Expert witness statement of Mr. Gregory T. Collins

In the matter of the Bell Bay Pulp Mill Project:

A project of State Significance Resource Planning and Development Commission inquiry.

Proponent: Gunns Limited

1. Name and Address

Gregory T Collins

GHD Pty Ltd

352 King Steet

Newcastle NSW 2300

2. Area of Expertise

My area of expertise is acoustics.

My qualifications and experience are detailed in Attachment 1. I am sufficiently expert to make this statement because I have undertaken many acoustic assessments of similar size, scope and complexity, and have comprehensive experience in applying acoustic principles to a variety of complex situations.

3. Scope

3.1 Instructions

I was engaged to undertake a noise assessment of the proposed bleached kraft pulp mill at Bell Bay. The name of the report is Pulp Mill Noise Report located in Volume 9 Appendix 18 of the Draft Integrated Impact Assessment (Draft IIS). I adopt the contents of that report. This statement of evidence summarises my report in the Draft IIS and any additional material that was not discussed in detail in the Draft IIS is discussed in this statement.

I was engaged because I have undertaken acoustic assessments of many industrial projects in the past including assessments for the timber industry.

The assessment addressed the acoustic requirements of the scope guidelines for the Integrated Impact Assessment including construction, road traffic and operational noise for the proposed pulp mill. The objectives were to:

- Measure and assess existing ambient and background noise levels in the vicinity of the development;
- Identify primary noise sources in the vicinity of the site;
- Assess the potential noise impacts of the construction and operation of the proposed development; and
- Visit the water supply and effluent pipeline alignments to consider the noise implications of construction and operation noise along those pipelines.

3.2 Process and Methodology

At all stages I worked with GHD.

The scope included:

- Undertaking unattended noise monitoring at locations which I considered to be representative of the local environment while Gunns' existing Chip Mills were not operating. I selected these sites having regard to the historical information which I describe in section 3.2 of the acoustic report at Appendix 18 of the Draft IIS and section 3.1.2 of the NSW Department of Environment and Conservation (DEC) Publication Industrial Noise Policy (INP). This section of the INP provides guidance on how to select locations that are, or will be most affected by noise from The Source under consideration. The locations I selected to monitor noise in the vicinity of the pulp mill site are depicted in attachment 2;
- Unattended noise monitoring at the same locations but while Gunns' Chip Mills were operating;
- Attended noise measurements to determine primary noise sources in the vicinity of the site;
- Analysis of the data and comparison of existing noise levels to noise criteria in the NSW DEC INP, Environmental Noise Control Manual (ENCM) and The Environmental Criteria for Road Traffic Noise (ECRTN). These criteria were adopted at the recommendation fo DPIWE as there are no relevant noise guidelines or criteria in force for Tasmania;
- Review of development layout/design drawings;
- Acoustic modelling based on site recorded information for the chip mill and data provided by Jaakko Poyry (JP) to predict noise levels emanating from the proposed development and comparison to project specific noise goals;
- Inspection of facilities at the existing Chip Mills; and
- Identifying in-principle noise control options if results of the assessment suggest criteria are likely to be exceeded.

The acoustic assessment is based upon a conceptual design of the Pulp Mill including sources of noise during the construction and operation phases. It is not and can not be a detailed designed noise impact and mitigation assessment, but rather provides guidance for the detailed design of the Pulp Mill;

Since preparing the noise assessment report in Volume 9 of the Draft IIS, I have visited the water supply and effluent pipeline alignments. The purpose of that visit was to consider the noise implications of construction and operation noise along those pipelines.

3.3 Reports Reviewed

I was instructed to consider or take into account and have reviewed the following reports and materials:

- Volume 7 Annex 9 Appendix 11 of the Draft IIS Typical Noise Emissions of a Modern Bleached Kraft Pulp Mill, JP;
- Volume 15 Appendix 9 of the Draft IIS, Blasting Risk Analysis Report, Orica;
- Volume 15 Appendix 43 of the Draft IIS, Transport Assessment, GHD;
- Background noise report "Propagation and distribution of sound, Long Reach Woodchip Mills to Rowella", DPIWE 2005;
- Sound Level Survey, Environmental and Technical Services Pty Ltd 1998;

- Acoustic Survey, Environmental and Technical Services Pty Ltd 1991; and
- Volume 8 Annex 12 of the Draft IIS, Building Description, JP.

These are the basis on which my report is based for pulp mill noise sources and building descriptions.

For the purpose of this statement I have also read the reports pertaining to the workers accommodation facility and the landfill. These reports are located in the Draft IIS at volume 14, Pitt and Sherry "Workers Accommodation Facility Report" and volume 16, Pitt and Sherry "Solid Waste Landfill Conceptual Design".

In addition to Draft IIS volume 6 and 7, I was also given a document by JP which describes the conceptual construction staging program for the Pulp Mill. That document is provided as Attachment 3.

3.4 Assumptions

I have assumed:

- The accuracy and reliability of the information provided by Jaakko Poyry in Section 3.3; and
- The accuracy and reliability of the acoustic assessments presented in Pitt and Sherry reports on the workers accommodation facility and the landfill.

3.5 Limitations and Exclusions

The findings of the noise assessment represent the findings apparent at the date and time of the monitoring and the conditions of the area at that time. It is the nature of environmental monitoring that all variations in environmental conditions cannot be assessed, and all uncertainty concerning the conditions of the ambient noise environment cannot be eliminated.

4. Summary of Opinions on the Bell Bay Pulp Mill

4.1 Noise Criteria

In the absence of relevant noise guidelines or criteria in force for Tasmania, the following criteria were adopted at the recommendation of DPIWE:

- The NSW DEC INP, ENCM, and ECRTN.

4.2 Existing Environment

Where an industry is seeking to expand its operations, the INP recommends that background noise monitoring be undertaken while the industry is not operating, or in an area representative of the local noise environment but not influenced by the industry in question.

A site inspection was conducted to determine appropriate long term noise monitoring locations for the assessment. Location 1 is located opposite the Site, across the Tamar River, and is currently subject to noise from the existing surrounding industry (Bell Bay Power Station and current chip mill). Location 2, also located across the Tamar River to the south west of the Site, experiences a similar noise environment. As such, both noise monitoring locations were deemed sites indicative of the local noise environment and a noise logger was placed at these locations.

Additionally Section 3.1.2 of the INP suggests "locations that are most affected or (will be most affected) by noise from the source under consideration." Therefore the monitoring locations were selected as being potentially the most affected by the project with consideration to Section 3.1.2 of the INP.

Results of the noise monitoring are provided in Attachment 4.

Noise data obtained from the Tasmanian DPIWE Background noise report "Propagation and distribution of sound, Long Reach Woodchip Mills to Rowella 2005", was utilised in this assessment to further describe the ambient noise environment in the region at more remote locations from the Pulp Mill site.

4.3 Modelling Process

Acoustic modelling was undertaken using Computer Aided Noise Abatement (CadnaA) to predict the effects of potential noise generated by construction and operation of the proposed pulp mill.

CadnaA is a computer program for the calculation, assessment and prognosis of noise exposure. CadnaA calculates environmental noise propagation according to ISO 9613-2 Acoustics – Attenuation of sound during propagation outdoors. Local topography, ground absorption and relevant building structures are taken into account in the calculations.

Modelling was based on information provided by Jaakko Poyry for the Pulp Mill and site measurements undertaken at the existing Chip Mill.

Sound power levels for the pulp mill have been derived from data from an operational pulp mill located in Finland which are located in volume 7 Annex 9 Appendix 11 of the Draft IIS (Typical Noise Emissions of a Modern Bleached Kraft Pulp Mill). In addition, attended monitoring was undertaken at the existing chip mills to establish sound power levels from current operations. While not all plant and equipment will be the same, the measured noise levels provide a practical indication of what noise levels can be expected at the proposed pulp mill and future chipping operations.

Existing chip mill sound pressure measurements were based on ISO 9613:1993.*Acoustics – Attenuation of sound during propagation outdoors,* AS 1217.7- *Acoustics – Determination of Sound Power Levels of Noise Sources Part 7 – Survey Method,* and ISO 9614:1996 *Acoustics – Determination of sound power levels of noise sources using sound intensity – Part 2: Measurement by scanning*. Pulp mill sound pressure measurements derived from information provided by Jaakko Poyry were converted to sound power levels with consideration to ISO 9613 and AS 1217.7.

Therefore the assessment took into account:

- The existing ambient noise environment; and
- The measured sound pressure levels of various plant and equipment at the existing chip mill and operational data from a comparable pulp mill in Finland which formed the basis for predicting sound levels for plant and equipment at the proposed pulp mill.

4.4 Construction Noise

Jaakko Poyry provided me with a conceptual construction staging plan. That plan consisted of three construction stages and each stage applied to different activities at different parts of the pulp mill site. The character and location of each construction stage is depicted on the Jaakko Poyry document in Attachment 3 of this statement. Therefore the noise assessment for each construction stage is as set out in Section 5.2 of my report in Volume 9 of the Draft IIS. Stages 2 and 3 were modelled as similar scenarios because the provided bulk earth work plan indicated a similar earthworks schedule.

Modelling suggests staged construction activities being undertaken during night time under calm weather conditions are unlikely to exceed the respective construction noise criteria at any of the modelled receiver locations.

Scenarios where construction activities are being undertaken during day time periods and in the event of a night time temperature inversion, has the potential to exceed respective construction noise goals at the majority of modelled receiver locations.

As previously stated, modelling was undertaken based on a worst-case scenario, with all plant operating simultaneously. As a result, predicted received noise levels are expected to slightly overstate actual received levels and thus provide a measure of conservatism.

