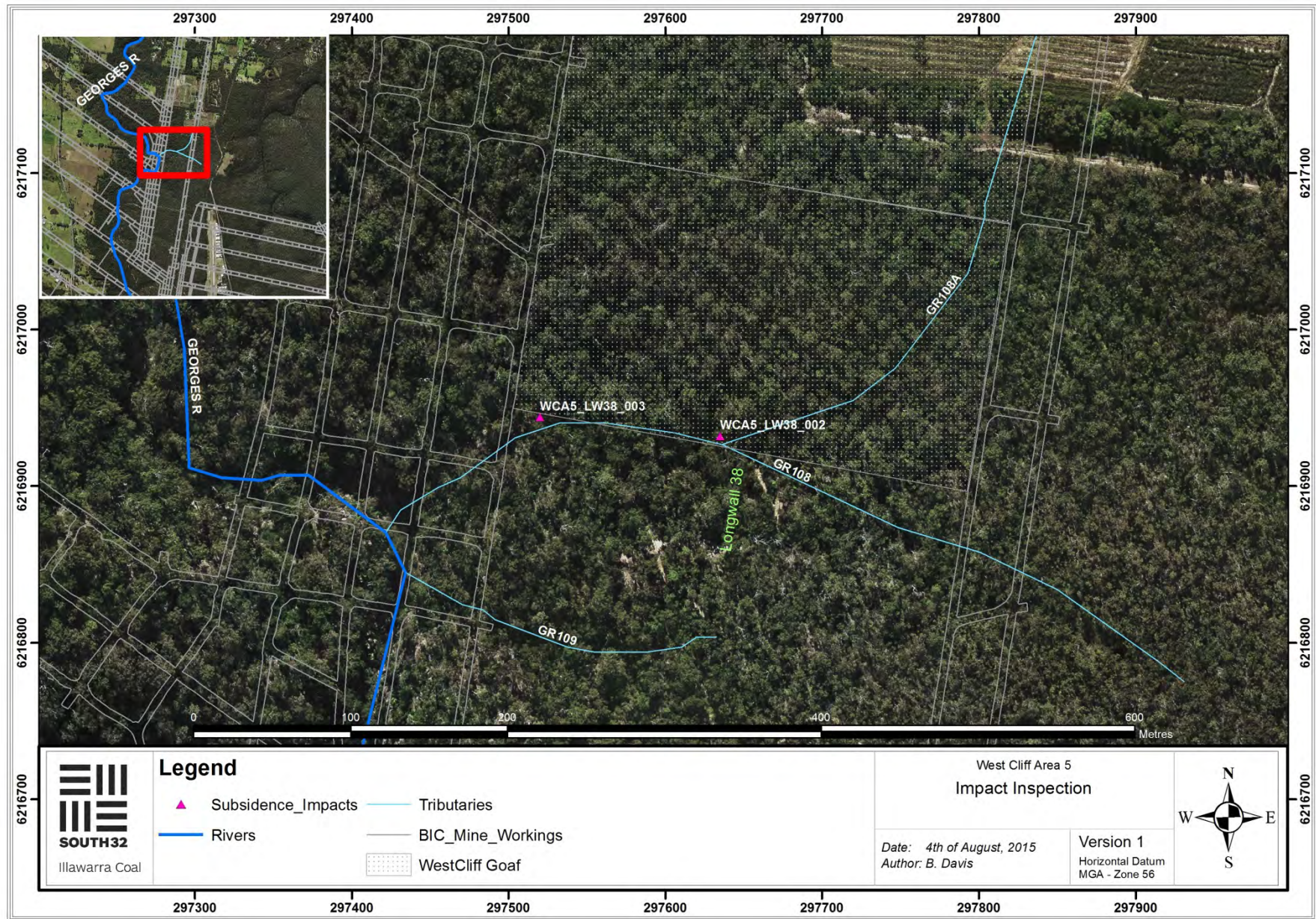


Figure 1: Location of impacts relative to West Cliff Area 5 mining operations

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Post-mining inspections are also being conducted on Mallaty Creek. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

Inspections were carried on Mallaty Creek and the surface over Longwall 38 on 19th and 20th August respectively. Iron staining was observed in Mallaty creek, and a zone of fracturing was identified within GR108, a tributary of the Georges River (Figure 1 and 2 respectively). Recent impacts recorded during Longwall 38 are summarised in Table 1.

Mallaty Creek- Impact WCA5_LW38_004 (295185, 6217721)

Iron staining was observed originating from a seepage point adjacent to pool MC107 (Photos 1). The iron staining extends downstream along Mallaty Creek for approximately 400m until the upstream end of pool MC120 (Photos 2 to 5). No fracturing or change in surface flow conditions was observed. Monitoring and reporting will continue as required with results included in the End of Panel Report and AEMR.



Photo 1: WCA5_LW38_004 – Iron staining- point of origin at MC107, looking downstream. Taken on 19/08/2015.



Photo 2: WCA5_LW38_004 – Iron staining observed upstream from pool MC108, looking downstream. Taken on 19/08/2015.



Photo 3: WCA5_LW38_004 – Iron staining observed at pool MC108, looking upstream. Taken on 19/08/0215.



Photo 4: WCA5_LW38_004 – Iron staining observed at pool MC109, looking downstream. Taken on 19/08/0215.



Photo 5: WCA5_LW38_004 – most downstream point of visible iron, pool MC120. Taken on 19/08/0215.

Tributary GR108- Impact WCA5_LW38_005 (297454, 6216920)

A zone of fracturing and uplift has been identified on tributary GR108, downstream from monitoring site GR108_Pool 1. The fracturing covers an area of approximately 3m², with the largest fracture approximately 1.2m long with uplift of 0.03m (Photo 6). The fracture extends under a water filled pothole with no active flow diversion evident (Photos 7 and 8). Some iron staining was also evident, originating from further upstream and previously reported. Monitoring and reporting will continue as required with results included in the End of Panel Report and AEMR.



Photo 6: WCA5_LW38_005 – Fracturing and uplift on tributary GR108. Taken on 20/08/2015.



Photo 7: WCA5_LW38_005 – Fracturing and uplift on tributary GR108. Taken on 20/08/2015.



Photo 8: WCA5_LW38_005 – Fracturing and uplift on tributary GR108. Taken on 20/08/2015.

Table 1: Subsidence impacts recorded during Longwall 38, West Cliff Area 5. Highlighted cells show latest impacts.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108

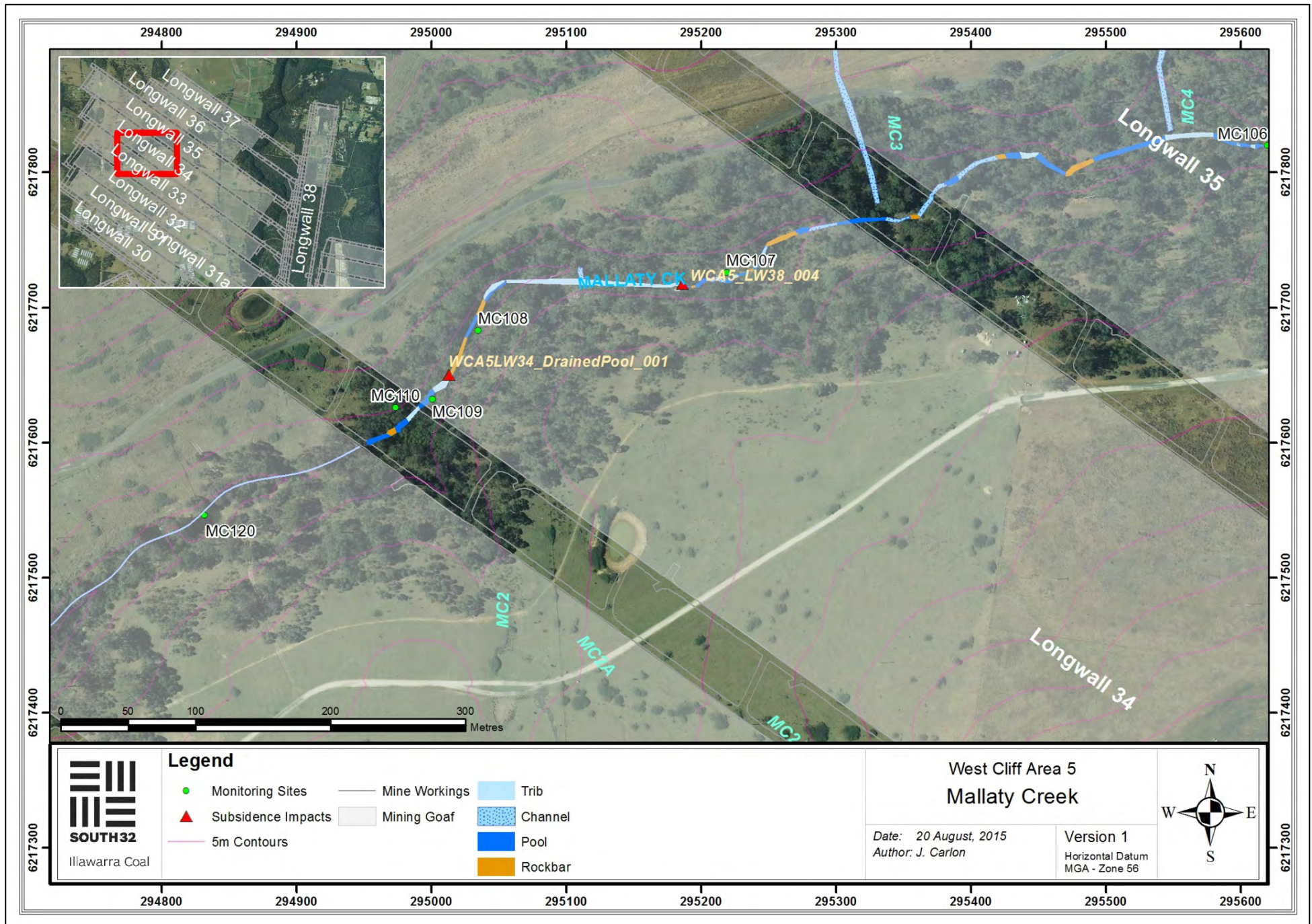


Figure 1: Mallaty Creek- Location of impacts relative to West Cliff Area 5 mining operations. Mallaty Creek drains to Nepean River.

