PLANNING PROPOSAL

Proposed amendment to Kyogle Local Environmental Plan 2012

Amendment No. 12 – Craig Street concrete works; Schedule 1 amendment

17 February 2017

Introduction

Overview

This Planning Proposal explains the intended effect and justification for the proposed amendment to the *Kyogle Local Environmental Plan 2012* (KLEP), herein referred to as the LEP Amendment. The amendment has been prepared in accordance with section 55 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the relevant Department of Planning and Environment guidelines including *A guide to preparing planning proposals, 2012* (the Guideline).

Council at its Ordinary Meeting of 12 December 2016 resolved to prepare an amendment to the KLEP to amend Schedule 1 to permit the development of a ***concrete works*** (being a pre-cast concrete products manufacturing facility) on land at 4-8 Craig Street, Kyogle with the consent of Council. Concrete works are considered to fall within the definition of a ***general industry***. The land presently falls within Zone IN2 Light Industrial and development of ***general industries*** is prohibited in Zone IN2.

The proposed LEP Amendment is intended to facilitate the making of a development application that will seek consent to continued operation and re-development of the established pre-cast concrete products manufacturing facility on the site. It appears the facility was established without consent sometime in the last 10 years.

The proposed LEP amendment has been the subject of a report to the Council's Ordinary Meeting of 12 December 2016 which addressed the circumstances and benefits of the proposed amendment. Council resolved to prepare a Planning Proposal and forward it to the Department of Planning for Gateway Determination. A copy of the Council resolution is included at Attachment A. There are no other supplementary reports that are relied on for this Planning Proposal which has been prepared in support of a requested Gateway Determination to proceed with the proposed LEP Amendment under Section 56 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Preparation of Planning Proposal

This Planning Proposal has been prepared by Kyogle Council staff and is based on the report put to Council at its Ordinary Meeting of 12 December 2016, and its unanimous resolution to proceed with the proposed LEP Amendment.

The proposed LEP Amendment, if it is to proceed, will be the 10th amendment undertaken by Kyogle Council to its KLEP.

Site Identification

The proposed LEP Amendment applies to a parcel of land located at 4-8 Craig Street which has the real property description Lot 1 DP 379688; the site is shown in Figure 1 below. The subject site is approximately 5,240 m^2 in area and has approximately 68 metres of frontage to Craig Street. The subject site is presently developed and utilised for a pre-cast concrete products manufacturing facility and is shown in Figure 1 below.

Figure 1 Land affected by Planning Proposal

Existing Planning Controls

The KLEP commenced on 11 February 2012 and is in the format of the NSW Standard Instrument for LEPs. Existing planning controls that are to be affected by the proposed LEP Amendment are summarised in Table 1 below. There are no other provisions affected and no other new provisions proposed as part of the proposed LEP Amendment.

Table 1 Existing Planning Controls

Section of KLEP	Comment
Schedule 1- Additional Permitted Uses	No additional permitted uses are currently listed in Schedule 1.

The land affected is in Zone IN2 Light Industrial. The Planning Proposal does not alter the Land Use Zone of the land or the Land Use Table. The Planning Proposal seeks to include in Schedule 1 the use of Lot 1 DP 379668 at 4-8 Craig Street, Kyogle for the purposes of a ***concrete works*** (pre-cast concrete products manufacturing facility).

Part 1 – Objectives and Intended Outcomes

Objectives

The objective of the proposed amendment is to:

1) Provide the opportunity for the site to be utilised for a specific industrial activity.
2) Provide for the efficient use of land and infrastructure.
3) Provide an opportunity for economic development.

Intended Outcomes

The intended outcomes of the proposed amendment are:

1) Provide the statutory mechanism to enable a development application to be made for the development and use of the site for the purpose of a ***concrete works*** (pre-cast concrete manufacturing facility).

Part 2 – Explanation of Provisions

It is proposed to alter Schedule 1 Additional permitted uses to list the development of a concrete works as being a use that is permitted with consent on the subject site. The proposed amendment is summarised in

Table 2 below.

Table 2 Summarised amendment to Kyogle Local Environmental Plan 2012

Section of KLEP	Proposed Amendment
Schedule 1 Additional permitted uses	Add to Schedule- 'Development of ***concrete works*** (pre-cast concrete products manufacturing facility) at 4-8 Craig Street, Kyogle Lot 1 DP 379688'.

Part 3 – Justification

Section A – Need for the Planning Proposal

1. Is the Planning Proposal a result of any strategic study or report?

No. The Planning Proposal is a result of a request by the land owner to amend the KLEP to facilitate the making of a development application to seek consent for the use and further development of the site for a concrete works, being a pre-cast concrete products manufacturing facility.

The proposed works are situated adjacent to an existing concrete batching plant, forming a logical adjunct to the plant. The proposal helps to further value-add to the batching plant by diversifying the availability of concrete products within the Kyogle area and, in turn, help to generate and maintain additional employment for the town and surrounding area.

While the site is not directly identified for specific consideration in any of the Council's strategic documents, the proposal is consistent with the Council's overall community strategic objectives of helping to develop vibrant and diverse 'village life' supported by sustainable economic development.

2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The proposed (and existing) use is currently prohibited in Zone IN2 Light Industrial. Therefore, the only way to provide an opportunity to allow an application for development consent to be made is to amend the KLEP through a Planning Proposal.

3. Is there a net community benefit?

The Planning Proposal is expected to result in the following community benefits:

- More efficient use of land and infrastructure.
- Potential for economic growth and job creation.

Consequently, it is considered that this Planning Proposal will have a net community benefit.

Section B – Relationship to the strategic planning framework

4. Is the Planning Proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

The region is affected by the provisions of the *Far North Coast Regional Strategy* (FNCRS). The FNCRS identifies the region as a region of villages. The vision of the Strategy is:

> *A healthy, prosperous and sustainable future for the diverse communities of the Far North Coast Region.*

The scale and type of development that is addressed in the Planning Proposal is consistent with the key vision themes of the Strategy being:

Healthy and prosperous – the Planning Proposal will contribute to a healthy and prosperous community by enabling the use and development of the site for an industrial use that creates employment.

Sustainable future – the Planning Proposal will contribute to a sustainable future by encouraging the development of the site for an industrial activity that will create employment and contribute to the social and economic sustainability of Kyogle. The Planning Proposal applies to land in an existing urban area that is in close proximity to existing services and facilities and is therefore considered to be a sustainable way to deliver industrial development.

The Planning Proposal is consistent with the intent and vision of the FNCRS.

The NSW State Government has prepared the Draft *North Coast Regional Plan* (NCRP), which is planned to supersede the FNCRS. The NCRP was publicly exhibited during 2016. This Planning Proposal is consistent with Direction 4.4 of the NCRP which is *'Provide well located and serviced supplies of employment land to expand industry investment opportunities'.*

5. Is the Planning Proposal consistent with the Council's Community Strategic Plan, or other local strategic plan?

Kyogle Community Strategic Plan 2016-2026

The Planning Proposal is consistent with the vision of the KCSP 2016-2026 (KCSP) which is:

Working together to balance Environment, Lifestyle and Opportunity

Key issues and challenges that were identified in the KCSP include limited employment opportunities within the local government area. The Planning Proposal will assist to create employment opportunities.

The Planning Proposal is consistent with the following *Community Strategic Plan 2016-2026* strategy:

- *Identify and create opportunities for economic development.*

6. Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

An assessment of the consistency of the Planning Proposal with relevant State Environmental Planning Policies is summarised below in Table 3.

Table 3 Summary of Planning Proposal Consistency with SEPPs

SEPP Title	Planning Proposal Consistency
State Environmental Planning Policy (State and Regional Development) 2011	The Planning Proposal does not affect the ongoing operation of the SEPP on any referred to land or development.
State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011	Not applicable to Planning Proposal.
State Environmental Planning Policy (Urban Renewal) 2010	Not applicable to Planning Proposal.
State Environmental Planning Policy (Affordable Rental Housing) 2009	Not applicable to Planning Proposal.
State Environmental Planning Policy (Western Sydney Parklands) 2009	Not applicable to Planning Proposal.
SEPP (Exempt and Complying Development Codes) 2008	The Planning Proposal does not affect the ongoing operation of the SEPP on any referred to land or development.
State Environmental Planning Policy (Western Sydney Employment Area) 2009	Not applicable to Planning Proposal.
State Environmental Planning Policy (Rural Lands) 2008	Not applicable to Planning Proposal.
State Environmental Planning Policy (Kosciuszko National Park - Alpine Resorts) 2007	Not applicable to Planning Proposal.
State Environmental Planning	The Planning Proposal does not affect the ongoing operation of the SEPP

SEPP Title	Planning Proposal Consistency
Policy (Infrastructure) 2007	on any referred to land or development.
State Environmental Planning Policy (Temporary Structures) 2007	The SEPP provisions applying to temporary structures are not affected by the Planning Proposal.
State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007	Not applicable to Planning Proposal.
State Environmental Planning Policy (Sydney Region Growth Centres) 2006	Not applicable to Planning Proposal.
State Environmental Planning Policy (Major Development) 2005	Not applicable to Planning Proposal.
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004	Not applicable to Planning Proposal.
State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 71 - Coastal Protection	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 65 - Design Quality of Residential Flat Development	Not applicable to Planning Proposal.
State Environmental Planning Policy 70 - Affordable Housing (Revised Schemes)	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 64 - Advertising and Signage	The SEPP provisions applying to advertising and signage are not affected by the Planning Proposal.
State Environmental Planning Policy No. 62 - Sustainable Aquaculture	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 55 - Remediation of Land	The Planning Proposal does not affect the ongoing operation of the SEPP.
State Environmental Planning Policy No. 52 - Farm Dams and Other Works in Land and Water Management Plan Areas	Not applicable to Planning Proposal.
State Environmental Planning Policy (Integration and Repeals) 2016	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 47 - Moore Park Showground	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 44 - Koala Habitat Protection	The SEPP provisions applying to koala habitat protection are not affected by the Planning Proposal.

