Dyadem Stature for Risk Management:

Risk Assessment Title: Northern Coal Logistics Project
Version: 1
Region: North
Site: Northern Coal Services
Stature Risk Assessment No.: 1000786003

BACKGROUND

Centennial Northern Coal Services Pty Limited (Northern Coal Services) proposes the Northern Coal Logistics Project (the Project) on the western side of Lake Macquarie approximately 140 kilometres north of Sydney in New South Wales (NSW). The Project comprises both a continuation of existing operations and an upgrade to the surface coal handling and preparation facilities at Newstan Colliery and Mandalong Mine - Cooranbong Entry Site (Cooranbong Entry Site), along with existing private haul roads and rail loading infrastructure. The facilities are integral to the on-going handling, processing and transport of coal from the underground workings of Newstan Colliery and Mandalong Mine (including the proposed Newstan Colliery Extension of Mining Project and Mandalong Southern Extension Project) into domestic and export markets.

A project application for the Project was submitted to the NSW Department of Planning and Infrastructure in January 2012 with the Director General for the Department of Planning and Infrastructure issuing Environmental Assessment requirements in March 2012 and re-issuing them again in August 2013. An Environmental Impact Statement is currently being prepared to support the project application. A number of technical and environmental impact assessments have now been developed as part of the preparation of the Environmental Impact Statement focusing on the environmental, social and economic impacts of the proposed Project.

The Project Application Area for the Project comprises:

- The existing Newstan Colliery Surface Site, encompassing the coal preparation and handling infrastructure, reject emplacement areas, water management infrastructure and rail loading infrastructure, near Fassifern. The exceptions to this are the mine ventilation shafts and ventilation fans, which form part of the Newstan Extension of Mining Project;
- The proposed extension to the Newstan Colliery Surface Site to accommodate new coal handling and processing infrastructure;
- The existing surface infrastructure at the Cooranbong Entry Site near Dora Creek, comprising the coal handling plant (CHP), coal stockpiles, workshop building and water management infrastructure. The exceptions to this are the mine ventilation shaft, ventilation fan and the Borehole Dam, which form part of the Mandalong Southern Extension Project;
- The existing Hawkmount Quarry comprising a disused quarry located immediately to the east of the Cooranbong Private Haul Road between Newstan Colliery Surface Site and Cooranbong Entry Site; and
- The existing Cooranbong Private Haul Road, Awaba Private Haul Road and Newstan-Eraring Private Haul Road, which link the Newstan Colliery Surface Site, Awaba Colliery Surface Site, Cooranbong Entry Site and Eraring Power Station.

POTENTIAL HAZARDS

The potential hazards for the Northern Coal Logistics Project are:

- Impacts from surface disturbance activities on flora and fauna species and their habitats;
- Impacts from surface disturbance activities on Aboriginal and European heritage sites resulting in damage to or destruction of the site;
- Impacts from the proposed operations at the Newstan Colliery Surface Site exceeding noise criteria;
- Impacts from the proposed operations at the Cooranbong Entry Site exceeding noise criteria;
- Impacts from construction activities at the Newstan Colliery Surface Site exceeding noise criteria at sensitive receptors;
- Impacts from the proposed operations at the Newstan Colliery Surface Site exceeding air quality criteria;
- Impacts from the proposed operations at the Cooranbong Entry Site exceeding air quality criteria;
- Impacts from the project on road and rail traffic generation, transport services, road and rail safety and road and rail efficiency;
- Impacts of additional water discharges through LDP001 at Newstan on the receiving environment;
- Impacts of additional water discharges through LDP001 at Cooranbong on the receiving environment;
- Impacts of water discharges through LDP003 at Newstan on the receiving environment;
- Impacts of water discharges through the proposed LDP at Hawkmount Quarry on the receiving environment;
- Impacts of additional water management requirements on the Newstan Colliery surface water Management system;
- Impacts of additional water management requirements on the Cooranbong Entry Site surface water management system;
- Bushfire risk/hazard impacting the Project;
- Impacts of new infrastructure at the Newstan Colliery on the visual amenity of the area;
- Impacts of surface disturbance activities on agricultural lands, and agricultural enterprises;
- Impacts of the Project on land use resulting in social impacts;
- Impacts of greenhouse gas emissions on the environment; and
- Adverse impacts from the project on local state and federal economies.

OBJECTIVE

This risk assessment is focused on the environmental, social and economic impacts of the proposed Northern Coal Logistics Project

REFERENCE DOCUMENTS

Document Name	Title	Version	Referenced Document Date
Northern Coal Logistics Project	Agricultural Impact Statement (SLR 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Soil and Land Use Assessment (SLR 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Flora and Fauna Impact Assessment (RPS 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Bushfire Hazard Assessment (Kleinfelder Ecobiological 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Heritage Impact Assessment (RPS 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Water Management Assessment (GHD 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Noise Impact Assessment (SLR 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Air Quality Impact Assessment (SLR 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Visual Impact Assessment (Green Bean Designs 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Rehabilitation and Decommissioning Strategy (SLR 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Greenhouse Gas Assessment (BDM Resources 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Economic Assessment (AIGIS 2014)	Final	28-Feb-2014
Northern Coal Logistics Project	Social Impact Assessment (James Marshall and Co.)	Final	28-Feb-2014
Northern Coal Logistics Project	Traffic Impact Assessment (Intersect Traffic 2014)	Final	28-Feb-2014

RISK ASSESSMNET TEAM

Name	Title	Company
James Wearne	Environmental Coordinator	Centennial Mandalong
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WRAC ANALYSIS

