# APPENDIX O

INLAND RAIL

# Noise and Vibration (construction, fixed infrastructure and operational road noise) Technical Report

Part 2 of 2

**HELIDON TO CALVERT** ENVIRONMENTAL IMPACT STATEMENT

IR_1381

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.

APPENDIX

0

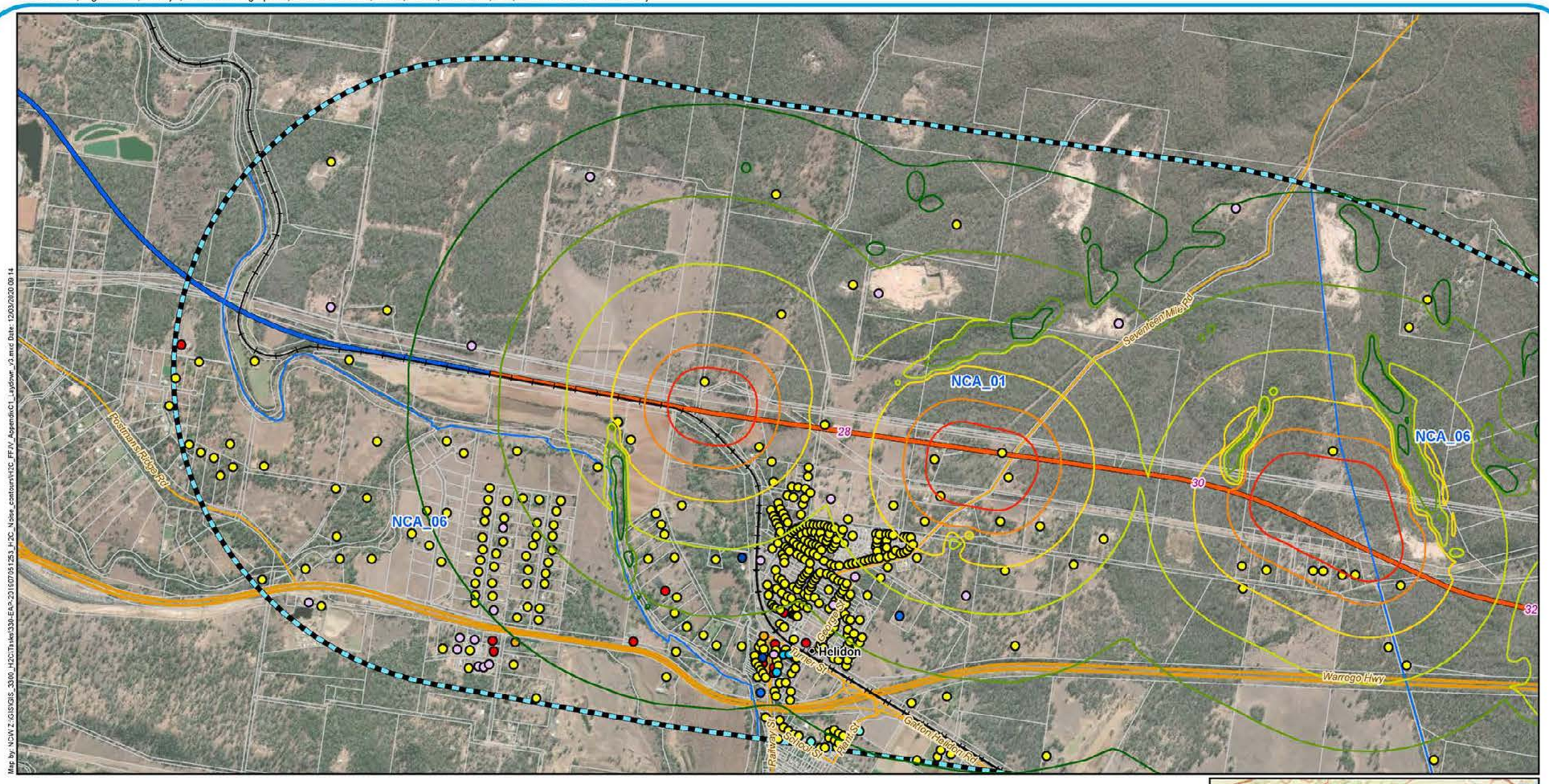
# Noise and Vibration Technical Report

## **Appendix C** Construction Noise Contours

**HELIDON TO CALVERT** ENVIRONMENTAL IMPACT STATEMENT

IR_1381

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

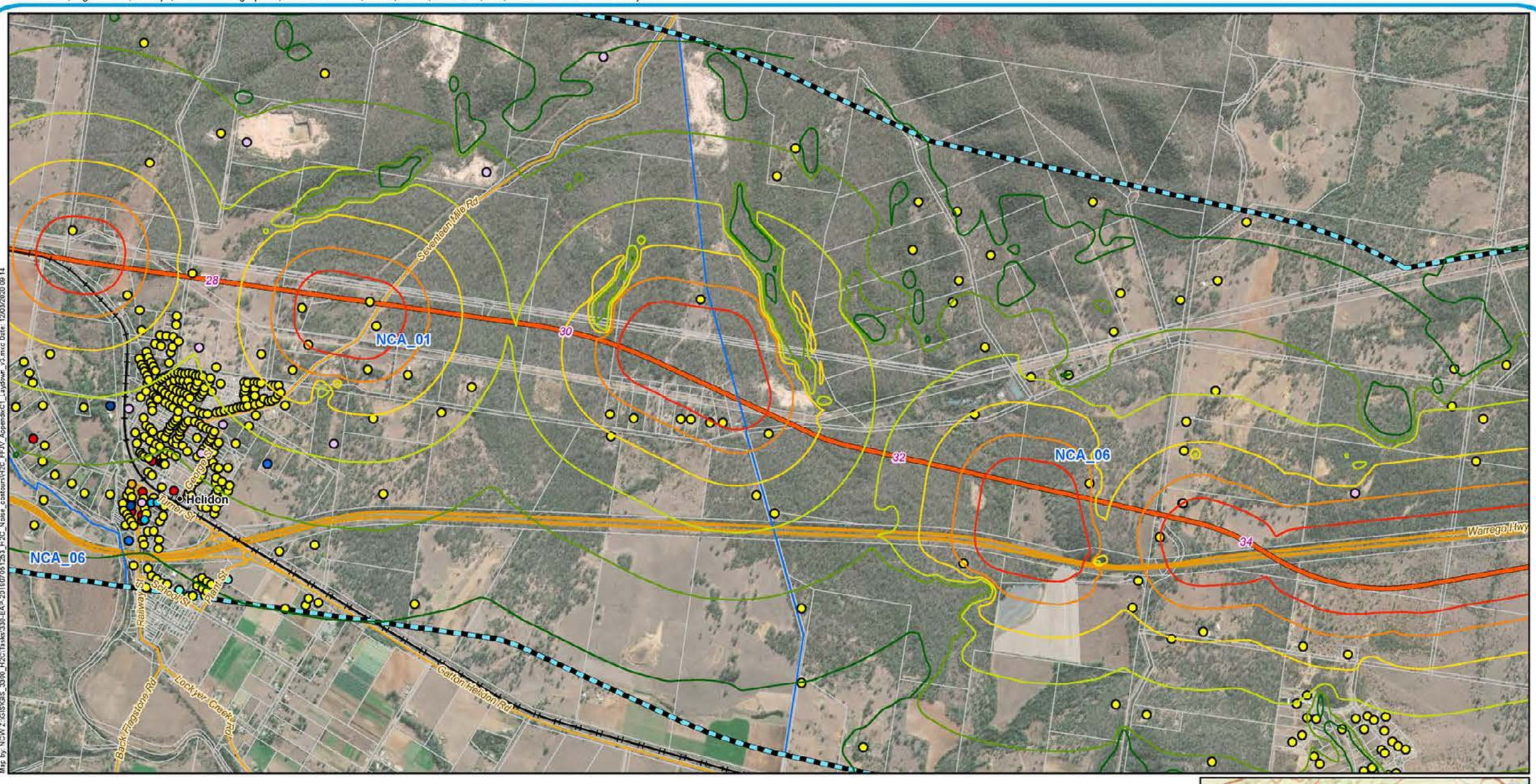
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

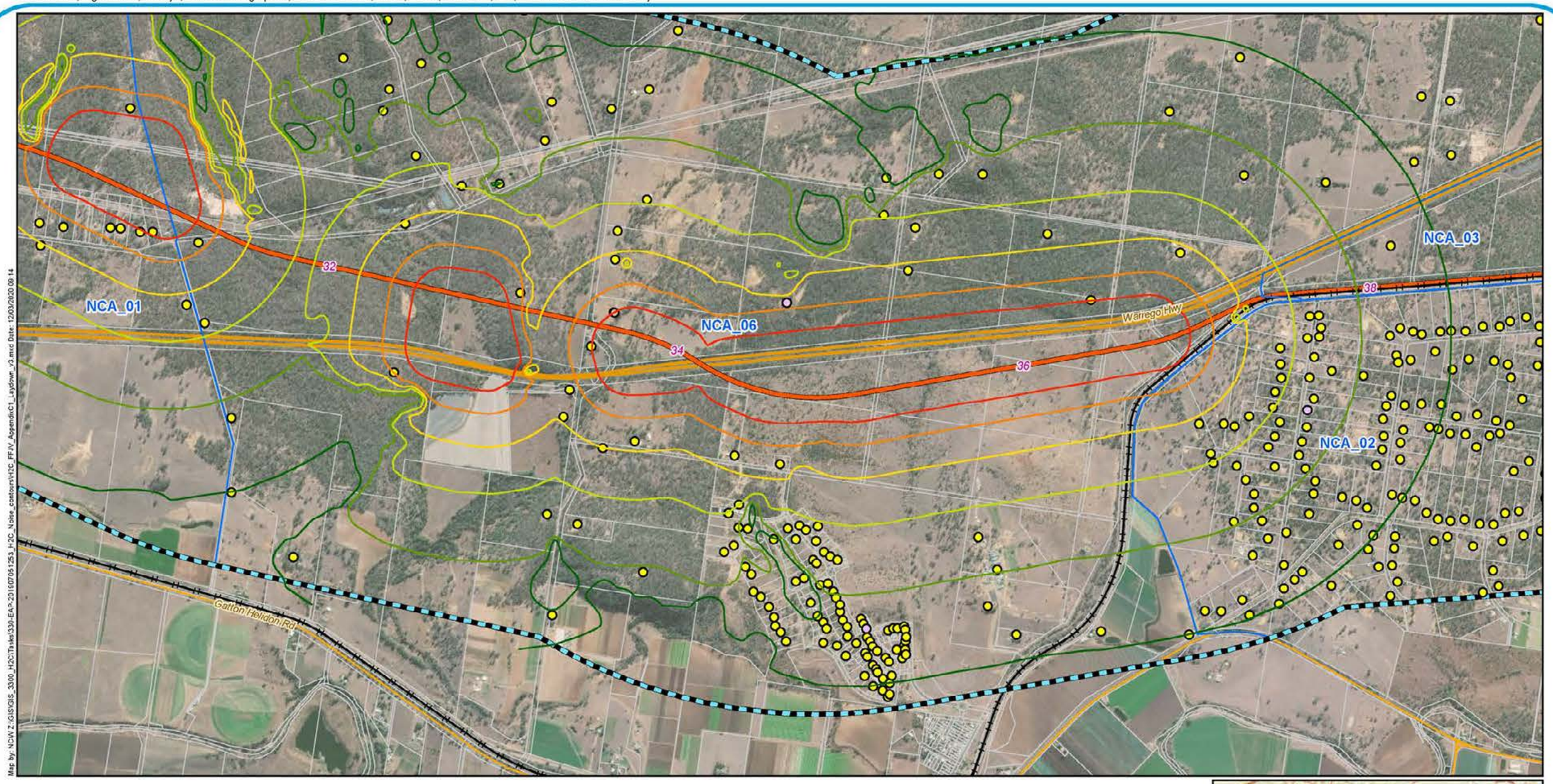
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

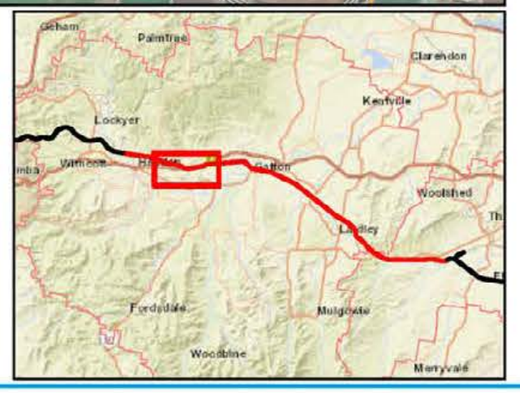
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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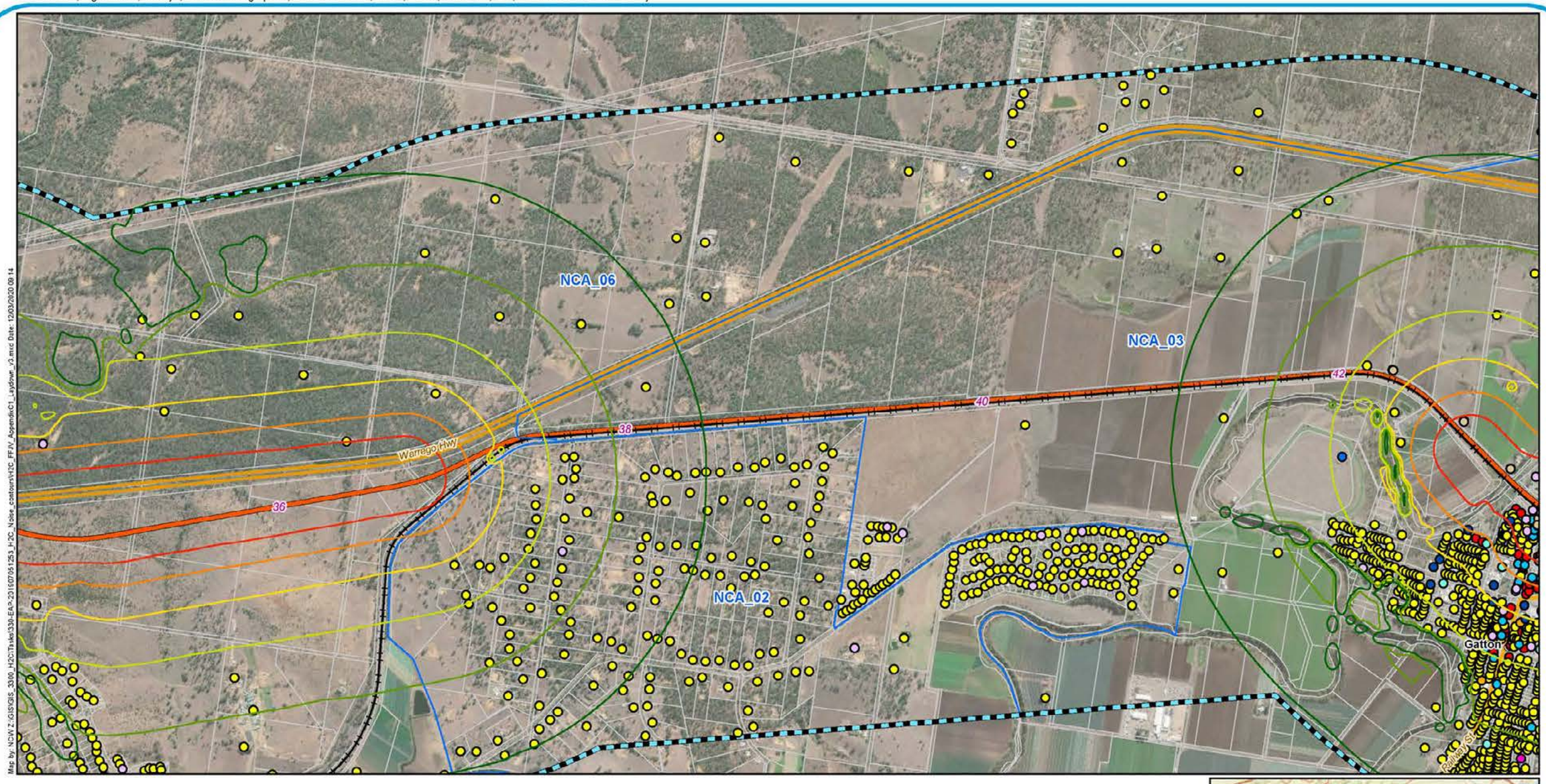


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**Legend**

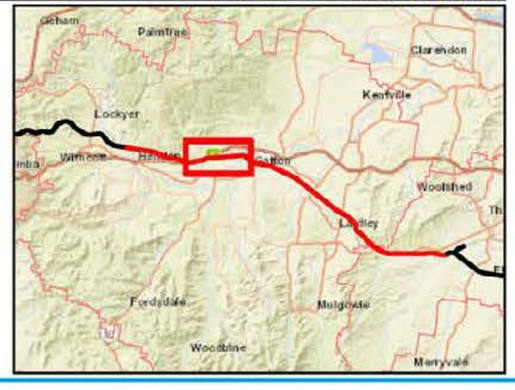
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

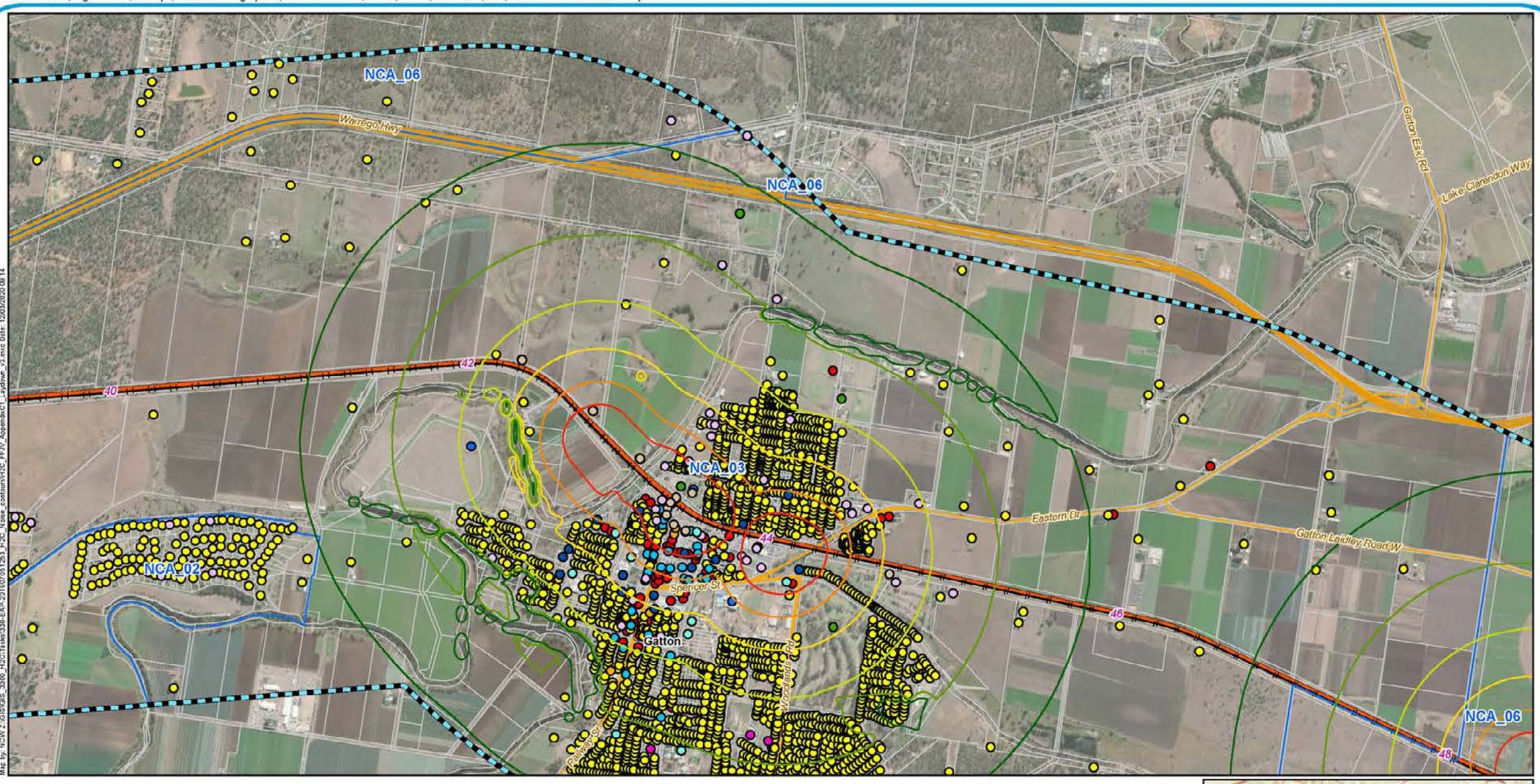
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community






**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
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- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

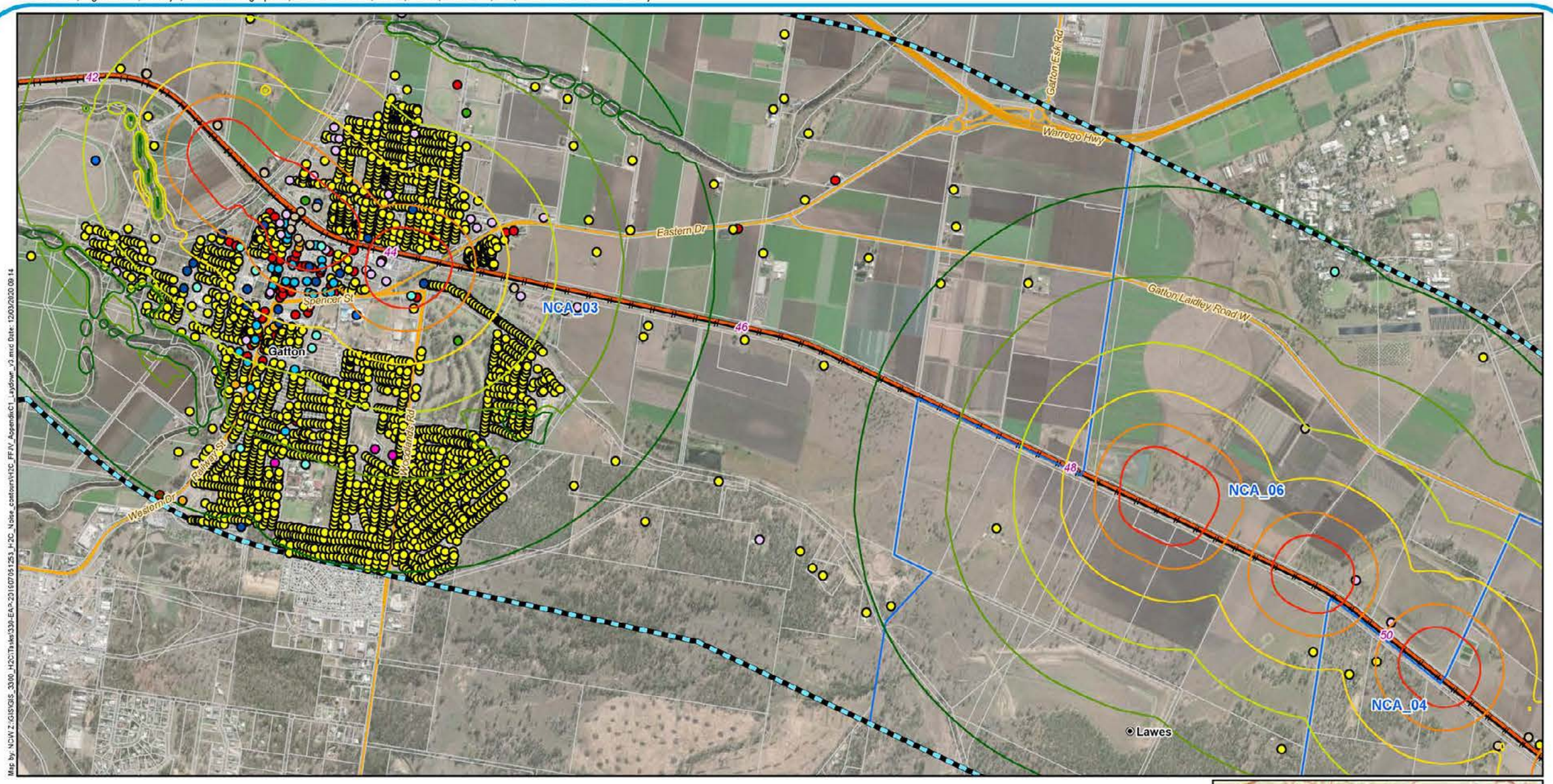
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
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- 70

**Sensitive Receptors**

- Commercial
- Education
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- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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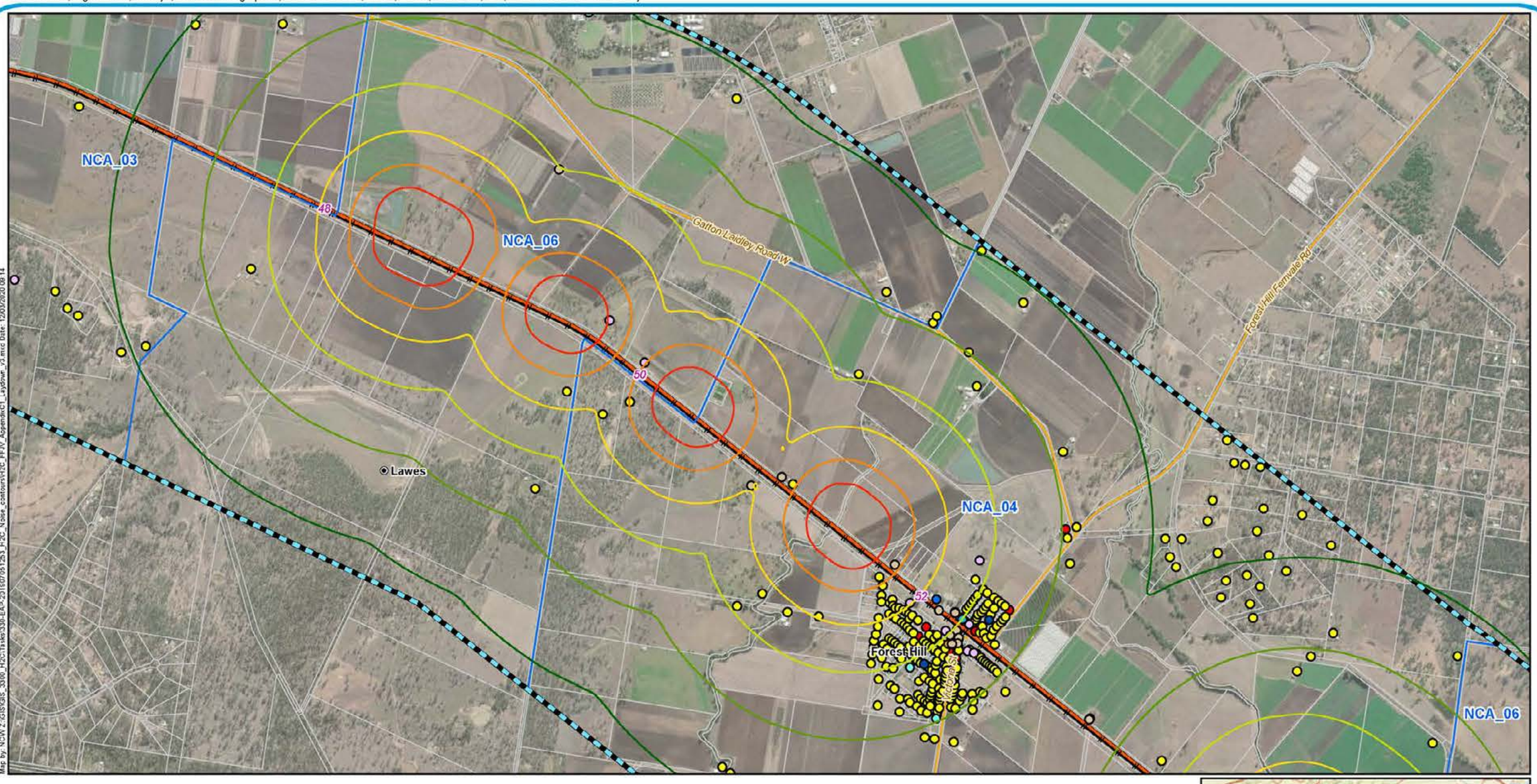


**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

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**Sensitive Receptors**

- Commercial
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- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

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Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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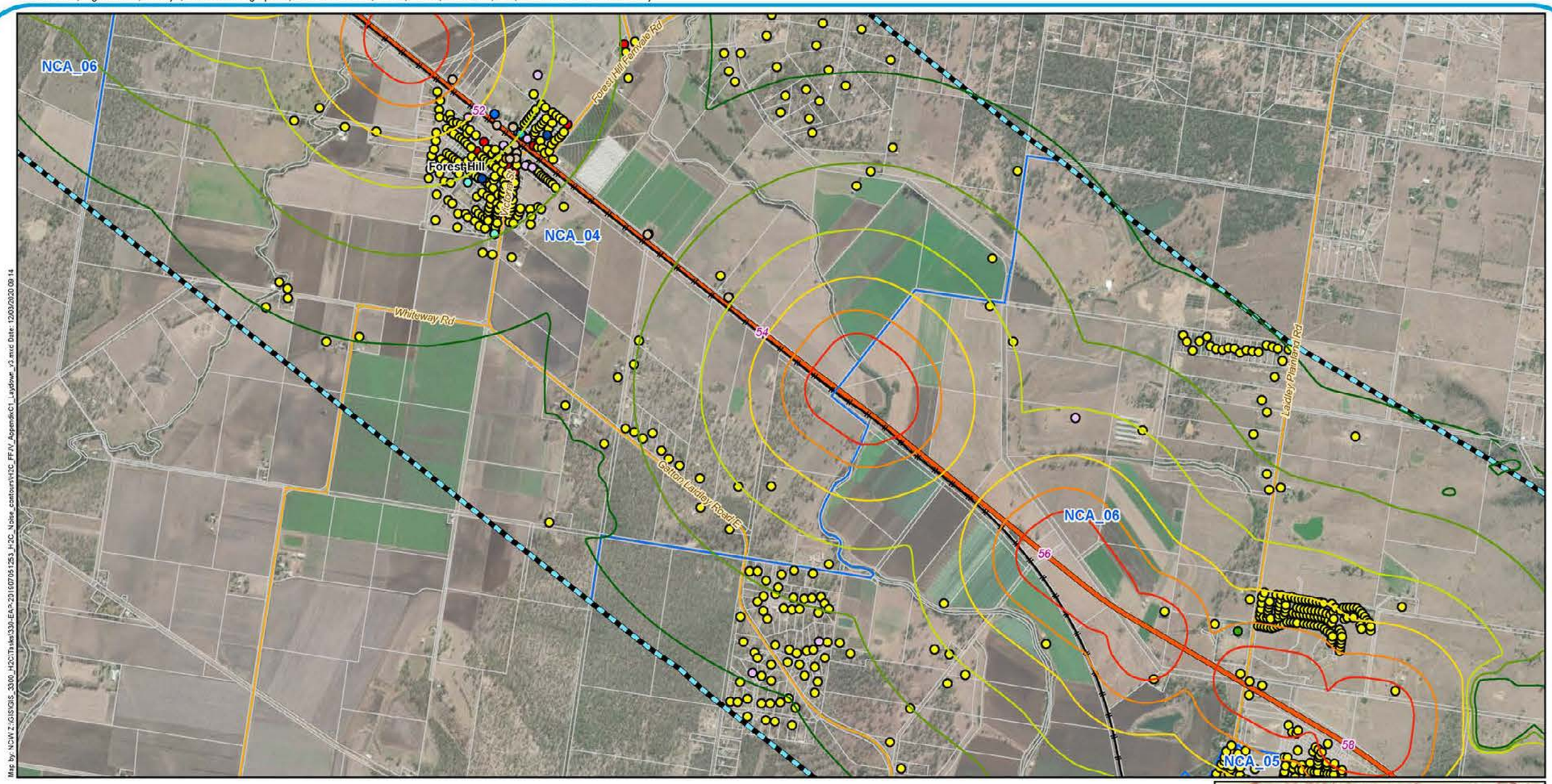


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Minor roads
- Cadastre
- NCA
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- 45
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**Sensitive Receptors**

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- Hotel/Motel
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- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1 km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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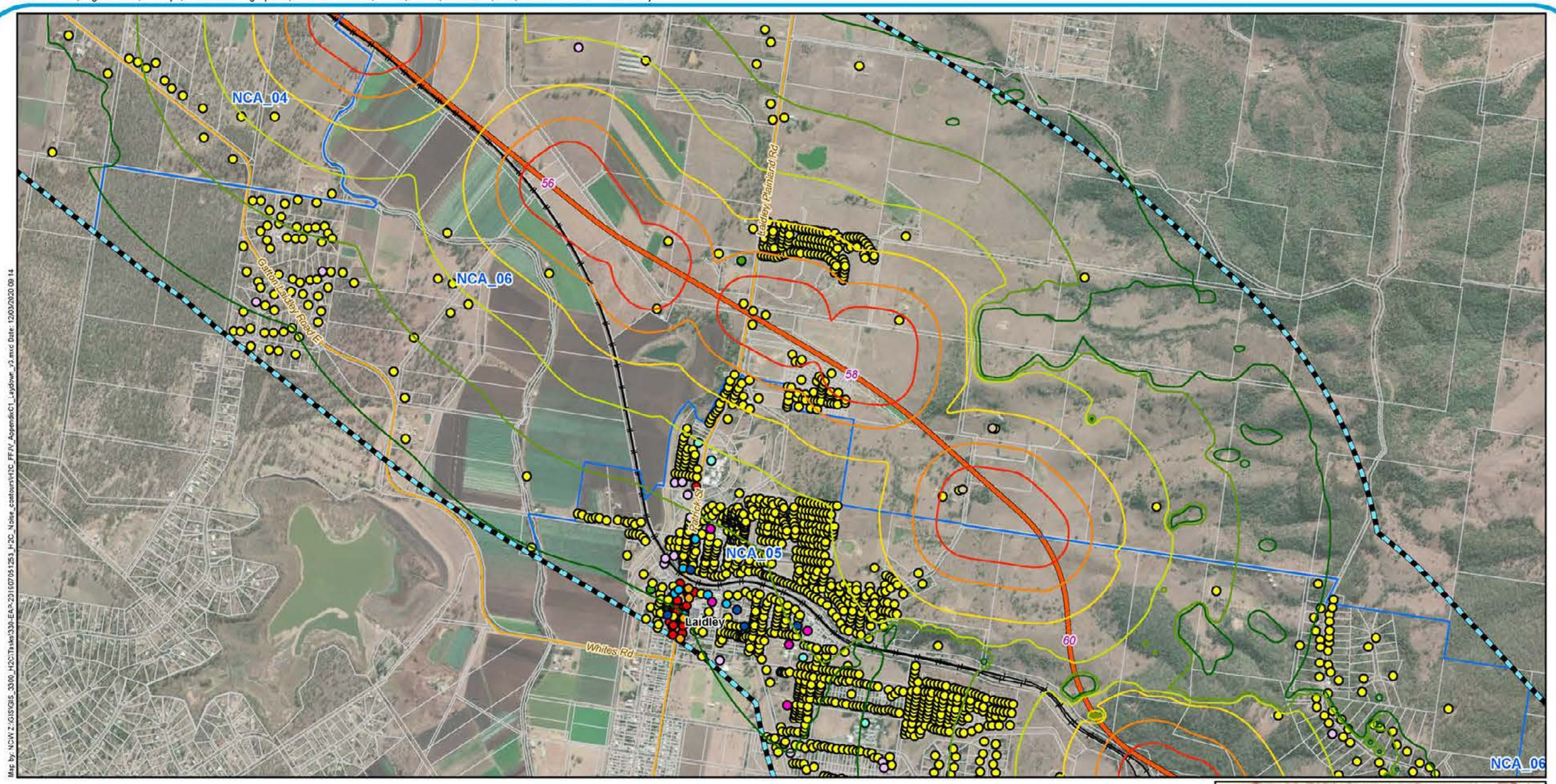