SEPP Title	Planning Proposal Consistency
State Environmental Planning Policy No. 36 - Manufactured Home Estates	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 21 - Caravan Parks	The Planning Proposal does not affect the operation of the SEPP.
State Environmental Planning Policy No. 33 - Hazardous and Offensive Development	The SEPP is not applicable to the Planning Proposal as a concrete works is not considered to be a potentially hazardous or offensive industry.
State Environmental Planning Policy No. 30 - Intensive Agriculture	Not applicable to Planning Proposal.
State Environmental Planning Policy (Kurnell Peninsula) 1989	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 26 - Littoral Rainforests	Not applicable to Planning Proposal.
State Environmental Planning Policy (Penrith Lakes Scheme) 1989	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 19 - Bushland in Urban Areas	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 14 - Coastal Wetlands	Not applicable to Planning Proposal.
State Environmental Planning Policy No. 1 - Development Standards	Not applicable due to Clause 1.9 of KLEP.

7. Is the Planning Proposal consistent with the applicable Ministerial Directions (Section 117 directions)?

An assessment of the consistency of the Planning Proposal with applicable Section 117(2) Directions is provided in Table 4 below.

Table 4 Summary of Planning Proposal Consistency with s117 Directions

Section 117 Direction	Planning Proposal Consistency
1. Employment and Resources	
1.1 Business and Industrial Zones	Parts a) - d) of this Direction are applicable as the Planning Proposal affects land in an existing industrial Zone. The Planning Proposal is consistent with these parts of the Direction as; a) It gives effect to the objectives of the Direction. b) It retains the land for industrial use. c) It does not reduce the total potential floor area for employment uses or public services. d) It does not reduce the total potential floor area for industrial uses. Part e) of the Direction is not applicable as the Planning Proposal does not

Section 117 Direction	Planning Proposal Consistency
	propose any new employment areas as the land is already in Zone IN2.
1.2 Rural Zones	This Direction is not applicable as the Planning Proposal does not affect land in an existing or proposed rural Zone.
1.3 Mining, Petroleum Production and Extractive Industries	The Direction is not applicable to the Planning Proposal.
1.4 Oyster Aquaculture	The Direction is not applicable to the Planning Proposal.
1.5 Rural Lands	This Direction is not applicable as the Planning Proposal does not affect land in a rural Zone.
2. Environment and Heritage	
2.1 Environment Protection Zones	This Direction is not applicable as the Planning Proposal does not affect land in an existing or proposed environment protection Zone.
2.2 Coastal Protection	The Direction does not apply to the Planning Proposal.
2.3 Heritage Conservation	**Consistent.** The Planning Proposal does not affect State or existing KLEP heritage provisions.
2.4 Recreation Vehicle Areas	**Consistent.** This Planning Proposal does not enable land to be developed for the purpose of a recreation vehicle area.
2.5 Application of E2 and E3 Zones and Environmental Overlays in Far North Coast LEPs	This Direction is not applicable as the Planning Proposal does not introduce or alter any Environmental Zones or Overlays.
3. Housing, Infrastructure and Urban Development	
3.1 Residential Zones	This Direction is not applicable as the Planning Proposal does not affect land in an existing or proposed residential Zone.
3.2 Caravan Parks and Manufactured Home Estates	**Consistent.** The Planning Proposal does not eliminate provisions that permit development of caravan parks. The Planning Proposal does not alter the zone of any existing caravan parks.
3.3 Home Occupations	**Consistent.** The Planning Proposal does not affect the provisions that relate to home occupations.
3.4 Integrating Land Use and Transport	**Consistent.** This Direction requires that a Planning Proposal must locate Zones and include provisions that give effect to and are consistent with the aims, objectives and principles of: a) *Improving Transport Choice- Guidelines for planning and development, and* b) *The Right Place for Business and Services Planning Policy.* The Planning Proposal is consistent with the aims and objectives of these publications as it promotes the use of a site that is in an existing urban area, in close proximity to an existing centre and has multiple transport options, including active transport.

Section 117 Direction	Planning Proposal Consistency
3.5 Development Near Licensed Aerodromes	This Direction is not applicable as the Planning Proposal does not create, alter or remove a zone or a provision relating to land in the vicinity of a licensed aerodrome.
3.6 Shooting Ranges	The subject site is located within 150 metres of Lot 131 DP 755734 which is a parcel of Crown Land that accommodates a shooting range. This Direction is considered to be applicable as the Planning Proposal will affect provisions applying to land in proximity to an existing shooting range. The Planning Proposal is consistent with the Direction because: • It does not permit a more intensive land use than that permitted under the existing Zone, and; • The proposed concrete works will be compatible with any noise generated by the shooting range as the concrete works is not a noise sensitive activity.
4. Hazard and Risk	
4.1 Acid Sulfate Soils	This Direction is not applicable as no Acid Sulfate Soil Planning Maps apply to the Kyogle Council local government area.
4.2 Mine Subsidence and Unstable Land	This Direction is not applicable as the Planning Proposal does not permit development on land that is within a mine subsidence district or that has been identified as unstable.
4.3 Flood Prone Land	**Consistent.** Existing flood prone land provisions in KLEP are not affected by the Planning Proposal.
4.4 Planning for Bushfire Protection	This Direction is not applicable as the Planning Proposal does not affect land that is mapped as, or is on proximity to, bushfire prone land.
5. Regional Planning	
5.1 Implementation of Regional Strategies	**Consistent.** The Planning Proposal is consistent with the Far North Coast Regional Strategy as discussed in Part 4 of Section B.
5.2 Sydney Drinking Water Catchments	The Direction does not apply to the Planning proposal.
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	This Direction is not applicable as the site is within the Town Growth Boundary of the Far North Coast Regional Strategy.
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	This Direction is not applicable as the Planning Proposal does not relate to land in the vicinity of the existing or proposed alignment of the Pacific Highway.
5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA) (Revoked 18/06/10)	-
5.6 Sydney to Canberra Corridor (Revoked 10 July 2008. See amended Direction 5.1)	-
5.7 Central Coast (Revoked 10 July 2008. See amended Direction 5.1)	-

Section 117 Direction	Planning Proposal Consistency
5.8 Second Sydney Airport: Badgerys Creek	The Direction does not apply to the Planning Proposal.
5.9 North West Rail Link Corridor Strategy	The Direction does not apply to the Planning Proposal.
5.10 Implementation of Regional Plans	This Direction does not apply to the Planning Proposal as the North Coast Regional Plan has not been released.
6. Local Plan Making	
6.1 Approval and Referral Requirements	**Consistent.** The Planning Proposal does not alter any existing concurrence, consultation or referral requirements.
6.2 Reserving Land for Public Purposes	**Consistent.** The Planning Proposal does not create, alter or reduce existing zonings or reservations of land for public purposes.
6.3 Site Specific Provisions	This Direction is applicable as the Planning Proposal seeks to allow a particular development to be carried out. The Planning Proposal is consistent with this Direction as it will allow the proposed use to be carried out in the Zone that currently applies to the land, that is; Zone IN2 Light Industrial.
7. Metropolitan Planning	
7.1 Implementation of A Plan for Growing Sydney	The Direction is not applicable to the Planning Proposal.
7.2 Implementation of Greater Macarthur Land Release Investigation	The Direction is not applicable to the Planning Proposal.

Section C – Environmental, social and economic impacts

8. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats will be adversely affected as a result of the proposal?

It is unlikely that critical habitat or threatened species, populations or ecological communities or their habitats will be affected by the Planning Proposal as the subject site contains no native vegetation, habitat areas or watercourses.

9. Are there any other likely environmental effects as a result of the planning proposal and how are they proposed to be managed?

The most likely issue associated with the continued operation and re-development of a concrete works on the subject site is potential noise impacts on dwellings in proximity to the site. The closest dwelling is located at 232-250 Summerland Way and is approximately 115 metres from the site boundary. A number of dwellings on Highfield Road are within 200 metres of the subject site and there is a dwelling at 24 Craig Street that is located within 170 metres of the subject site. The applicant has prepared and submitted a Noise Impact Assessment that examines the impacts of noise from the concrete works on existing dwellings near the site. The report found that noise impacts on nearby dwellings are within the limits allowed under the NSW Industrial Noise Policy or are able to be adequately mitigated. Council has no record of complaints about noise impacts from the facility. Noise impacts will be examined in more detail at the development application stage and is not considered grounds for refusal to support the current planning proposal. The Noise Impact Assessment Report is included at Attachment B.