The construction noise criteria are set for noise levels determined as $L_{A10(15min)}$ which is the sound level exceeded for 10% of the time during a 15 minute period due to construction noise alone. During a full 15 minute period, the machinery items to be used on site will operate at maximum sound power levels for only brief stages. At other times the machinery may produce lower sound levels while carrying out activities not requiring full power. Therefore the modelled results indicate a worst case scenario.

4.5 Operational Noise

Operational noise measurements taken from the existing chip mill were modelled using Cadna A noise modelling software to predict noise levels resulting from the proposed pulp mill and chip mill. The model considers topography, site noise sources and the location of the receiver areas to predict received noise levels from the proposed pulp mill. The location of the noise sources within the site was done with reference to site layout plans.

Modelling results were compared to the INP for comparative purposes, based on the absence of relevant Tasmanian legislation.

The INP outlines a series of steps which assist in deriving project specific noise goals for a given project. Results of the modelling suggest the INP project specific noise goals may be exceeded due to unfavourable atmospheric conditions and the introduction of a third chipper at the existing chip mill. Modelling was undertaken for unfavourable atmospheric conditions with an F class temperature inversion with a 2 m/s source to receiver drainage flow to represent a potential worst case scenario.

However Section 5 of the INP specifies that if inversions occur less than 30% of the time then no further assessment is required. The proximity of these occurrences has been based on information provided by the GHD air quality team and their report in Volume 9 Appendix 16 “Impact on Air Quality.” Wind Rose and Stability Class Rose information utilised in the assessment is provided as Attachment 5. This Wind Rose and Stability Class Rose information suggest that it is possible for this circumstance to occur, the frequency that this condition occurs less than 30% of the time. Therefore it is not a compliance condition for this undertaking with consideration to the INP.

Modelled results suggest that the pulp mill should not exceed project specific noise goals.

4.6 Management Considerations

I have reviewed the proposals for environmental management plans and monitoring plans for noise contained in Volume 4 of the Draft IIS. These plans will minimise noise impact on the surrounding noise environment.

While it has yet to be determined what engineered noise control measures are most practicable, a common industrial practice is to provide a performance-based specification approach involving a sound level specification, rather than a prescriptive requirement to include specific mitigation measures. This will promote design flexibility for the proponent and to enhance their ability to achieve the optimum outcome in an efficient and effective way.

However, the following is a suggested outline of how attenuation may be achieved.

- Treatment options:
  - Log deck

    The log deck noise is created by dropping and moving the logs on the deck. This operation is not proposed to be changed. Noise is generated by the deck itself and this may be attenuated by doing work on the underside of the deck to reduce the reverberation.
  - Chipper

    Each chipper is a key noise source. The chipper housings may be modified to attenuate noise, although it would be difficult to attain acoustic effectiveness while retaining serviceability.
  - Chipper building

    The chipper buildings are lightly clad structures with little acoustic impact as the sheeting has little noise attenuation capability. Further, in the south chipper building there are large wall openings toward the river. Opportunities to address noise “lost” from the buildings include reduction in opening areas as well as addition of absorption capabilities.
- Suggested treatment:

  The following order of treatment is suggested for further discussion:
  - Re-Chipper acoustic enclosure;
  - Each Chipper (both North and South);
  - South Chipper building (most openings);
  - North Chipper building; and
  - Review benefits achieved prior to further treatments.

Construction Noise Mitigation

To minimise noise emissions during construction, the following management and mitigation measures are available to ameliorate likely noise impacts:

- All combustion engine plant, such as generators, compressors and welders should be checked to ensure they produce minimal noise with particular attention to residential grade exhaust silencers;
- Vehicles should be kept properly serviced and fitted with appropriate mufflers. The use of exhaust brakes should be eliminated, where practicable;
- Where practical, all vehicular movements to and from the construction site are recommended to be made only during normal working hours;
- Where practical, machines should be operated at low speed or power and switched off when not being used rather than left idling for prolonged periods;
- Machines found to produce excessive noise compared to industry best practice should be removed from the site or stood down until repairs or modifications can be made; and
- Where practical, impact wrenches should be used sparingly with hand tools or quiet hydraulic torque units preferred.

With regard to potential traffic noise, by keeping plant related vehicles serviced, fitted with mufflers and eliminating exhaust brake usage, noise due to trucking activity associated with the operation and construction of the pulp mill can be significantly mitigated.

Recommended Noise Mitigation - New Chipper

Modelling results indicate the new chipper will be a significant noise source which will require attenuation. An attenuation strategy for the new chipper is recommended during the design stage that incorporates building design and enclosure around the chipper.

It is recommended that as part of a noise management strategy, a noise monitoring program be implemented for the construction and operation phase of the pulp mill.

4.7 Response to Community Concerns and Key Submissions

Various submissions appear to be based on a mistaken assumption that Gunns has undertaken a detailed design, of the Pulp Mill. The noise assessment which I have undertaken for this project considers a conceptual design by Jaakko Poyrry, not a detailed design. The primary purpose of my noise assessment was two fold:

- To consider the noise emissions during construction and operation of the Mill. Because this assessment is of a conceptual design only, I have of necessity had to build in a number of conservative assumptions:
  - All equipment has been modelled as operating simultaneously at their maximum sound power levels, which is highly unlikely; and
  - Within the building description for the pulp mill, where two wall types were proposed I selected the wall type with the least amount of reduction index to provide a worst case scenario. For example, if concrete or galvanized steel sheeting was proposed for walls, I selected galvanized steel sheeting;
- To advise of the noise attenuation principles that should inform the detailed design of the project.

It is in this context I have provided the following general responses to the Tasmanian Government submission. I note that in many cases the Tasmanian Government has mistakenly asserted that I have failed to consider the acoustic implications of various issues such as:

- Atmospheric Conditions;
- Increased Traffic Conditions; and
- Site layout, location and height of noise sources.

4.7.1 DPIWE Issues

- With regards to the compliance to AS 2187-2006, AS 2187-1993 was superseded by AS 2187-2006 after I wrote the report. I've reviewed AS 2187-2006, and recommend that this standard be complied with.
- Vibration monitoring has been recommended in the report which also generally assumes overpressure monitoring will be undertaken especially in the event of blasting;
- DPIWE mentioned noise nuisance. Noise nuisance is generally regarded as a subjective term lacking in quantitative structure. It is similar to saying a project should be 'inaudible' to persons. Therefore having a structured approach similar to the INP is preferred because it outlines noise goals for a project and compliance can be quantitatively measured;
- DPIWE mentioned additional noise monitoring. It is considered that additional noise monitoring is unwarranted at this time. Monitoring was undertaken by GHD and previous background noise monitoring was utilised in the report. The previous noise monitoring results had very low noise levels, and if the ambient noise environment has changed since that monitoring it would more than likely have increased rather than decreased;
- DPIWE questioned modelled scenarios 3 and 5 of the assessment. Table 5.15 of my Appendix 18 noise report has been rechecked. While the plots are accurate, the numbers for Table 5.15 were changed and incorrect from previous drafts. Table 5.15 has been corrected and is included as Attachment 6;
- DPIWE questioned modelled results and predicted sound levels. The results have been rechecked and validated;
- DPIWE suggests stability data for 1998, carried out by the Department of Tourism, Arts and the Environment, indicates that F stability conditions occur on about 43% of winter nights. Information regarding stability class roses and wind roses have been provided as Attachment 5, and do not support this suggestion; and
- DPIWE enquired whether soot blowing was modelled during operational phases. The blow down phase was included at startup, however an additional model including soot blowing has been run for the operational phase and is not expected to be a concern with consideration to Pulp Mill operational noise levels. Partial noise levels for this modelled run are provided as Attachment 7.

5. Other Noise Issues

5.1 Pump Station and Water Supply Pipeline

While not part of the acoustic report I prepared for the Draft IIS, I have recently inspected the site and have reviewed the relevant sections of the Draft IIS. Sound Power Levels and building design information is recommended to be provided to ascertain noise levels emanating from the pump station. However with an acoustically treated enclosure for the pump station it is anticipated this will not have an adverse affect on the local noise amenity.

The water supply and effluent pipe lines generally are in areas of little acoustic risk. The primary noise from the pipelines will be from construction activities. Some locations in the vicinity of Trevallyn Dam may be exposed to construction noise, but this is expected to be of short duration. However, a construction management plan and monitoring program in identified noise sensitive locations is recommended.

5.2 Land Fill and Quarry

Given that the landfill and quarry sites are located a considerable distance from nearest residences, noise is not expected to be a significant issue.

5.3 Wharf

I have reviewed the Draft IIS Volume 2 Sections 10.12 and 10.13 for the wharf facility. Based on information provided, noise emanating from the wharf facility is not expected to be a significant issue. The noise will consist of the movement of trucks to and from the vessel at a rate of approximately 31 trucks per hour. Engine brakes will not be used going down the hill and the trucks will be returning up the hill to the warehouse empty

5.4 Workers Accommodation Facility

I have reviewed the relevant sections of the Draft IIS and visited the site where the workers accommodation facility is proposed to be located. Noise is not expected to be a significant issue. The potential for noise generated during the operation of the facility is considered minimal. Noise generated during construction and decommissioning is can be effectively managed through the implementation of noise management measures.

6. Conclusion

The pulp mill itself is not expected to be a significant noise contribution to the overall acoustic environment. Rather, the existing chip mill is the dominant noise contributor. Therefore mitigation measures have focussed on the existing chip mill to improve the acoustic amenity of residences living in the vicinity of the development.

With consideration to construction noise, rock breaking/crushing activities are expected to be the most significant noise source associated with the proposed Pulp Mill. It has been proposed that these activities only take place during the day, which is primarily why night-time predicted construction noise levels are not expected to exceed the relevant construction noise criteria.

7. Provisional Opinion

The opinions that I have expressed in this report are based on my experience and the experience and advice provided to me by Gunns Limited and the consultants engaged to carry out specialist studies for the Bell Bay Pulp Mill Project. Subject to any limitations and exclusions identified in this statement, my opinions are complete and accurate in every respect.