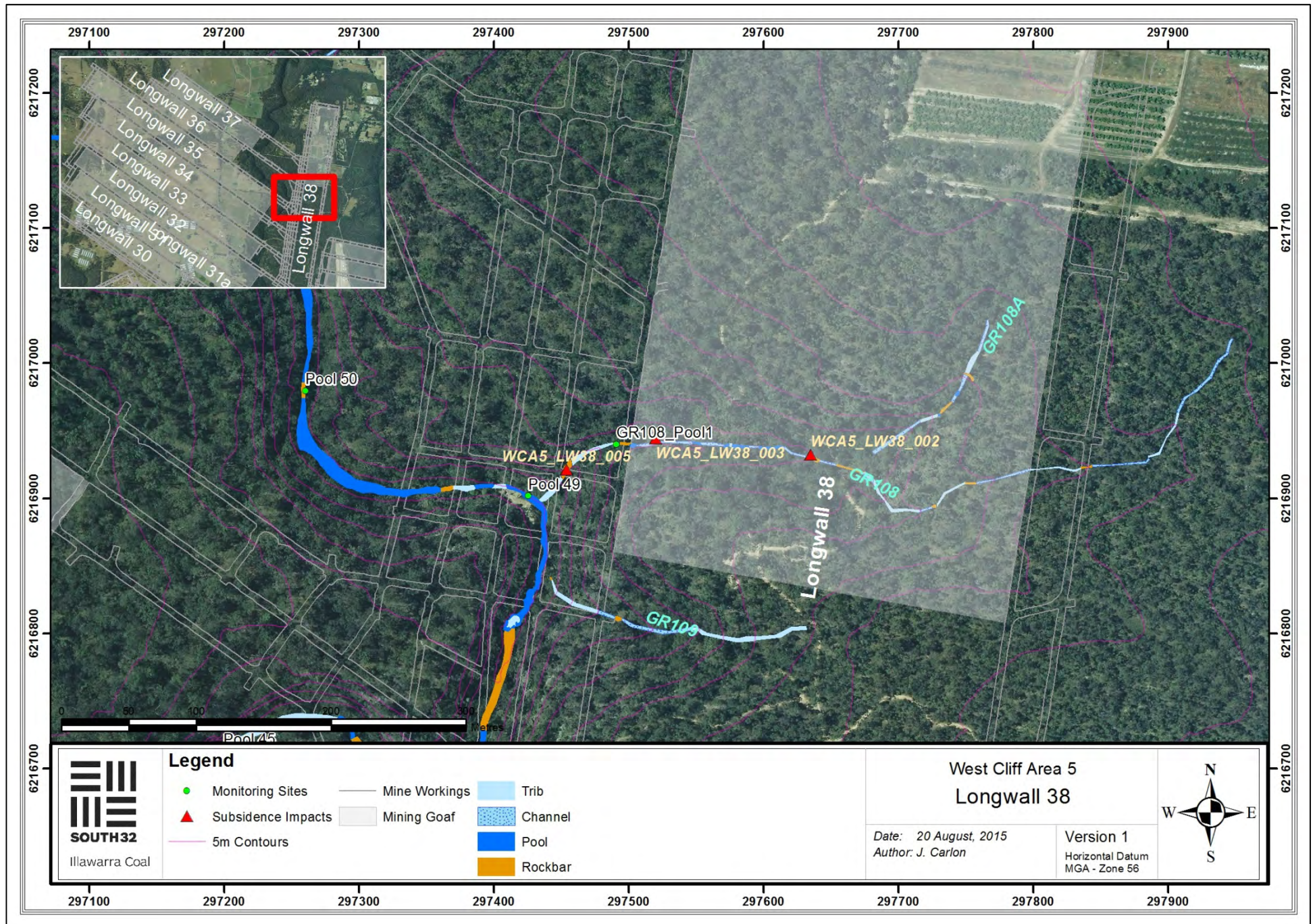


Figure 2: Tributary GR108- Location of impacts relative to West Cliff Area 5 mining operations. GR108 drains to Georges River.

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection was carried out on the 25th of September 2015. Soil cracking was identified on a fire trail adjacent to the Georges River (Figure 1).

Impact WCA5_LW38_006 (297646, 6216722)

Soil cracking was identified along a fire trail adjacent to the Georges River. The crack extended across the fire trail for approximately 3m, with a maximum width of 0.01m and measurable depth of 0.08m. The cracking appears stable and is not expected to result in erosion. The crack does not pose any hazard to people walking along the track. Monitoring and reporting will continue as required with results included in the End of Panel Report and AEMR.



Photo 1: WCA5_LW38_006 – Soil crack looking across the fire trail. Taken on 25/9/15



Photo 2: WCA5_LW38_006 – Soil crack at its widest point. Taken on 25/9/15

Table 1: Subsidence impacts recorded during Longwall 38, West Cliff Area 5. Highlighted cells show latest impacts.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road

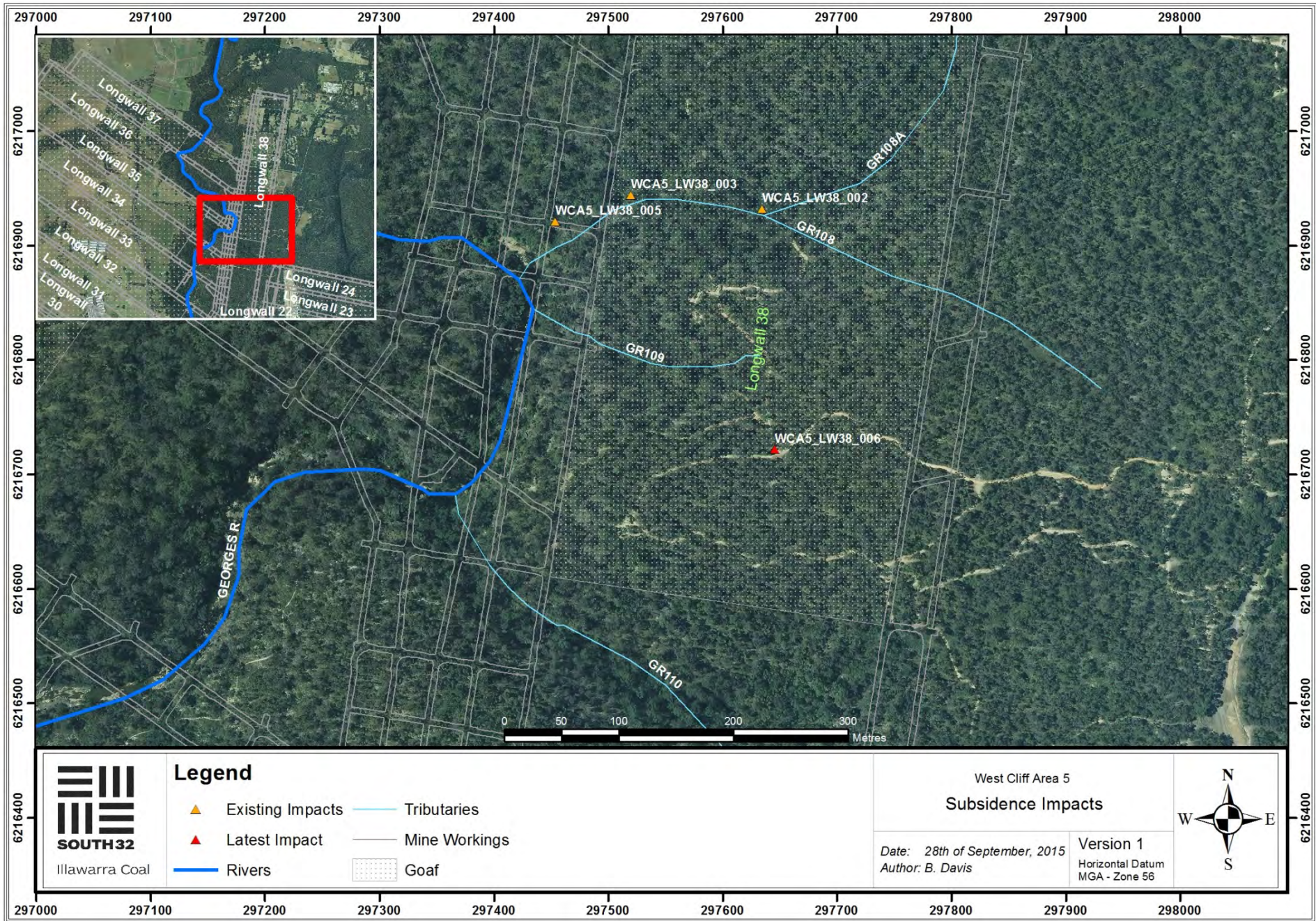


Figure 1: Location of impacts relative to West Cliff Area 5 mining operations

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection was carried out on the 2nd of October 2015. Rock fracturing and loss of surface flow was identified within a tributary of the Georges River. Additionally, recurrence of a previously reported pool water level trigger was identified within the Georges River. Both of these impacts are discussed below.