10. How has the planning proposal adequately addressed any social and economic effects?

The Planning Proposal will facilitate the development of a concrete works on the site which is not expected to create social or economic impacts that are of a substantial or significantly adverse nature or scale.

Section D – State and Commonwealth interests

11. Is there adequate public infrastructure for the planning proposal?

Yes: the site is serviced by reticulated sewerage and water and a stormwater drainage network. The site has frontage to Craig Street.

12. What are the views of State and Commonwealth public authorities consulted in accordance with the gateway determination?

Consultation will be undertaken with relevant agencies following the gateway determination stage of the LEP amendment.

Part 4 – Mapping

The proposed LEP Amendment requires no mapping changes.

Part 5 – Community Consultation

Community consultation on the planning proposal will be undertaken in accordance with Section 5.5.2 of the 'Guide to preparing local environmental plans' and will involve:

1. Placing a notice in the Richmond River Express Examiner which is a newspaper circulated in the local government area.
2. Placing a notice and relevant documents on Council's website.
3. Sending a letter to owners of adjoining land advising them of the proposed LEP amendment and seeking their comments.

The period of notification is expected to run for a period of 30 days.

Part 6 – Project Timeline

The indicative timeline for the completion of the planning proposal is as shown in Table 5.

Table 5 Indicative Planning Proposal Timeline

Plan Making Step	Estimated Completion
Commencement of Gateway determination	3 March 2017
Government agency consultation	To be as specified in the Gateway determination. The anticipated timeframe is 21 days and is expected to be undertaken concurrently with the public exhibition period.
Commencement and completion for public exhibition period	15 March 2017 – 14 April 2017 (30 days)
Public hearings	Not applicable
Consideration of submissions	17 April 2017- 1 May 2017
Further Consideration by Council	12 June 2017
Date of submission to the Department to finalise	19 June 2017
Anticipated date the Council makes the LEP, if delegated	To be determined
Anticipated date Council will forward making of the LEP to the Department for notification	To be determined

Attachments

Attachment A – Council Ordinary Meeting Minute 12 December 2016

12.2 WORKS PROGRAM PROGRESS REPORT

REPORT BY: GENERAL MANAGER'S DEPARTMENT
CONTACT: MANAGER FINANCIAL SERVICES

121216/08 RESOLVED

Moved by Councillor Janet Wilson, seconded by Councillor John Burley.

That Council receives and notes the information contained in the Works Program Progress Report November 2016.

CARRIED

FOR VOTE - Unanimous vote
ABSENT. DID NOT VOTE - Maggie May

ITEM 13 GENERAL MANAGER'S REPORT

ITEM 13A ASSETS AND INFRASTRUCTURE SERVICES REPORT

Nil.

ITEM 13B PLANNING AND ENVIRONMENTAL SERVICES REPORT

13B.1 PLANNING PROPOSAL TO AMEND THE KYOGLE LOCAL ENVIRONMENTAL PLAN 2012 TO PERMIT DEVELOPMENT OF A CONCRETE WORKS AT 4 CRAIG STREET, KYOGLE WITH THE CONSENT OF COUNCIL

REPORT BY: PLANNING AND ENVIRONMENTAL SERVICES
CONTACT: DIRECTOR PLANNING AND ENVIRONMENTAL SERVICES

121216/09 RESOLVED

Moved by Councillor Lindsay Passfield, seconded by Councillor Hayden Doolan.

That Council:

1. Receives and notes the report on the proposed amendment to the KLEP to amend Schedule 1 in relation to use of land at 4 Craig Street, Kyogle for a concrete works (precast concrete products manufacturing facility).
2. Resolves to amend the *Kyogle Local Environmental Plan 2012* (KLEP) through the preparation of a Planning Proposal generally in accordance with the changes outlined in this report.

3. Authorises the General Manager to prepare a Planning Proposal consistent with the contents of this report and submit the Planning Proposal to the Department of Planning and Environment (the Department) for review and Gateway Determination.
4. On receipt of a Gateway Determination stating that Council may proceed with the LEP amendment, authorises the General Manager to make any necessary changes to the Planning Proposal in accordance with the requirements of the Department and undertake the necessary administrative procedures of the LEP amendment process in accordance with the provisions of Part 3 Division 4 of the EP&A Act, including public consultation.
5. On conclusion of public consultation, consider a further report outlining the outcomes of consultation including submissions received.

CARRIED

FOR VOTE - Unanimous vote
ABSENT. DID NOT VOTE - Maggie May

Councillor Lindsay Passfield called for a division under section 375A of the *Local Government Act 1993.*

FOR	AGAINST
Cr Danielle Mulholland	
Cr John Burley	
Cr Janet Wilson	
Cr Hayden Doolan	
Cr Earle Grundy	
Cr Kylie Thomas	
Cr Lindsay Passfield	
Cr Robert Dwyer	

ABSENT. DID NOT VOTE: Maggie May.

13B.2 PLANNING PROPOSAL TO AMEND THE KYOGLE LOCAL ENVIRONMENTAL PLAN 2012 TO REZONE LAND AT 6367-6399 KYOGLE ROAD, KYOGLE TO ZONE IN1 GENERAL INDUSTRY

REPORT BY: PLANNING AND ENVIRONMENTAL SERVICES
CONTACT: DIRECTOR PLANNING AND ENVIRONMENTAL SERVICES

121216/10 RESOLVED

Moved by Councillor Janet Wilson, seconded by Councillor Lindsay Passfield.

That Council:

1. Receives and notes the report on the proposed amendment to the KLEP to rezone land at Lot 2 DP 1220463, 6367-6399 Kyogle Road, Kyogle to IN1 General Industry Zone.

Attachment B – Noise Impact Assessment Report prepared by proponent

Ambience Audio Services

Acoustical Measurement and Analysis

15 Tamarind Close
Richmond Hill NSW 2480

Phone: 02 6625 1733
Fax: 02 6625 1788
Mobile: 0429 405 070

Noise Impact Assessment

Graham's Precast Concrete Manufacturing Facility
4 Craig Street
Kyogle NSW 2474

Prepared for

Stephen Fletcher & Associates

PO Box 5334
East Lismore NSW 2480

Prepared by
Garry Hall
16th October 2016

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1 INTRODUCTION

A noise impact assessment of Graham's Precast Concrete manufacturing facility at 4 Craig Street Kyogle was conducted at the request of Mr Stephen Fletcher of Stephen Fletcher & Associates, Environmental Planners, Lismore.

Scope of this report

- Acoustic measurement of background noise levels at two residential dwellings near the precast concrete facility, where the current plant operations are not audible, to determine existing background noise levels. Background measurements for a period of at least 7 days. Local wind and rainfall data to be monitored.

- Calculation of existing background noise levels in accordance with the long term method in Appendix B of the New South Wales Industrial Noise Policy.

- Attended acoustic measurements of individual machines, equipment and operations at the precast concrete plant site.

- Attended acoustic measurements of machines, equipment and operations at the closest affected receiver locations.

- Evaluation of operational noise levels in accordance with procedures and criteria in the NSW Industrial Noise Policy.

- Production of report including graphs of measured noise levels and assessment of noise levels at residential boundaries.

To assist with the interpretation of some of the terminology used in this report, Appendix A provides definitions of acoustic terms. Appendix B is a chart of everyday sound pressure levels. A location map is provided in Appendix C.

2 SITE DESCRIPTION AND OPERATIONS

Graham's Precast Concrete manufacturing facility is located at 4 Craig Street, Kyogle. (*see Location Map – Appendix C*).

Surrounding land uses are industrial (zoned IN2 light industrial), low density residential and cattle farming. The Summerland Way is approximately 120m to west and the North Coast Railway is approximately 130m to the south and west of the site.

The closest residential dwellings to the precast concrete production facility are 2 and 3 Highfield Road, approximately 180m SW, 232 Summerland Way, approximately 130m NNW and 24 Craig Street, approximately 170m SE.

Road traffic noise from the Summerland Way was observed to be the prominent underlying noise source at each of the closest residential dwellings. Some noise was from the concrete batching plant at 1 Craig Street was observed in lulls in road traffic at the Highfield residential dwellings.

Other observed noise sources were birds, dogs barking, local traffic, distant overhead aircraft, industrial noise from other nearby industries, insects, wind in trees and a freight train on the North Coast Railway.

Graham's Precast Concrete mainly manufactures concrete products for the agricultural and rural industries – cattle grids, cattle troughs and septic tanks.

The operations at the precast concrete manufacturing facility involves:

- delivery to the site of premixed concrete in concrete mixer trucks
- pouring from concrete mixer trucks into pre-prepared steel moulds
- screed and vibrate moulds for 1 – 2 mins depending on size of mould
- breaking the seal on the mould after curing with sledge hammer
- turn moulds to discharge concrete products
- lifting finished precast product with Franna crane to storage
- lifting of finished precast product with Franna crane onto delivery truck
- clean and refresh moulds with hose, mop and towels
- coat mould with release oil
- delivery truck traversing site
- steel fabrication in workshop – cutting, welding, grinding
- operation of air compressor

Operating hours are generally 7am – 4pm Monday to Friday. Some work may be undertaken on Saturday mornings in peak production periods. No work on Sundays or public holidays.