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
7. Bushfire	There is a risk to Northern Coal Logistics Project from ::: Impacts to Centennial owned infrastructure ::: Caused by: Regional bushfires Resulting in: Loss of life or Loss of production.	7.2.a. The topography (i.e. slopes and grades) around the Project Application Area has been mapped.	**C** (D)	3 (BI)	13 (S)	85. The existing Newstan Colliery Bushfire Management Plan should be modified to show the proposed APZ extent as detailed in the Bushfire Hazard Assessment (Ecobiological 2014).
		7.2.b. Vegetation around the Project Application Area has been mapped.				86. All new access should provide a trafficable and maintained road, with minimum 6m wide path and carrying capacity exceeding 15 tonne.
		7.2.c. Existing and proposed water supplies at the Cooranbong Entry Site and Hawkmount Quarry are considered adequate.				87. All evacuation and access routes to be detailed on an emergency operation map and integrated within the EMS.
		7.2.d. The existing site access provisions are deemed suitable for evacuation and access.				88. All asset protection actions will be monitored on an opportunistic basis or a frequency not exceeding 3 years.
		7.2.e. A Bushfire Hazard Assessment (Ecobiological 2014) has been undertaken for the Project.				
		7.2.f. Newstan Colliery has an existing Fire Services Plan - NS1680.				
		7.2.g. The Newstan Colliery has five water tanks on the surface with a total maximum volume of approximately 1.5 million litres that can be used in the event of an emergency.				
		7.2.h. Newstan Colliery has a current Bushfire Management Plan.				
1. Air Quality	There is a risk to Northern Coal Logistics Project from ::: Dispersion of PM10, PM2.5 and TSP particulates and deposition of dust ::: Caused by: Operations at the Newstan Colliery Surface Site, haul roads and	1.1.a. An Air Quality Impact Assessment (SLR 2014) has been prepared for the Project.	**A** (D)	5 (R)	15 (S)	21. Automate train loading operations once it is proposed to export 6 Mtpa from the Newstan Colliery Surface Site; OR Automate coal transfers between the CPP and the rail loop stockpile once it is proposed to export 6 Mtpa AND automate train loading operations once it is proposed to export 8 Mtpa from the Newstan Colliery Surface Site.
		1.1.b. An air quality model has been developed for the Project taking into consideration the Newstan Colliery Surface Site.				22. Continue to utilise E5 European standard engines for coal haulage trucks that operate on the private haul roads linking the Newstan Colliery Surface Site, Awaba Colliery Surface Site, Cooranbong Entry Site, Hawkmount Quarry and the Eraring Power Station.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Hawkmount Quarry Resulting in: Community Complaints or Exceedances of the air quality criteria or Impacts to health.	1.1.c. The location of sensitive receptors is known and have been considered in the air model.				23. Following Project approval, air quality management plans for the Newstan Colliery Surface Site are to be updated to reflect the upgraded operations.
		1.1.d. A regional meteorological data set has been developed to predict meteorological conditions.				25. Continue the watering of roads and sealing of roads where possible.
		1.1.e. Background air quality data has been determined as part of the Air Quality Impact Assessment (SLR 2014).				26. Trucks entering and leaving the site to be well maintained in accordance with the manufacturer's specification to comply with all relevant regulations.
		1.1.f. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				27. Truck movement to be controlled on site and restricted to designated roadways.
		1.1.g. Best practice dust mitigation measures assessment completed for the Newstan Colliery Surface Site.				28. All loaded trucks to be covered to minimise transport of dust offsite.
		1.1.h. Existing dust management measures implemented at the Newstan Colliery Surface Site.				
		1.1.i. Existing air quality management plans in place for the Newstan Colliery Surface Site.				
		1.1.j. Monitoring of PM10, PM2.5 and deposited dust undertaken at the Newstan Colliery Surface Site.				
		1.1.k. Modelling of ventilation fan emissions based on actual data obtained from the Mandalong Mine.				
2. Noise	There is a risk to Northern Coal Logistics Project from ::: Noise emissions ::: Caused by: Operations at the Newstan Colliery Surface Site, haul roads and	2.1.a. A Noise Impact Assessment (SLR 2014) has been prepared for the Project.				54. Complete the implementation of current mitigation measures for the existing CPP.
		2.1.b. A noise model has been developed for the Project taking into consideration the Newstan Colliery Surface Site, Hawkmount Quarry and	**A** (D)	5 (R)	15 (S)	55. Complete the implementation of current mitigation measures for the existing coal transfer tower.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Hawkmount Quarry Resulting in: Community Complaints or Exceedances of noise goals.	Private haul roads.				
		2.1.c. The location of sensitive receptors is known and have been considered in the noise model.				56. Construct the new CPP in noise attenuating panels.
		2.1.d. A regional meteorological data set has been developed to predict meteorological conditions.				57. Install a real time noise monitor.
		2.1.e. Background noise has determined as part of the Noise Impact Assessment (SLR 2014).				59. Implement operation noise management measure if/when noise is approaching noise criteria.
		2.1.f. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				58. Review and update the Noise Management Plan for the Project following Project approval.
		2.1.g. Existing noise management measures implemented at the Newstan Colliery Surface Site (sound wall, quacker type reversing alarms).				
		2.1.h. Noise attenuation of the existing CPP has commenced.				
		2.1.i. Existing noise management plans in place for the Newstan Colliery Surface Site.				
		2.1.j. Quarterly attended noise monitoring undertaken at the Newstan Colliery Surface Site and Awaba.				
7. Bushfire	There is a risk to Northern Coal Logistics Project from ::: Increased risk of bushfires starting as a result of the Project ::: Caused by: Negligence by operators Resulting in: Impacts to surrounding properties or	7.1.a. Newstan Colliery has a current Bushfire Management Plan.	**D** (D)	3 (PI)	17 (M)	85. The existing Newstan Colliery Bushfire Management Plan should be modified to show the proposed APZ extent as detailed in the Bushfire Hazard Assessment (Ecobiological 2014).
		7.1.b. The Newstan Colliery has five water tanks on the surface with a total maximum volume of approximately 1.5 million litres that can be used in the event of an emergency.				86. All new access should provide a trafficable and maintained road, with minimum 6m wide path and carrying capacity exceeding 15 tonne.
		7.1.c. Newstan Colliery has an				87. All evacuation and access routes to be detailed on an emergency operation