Impact WCA5_LW38_007 (297368, 6216635)

Inspection within tributary GR110 identified that surface flow has been lost from that channel (Photo 1). Additionally, a fracture has been identified within a boulder (Photo 2).



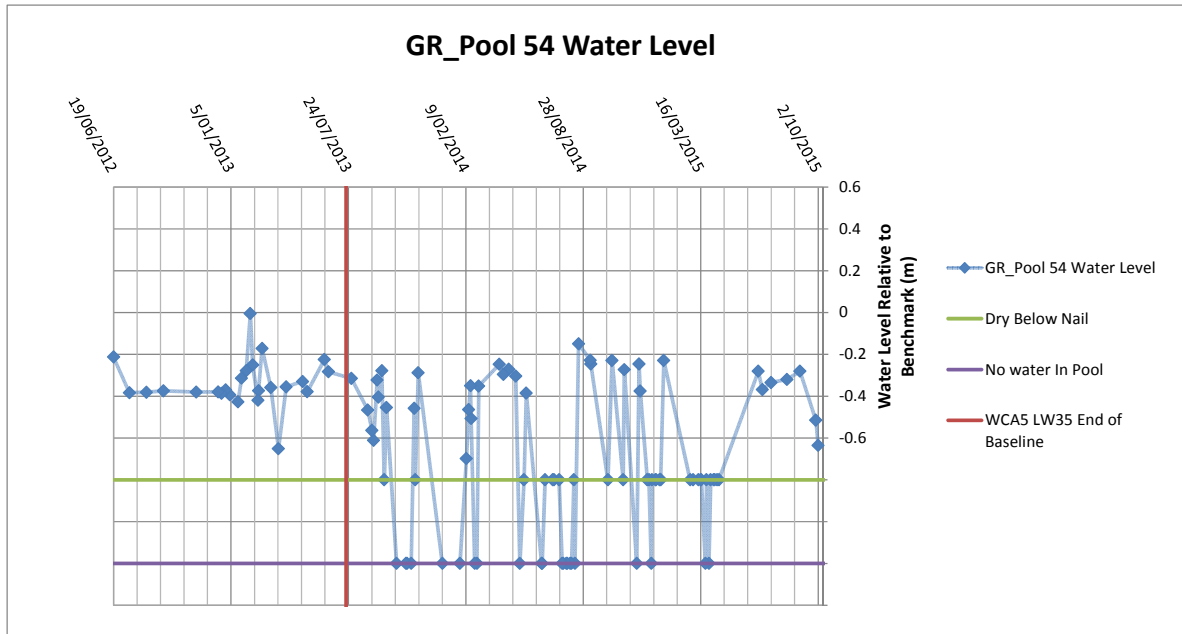
Photo 1: WCA5_LW38_007 – Confluence between GR110 and Georges River, Looking upstream. Taken on 2/10/15



Photo 2: WCA5_LW38_007 – Fractured boulder within GR110. Taken on 2/10/15

Update: Impact WCA5_LW35_007 (296975, 6217204)

On the latest inspection of GR_Pool 54 water level was lower than the baseline period (Graph 1). This water level has been reported previously and is a trigger according to the Longwall 37 and 38 Extraction Plan. Photos 3 and 4 show the latest pool conditions.



Graph 1: Water levels recorded in GR_Pool 54



Photo 3: WCA5_LW35_007 – GR_Pool 54 looking upstream. Taken on 2/10/15



Photo 4: WCA5_LW35_007 – GR_Pool 54 looking downstream. Taken on 2/10/15

Table 1: Subsidence impacts recorded during Longwall 38, West Cliff Area 5. Highlighted cells show latest impact.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road
WCA5_LW38_007	02/10/2015	LW38	Rock Fracturing	n/a	Fracturing within boulder field

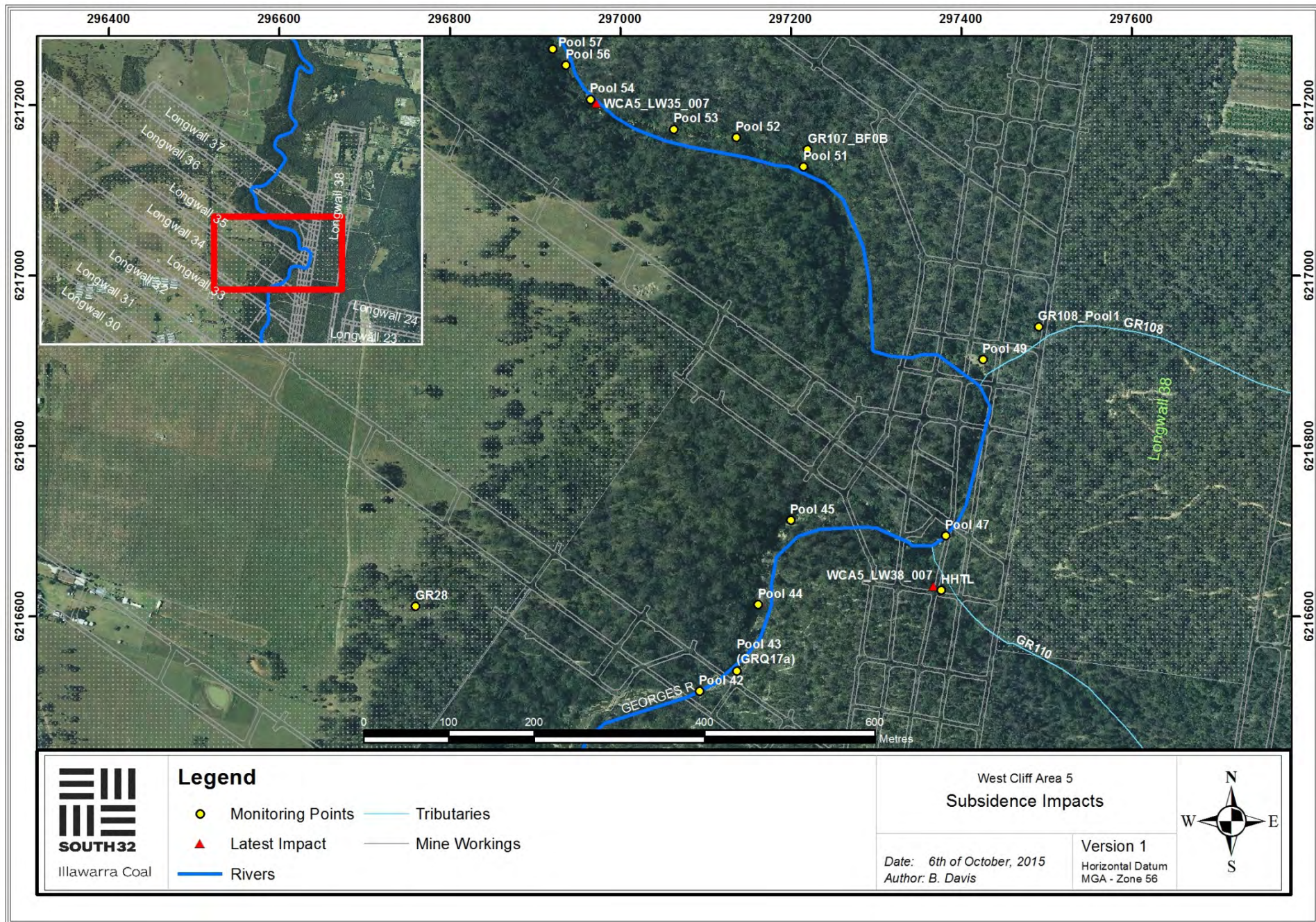


Figure 1: Location of impacts relative to West Cliff Area 5 mining operations

Appendix A:

Table 2 West Cliff Area 5 Longwall 37 and 38 Water TARP

Monitoring	Trigger	Action
GROUNDWATER		
<p>BHPBIC Piezometers:</p> <ul style="list-style-type: none"> • GR27 • GR28 • GR29 • GR70 • WC54 • WC95 <p>Private bores:</p> <ul style="list-style-type: none"> • GW32310 • GW72454 • GW105921 • GW108322 <p>Mine water budget</p>	<p>Level 1 *</p> <ul style="list-style-type: none"> • Increase in water flow from the goaf between 2.7-3 ML/day (20 day average) • 5.0 – 7.5 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR
	<p>Level 2 *</p> <ul style="list-style-type: none"> • Rise in water flow from the goaf between 3-3.4ML (20 day average) • 7.5 – 10 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 1</i> • Review monitoring program • Review impacts against the Performance Measures • Notify relevant technical specialists and seek advice on any CMA required • Implement agreed CMAs as approved
	<p>Level 3 *</p> <ul style="list-style-type: none"> • Abnormal rise in water flow from the goaf >3.4ML (20 day average) • >10m reduction in the Hawkesbury Sandstone standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period • Total loss of groundwater level within a private bore 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 2</i> • Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required • Invite stakeholders for site visit • Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> - Any actions agreed to in the Property Subsidence Management Plan - Provision of alternate water supply where this has been impacted by mining • Completion of works following approvals • Issue CMA report within 1 month of works completion • Review the TARP and Management Plan in consultation with key stakeholders
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> • Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> • <i>Actions as stated for Level 3</i> • Investigate reasons for the exceedance • Update future predictions based on outcomes of the investigation • Provide environmental offset if CMAs are unsuccessful
APPEARANCE AND POOL WATER LEVEL		
<p>Georges River:</p> <ul style="list-style-type: none"> • All mapped pools in the mining area 	<p>Level 1 *</p> <ul style="list-style-type: none"> • Fracturing with no observable surface water diversion • Pool water level lower than baseline in any mapped pool located in the mining area (within 400m of the longwall) • Increase in turbidity, iron staining, algal growth, or other visible water quality parameters determined by comparing baseline photos with photos during the mining period 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR

Monitoring	Trigger	Action
	<p>Level 2 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in the majority of mapped pools located in the mining area (within 400m of the longwall) Fracturing with observable surface water diversion 	<ul style="list-style-type: none"> Actions as stated for Level 1 Review monitoring program Review impacts against the Performance Measures Notify relevant technical specialists and seek advice on any CMA required Implement agreed CMAs as approved <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Level 3 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in all mapped pools in the mining area (within 400m of the longwall) Fracturing with observable water diversion results in any mapped pool becoming dry during a mitigation flow in the River 	<ul style="list-style-type: none"> Actions as stated for Level 2 Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required Invite stakeholders for site visit Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> Grouting of fractures which result in flow diversion Completion of works following approvals Issue CMA report within 1 month of works completion Review the TARP and Management Plan in consultation with key stakeholders <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> More than negligible diversion of flows or changes in the natural drainage behaviour of pools over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in water cloudiness over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in iron staining over more than 20% of the stream length subject to vertical subsidence >20mm Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> Actions as stated for Level 3 Investigate reasons for the exceedance Update future predictions based on outcomes of the investigation Provide environmental offset if CMAs are unsuccessful

Weekly inspections of the Georges River adjacent to Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Area 5 Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection of the Georges River was carried out on the 16th of August 2015. Changes to previously reported rock fracturing on tributary GR110 was identified (Figure 1).

Update: Impact WCA5_LW38_007 (E297368, N6216635)

Further rock fracturing and an absence of surface flow were observed at a previously identified impact along tributary GR110 (2nd of October 2015 - Photo 1). During the latest inspection on 16th November 2015, additional fracturing was identified at the site (Photos 2 to 6). Fracturing to the base of the tributary and overlying boulders is also evident along a 15m section of the tributary. Fractures are up to 2.1m long with fracturing to the base of the tributary up to 0.15m wide.



Photo 1: Impact WCA5_LW38_007- initial fracturing identified on tributary GR110. Taken on 2/10/2015.



Photo 2: Impact WCA5_LW38_007- additional fracturing to boulder on GR110. Taken on 16/11/2015.



Photo 3: Impact WCA5_LW38_007- additional fracturing to boulder in GR110. Taken on 16/11/2015.



Photo 4: Impact WCA5_LW38_007- additional fracturing to base of GR110. Taken on 16/11/2015.



Photo 5: Impact WCA5_LW38_007- additional fracturing to base of GR110. Taken on 16/11/2015.



Photo 6: Impact WCA5_LW38_007- additional fracturing to boulder on GR110. Taken on 16/11/2015.

Table 1 presents LW38 impacts to date.

Table 1: Subsidence impacts recorded for Longwall 38, West Cliff Area 5. Highlighted row shows featured impact.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road
WCA5_LW38_007	02/10/2015 (update: 16/11/2015)	LW38	Rock Fracturing	n/a	Fracturing to GR110

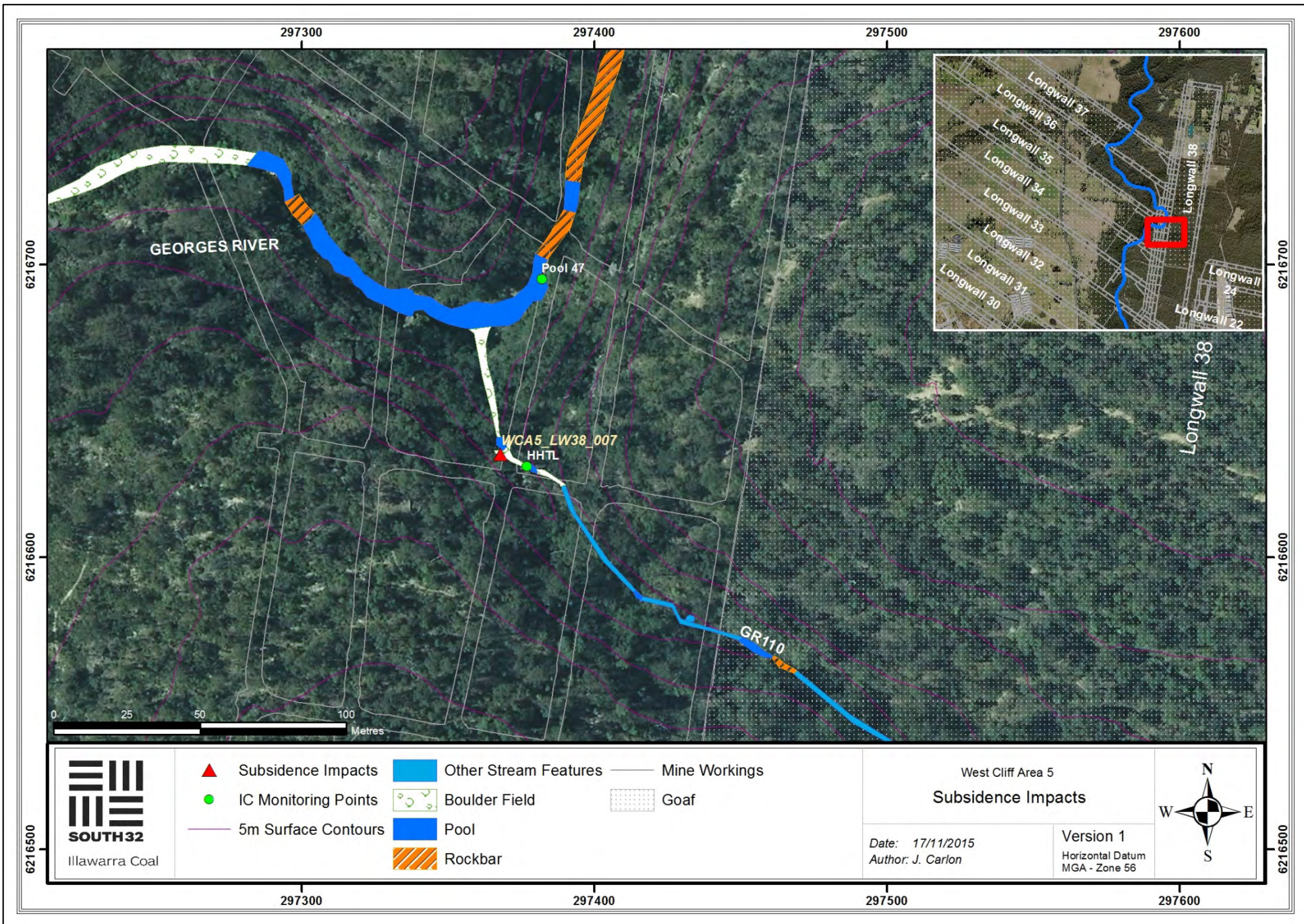


Figure 1: Location of impacts relative to West Cliff Area 5 mining operations

Weekly inspections of the Georges River adjacent to Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Area 5 Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection of the Georges River was carried out on the 10th December 2015. Impacts were identified along a section of the river between GR_Pool 47 and GR_Pool 49. An area of iron staining was also identified downstream of GR_Pool 49 (Figure 1). At the time of inspection Longwall 38 had progressed approximately 2,210m.

Impact WCA5_LW38_008 (E297406, N6216774)

Rock fracturing and displacement was identified on the Georges River at GR_Pool 49 on 10th December 2015. Low water levels during the time of the inspection led to detection of multiple fractures in the rock base of the pool that were previously unidentified. The rock fractures occur along a 60m length of the river and range in length from 1.3m to 10m (photos 1 to 5). The largest fracture is 10m long with a width of 0.04m and since formation has subsequently been infilled with debris (photos 6 & 7). Some rock displacement was observed, the volume of the largest displaced slab is approximately 0.78m³ (photo 8). Flow diversion through surface cracks was observed along the impacted area.

Impact WCA5_LW38_009 (E297361, N6216907)

Iron staining was observed originating from a seepage point at the rockbar downstream of GR_Pool 49 (photo 9 and 10). The area of staining covers a 20m section of the river with no visible staining further downstream. No change in surface flow conditions was observed. Monitoring of the impact will be ongoing with results reported in the End of Panel Report and AEMR.



Photo 1: Impact WCA5_LW38_008- Fracturing identified on the Georges River. Taken on 10/12/2015.