3 EXISTING BACKGROUND NOISE LEVELS

3.1 Measurement Procedure

Table 3.1 Instrumentation

Instrument	Serial #	Calibration Date
Brüel and Kjær 2250 Sound Level Meter	3008548	April 2016
Brüel and Kjær 2250L Sound Level Meter	2602785	December 2015
Brüel and Kjær Acoustical Calibrator model 4231	2263303	December 2015

Measurements were made in general accordance with procedures laid down in:

1. **Australian Standard AS 1055.1-1997:** '*Acoustics - Description and measurement of environmental noise - General procedures'*

2. **The NSW Government Industrial Noise Policy (2000) EPA 00/1 (INP).**

Observations during the initial site visit noted that some noise was audible at times during lulls in road traffic at the closest residential dwellings.

A calibrated noise logger was located in the side yard of 5 Highfield Road. This location was chosen as there had been noise complaints from a residential dwelling nearby and it was shielded from the noise of the precast concrete manufacturing facility. Another noise logger was located behind a steel tank in a paddock near the residential dwelling at 24 Craig Street. This location was chosen as it was also shielded from noise from the precast concrete manufacturing facility.

Road traffic from the Summerland Way was observed to be the dominant underlying noise source at each background noise monitoring locations.

A Bruel & Kjaer outdoor microphone kit was fitted to each of the noise loggers and placed on 1.5m high tripods. A remote cable was connected to the microphone and the noise loggers positioned in a secure location.

The noise loggers were set to record 15 minute sampling periods with an 'A' frequency weighting and fast response over a period of 7 days in September 2016. The solar panel on the noise logger at 5 Highfield Road did not provide sufficient power due to weather and shading and only 2 days of useable data was recorded during the first attempt. Noise monitoring was conducted for a further 6 days at this location with another noise logger with a larger solar panel in a better location. At the end of the monitoring period, data was downloaded into Bruel & Kjaer 7815 Noise Explorer environmental noise software and Microsoft Excel for analysis.

The noise loggers used during the noise survey conform to Australian Standard 1259 "Acoustics - Sound Level Meters" (1990) as Type 1 precision sound level meters and have an accuracy suitable for both field and laboratory use.

The loggers' calibrations were checked before and after the measurement period with a Brüel and Kjær acoustical calibrator model 4231. No significant system drift occurred over the measurement period.

The noise loggers and calibrator have been checked, adjusted and aligned to conform to the Brüel and Kjær factory specifications and issued with conformance certificates. The internal test equipment used is traceable to the National Measurement Laboratory at CSIRO, Lindfield, NSW.

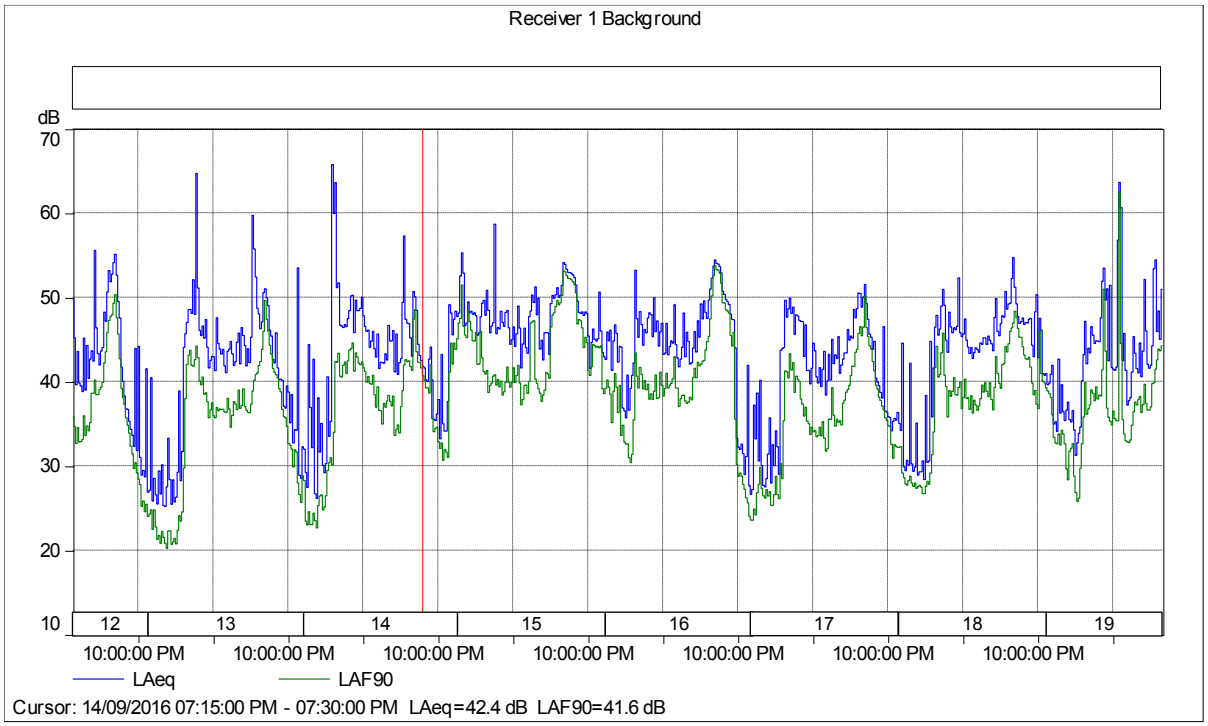
3.2 Weather Conditions

Weather conditions were generally good for noise monitoring during the day time periods.

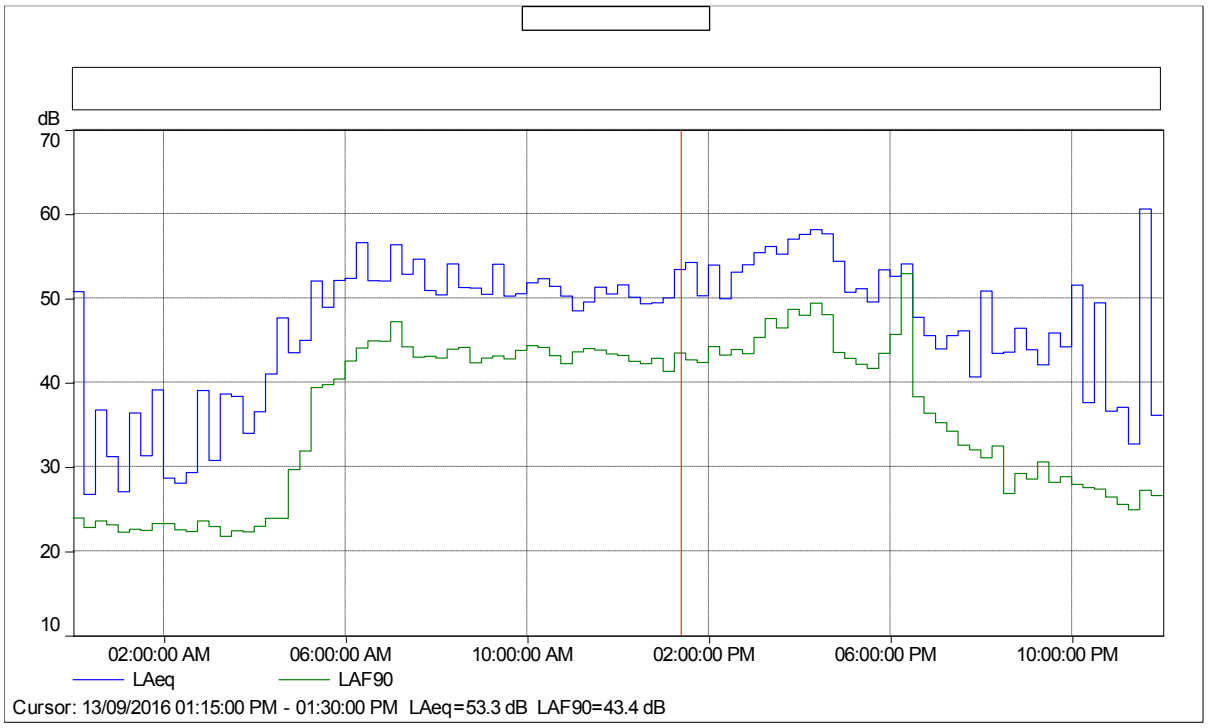
A portable wind logger and rain logger were located near the noise logger at receiver 1. Data that was affected by wind (in excess of 5m/s) and rain were deleted from background noise level calculations.