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
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- 70

**Sensitive Receptors**

- Commercial
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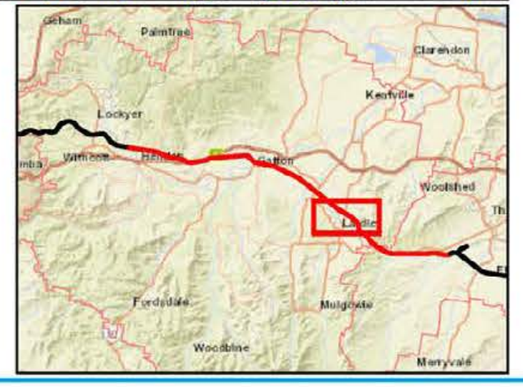
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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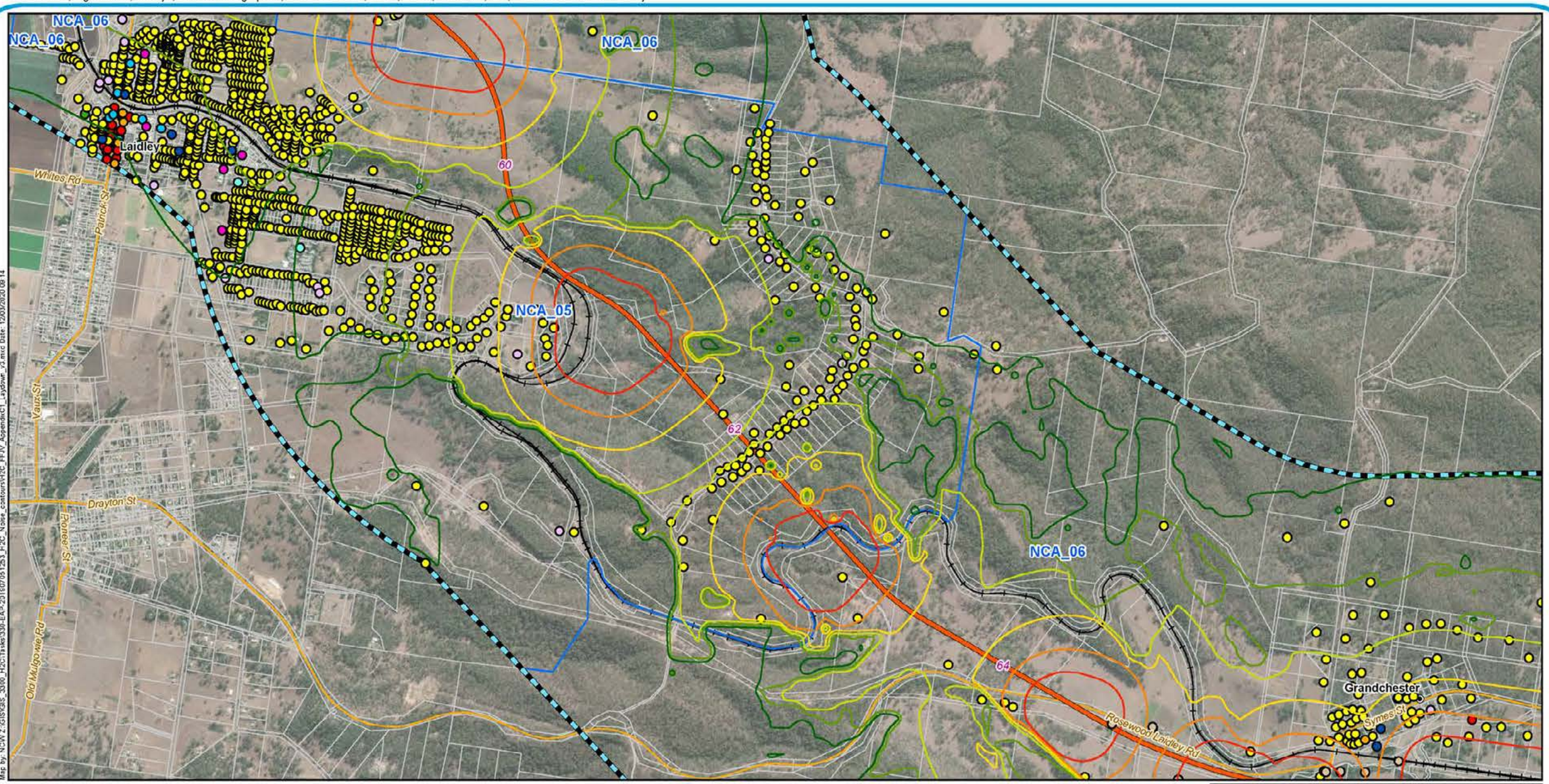


**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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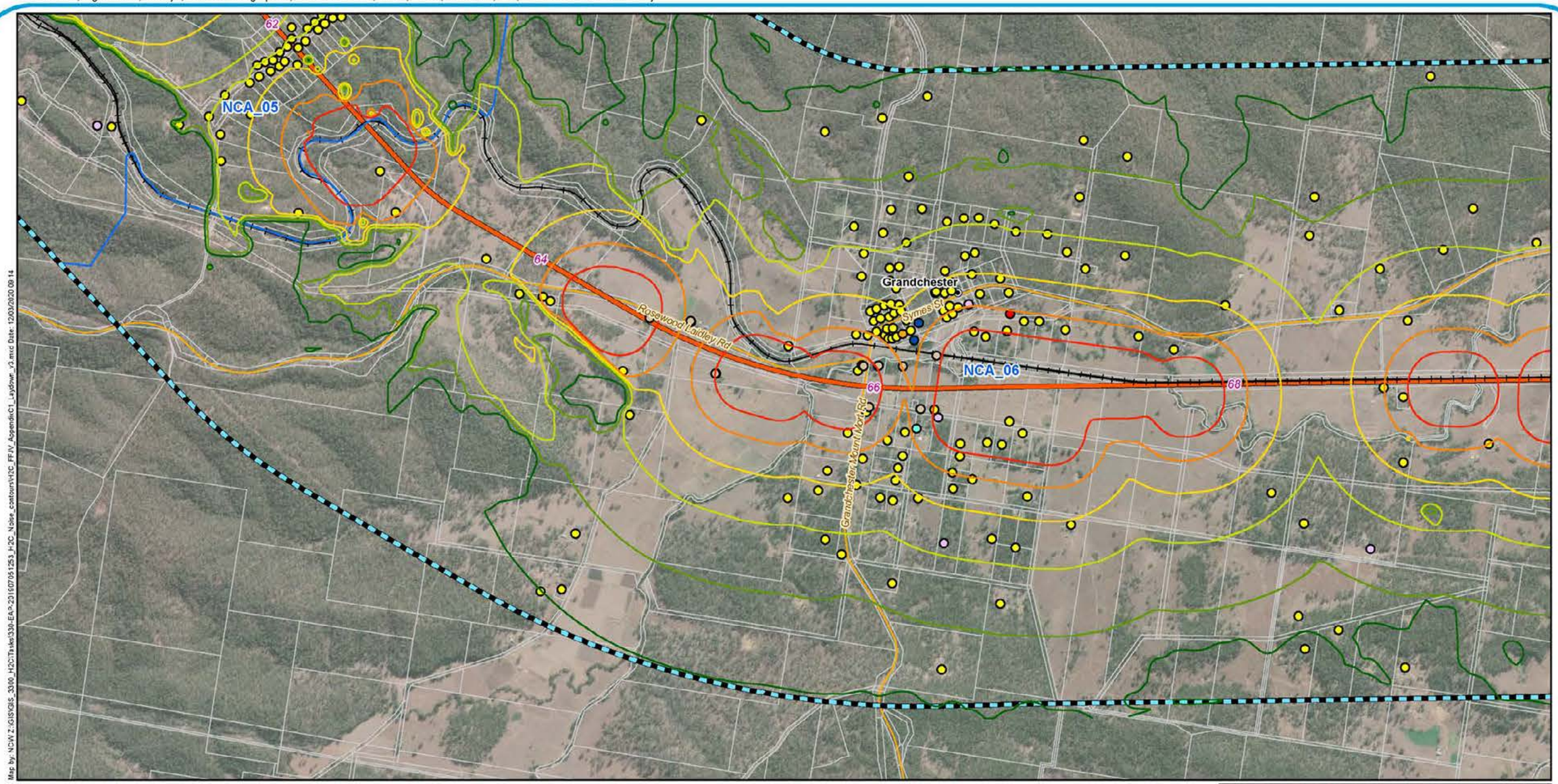


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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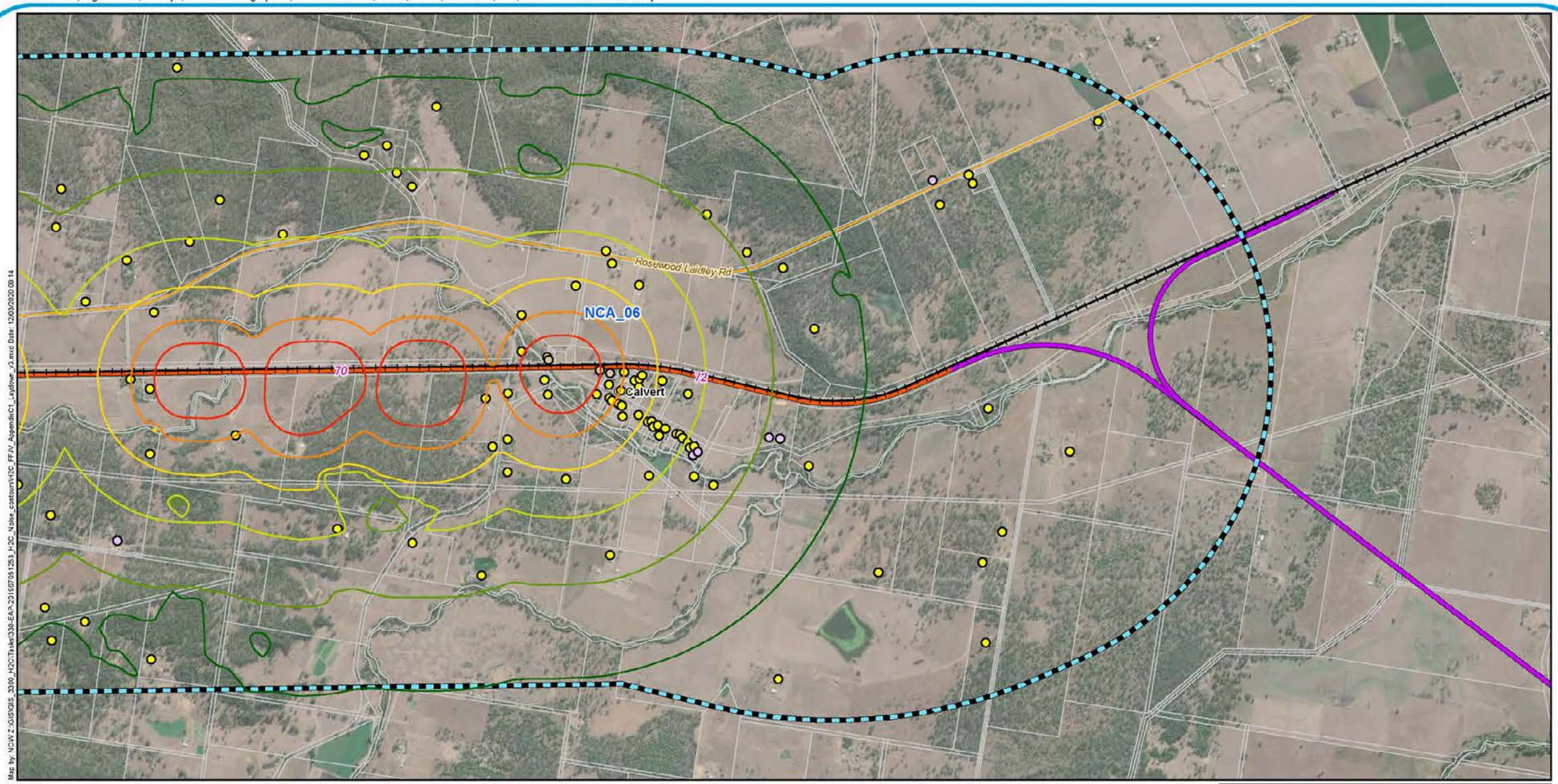


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
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- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
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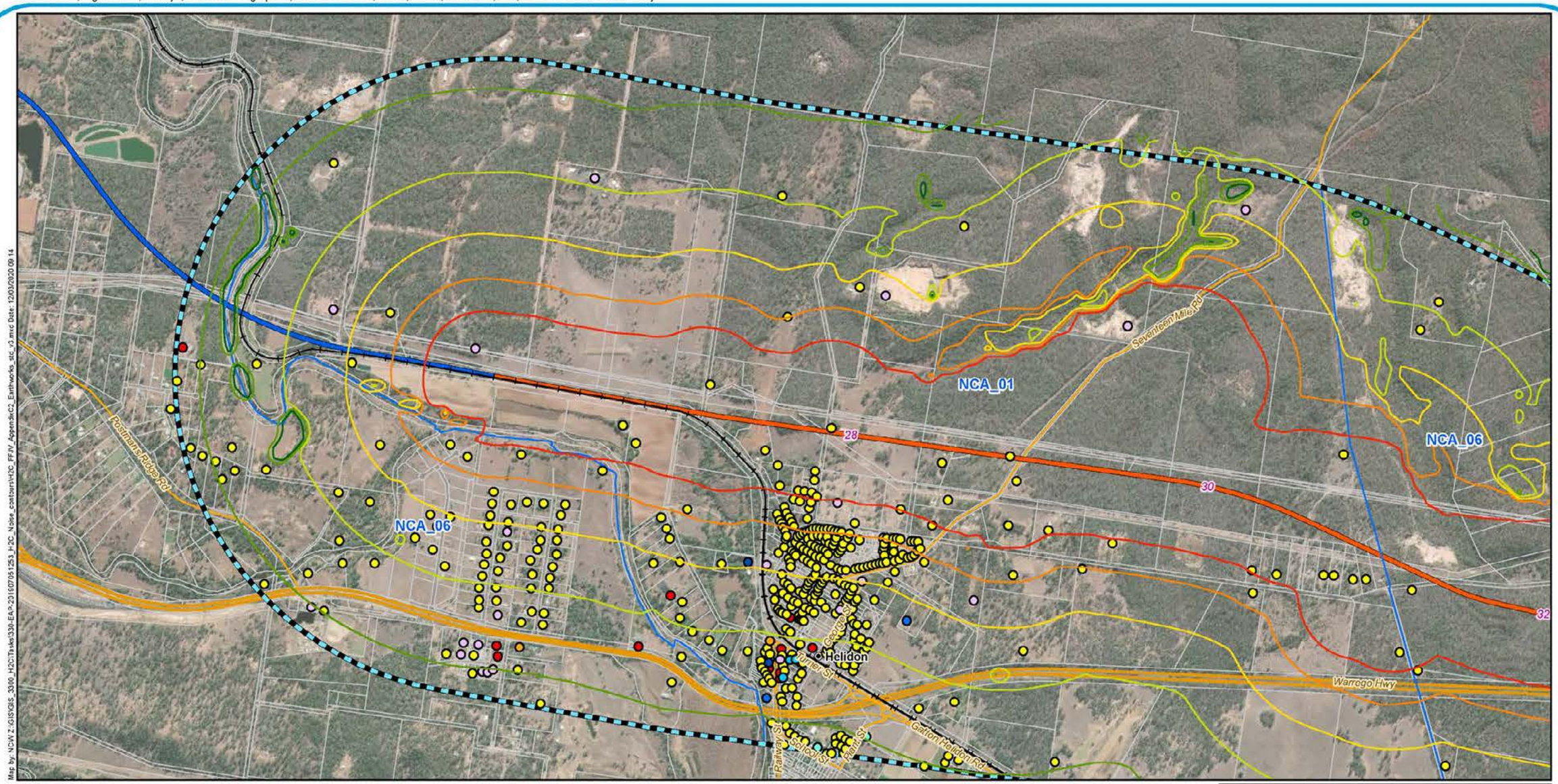
**Helidon to Calvert**

**Appendix C1 – Construction Noise Contours - Laydown Setup** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

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**Sensitive Receptors**

- Commercial
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- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

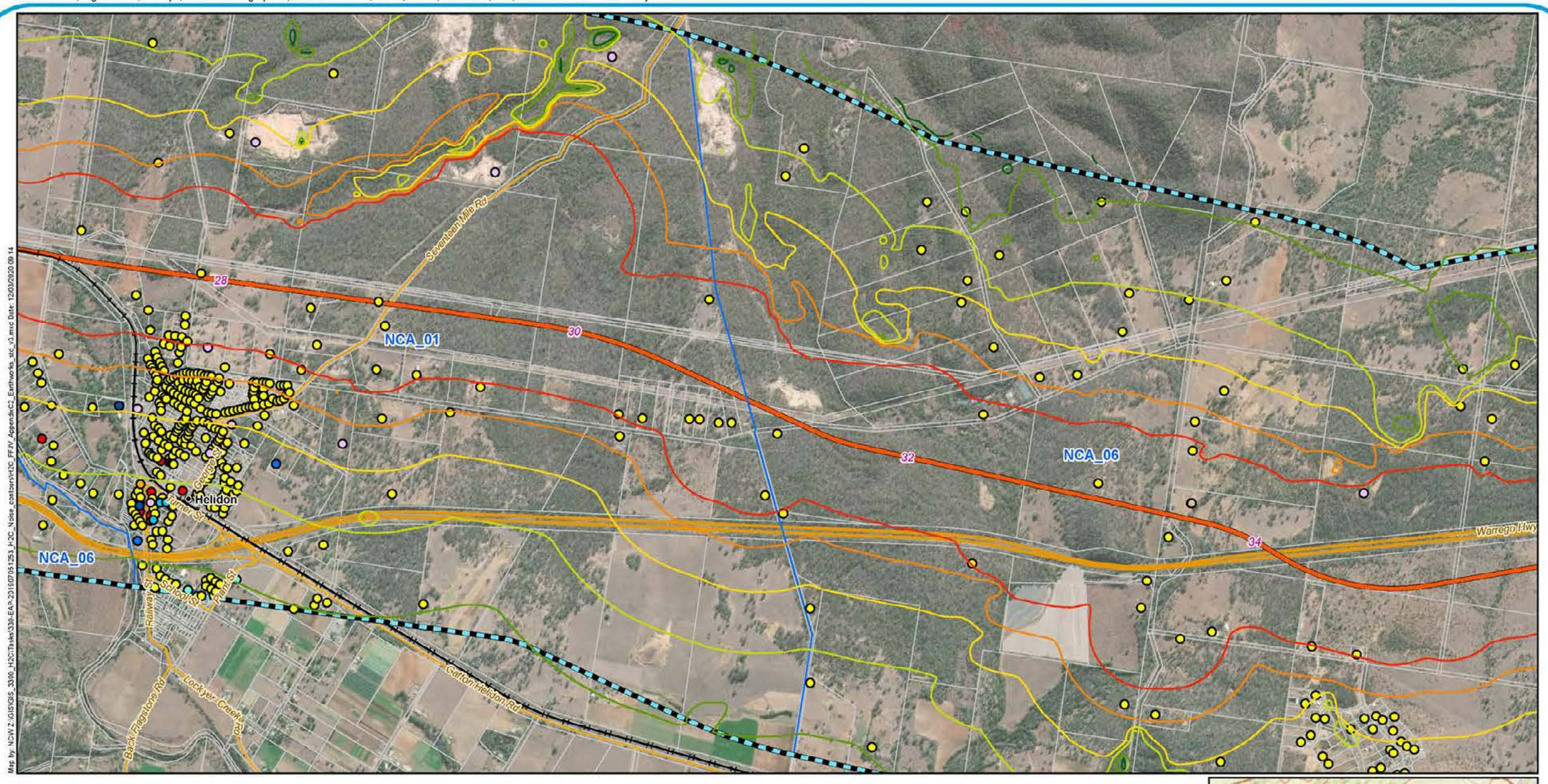
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

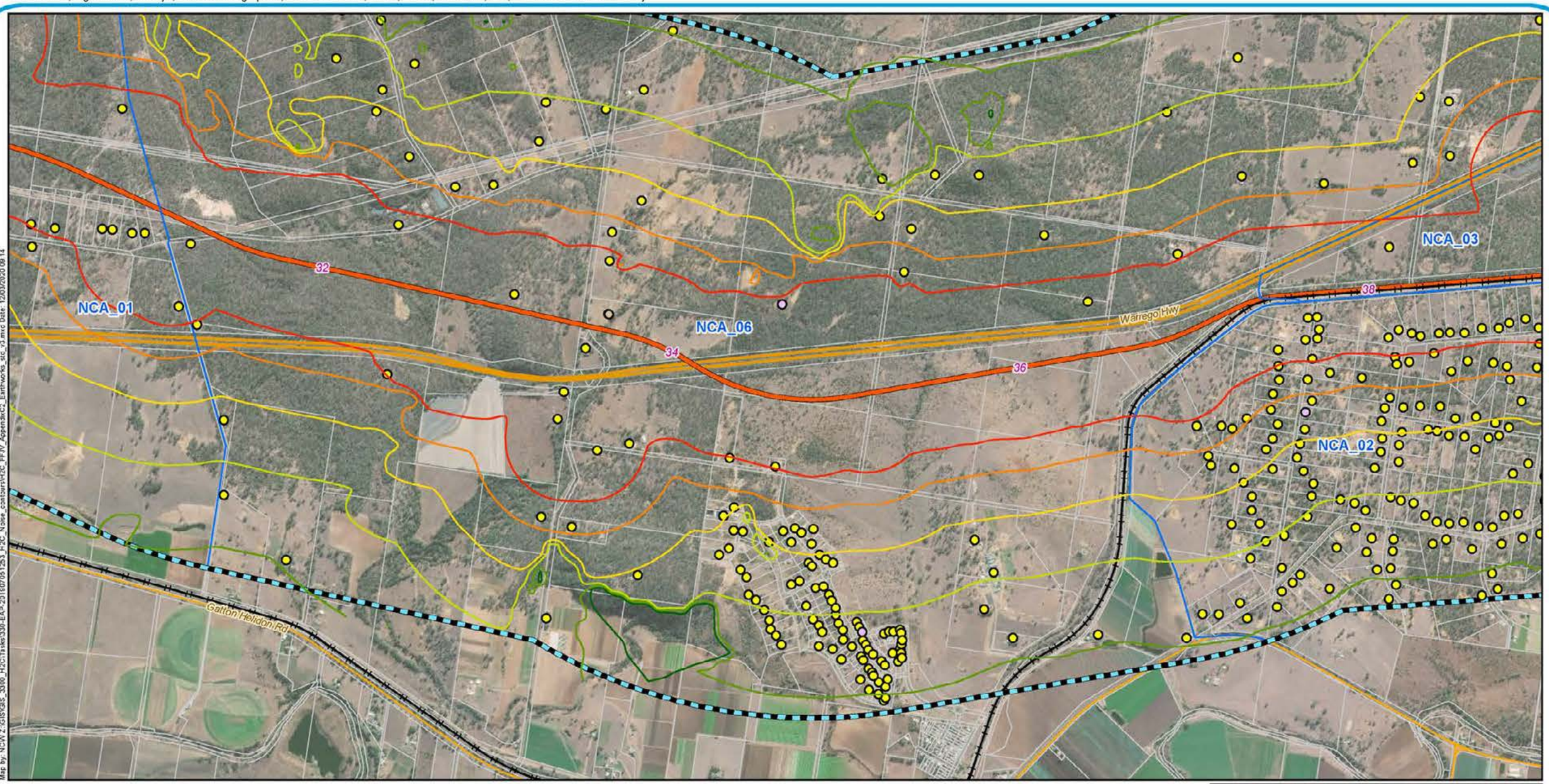
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAS-20160709 1253_H2C_Noise_contours\H2C_FF\V_Appendix\C2_Earthworks_std_v3.mxd Date: 12/03/2020 09:14

**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

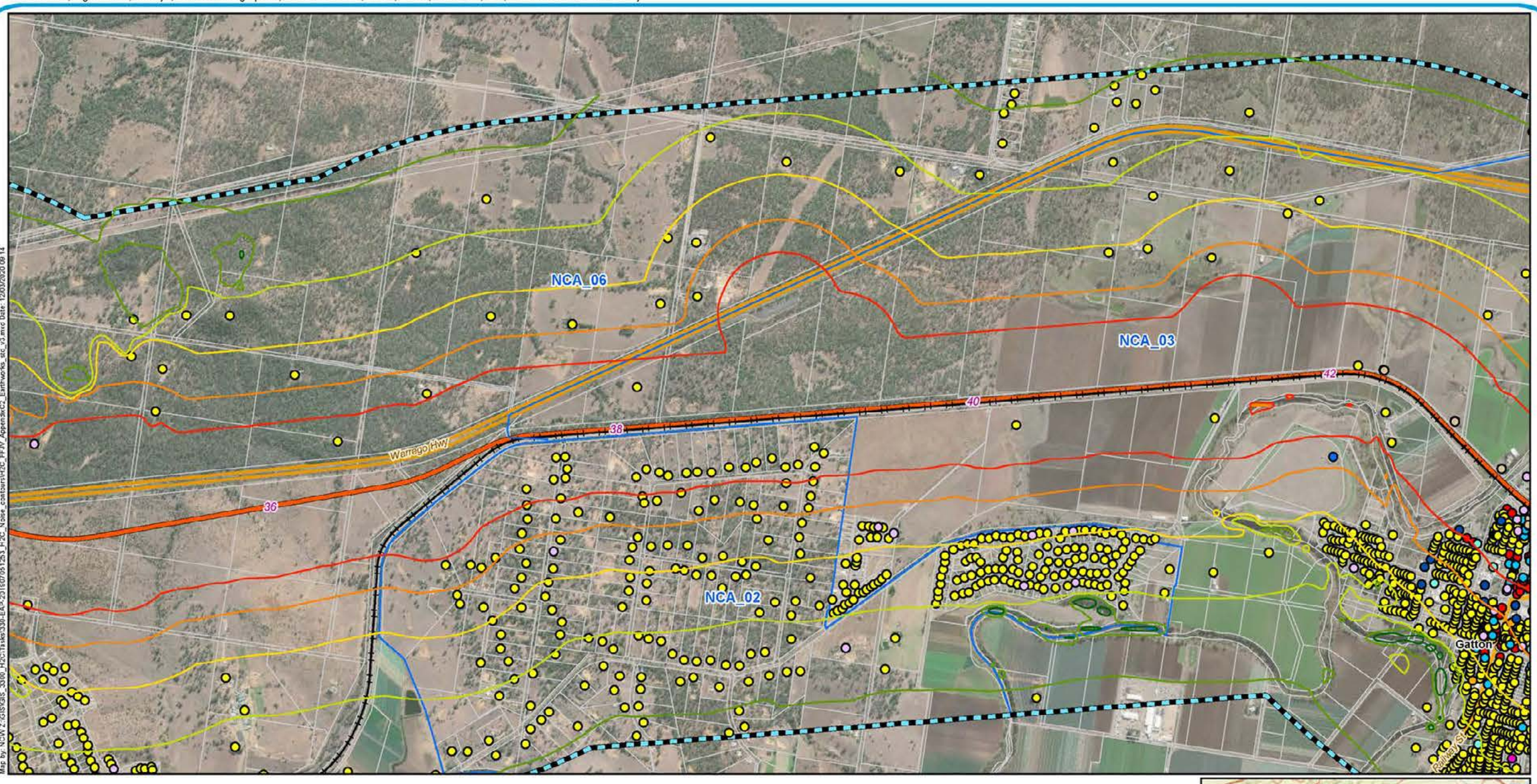
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

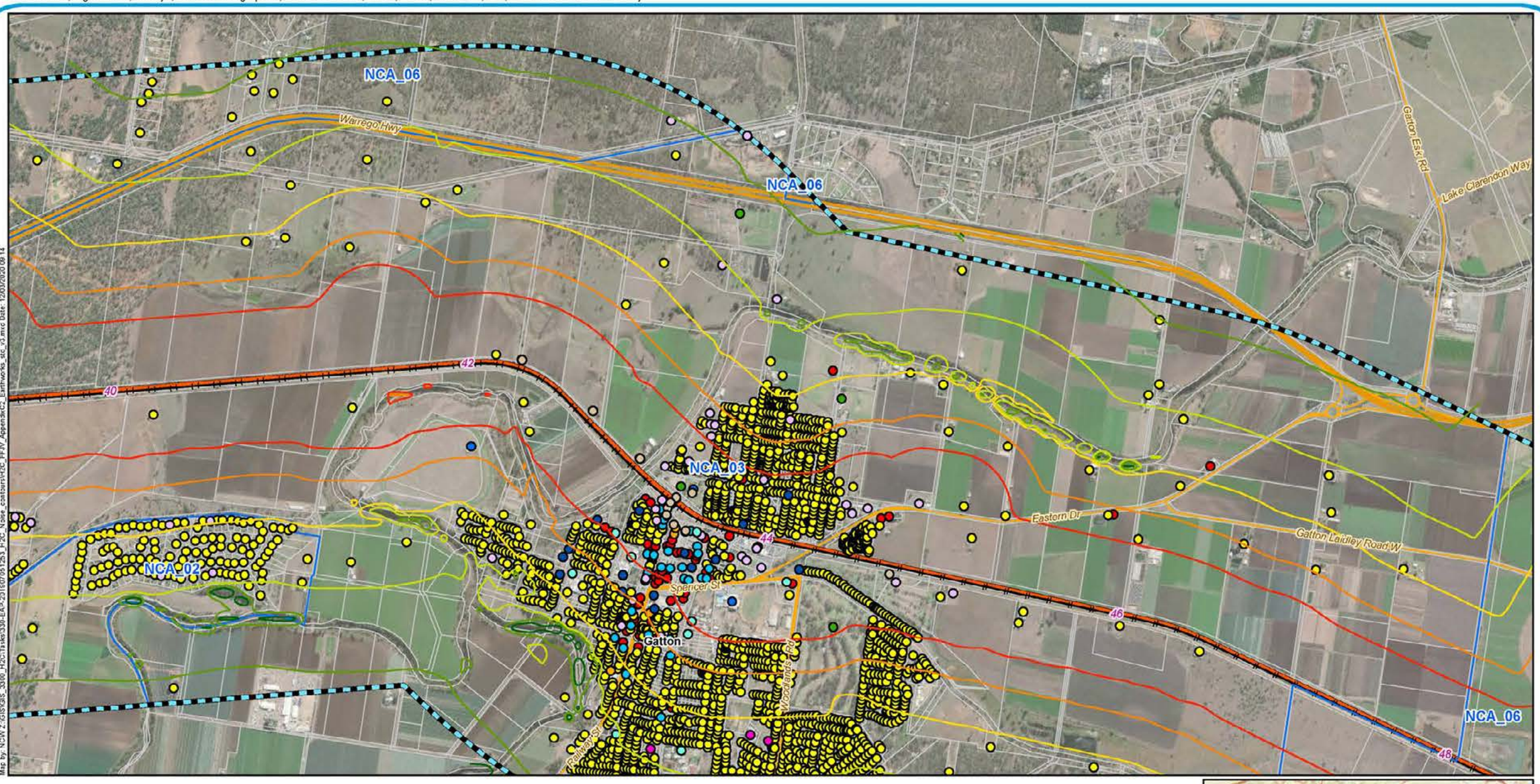
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-20160705\253_H-2C_Noise_contours\H2C_FF#V_AppendixC2_Earthworks_std_v3.mxd Date: 12/03/2020 09:14