Photo 2: Impact WCA5_LW38_008- Fracturing identified on the Georges River. Taken on 10/12/2015.



Photo 3: Impact WCA5_LW38_008- Fracturing identified on the Georges River. Taken on 10/12/2015.



Photo 4: Impact WCA5_LW38_008- Fracturing identified on the Georges River. Taken on 10/12/2015.



Photo 5: Impact WCA5_LW38_008- Fracturing identified on the Georges River. Taken on 10/12/2015.



Photo 6: Impact WCA5_LW38_008- Fracture running along base of GR_Pool 49. Taken on 10/12/2015.



Photo 7: Impact WCA5_LW38_008- Debris infilling fracture on the base of GR_Pool 49. Taken on 10/12/2015.



Photo 8: Impact WCA5_LW38_008- Displacement of pool bed rock material . Taken on 10/12/2015.



Photo 9: Impact WCA5_LW38_009- Iron staining downstream of GR_Pool 49. Taken on 10/12/2015.



Photo 10: Impact WCA5_LW38_009- The extent of iron staining looking downstream. Taken on 10/12/2015.

Trigger Action Response Plan (TARP)

Impact WCA5_LW38_008 is a Level 2 Trigger under the West Cliff Area 5 Longwalls 37-38 Extraction Plan (Appendix A, Table 1).

- Fracturing with observable surface water diversion.

Impact WCA5_LW38_009 is a Level 1 Trigger under the West Cliff Area 5 Longwalls 37-38 Extraction Plan (Appendix A, Table 1).

- Increase in iron staining.

The following actions have been initiated in line with the Longwall 37-38 Trigger Action Response Plan.

- Continue monitoring program.
- Report trigger to key stakeholders.
- Summarise impacts and report in the End of Panel Report and AEMR.
- Review monitoring program.
- Review impacts against Performance Measures.
- Notify relevant technical specialists and seek advice on any CMA required.
- Implement agreed CMAs as approved.
- Additional release from West Cliff Mine to the Georges River.
- The Georges River Rehabilitation Plan will be updated to reflect these impacts.

Table 1 presents LW38 impacts to date.

Table 1: Subsidence impacts recorded for Longwall 38, West Cliff Area 5. Highlighted row shows featured impact.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road
WCA5_LW38_007	02/10/2015 <i>(update: 16/11/2015)</i>	LW38	Rock Fracturing	n/a	Fracturing to GR110
WCA5_LW38_008	10/12/2015	LW38	Rock Fracturing	Level 2	Fracturing to rockbar
WCA5_LW38_009	10/12/2015	LW38	Iron Staining	Level 1	Iron Staining DS of Pool 49

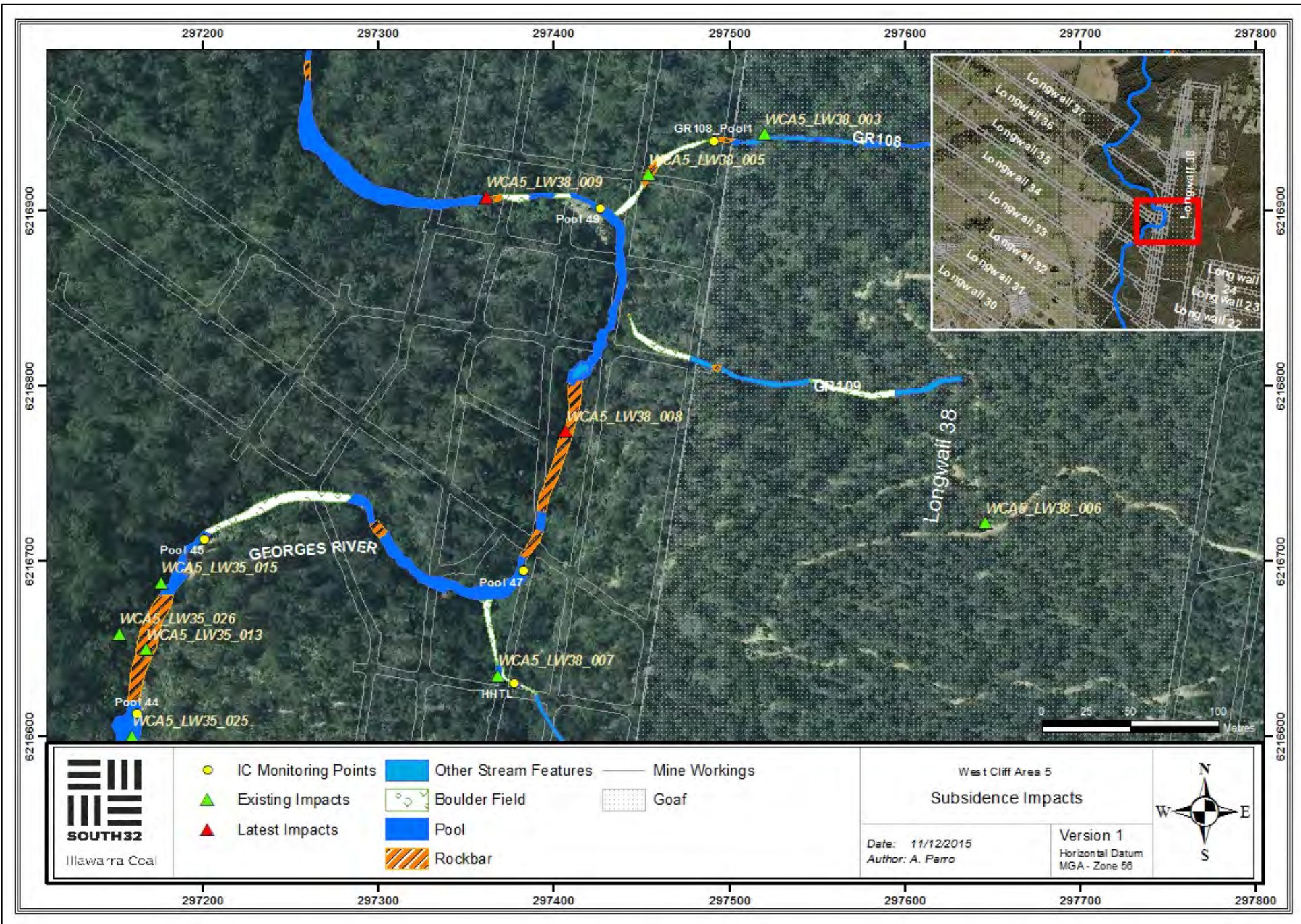


Figure 1: Location of impacts relative to West Cliff Area 5 mining operations

Appendix A

Table 1: Excerpt from the West Cliff Area 5 Longwalls 37-38 Extraction Plan TARP Table.

Monitoring	Trigger	Action
GROUNDWATER		
<p>BHPBIC Piezometers:</p> <ul style="list-style-type: none"> • GR27 • GR28 • GR29 • GR70 • WC54 • WC95 <p>Private bores:</p> <ul style="list-style-type: none"> • GW32310 • GW72454 • GW105921 • GW108322 <p>Mine water budget</p>	<p>Level 1 *</p> <ul style="list-style-type: none"> • Increase in water flow from the goaf between 2.7-3 ML/day (20 day average) • 5.0 – 7.5 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period <p>Level 2 *</p> <ul style="list-style-type: none"> • Rise in water flow from the goaf between 3-3.4ML (20 day average) • 7.5 – 10 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period <p>Level 3 *</p> <ul style="list-style-type: none"> • Abnormal rise in water flow from the goaf >3.4ML (20 day average) • >10m reduction in the Hawkesbury Sandstone standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period • Total loss of groundwater level within a private bore <p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> • Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR <p><i>Actions as stated for Level 1</i></p> <ul style="list-style-type: none"> • Review monitoring program • Review impacts against the Performance Measures • Notify relevant technical specialists and seek advice on any CMA required • Implement agreed CMAs as approved <p><i>Actions as stated for Level 2</i></p> <ul style="list-style-type: none"> • Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required • Invite stakeholders for site visit • Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> - Any actions agreed to in the Property Subsidence Management Plan - Provision of alternate water supply where this has been impacted by mining • Completion of works following approvals • Issue CMA report within 1 month of works completion • Review the TARP and Management Plan in consultation with key stakeholders <p><i>Actions as stated for Level 3</i></p> <ul style="list-style-type: none"> • Investigate reasons for the exceedance • Update future predictions based on outcomes of the investigation • Provide environmental offset if CMAs are unsuccessful
APPEARANCE AND POOL WATER LEVEL		
<p>Georges River:</p> <ul style="list-style-type: none"> • All mapped pools in the mining area 	<p>Level 1 *</p> <ul style="list-style-type: none"> • Fracturing with no observable surface water diversion • Pool water level lower than baseline in any mapped pool located in the mining area (within 400m of the longwall) • Increase in turbidity, iron staining, algal growth, or other visible water quality parameters determined by comparing baseline photos with photos during the mining period 	<ul style="list-style-type: none"> • Continue monitoring program • Report trigger to key stakeholders • Summarise impacts and report in the End of Panel Report and AEMR

Monitoring	Trigger	Action
	<p>Level 2 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in the majority of mapped pools located in the mining area (within 400m of the longwall) Fracturing with observable surface water diversion 	<ul style="list-style-type: none"> Actions as stated for Level 1 Review monitoring program Review impacts against the Performance Measures Notify relevant technical specialists and seek advice on any CMA required Implement agreed CMAs as approved <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Level 3 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in all mapped pools in the mining area (within 400m of the longwall) Fracturing with observable water diversion results in any mapped pool becoming dry during a mitigation flow in the River 	<ul style="list-style-type: none"> Actions as stated for Level 2 Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required Invite stakeholders for site visit Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> Grouting of fractures which result in flow diversion Completion of works following approvals Issue CMA report within 1 month of works completion Review the TARP and Management Plan in consultation with key stakeholders <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> More than negligible diversion of flows or changes in the natural drainage behaviour of pools over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in water cloudiness over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in iron staining over more than 20% of the stream length subject to vertical subsidence >20mm Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> Actions as stated for Level 3 Investigate reasons for the exceedance Update future predictions based on outcomes of the investigation Provide environmental offset if CMAs are unsuccessful

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection was carried out on the 11th of January 2016. All pool water levels had returned to above baseline levels as discussed below.