I am satisfied through my inquiries that the opinions I have expressed are reasonable in regard to acoustics and the findings of this acoustic assessment.

8. Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have, to my knowledge, been withheld from the Commission.

Signed: Greg Collins **Date:** 12/12/06

Attachment 1

Qualifications

Expert witness statement of Mr. Gregory T. Collins

Gregory Collins Principal Environmental Scientist

Greg is an environmental scientist with GHD who is involved in managing projects in the fields of acoustics. Greg is the service line leader in acoustics for GHD.

Greg has extensive experience in noise assessments for environmental impact statements, development and rezoning applications, industry, road traffic noise, machinery noise testing and environmental noise monitoring. He has project managed environmental monitoring programs (Air and Noise) for Mt Arthur Coal, Mt Owen Mine, Ravensworth Coal Terminal and Donaldson Mine. Greg has also conducted OHS&R surveys for noise and air quality in the workplace.

Greg has a thorough understanding of various national and international noise guidelines including, NSW DEC Industrial Noise Policy, Environmental Criteria for Road Traffic Noise, and the Environmental Noise Control manual.

Key Experience Areas

- Acoustic assessments for environmental impact statements, development and rezoning applications, industrial noise and road traffic noise;
- Noise modelling using Cadna A Computer Aided Noise Abatement and RTA Technologies ENM Noise Prediction Software;
- Sound intensity measurement and sound power determination for mobile and stationary industrial and mining equipment;
- Development of noise mitigation solutions; and
- Environmental, machinery and OH&S noise monitoring and modelling.

Recent Relevant Experience

- **ICD Pty Limited** – Detailed noise assessment for the Wagga Wagga Distribution Centre to enable the storage and filling of liquefied gases.
- **Gourmet Gardens Ltd -** Detailed noise assessment and mitigation measures for a proposed new food processing plant at Palmwoods, Queensland. The facility would produce fruit puree products for Berri Ltd.
- **Tamworth Regional Council** - Detailed noise assessment modelling and mitigation measures for the proposed Green Waste Processing Composting Facility and Light Vehicle Transfer Station at Tamworth.
- **Australian Rail Track Corporation** - Detailed noise assessment for the proposed Hexham Rail Grade Separation. Detailed noise modelling to predict noise levels emanating from passenger, rail and freight movements resulting from the rail flyover upgrade.
- **BM WEBB Industrial Property Developers -** Detailed noise assessment, modelling and mitigation measures for the establishment of the Stuart Freight Rail Terminal at Townsville, Queensland. The assessment included not only rail activities but also several secondary activities including freight car movements, facility and locomotive maintenance that were to be undertaken in dedicated buildings.
- **Cootamundra Oilseeds Pty Ltd -** Detailed noise assessment, modelling and mitigation measures as part of an EIS to enable the construction of a new oilseed processing facility at Cootamundra. The development involved constructing and installing new plant and machinery to enable the facility to process up to 80,000 tonnes of oilseed per annum to extract edible oils.

- **Coffs Harbour City Council** – Acoustical assessment for the proposed upgrade of the Woolgoolga Sewerage Treatment Plant. Define the acoustic environment, establish project specific noise goals, predict future noise levels using ENM Noise Prediction Software and report preparation with consideration to NSW DEC Environmental Noise Control Manual and Industrial Noise Policy.
- **Hyne & Son Pty Limited** – Acoustical assessment for Tumbarumba Mill. Define the acoustic environment, establish project specific noise goals, assess current and future predicted traffic noise levels with application to NSW DEC Environmental Criteria for Road Traffic Noise, predict future noise levels using ENM Noise Prediction Software and report preparation with consideration to NSW DEC Industrial Noise Policy and NSW DEC Environmental Noise Control Manual.
- **George Weston Foods** – Acoustical assessment for the proposed Tip Top Bakery at Chullora. Assessment conducted with consideration to NSW DEC Industrial Noise Policy and NSW DEC Environmental criteria for road traffic noise. INP project specific noise levels established and report preparation with consideration to DEC NSW INP and DEC NSW ECRTN.
- Acoustical assessment for Development Applications for the relocation of RC Whan foundry. Defined the acoustical environment of the area of the proposed development, establish existing plant noise levels and prepare report in accordance with NSW DEC Industrial Noise Policy.
- Acoustical attenuation for all machinery types.

Qualifications and Affiliations

- Bachelor of Science (Environmental Science), Washington State University (USA) – 1994.
- MBA, Newcastle University – 2004.
- Member of Hunter Environmental Institute (HEI).
- Member of Australian Acoustical Society.