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Loss of life.	existing Fire Services Plan - NS1680.				map and integrated within the EMS.
		7.1.d. A Bushfire Hazard Assessment (Ecobiological 2014) has been undertaken for the Project.				88. All asset protection actions will be monitored on an opportunistic basis or a frequency not exceeding 3 years.
		7.1.e. The existing site access provisions are deemed suitable for evacuation and access.				
		7.1.f. Existing and proposed water supplies at the Cooranbong Entry Site and Hawkmount Quarry are considered adequate.				
		7.1.g. Vegetation around the Project Application Area has been mapped.				
		7.1.h. The topography (i.e. slopes and grades) around the Project Application Area has been mapped.				
3. Ecology	There is a risk to Northern Coal Logistics Project from ::: Impacts to threatened fauna ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Significant declines in the population of a threatened species.	3.3.a. A vegetation buffer has been retained between the disturbance area and the old mine drift entrance referred to as 'Bat Alley'.	**C** (D)	4 (E)	18 (M)	64. Install nest boxes at a ratio of 1:1 (i.e. one nest box for every habitat hollow removed). The design and installation of nest boxes will draw on the information obtained from the 5 year research programme undertaken by Centennial Mandalong into the utilisation of different nest box designs and aspects.
		3.3.b. A Flora and Fauna Impact Assessment (RPS 2014) has been undertaken to support the Project.				67. Protect the vegetation surrounding the drift entrance/vent shaft to maintain connectivity.
		3.3.c. The disturbance footprint for Site 1 has been re-designed to avoid 425 clumps of Tetratheca juncea and some hollow bearing trees.				77. Installation of a wall around the new ROM coal stockpile area at Site 1 to reduce the potential for impacts from noise and light on bat species utilising the disused mine drift entrance known as Bat Alley.
		3.3.d. The surface disturbance footprint areas have been located adjacent to established access routes so as to further limit the amount of vegetation required to be disturbed and reduce impact of habitat fragmentation.				68. Monitor the drift entrance/vent shaft into the future to ensure that the mitigation management has maintained the current bat population.
		3.3.e. The disturbance footprint				48. Develop a Construction Management Plan.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		areas for the Project have utilised areas that are predominantly already cleared and disturbed to reduce the clearing of vegetation.				75. Where possible, clearing activities should be timed to avoid removal of hollow-bearing trees during breeding season of threatened species. 76. An ecologist is to be present to supervise clearing of hollow bearing trees within the disturbance footprint and ensure hollow bearing trees are removed in an appropriate manner
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to creeks ::: Caused by: Increased discharges through LDP001 Cooranbong or Poor water quality Resulting in: Impacts to aquatic ecology or Impacts to riparian vegetation or Impacts to stream geomorphology or Impacts to water quality.	5.4.a. Water Management Impact Assessment Prepared to support the project (GHD 2014). 5.4.b. Hydraulic model developed as part of the Water Management Impact Assessment (GHD 2014). 5.4.c. Site Specific Trigger Values established for unnamed creek. 5.4.d. Water quality data available for LDP001 and analysed as part of the Water Management Impact Assessment (GHD 2014). 5.4.e. Geomorphic assessment undertaken as part of the Water Management Impact Assessment (GHD 2014). 5.4.f. Macroinvertebrate data available and considered as part of the Water Management Impact Assessment (GHD 2014). 5.4.g. Ecotoxcicity data available and considered as part of the Water Management Impact Assessment (GHD 2014). 5.4.h. A regular macroinvertebrate and sediment sampling programme has been implemented downstream of LDP001 at Cooranbong.	**C** (D)	4 (E)	18 (M)	94. Prepare and implement a Water Management and Monitoring Programme for the Project. 95. Continue the implementation of a regular macroinvertebrate and sediment sampling programme downstream of LDP001 at Cooranbong. 96. Increase the retention time of discharge water in the Borehole Dam through the enlargement of the dam and introduce flocculent to reduce Nickel concentrations.
2. Noise	There is a risk to Northern Coal Logistics Project from ::: Noise emissions :::	2.5.a. A Noise Impact Assessment (SLR 2014) has been prepared for the Project. 2.5.b. A noise model has been	**B** (D)	5 (R)	19 (M)	

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Caused by: Train movements along the Main Northern Railline Resulting in: Community Complaints or Exceedances of noise goals.	developed for the Project taking into consideration the Cooranbong Entry Site. 2.5.c. Newstan already operate with quieter locomotives. 2.5.d. Consultation has occurred between Centennial and Transport for NSW. 2.5.e. The location of sensitive receptors is known and have been considered in the noise model. 2.5.f. A regional meteorological data set has been developed to predict meteorological conditions. 2.5.g. Background noise has determined as part of the Noise Impact Assessment (SLR 2014). 2.5.h. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				
4. Traffic	There is a risk to Northern Coal Logistics Project from ::: Increased train movements ::: Caused by: Increased trains transporting coal along the rail corridor Resulting in: Impacts at level crossings or Impacts to rail efficiency or Impacts to rail safety.	4.2.a. The number of train movements will not increase above the currently approved daily train movements (i.e. 8 trains per day). 4.2.b. Trains will utilise existing available slots on the network and as such will not result in an increase in capacity of trains on the network. 4.2.c. A Traffic Impact Assessment (Intersect Traffic 2014) has been undertaken for the Project. 4.2.d. Vehicle queuing data at the Clyde Street and Glebe Road level crossings collected as part of the	**B** (D)	5 (R)	19 (M)	

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		Traffic Impact Assessment (Intersect Traffic 2014)				
		4.2.e. Impacts on the rail network and level crossings has been carried out as part of the Traffic Impact Assessment (Intersect Traffic 2014).				
		4.2.f. Timetabling of trains undertaken by RailCorp, the Australian Rail Track Corporation and the Hunter Valley Coal Chain.				
12. Surface Water	There is a risk to Northern Coal Logistics Project from ::: Erosion and sedimentation of waterways ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Impacts to aquatic organisms or Impacts to groundwater dependent ecosystems (GDEs) or Impacts to other water users.	12.1.a. Newstan Colliery has an existing Erosion and Sediment Control Plan.	**B** (D)	5 (E)	19 (M)	48. Develop a Construction Management Plan.
		12.1.b. Water flows across the site are directed to pollution control structures.				78. Install, monitor and repair erosion and sediment control structures
						79. Review and update the Erosion and Sediment Control Plan following Project Approval.
						80. Pipe the remaining section of LT Creek to reduce the potential for sedimentation entering the creek.
14. Greenhouse Gas	There is a risk to Northern Coal Logistics Project from ::: Greenhouse Gas emissions ::: Caused by: Diesel usage or electricity usage Resulting in: Global warming or Sea level rise.	14.1.a. Greenhouse Gas Assessment (BDM Resources 2014) undertaken for the Project.	**B** (D)	5 (E)	19 (M)	60. Implement automation throughout the life of the Project (as required) to reduce diesel usage.
		14.1.b. Newstan Colliery has an existing Energy Savings Action Plan.				61. Continue to implement the Energy Savings Action Plan and identify energy efficiency opportunities.
						62. Pay the relevant $/t CO2-e depending on the year the liability is incurred, or purchase offsets.
						63. If credits are purchased, purchase credits from accredited suppliers in approved markets.
3. Ecology	There is a risk to Northern Coal Logistics Project from ::: Significant loss of vegetation ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry	3.1.a. The disturbance footprint areas for the Project have utilised areas that are predominantly already cleared and disturbed to reduce the clearing of vegetation.	**D** (D)	4 (E)	21 (L)	64. Install nest boxes at a ratio of 1:1 (i.e. one nest box for every habitat hollow removed). The design and installation of nest boxes will draw on the information obtained from the 5 year research programme undertaken by Centennial Mandalong into the utilisation of different nest box designs and aspects.
		3.1.b. The surface disturbance				48. Develop a Construction Management Plan.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Resulting in: Significant loss of habitat for flora and fauna.	footprint areas have been located adjacent to established access routes so as to further limit the amount of vegetation required to be disturbed and reduce impact of habitat fragmentation.				
		3.1.c. The disturbance footprint for Site 1 has been re-designed to avoid 425 clumps of Tetratheca juncea and some hollow bearing trees.				69. Erosion and sediment control measures to be installed, monitored and maintained to prevent the erosion and sedimentation impact on adjacent areas
		3.1.d. The disturbance area for Site 2 has been re-designed to avoid 131 specimens of Grevillea parviflora subsp. parviflora and 219 clumps of Tetratheca juncea.				70. Implement dust control measures where necessary to protect adjacent retained vegetation communities.
		3.1.e. A Flora and Fauna Impact Assessment (RPS 2014) has been undertaken to support the Project.				71. Barricade vegetation prior to construction activities to reduce damage from uncontrolled or accidental access.
		3.1.f. A vegetation buffer has been retained between the disturbance area and the old mine drift entrance referred to as 'Bat Alley'.				72. Stockpiling of materials to occur within already disturbed areas and not within retained vegetation.
						73. Strict weed management, monitoring and control practices to be implemented to minimise the spread of exotic species into natural areas within the Project Application Area.
						74. Vegetation to be removed is to be clearly marked in the field using temporary fencing (flagging tape or similar exclusion tape) so that boundaries are clearly established and to minimise the potential for equipment to accidently enter areas to be retained.
1. Air Quality	There is a risk to Northern Coal Logistics Project from ::: Dispersion of PM10, PM2.5 and TSP particulates and deposition of dust ::: Caused by: Operations at the Cooranbong Entry Site Resulting in: Community Complaints or Exceedances of the air quality criteria or Impacts to health.	1.3.a. An Air Quality Impact Assessment (SLR 2014) has been prepared for the Project.	**C** (D)	5 (R)	22 (L)	24. Following Project approval, air quality management plans for the Cooranbong Entry Site are to be updated to reflect the upgraded operations.
		1.3.b. An air quality model has been developed for the Project taking into consideration the Cooranbong Entry Site.				28. All loaded trucks to be covered to minimise transport of dust offsite.
		1.3.c. The location of sensitive receptors is known and have been considered in the air model.				25. Continue the watering of roads and sealing of roads where possible.
		1.3.d. A regional meteorological				27. Truck movement to be controlled on site and restricted to designated