Update: Impact WCA5_Fracture_005 (296923, 6216164)

On the 11th of January 2016, water level at GR_Pool 38 was observed to be above baseline conditions, photos 1 and 2 show pool conditions.



Photo 1: GR_Pool 38 looking upstream (11/1/16)

Photo 2: GR_Pool 38 looking downstream (11/1/16)

Update: Impact WCA5_LW35_025 (297159, 6216601)

On the 11th of January 2016, water level at GR_Pool 44 was observed to be above baseline conditions, photos 3 and 4 show pool conditions.



Photo 3: WCA5_LW38_025 – GR_Pool 44 looking upstream. Taken on 11/1/16

Photo 4: WCA5_LW38_025 – GR_Pool 44 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_024 (297219, 6217125)

On the 11th of January 2016, water level at GR_Pool 51 was observed to be above baseline conditions, photos 5 and 6 show pool conditions.



Photo 5: WCA5_LW35_024- GR_Pool 51 looking upstream. Taken on 11/1/16



Photo 6: WCA5_LW35_024- GR_Pool 51 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_027 (297062, 6217166)

On the 11th of January 2016, water level at GR_Pool 53 was observed to be above baseline conditions, photos 7 and 8 show pool conditions.



Photo 7: WCA5_LW35_027- GR_Pool 53 looking upstream. Taken on 11/1/16



Photo 8: WCA5_LW35_027- GR_Pool 53 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_007 (296975, 6217204)

On the 11th of January 2016, water level at GR_Pool 54 was observed to be above baseline conditions, photos 9 and 10 show pool conditions.



Photo 9: WCA5_LW35_007 – GR_Pool 54 looking upstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_012 (296939, 6217250)

On the 11th of January 2016, water levels at GR_Pool 56 and 57 were observed to be above baseline conditions, photos 11 to 14 show pool conditions.



Photo 10: WCA5_LW35_007 – GR_Pool 54 looking downstream. Taken on 11/1/16.



Photo 11: WCA5_LW35_012 – GR_Pool 56 looking upstream. Taken on 11/1/16.



Photo 12: WCA5_LW35_012 – GR_Pool 56 looking downstream. Taken on 11/1/16.



Photo 13: WCA5_LW35_012 – GR_Pool 57 looking upstream. Taken on 11/1/16.



Photo 14: WCA5_LW35_012 – GR_Pool 57 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_022 (296838, 6217364)

On the 11th of January 2016, water level at GR_Pool 58 was observed to be above baseline conditions, photos 15 and 16 show pool conditions.



Photo 15: WCA5_LW35_022 – GR_Pool 58 looking upstream. Taken on 11/1/16.



Photo 16: WCA5_LW35_022 – GR_Pool 58 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_029 (296781, 6217482)

On the 11th of January 2016, water level at GR_Pool 59 was observed to be above baseline conditions, photos 17 and 18 show pool conditions.



Photo 17: WCA5_LW35_029 – GR_Pool 59 looking upstream. Taken on 11/1/16.



Photo 18: WCA5_LW35_029 – GR_Pool 59 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW35_023 (296724, 6217605)

On the 11th of January 2016, water level at GR_Pool 60 was observed to be above baseline conditions, photos 19 and 20 show pool conditions.



Photo 19: WCA5_LW38_023 – GR_Pool 60 looking upstream. Taken on 11/1/16.



Photo 20: WCA5_LW38_023 – GR_Pool 60 looking downstream. Taken on 11/1/16.

Update: Impact WCA5_LW38_008 (297406, 6216774)

On the 11th of January 2016, surface flow was present along the majority of Rockbar 49. A small section of the rockbar continued to display flow diversion, as shown in photos 21 and 22.



Photo 21: WCA5_LW38_008 – Rockbar 49 with flow diversion present. Taken on 11/1/16.



Photo 22: WCA5_LW38_008 – Rockbar 49 with flow diversion present. Taken on 11/1/16.

Trigger Action Response Plan (TARP)

Water levels in targeted pools of the Georges River are currently above baseline levels. Monitoring will continue as per the routine schedule. Surface flow from upstream Georges River continues via a combination of natural base flows and release from Brennan's Creek Dam. The Georges River Remediation Plan (2014) is currently being updated to include recent observations.

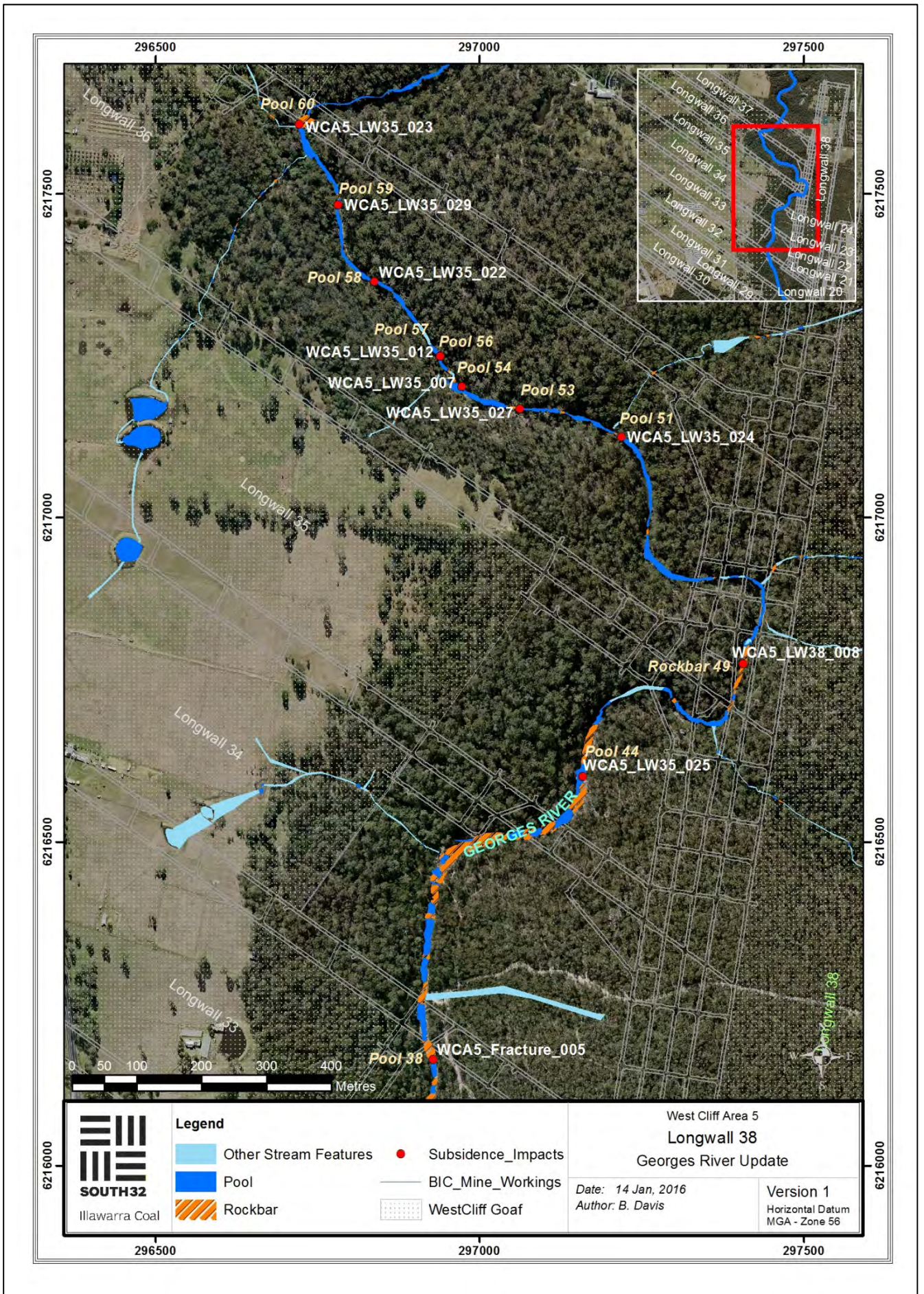


Figure 1: Location of sites relative to West Cliff Area 5 mining operations.