Expert witness statement of Mr. Gregory T. Collins

Attachment 2

Noise Logger Location

Date: 7 September 2005

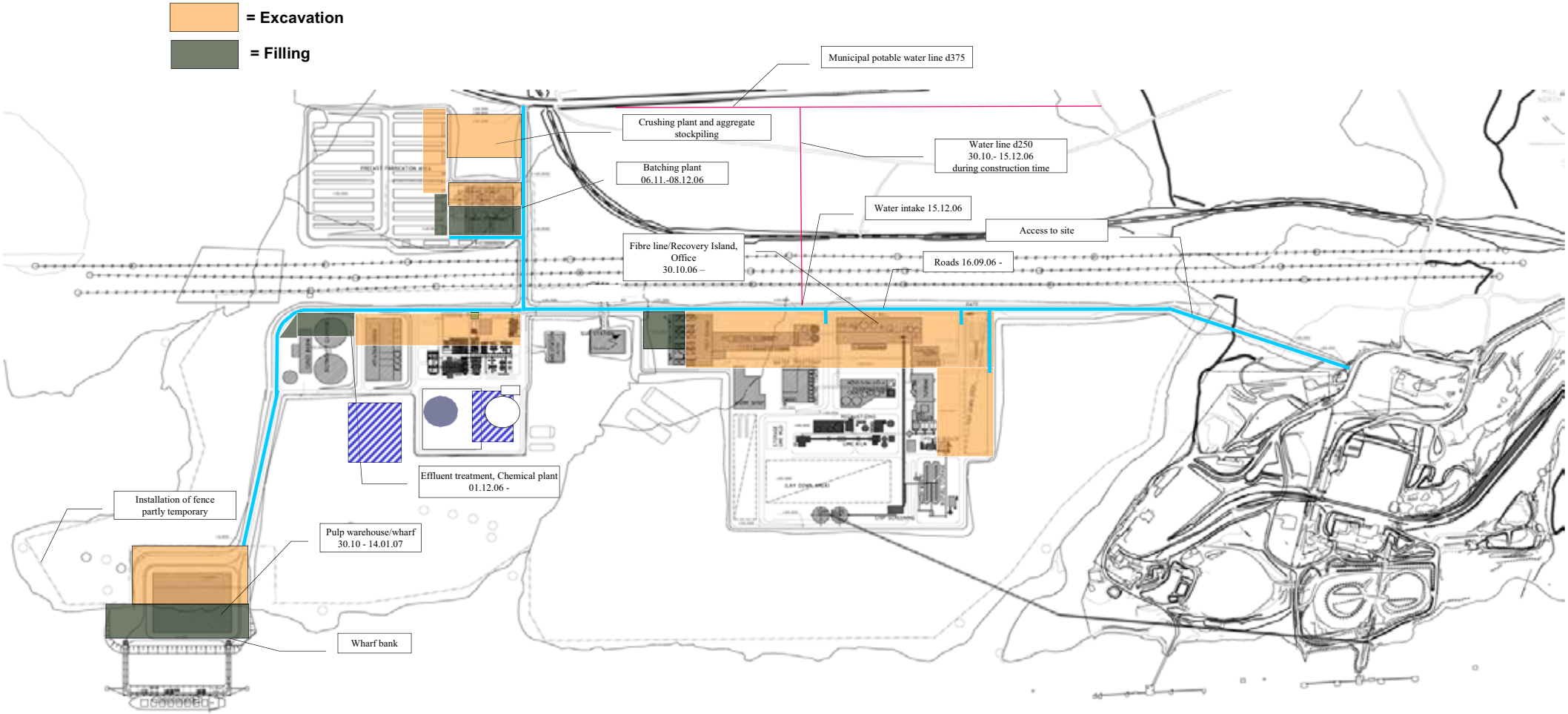
Noise Monitoring Locations

Expert witness statement of Mr. Gregory T. Collins

Attachment 3

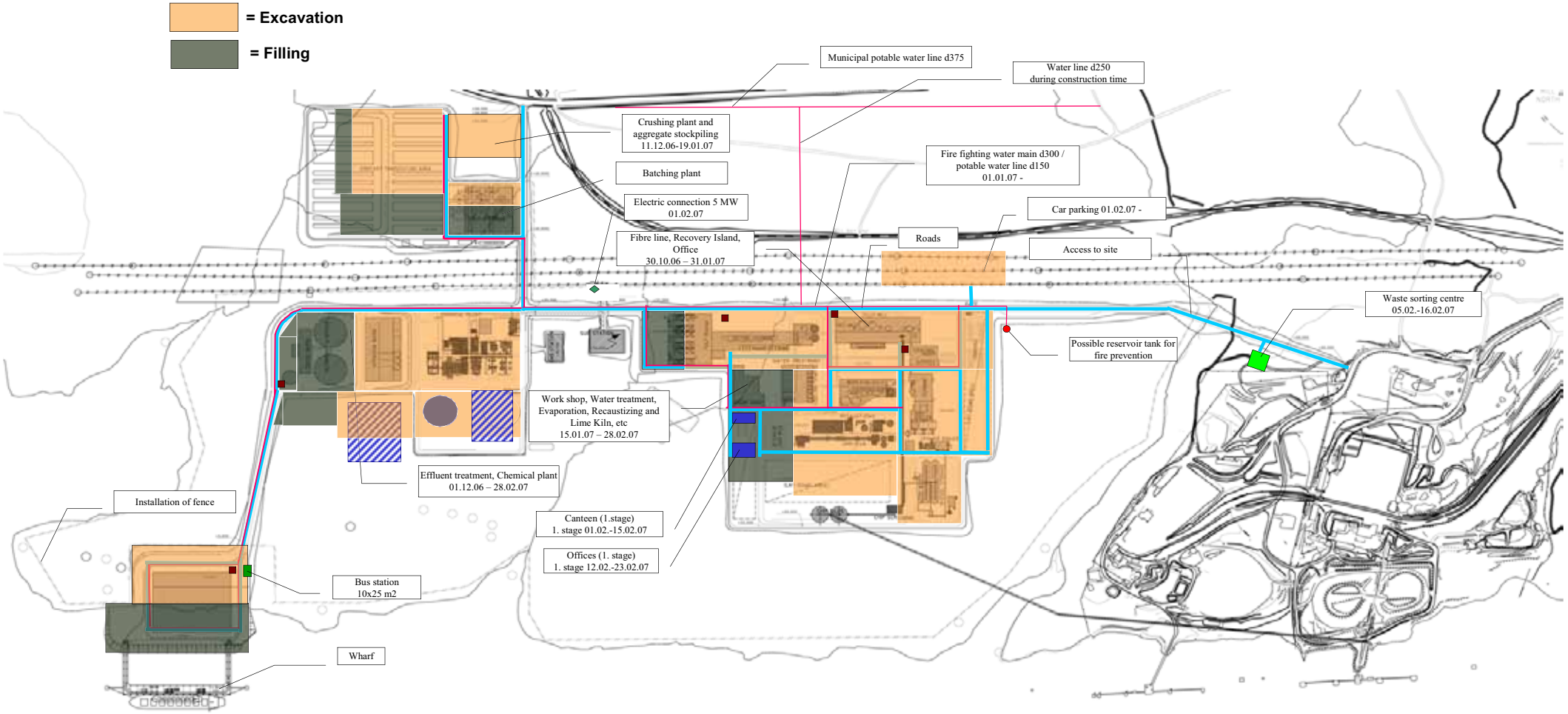
Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE BULK EARTH WORK PLAN
1. Stage (20.09.06 – 31.12.06)



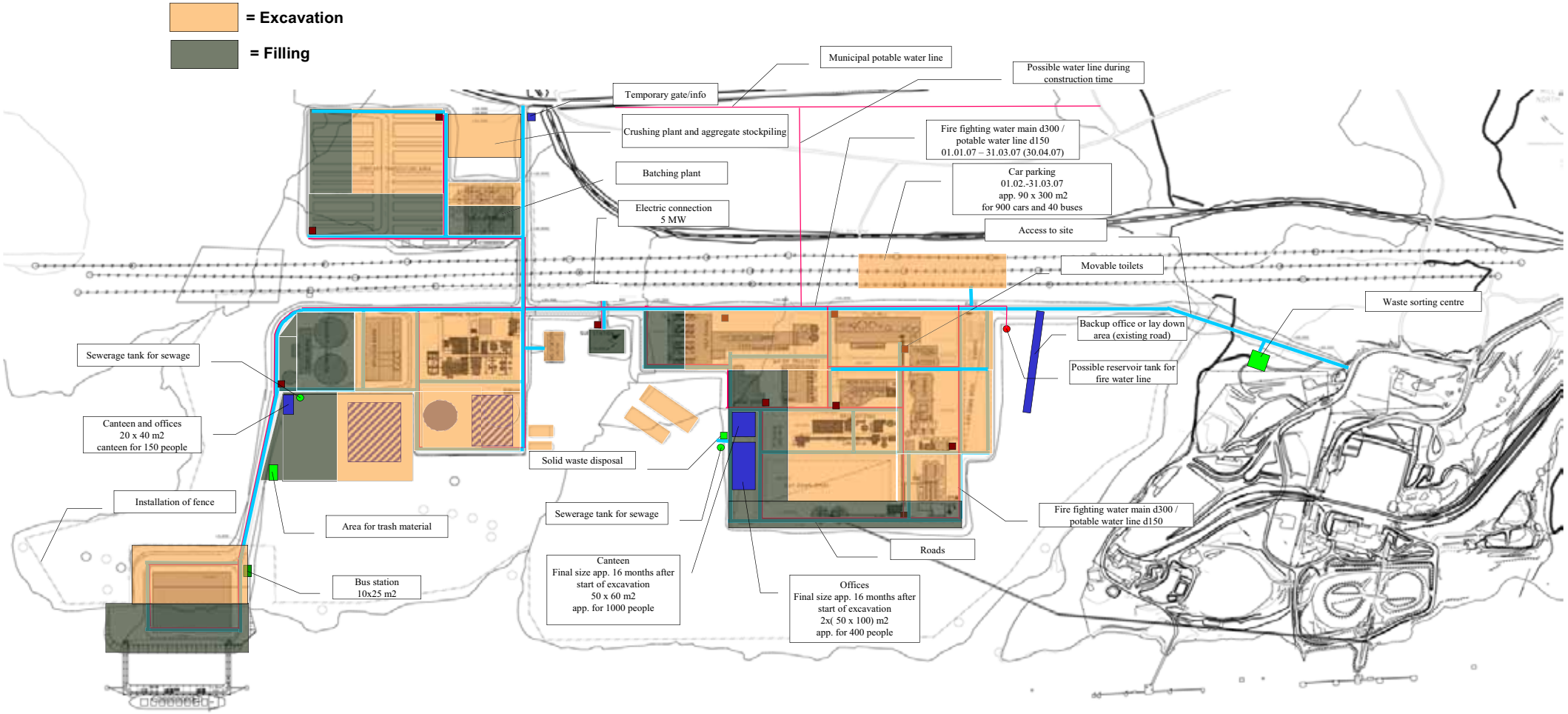
Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE BULK EARTH WORK PLAN
2. Stage (01.01.07 – 28.02.07)



Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE BULK EARTH WORK PLAN
3. Stage (01.03.07 – 31.03.07)

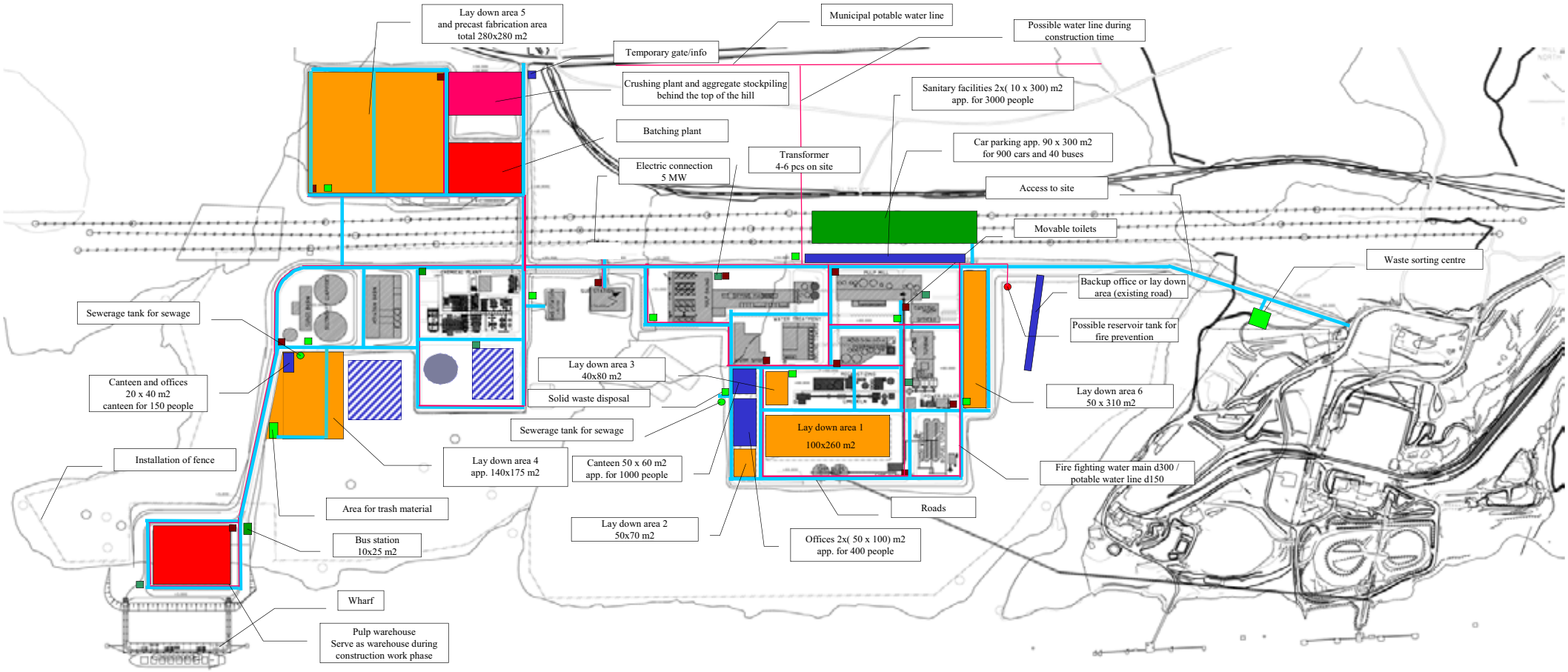


Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE FACILITY PLAN

Lay down areas, batching and crushing plant, waste sorting centre, site facilities