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

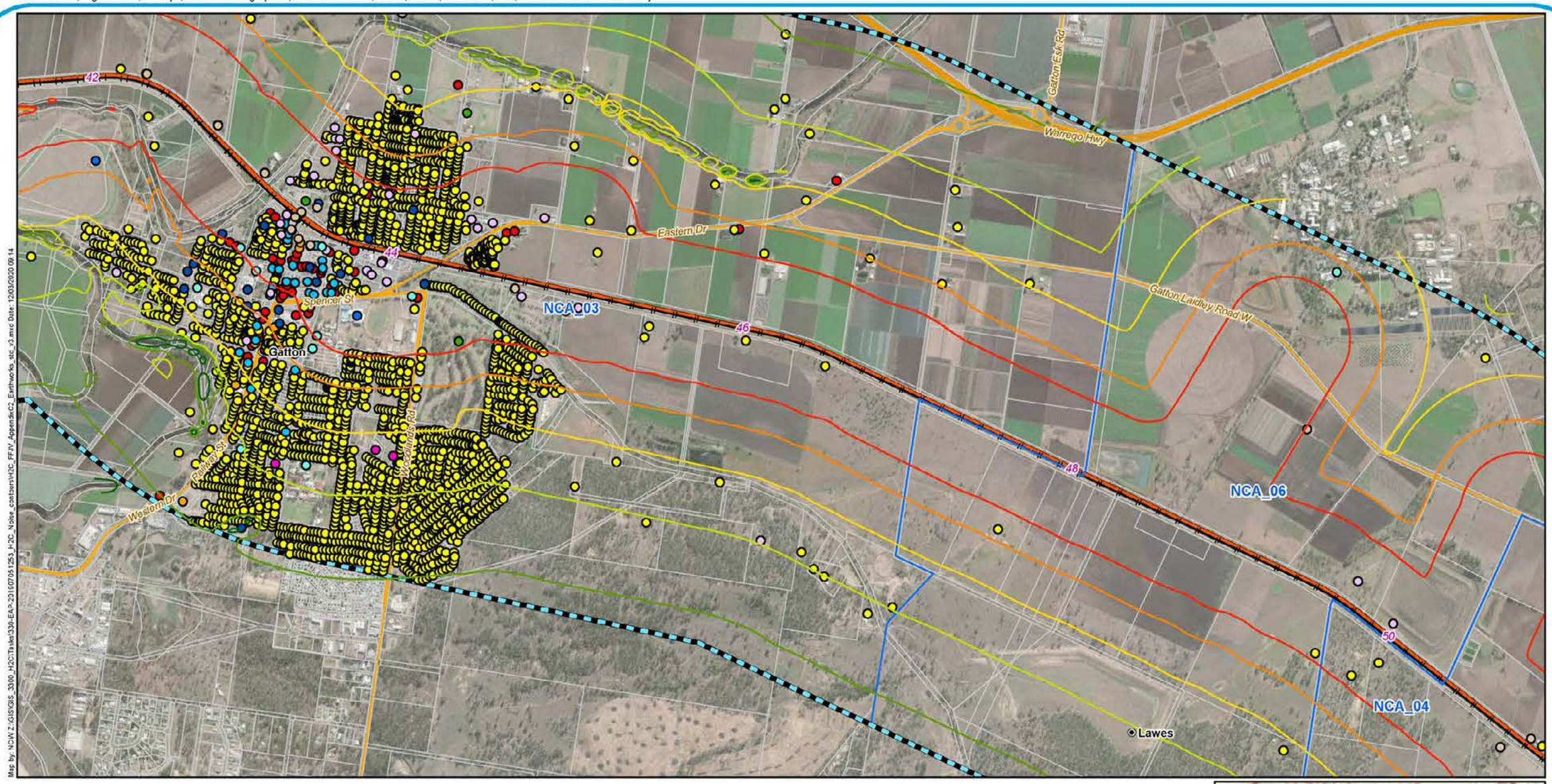
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

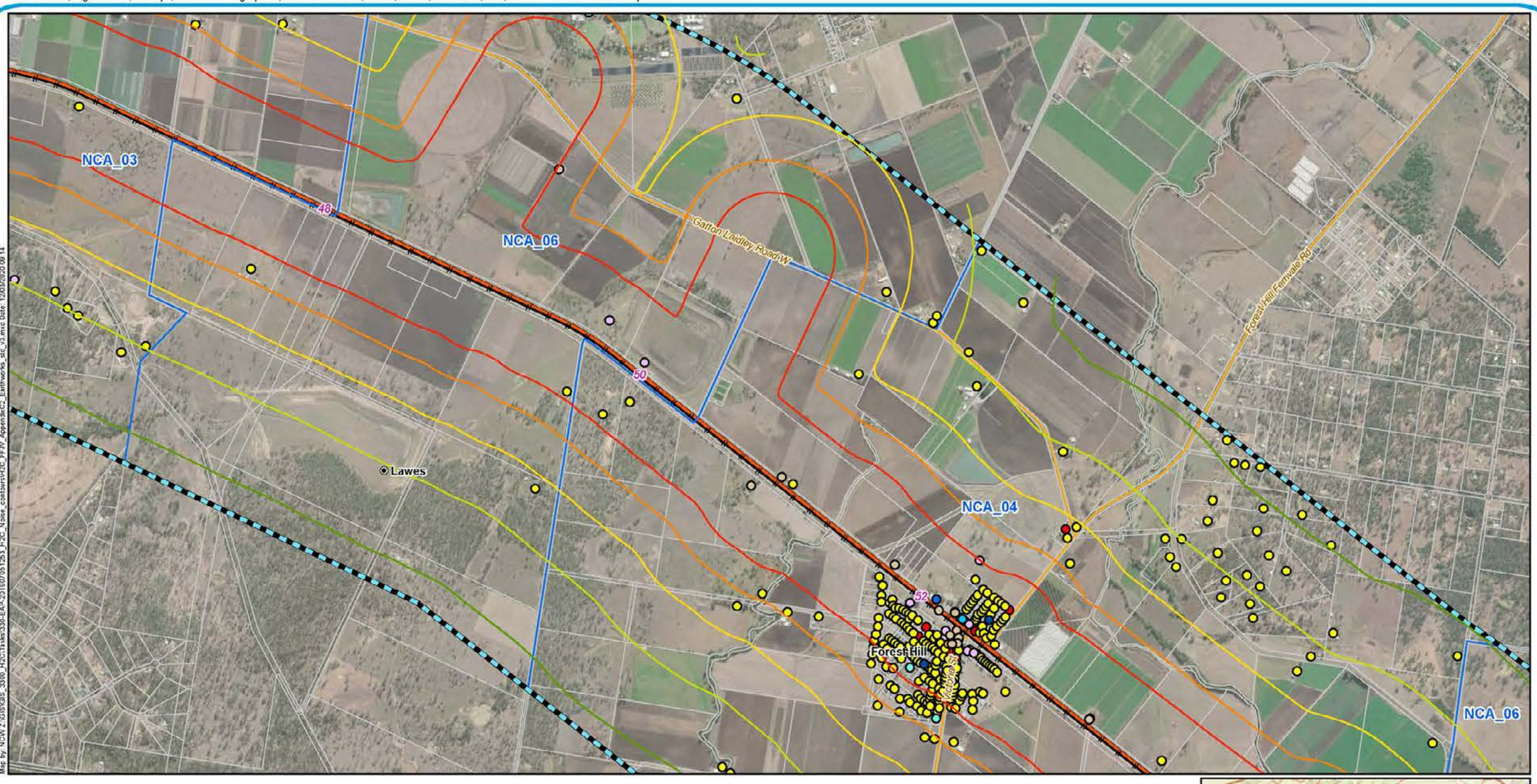
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

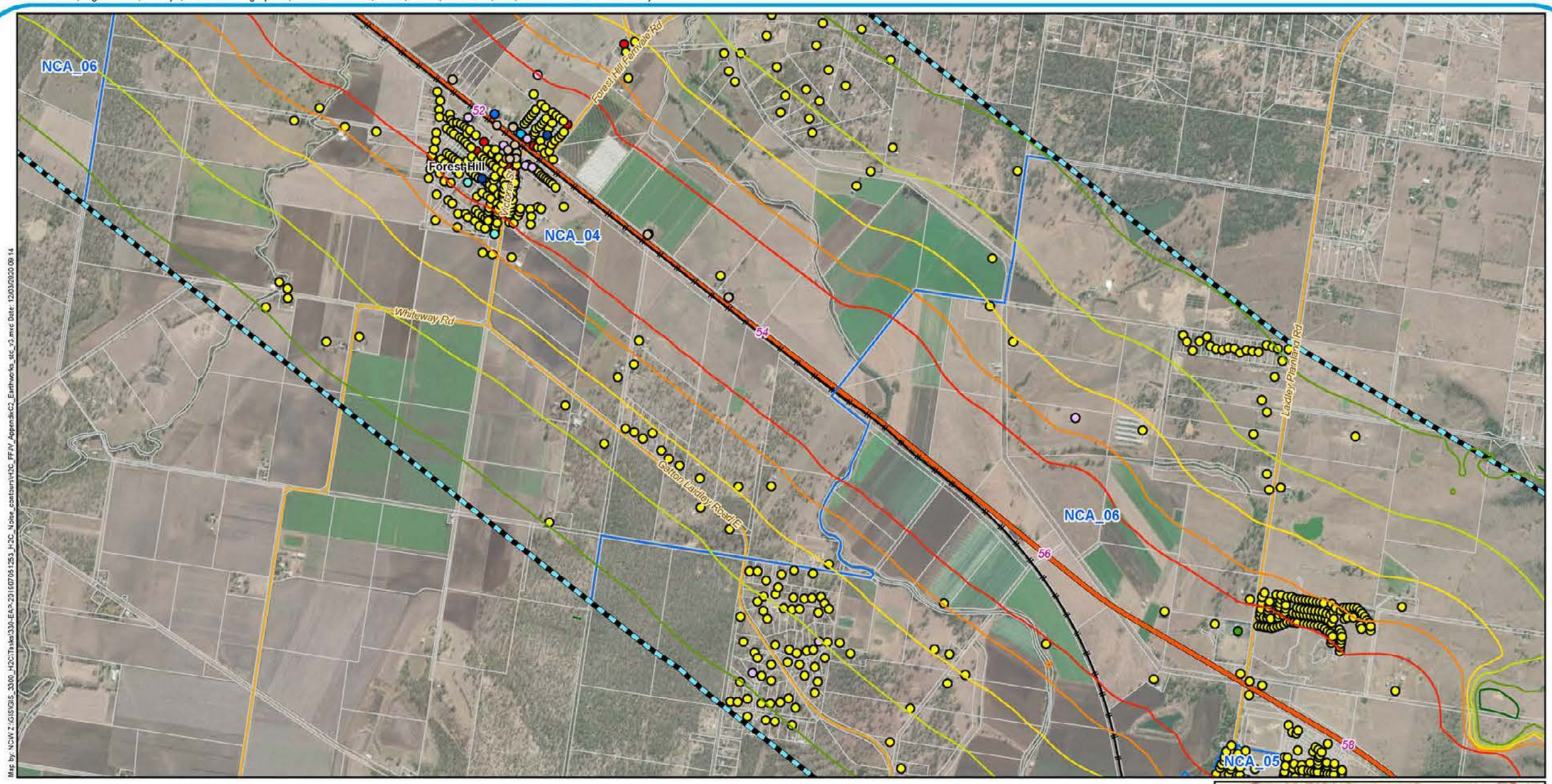
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1 km

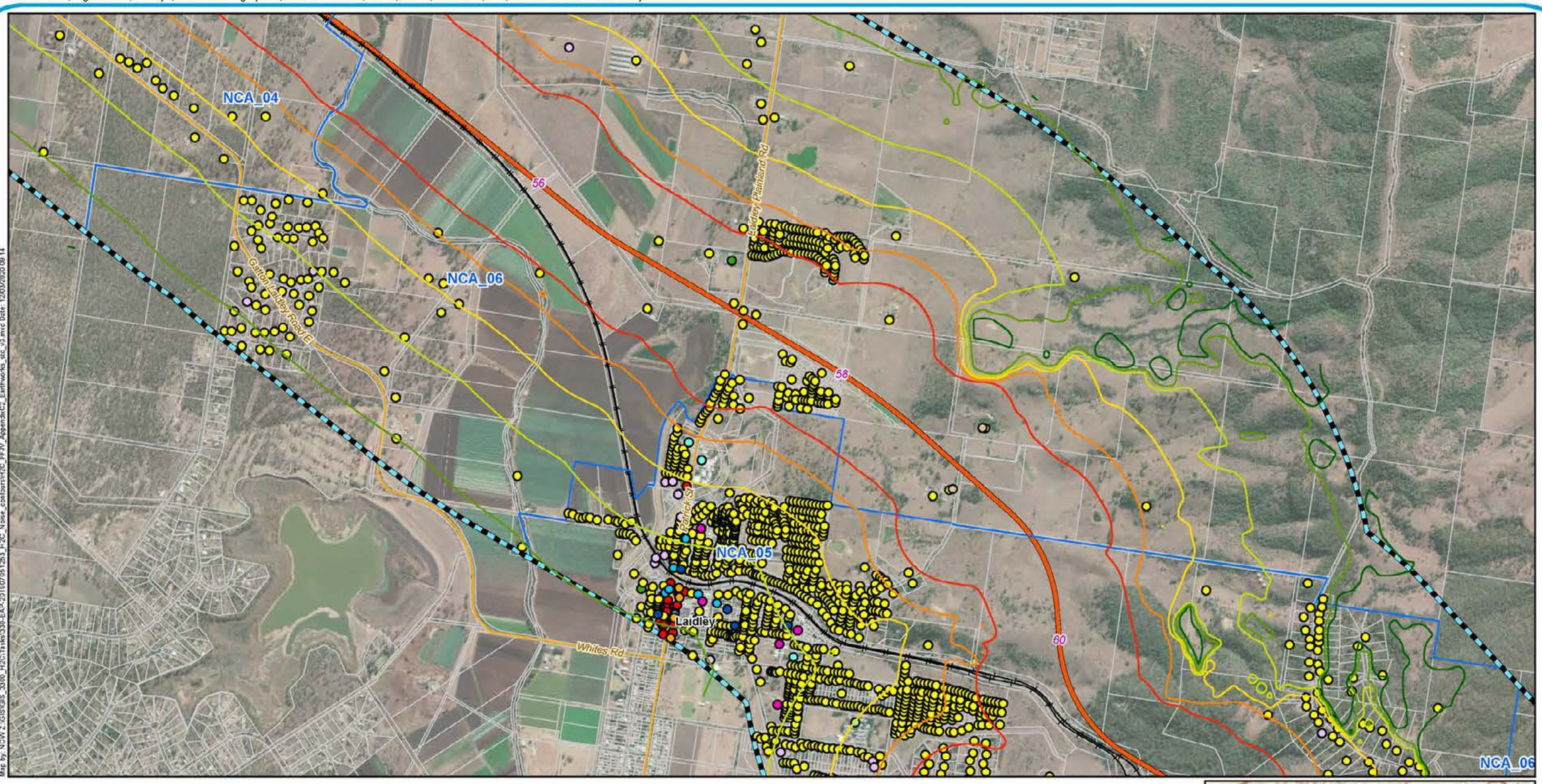
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

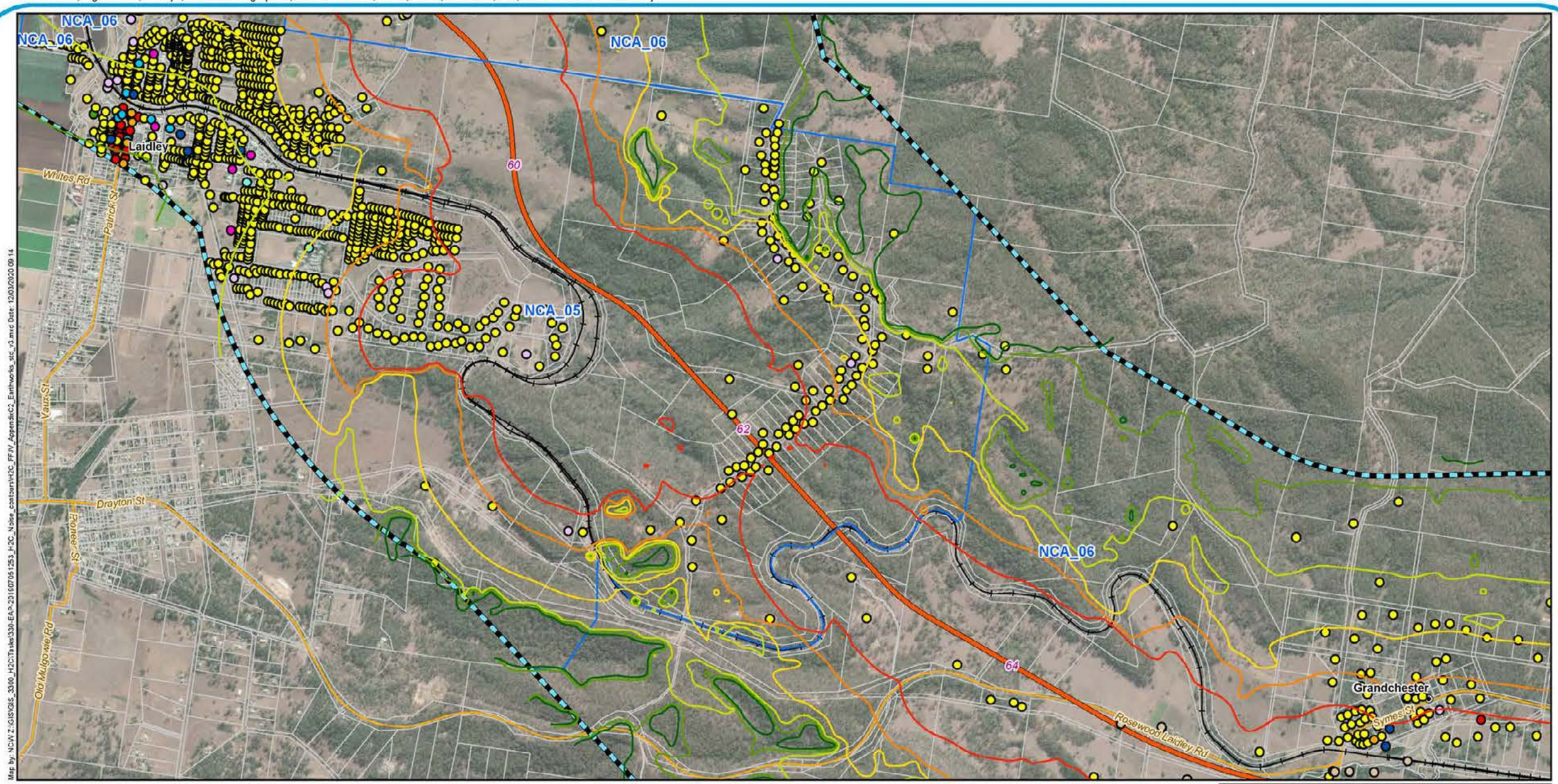
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

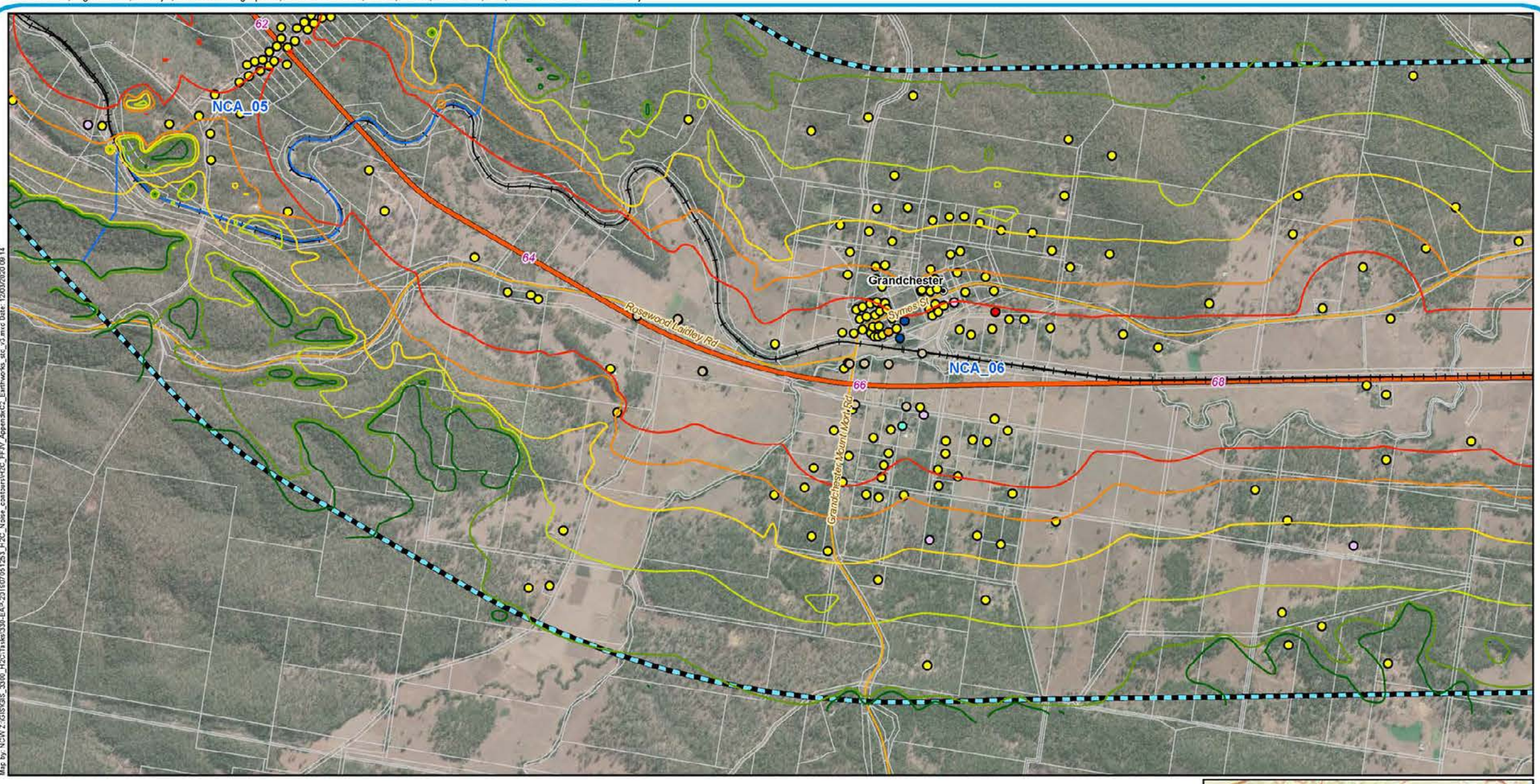
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

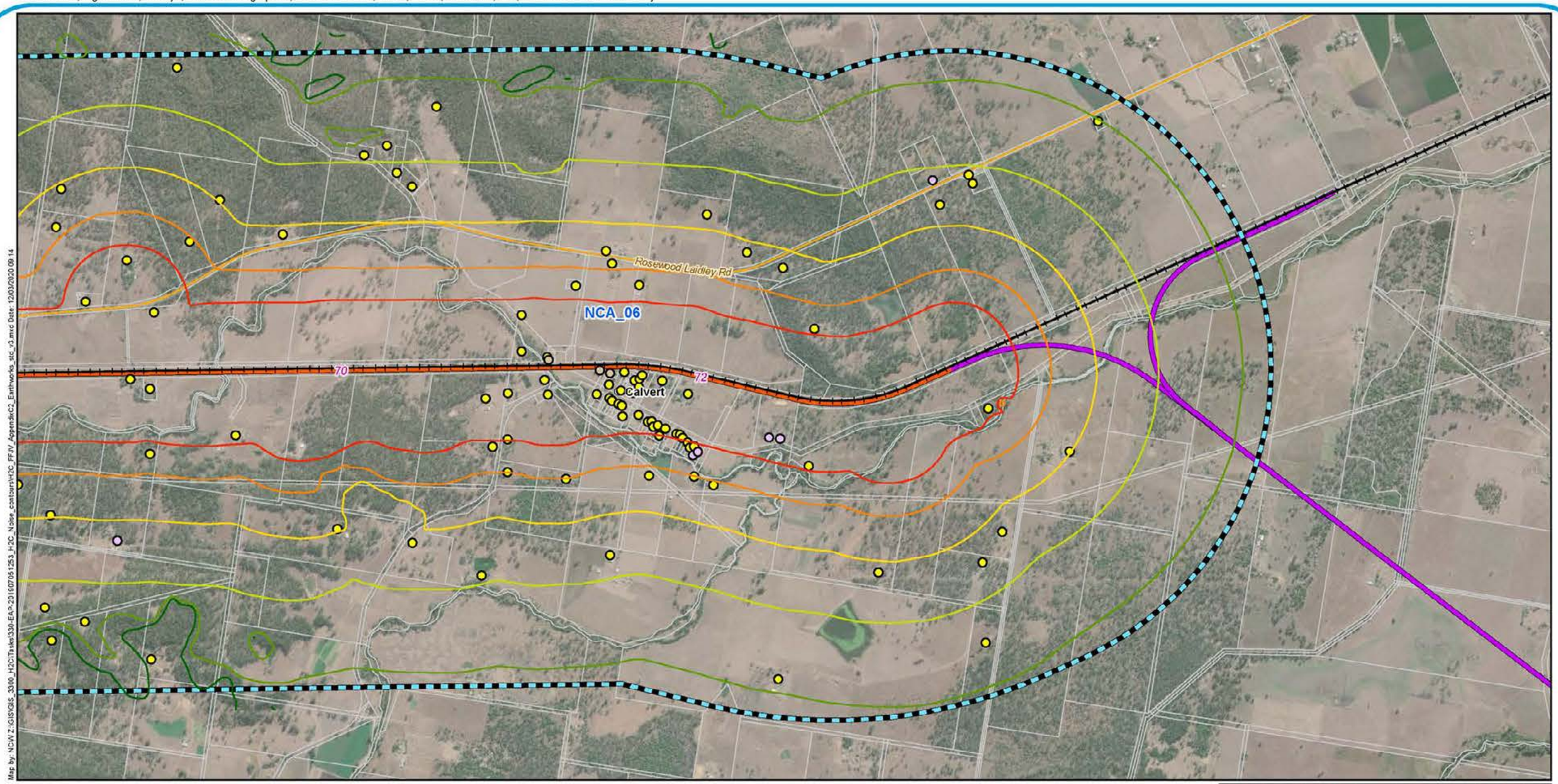
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

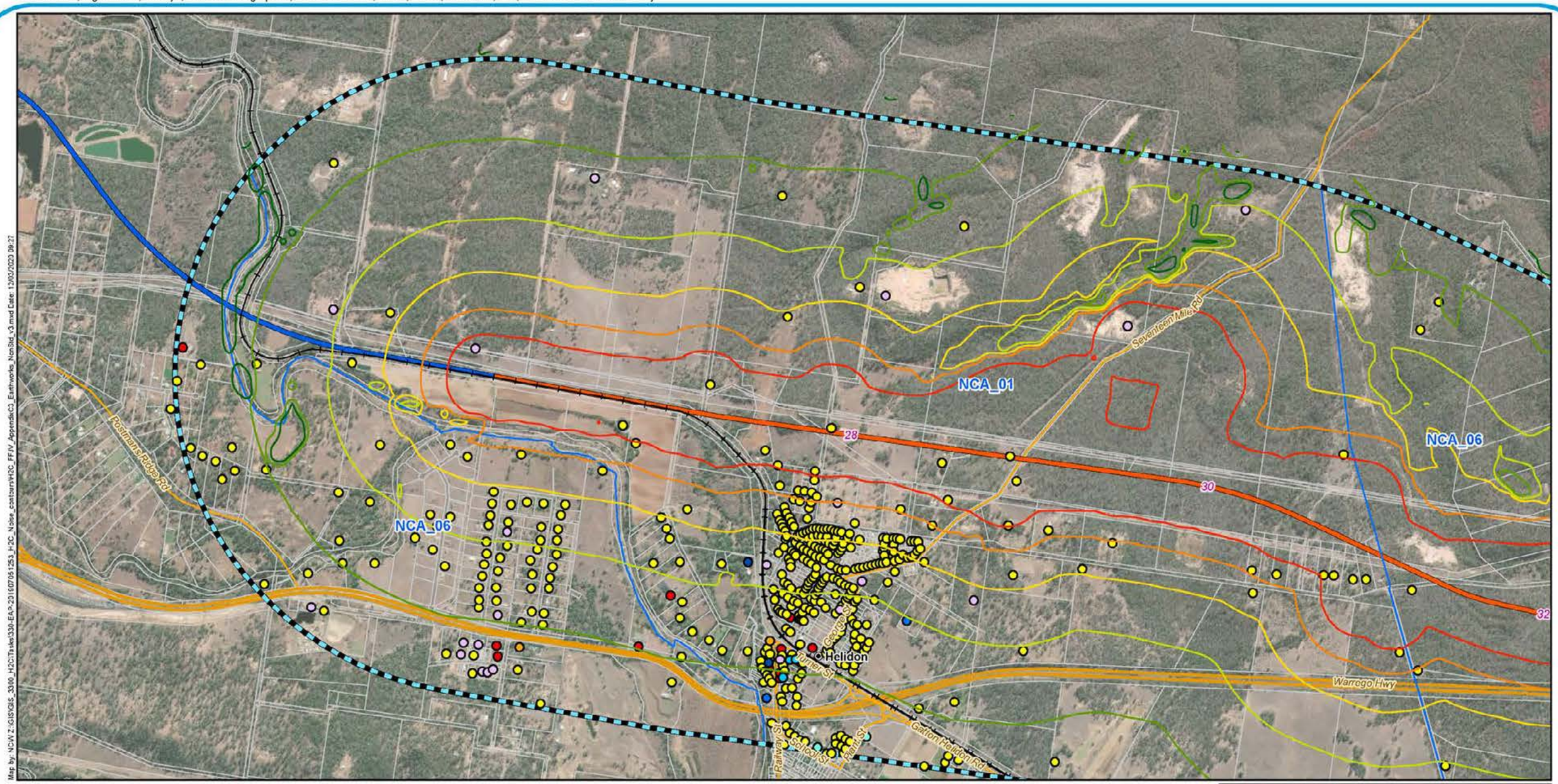
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C2 - Construction Noise Contours - Earthworks (Standard hours)** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

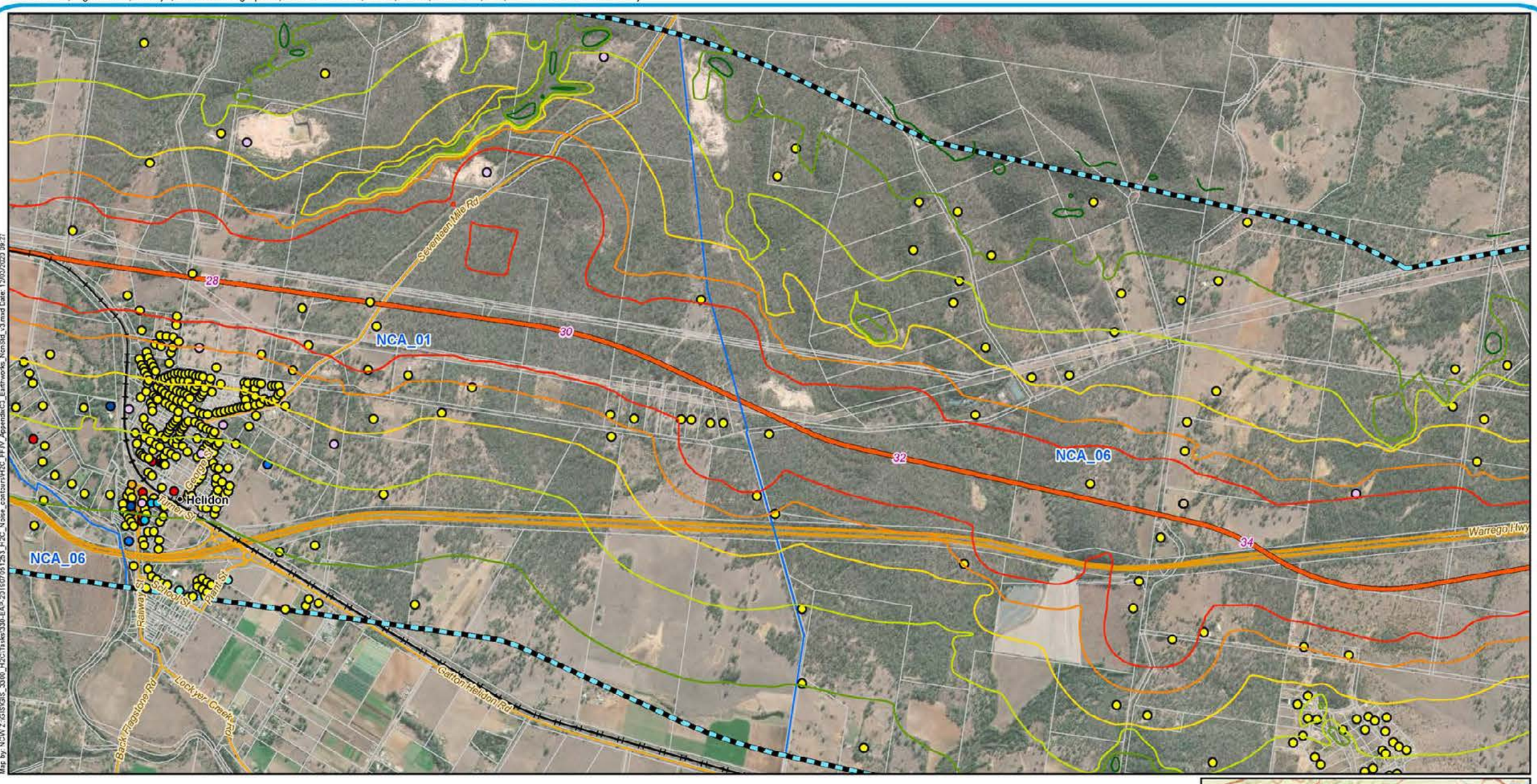
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