Appendix A:

Table 2 West Cliff Area 5 Longwall 37 and 38 Water TARP

Monitoring	Trigger	Action
GROUNDWATER		
<p>BHPBIC Piezometers:</p> <ul style="list-style-type: none"> GR27 GR28 GR29 GR70 WC54 WC95 <p>Private bores:</p> <ul style="list-style-type: none"> GW32310 GW72454 GW105921 GW108322 <p>Mine water budget</p>	<p>Level 1 *</p> <ul style="list-style-type: none"> Increase in water flow from the goaf between 2.7-3 ML/day (20 day average) 5.0 – 7.5 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period 	<ul style="list-style-type: none"> Continue monitoring program Report trigger to key stakeholders Summarise impacts and report in the End of Panel Report and AEMR
	<p>Level 2 *</p> <ul style="list-style-type: none"> Rise in water flow from the goaf between 3-3.4ML (20 day average) 7.5 – 10 m reduction in the Hawkesbury Sandstone greater than predicted standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period 	<ul style="list-style-type: none"> Actions as stated for Level 1 Review monitoring program Review impacts against the Performance Measures Notify relevant technical specialists and seek advice on any CMA required Implement agreed CMAs as approved
	<p>Level 3 *</p> <ul style="list-style-type: none"> Abnormal rise in water flow from the goaf >3.4ML (20 day average) >10m reduction in the Hawkesbury Sandstone standing water level or pressure (outside of pumping influences in private bores) over a minimum 2 month period Total loss of groundwater level within a private bore 	<ul style="list-style-type: none"> Actions as stated for Level 2 Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required Invite stakeholders for site visit Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> - Any actions agreed to in the Property Subsidence Management Plan - Provision of alternate water supply where this has been impacted by mining Completion of works following approvals Issue CMA report within 1 month of works completion Review the TARP and Management Plan in consultation with key stakeholders
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> Actions as stated for Level 3 Investigate reasons for the exceedance Update future predictions based on outcomes of the investigation Provide environmental offset if CMAs are unsuccessful
APPEARANCE AND POOL WATER LEVEL		
<p>Georges River:</p> <ul style="list-style-type: none"> All mapped pools in the mining area 	<p>Level 1 *</p> <ul style="list-style-type: none"> Fracturing with no observable surface water diversion Pool water level lower than baseline in any mapped pool located in the mining area (within 400m of the longwall) Increase in turbidity, iron staining, algal growth, or other visible water quality parameters determined by comparing baseline photos with photos during the mining period 	<ul style="list-style-type: none"> Continue monitoring program Report trigger to key stakeholders Summarise impacts and report in the End of Panel Report and AEMR

Monitoring	Trigger	Action
	<p>Level 2 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in the majority of mapped pools located in the mining area (within 400m of the longwall) Fracturing with observable surface water diversion 	<ul style="list-style-type: none"> Actions as stated for Level 1 Review monitoring program Review impacts against the Performance Measures Notify relevant technical specialists and seek advice on any CMA required Implement agreed CMAs as approved <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Level 3 *</p> <ul style="list-style-type: none"> Pool water level lower than baseline in all mapped pools in the mining area (within 400m of the longwall) Fracturing with observable water diversion results in any mapped pool becoming dry during a mitigation flow in the River 	<ul style="list-style-type: none"> Actions as stated for Level 2 Notify DP&I, DPI, relevant resource managers and technical specialists and seek advice on any CMA required Invite stakeholders for site visit Develop site CMA (subject to stakeholder feedback). This may include: <ul style="list-style-type: none"> Grouting of fractures which result in flow diversion Completion of works following approvals Issue CMA report within 1 month of works completion Review the TARP and Management Plan in consultation with key stakeholders <p><i>Note: CMAs are to be proposed based on appropriate management of environmental and other consequences of mining impacts i.e. cracking at the surface with insignificant consequences may not require specific CMAs other than ongoing monitoring to confirm there are no ongoing impacts. Prevailing rainfall and catchment conditions will be taken into account when assessing pool water level response and the need for CMAs</i></p>
	<p>Exceeding Performance Measures</p> <ul style="list-style-type: none"> More than negligible diversion of flows or changes in the natural drainage behaviour of pools over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in water cloudiness over more than 20% of the stream length subject to vertical subsidence >20mm More than negligible increase in iron staining over more than 20% of the stream length subject to vertical subsidence >20mm Subsidence impacts or environmental consequences greater than minor 	<ul style="list-style-type: none"> Actions as stated for Level 3 Investigate reasons for the exceedance Update future predictions based on outcomes of the investigation Provide environmental offset if CMAs are unsuccessful

Weekly inspections of the area over Longwall 38 are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

An inspection was carried out on the 17th of February 2016. Two fractures were identified on outcrop adjacent to GR110, a tributary of the Georges River (Figure 1).

Impact: WCA5_LW38_010 (297392, 6216609)

Vertical fracturing was identified to a rock outcrop adjacent to GR110. The fracture was approximately 2.1m long, 0.03m wide with a measurable depth of 0.414m (Photos 1 and 2). A fracture was also identified to the base of the rock measuring 0.382m long, 0.016m wide and 0.02m deep (Photo 3).



Photo 1: WCA5_LW38_010 – Vertical fracturing to rock outcrop adjacent to GR110. Taken on 17/02/16.



Photo 2: WA5_LW38_010 – vertical fracture. Taken on 17/02/16.



Photo 3: WCA5_LW38_010 – Fracture to base of rock outcropping. Taken on 17/02/16.

Table 1: Subsidence impacts recorded during Longwall 38. Highlighted cells show latest impacts.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road
WCA5_LW38_007	02/10/2015 (update: 16/11/2015)	LW38	Rock Fracturing	n/a	Fracturing to GR110
WCA5_LW38_008	10/12/2015	LW38	Rock Fracturing	Level 2	Fracturing to rockbar
WCA5_LW38_009	10/12/2015	LW38	Iron Staining	Level 1	Iron Staining DS of Pool 49
WCA5_LW38_010	17/02/2016	LW38	Rock Fracturing	n/a	Fracturing to rock outcrop

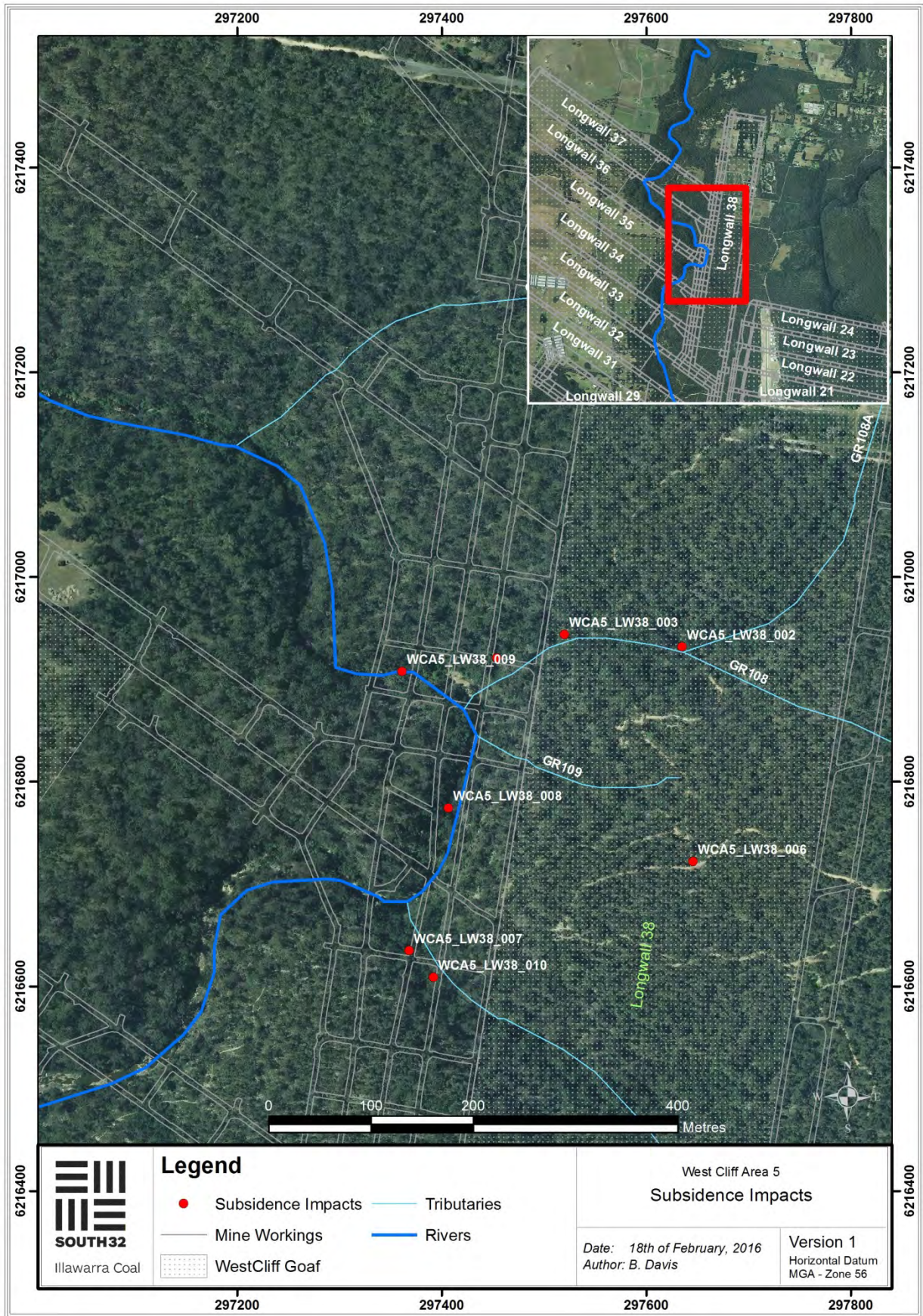


Figure 1: Location of sites relative to West Cliff Area 5 mining operations.