3.3 Measurement Results

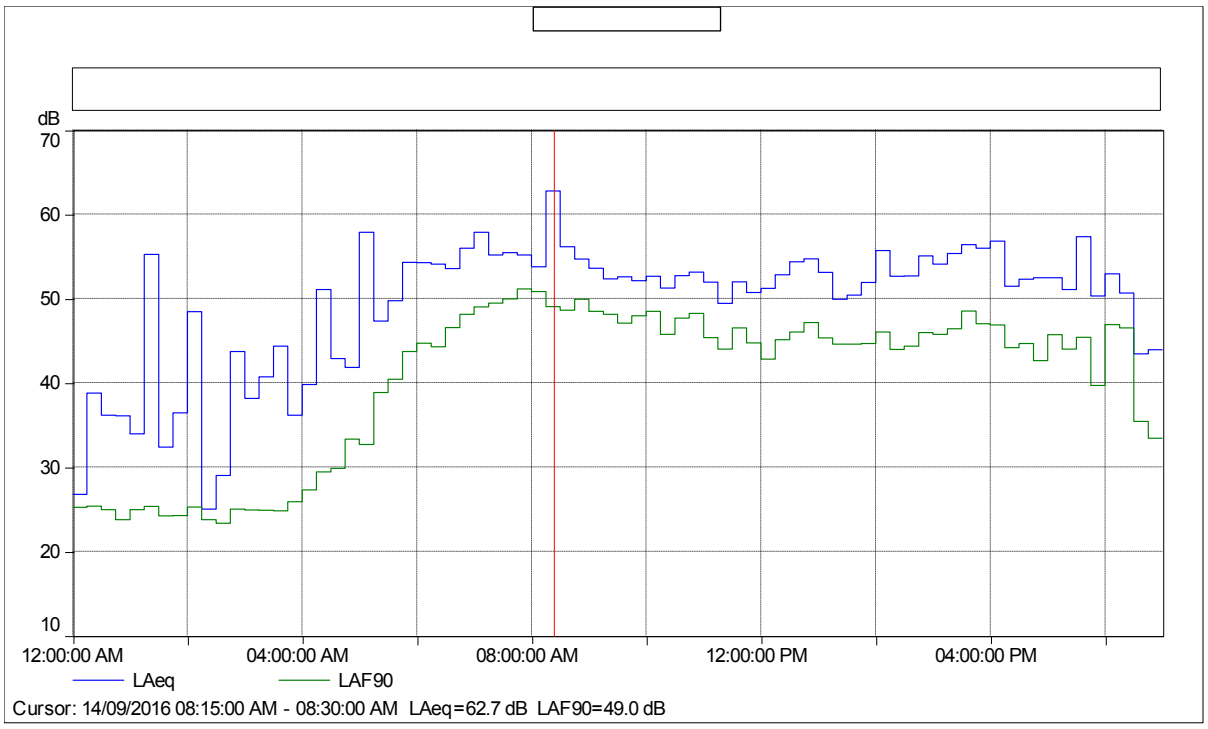
Graph 3.1 Measured Noise Levels Receiver 1 12-19/09/2016



Graph 3.2 Measured Noise Levels Receiver 2 13/09/2016



Graph 3.3 Measured Noise Levels Receiver 2 14/09/2016



Graph 3.4 Measured Noise Levels Receiver 2 20-26/09/2016

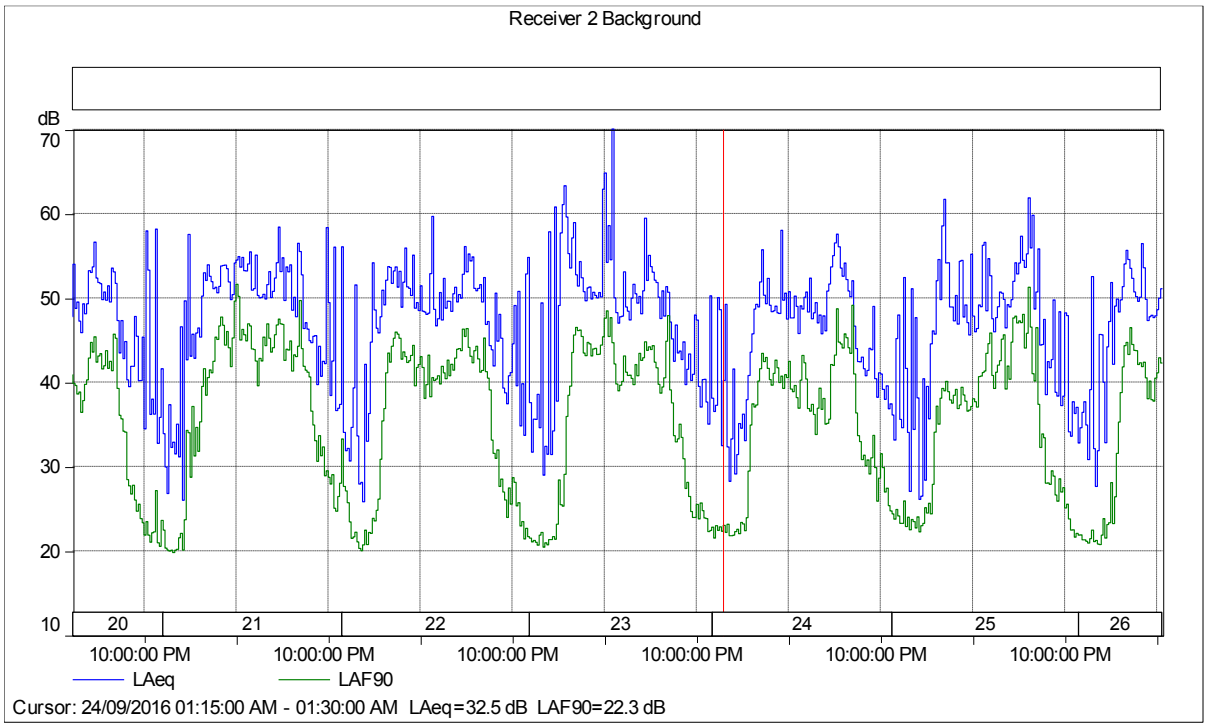


Table 3.2 Summary of Day Time (7am – 6pm) Background Noise Levels

(L_{A90} - *All levels in dBA*)

Receiver 1 Noise Monitoring Location Sept 2016							
13th	14th	15th	16th	17th	18th	19th	**RBL**
35.9	34.9	38.4	37.8	33.5	36.7	33.7	**36**

Receiver 2 Noise Monitoring Location Sept 2016							
13th	14th	21st	22nd	23rd	24th	25th	**RBL**
42.2	44.0	IVD	39.8	39.7	36.1	37.1	**40**

IVD - Insufficient Valid Data.

Details of numerical data are provided in Appendix E.

The background noise levels are dominated by the traffic flows on the Summerland Way.

4 OPERATIONAL NOISE LEVELS

Measurements of plant, equipment and operations at the precast concrete manufacturing facility were conducted on the 19th and 26th of September to determine noise levels and noise characteristics.

A Bruel & Kjaer 90mm windscreen was fitted to a calibrated sound level meter (SLM) which was mounted on a 1.2 - 1.4m high tripod and located at various distances from the noise source under investigation while it was operated under load conditions. Markers were used on the SLM to identify acoustic events during the noise monitoring period.

A summary of the measurement results are presented in Table 4.1.

Instrument	Serial #	Calibration Date
Brüel and Kjær 2250L Sound Level Meter	3006868	April 2016
Brüel and Kjær 2250L Sound Level Meter	2602785	December 2015
Brüel and Kjær Acoustical Calibrator model 4231	2263303	December 2015

Table 4.1 Summary of Measured Noise Levels

Summary of Machine and Equipment Near Field Measurements								
Operation and Distance from Noise Source	**Elapsed Time h:mm:ss**	**L_{Aeq} [dB]**	**L_{AImax} [dB]**	**L_{AFmax} [dB]**	**L_{Ceq}-L_{Aeq} [dB]**	**L_{AImax}-L_{AFmax} [dB]**	**Notes**	**Modifying Factor**
20T Franna 10m M1	0:03:00	66.8	75.9	73.0	12.1	2.9		I
20T Franna 10m M2	0:03:00	66.7	75.5	73.9	11.6	1.6		
Cattle Grid Concrete Truck 10m Vibrator 4m - Normal Power	0:02:47	67.2	86.1	81.8	23.8	4.3	25 & 31.5Hz	I,L
Cattle Grid Concrete Truck 6m Vibrator 4m -Normal Power	0:03:23	70.2	93.1	90.0	11.5	3.1		I
Cattle Grid Concrete Mixer 9m Vibrator 5m M1 - Normal Power	0:03:00	69.8	90.2	87.2	13.1	3.0	25 & 31.5Hz	I
Cattle Grid Concrete Mixer 9m Vibrator 5m M2 - Normal Power	0:03:00	67.5	91.5	88.2	26.2	3.3	31.5 & 40Hz	I,L
Compressor 6m	0:00:39	76.8	79.7	78.3	5.6	1.4		
Concrete Truck - Mixing Concrete 6m - Normal Power	0:00:54	73.7	89.5	85.7	2.9	3.9		I
Hitting Mould with Sledge Hammer 10m	0:00:27	84.3	101.5	97.1	-0.5	4.4		I
Metal Grinding in Workshop 5m	0:02:36	81.4	95.2	93.2	-0.7	2.1		I
Pouring Concrete and Vibrator 10m Full Power	0:06:34	74.7	94.9	90.8	15.0	4.1	25 & 31.5Hz	I
Pouring Concrete and Vibrator 14m Full Power	0:05:42	71.4	93.8	89.7	17.2	4.0	80 & 100Hz	I,L
Pouring Concrete Round Tank and Vibrator 5m - Normal Power	0:03:00	71.9	92.6	89.2	9.4	3.4		I

I – Impulsive noise characteristic; $L_{AImax} – L_{AFmax} > 2$ dB
L – Low frequency noise characteristic; $L_{Ceq} – L_{Aeq} > 15$dB below 160Hz
Operational noise levels were also measured at 3 nearby residential dwellings.