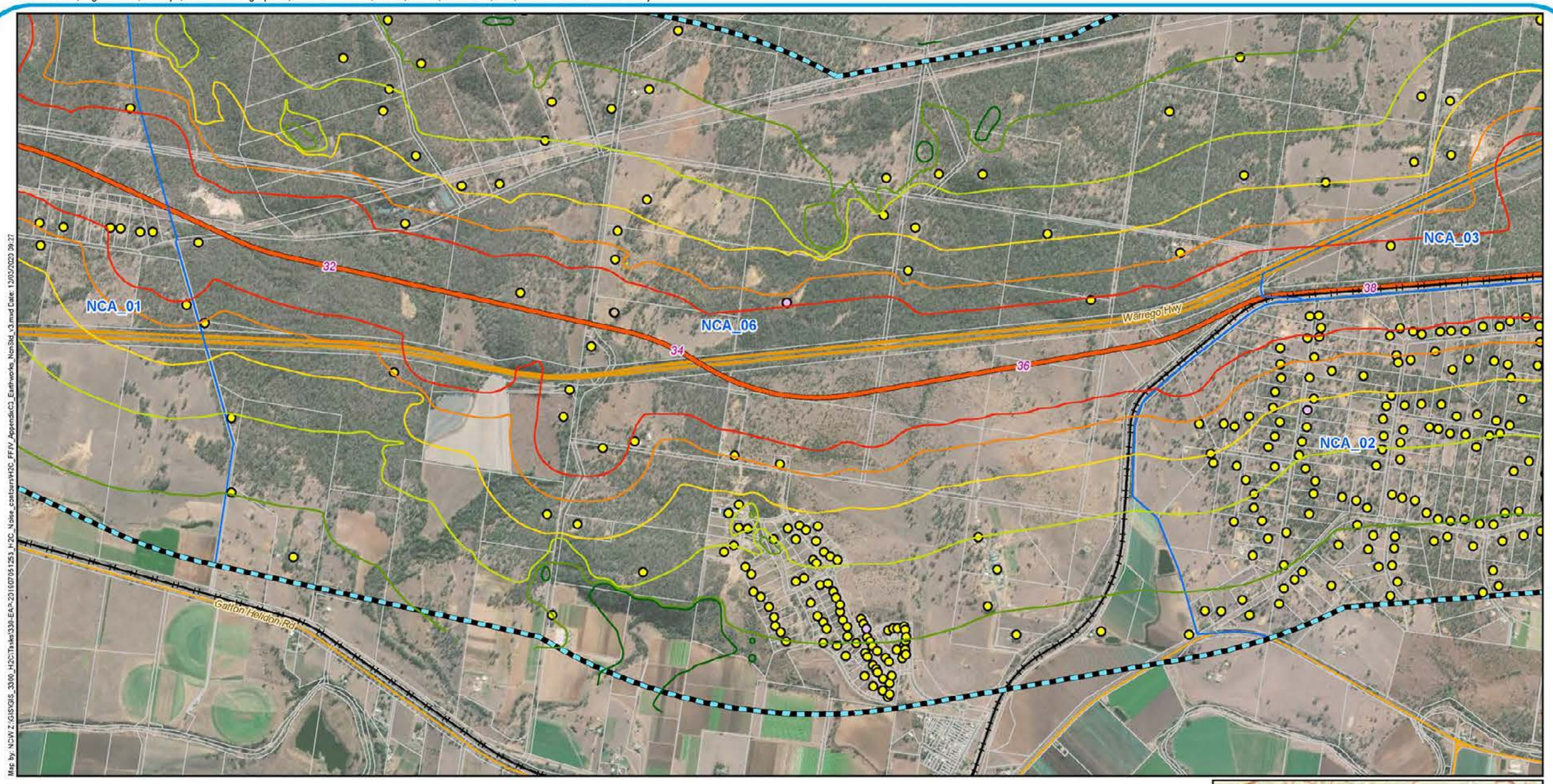
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NSW Z:\GIS\GIS_3380_H2C\Tasks\330-EAP-20160705\253_H2C_Noise_contours\H2C_FF\V_Appendix\C3_Earthworks_NonStd_v3.mxd Date: 12/03/2020 09:27

**Legend**

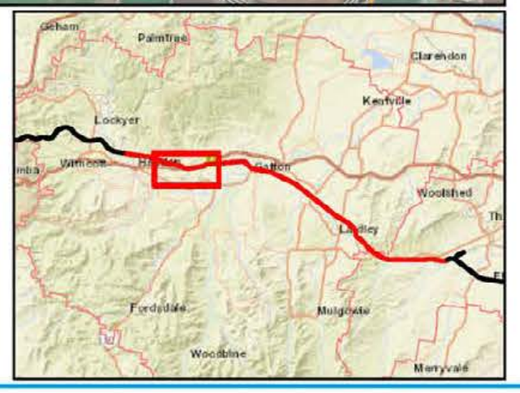
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

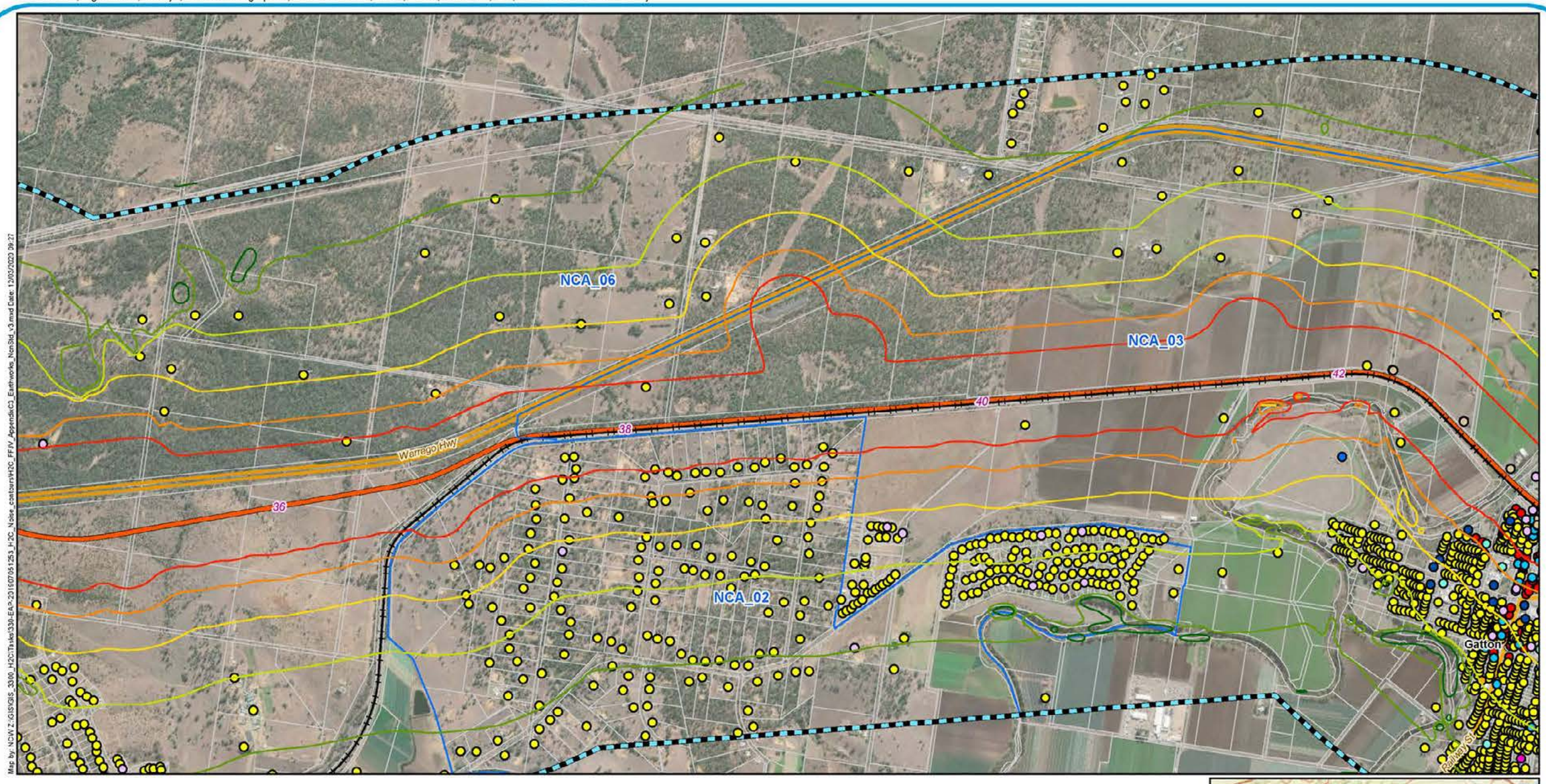
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

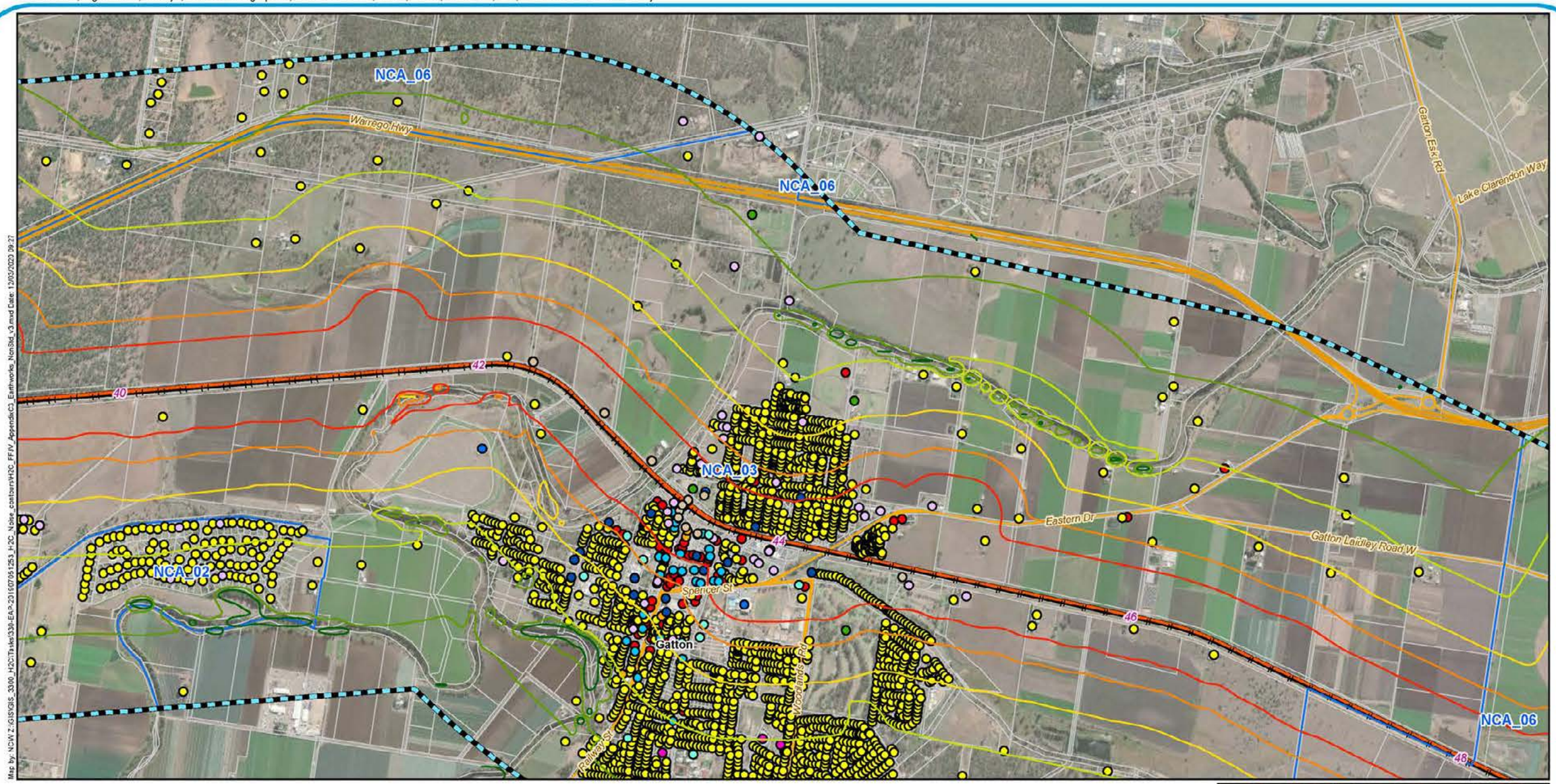
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFIV_AppendixC3_Earthworks_NonStd_v3.mxd Date: 12/03/2020 09:27

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

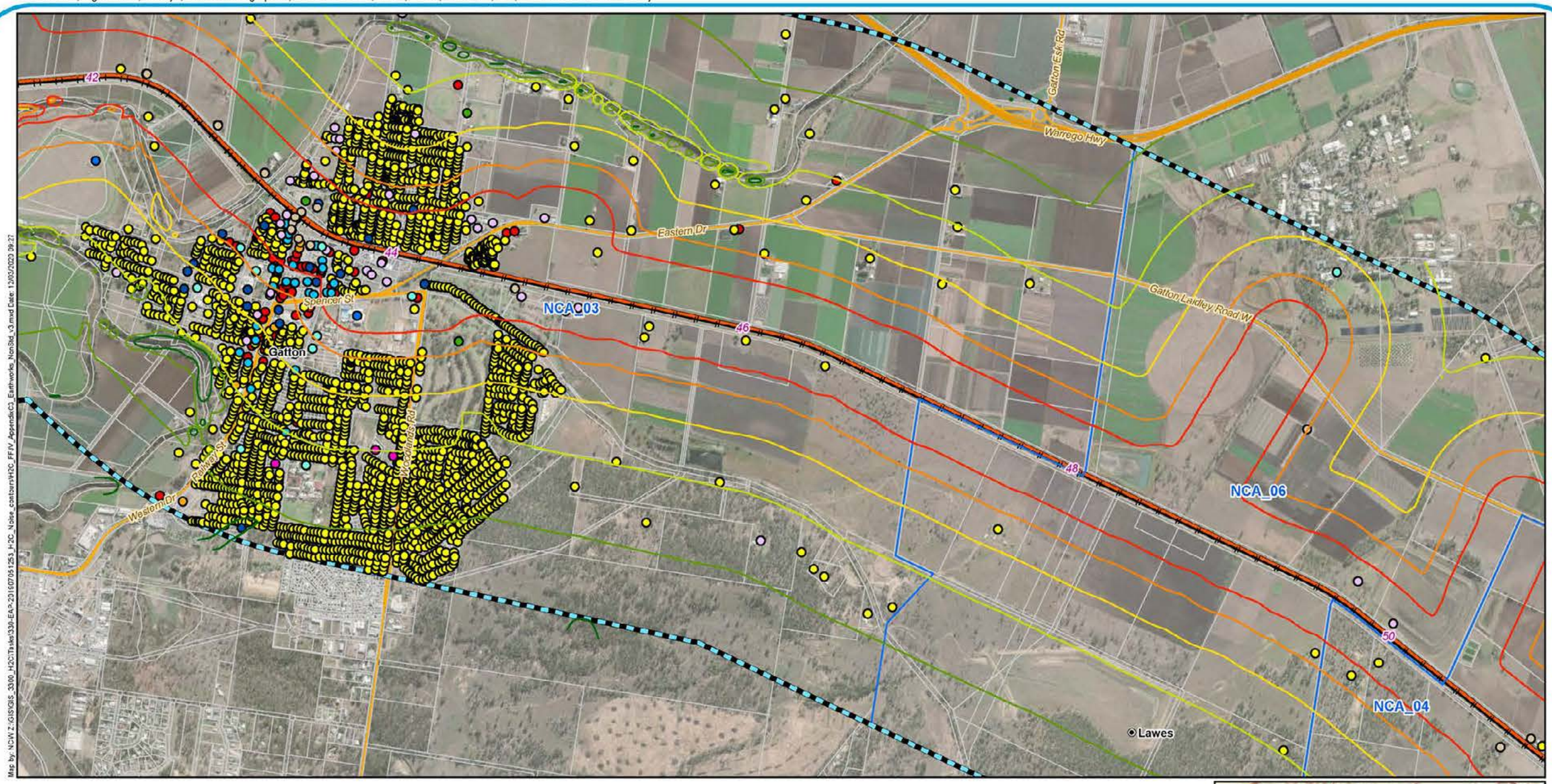
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3390_H2C\Trailer\3390-EAA-20160705\253_H2C_Noise_contours\H2C_FFIV_AppendixC3_Earthworks_NonStd_v3.mxd Date: 12/03/2020 09:27

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

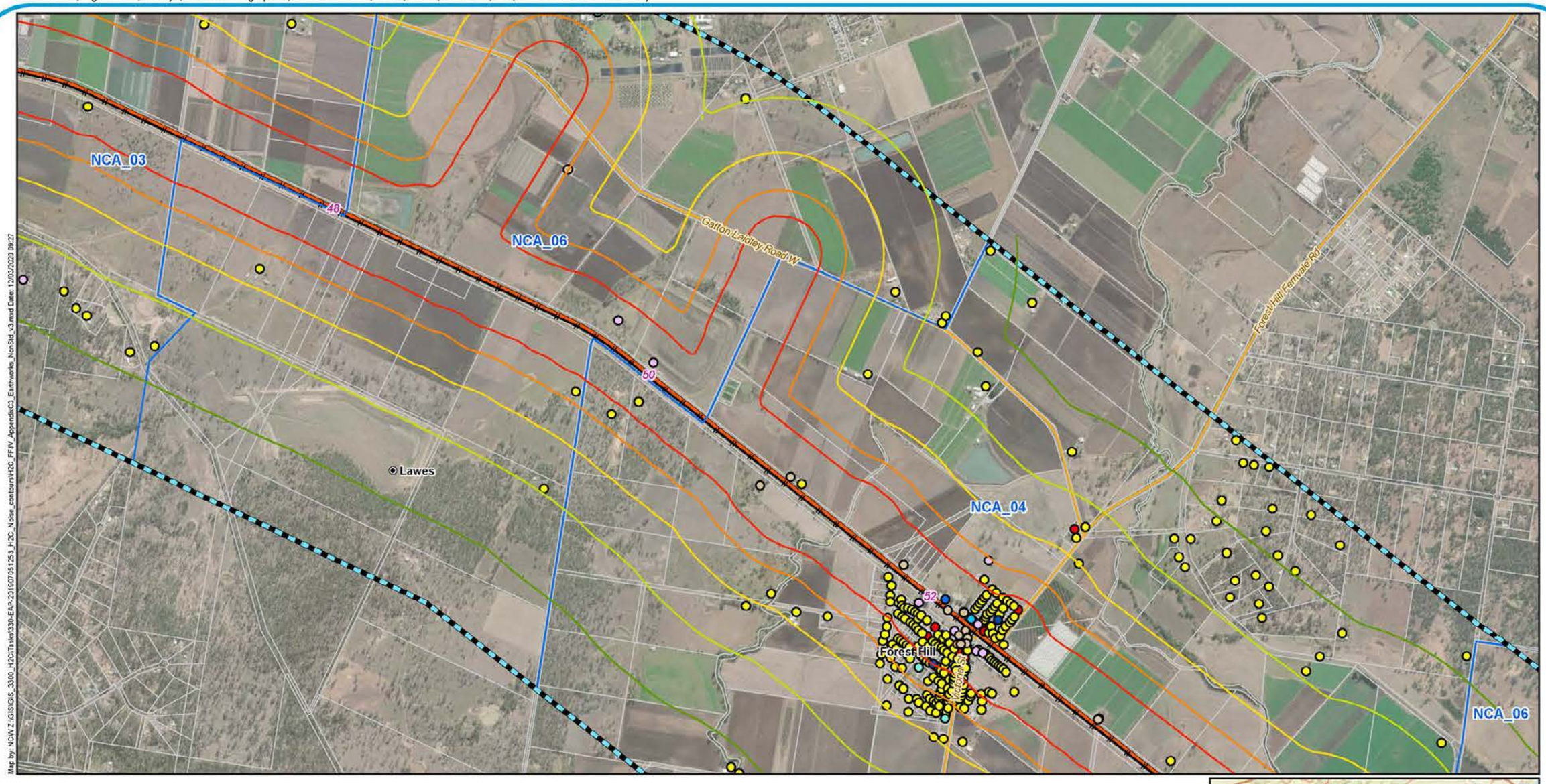
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

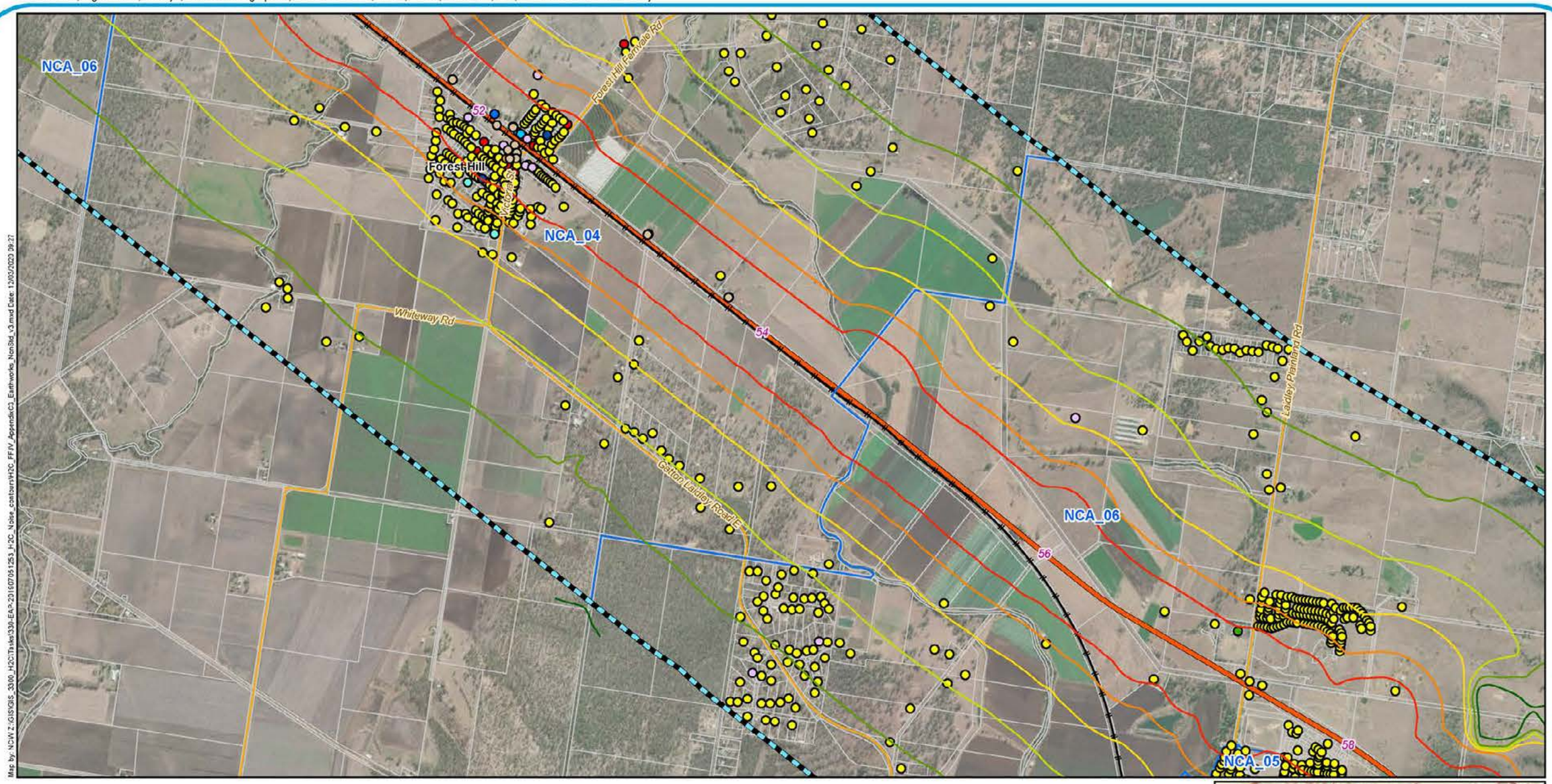
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: N:\W Z:\GIS\GIS_3380_H2C\Tasks\330-EAP-231607051253_H-2C_N

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

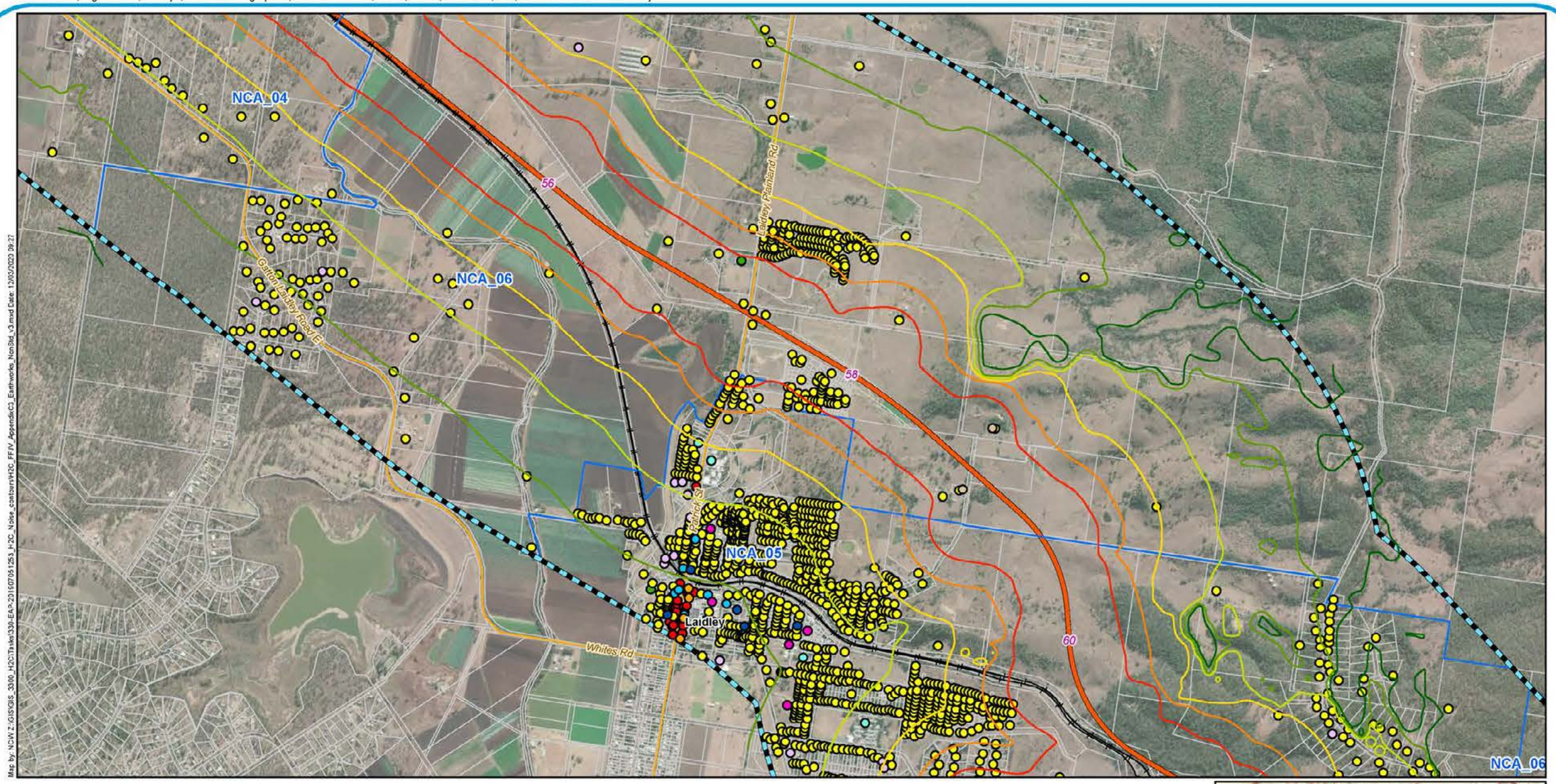
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

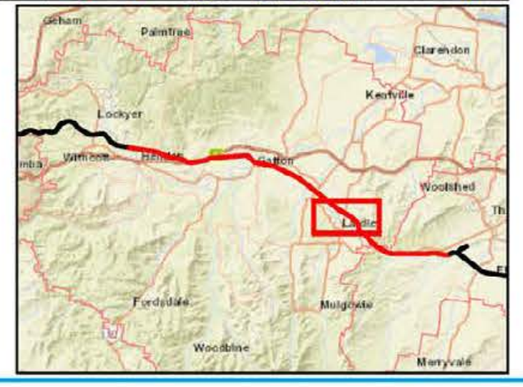
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

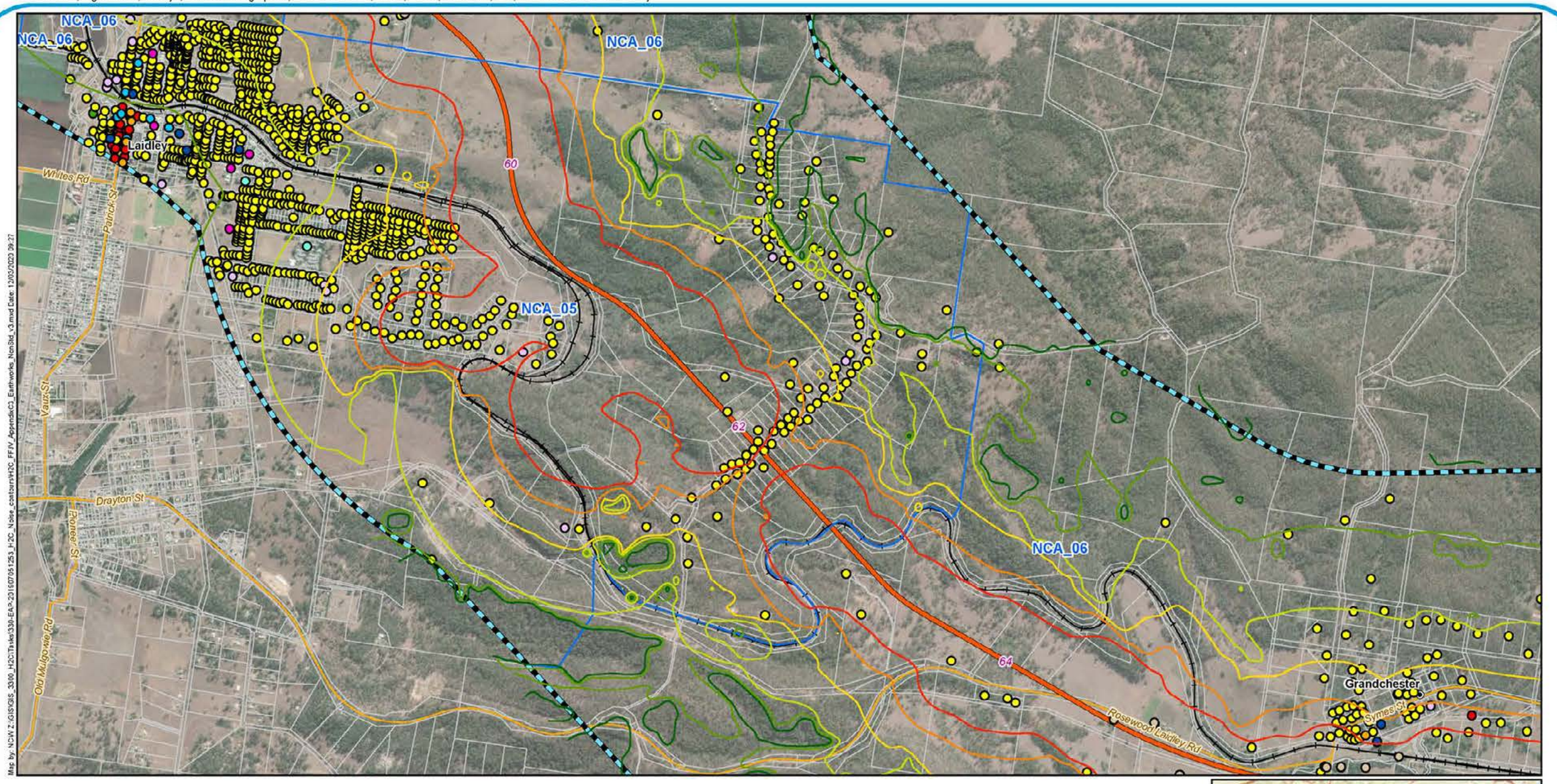
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

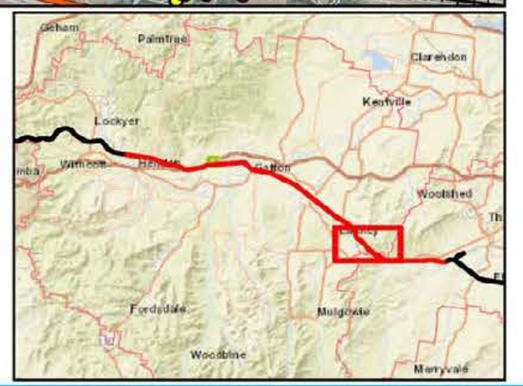
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

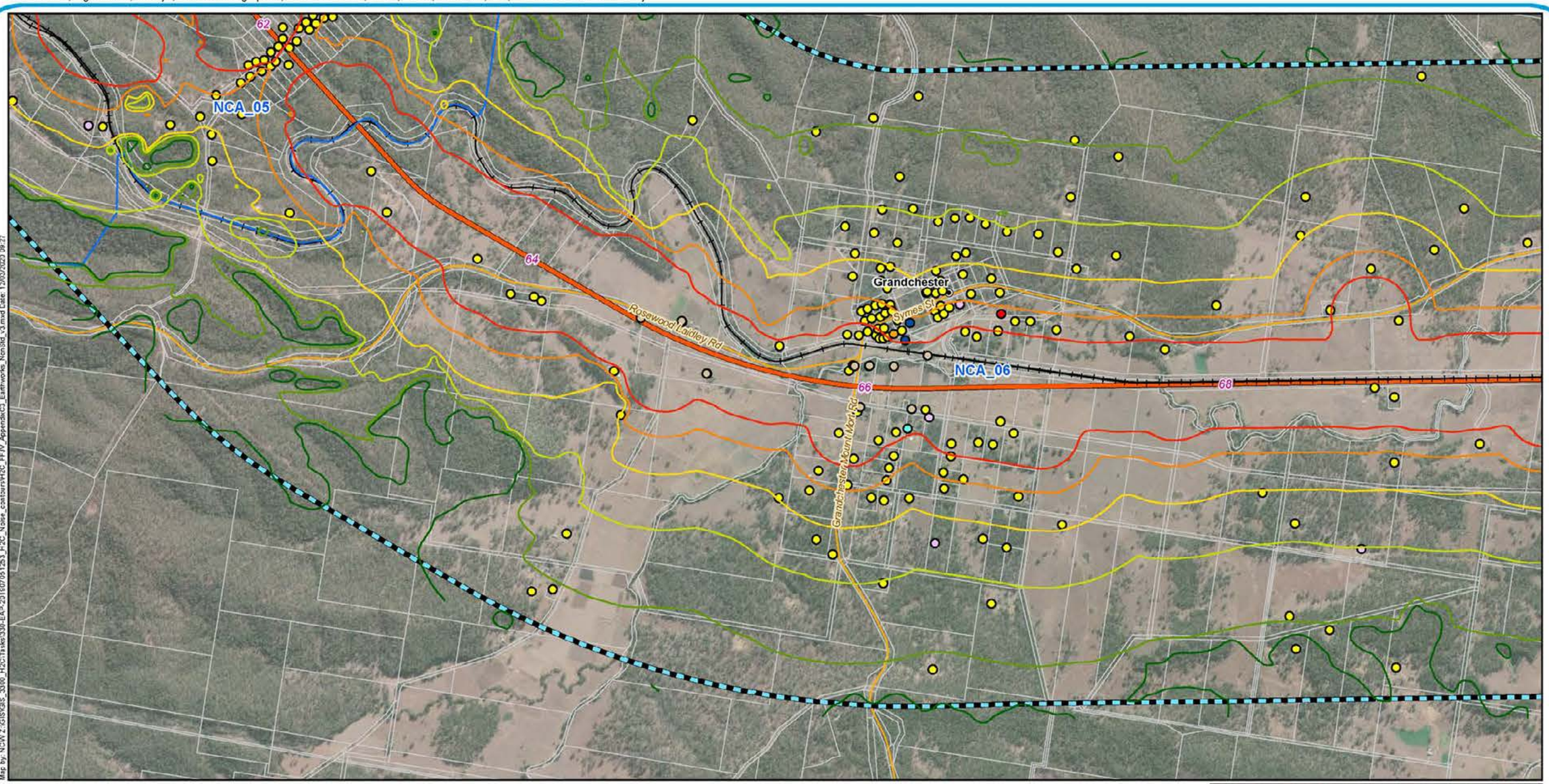
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

