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CRR JOINT VENTURE

Cross River Rail

Environmental Impact Statement

Technical Report No. 8 – Construction noise and vibration

Part C

July 2011

Cross River Rail

TECHNICAL REPORT NO. 8
CONSTRUCTION NOISE AND VIBRATION
PART C

JULY 2011

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1. Introduction

The following tables present a summary of the construction activities proposed by the reference design at the major worksites for particular works where higher levels of construction noise are anticipated. These include activities associated with the:

- Southern portal worksite
- Ventilation and emergency access shaft worksite
- Boggo Road Station worksite
- Gabba Station worksite
- Albert Street Station worksite
- Roma Street Station worksite
- Northern portal worksite.

This information has been prepared for the purpose of this EIS assessment based on the reference design and proposed construction method[1].

Approximate durations of those activities for each worksite expected to have potential for the greatest noise impacts are provided for:

- demolition
- pile boring
- rock breaking
- excavations.

The key conclusion to be drawn from this construction planning task is that, while some construction activities would likely generate high levels of noise, the durations of such activities would be considerably shorter than the overall construction programme, or the operation of each worksite. **Chapter 4 Project Description** provides a high level construction program.

[1] AECOM, March 2011

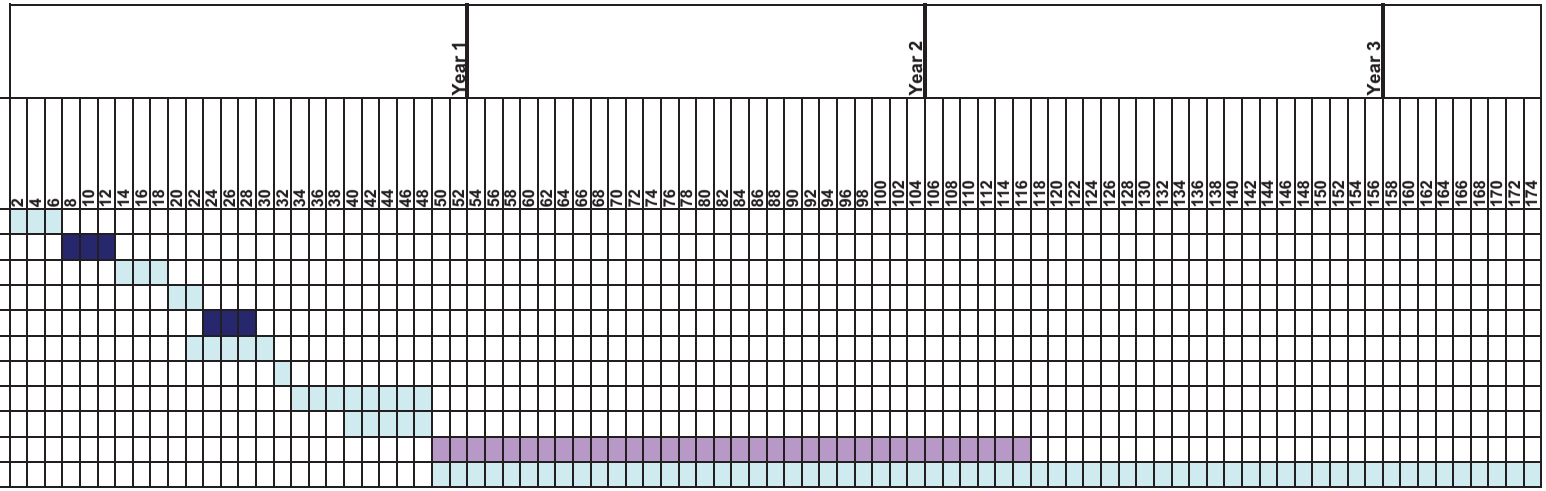
Cross River Rail - Typical Construction Activities at Major Worksites

Key:

- Construction activities with no predicted exceedences of the relevant construction noise goals
- Specific noise mitigation measures will adopted to comply with noise goals where exceedences of the relevant construction noise goals are predicted.
- Construction activities with predicted exceedences of the relevant construction noise goals (with mitigation) - further options for mitigating construction noise impacts would be developed for each worksite, prior to construction

Southern Portal worksite

	Element	Estimated durations (weeks)
A	Site clearance	6
B	Demolition works	6
C	Wilkie Street realignment (construction arrangement only)	6
D	Establish piling rigs on site	4
E	Install piles alongside live rail corridor	6
F	Excavate open trough	10
G	Soil nail installation in open trough excavation	2
H	Excavate in piled trough	16
I	Installation of anchors and shotcrete lagging	10
J	TBM support, including spoil removal by trucks	68
K	Night-time truck movements within worksite	125