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		data set has been developed to predict meteorological conditions.				roadways.
		1.3.e. Background air quality data has been determined as part of the Air Quality Impact Assessment (SLR 2014).				26. Trucks entering and leaving the site to be well maintained in accordance with the manufacturer's specification to comply with all relevant regulations.
		1.3.f. Mandalong Mine has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				
		1.3.g. Best practice dust mitigation measures assessment completed for the Cooranbong Entry Site.				
		1.3.h. Existing dust management measures implemented at the Cooranbong Entry Site.				
		1.3.i. Existing air quality management plans in place for the Cooranbong Entry Site.				
		1.3.j. Monitoring of PM10 and deposited dust undertaken at the Cooranbong Entry Site.				
		1.3.k. Modelling of ventilation fan emissions based on actual data obtained from the Mandalong Mine.				
		1.3.l. Truck wheel wash installed at the Cooranbong Entry Site.				
1. Air Quality	There is a risk to Northern Coal Logistics Project from ::: Dispersion of PM10, PM2.5 and TSP particulates and deposition of dust ::: Caused by: Construction of new infrastructure/land clearing at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in:	1.5.a. An Air Quality Impact Assessment (SLR 2014) has been prepared for the Project.	**C** (D)	5 (R)	22 (L)	40. Prepare a construction management plan to address air quality.
		1.5.b. Best practice dust mitigation measures assessment completed for the Newstan Colliery Surface Site.				29. Activities carried out on site should be such as to ensure that all equipment used and all facilities erected are designed and operated to control the emission of smoke, dust, fume and other objectionable matter into the atmosphere.
		1.5.c. Existing dust management measures implemented at the Newstan Colliery Surface Site.				31. Cleared vegetation, demolition materials and other combustible waste material should not be burnt on site.
		1.5.d. The location of sensitive				32. Silt should be removed from behind filter fences and other erosion control