Lay down areas app. 150 000 m2

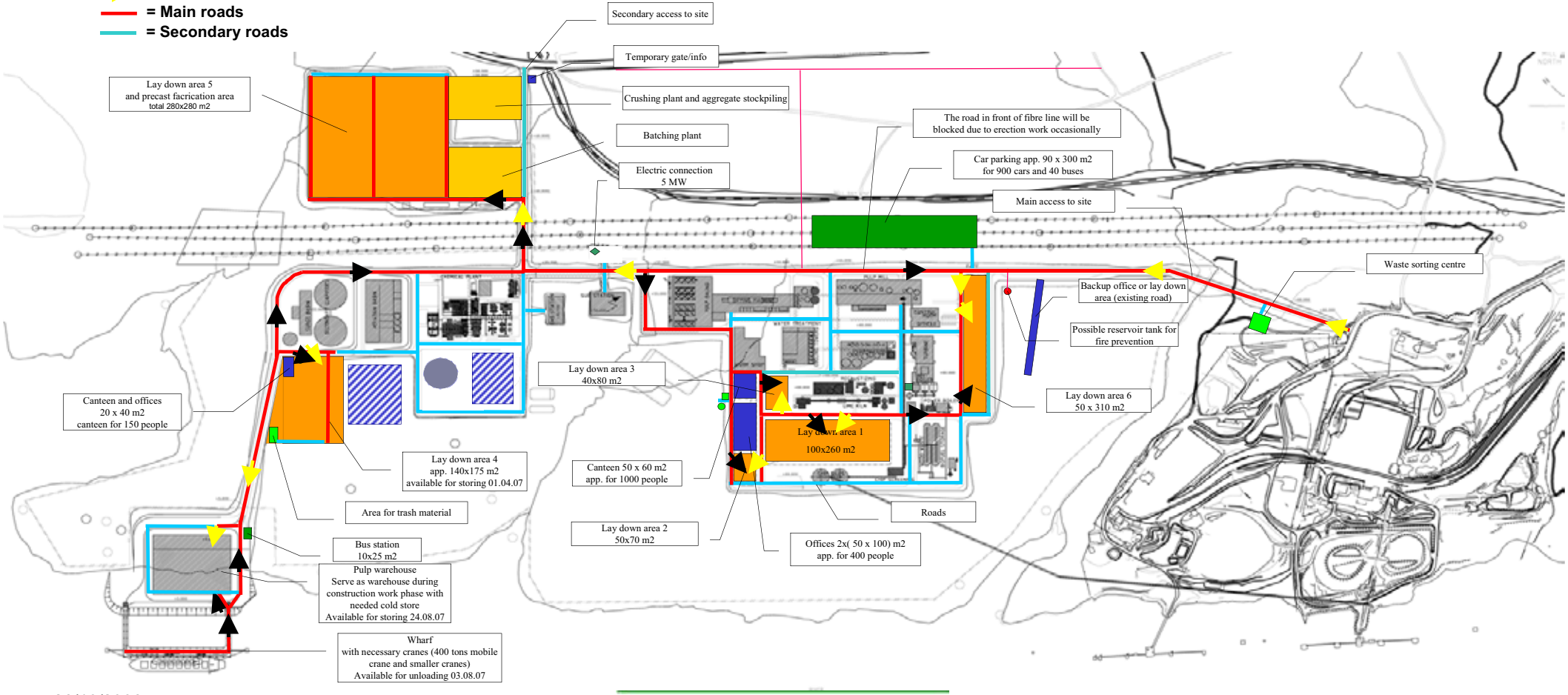


Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE LOGISTIC PLAN
DELIVERY/SHIPMENT OF GOODS TO SITE
02.01.07 – 31.08.08

Lay down areas app. 150 000 m2

= Construction material flow from site wharf, start 03.08.07
= Construction material flow from highway, start 02.01.07
= Main roads
= Secondary roads



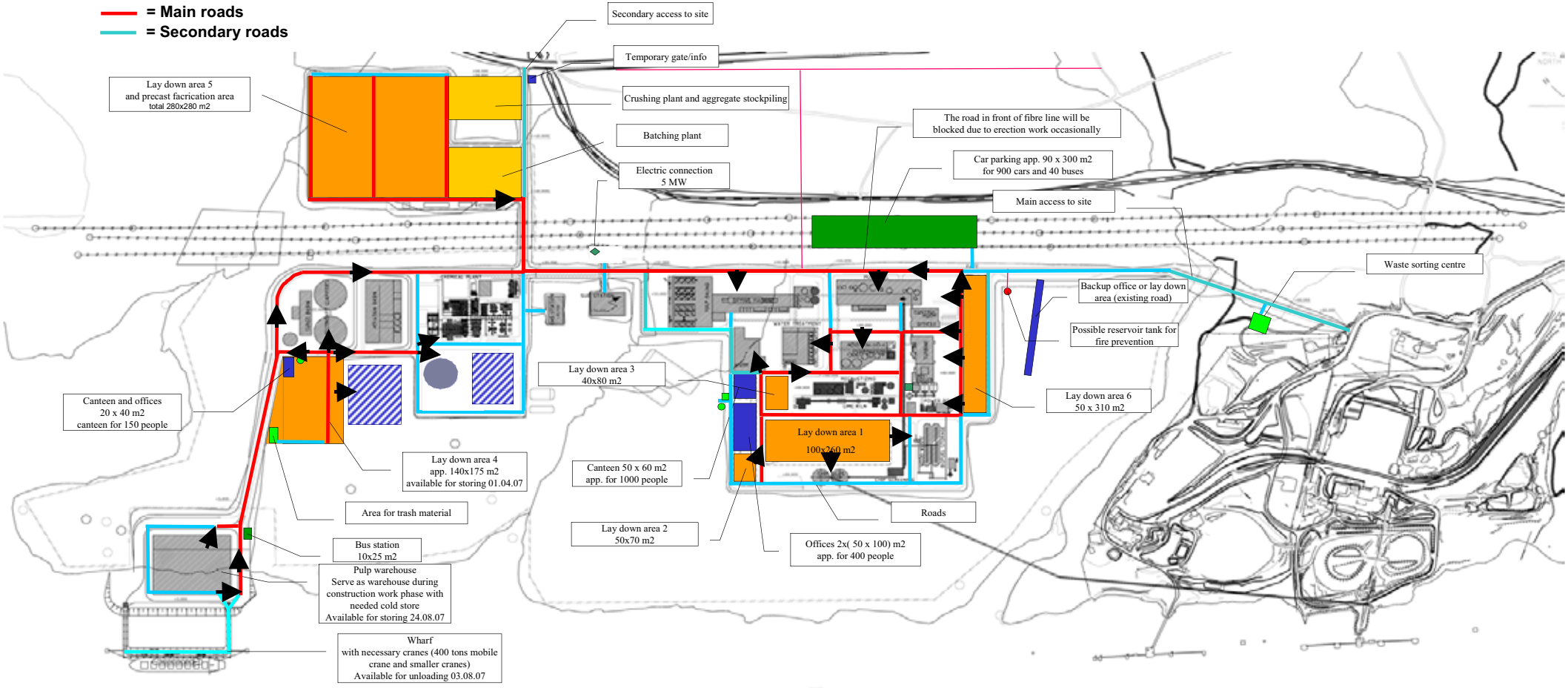
Gunns LIMITED
ACN 009 478 148

PRELIMINARY SITE LOGISTIC PLAN
DELIVERY OF GOODS FROM LAY DOWN AREAS TO WORKING PLACES
02.01.07 – 31.08.08

Lay down areas app. 150 000 m2

= Construction material flow from lay down areas

= Main roads
= Secondary roads



Gunns LIMITED
ACN 009 478 148

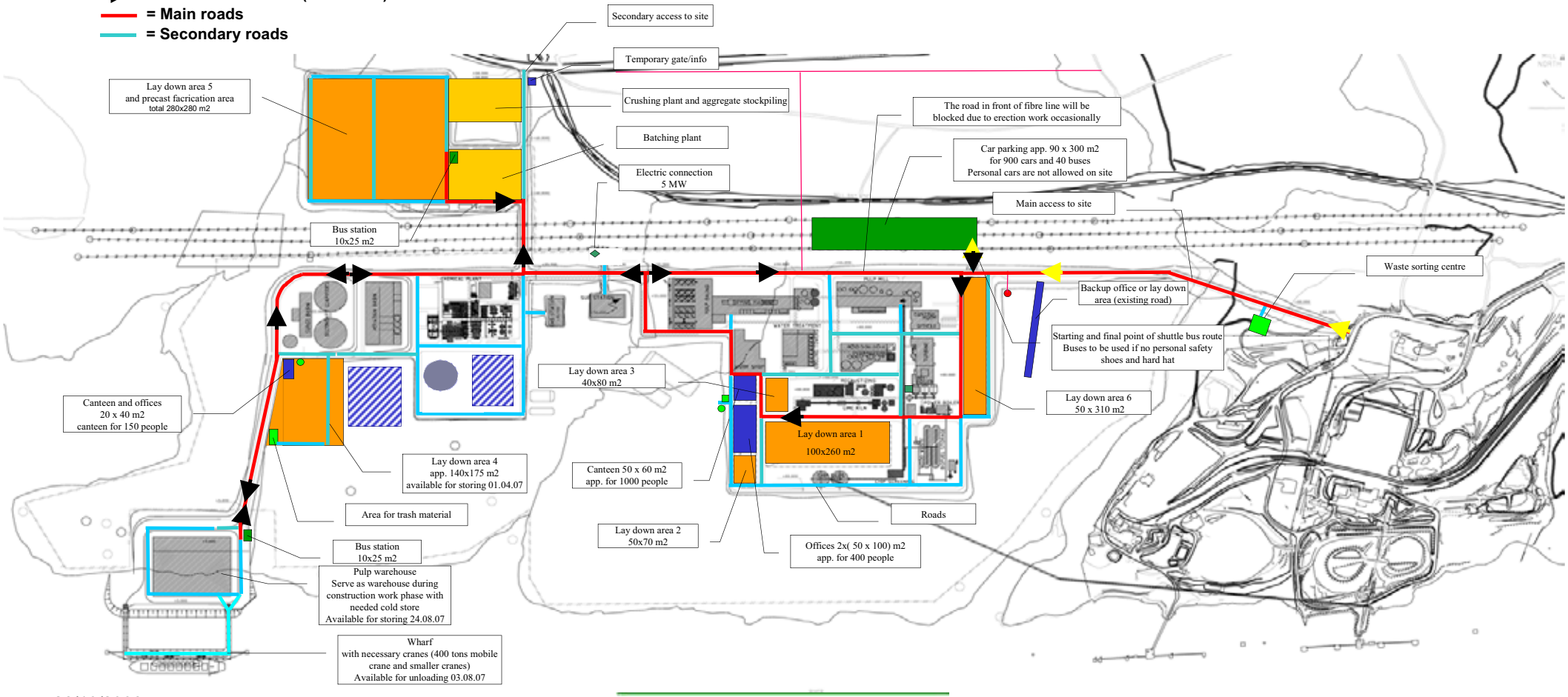
PRELIMINARY SITE LOGISTIC PLAN

Stream of peoples

05.03.07 – 31.08.08

Peak level of workers will be app. 3000 persons

= Main route to site
= Shuttle bus routes (2-3 routes)
= Main roads
= Secondary roads