Operational noise levels at Receiver 1 location was measured near the access road in the adjoining property on the western side of the dwelling with direct line of site to the precast concrete production facility. Generally noise from the site was not audible. There is some shielding by adjacent industrial buildings from the workshop and the storage area near the workshop. The Franna crane when revving at the rear of the yard was observed to be approx. 45 – 48 dB(A) for short periods.

Operational noise levels for residential dwellings in Highfield Road were conducted on the grass verge opposite numbers 2 and 5. Due to the high background noise levels from the Summerland Way, accurate operational noise levels were not able to be determined at Receiver 2 location (Highfield Road). Hitting a sledge hammer on a steel mould was audible at Receiver 2 was audible but was not able to be accurately measured due to the traffic noise. When the vibrator was on full power, the low frequency was audible at Receiver 2 but not able to be measured due to road traffic noise. The vibrator at normal power was not audible at Receiver 2.

Noise measurements were conducted at Receiver Location 3 approximately 20m from the dwelling in the direction of precast concrete production facility. Generally most operational noise levels were either not or just audible and observed to be below 45 dB(A) during lulls in the traffic flows on the Summerland Way. Individual noise source levels were not able to be accurately measured due to the road traffic noise. The dwelling is located on a hill and the direct line of sight at the measurement location to the precast concrete production facility is shielded by the edge of the hill. Industrial noise from other industrial facilities was observed at a low level.

5 NOISE CRITERIA

5.1 Industrial Noise Policy

The NSW Government via the Office of Environment and Heritage (formally EPA) provide criteria in the Industrial Noise Policy (INP) for industrial and commercial noise. These are generally in line with criteria given in other states of Australia. This covers noise in urban, suburban and rural areas.

5.1 Intrusive Noise Goal

The intrusiveness criterion is summarised as follows:
$L_{Aeq,15minute} \leq$ *rating background level plus 5 decibels.*

This means that the equivalent continuous (energy average) A - weighted sound pressure level of the noise source under investigation over 15 minutes, cannot be more than 5 decibels above the background noise level. The intrusive noise goals at the residential dwellings near the precast concrete manufacturing facility are given in Table 5.1.

Table 5.1 Intrusive Noise Goals

	Monday – Saturday	**Sunday & Public Holidays**	**RBL**		**Intrusive Noise Goal $L_{Aeq,15min}$**	
			Receiver 1	Receiver 2	Receiver 1	Receiver 2
Day	7.00am – 6.00pm	8.00am – 6.00pm	36	40	41	45

5.2 Amenity Noise Goals

Amenity noise goals are set to prevent an increase in industrial noise. This site would be considered Urban under the NSW Industrial Noise Policy. The Acceptable (ANL) and Maximum Noise Level for this site is given below in Table 5.2.

Table 5.2 Recommended Noise Levels from Industrial Source

	Monday – Saturday	**Sunday & Public Holidays**	**Acceptable** L_{Aeq} (dBA)	**Maximum** L_{Aeq} (dBA)
Day	7.00am – 6.00pm	8.00am – 6.00pm	60	65
Evening	6.00pm – 10.00pm	6.00pm – 10.00pm	50	55
Night	10.00pm – 7.00am	10.00pm – 8.00am	45	50

***** From Table 2.1 NSW EPA INP Jan. 2000

5.3 Modifying Factors

When a noise source contains certain characteristics, there is evidence to suggest that it can cause greater annoyance than another noise source at the same noise level. Table 4.1 of the NSW EPA Industrial Noise Policy (Jan. 2000) outlines the noise characteristics and the modifying factor corrections.

Low frequency noise characteristic ($L_{Ceq} – L_{Aeq} > 15$ decibels) was observed during both tests with vibrator at full power and some of the vibration operations at normal power.

Impulsive noise characteristics ($L_{Almax} – L_{AFmax}$ > than 2 decibels) were observed in most operations and was the result of metal banging.

No tonality was observed in any of the measurements.

Reversing beepers are not used on the Franna crane or delivery trucks.

5.4 Project Specific Noise Level

Project or site-specific noise levels are set on the basis of the most stringent applicable criteria given above. The maximum day time (7am – 6pm) noise levels (L_{Aeq}) from the proposed operations of the development at the closest affected residential dwellings are;

Receiver	Address	PSNL $L_{Aeq,15min}$	
1	24 Craig Street	41	Intrusive Rule
2	3 Highfield Road	45	Intrusive Rule
3	232 Summerland Way	43*	Intrusive Rule

* Estimated based on observations and the results of receivers 1 and 2.

6 ASSESSMENT OF NOISE LEVELS

The operational noise levels at the receiver locations were generally below the level of road traffic noise levels. Short periods of some noise sources were audible at the receiver locations during traffic lulls.

Even though some operational noise levels (Franna crane revving, sledge hammer banging metal moulds, vibrator operated at full power) were audible for short periods, the $L_{Aeq,15\ min}$ noise levels are below the Project Specific Noise Levels at closest receiver locations based on the measurements and observations at each of the locations.

The proprietor has indicated that the vibrators are operated on normal power as the finished product tends to have a smoother finish with less irregularities.

The low frequency noise characteristic of the vibrators was not measureable at the receiver locations due to the road traffic noise levels.

The impulsive characteristics were observed to be not as dominant at the receiver locations as they were for the near field measurements.

The workshop noise is shielded from Receiver 1 by other industrial buildings, from the Receiver 2 by the workshop building and Receiver 3 by the hill.

The product storage area on the eastern boundary provides some shielding to Receiver 1.

It is proposed to construct a large shed to provide protection from rain so that production can continue during rain periods. The shed will have open sides with insulation under the roof. It is proposed to install an overhead crane system to empty and move moulds which will reduce the use of the Franna Crane.

The construction of the shed will not increase noise levels at the closest residential receiver locations.

No decision for the type of overhead crane system has been made. It is recommended the operational noise level of the proposed overhead crane system be measured so that noise levels at receiver locations can be determined and noise mitigation measures if required be incorporated into the design and installation of the overhead crane.

7 SUMMARY

An acoustics study was conducted to assess noise impacts at nearby residential properties of operational noise levels from the precast concrete manufacturing facility at 4 Craig Street, Kyogle.

Background noise monitoring was conducted with calibrated noise monitoring equipment at 2 nearby representative residential locations over a period of 7 days to determine the existing background noise levels. The Project Specific Noise Level, $L_{eq,15min}$ (PSNL) was determined to be 41 dB(A) for Receiver 1, 45 dB(A) for Receiver 2 and 43 dB(A) for Receiver 3 for the day time (7am – 6pm) period.

Measurements were conducted of the potential noise sources at the concrete manufacturing facility to determine the noise levels and noise characteristics. Results indicate low frequency and impulsive noise characteristics in some of the equipment and operations.

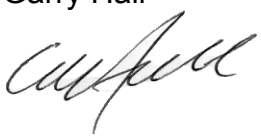
Measurements and observations of operational noise levels at the closest affected residential dwellings indicate that some noise levels (Franna crane revving, sledge hammer banging metal moulds, vibrator operated at full power) are audible for short periods of time particularly during road traffic lulls. When assessed over a 15 minute period, the noise levels are below the Project Specific Noise Level at each of the closest receiver locations.

Nearby industrial buildings, the workshop and a hill provide some noise shielding to nearby residential dwellings.

The construction of a large shed over the mould area near the workshop will not increase noise levels at the closest residential receiver locations.

It is recommended the operational noise level of the proposed overhead crane system be measured so that noise levels at receiver locations can be determined and noise mitigation measures if required be incorporated into the design and installation of the overhead crane.

Garry Hall



Acoustic Consultant
Ambience Audio Services

APPENDIX A
Definitions of Terms

Sound pressure level (L_p): A measurable quantity of the size or amplitude of the pressure fluctuations (sound waves) above and below normal atmospheric pressure compared to a reference pressure. Sound pressure levels are measured in decibels whereas sound pressure is measured in pascals (N/m^2).

Decibels (dB): a ratio of energy flows. When used for sound measurement, it is the ratio between a measured quantity of sound pressure and an agreed reference sound pressure. The dB scale is logarithmic and uses the threshold of hearing of 20 μPa (micro pascals) as the reference pressure. This reference level is defined as 0 dB.

Frequency (Hz): The number of pressure variations per second (cycles per second) is called the **frequency** of sound and is measured in **Hertz (Hz)**. The rumble of distant thunder has a low frequency, while a whistle has a high frequency. The normal range of hearing for a healthy young person extends from approximately 20Hz up to 20 000 Hz (20 kHz) while the range from the lowest to highest note on a piano is approximately 27.5 Hz to 4.2 kHz.

Spectral characteristics: The frequency content of noise.

"A" frequency weighting: The method of frequency weighting the electrical signal within a noise-measuring instrument to give a very approximate simulate to the human perception of loudness. The symbols for the noise parameters often include the letter "A" (e.g., L_{Aeq}, dBA) to indicate that frequency weighting has been included in the measurement.

Fast, Slow and Impulse time weightings: Standardised root-mean-square (rms) averaging times to help define fluctuating noise levels. Impulsive noises have high peak levels with a very short duration (e.g., gun shot), or a sequence of such peaks. The 'Slow' time weighting averages the fluctuations over a one second time base whilst the 'Fast' time weighting averages the fluctuations over a one-eighth of a second time base. Environmental assessment standards usually specify the time weighting (**F**, **S**, or **I**) to be used.