Monthly inspections along the Georges River are being carried out by the Illawarra Coal Environmental Field Team (ICEFT) to identify any subsidence impacts. Monitoring is carried out in accordance with the approved West Cliff Longwalls 37 and 38 Extraction Plan and Water Management Plan.

During an inspection carried out on the 16th of March 2016, soil cracking was identified on an access track adjacent to Pool 36 on the Georges River (Figure 1).

Impact: WCA5_LW38_011 (296872, 6215840)

Soil cracking was identified to an access track adjacent to Pool 36 on the Georges River. Five cracks were identified ranging from 1m – 3m in length with a maximum width of 4mm (Photos 1 and 2). These soil cracks appear stable and are expected to self-remediate.



Photo 1: WCA5_LW38_011 – Soil cracking on access track. Taken on 16/3/16.



Photo 2: WCA5_LW38_011 – Width of widest soil crack identified. Taken on 16/3/16.

Table 1: Subsidence impacts recorded during Longwall 38. Highlighted cells show latest impacts.

Site	Identification Date	Activating Longwall	Type	Trigger Level	Comment
WCA5_LW38_001	24/04/2015	LW36/7	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_002	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to rockbar
WCA5_LW38_003	03/08/2015	LW38	Rock Fracturing	n/a	Fracturing to Channel
WCA5_LW38_004	19/08/2015	LW38	Iron Staining	n/a	Iron Staining in Mallaty Creek
WCA5_LW38_005	20/08/2015	LW38	Rock Fracturing	n/a	Fracturing to GR108
WCA5_LW38_006	25/09/2015	LW38	Soil Crack	n/a	Soil cracking on fire road
WCA5_LW38_007	02/10/2015 <i>(update: 16/11/2015)</i>	LW38	Rock Fracturing	n/a	Fracturing to GR110
WCA5_LW38_008	10/12/2015	LW38	Rock Fracturing	Level 2	Fracturing to rockbar
WCA5_LW38_009	10/12/2015	LW38	Iron Staining	Level 1	Iron Staining DS of Pool 49
WCA5_LW38_010	17/02/2016	LW38	Rock Fracturing	n/a	Fracturing to rock outcrop
WCA5_LW38_011	16/3/16	LW38	Soil Crack	n/a	Soil cracking on access track

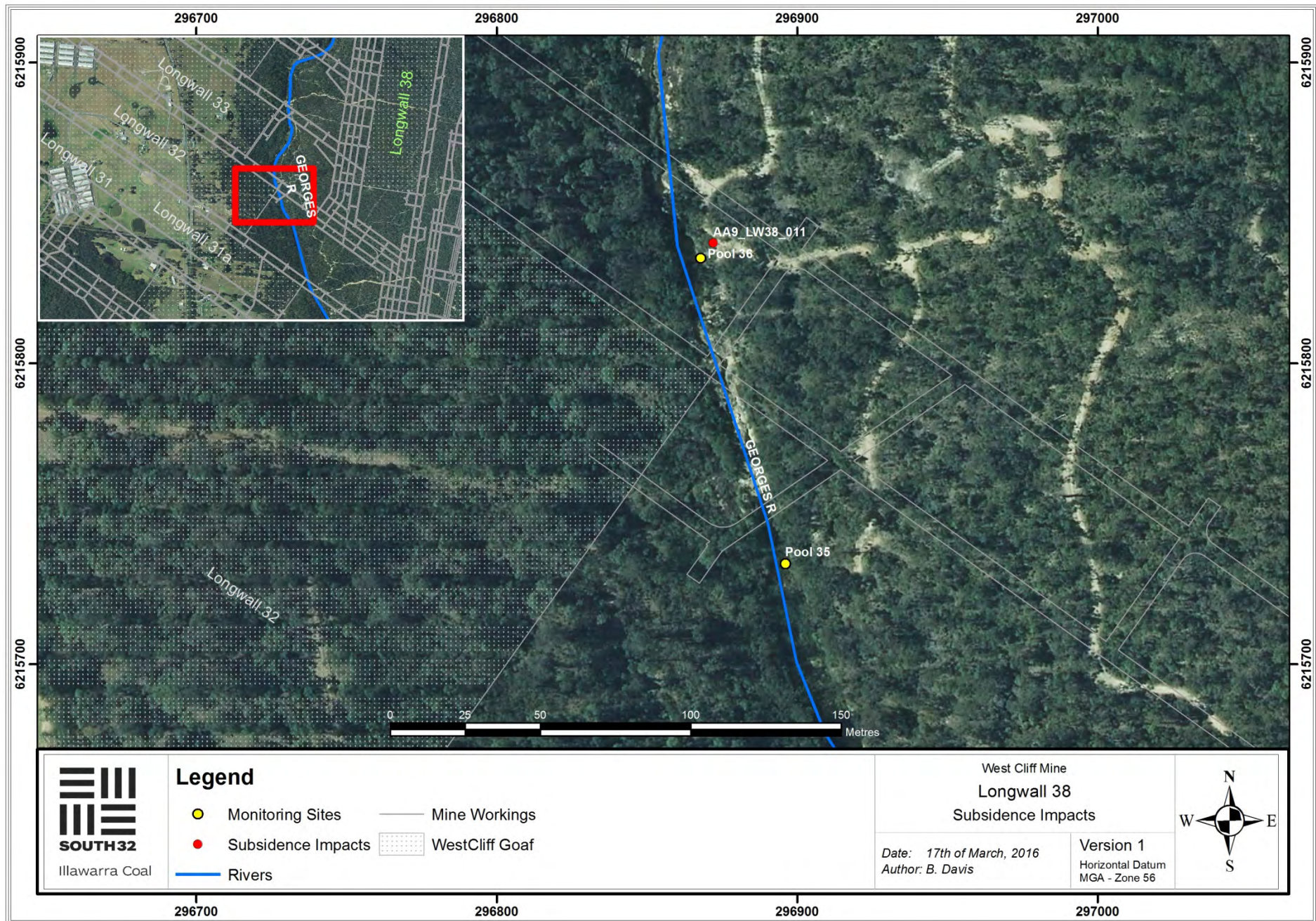


Figure 1: Location of sites relative to West Cliff Area 5 mining operations.

Built Feature Management Plans (BFMPs) have been prepared by South32 Illawarra Coal for landholders above West Cliff Area 5 Longwalls 37 and 38. Post-mining inspection of dams, boreholes and natural features set out in the BFMPs are conducted by the Illawarra Coal Environmental Field Team with the consent of the relevant property/infrastructure owner and tenant (if applicable). Pre-mining property inspections have also been conducted.

This report covers observations and field data for relevant features on Lot 81 DP622780 after Longwall 38 passed the property in March 2015. Additional inspections may be conducted by Illawarra Coal at the request of the landowner and/or if required by the various triggers in the Extraction Plan (EP).

Pre-mining Inspection

On the 12th of June 2013 pre-mining inspections of the property Lot 81 DP622780 were undertaken (**Figure 1**). The one borehole on the property was identified as K10bh01. This borehole was inspected and key observations recorded.

Post-mining Inspection

On the 3rd of March 2016 a post-mining inspection of Lot 81 DP622780 was undertaken (**Figure 1**), including borehole K10bh01. Observations and field water quality parameter results are outlined in this report.

Borehole K10bh01:

Location: 297987, 6217912 (bore) & 298016, 6218031 (sampled outlet)

Borehole/Aquifer Properties: Borehole K10bh01 is located on the southern end of the property. The outlet from the borehole pipe is located on the south eastern side of the house (**Figure 1**). The landholder has advised that the borehole is approximately 35m deep and was drilled between 1981 and 1982.

Bore Pumping Purpose and Performance: Water is extracted from the bore for domestic uses (**Photos 1 & 2**). The water is transferred by pipes into storage tanks which are also fed with rain water (**Photo 3**).

The landholder notified Illawarra Coal on the 1st of March 2016 that the borehole was not performing as usual. On the 2nd of March Illawarra Coal inspected the site to clarify the issues being experienced. The landholder had been having issues with the bore for several months.

On the 3rd of March Illawarra Coal inspected the site and measured the water depth at 10.7m. Illawarra Coal is working with the landholder to optimise the system and carry out further investigations to determine if mining impacts have occurred.

Water Properties: No signs of iron, salinity staining or gas were observed in the water. Pre-mining and post mining water quality is provided in Table 1.



Photo 1: Location borehole K10bh01 and windmill with a storage tank (12/06/13)



Photo 2: Borehole K10bh01 under the windmill (12/06/13)



Photo 3: Outlet point/storage tank and sample point (12/06/13)



Photo 4: Image of water from pump discharge (03/03/16)

K10bh01	Pre-mining 12/06/2013	Post-mining 03/03/16
Temperature (°C)	18.38	21.02
Conductivity (µS/cm)	104	331
pH	5.89	4.46
ORP (mV)	368	395
Dissolved Oxygen (% sat.)	29.1	54.5

Table 1: Field water quality parameters for borehole K10bh01



Figure 1: Map of inspected borehole on Lot 81 DP622780