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Community Complaints or Exceedances of the air quality criteria or Impacts to health.	receptors is known and have been considered in the air model.				structures on a regular basis, so that collected silt does not become a source of dust.
		1.5.e. Minimal land disturbance proposed.				33. Any dust, soil or mud deposited on public roads by sub-contractors construction activities and vehicle movements should be removed as soon as practicable.
		1.5.f. Monitoring of PM10, PM2.5 and deposited dust undertaken at the Newstan Colliery Surface Site.				30. Precautions to be taken include spraying of earthworks, roads and other surfaces as necessary with water or other suitable liquids, providing dust suppression equipment to any onsite materials batching plant and the modification of operations during high or unfavourable wind conditions.
		1.5.g. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				34. Working areas and access roads should be stabilised as soon as practicable to prevent or minimise windblown dust.
		1.5.h. Existing air quality management plans in place for the Newstan Colliery Surface Site.				35. All disturbed areas should be stabilised as soon as practicable to prevent or minimise windblown dust.
						36. All unsealed trafficable areas be kept sufficiently damp during working hours to minimise windblown or traffic generated dust emissions. Continued use of water on dirt roads helps the formation of a crust so that dust is not as easily generated.
						37. Water sprays, sprinklers and water carts are to be employed if needed to adequately dampen stockpiles, work areas and exposed soils to prevent the emissions of dust from the site. Water carts and other equipment are to be available to enable watering at least at an hourly rate of 2 litres per square metre.
						38. Stockpiles and handling areas should be maintained in a condition which minimises windblown or traffic generated dust. Areas that may be inaccessible by water carts should be kept in a condition which minimises windblown or traffic generated dust using other means.
						39. All equipment for dust control will be kept in good operating condition. The equipment will be operable at all times with the exception of shutdowns required for maintenance. Construction equipment will be properly maintained to ensure exhaust emissions comply with relevant regulatory requirements.
2. Noise	There is a risk to Northern Coal Logistics Project from ::: Noise emissions ::: Caused by: Operations at the Cooranbong Entry Site Resulting in: Community Complaints or	2.2.a. A Noise Impact Assessment (SLR 2014) has been prepared for the Project.	**C** (D)	5 (R)	22 (L)	53. Complete the attenuation of the existing Coal Handling Plant.
		2.2.b. A noise model has been developed for the Project taking into consideration the Cooranbong Entry Site.				58. Review and update the Noise Management Plan for the Project following Project approval.
		2.2.c. The location of sensitive receptors is known and have been considered in the noise model.				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Exceedances of noise goals.	2.2.d. A regional meteorological data set has been developed to predict meteorological conditions.				
		2.2.e. Background noise has determined as part of the Noise Impact Assessment (SLR 2014).				
		2.2.f. Mandalong Mine has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				
		2.2.g. Existing noise management measures implemented at the Cooranbong Entry Site.				
		2.2.h. Noise attenuation of the existing CHP has commenced.				
		2.2.i. Existing noise management plans in place for the Cooranbong Entry Site.				
		2.2.j. Annual attended noise monitoring undertaken at the Cooranbong Entry Site.				
		2.2.k. Real time noise monitor has been established at the Cooranbong Entry Site.				
		2.2.l. Noise attenuation wall installed at the Cooranbong export bin.				
2. Noise	There is a risk to Northern Coal Logistics Project from ::: Noise emissions ::: Caused by: Construction of new infrastructure/land clearing at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Community Complaints or Exceedances of noise goals.	2.3.a. A Noise Impact Assessment (SLR 2014) has been prepared for the Project.	**C** (D)	5 (R)	22 (L)	41. Minimise the sound power level of construction equipment where possible.
		2.3.b. A noise model has been developed for the Project taking into consideration the Cooranbong Entry Site.				42. Orientate equipment in such a way that the 'high-noise' side is directed away from the noise sensitive receivers where possible.
		2.3.c. The location of sensitive receptors is known and have been considered in the noise model.				43. Education of operators/contractors with regard to potential noise issues and encourage the implementation of quiet work practices.
		2.3.d. A regional meteorological data set has been developed				44. Arrangement of traffic flow at the site to minimise the need for reversing.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		to predict meteorological conditions.				
		2.3.e. Background noise has determined as part of the Noise Impact Assessment (SLR 2014).				45. Avoiding the use of PA systems and loud stereos outside.
		2.3.f. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				46. Turn off trucks and construction plant when not in use.
						47. Tipping and stockpiling materials as far away from neighbors as possible.
						48. Develop a Construction Management Plan.
						49. Undertake consultation with potentially affected residences regarding the timing of acoustically significant events.
						50. Ensure a prompt response to any complaint with regard to noise.
						51. Undertake noise monitoring on site and within the community.
						52. Implement any additional noise management actions if and where required.
2. Noise	There is a risk to Northern Coal Logistics Project from ::: Noise emissions ::: Caused by: Construction or operational traffic arriving or leaving the site Resulting in: Community Complaints or Exceedances of noise goals.	2.4.a. A Noise Impact Assessment (SLR 2014) has been prepared for the Project.	**C** (D)	5 (E)	22 (L)	
		2.4.b. A noise model has been developed for the Project taking into consideration the Cooranbong Entry Site.				
		2.4.c. The location of sensitive receptors is known and have been considered in the noise model.				
		2.4.d. A regional meteorological data set has been developed to predict meteorological conditions.				
		2.4.e. Background noise has determined as part of the Noise Impact Assessment (SLR 2014).				
		2.4.f. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				
3. Ecology	There is a risk to Northern Coal Logistics Project from ::: Impacts to threatened flora :::	3.2.a. A vegetation buffer has been retained between the disturbance area and the old mine drift entrance referred to as 'Bat Alley'.	**C** (D)	5 (E)	22 (L)	65. Develop and implement a *Tetratheca juncea* translocation research programme to build on the current knowledge regarding translocation of this species. The 376 clumps of *Tetratheca juncea* from within Site 1 to be translocated and monitored in accordance with the proposed research programme.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Significant declines in the population of a threatened species.	3.2.b. A Flora and Fauna Impact Assessment (RPS 2014) has been undertaken to support the Project.				66. Fund the development and implementation of a research proposal to investigate genetic patterns among and within populations of Tetratheca juncea from a range of habitat types. The benefits of this research will assist in determining whether conservation and offsetting actions can protect the genetic diversity of Tetratheca juncea.
		3.2.c. Extensive flora and fauna surveys undertaken as part of the Flora and Fauna Impact Assessment in accordance with relevant survey guidelines.				48. Develop a Construction Management Plan.
		3.2.d. The disturbance area for Site 2 has been re-designed to avoid 131 specimens of Grevillea parviflora subsp. parviflora and 219 clumps of Tetratheca juncea.				71. Barricade vegetation prior to construction activities to reduce damage from uncontrolled or accidental access.
		3.2.e. The disturbance footprint for Site 1 has been re-designed to avoid 425 clumps of Tetratheca juncea and some hollow bearing trees.				69. Erosion and sediment control measures to be installed, monitored and maintained to prevent the erosion and sedimentation impact on adjacent areas
		3.2.f. The surface disturbance footprint areas have been located adjacent to established access routes so as to further limit the amount of vegetation required to be disturbed and reduce impact of habitat fragmentation.				70. Implement dust control measures where necessary to protect adjacent retained vegetation communities.
		3.2.g. The disturbance footprint areas for the Project have utilised areas that are predominantly already cleared and disturbed to reduce the clearing of vegetation.				72. Stockpiling of materials to occur within already disturbed areas and not within retained vegetation.
						73. Strict weed management, monitoring and control practices to be implemented to minimise the spread of exotic species into natural areas within the Project Application Area.
4. Traffic	There is a risk to Northern Coal Logistics Project from ::: Increased traffic on private haul road ::: Caused by:	4.3.a. Cooranbong haul road designed with fauna fencing, fauna underpasses and fauna overpasses.	**C** (D)	5 (E)	22 (L)	
		4.3.b. Speed limit along haul road restricted to a maximum of 80km/hr				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Increased coal haulage truck movements Resulting in: Impacts to fauna.	4.3.c. Truck collisions with fauna are recorded.				
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to creeks ::: Caused by: Increased discharges through LDP001 Newstan or Poor water quality Resulting in: Impacts to aquatic ecology or Impacts to riparian vegetation or Impacts to stream geomorphology or Impacts to water quality.	5.1.a. Water Management Impact Assessment Prepared to support the project (GHD 2014).	**C** (D)	5 (E)	22 (L)	97. Treat all water discharged through LDP001 by the clean water plant (except in emergency situations).
		5.1.b. Ecotoxcicity data available and considered as part of the Water Management Impact Assessment (GHD 2014).				98. Stabilise LT Creek in reach 5 (area of the Archery Club) with a combination of instream structural works and improving riparian vegetation associations.
		5.1.c. Macroinvertebrate data available and considered as part of the Water Management Impact Assessment (GHD 2014)				99. Review, update and implement a Water Management and Monitoring Programme for the Project.
		5.1.d. Geomorphic assessment undertaken as part of the Water Management Impact Assessment (GHD 2014).				100. Continue the Implementation of a regular macroinvertebrate and sediment sampling programme downstream of LDP001 at Newstan for 2 years.
		5.1.e. Water quality data available for LDP001 and analysed as part of the Water Management Impact Assessment (GHD 2014).				
		5.1.f. Site Specific Trigger Values established for LT Creek.				
		5.1.g. Clean water plant in operation.				
		5.1.h. Hydraulic model developed as part of the Water Management Impact Assessment (GHD 2014).				
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to creeks ::: Caused by: Discharges through LDP017 Newstan or Poor water quality Resulting in:	5.3.a. Water Management Impact Assessment Prepared to support the project (GHD 2014).	**C** (D)	5 (E)	22 (L)	94. Prepare and implement a Water Management and Monitoring Programme for the Project.
		5.3.b. Geomorphic assessment undertaken as part of the Water Management Impact Assessment (GHD 2014).				107. Install localised protection to bank sections at risk and enhancing riparian vegetation associations.
		5.3.c. Site Specific Trigger Values established for Stony Creek.				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Impacts to aquatic ecology or Impacts to riparian vegetation or Impacts to stream geomorphology or Impacts to water quality.	5.3.d. Water quality data available for LDP017 and analysed as part of the Water Management Impact Assessment (GHD 2014).				
		5.3.e. Water quality monitoring station established at LDP017.				
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to creeks ::: Caused by: Discharges from Hawkmount Quarry or Poor water quality Resulting in: Impacts to aquatic ecology or Impacts to riparian vegetation or Impacts to stream geomorphology or Impacts to water quality.	5.5.a. Water Management Impact Assessment Prepared to support the project (GHD 2014).	**C** (D)	5 (E)	22 (L)	101. Install clean water diversion drains at the site.
		5.5.b. Site Specific Trigger Values established for unnamed creek.				102. Re-shape the maintenance track and install sediment fences adjacent to the access track.
		5.5.c. Geomorphic assessment undertaken as part of the Water Management Impact Assessment (GHD 2014).				103. The base of Hawkmount Quarry is to be shaped to enable the retention of dirty water runoff generated during rainfall events up to the 20 year ARI event.
						104. Formalise the existing storage into a sediment basin.
						105. Sediment and erosion control measures associated with Hawkmount Quarry should be monitored regularly to ensure their integrity and performance.
						106. Control initial discharges from the sediment dam to minimise scouring potential.
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to surface water storages ::: Caused by: Increased runoff Resulting in: Inadequate operating efficiency of dams or Insufficient capacity of dams.	5.6.a. Water Management Impact Assessment Prepared to support the project (GHD 2014).	**C** (D)	5 (E)	22 (L)	
		5.6.b. Capacity of existing and proposed new dams are known and considered as part of the Water Management Impact Assessment (GHD 2014).				
		5.6.c. Ability to transfer water around the site and underground to maintain surface water storage capacity.				
		5.6.d. Regional water balance prepared as part of the Water Management Impact Assessment (GHD 2014).				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
13. Social	There is a risk to Northern Coal Logistics Project from ::: Adverse social impacts as a result of the Project ::: Caused by: The Project Resulting in: Community Complaints or Damage to reputation or Loss of amenity.	13.1.a. A Social Impact Assessment (James Marshall and Co. 2014) has been undertaken for the Project.	**C** (D)	5 (R)	22 (L)	91. Ongoing environmental monitoring and reporting to the CCC.
		13.1.b. Consultation with the community and interested stakeholders has been undertaken regarding the Project.				108. Undertake direct consultation with NC3.
		13.1.c. Newstan Colliery and the Cooranbong Entry Site have been in operation for a number of years.				
		13.1.d. Community concerns regarding the Project are well understood.				
		13.1.e. Existing Newstan and Mandalong Community Consultative Committees are established to discuss concerns and provide information to community representatives.				
4. Traffic	There is a risk to Northern Coal Logistics Project from ::: Increased road traffic ::: Caused by: Construction employees or Increased employees entering the Cooranbong Entry Site or Increased employees entering the Newstan Colliery Surface Site Resulting in: Impacts to road efficiency or Impacts to road safety or Impacts to road serviceability.	4.1.a. Traffic counts and intersection counts have been undertaken on roads surrounding the Newstan Colliery Surface Site and Cooranbong Entry Site.	**D** (D)	5 (R)	24 (L)	13. A construction traffic management plan should be prepared and approved prior to the commencement of construction activities at the Newstan Colliery Surface Site.
		4.1.b. Estimated Project and Construction personnel have been calculated.				
		4.1.c. A Traffic Impact Assessment (Intersect Traffic 2014) has been undertaken for the Project.				
		4.1.d. An assessment of the existing road network has been undertaken as part of the Traffic Impact Assessment (Intersect Traffic 2014)				
		4.1.e. An assessment of the traffic volumes and network capacity has been				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		undertaken as part of the Traffic Impact Assessment (Intersect Traffic 2014).				
		4.1.f. An assessment of intersection capacities has been undertaken using the Sidra 5 intersection modelling software as part of the Traffic Impact Assessment (Intersect Traffic 2014)				
		4.1.g. A cumulative assessment of Traffic associated with the Northern Coal Logistics Project and Newstan Extension of Mining Project has been undertaken.				
		4.1.h. The Newstan Colliery Surface Site access intersection has already been constructed as a high standard type AUR/AUL rural intersection.				
		4.1.i. Sight distances at the Newstan Colliery Surface Site intersection complies with the Austroads Guide to Road Design recommendations.				
		4.1.j. Additional traffic volumes will result in the acceptable level of service for the local road network being maintained.				
		4.1.k. No additional operational employees proposed to access the Cooranbong Entry Site above the current employee numbers.				
		4.1.l. Consideration has been given to construction traffic accessing the Newstan Colliery Surface Site from the Cooranbong Entry Site and via private haul roads.				
		4.1.m. There is sufficient on-site car parking within the Newstan Colliery Surface Site to cater for the long term parking demand				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		generated by the Northern Coal Logistics Project and Newstan Extension of Mining Project.				
		4.1.n. The Project is unlikely to increase demand for alternative transport modes/services.				
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to creeks ::: Caused by: Increased discharges through LDP003 Newstan or Poor water quality Resulting in: Impacts to aquatic ecology or Impacts to riparian vegetation or Impacts to stream geomorphology or Impacts to water quality.	5.2.a. Water Management Impact Assessment Prepared to support the project (GHD 2014).	**D** (D)	5 (E)	24 (L)	94. Prepare and implement a Water Management and Monitoring Programme for the Project.
		5.2.b. Site Specific Trigger Values established for LT Creek.				
		5.2.c. Geomorphic assessment undertaken as part of the Water Management Impact Assessment (GHD 2014).				
		5.2.d. Water quality data available for LDP003 and analysed as part of the Water Management Impact Assessment (GHD 2014).				
6. Heritage	There is a risk to Northern Coal Logistics Project from ::: Impacts to Aboriginal heritage sites ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Damage to or loss of Aboriginal heritage sites.	6.1.a. Heritage surveys carried out over the two proposed disturbance areas by a qualified heritage consultant and representatives from the Registered Aboriginal Parties.	**D** (D)	5 (E)	24 (L)	14. The scarred tree is to be avoided by proposed surface works.
		6.1.b. One scarred tree identified within the proposed disturbance area of Hawkmount Quarry.				15. If any surface works are to occur within 100m of the scarred tree, Centennial must ensure that this area is cordoned off to avoid unintentional impact.
		6.1.c. Identified scarred tree is of low cultural and archaeological significance.				16. If any surface disturbance is required within If any surface disturbance is required beyond those areas surveyed as part of the Heritage Assessment, a cultural heritage survey should be undertaken in accordance with Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan. Any new sites identified by these surveys should be recorded and managed in accordance with Centennial's Northern Holdings Aboriginal Cultural Heritage Management Plan.
		6.1.d. A Heritage Impact Assessment (SLR 2014) has been undertaken for the Project.				17. If further Aboriginal site(s) are identified in the Project Application Area, any surface works in the vicinity should cease and a suitably qualified archaeologist and representatives from the Registered Aboriginal Parties contacted, so that it can be adequately assessed and managed.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		6.1.e. Consultation with the Registered Aboriginal parties has been undertaken in accordance with the Aboriginal Cultural heritage Consultation Requirements (DECCW 2010).				18. All relevant Centennial employees and contractors should be made aware of their statutory obligations for heritage under NSW NPW Act (1974) and the NSW Heritage Act (1977), which can be implemented as a heritage induction.
		6.1.f. An existing and approved regional Aboriginal Cultural heritage Management Plan is in place.				20. In the event that skeletal remains are identified, work must cease immediately in the vicinity of the remains and the area cordoned off. NSW Police are to be contacted immediately. No further action is to be taken until the Police provide written advice on how to progress. If the remains are determined to be Aboriginal, the proponent must contact the Enviroline (on 131 555), a suitably qualified archaeologist and representatives of the local Aboriginal community stakeholders to determine an action plan for the management of the skeletal remains, to formulate management recommendations and to ascertain when work can recommence.
9. Soil	There is a risk to Northern Coal Logistics Project from ::: Decline in land capability and agricultural suitability ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Impacts to agricultural land availability or Impacts to land use.	9.1.a. Field surveys and soil samples collected from within the proposed disturbance areas.	**D** (D)	5 (E)	24 (L)	89. A Construction Management Plan will be developed and implemented and will include procedures for the management of surface water, topsoil and erosion and sedimentation.
		9.1.b. A soil and Land Capability Assessment (SLR 2014) has been undertaken for the Project.				90. During construction, erosion and sediment controls will be installed in accordance with *Managing Urban Stormwater Soils and Construction* (the Blue Book) *Volume 1* (Landcom 2004) and *Volume 2C Unsealed Roads* (DECC 2008) to reduce the likelihood and severity of erosion and sedimentation within and around the disturbance areas.
		9.1.c. Land capability mapping undertaken as part of the Soil and Land Capability Assessment (SLR 2014).				1. Topsoil from within Site 1 is to be stripped prior to significant disturbance and then later re-spread in focused rehabilitation efforts.
		9.1.d. BSAL land identified/mapped in accordance with latest guidelines.				2. Topsoil to be maintained in a slightly moist condition during stripping. Material should not be stripped in excessively dry or wet conditions.
		9.1.e. No soils within the proposed disturbance areas qualify as BSAL.				3. Topsoil stripping to be timed to take place in unison with vegetation clearing
		9.1.f. Minimal land disturbance proposed.				4. The surface of topsoil stockpiles to be left in as coarsely structured condition as possible in order to promote infiltration and minimise erosion until vegetation is established
		9.1.g. Low agricultural suitability land proposed to be disturbed.				5. Topsoil stockpiles to be maintained no higher than 3 m.
		9.1.h. Disturbance areas have utilised land adjacent to existing disturbed areas and infrastructure and utilised				6. If long term stockpiling planned, seed and fertilise stockpiles as soon as possible.
						7. Undertake a weed infestation assessment of topsoil stockpiles prior to re-spreading and undertake weed control if necessary.