L_{Aeq}: The A-weighted equivalent continuous noise level. A widely used noise descriptor which provides an average of the energy of a constant level of noise which is the same as the varying noise signal being measured. The time in minutes, which the measurement was sampled, is indicated with a subscripted number e.g. $L_{Aeq,\ 15\ minute}$ is a 15-minute sample.

L_{AN}: The A-weighted sound pressure level that is exceeded for N per cent of the time over which a given sound is measured. e.g. **L_{A90}** is the A-weighted sound pressure level that is exceeded for 90% of the time over which a given sound is measured.

L_{A90} is commonly used to describe the **background noise level** for community noise assessments.

Ambient noise: The all-encompassing noise associated within a given environment. It is the composite of sounds from many sources, both near and far.

Extraneous noise: Noise resulting from activities that are not typical of the area. Atypical activities may include construction, and traffic generated by holiday periods and by events such as concerts or sporting events. Normal daily traffic is not to be considered extraneous.

Background noise: The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is described using the L_{A90} descriptor, fast time weighting.

Intrusive Noise: Refers to noise that intrudes above the background level by more than 5 decibels.

Noise limits: Enforceable noise levels that appear in consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.

References:

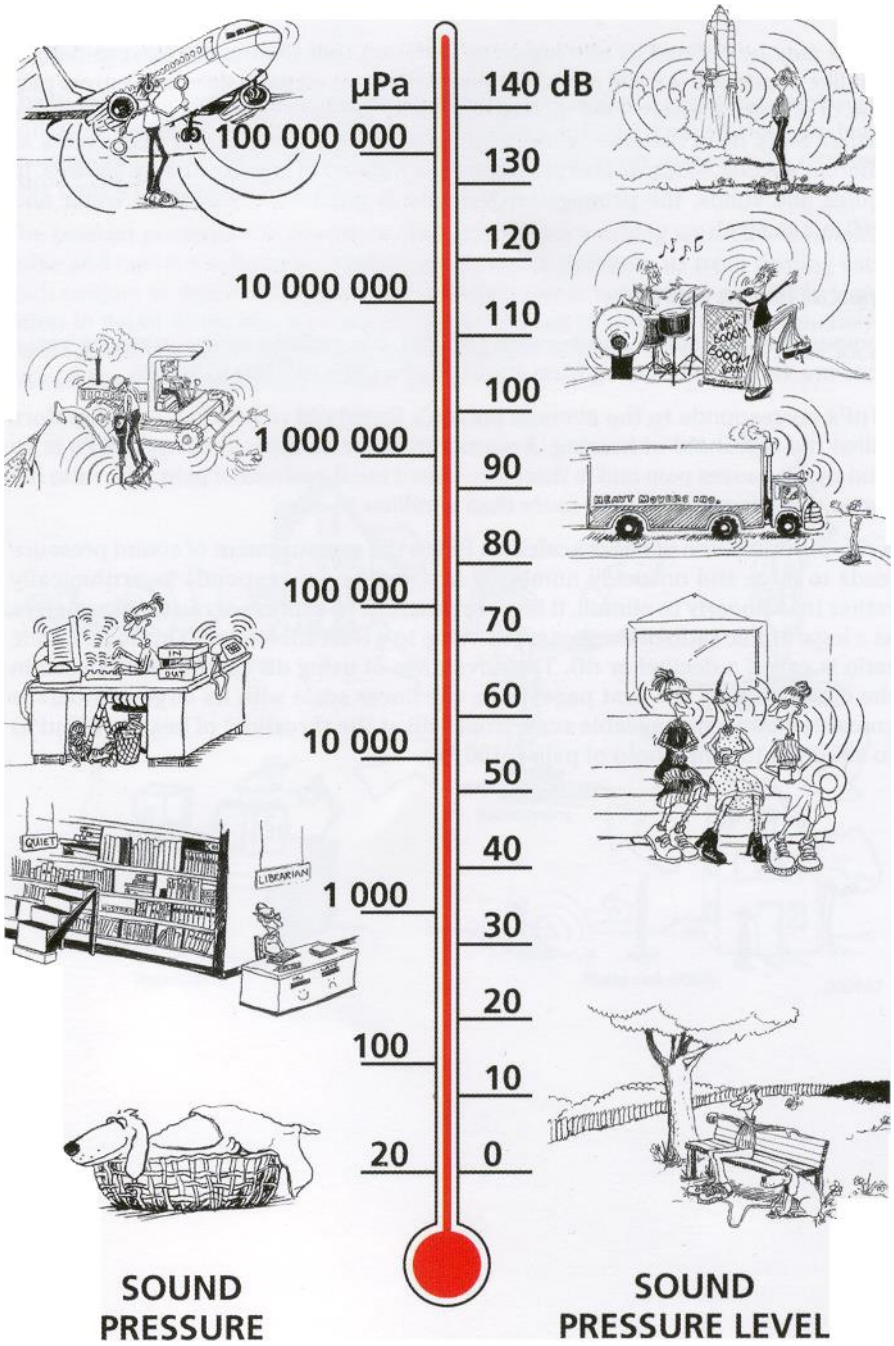
Measuring Sound Brüel and Kjær Sound & Vibration Measurements A/S September 1984

Environmental Noise Brüel and Kjær Sound & Vibration Measurements A/S 2000, 2001

New South Wales Industrial Noise Policy NSW Environment Protection Authority January 2000

APPENDIX B

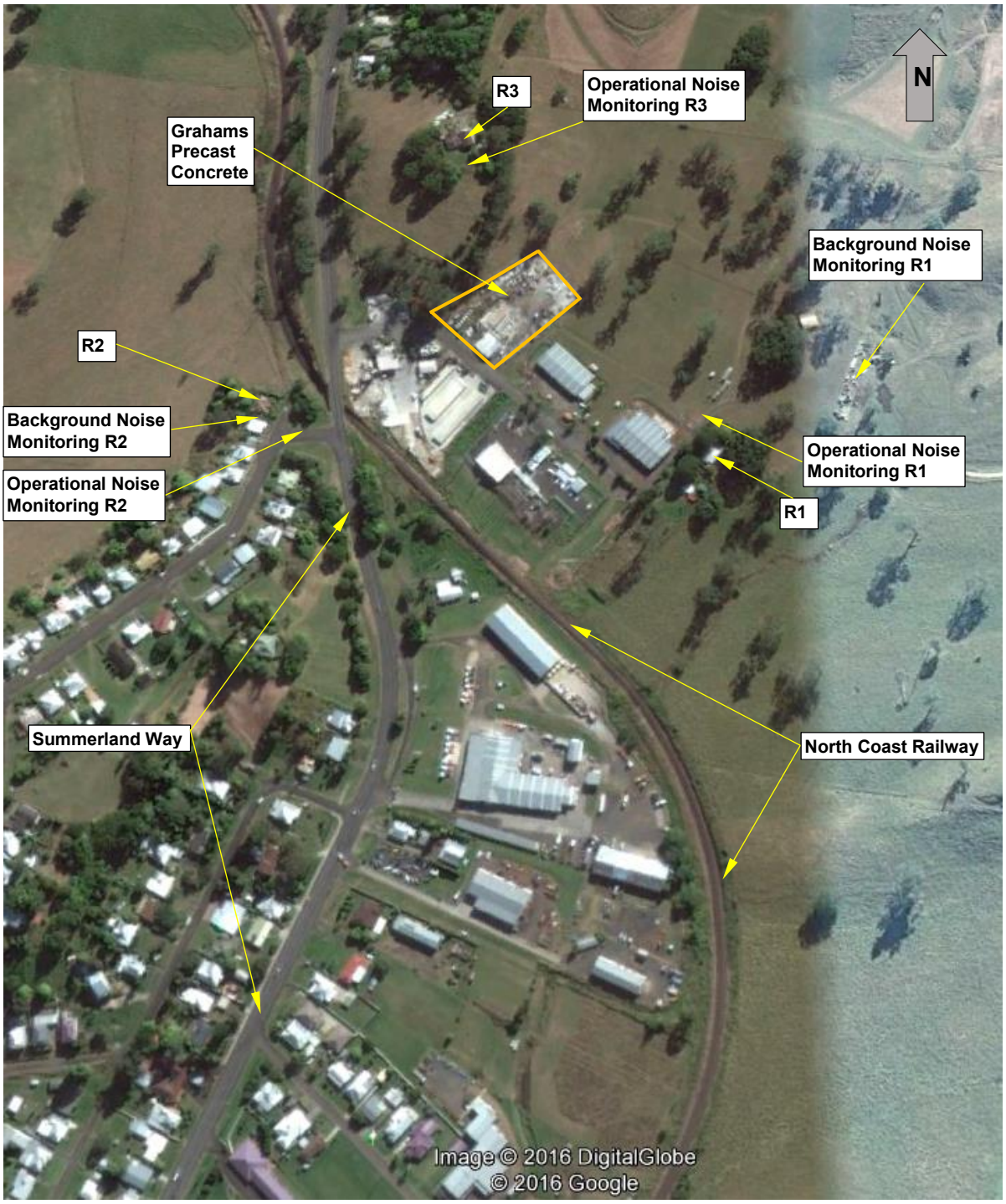
Comparison of Sound Pressure Levels



Our hearing covers a wide range of sound pressures – a ratio of over a million to one. The dB scale makes the numbers manageable.

