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Project Brief

The Shire of Waroona lodged a successful application under the State Black Spot program to improve a section of Nanga Brook Road from 15.15 to 19.35 straight line kilometres (SLK). This section of road has experienced a relatively high number of crashes involving vehicles leaving the carriageway and hitting roadside objects. Current data shows one fatality plus four medical crashes, with an additional motorcycle fatality occurring in January 2019 at 19.13 SLK which is not yet showing up in the crash data available.

The successful Black Spot application proposes the following works:

- Remove existing roadside obstacles such as trees and large boulders that were left on the verge after reconstruction some years ago
- Reshape batters where possible to provide a less severe verge environment
- Install delineation in the form of chevron markers on the outside of curves
- Install curve advance warning signage with recommended speeds on both sides of the road

The travelled surface of Nanga Brook Road is in very good condition however the verges present considerable hazards to users who leave the carriage way.

In addition to the improvement section under the State Black Spot Program the Shire wish to include 19.35 to 19.93 which is aimed as mulching of the road shoulders to improve vision to the intersection of Nanga Brook Road and Nanga Road.

The initial scope of the road verges identified fifteen mature native trees of the *Allocasurina Fraseriana*, *Banksia Grandis*, *Corymbia Calophylla* and *Eucalyptus Marginata* varieties which require removal due to their location falling within one to five metre clear zone around curves. The remainder of the clearing will involve machine mulching of verges which would be at a width of 2.4 metres from the edge of the seal on straight sections of the road and a maximum of five metres on curves to ensure the run off onto the shoulders are free of hazards as much as practical.

Clearing Period

The funds allocated as part of the Black Spot program are for FY 2020/21 therefore the works will take place between July 2020 and June 2021. The initial part of the works will be planning works with no physical works taking place until September 2020.

Calculations

The clearing zone is from 15.15 to 19.93 SLK, a total distance of 4.78 kilometres. Given that the desired outcome is to ensure the road shoulders have a five metre clear zone from the edge of the seal this results in total cleared area of 4.78 hectares. However, since only fifteen mature native trees require removal; and the machine mulching of the verges being not required within the full section of the clearing zone and unlikely to be the full five metres from the edge of seal, the actual maximum clearing zone would more realistically be 2.5 hectares.

Native Vegetation Breakdown

This portion of Nanga Brook Road has a variety of native vegetation. The breakdown below is a percentage based on a visual inspection.

<i>Bossiaea Aquifolium</i>	90%
<i>Allocasuarina Fraseriana</i>	1%
<i>Dryandra Sessilis</i>	3%
<i>Banksia Grandis</i>	1%
<i>Macrozamia Reidlei</i>	1%
<i>Corymbia Calophylla</i>	1%
<i>Acacia Princefolia</i>	2%
<i>Eucalyptus Marginata</i>	1%

Mulching Machine



Falcon Forestry Mulching Machine – 2200mm wide

Terex Positrac with Fecon Forestry Mulcher Attachment – 1900mm wide

The mulching will leave behind a coarse mulch suitable for the verge environment.

Land Ownership

The clearing will be conducted within a Shire road reserve however due to a large portion of the road being not being aligned within the designated road reserve the clearing zone will fall within a forestry block under the authority of Department of Biodiversity, Conservation and Attractions. A letter of authority is included in the application pack.

Location Plan

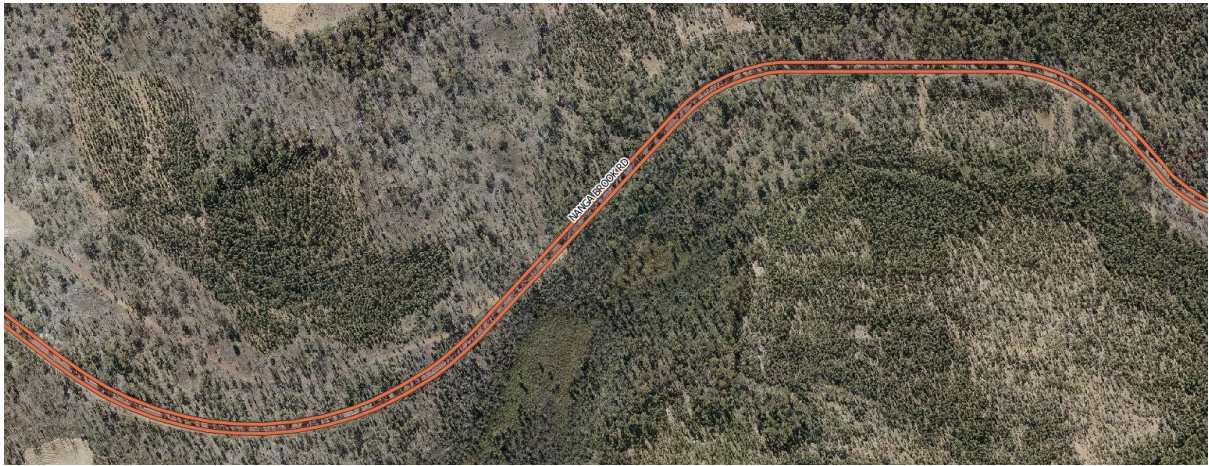
Nanga Brook Road runs from McDowell Street to Nanga Road and is 19.9 kilometres in length. The plan below shows a general overview of the road with the subject section shown in red.



Aerial Photographs







Vegetation



SLK	Direction	Location	Distance from Edge of Seal	Observations
15.31	East	North Side	4m	No nesting or hollow points.



SLK	Direction	Location	Distance from Edge of Seal	Observations
15.31	East	South Side	2-5m	Native Shrubs (Variety)



(Distance to base of tree)

SLK	Direction	Location	Distance from Edge of Seal	Observations
15.36	East	South Side	5m	No visible nesting or hollow points



SLK	Direction	Location	Distance from Edge of Seal	Observations
15.93 – 16.04	East	South Side	5m	Native shrubs and a couple of native trees with no visible nesting or hollow points. 2-3 large thin trees may be remove pending on the batter clearance.



SLK	Direction	Location	Distance from Edge of Seal	Observations
16.77	East	South Side	3m	Large native fire damaged tree with no nesting points. Has a hollow point within the base but no sign of nesting. Tree is on a lean and shows signs of limbs dropping. Would be considered hazardous if left onsite.



SLK	Direction	Location	Distance from Edge of Seal	Observations
16.77	East	North Side	2m	Native tree with no nesting or hollow points. Tree is within the clearance zone on the curve.



SLK	Direction	Location	Distance from Edge of Seal	Observations
16.88 – 16.93	East	North Side	1-5m	Mulching on native vegetation.





SLK	Direction	Location	Distance from Edge of Seal	Observations
16.93 – 17.15	East	North Side	2-3m	2 Large thin native tree with no visible nesting of hollow points



SLK	Direction	Location	Distance from Edge of Seal	Observations
17.15	East	North Side	2-3m	Large native tree no clear signs of nesting or hollow points.



SLK	Direction	Location	Distance from Edge of Seal	Observations
17.36	East	South Side	2-3m	Large native tree no clear signs of nesting or hollow points.



SLK	Direction	Location	Distance from Edge of Seal	Observations
18.00 – 19.35	East	North & South Side	0-5m	Native shrubs which require mulching to improve vision at the intersection of Nanga Brook and Nanga Road.