Expert witness statement of Mr. Gregory T. Collins

Attachment 4

Figure 3: 15 Minute Statistical Noise Location 1 - Mill Shutdown

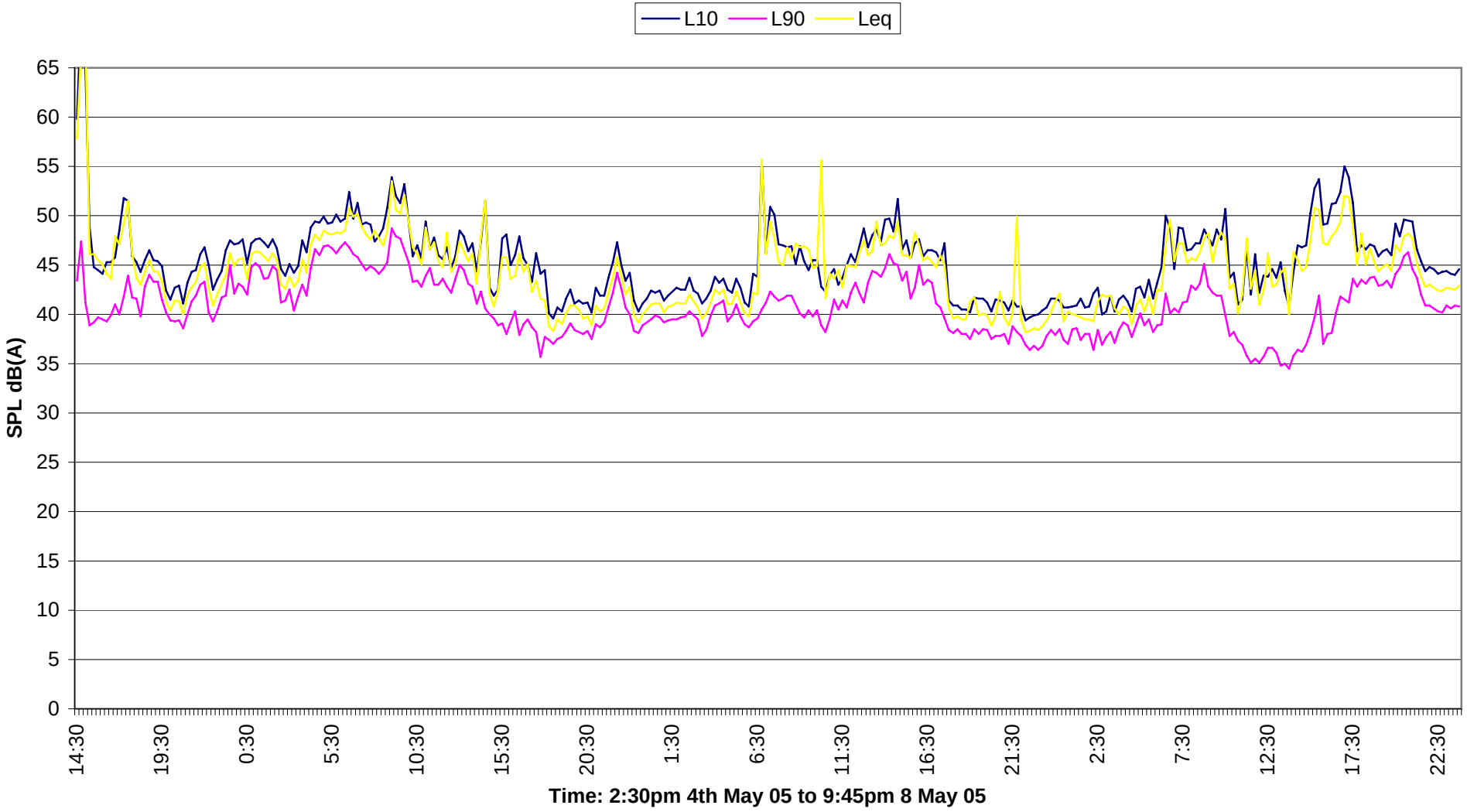


Figure 4: 15 Minute Statistical Noise Location 2 - Mill Shutdown

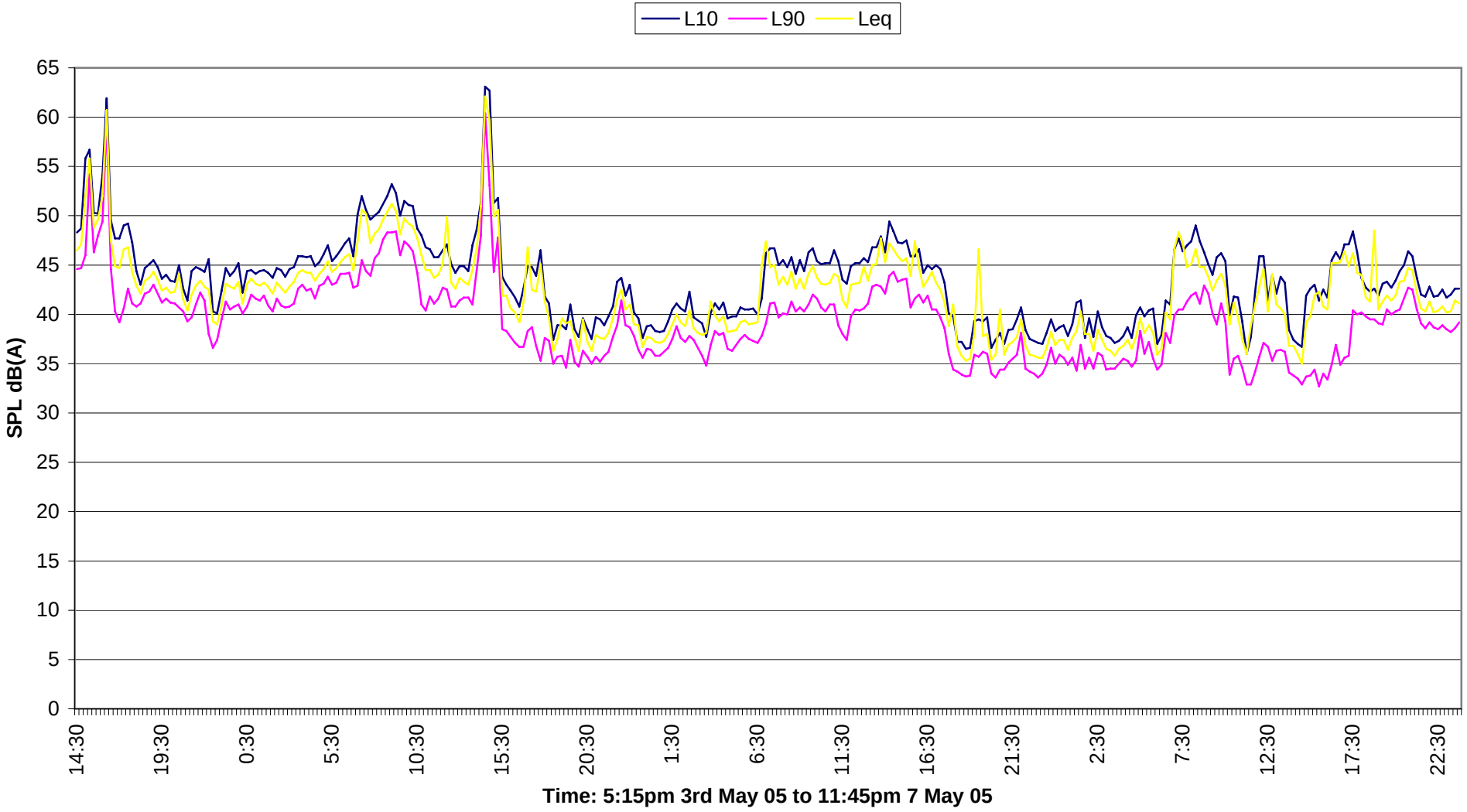