Reproduced from
Environmental Noise Brüel and Kjær Sound & Vibration Measurements A/S 2000, 2001

APPENDIX C
Location Map



Noise Monitoring Location	Location
R1	24 Craig Street
R2	3 Highfield Road
R3	232 Summerland Way

APPENDIX D
Site Map and Facility Layout

APPENDIX E

Background Noise Level Data

Receiver 1 Background Noise Monitoring 12th - 19th September 2016 LA90 (dB(A)								
	12th	13th	14th	15th	16th	17th	18th	19th
07:00:00 AM		42.6	42.3	40.8	40.1	38.7	40.7	37.7
07:15:00 AM		44.2	40.9	39.5	39.0	40.6	39.4	39.3
07:30:00 AM		42.8	42.4	40.2	39.7	40.2	35.8	37.9
07:45:00 AM		40.0	43.7	39.3	37.9	40.0	38.9	38.4
08:00:00 AM		39.6	43.9	40.0	38.5	37.9	38.2	38.2
08:15:00 AM		40.5	44.6	38.4	37.8	37.3	38.8	41.4
08:30:00 AM		38.5	41.2	38.7	38.8	35.9	40.4	50.9
08:45:00 AM		38.6	43.4	39.9	40.7	36.9	38.4	43.6
09:00:00 AM		37.6	42.8	41.7	38.0	35.3	38.4	36.8
09:15:00 AM		35.7	42.1	39.9	38.1	34.9	39.3	35.7
09:30:00 AM		36.6	42.0	39.3	41.1	33.7	39.9	35.3
09:45:00 AM		37.4	42.3	39.8	39.5	34.5	36.7	34.8
10:00:00 AM		35.9	41.6	41.6	38.3	34.0	38.1	36.5
10:15:00 AM		35.7	41.2	39.9	39.1	34.2	40.2	35.6
10:30:00 AM		36.9	39.9	40.7	41.0	33.4	38.0	35.3
10:45:00 AM		36.5	40.5	41.9	39.2	33.6	38.0	35.3
11:00:00 AM		36.7	39.8	39.8	39.5	34.5	36.7	62.5
11:15:00 AM		36.6	39.7	37.2	39.8	33.5	38.3	44.5
11:30:00 AM		36.7	40.7	37.8	40.3	35.2	36.2	35.4
11:45:00 AM	34.7	36.4	38.4	39.5	42.9	33.3	37.8	33.7
12:00:00 PM	32.6	36.3	36.9	39.5	39.2	31.7	37.2	32.9
12:15:00 PM	34.5	38.0	39.3	38.6	39.2	32.0	36.5	32.8
12:30:00 PM	32.8	36.7	36.5	40.0	37.0	35.5	37.1	32.7
12:45:00 PM	32.9	34.6	36.5	46.9	37.9	35.5	37.9	33.0
01:00:00 PM	33.1	35.9	34.9	47.0	38.3	39.2	39.6	34.8
01:15:00 PM	35.9	37.6	37.4	47.2	38.4	36.0	38.7	36.4
01:30:00 PM	33.6	37.3	36.9	40.2	37.6	34.7	39.8	37.5
01:45:00 PM	34.7	36.6	37.7	39.8	37.4	35.5	38.8	37.2
02:00:00 PM	34.1	39.0	38.3	39.1	37.5	35.1	38.2	37.8
02:15:00 PM	35.1	36.8	37.6	38.6	38.1	35.3	39.8	38.2
02:30:00 PM	38.6	37.1	37.1	37.6	37.8	34.8	37.8	36.3
02:45:00 PM	38.6	39.1	38.3	38.3	40.4	37.4	36.6	37.2
03:00:00 PM	40.2	37.0	33.6	39.0	41.5	37.8	39.3	39.6
03:15:00 PM	38.4	36.6	34.3	41.0	40.4	38.7	43.0	37.4
03:30:00 PM	38.4	36.3	34.8	40.8	42.2	39.0	40.9	36.6
03:45:00 PM	39.0	36.2	33.9	40.3	41.8	39.5	39.8	36.6
04:00:00 PM	39.3	37.3	37.0	46.4	42.0	40.6	39.2	37.0
04:15:00 PM	39.9	38.8	38.9	47.8	42.4	41.8	42.0	39.7
04:30:00 PM	42.2	40.1	41.9	48.1	42.5	41.8	42.1	39.8
04:45:00 PM	43.5	40.8	42.5	48.9	43.7	43.4	44.1	41.4
05:00:00 PM	45.8	41.0	42.3	49.6	44.7	43.8	43.5	42.5
05:15:00 PM	47.2	41.9	42.4	49.1	45.3	45.7	44.4	43.8
05:30:00 PM	47.7	42.4	41.7	49.3	47.4	46.5	45.9	43.6
05:45:00 PM	47.9	43.8	41.3	50.2	50.1	45.4	46.3	44.2

Receiver 2 Background Noise Monitoring 13th, 14th, 20th - 25th Sept 2016 LA90 (dB(A)								
	13th	14th	20th	21st	22nd	23rd	24th	25th
7:00:00 AM	47.1	49.0		42.5	45.7	45.4	42.9	37.9
07:15:00 AM	44.2	49.4		45.3	45.2	43.4	41.6	37.5
07:30:00 AM	42.9	49.9		45.0	42.7	43.1	40.3	38.4
07:45:00 AM	43.0	51.1		46.7	43.6	44.7	39.6	39.1
08:00:00 AM	42.8	50.8		47.7	43.0	44.5	41.0	36.9
08:15:00 AM	43.9	49.0		46.7	42.3	43.1	42.6	37.3
08:30:00 AM	44.1	48.6		44.4	42.5	43.9	41.7	39.4
08:45:00 AM	42.3	49.9		46.0	43.2	44.0	39.9	38.4
09:00:00 AM	42.8	48.4		44.1	44.3	43.2	40.7	37.7
09:15:00 AM	43.1	48.1		41.8	39.5	43.3	39.2	36.5
09:30:00 AM	42.7	47.0		45.2	41.7	44.4	40.9	36.7
09:45:00 AM	43.7	47.9		49.6	42.1	45.4	40.5	37.1
10:00:00 AM	44.3	48.4		51.6	43.0	47.6	42.5	38.0
10:15:00 AM	44.1	45.7		50.2	41.7	48.4	39.2	37.7
10:30:00 AM	43.1	47.6		45.0	38.0	45.4	38.9	37.0
10:45:00 AM	42.2	48.2		46.2	39.7	47.6	39.6	40.6
11:00:00 AM	43.6	45.3		45.6	43.2	44.7	38.1	40.7
11:15:00 AM	44.0	44.0		44.9	38.2	42.1	36.9	41.1
11:30:00 AM	43.8	46.5		46.9	40.5	39.8	40.2	41.3
11:45:00 AM	43.3	44.7		46.6	40.2	38.9	43.1	43.4
12:00:00 PM	43.2	42.8		43.9	40.4	39.6	42.3	44.5
12:15:00 PM	42.4	45.1		43.9	40.7	40.1	40.3	45.8
12:30:00 PM	42.2	46.0		42.5	39.8	43.1	36.9	40.8
12:45:00 PM	42.8	47.1	39.8	39.5	41.8	41.2	36.5	39.2
01:00:00 PM	41.3	45.3	39.6	42.8	41.1	40.8	37.3	41.2
01:15:00 PM	43.4	44.5	38.6	42.5	40.4	40.8	36.1	42.0
01:30:00 PM	42.6	44.6	38.8	45.3	42.6	40.4	33.8	42.5
01:45:00 PM	42.3	44.6	36.4	44.3	40.7	39.7	36.9	45.1
02:00:00 PM	44.2	46.0	37.8	46.9	42.1	42.1	39.3	45.6
02:15:00 PM	43.2	43.9	39.7	45.2	41.4	40.7	36.8	39.1
02:30:00 PM	43.8	44.3	40.3	43.5	42.8	43.4	38.0	41.9
02:45:00 PM	43.4	45.9	42.8	44.0	43.9	42.5	35.0	40.3
03:00:00 PM	45.3	45.7	44.7	45.6	44.0	42.9	35.1	44.7
03:15:00 PM	47.5	46.4	43.5	46.8	43.7	44.8	35.6	47.6
03:30:00 PM	46.4	48.5	45.4	47.4	46.3	43.7	42.1	47.8
03:45:00 PM	48.6	47.0	42.4	46.9	45.4	44.1	42.0	47.0
04:00:00 PM	47.9	46.8	43.1	46.8	46.3	43.8	43.2	47.3
04:15:00 PM	49.4	44.1	43.4	42.6	44.1	44.3	48.7	47.0
04:30:00 PM	48.0	44.6	41.5	43.9	43.0	42.3	44.7	48.0
04:45:00 PM	43.5	42.6	41.9	43.8	42.3	41.7	44.5	44.0
05:00:00 PM	42.8	45.7	43.7	44.9	43.7	39.7	44.0	45.8
05:15:00 PM	42.1	44.0	41.6	41.3	44.2	38.7	45.7	51.2
05:30:00 PM	41.6	45.4	42.4	43.2	42.7	39.4	45.3	46.5
05:45:00 PM	43.4	39.6	41.3	43.0	41.2	40.5	44.1	41.0