Future Freight
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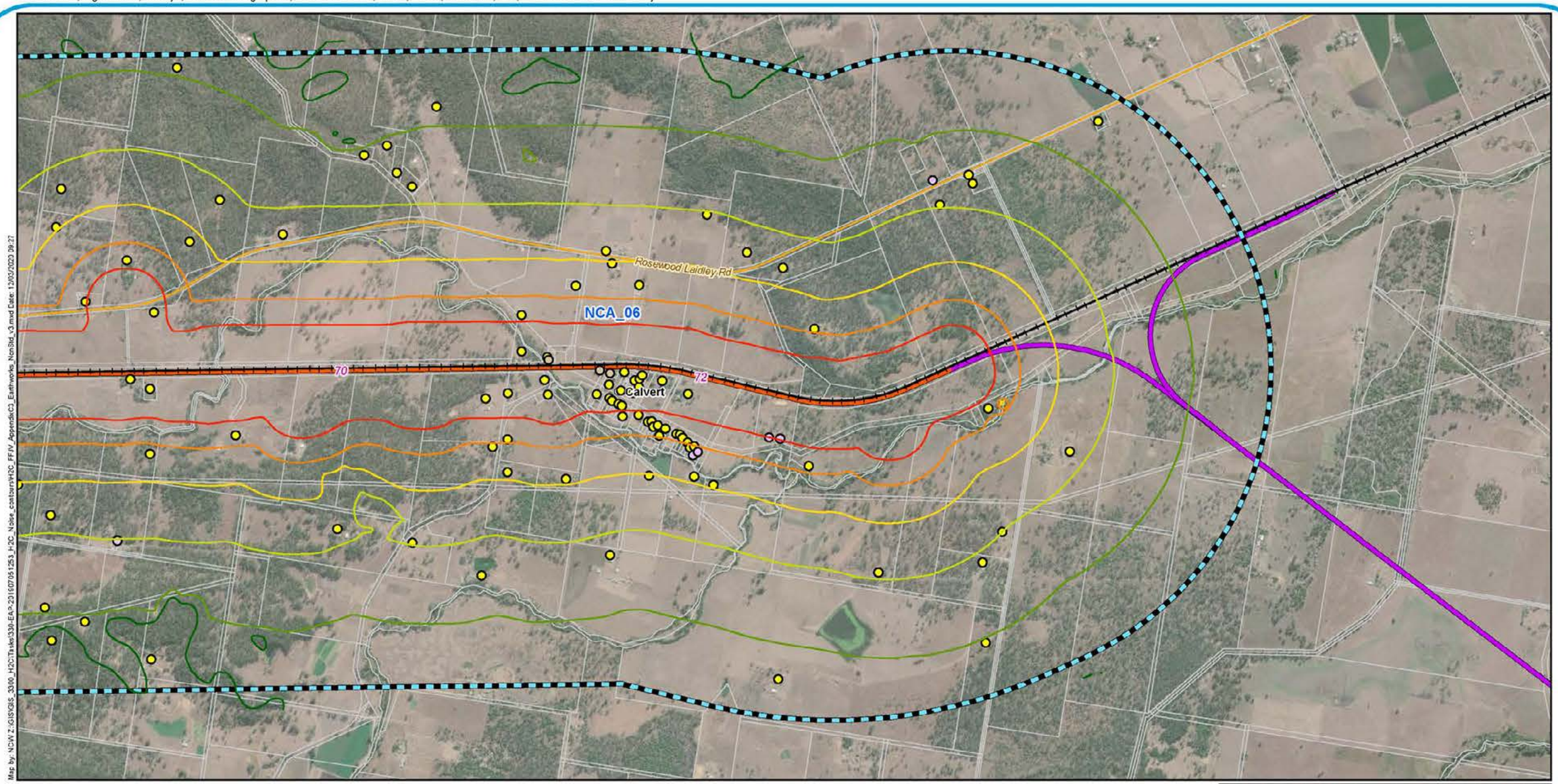
Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

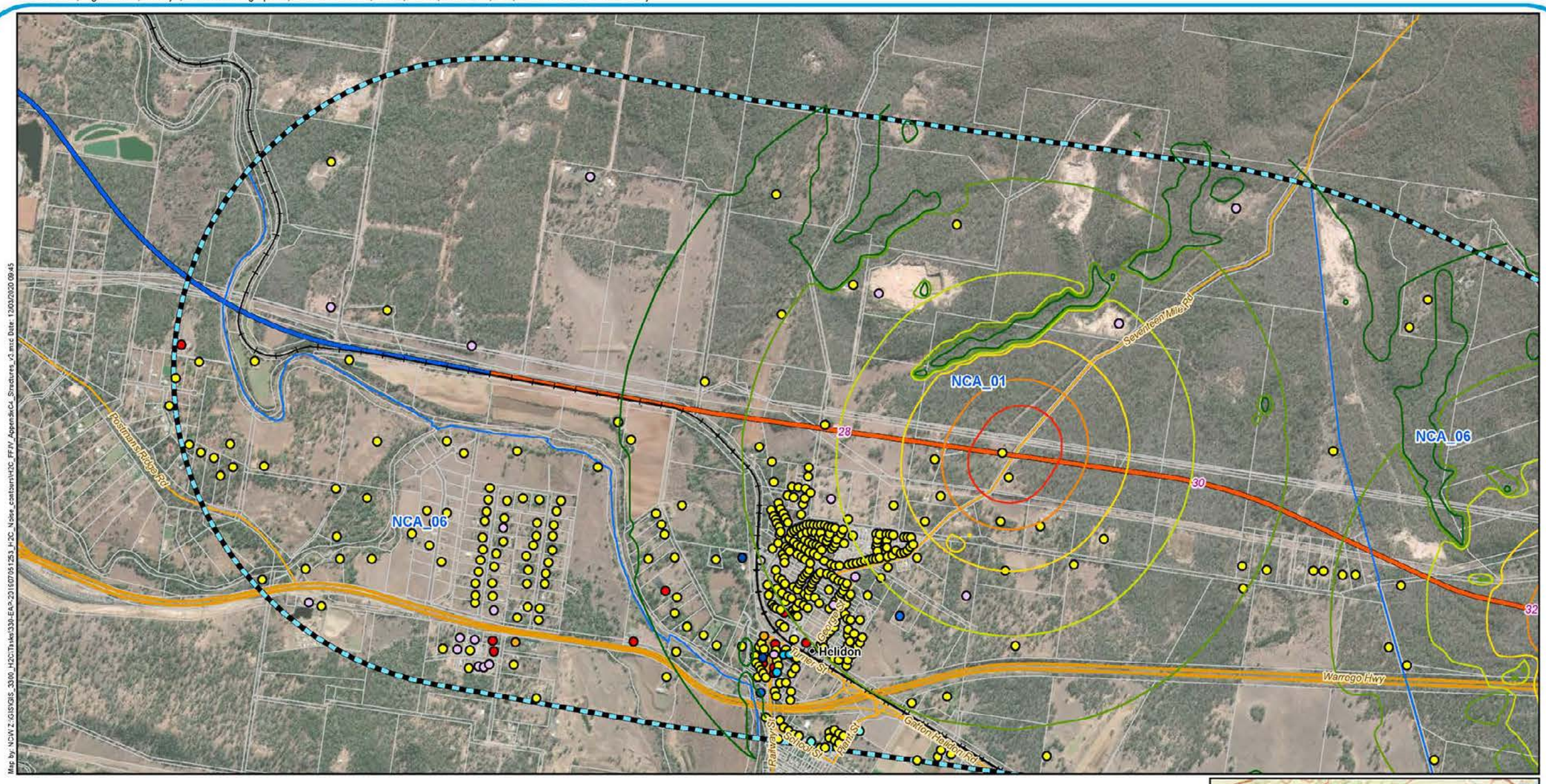
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C3 - Construction Noise Contours - Earthworks (Non-standard hours)** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

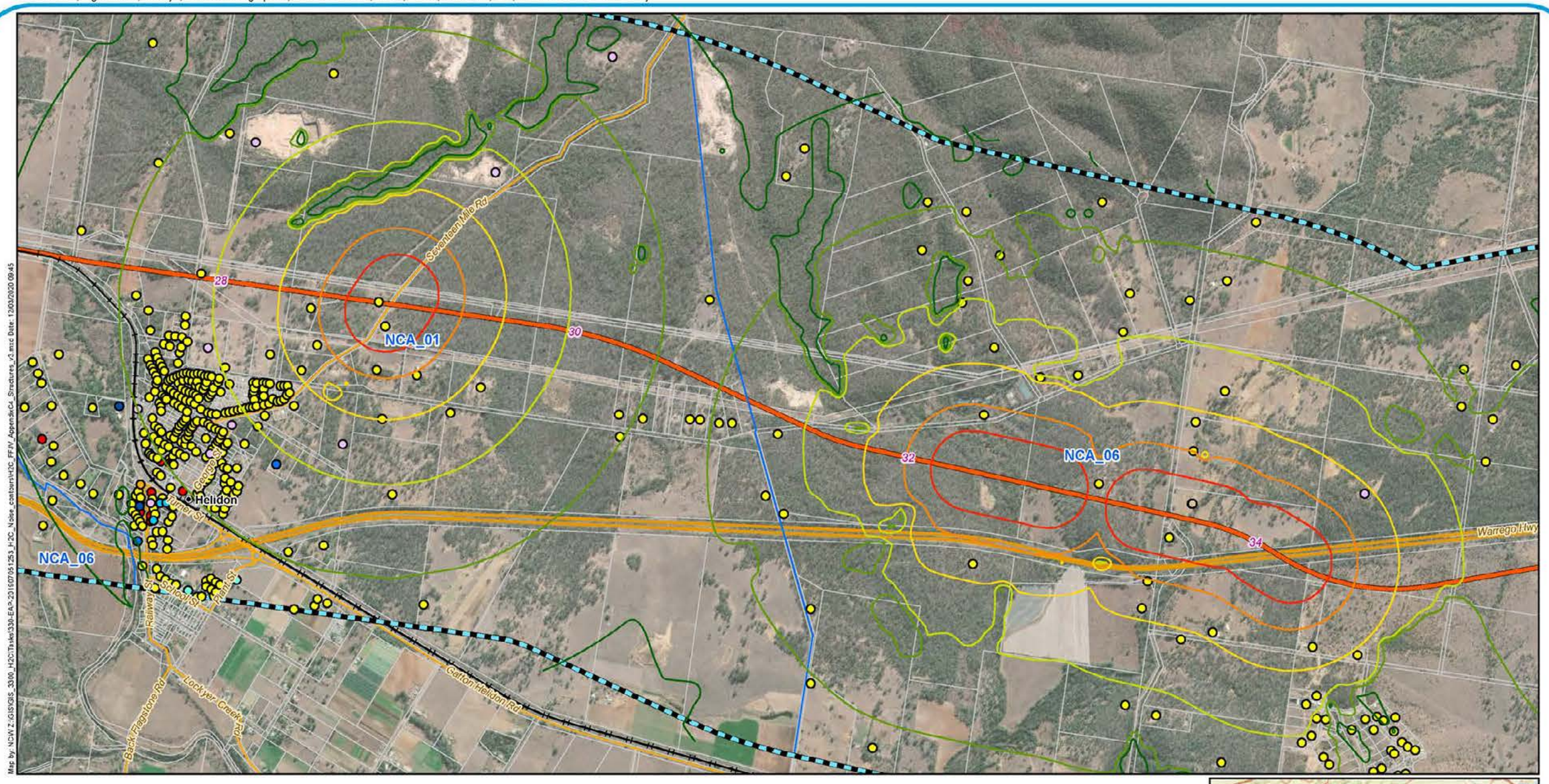
Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

# Helidon to Calvert

## Appendix C4 - Construction Noise Contours - Structures

Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

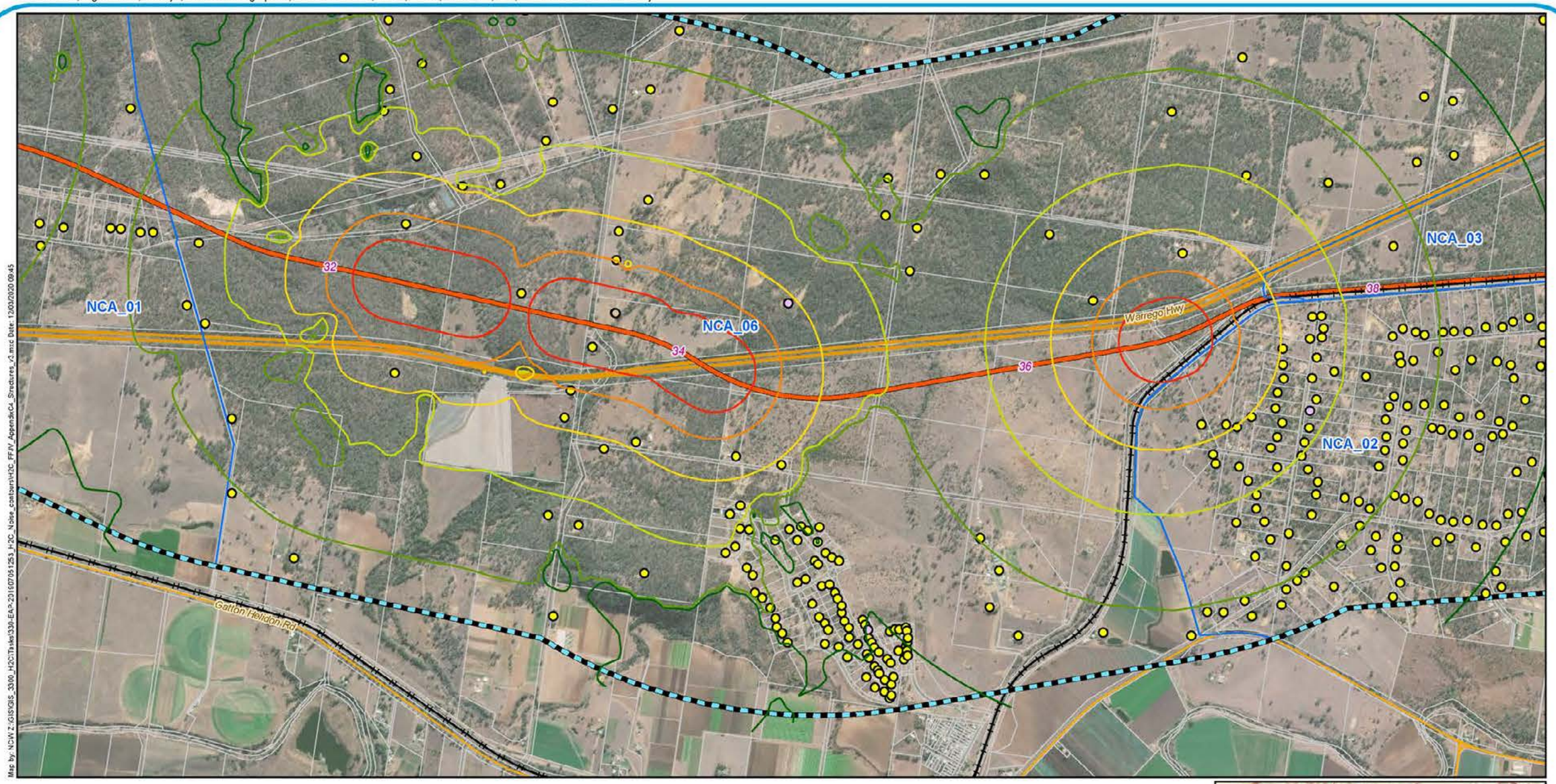
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

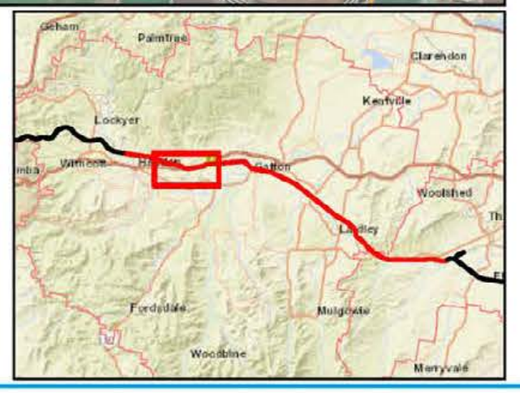
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

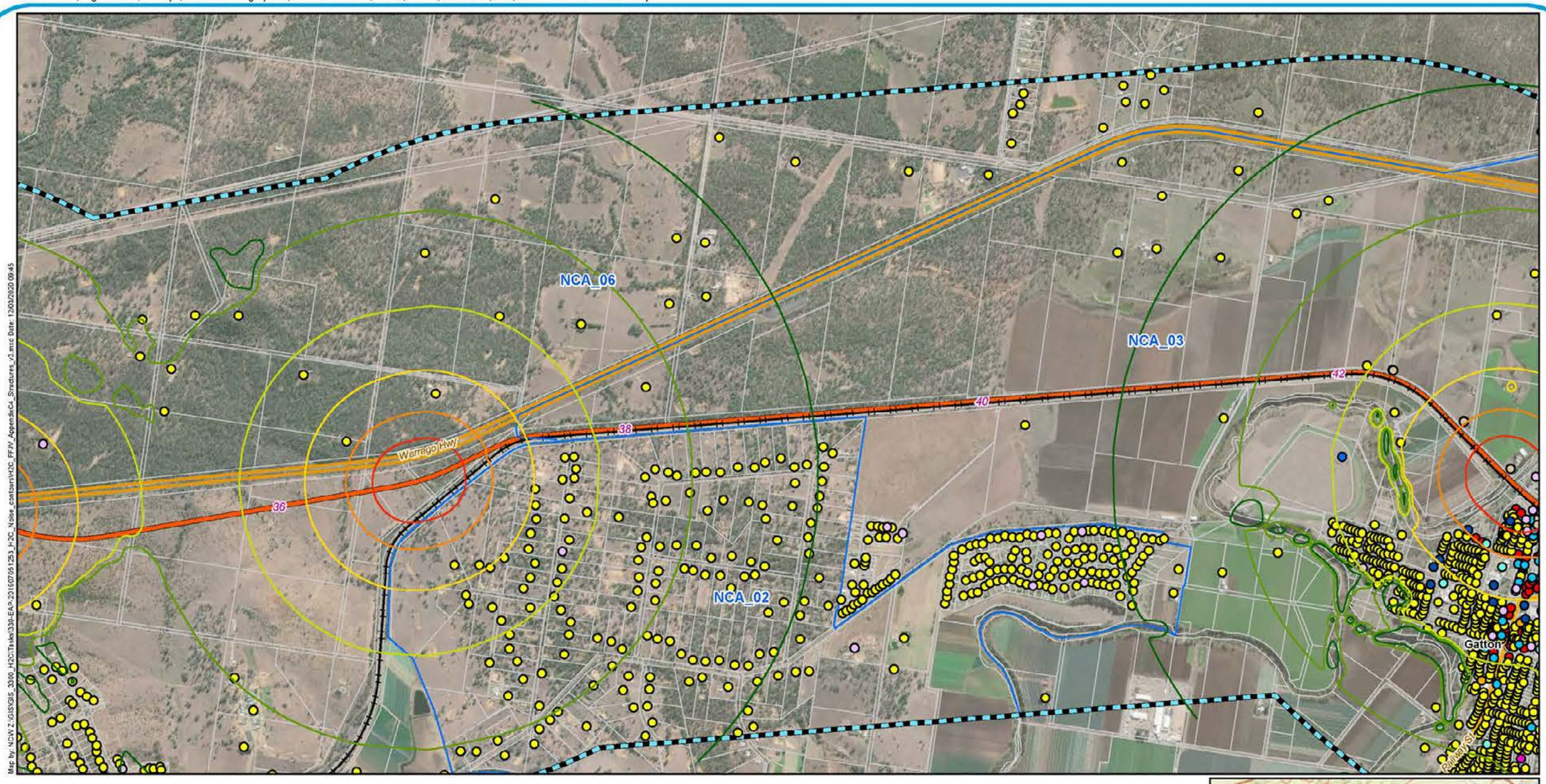
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

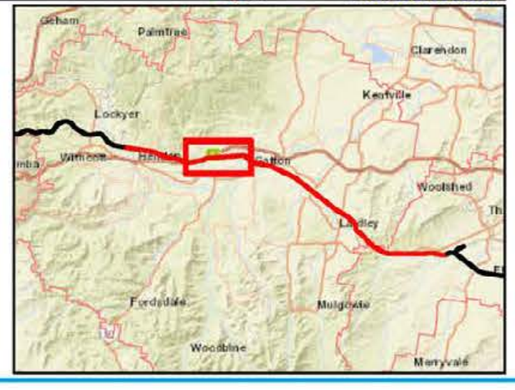
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

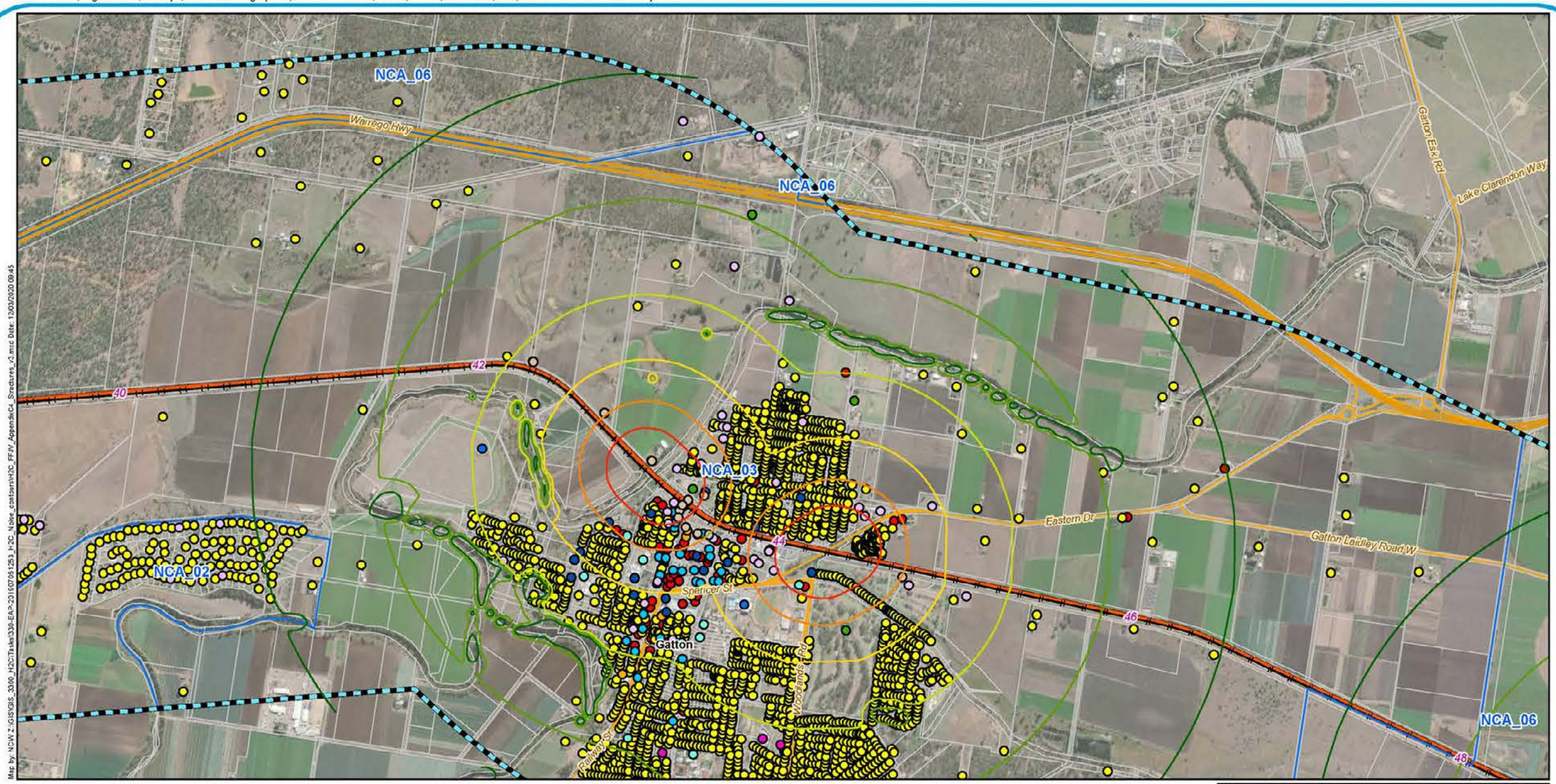
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC4_Structures_v3.mxd Date: 12/03/2020 09:45

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

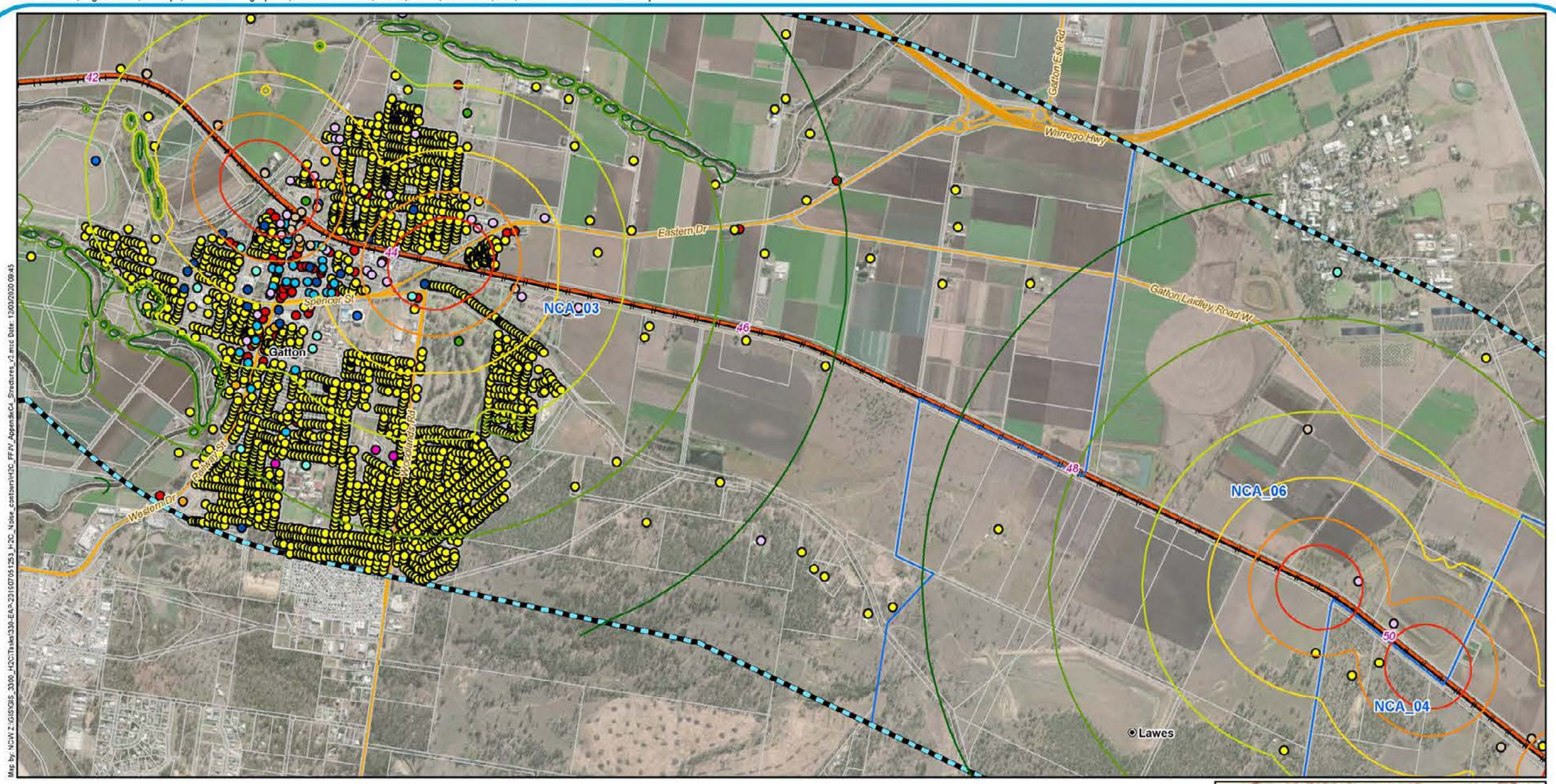
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3390_H2C\Tasks\3390-EA-20160705\253_H2C_Noise_contours\H2C_FFIV_AppendixC4_Structures_v2.mxd Date: 12/03/2020 09:45

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

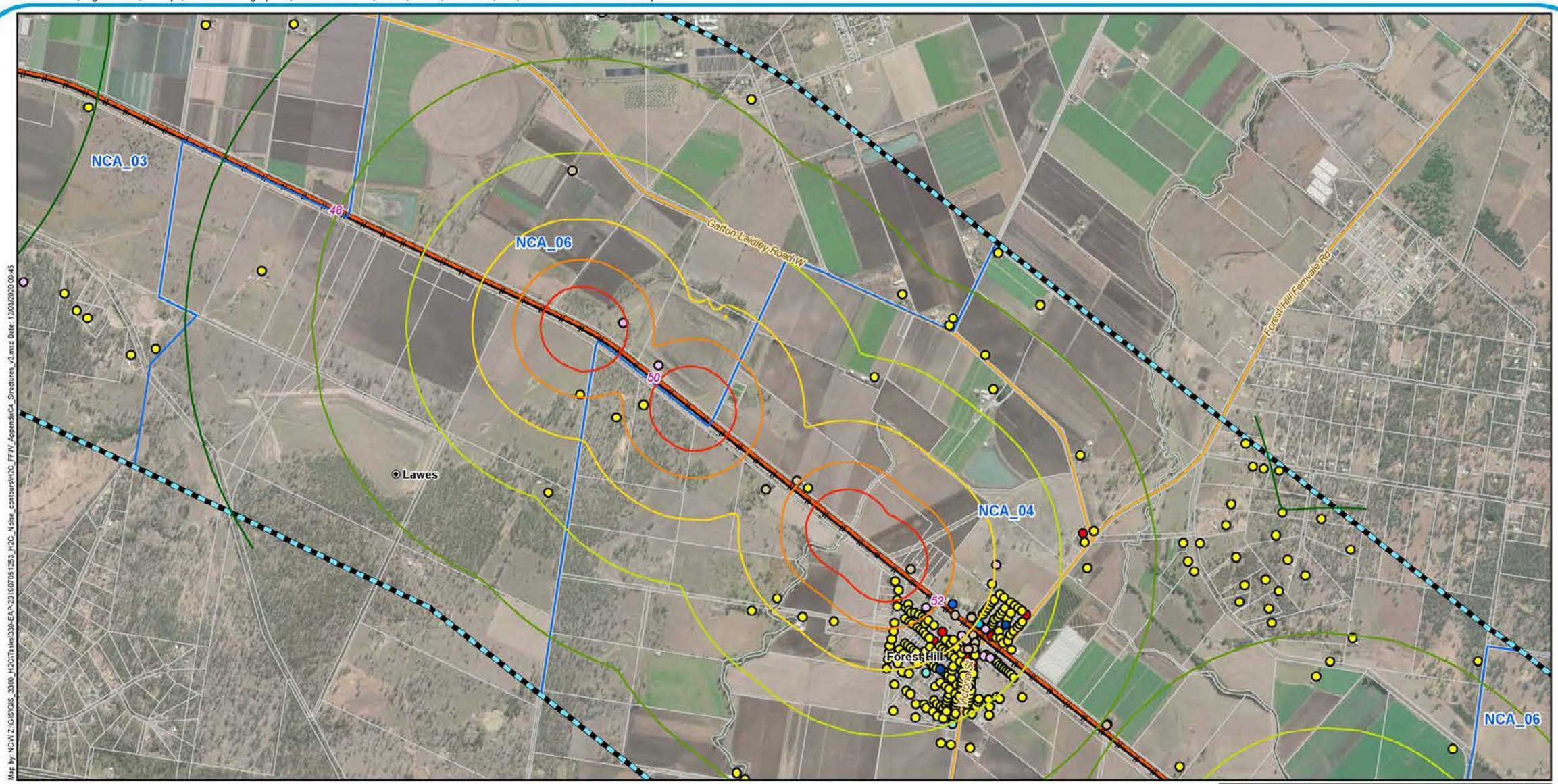
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

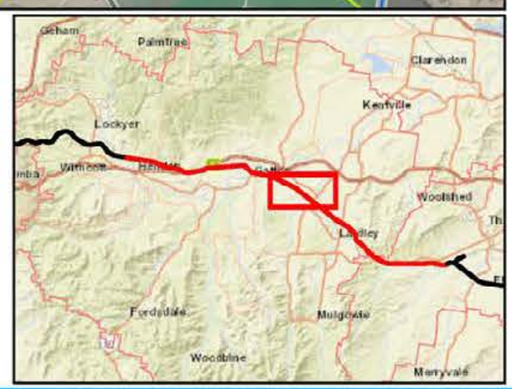
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