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		existing access tracks and cleared areas as far as practical.				8. Maintain an inventory of topsoil stockpiles. 9. Topsoil to be spread, seeded and fertilised in one consecutive operation. 10. Soil to be re-spread to the approximate depth from which it was stripped. 11. Topsoiled areas to be lightly contour ripped. Ripping should be undertaken on the contour. 12. Scarify the surface of the topsoil prior to seeding to reduce runoff and increase infiltration.
11. Visual	There is a risk to Northern Coal Logistics Project from ::: Change in visual aesthetics of the area ::: Caused by: Construction of new infrastructure at the Newstan Colliery Surface Site and/or Hawkmount Quarry Resulting in: Community Complaints or Declines in local tourism or Impacts on the areas visual amenity.	11.1.a. A Visual Impact Assessment (Green Bean Design 2014) has been undertaken for the Project. 11.1.b. Disturbance areas have utilised land adjacent to existing disturbed areas and infrastructure and utilised existing access tracks and cleared areas as far as practical. 11.1.c. Newstan Colliery has been in operation for a number of years. 11.1.d. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked. 11.1.e. The location of sensitive receptors are known and have been considered in the Visual Impact Assessment (Green Bean Design 2014). 11.1.f. Existing and established visual screening around areas of proposed new infrastructure.	**D** (D)	5 (R)	24 (L)	81. The colour and texture of new structures in the Project Application Area should be dark in tone and utilise non-reflective materials where possible. 82. Lighting associated with the Northern Coal Logistics Project should be designed to avoid direct line of sight from areas surrounding the site where possible. 83. Security lighting should be designed to minimise light spill. 84. Landscape works such as shrub and tree planting should be undertaken to increase the level of existing screening potential to proposed project infrastructure within the Project Application Area, including planting along Miller Road.
1. Air Quality	There is a risk to Northern Coal Logistics Project from ::: Dispersion of odour ::: Caused by: Operations at the Newstan Colliery Surface Site, haul roads and	1.2.a. An Air Quality Impact Assessment (SLR 2014) has been prepared for the Project. 1.2.b. An air quality model has been developed for the Project taking into consideration the Newstan	**E** (D)	5 (E)	25 (L)	