Figure 5: 15 Minute Statistical Noise Location 1 - Mill Operational

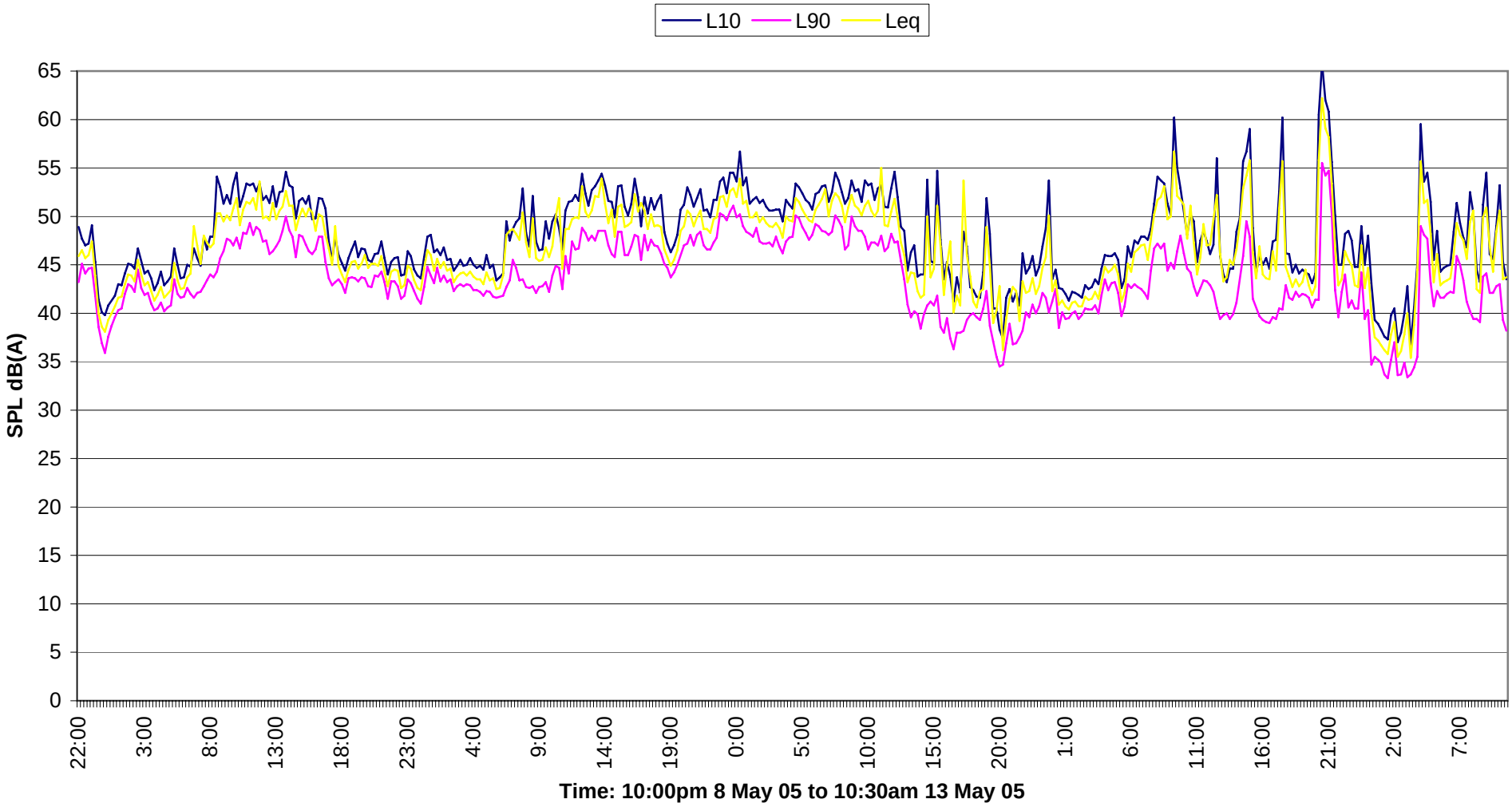
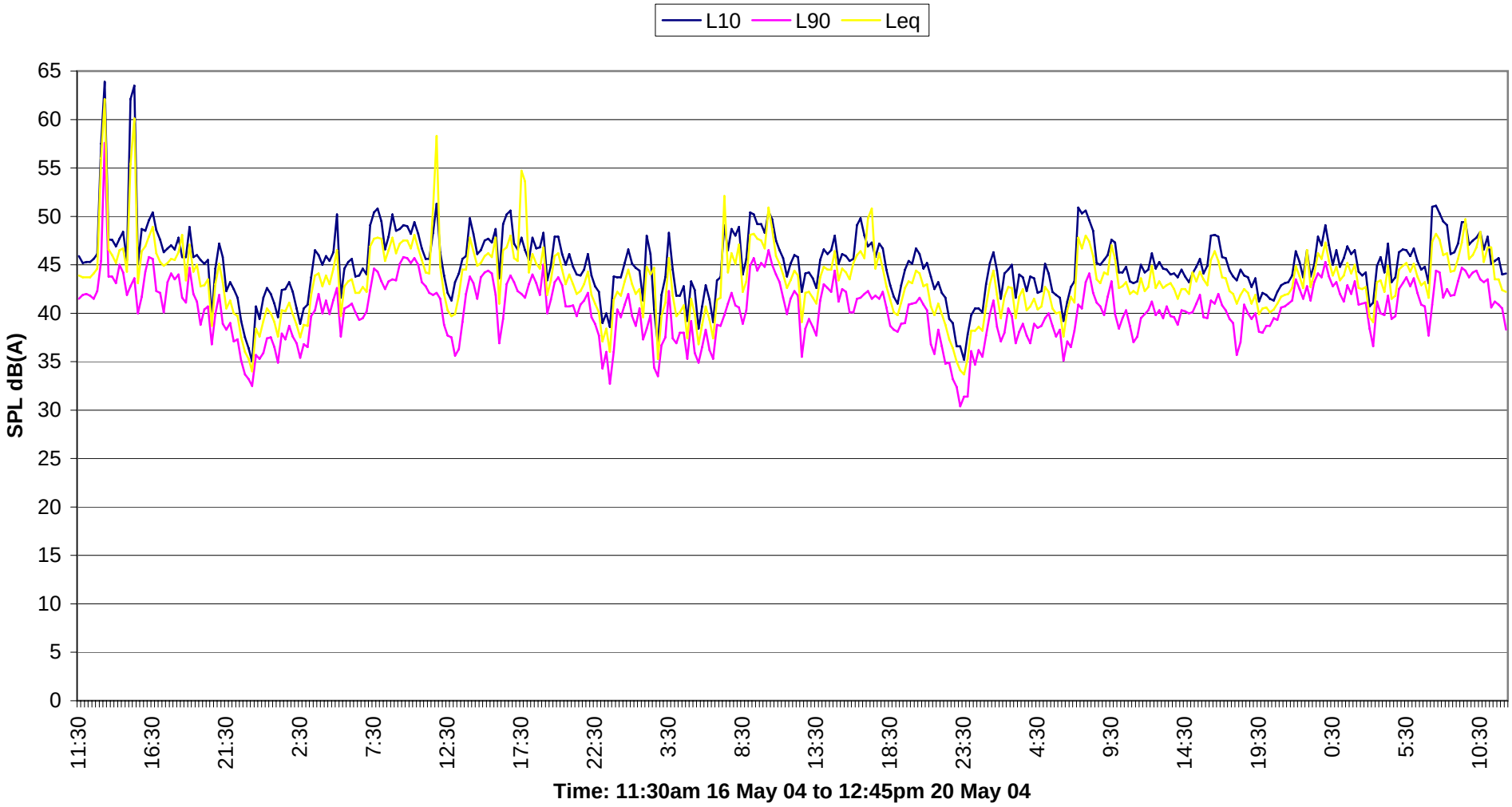


Figure 6: 15 Minute Statistical Noise Location 2 - Mill Operational



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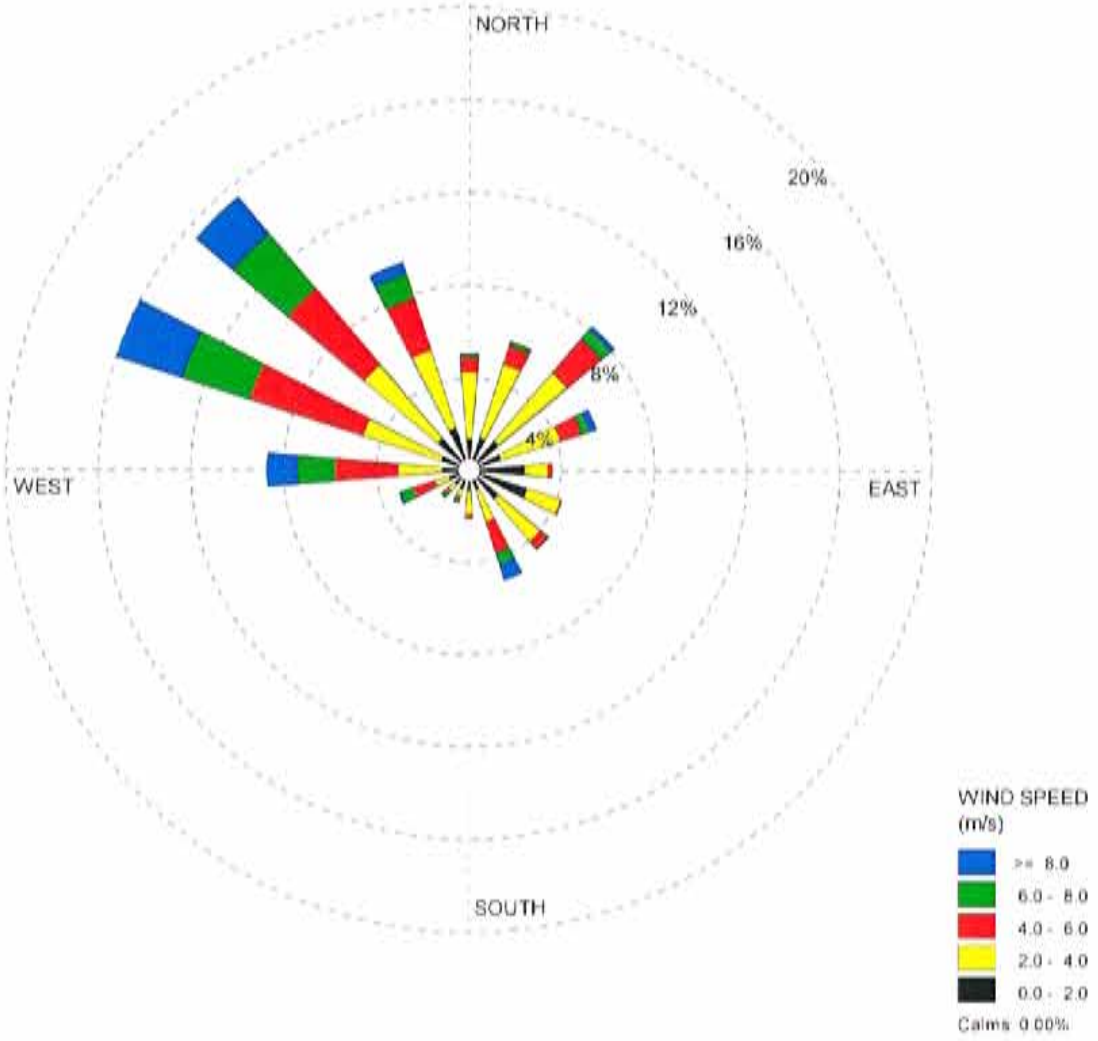
Attachment 5

