

# Tunnel Segment Facility for Alkimos Desalination Plant – Noise and Vibration

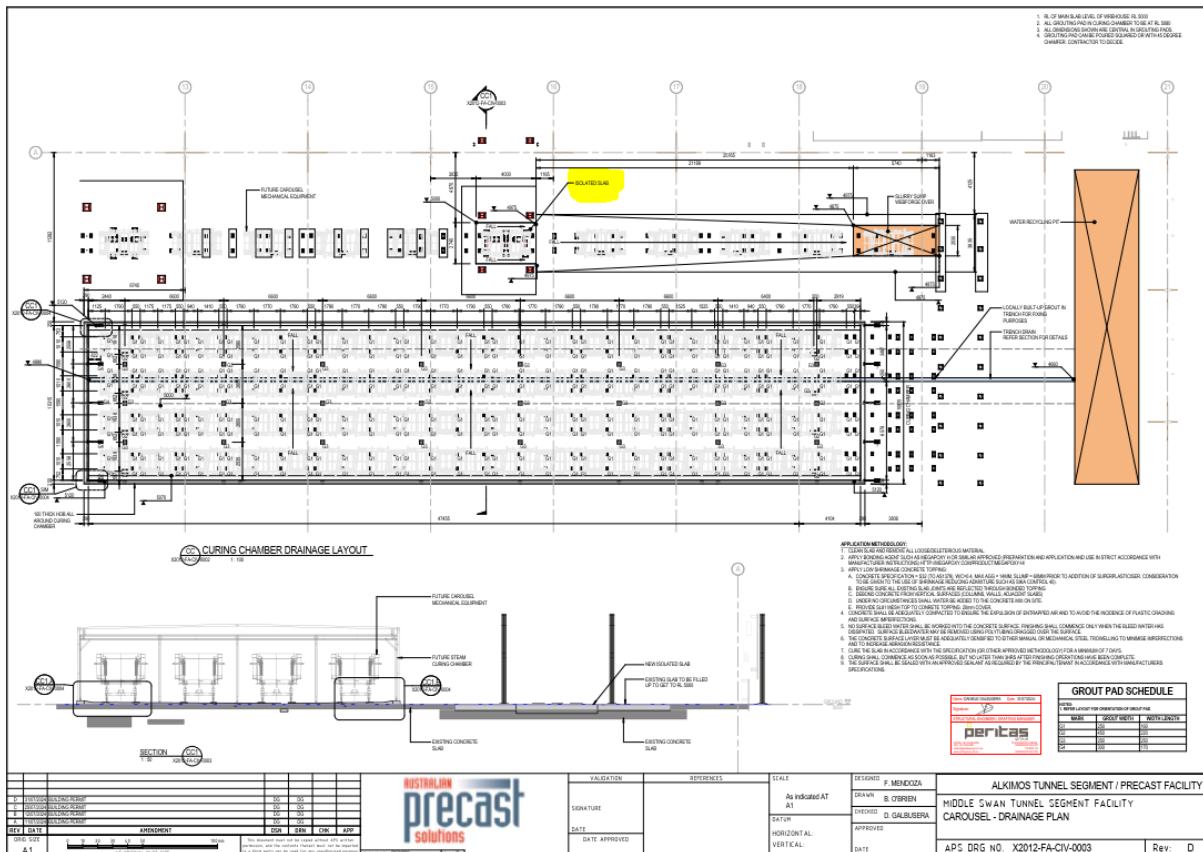
Response to - Application form reference 4.1 and 4.2 Prescribed premises infrastructure and Proposed Activities

## Vibration

CBE has confirmed that there should be no vibration emission apart from the concrete booth slab, APS will be building this slab independently to avoid the vibration impact and the facility shed slab is separated from the remainder of the site, it won't transfer outside to the site, see below sketch, and referenced drawing.