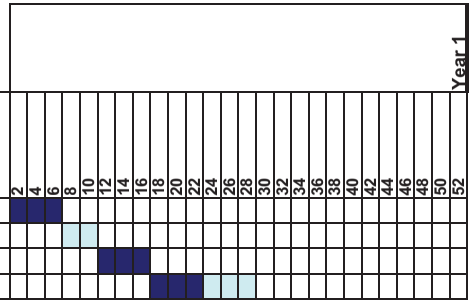


Notes:

B: Dominant noise sources include rock breakers and excavators (daytime construction only)
E: Dominant noise sources include pilling rigs. Mostly daytime construction and potentially weekend and night-time work during track possessions
J: Dominant noise sources include spoil trucks, front end loaders and tunnel ventilation (24 hour per day construction with night-time works carried out inside an acoustic enclosure)
K: Dominant noise sources include trucks prior to exiting the worksite at Lucy Street (24 hour movements through the worksite)

Ventilation and Emergency Access Shaft worksite

	Element	Estimated durations (weeks)
A	Site clearance and establishment	6
B	Establish piling rigs on site	4
C	Piling of access shaft	5
D	Excavate shaft	12

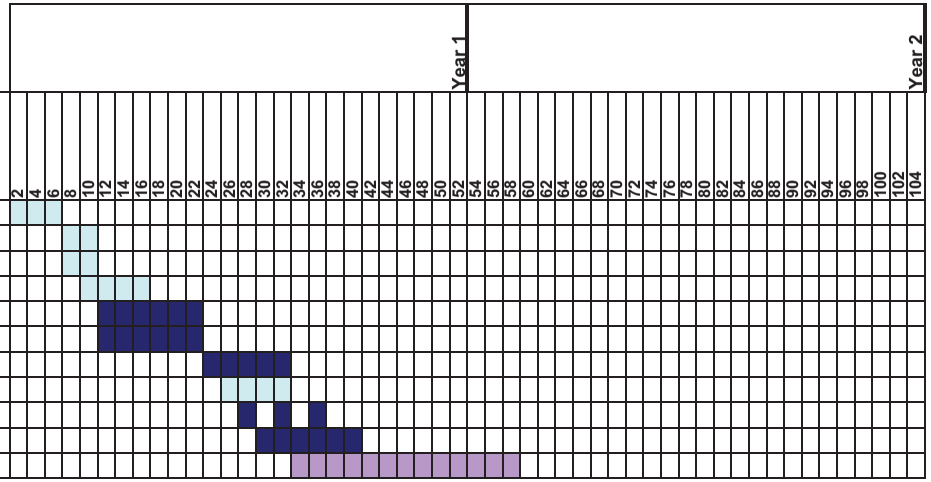


Notes:

A: Dominant noise sources include an excavator and front end loader (daytime construction only)
C: Dominant noise sources include a piling rig, excavator and front end loader (daytime construction only)
D: Dominant noise sources include excavators and front end loaders (daytime construction only)

Boggo Road Station worksite

	Element	Estimated durations (weeks)
A	Site clearance and establishment	6
B	Establish piling rigs on site - northern entrance	4
C	Establish piling rigs on site - southern entrance	4
D	Open excavation through centre section of site	7
E	Install piles - northern entrance	12
F	Install piles - southern entrance	12
G	Install piles at platform box	9
H	Cast capping beam	7
I	Excavate 1m below capping beam	3
J	Construct top slab	12
K	Excavate to formation level beneath top slab *	25



* Rock excavation = 9 weeks (K)

Notes:

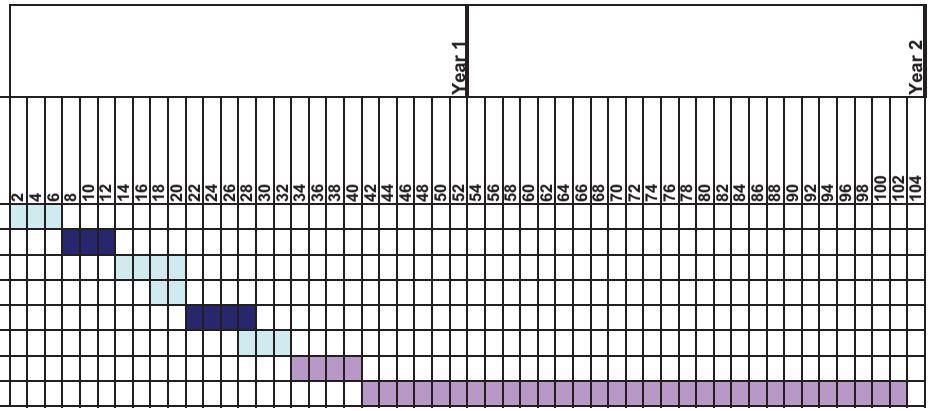
E, F, G: Dominant noise sources include piling rigs, excavators and front end loaders (daytime construction only)

