

# Noise wall construction

## Sustainable alternatives to precast concrete

### Introduction

DPTI is committed to sustainability in the infrastructure sector. In alignment with the DPTI Sustainability Manual, infrastructure projects are encouraged to reduce their carbon emissions, while balancing economic, environmental and social needs.

The selection of sustainable materials for key infrastructure elements can create a significant reduction on the carbon footprint of a project. Noise walls have been identified as providing a major opportunity for carbon mitigation, without additional cost, or sacrificing on functionality.

### Noise wall material options

DPTI have commissioned a study that compares the impact and feasibility of five noise wall material options. While precast concrete is the most commonly specified noise wall material in South Australia, other materials can provide carbon and cost savings.



### Key considerations in selecting noise wall material

- acoustic performance
- cost
- ease of installation and maintenance
- carbon footprint
- recycled content and end of life disposal

Lightweight concrete and EPS were found to offer reduced cost and carbon impact when compared with precast concrete. Lightweight concrete may be the most suitable option when a high impact resistance of structural strength is required.

PET and WPC provide significant carbon savings and have high recycled content, contributing to the SA Government's circular economy agenda. However, as new materials, the cost is currently higher than more widely used materials.

# Summary of alternative noise wall material benefits and features

	Average cost difference	Average carbon reduction	Average cost of abatement (\$/kg CO2)	Typical % recycled content	Impact resistance
<b>Precast concrete</b>	-	-	-	5%	High
<b>Lightweight concrete</b>	-11%	15%	-\$2.29	0%	High
<b>EPS</b>	-32%	31%	-\$2.22	5%	Moderate
<b>PET</b>	29%	45%	\$1.26	80%	Moderate
<b>WPC</b>	112%	38%	\$5.86	93%	Moderate

## More information

- DPTI Sustainability Manual
- Noise Wall Material Lifecycle Analysis and Suitability Investigation Report