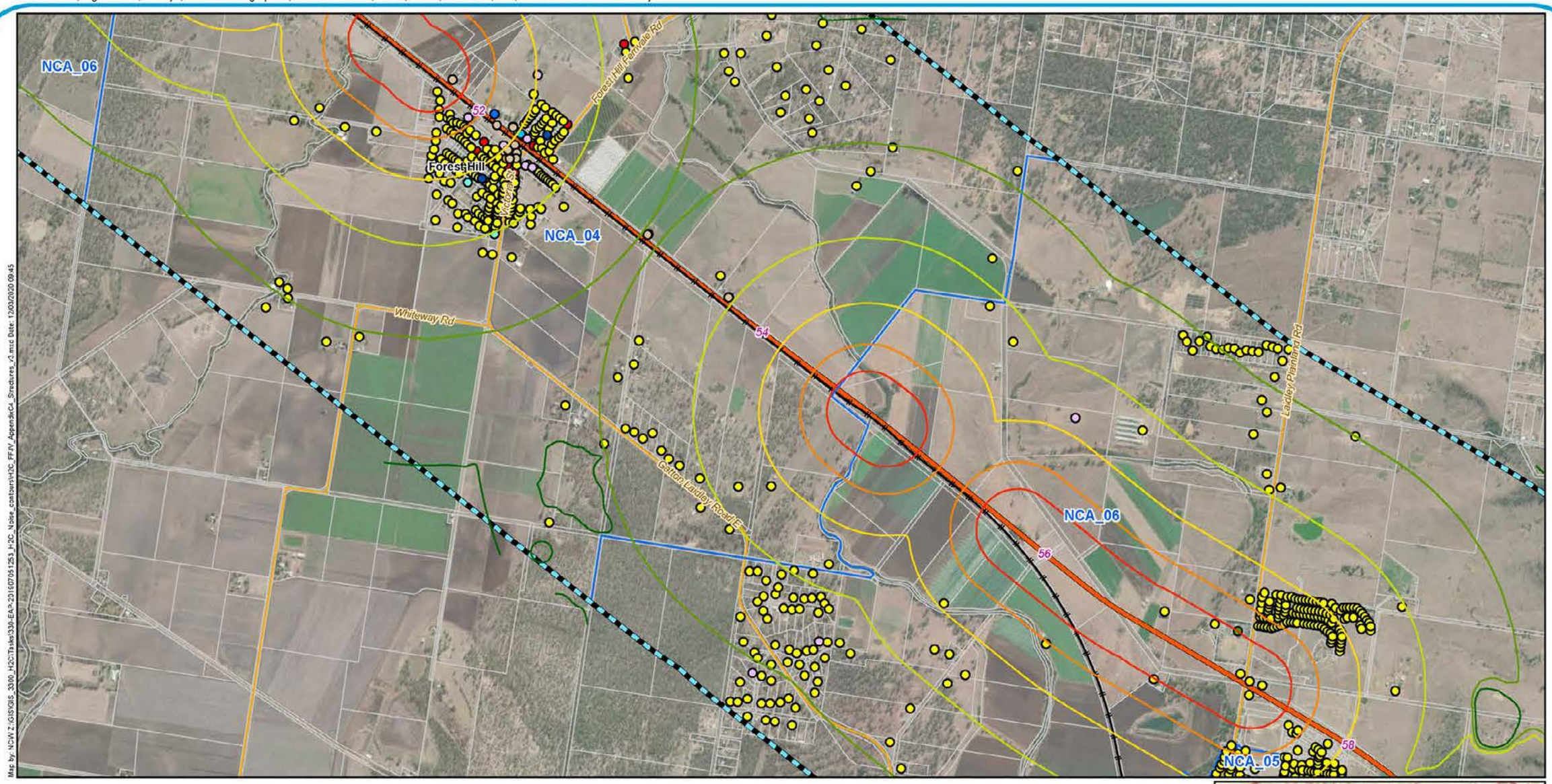
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: N:\W Z:\GIS\GIS_3300_H2C\Tasks\330-EAS-20160705\253_H2C_Noise_contours\H2C_FF\V_Appendix\C4_Structures_v3.mxd Date: 12/03/2020 09:45

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

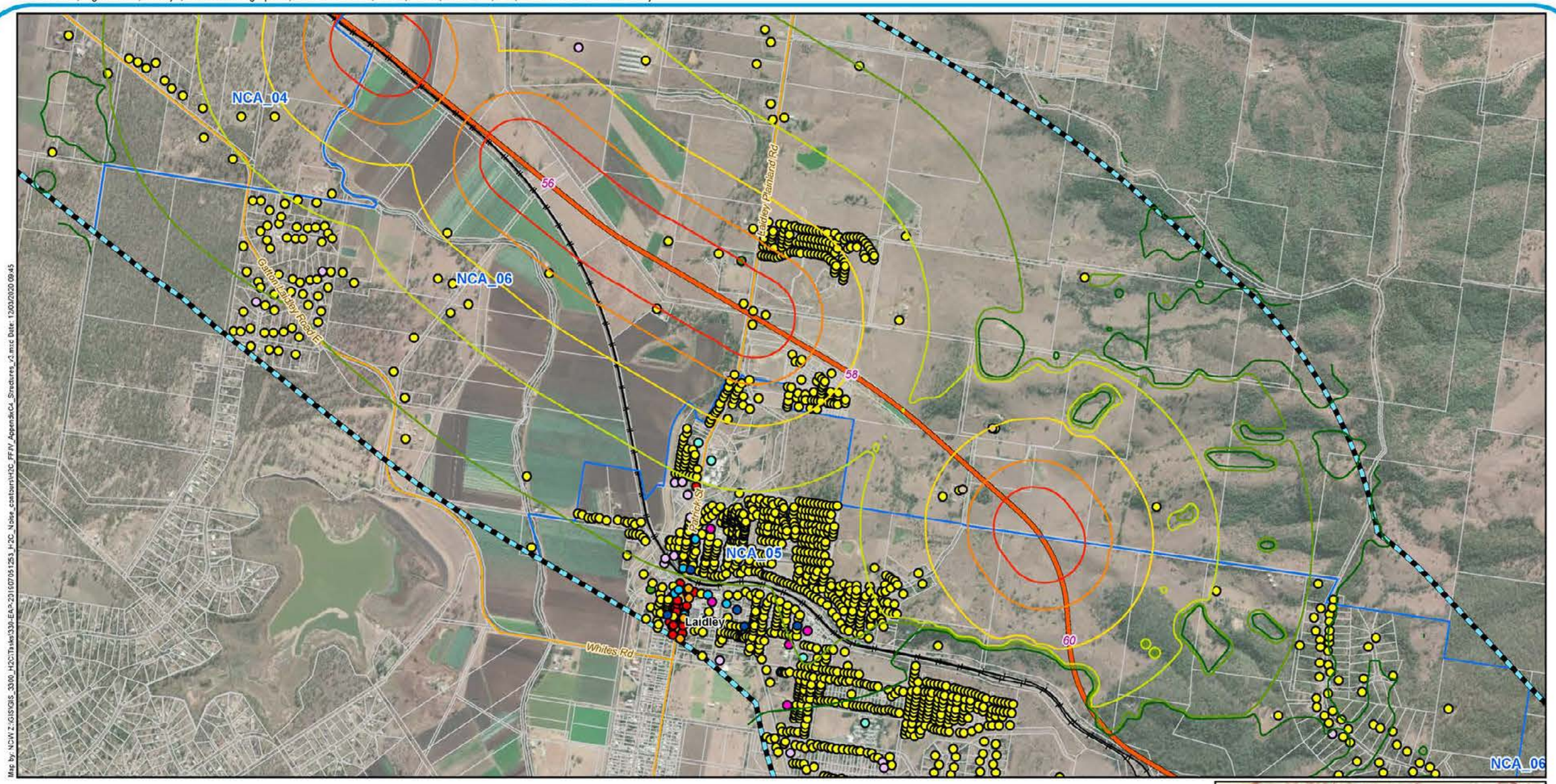
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

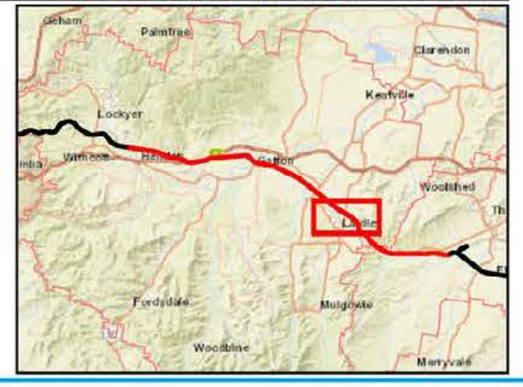
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

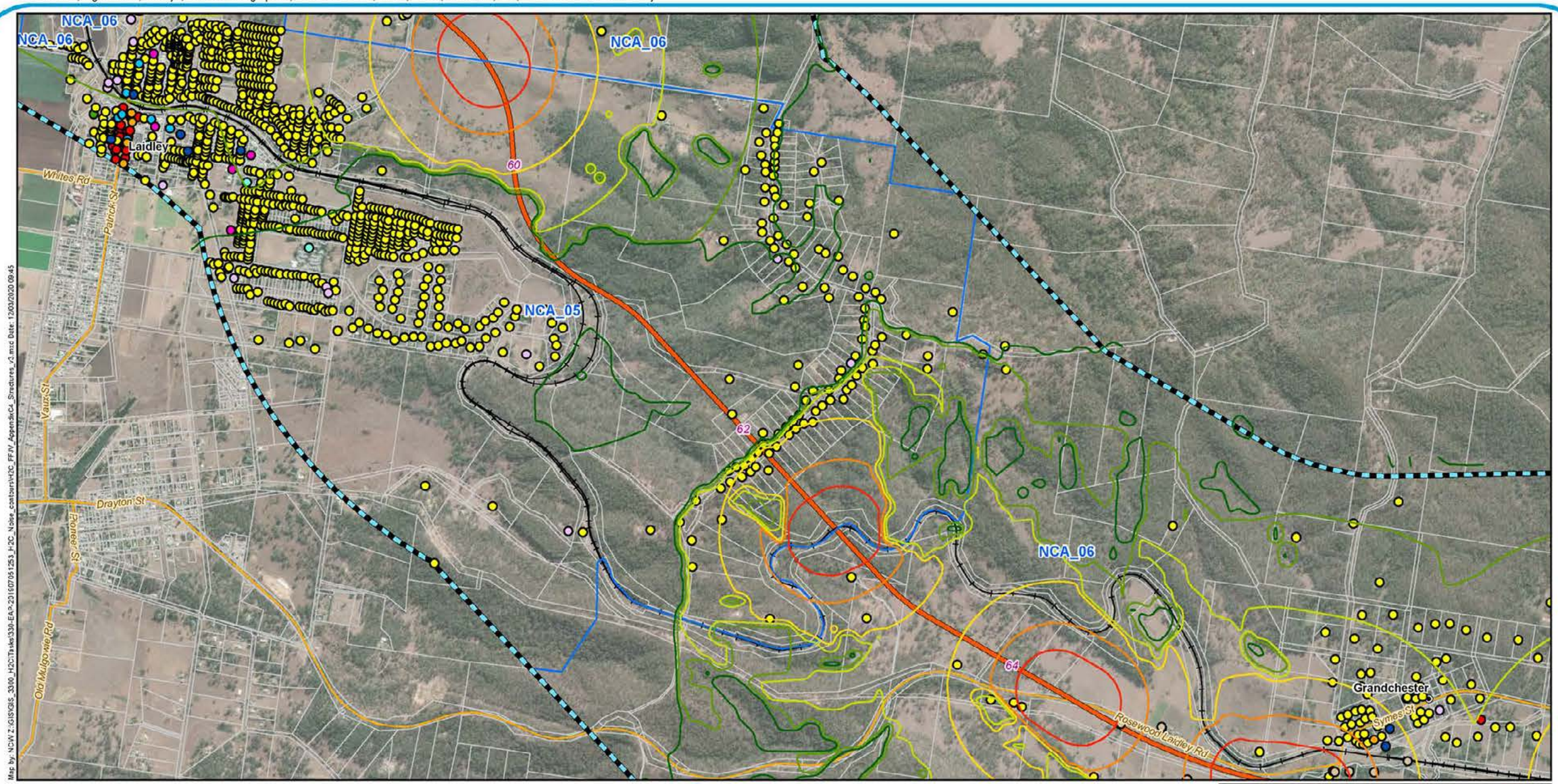
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

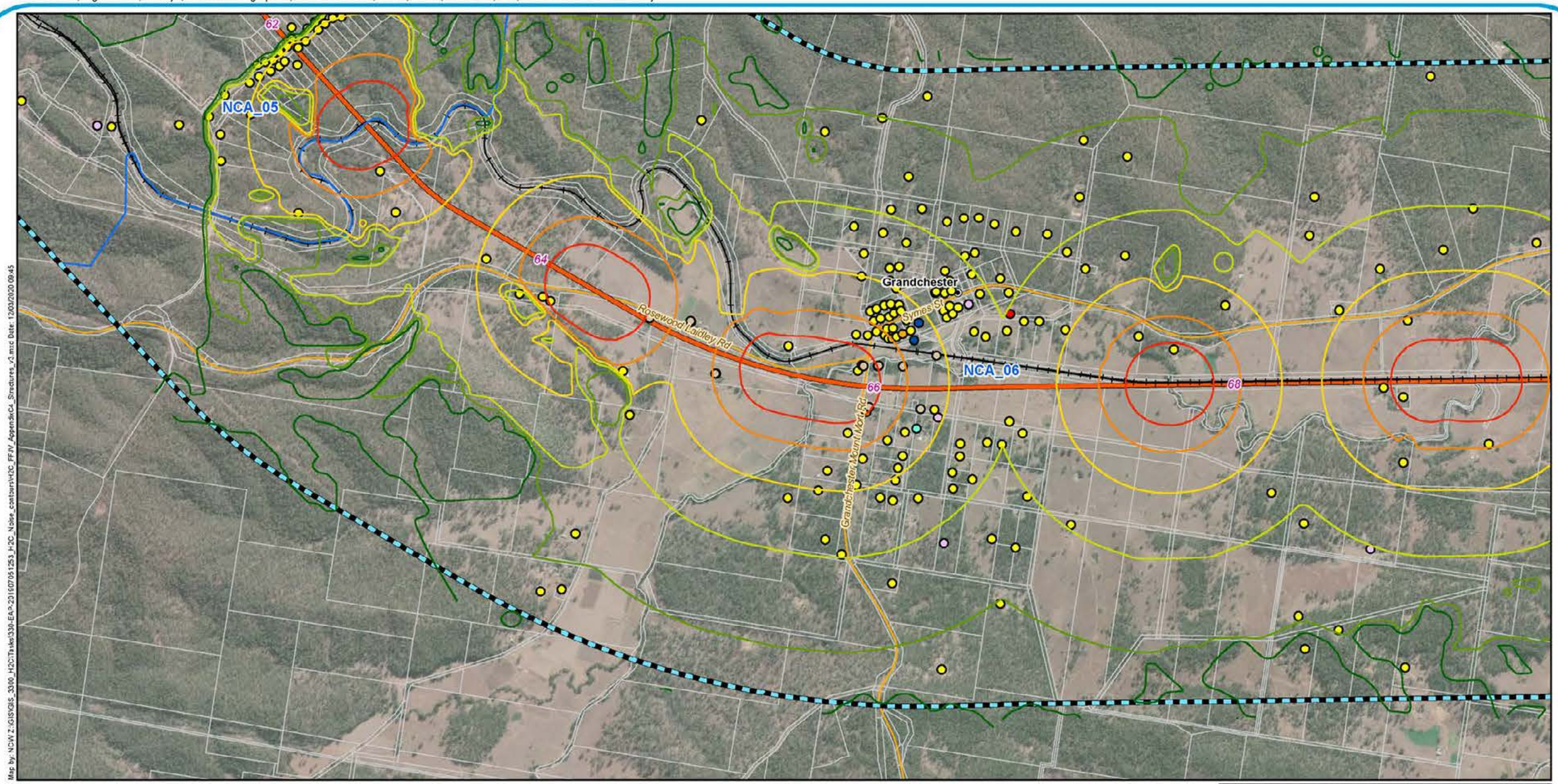
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: N:\2W Z:\GIS\GIS_3300_H2C\Tasks\330-EA-20160705125 3_H2C_Noise_contours\H2C_FF\V_Appendix\C4_Structures_v3.mxd Date: 12/03/2020 09:45

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

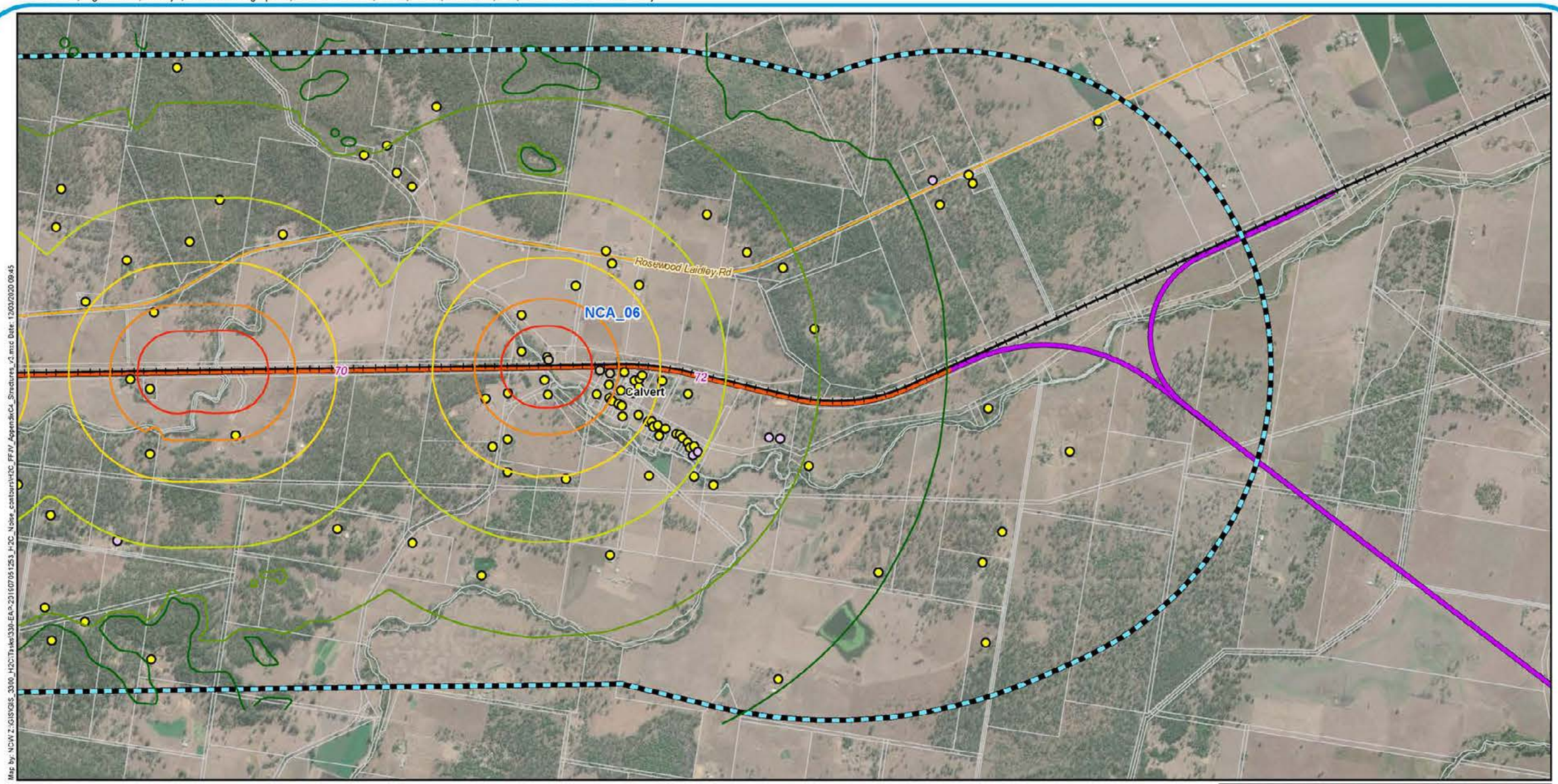
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

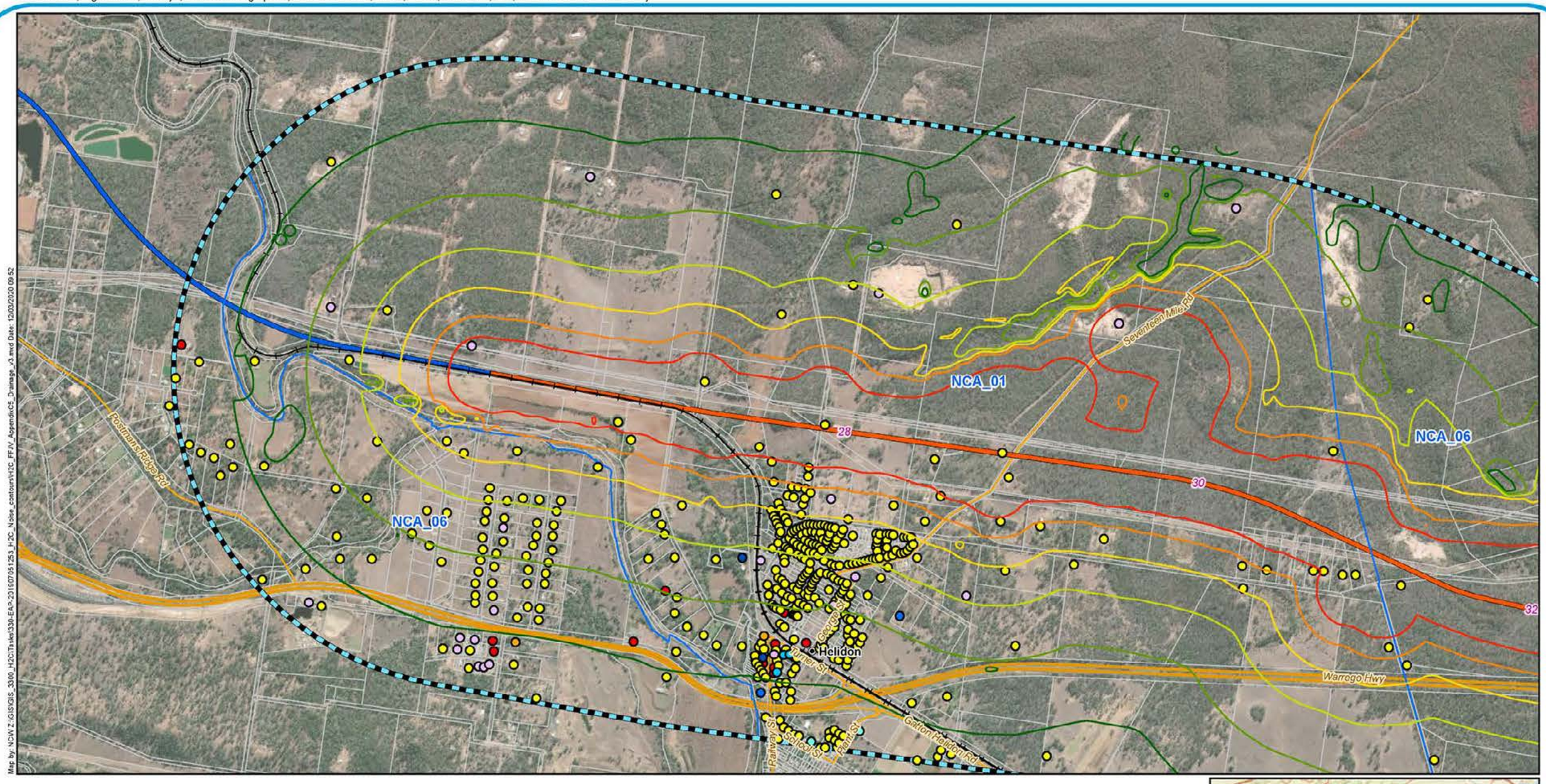
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C4 - Construction Noise Contours - Structures** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC5_Drainage_v3.mxd Date: 12/03/2020 09:52

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

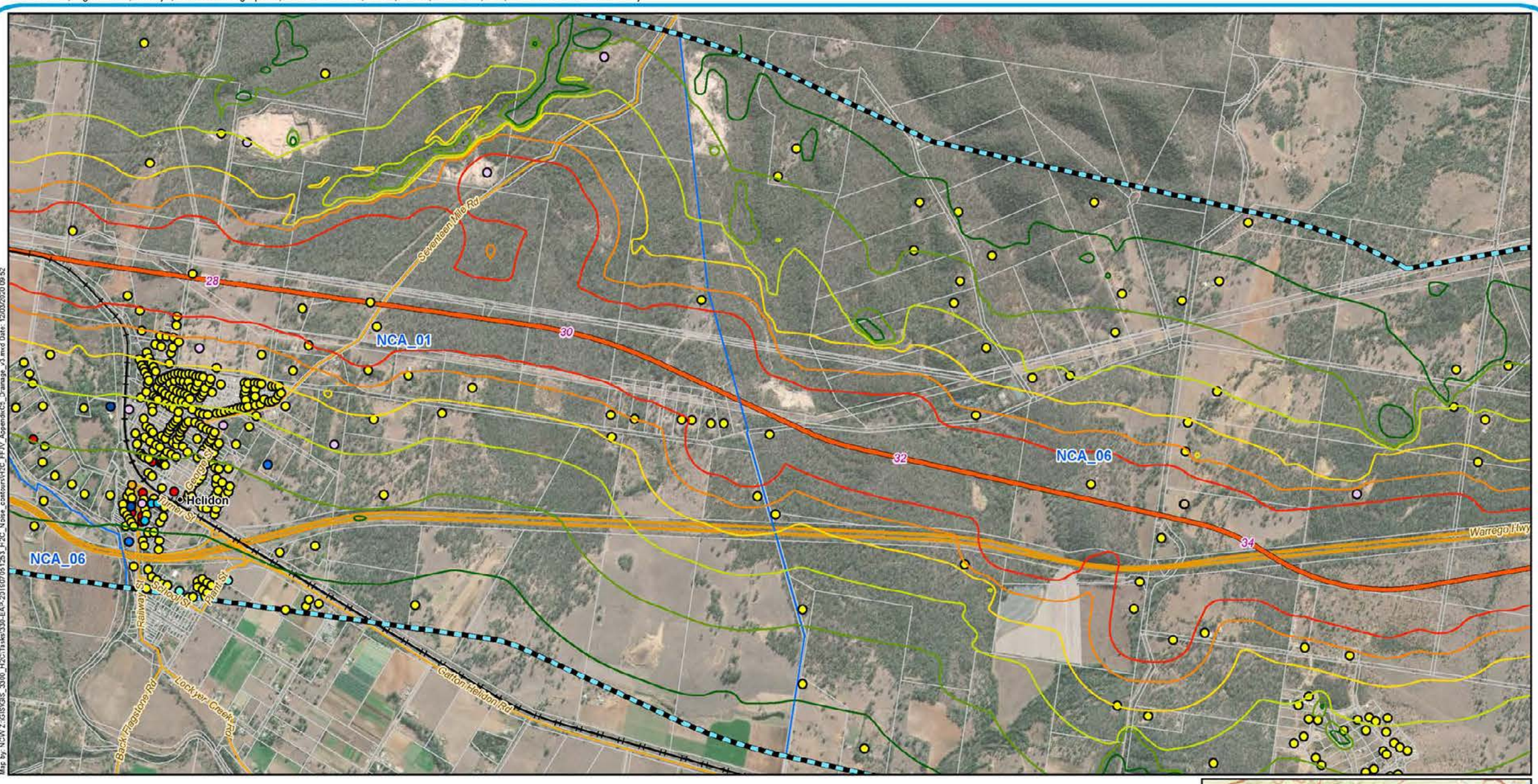
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community






**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

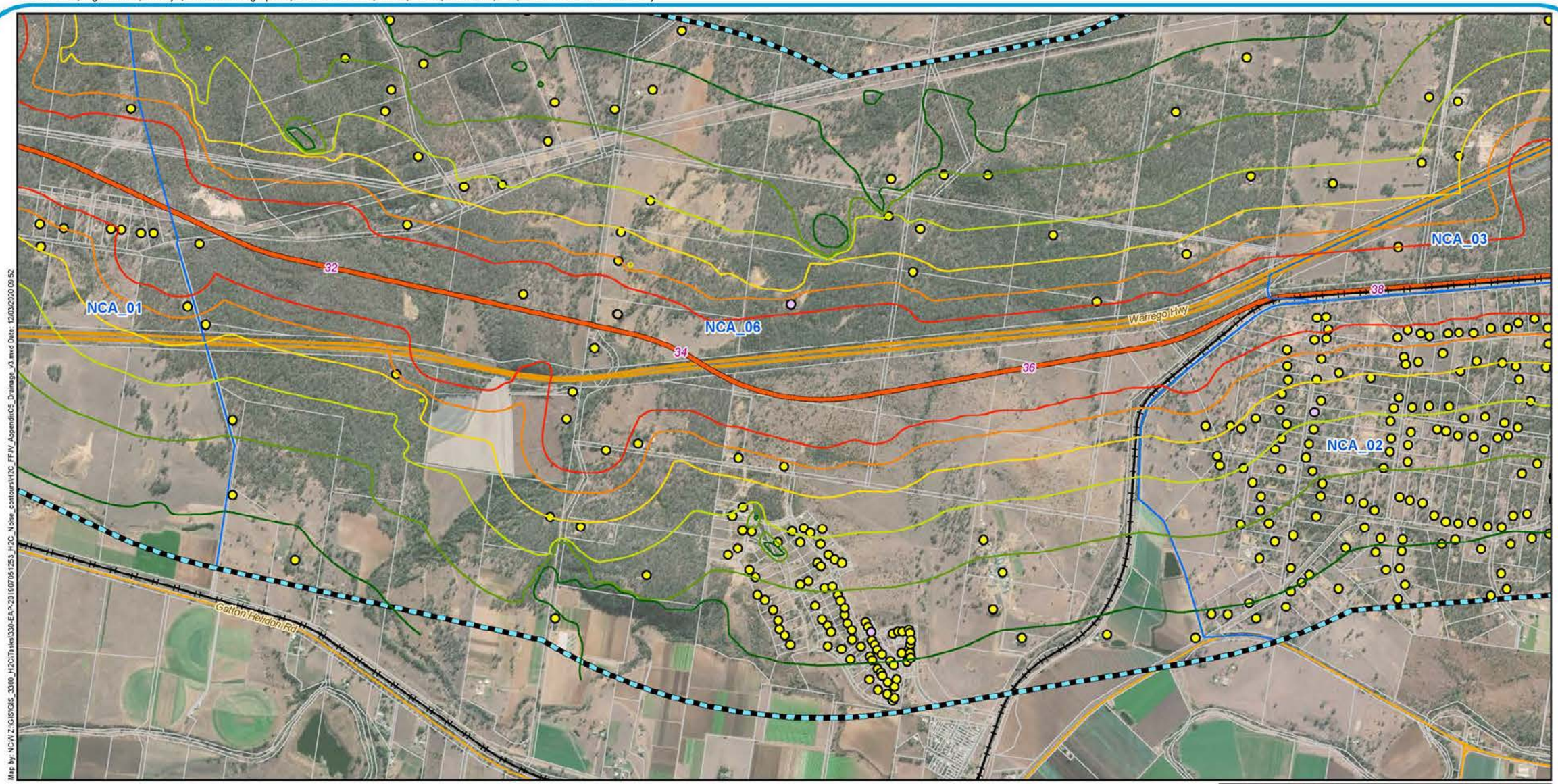
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2CTasks\330-EAS-231607091253_H2C_Noise_contours\H2C_FF\V_Appendix\C5_Drainage_v3.mxd Date: 12/03/2020 09:52

**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

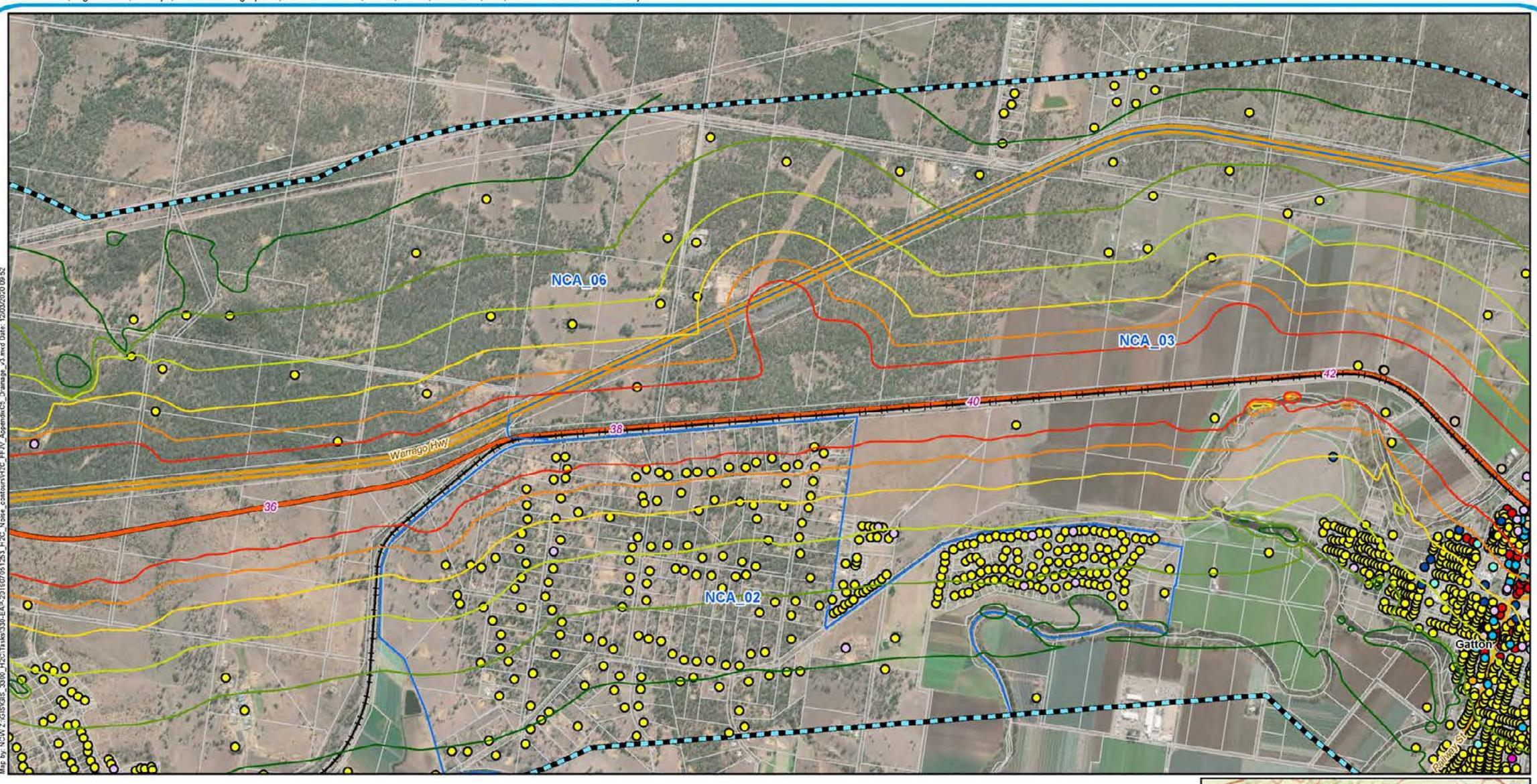
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