I, J: Dominant noise sources include jumbo drill rig, excavators, concrete trucks and front end loaders (daytime construction only)

K: Dominant noise sources include jumbo drill rigs, excavators, front end loaders and spoil trucks (24 hour per day construction with night-time works carried out inside an acoustic enclosure (spoil trucks daytime only))

Gabba Station worksite

	Element	Estimated durations (weeks)
A	Site clearance and establishment	6
B	Demolition works	6
C	Excavation down to busway level	8
D	Establish piling rigs on site	4
E	Install piles	7
F	Excavate box - soil	5
G	Excavate box - rock	7
H	TBM support operations including on-site spoil removal	61



Notes:

B: Dominant noise sources include rock breakers and excavators (daytime construction only)

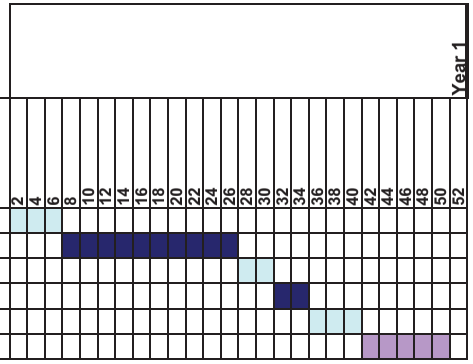
E: Dominant noise sources include piling rigs (daytime construction only)

G: Dominant noise sources include jumbo drill rigs, excavators and front end loaders (24 hour per day construction with an acoustic enclosure in place)

H: Dominant noise sources include tunnel ventilation, front end loaders and haul trucks (24 hour per day construction, with night-time works carried out inside an acoustic enclosure)

Albert Street Station worksite - south

	Element	Estimated Durations (weeks)
A	Site clearance and establishment	6
B	Demolition works	20
C	Establish piling rigs on site	4
D	Install piles	4
E	Construct acoustic shed	6
F	Excavate to formation level	10



Notes:

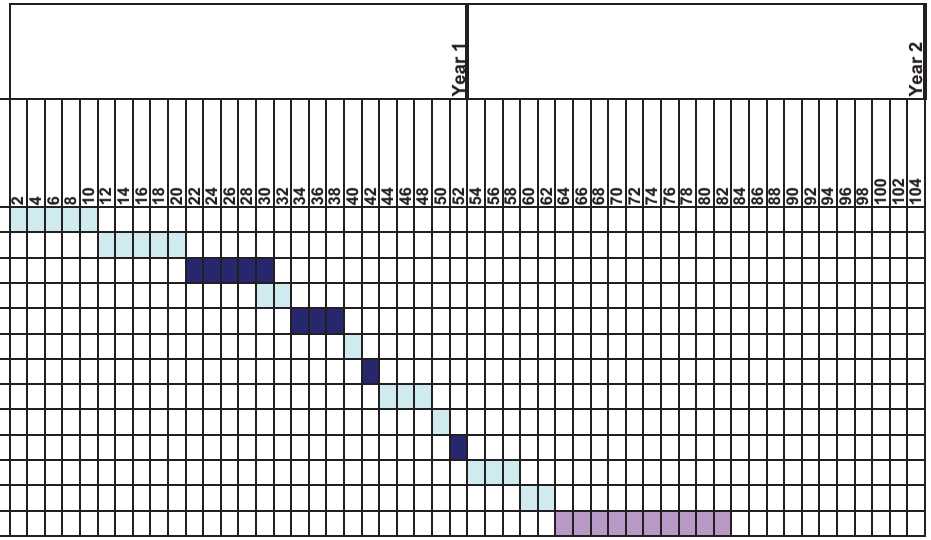
B: Dominant noise sources include rock breakers, excavators and haulage trucks (daytime construction only)

D: Dominant noise sources include piling rigs (daytime construction only)

F: Dominant noise sources include jumbo drill rigs, excavators and front end loaders (24 hour per day construction with night-time works carried out inside an acoustic enclosure)

Albert Street Station worksite - north

	Element	Estimated durations (weeks)
A	Utility diversions - Mary Street	10
B	Site clearance and establishment	10
C	Demolition works	10
D	Establish piling rigs on site	4
E	Install piles	6
F	Establish Mary Street site	2
G	Install piles 50% Mary Street	2
H	Construct top slab - 50% Mary Street	6
I	Establish Mary Street Site	2
J	Install piles 50% Mary Street	2
K	Construct top slab - 50% Mary Street	6
L	Construct acoustic shed	4
M	Excavate to formation level	20