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Hawkmount Quarry Resulting in: Community Complaints or Exceedances of the air quality criteria.	Colliery Surface Site.				
		1.2.c. The location of sensitive receptors is known and have been considered in the air model.				
		1.2.d. A regional meteorological data set has been developed to predict meteorological conditions.				
		1.2.e. Modelling of ventilation fan emissions based on actual data obtained from the Mandalong Mine.				
		1.2.f. Newstan Colliery has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				
1. Air Quality	There is a risk to Northern Coal Logistics Project from ::: Dispersion of odour ::: Caused by: Operations at the Cooranbong Entry Site Resulting in: Community Complaints or Exceedances of the air quality criteria.	1.4.a. An Air Quality Impact Assessment (SLR 2014) has been prepared for the Project.	**E** (D)	5 (R)	25 (L)	
		1.4.b. An air quality model has been developed for the Project taking into consideration the Cooranbong Entry Site.				
		1.4.c. The location of sensitive receptors is known and have been considered in the air model.				
		1.4.d. A regional meteorological data set has been developed to predict meteorological conditions.				
		1.4.e. Modelling of ventilation fan emissions based on actual data obtained from the Mandalong Mine.				
		1.4.f. Mandalong Mine has a dedicated complaints and enquiries line where concerns can be raised, complaints made or questions asked.				