WIND ROSE PLOT

Wind Rose - Mill Site - Tamar Valley - 2004

DISPLAY

Wind Speed
Direction (blowing from)



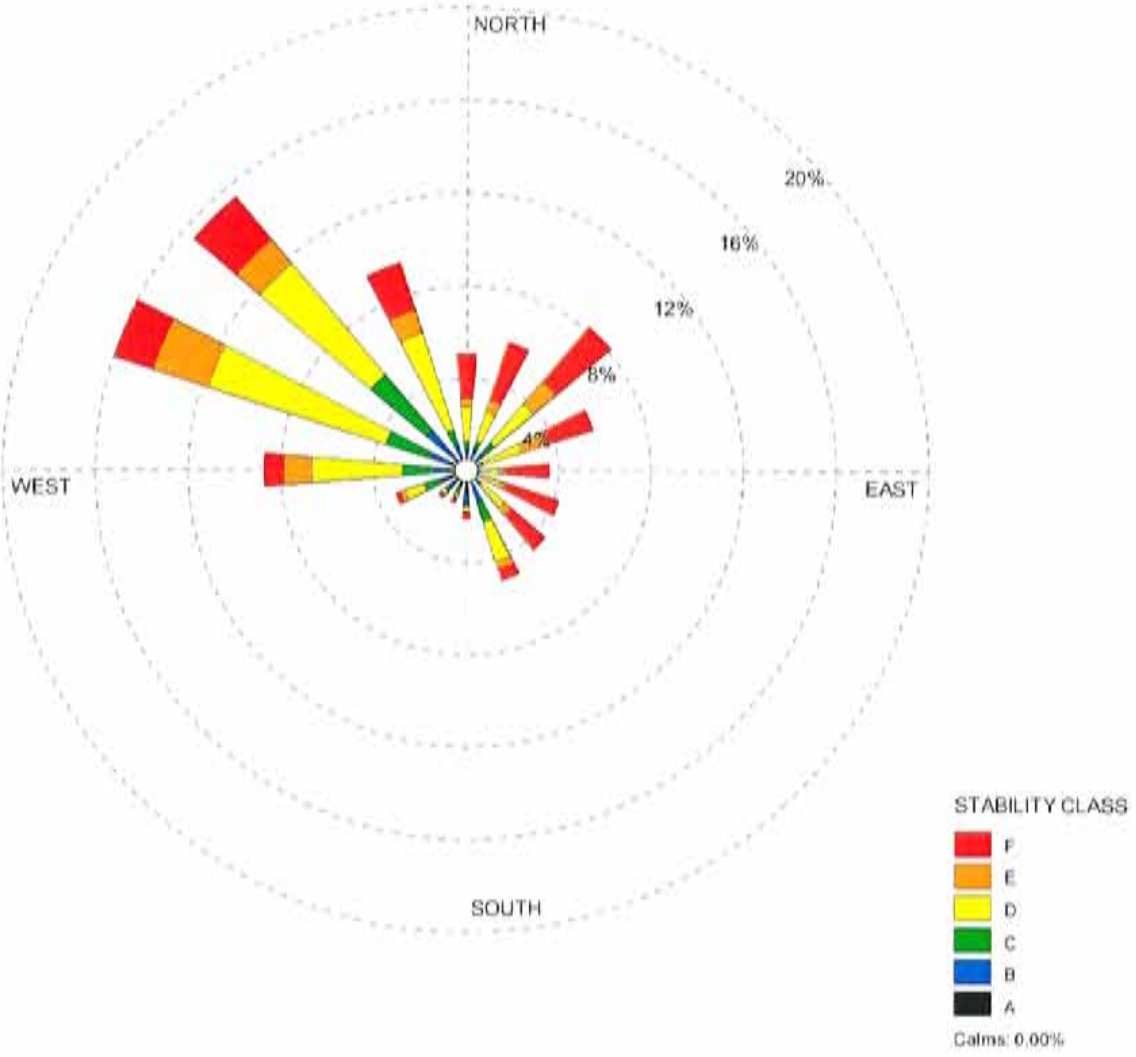
COMMENTS	DATA PERIOD	COMPANY NAME
TAPM synthesised	2004 Jan 1 - Dec 31 00:00 - 23:00	GHD
		MODELER: BPS
		TOTAL COUNT: 8688 hrs.
	AVG. WIND SPEED: 3.96 m/s	DATE: 9/03/2006
		PROJECT NO: 31/16408

WIND ROSE PLOT

Stability Class Rose - Mill Site - Tamar Valley - 2004

DISPLAY

Stability Class



COMMENTS	DATA PERIOD	COMPANY NAME
TAPM synthesised	**2004** **Jan 1 - Dec 31** **00:00 - 23:00**	**GHD**
		MODELER: **BPS**
		TOTAL COUNT: **8688 hrs.**
	AVG. WIND SPEED: **3.96 m/s**	DATE: **9/03/2006**
		PROJECT NO: **31/16408**

Expert witness statement of Mr. Gregory T. Collins

Attachment 6

Attachment 6 Table 5.15 Modelled Receiver Sound Pressure Levels dB (A)

Scenario	Location 1 (Blackwood Hills)	Location 2 (Salmon farm)	Location 3 (WH)	Location 4 (WO)	Location 5 (W2)	Location 6 (W2A)	Location 7 (W3)	Location 8 (W4)
1	38	43 (E)	36 (D, E)	42	32	34	28	29
2	44 (E, N)	49 (D, E, N)	42 (D, E, N)	48 (D, N)	39 (N)	40 (N)	34	36 (N)
3	43	48 (D, E)	41 (D, E)	47 (D)	38	40	34	35
4	50 (D, E, N)	55 (D, E, N)	47 (D, E, N)	53 (D, E, N)	44 (D, E, N)	46 (D, E, N)	40 (D, E, N)	41 (D, E, N)
5	42	46 (D, E)	40 (D, E)	46 (D, E)	37	39	33	34
6	38	39	30	36	32	34	27	29
INP Project Specific Noise Goal Day	44 $L_{Aeq(15min)}$	44 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$	45 $L_{Aeq(15min)}$	43 $L_{Aeq(15min)}$	40 $L_{Aeq(15min)}$	39 $L_{Aeq(15min)}$	38 $L_{Aeq(15min)}$
INP Project Specific Noise Goal Evening	43 $L_{Aeq(15min)}$	41 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$	45 $L_{Aeq(eve)}$	44 $L_{Aeq(15min)}$	42 $L_{Aeq(15min)}$	42 $L_{Aeq(15min)}$	43 $L_{Aeq(15min)}$
INP Project Specific Noise Goal Night*	40 $L_{Aeq(15min)}$	40 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$	38 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$	36 $L_{Aeq(15min)}$	35 $L_{Aeq(15min)}$

Notes: 48 indicates an exceedance of the project specific noise goal for the respective scenario during either day, evening or night time periods.

*Night time noise goals are only applicable to Scenarios 2 and 4 (night time periods between 10 pm and 7 am, where an F-class inversion is most likely to occur and has been assessed)

(D) – Indicates exceeds criteria for day time period

(E) – Indicates exceeds criteria for evening period

(N) – Indicates exceeds criteria for night time period.

Expert witness statement of Mr. Gregory T. Collins

Attachment 7

Attachment 7 Table 5.11 Partial Level Pulp Mill Outdoor Sources

Source	Partial Equipment Sound Pressure Levels at Receiver Locations							
Name	R1	R2	WH	W0	W2	W2A	W3	W4
Fibre Line Outside	16.7	17.4	1.6	1.2	7.6	10	4.5	4.1
Pipe Bridge 15	0	0	0	0	0	0	0	0
Drying Room Outside	33.9	33.6	25	31.1	25.6	27.5	22.8	21.9
Evaporation Plant	0	14.5	5.8	4.6	0	0	0	0
Fan 1	7.6	12.6	0.6	0	2.6	4.1	0	0.5
Fan 2	10.4	11.8	3.2	9.2	3.6	5.5	0	0
Fan 3	12.5	11.8	0	0	3.6	4.8	0	0
Causticizing Plant - Outside	0	0	0	0	0	0	0	0
Oxygen Plant - Outside	3.3	0.1	0	0	0	0	0	0
Truck Chemical Plant	24.7	22.3	11.4	16.8	13	14.8	11.5	10
Truck Chemical Plant	20.4	21.8	9.9	10.8	13.7	15.4	10.9	10.3
Truck Pulping Plant	0.9	21.3	3.7	0	13	14.7	2.3	9.8
Conveyor	34	37.1	27.4	33.2	30.6	31.7	24.1	26.7
Sootblower – Power Boiler	0	0	0	0	0	0	0	0
Sootblower – Recovery Boiler	16.7	17.1	11	16.6	11	12.6	8.2	7.8