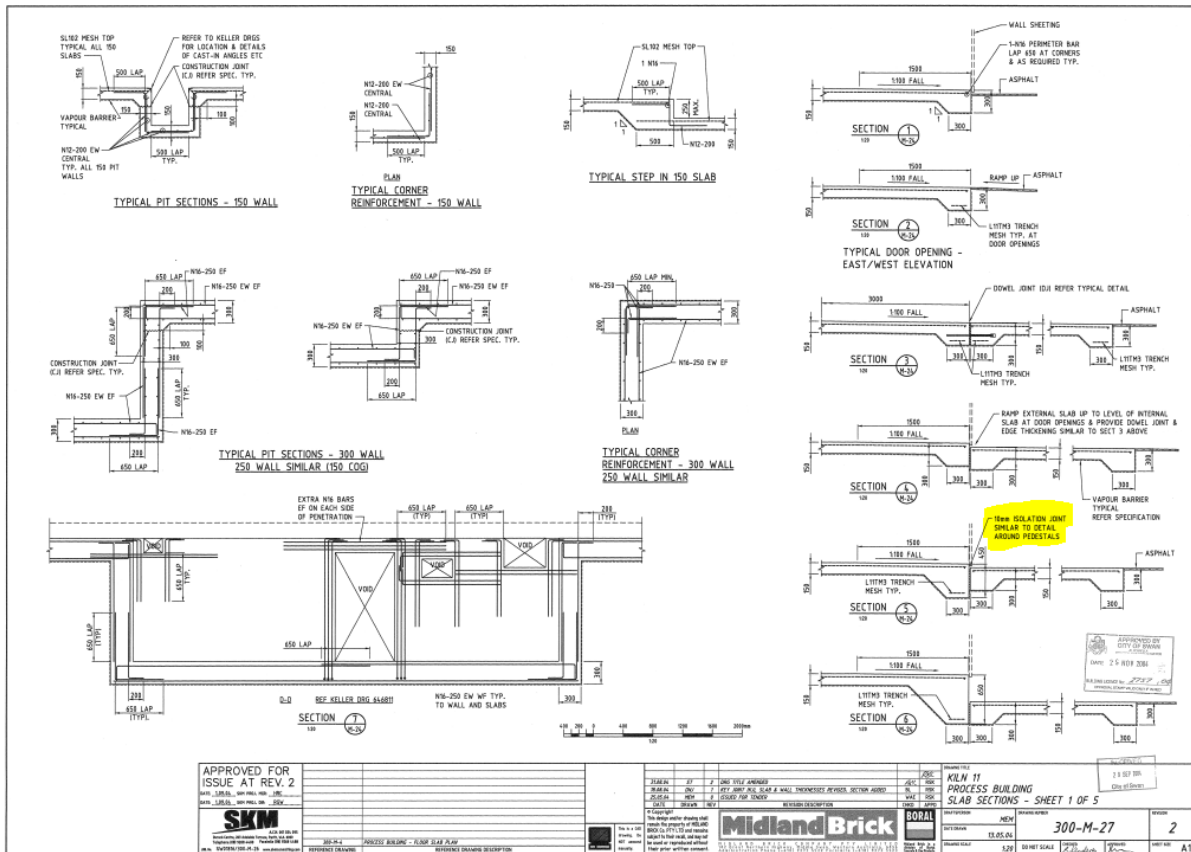
Sketch 1 – showing the Concrete booth slab is isolated.

Refer drawings X2012-FA-CIV-0003[D] CAROUSEL - DRAINAGE PLAN



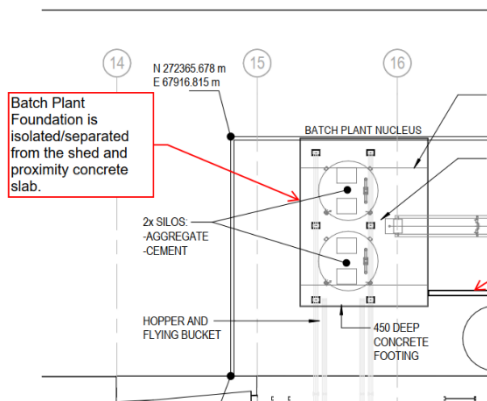
Sketch 2 – showing the shed slab is separated from the remainder of the site.

Refer drawings BL-2757-2004 - Kiln 11 Processing Building



The expected vibration from the batching plant based on the historical data from CTP is minimal. In addition, the batch plant foundation is completely isolated from the main shed and proximity slab that would attenuate any vibrations.

Refer to batching plant drawing reference - X2012-FA-STR-0007



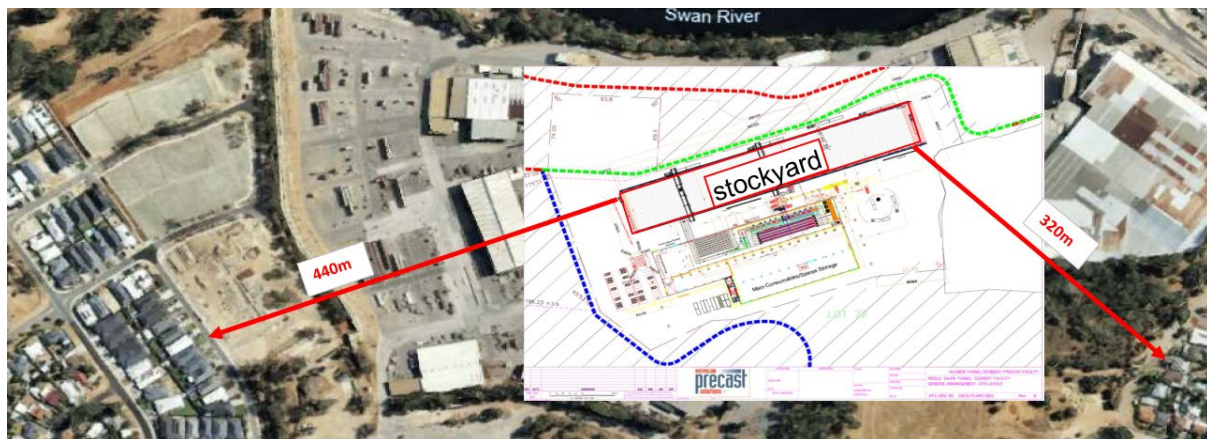
**Predicted Vibration impact** – APS will be using vibratory roller to level the stockyard surface, considering the nearest sensitive receiver is over 300 metres from the stockyard and with reference to recommended minimum working distances from the vibration intensive plant from receiver data as per Table 2-5 below (Data taken from CTP project NSW), the likelihood of human or cosmetic damage impact is negligible.