Notes:

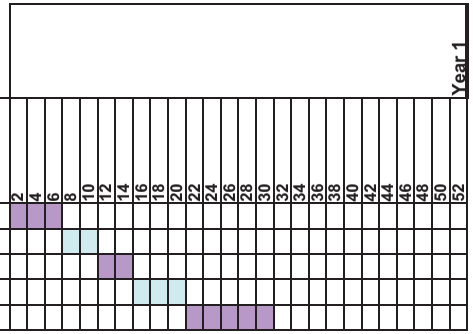
C: Dominant noise sources include rock breakers, excavators and haulage trucks (daytime construction only)

E, G, J: Dominant noise sources include piling rigs (daytime construction only)

M: Dominant noise sources include jumbo drill rigs, excavators and front end loaders (24 hour per day construction with night-time works carried out inside an acoustic enclosure)

Roma Street Station worksite - south shaft

	Element	Estimated durations (weeks)
A	Site clearance and establishment	6
B	Establish piling rigs on site	4
C	Install piles	4
D	Construct acoustic shed	6
E	Excavate to formation level	10



Notes:

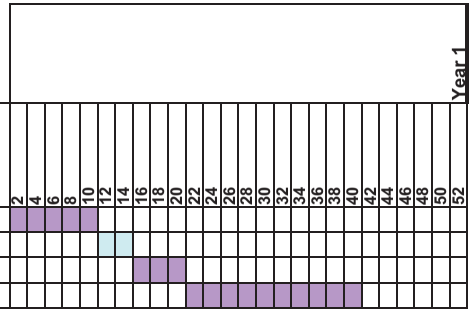
A: Dominant noise sources include excavators and cranes (mostly daytime construction works)

C: Dominant noise sources include piling rigs (mostly daytime construction works)

E: Dominant noise sources include jumbo drill rigs, excavators and front end loaders (potential for 24 hour per day construction with night time works carried out inside an acoustic enclosure at the south shaft)

Roma Street Station worksite - central shaft

	Element	Estimated durations (weeks)
A	Site clearance and establishment	10
B	Establish piling rigs on site	4
C	Install piles	6
D	Excavate to formation level	20



Notes:

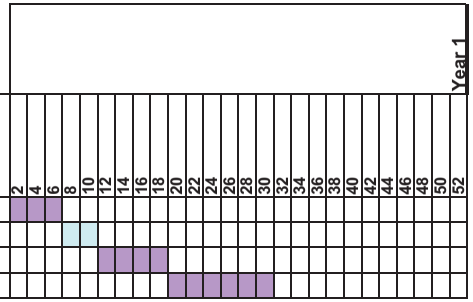
A: Dominant noise sources include excavators and cranes (mostly daytime construction works with potential for night-time works to avoid impact on existing rail operations)

C: Dominant noise sources include piling rigs (mostly daytime construction works with potential for night-time work required to avoid impact on existing rail operations)

D: Dominant noise sources include jumbo drill rigs, excavators and front end loaders

Roma Street Station worksite - north shaft

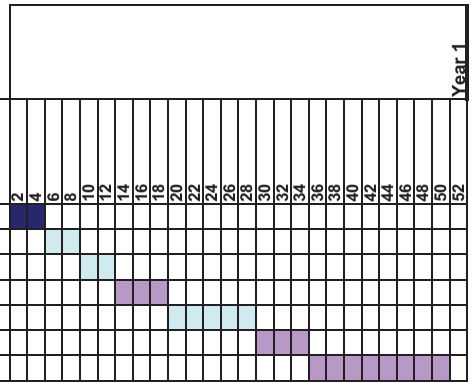
	Element	Estimated durations (weeks)
A	Site clearance and establishment	6
B	Establish piling rigs on site	4
C	Install piles	8
D	Excavate to formation level	12



Notes:
A: Dominant noise sources include excavators and cranes (mostly daytime construction works)
C: Dominant noise sources include piling rigs (mostly daytime construction works)
D: Dominant noise sources include jumbo drill rigs, excavators and front end loaders

Northern Portal worksite

	Element	Estimated durations (weeks)
A	Site clearance and establishment	4
B	Establish piling rigs on site	4
C	Install piles	4
D	Excavate north portal shaft	5
E	Install piles for cut and cover box structure	9
F	Excavate trough for dive structure and cut and cover box	5
G	TBM disassembly	15



Notes:
A: Dominant noise sources include excavators and front end loaders (daytime construction only)
F: Dominant noise sources include jumbo drill rigs and excavators (daytime construction only)
G: Dominant noise sources include cranes and heavy vehicles (daytime construction only)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