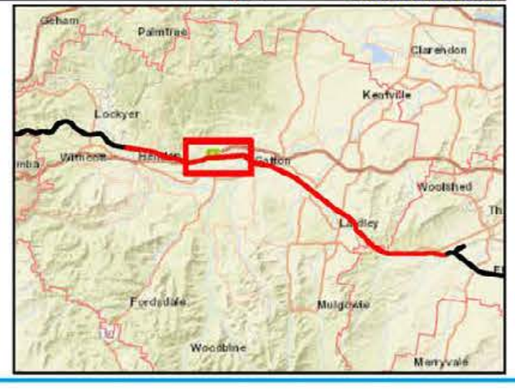
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

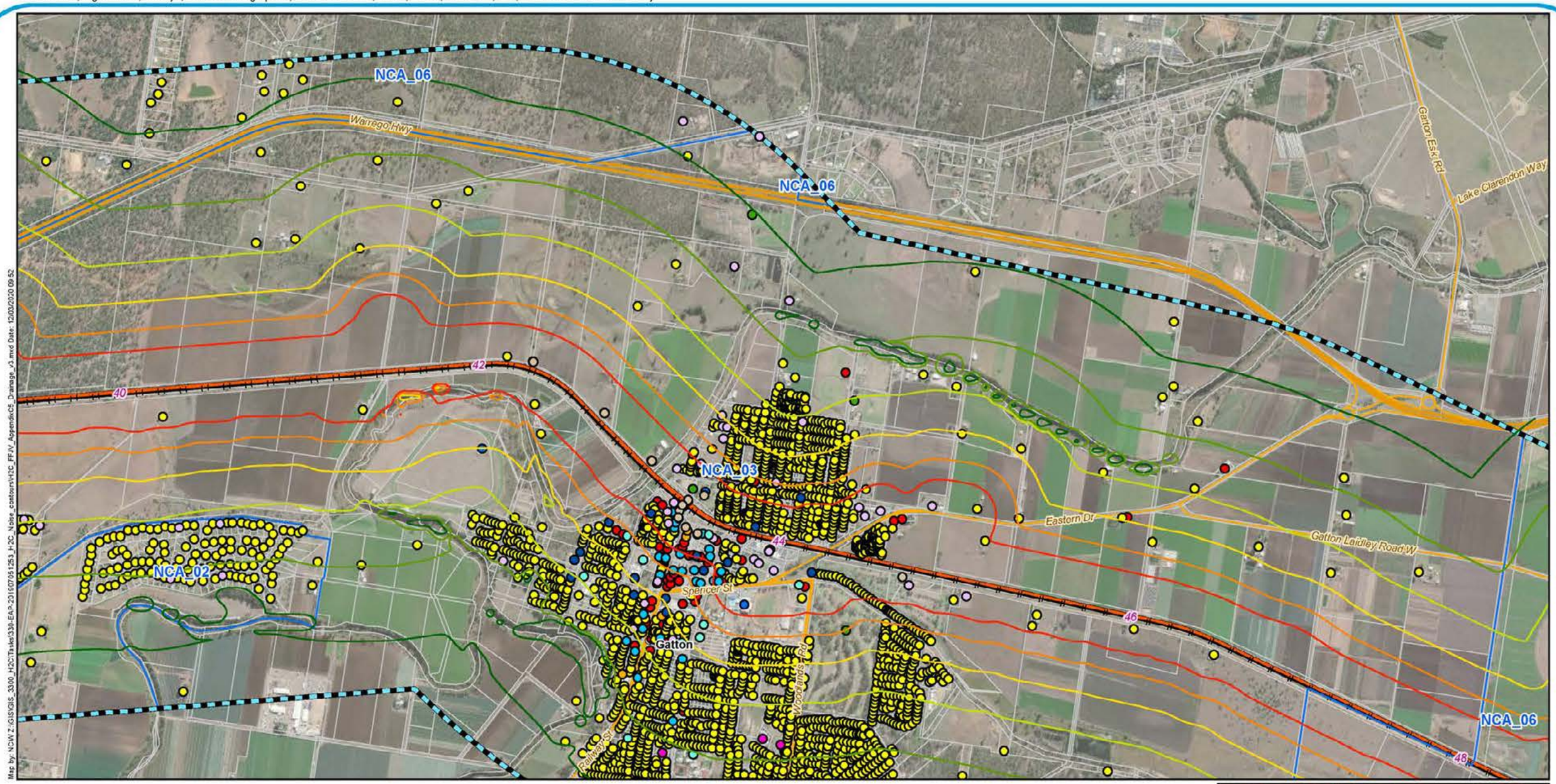
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

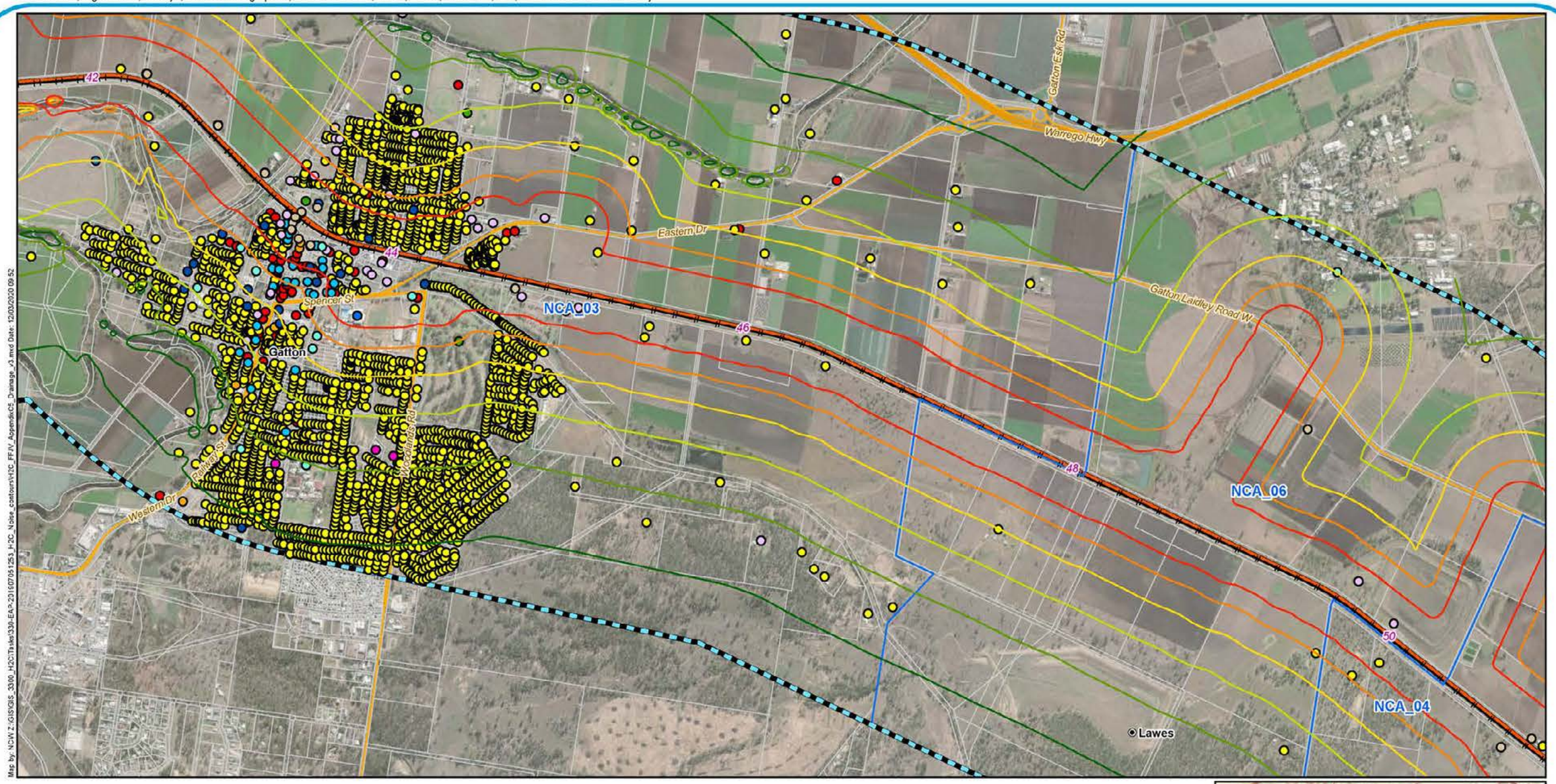
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3390_H2C\Trailer\3390-EA-20160705\253_H2C_Noise_contours\H2C_FF\V_Appendix\C5_Drainage_v3.mxd Date: 12/03/2020 09:52

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

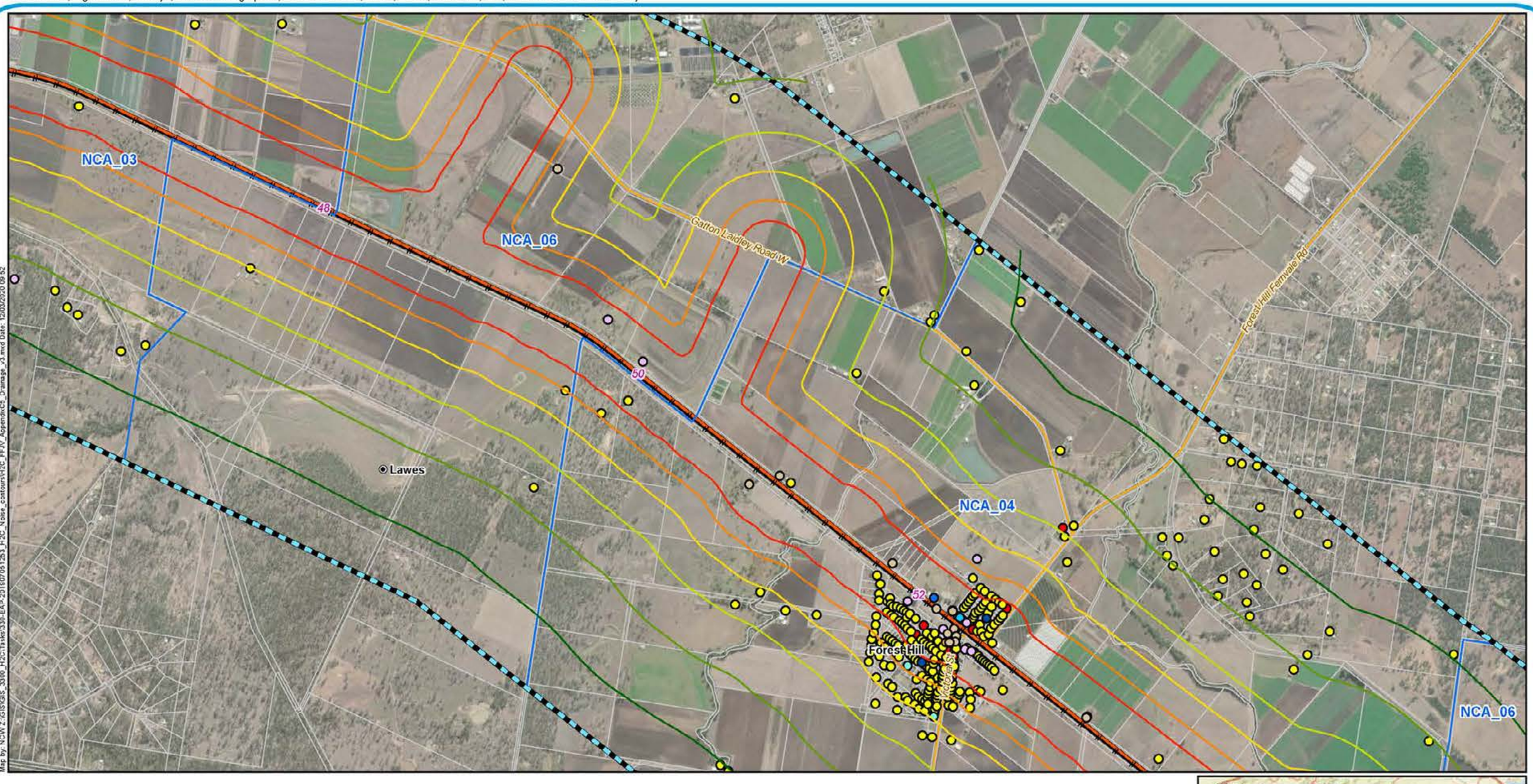
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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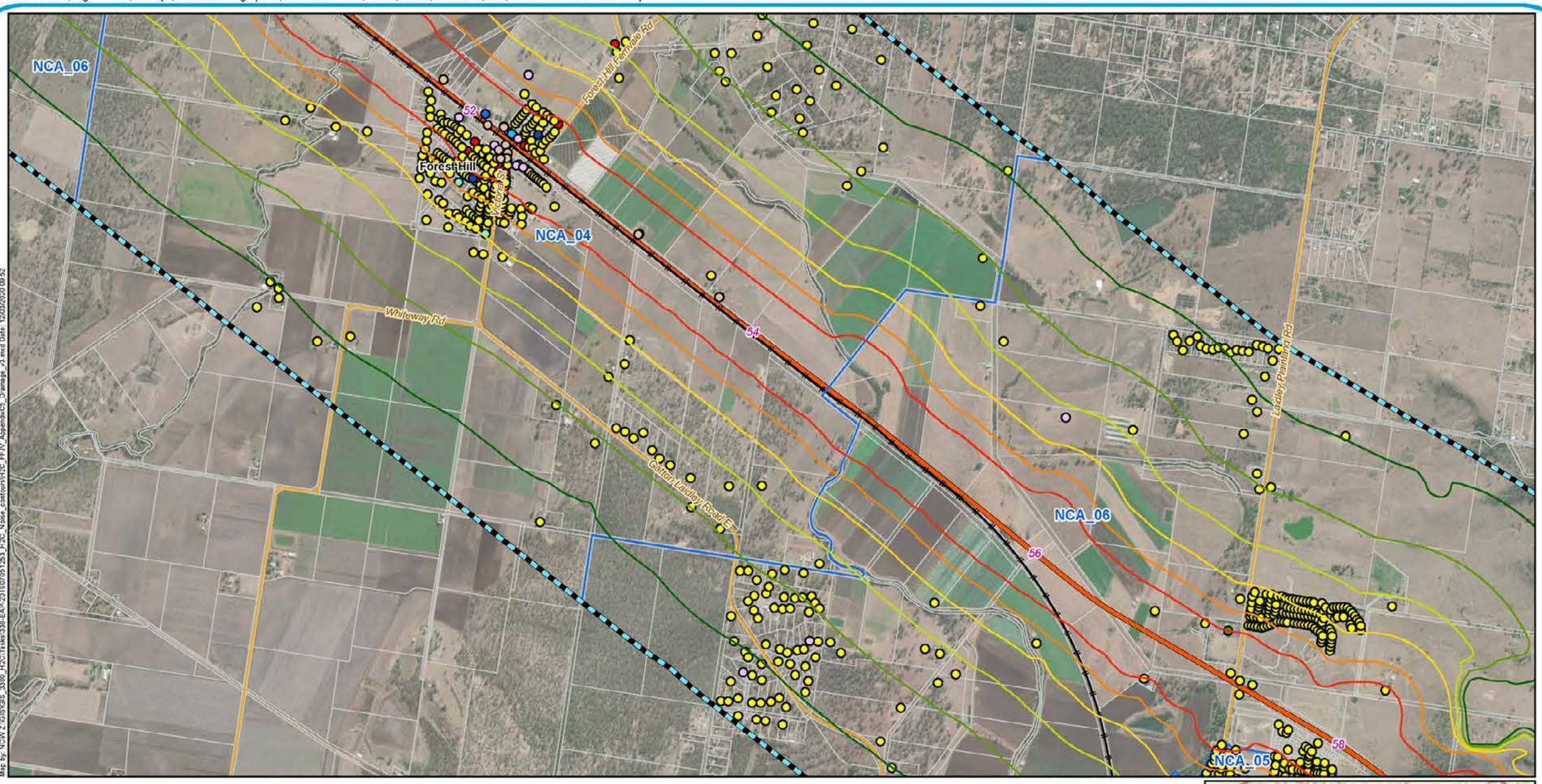


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

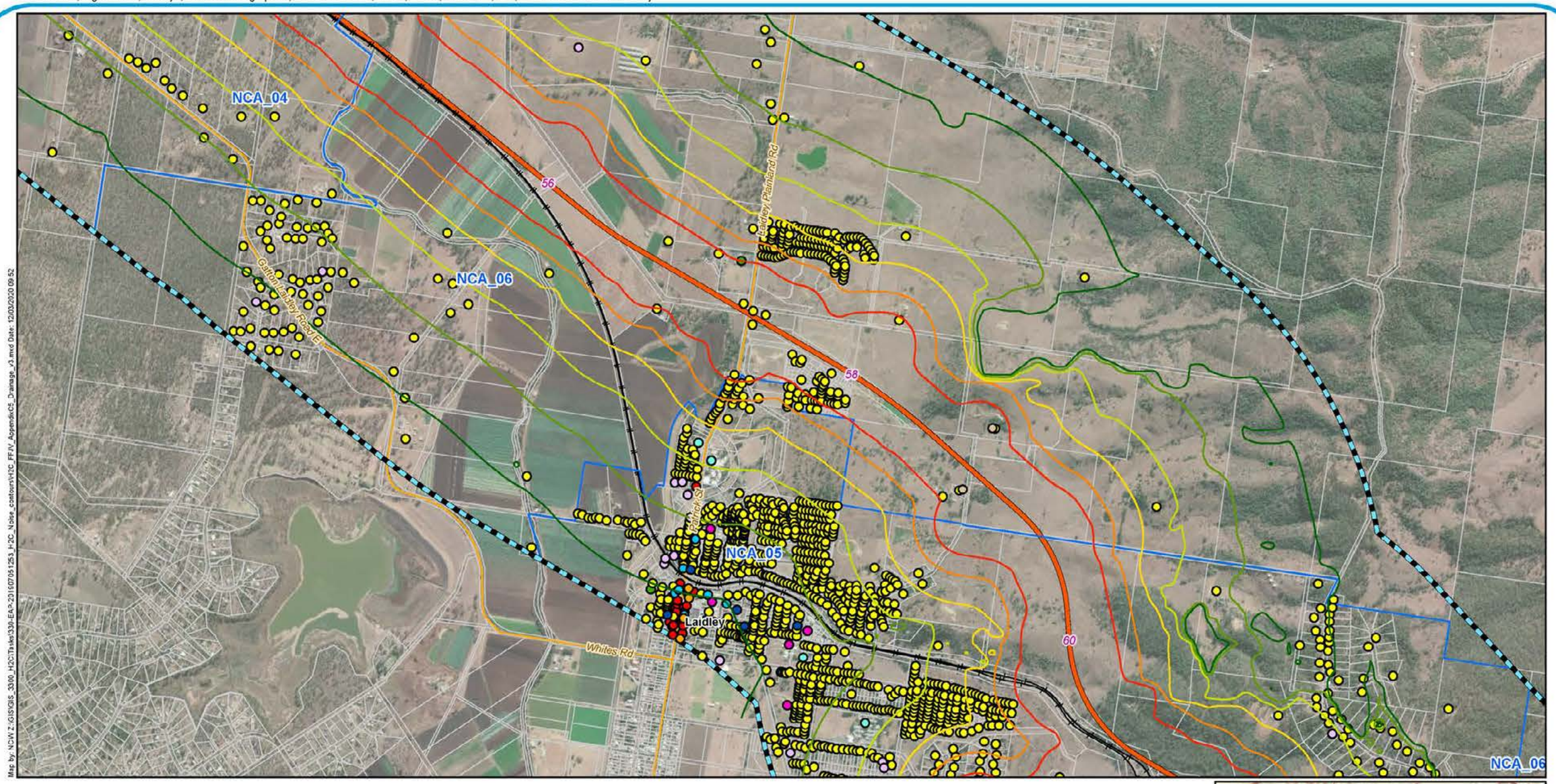
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

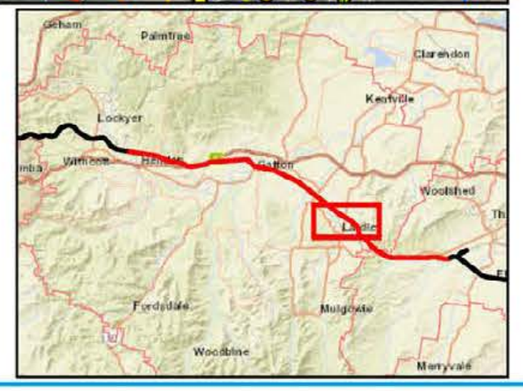
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

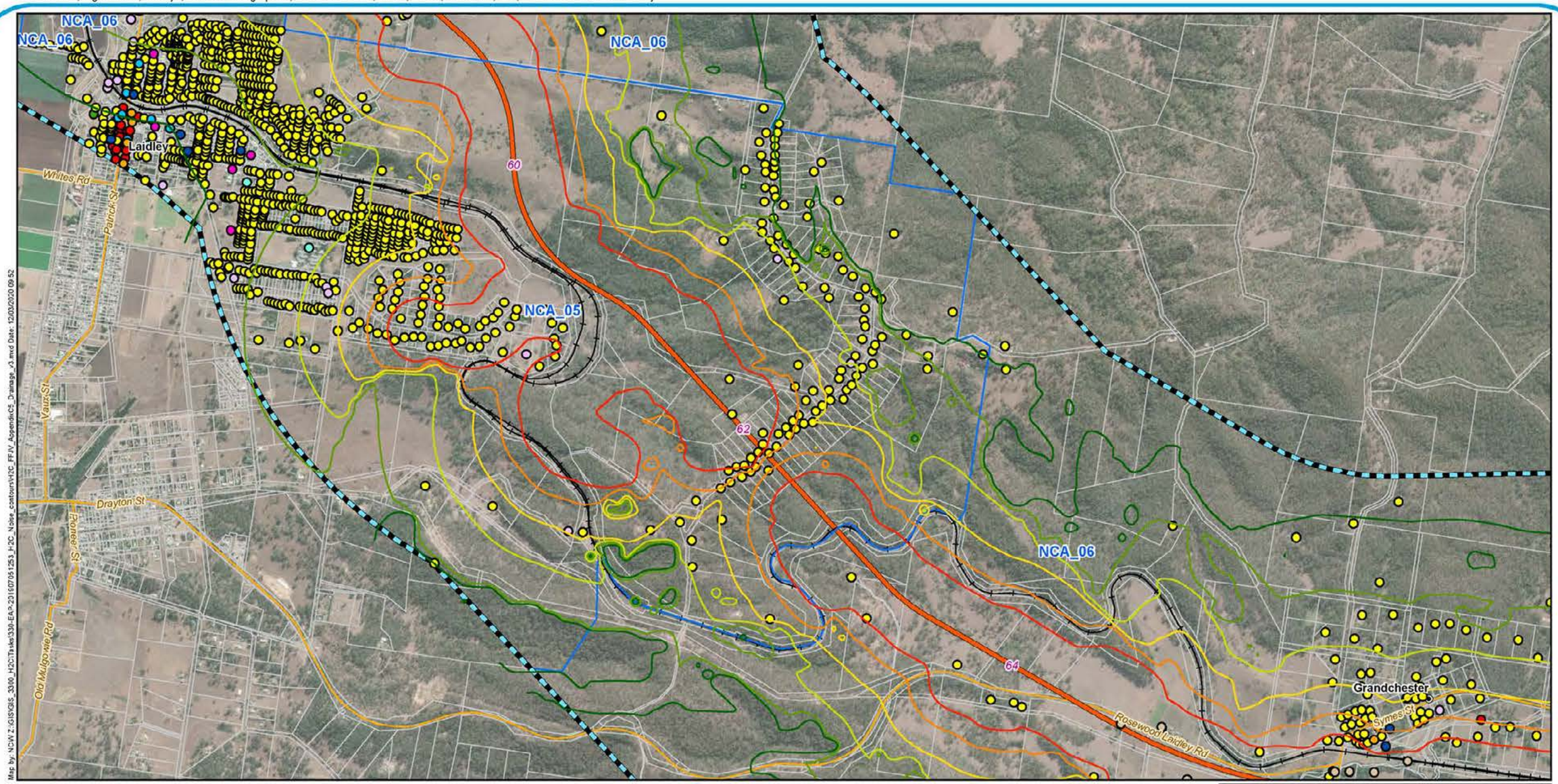
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

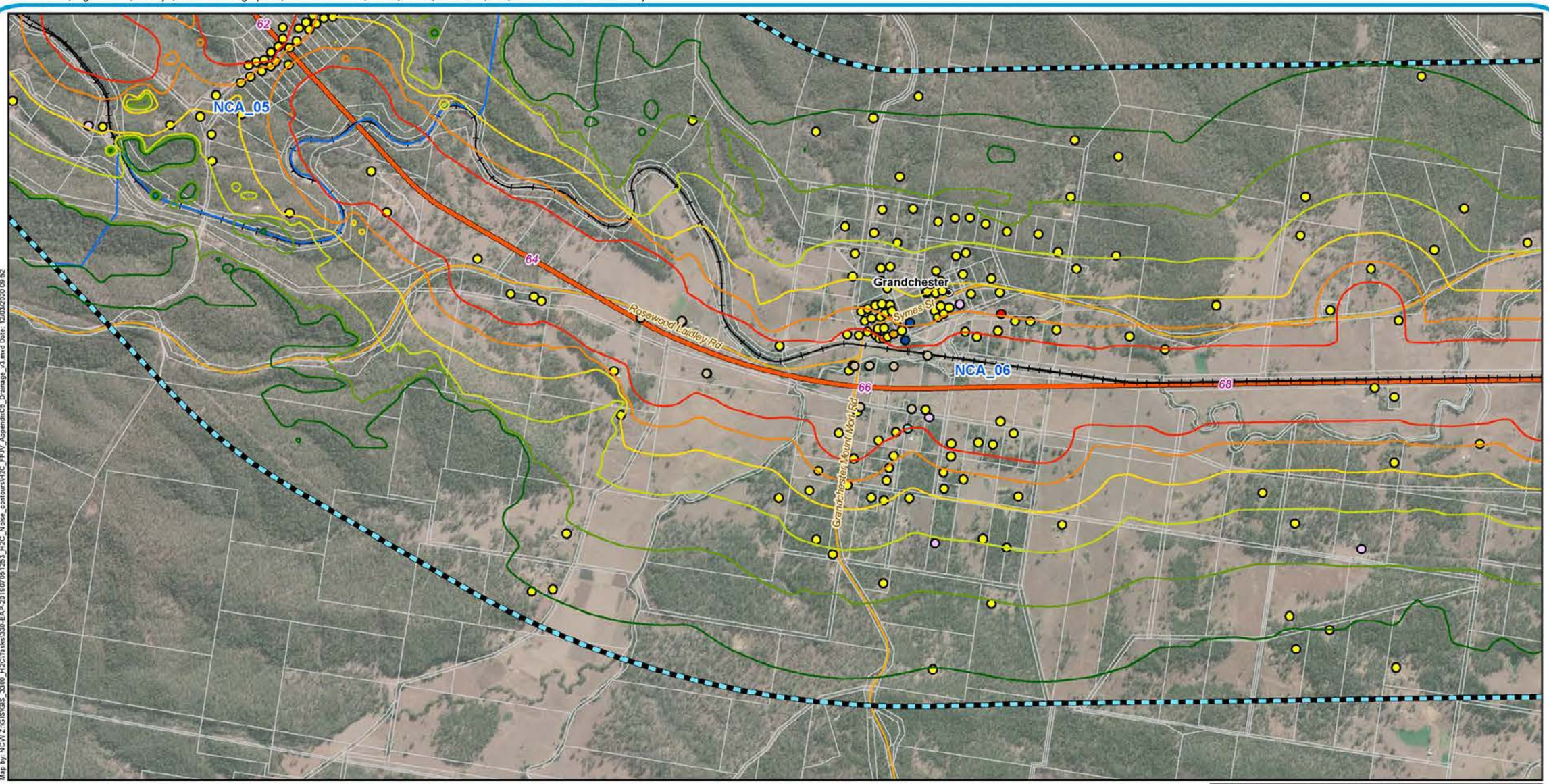
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

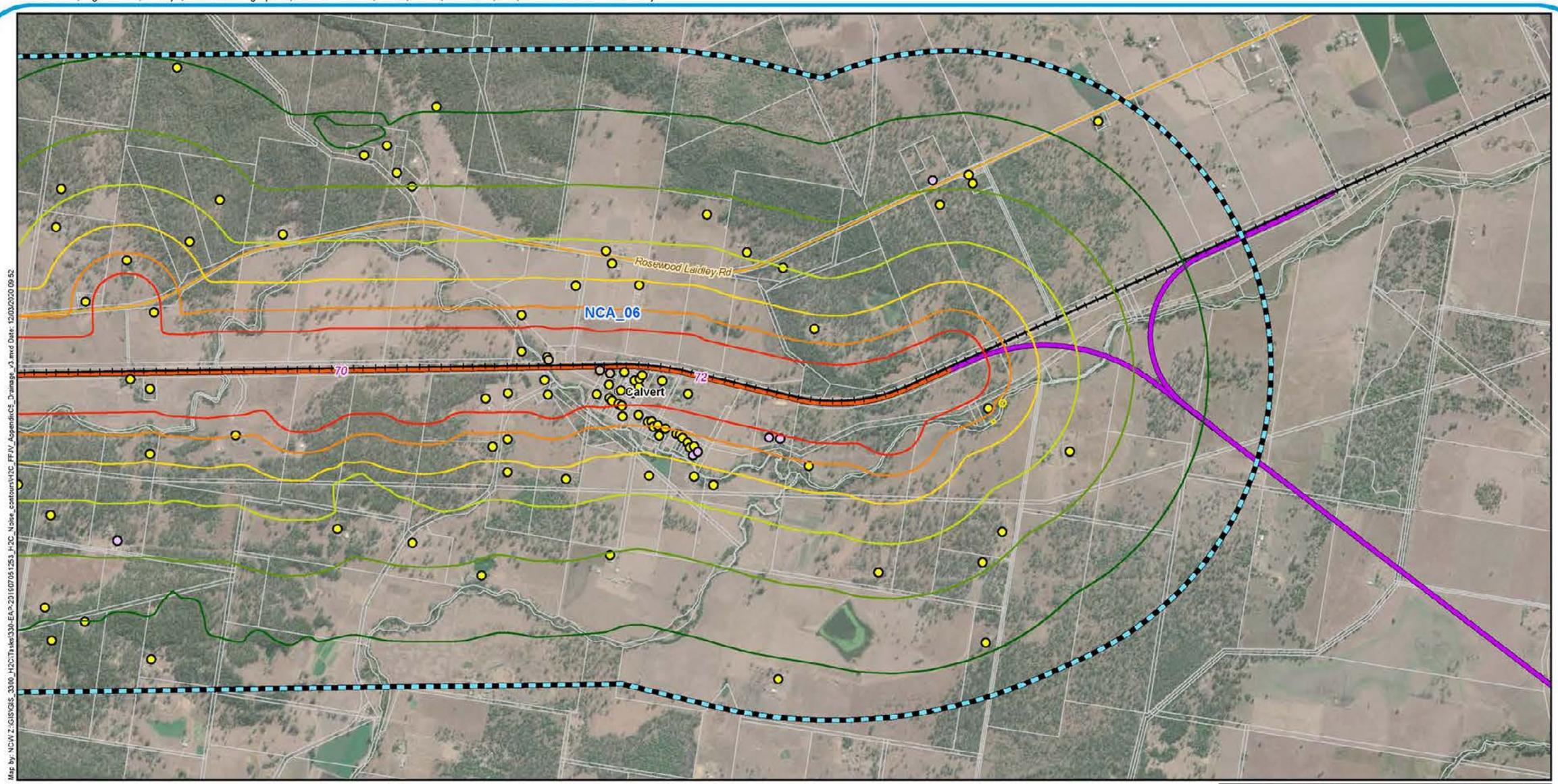
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