**Table 2-5 Recommended minimum working distances for vibration intensive plant from receiver**

Plant Item	Rating/Description	Minimum working distance	
		Cosmetic damage	Human response
<b>Vibratory roller</b>	<50kN (typically 1-2t)	5m	15m to 20m
	<100kN (typically 2-4t)	6m	20m
	<200kN (typically 4-6t)	12m	40m
	<300kN (typically 7-13t)	15m	100m
	>300kN (typically 13-18t)	20m	100m
	>300kN (>18t)	25m	100m
<b>Small hydraulic hammer</b>	300kg – 5 to 12t excavator	2m	7m
<b>Medium hydraulic hammer</b>	900kg – 12 to 18t excavator	7m	23m
<b>Large hydraulic hammer</b>	1600kg – 18 to 14t excavator	22m	73m

Refer vibration report (“21028-NV-RP-7-0 SMW CTP ECPCY GNVIS”) for establishment work at CTP Project at NSW for more details.

Below sketch showing distance to the nearest residential area from stockyard



## Noise

Noise sources and estimated sound pressure level for ASDP project as given below.

Noise levels have been obtained from a combination of manufacturers' specifications and from data provided by the applicant (Lloyd George Acoustics 2024). Data provided includes recorded noise levels from plant within a segment precast factory located in Sydney, run by Acciona Ferrovia Joint Venture (AFJV) with the same equipment and operation.

**Table 1 - Site establishment scenarios and equipment (Operating during Day shift only)**

Phase	Type / size	Estimated Sound pressure Level , dBA	Comments	
1	Site Establishment Includes:	5t excavator w/ auger and pneumatic post driver	Not using during night shift	
	<ul style="list-style-type: none"> <li>• Hardstand install</li> <li>• Earthworks</li> <li>• Drainage and utilities</li> </ul>	Franna		
	FRP Works Includes:	Semi-trailer Hiab truck		
	<ul style="list-style-type: none"> <li>• Formwork installation</li> <li>• Reinforcement installation</li> <li>• Concrete pour</li> <li>• Gantry installation</li> <li>• General structures installation</li> </ul>	15,000L water truck		
	<ul style="list-style-type: none"> <li>• Gantry installation</li> <li>• General structures installation</li> </ul>	Smooth drum roller		
		815 Compactor		
		15,000L water truck		
		Grader		
		Truck and dog		
		20t excavator		106
		12t excavator		
		30t ADT		
		Concrete pump		
		Concrete agitator		
		25t excavator		
		16T Vibratory roller		
		Tipper truck		
		Bobcat		
		8-wheel bogies		
		16 Ton forklift		99
	8 Ton Forklift			
	3.5 Ton Forklift			
	Concrete pump	106		
	Concrete agitator			
	200t mobile crane			
	EWP			

**Table 2 - Operational scenarios and equipment**

Phase	Type / size	Estimated Sound pressure Level , dBA	Comments	
2	Precast Yard Operation Includes:	Pan Mixers and Silos–	98	
	<ul style="list-style-type: none"> <li>External activities such as concrete batching, crane operations and logistics (product handling and delivery).</li> </ul>	Material loader	104	Not used during night shift
	<ul style="list-style-type: none"> <li>Internal activities such as production of the concrete segments.</li> </ul>	Truck and dog deliveries concurrently	106	Not used during night shift
	Truck unloading aggregate	114	Not used during night shift	
	10Ton Gantry crane	91	Not used during night shift	
	5 Ton overhead crane			
	Steel Fibre Weighing	106		
	16 Ton forklift	99		
	8 Ton Forklift			
	3.5 Ton Forklift			
	Fixed Vibrators (inside the Carousel)	102		
	Rattle guns (inside the Carousel)	115	Rattle guns will be operated during day shift only, will be replaced by torque wrench or similar during night shift	
	Vapor Generator	100 db		
	2 x Gas Bullets	80db		
	Water Recycling Plant	105db		