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
5. Water Management	There is a risk to Northern Coal Logistics Project from ::: Impacts to water users ::: Caused by: Water discharges Resulting in: Loss of water availability to downstream water users.	5.7.a. Water Management Impact Assessment Prepared to support the project (GHD 2014). 5.7.b. Licenced Water Users identified and considered as part of the Water management Impact Assessment (GHD 2014).	**E** (D)	5 (E)	25 (L)	
6. Heritage	There is a risk to Northern Coal Logistics Project from ::: Impacts to European heritage sites ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Damage to or loss of European heritage sites.	6.2.a. Heritage surveys carried out over the two proposed disturbance areas by a qualified heritage consultant. 6.2.b. No European heritage items identified within the Project Application Area. 6.2.c. A Heritage Impact Assessment (SLR 2014) has been undertaken for the Project.	**E** (D)	5 (E)	25 (L)	19. In the event that any European historic cultural heritage material is identified or uncovered during development works, any surface works in the area should cease in the area and a heritage consultant must be contacted to assess the condition of the item. Northern Coal Services must adopt the appropriate mitigation measures, as provided by the heritage consultant, before work may recommence.
8. Agriculture	There is a risk to Northern Coal Logistics Project from ::: Loss of strategic agricultural land ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Impacts to agricultural enterprises.	8.1.a. Field surveys and soil samples collected from within the proposed disturbance areas. 8.1.b. Disturbance areas have utilised land adjacent to existing disturbed areas and infrastructure and utilised existing access tracks and cleared areas as far as practical. 8.1.c. Low agricultural suitability land proposed to be disturbed. 8.1.d. Minimal land disturbance proposed. 8.1.e. No soils within the proposed disturbance areas qualify as BSAL. 8.1.f. BSAL land identified/mapped in accordance with latest guidelines.	**E** (D)	5 (E)	25 (L)	

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
		8.1.g. Land capability mapping undertaken as part of the Soil and Land Capability Assessment (SLR 2014).				
		8.1.h. A soil and Land Capability Assessment (SLR 2014) has been undertaken for the Project.				
9. Soil	There is a risk to Northern Coal Logistics Project from ::: Impacts to Biophysical Strategic Agricultural Land (BSAL) ::: Caused by: Land clearing for new infrastructure at the Newstan Colliery Surface Site and Hawkmount Quarry Resulting in: Impacts to agricultural land availability or Impacts to land use.	9.2.a. Field surveys and soil samples collected from within the proposed disturbance areas.	**E** (D)	5 (E)	25 (L)	89. A Construction Management Plan will be developed and implemented and will include procedures for the management of surface water, topsoil and erosion and sedimentation.
		9.2.b. A soil and Land Capability Assessment (SLR 2014) has been undertaken for the Project.				90. During construction, erosion and sediment controls will be installed in accordance with *Managing Urban Stormwater Soils and Construction* (the Blue Book) *Volume 1* (Landcom 2004) and *Volume 2C Unsealed Roads* (DECC 2008) to reduce the likelihood and severity of erosion and sedimentation within and around the disturbance areas.
		9.2.c. BSAL land identified/mapped in accordance with latest guidelines.				
		9.2.d. No soils within the proposed disturbance areas qualify as BSAL.				
		9.2.e. An Agricultural Impact Assessment (SLR 2014) has been undertaken for the Project.				
		9.2.f. No Strategic agricultural enterprises are within the Project Application Area.				
		9.2.g. Low agricultural suitability land proposed to be disturbed.				
		9.2.h. Disturbance areas have utilised land adjacent to existing disturbed areas and infrastructure and utilised existing access tracks and cleared areas as far as practical.				
10. Final Land Use	There is a risk to Northern Coal Logistics Project from ::: Rehabilitation and decommissioning ::: Caused by:	10.1.a. A Decommissioning and Rehabilitation Strategy (SLR 2014) has been prepared for the Project.	**E** (D)	5 (R)	25 (L)	92. Undertake consultation with the community and relevant government agencies during detailed mine closure planning.
		10.1.b. Strategic planning strategies and current and proposed Local				93. Undertake decommissioning and rehabilitation generally in accordance with the recommendations of the Decommissioning and Rehabilitation Strategy (SLR 2014).

Step	Potential Incident	Current Controls	L	MRC	RR	Recommended Control
	Mine closure Resulting in: Incompatible land use.	Environment Plans (LEPs) have been reviewed and taken into consideration during the preparation of the Rehabilitation and Decommissioning Strategy (SLR 2014).				
		10.1.c. Existing approved MOPs for the Newstan Colliery Surface Site and Cooranbong Entry Site.				

CENTENNIAL RISK MATRIX

Rating	Consequence Note: Consequence may result from a single event or may represent a cumulative impact over a period of 12 months. Use the worst case reasonable consequence if there is more than one.						Likelihood					Description (D)
							A Certain	B Probable	C Possible	D Remote	E Improbable	
							Common"	Has Happened within Centennial"	"Could Happen & has happened in non-CEY operations	Not Likely	"Practically impossible	Probability (Pb)
	Impact to Annual Business Plan (F)	Personal Injury (PI)	Business Interruption (BI)	Legal (L)	Reputation (R)	Environment (E)	Frequent incidents	Regular incidents	Infrequent incidents	Unlikely to occur. Very few recorded or known incidents	May occur in exceptional circumstances. Almost no recorded incidents.	Incident Frequency (IF)
							Operations – within 3 months	Operations – within 2 years	Operations – within 5 years	Operations – within 10 years	Operations – within 30 years	Operations (Op)
							Project – Every project	Project – Every 2 projects	Project – Every 5 projects	Project – Every 10 projects	Project – Every 30 projects	Project (Pr)
1. Catastrophic	>$50m	Multiple Fatalities	> 1month	Prolonged litigation, heavy fines, potential jail term	Prolonged International media attention	Long term impairment habitats/ ecosystem	1 (E)	2 (E)	5 (H)	7 (H)	11 (S)	
2. Major	$10m - $50m	Single Fatality	1 week to 1 month	Major breach/ major litigation	International media attention	Long term effects of ecosystem	3 (E)	4 (E)	8 (H)	12 (S)	16 (M)	
3. Moderate	$1m - $10m	Serious/ Disabling Injury	1 day to 1 week	Serious breach of regulation. prosecution/ fine	National media attention	Serious medium term environmental effects	6 (H)	9 (H)	13 (S)	17 (M)	20 (L)	
4. Minor	$100k - $1m	Lost Time Injury	12 hrs to 1 day	Non-compliance, breaches in regulation	Adverse local public attention	Minor effects to physical environment	10 (S)	14 (S)	18 (M)	21 (L)	23 (L)	
5. Insignificant	<$100k	First Aid Treatment Only	< 12 hrs	Low level compliance issue	Local complaints	Limited physical damage	15 (S)	19 (M)	22 (L)	24 (L)	25 (L)	

Risk Rating	Risk Category		Generic Management Actions
1 to 4	E	Extreme	Immediate intervention required from senior management to eliminate or reduce this risk
5 to 9	H	High	Imperative to eliminate or reduce risk to a lower level by the introduction of control measures. Management planning required at senior levels
10 to 15	S	Significant	Corrective action required, senior management attention needed to eliminate or reduce risk
16 to 19	M	Moderate	Corrective action to be determined, management responsibility must be specified
20 to 25	L	Low	Monitor and manage by corrective action where practicable