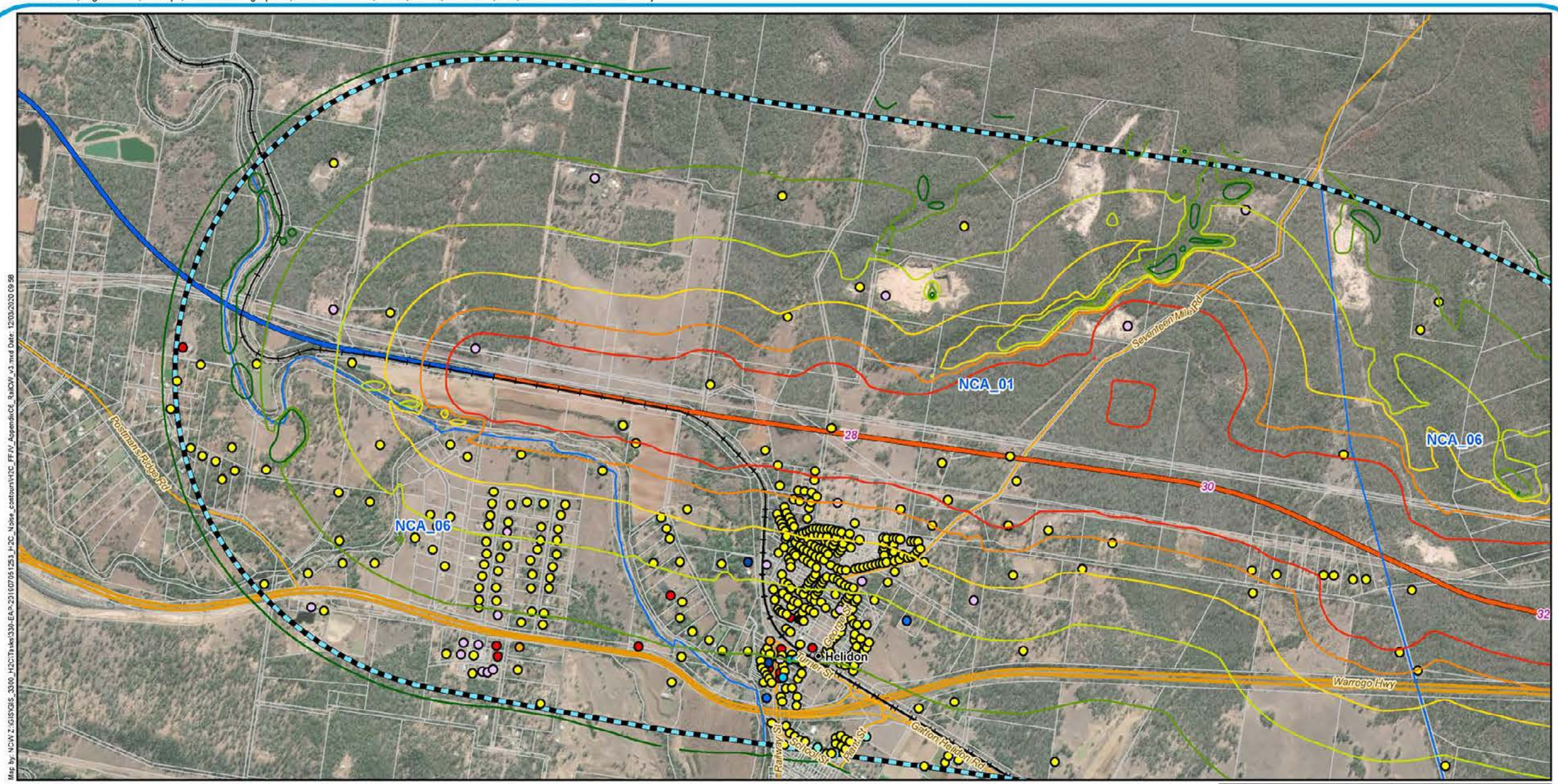
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C5 - Construction Noise Contours - Drainage** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

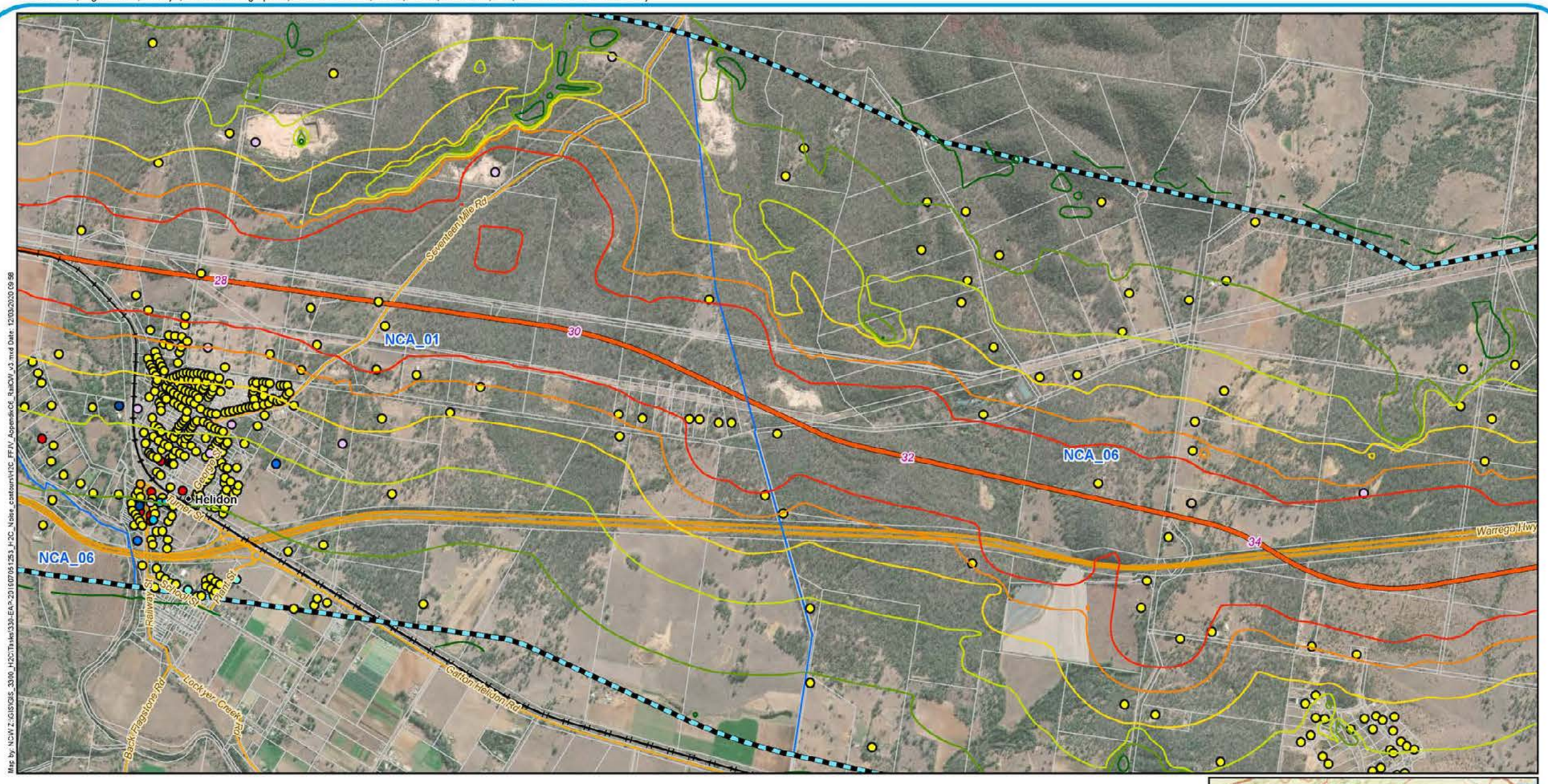
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC6_RailCW_v3.mxd Date: 12/03/2020 09:58

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1 km

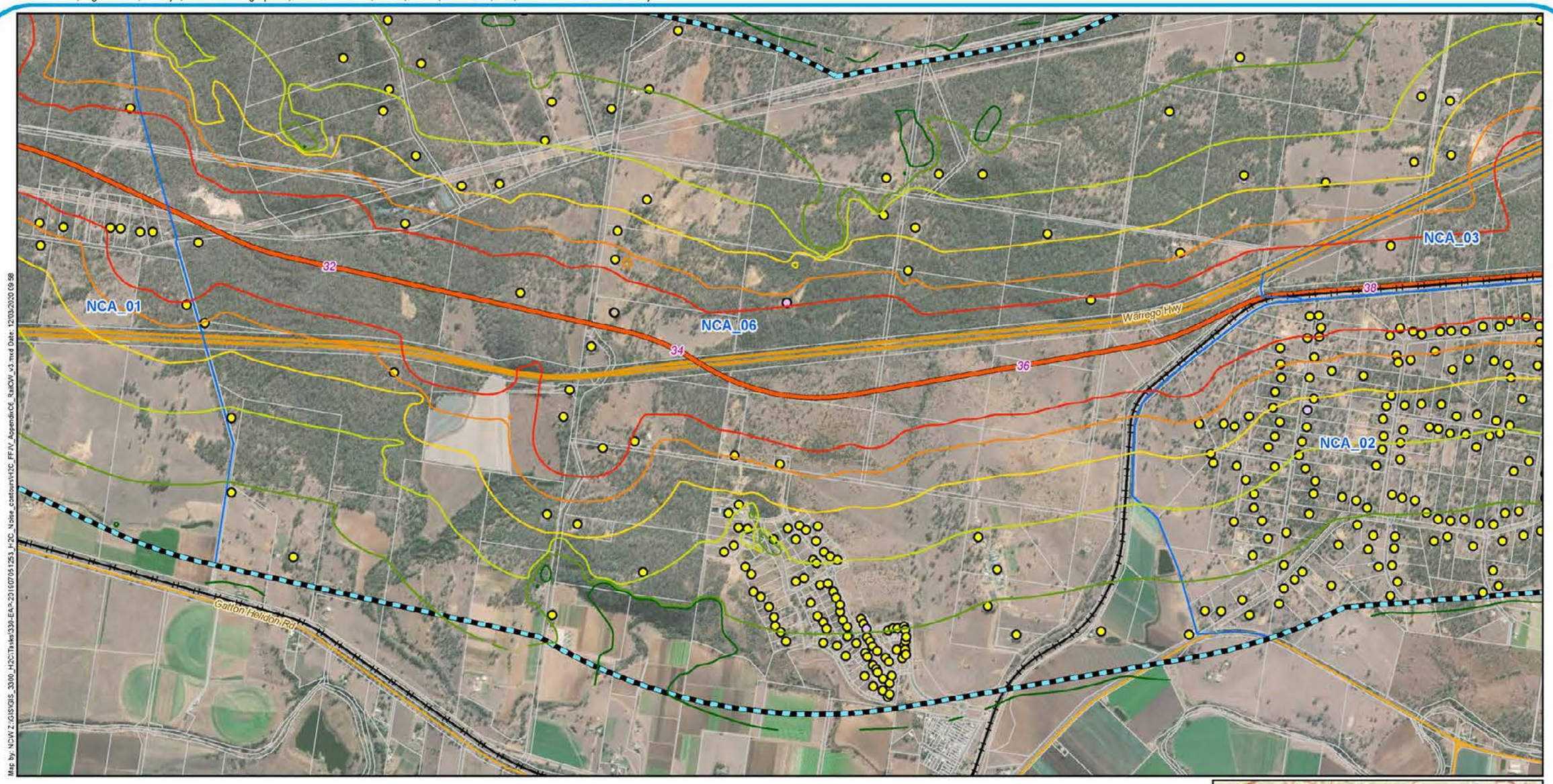
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

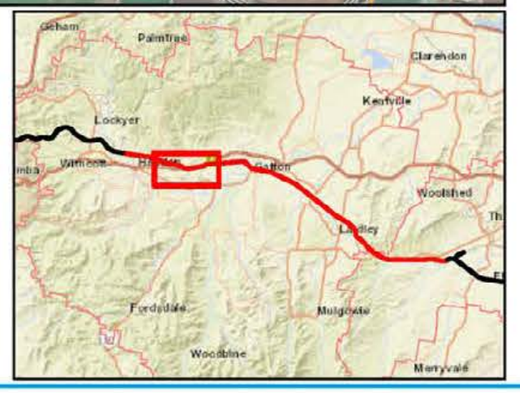
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

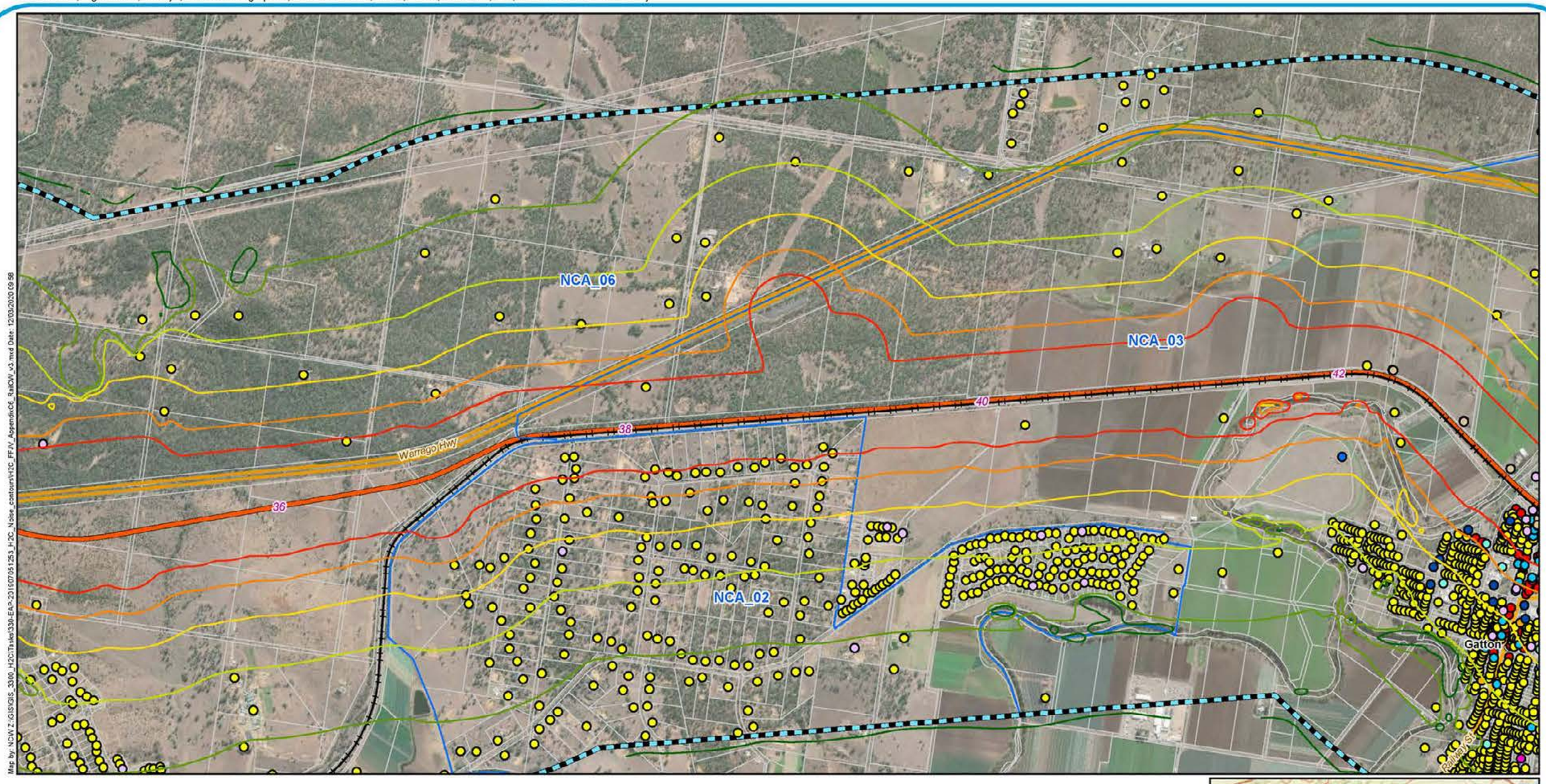
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

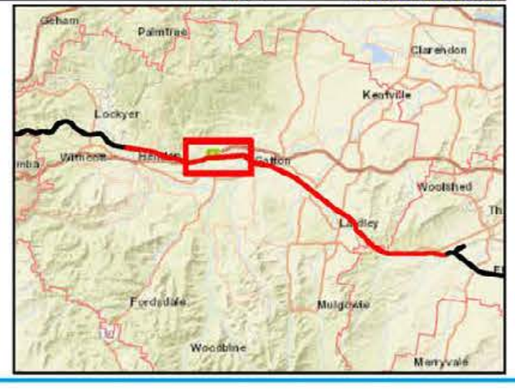
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

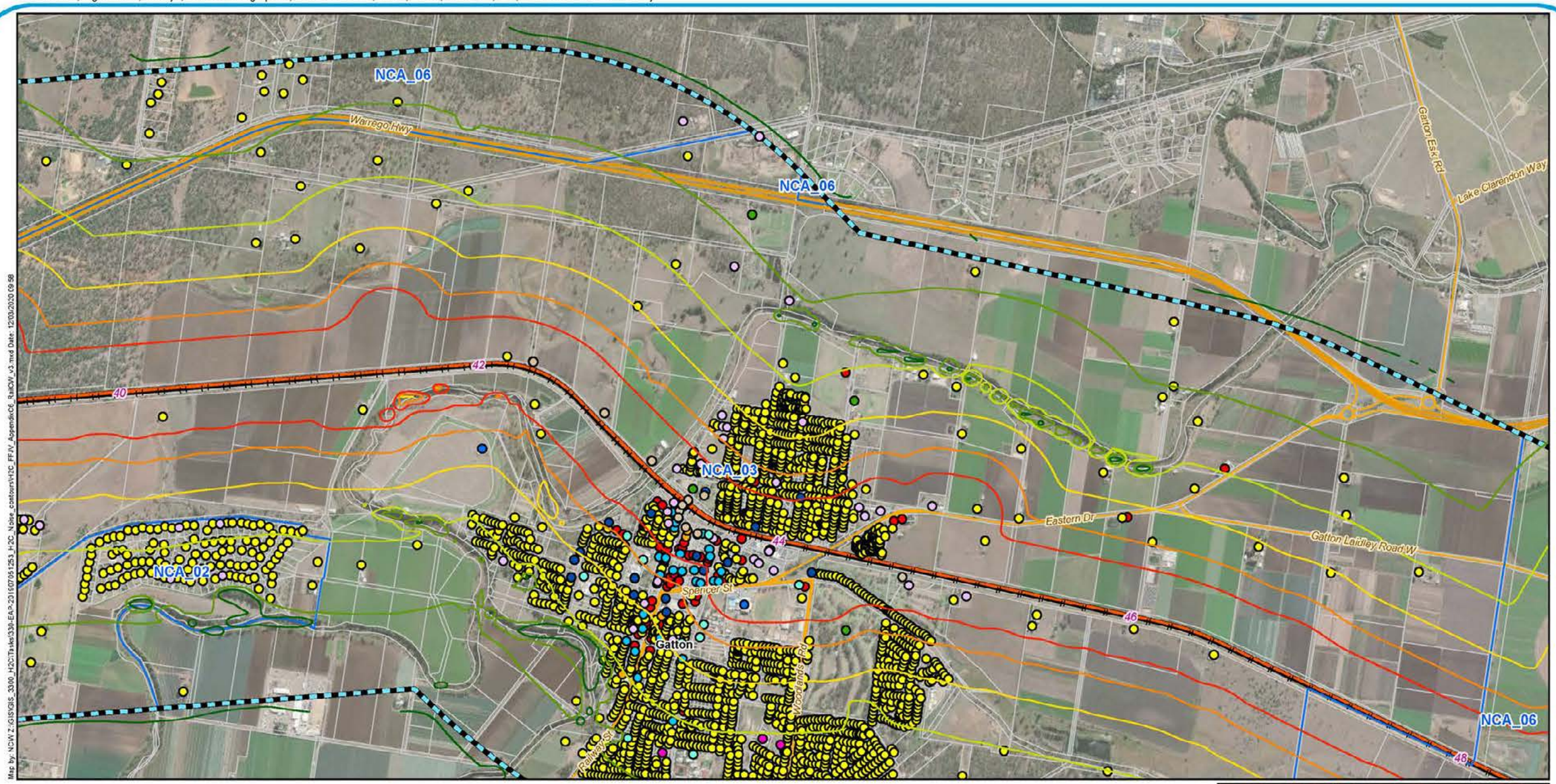
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

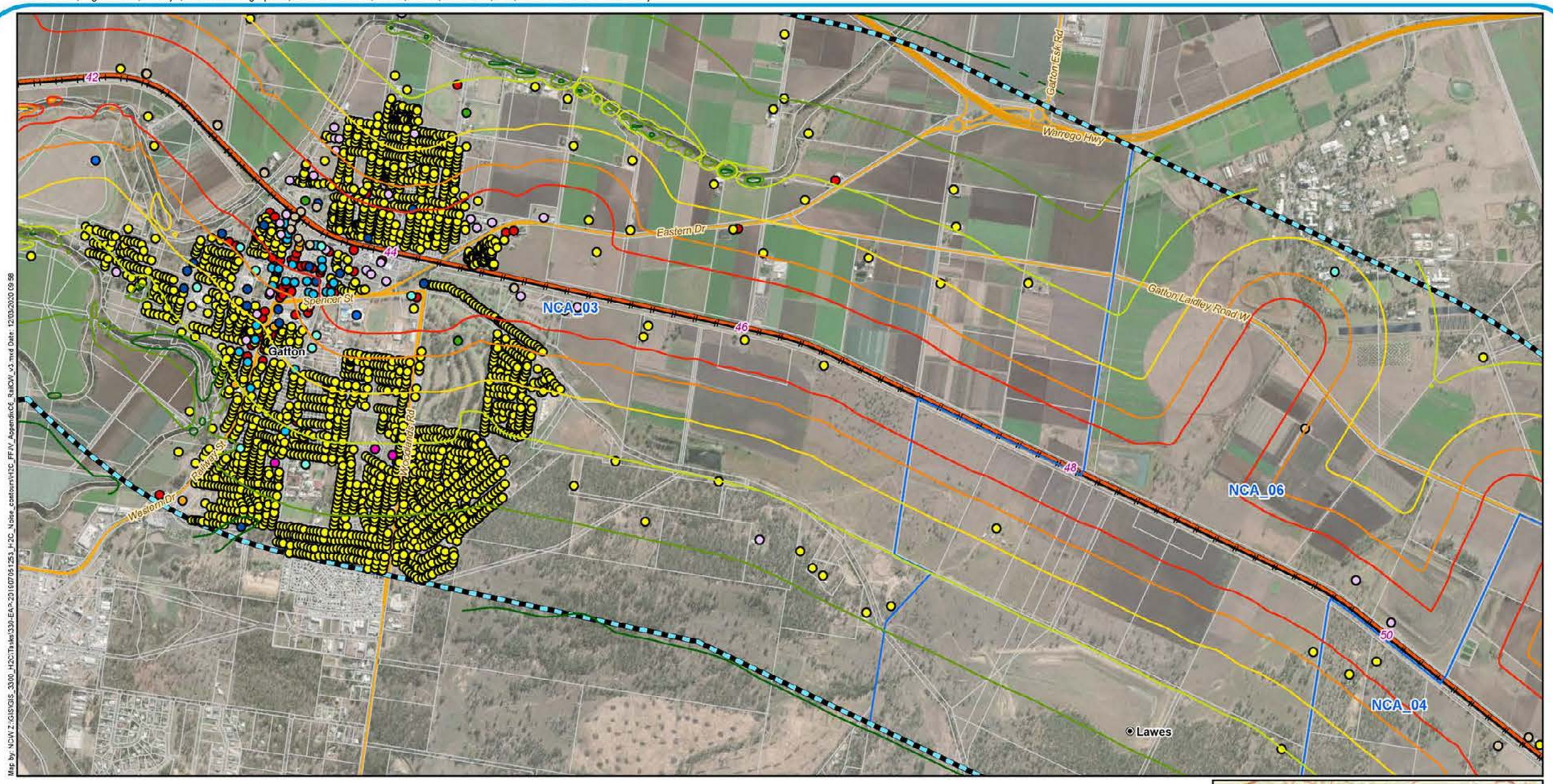
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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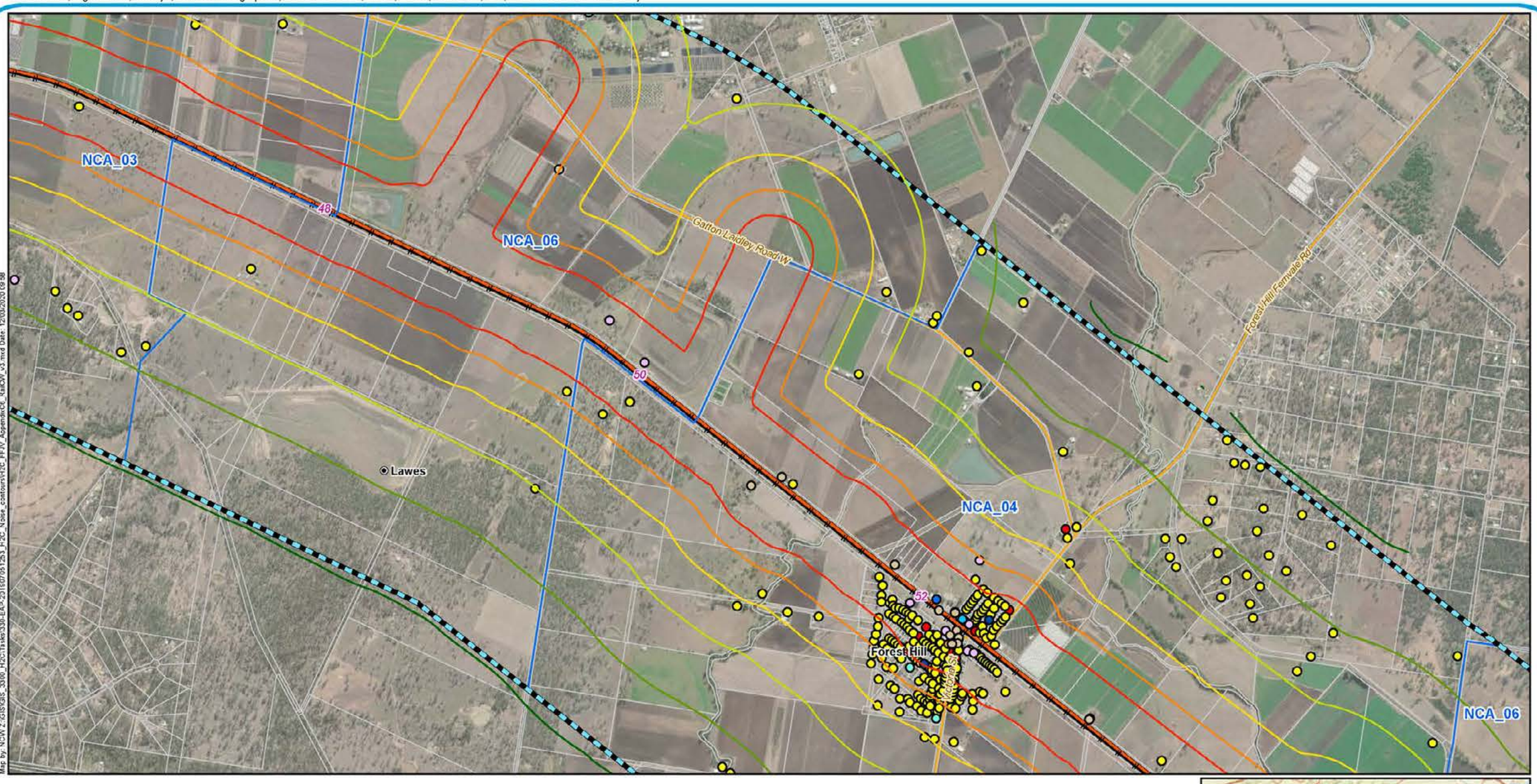



**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

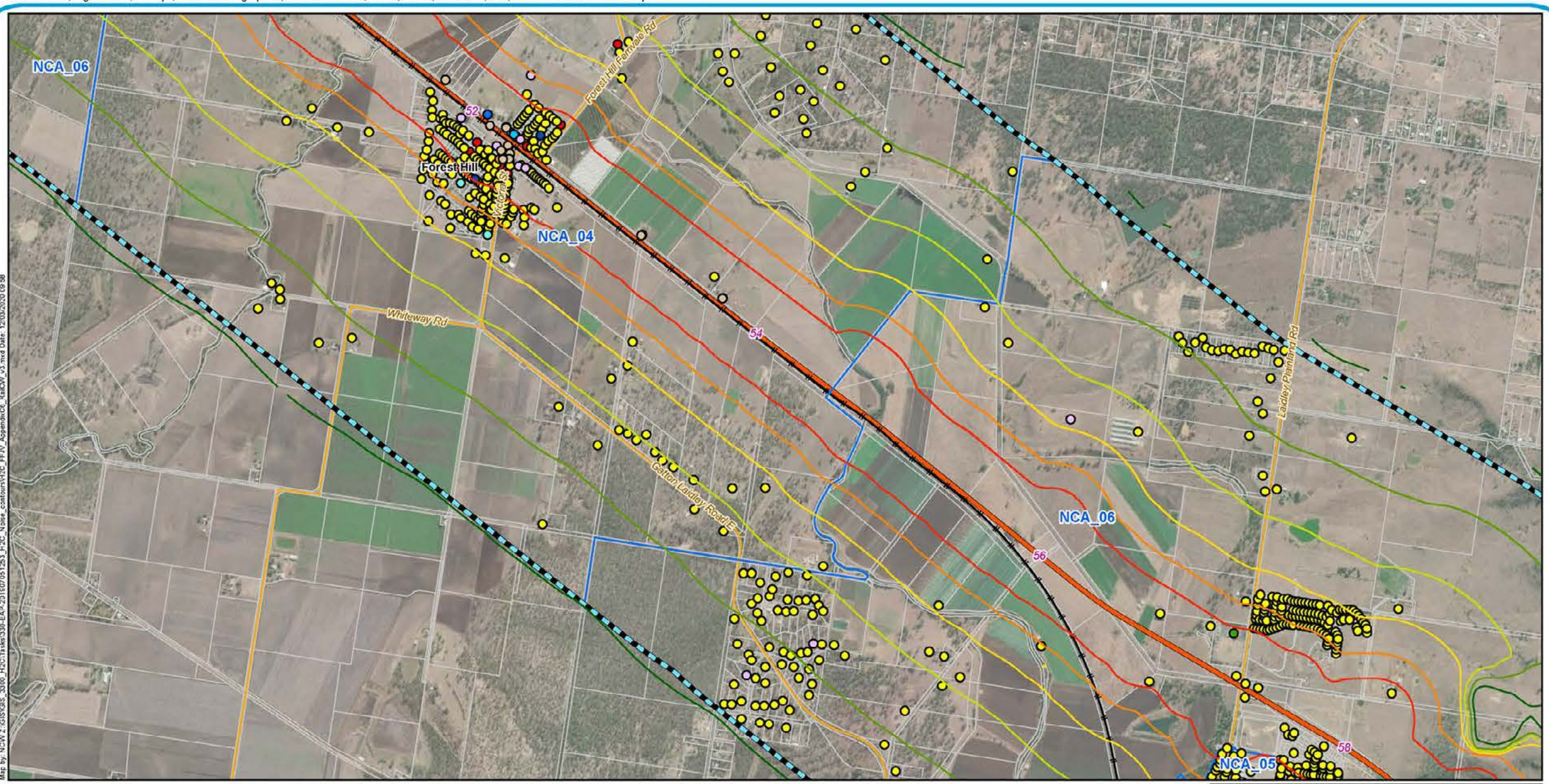
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

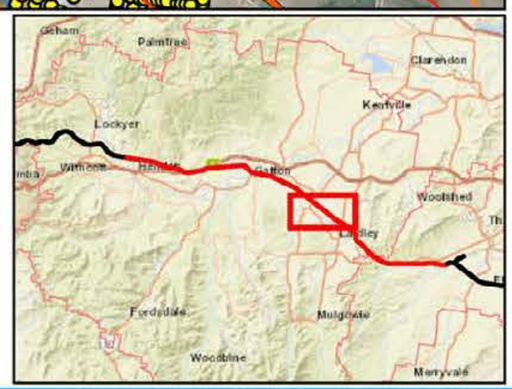
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

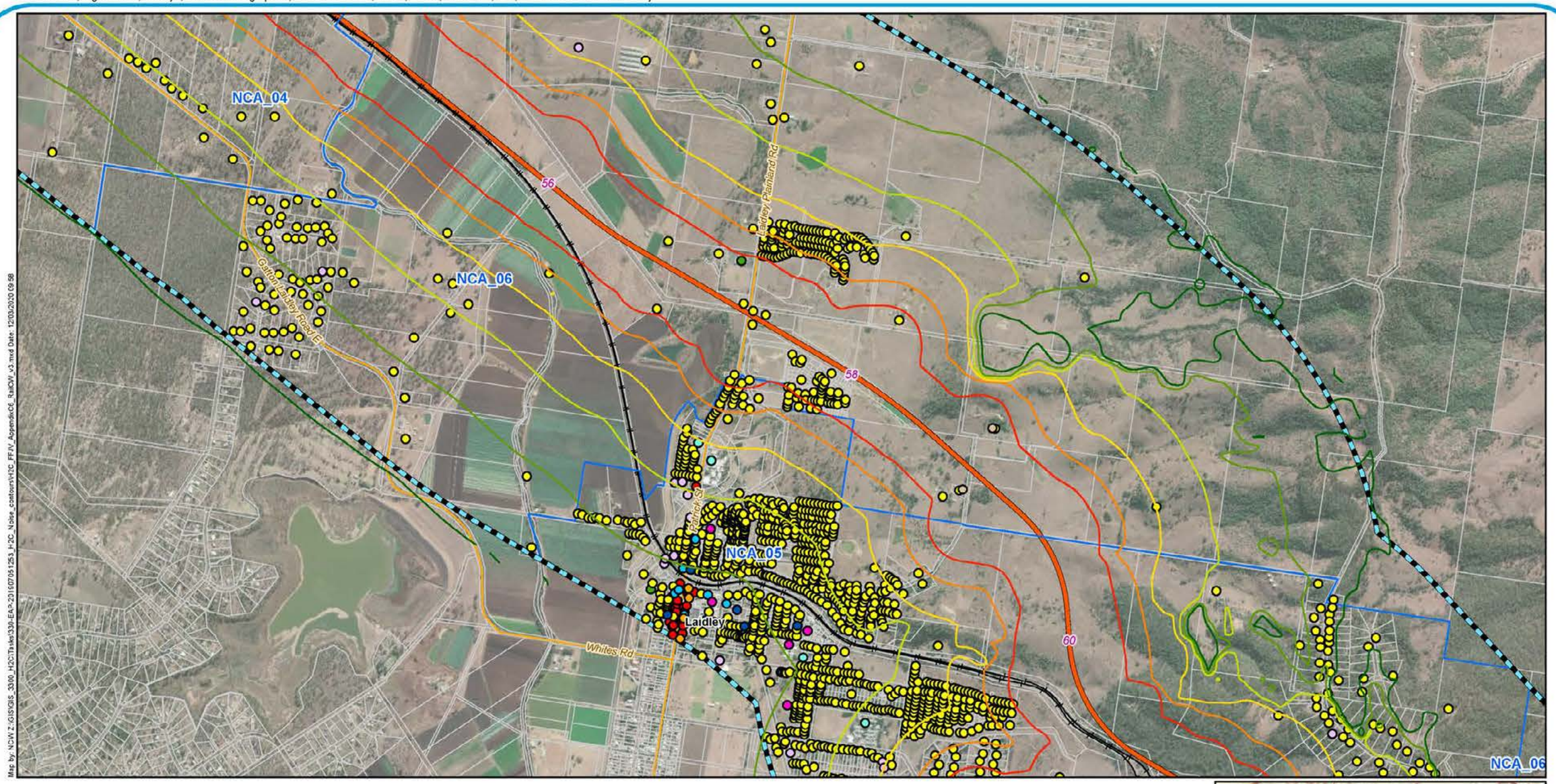
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

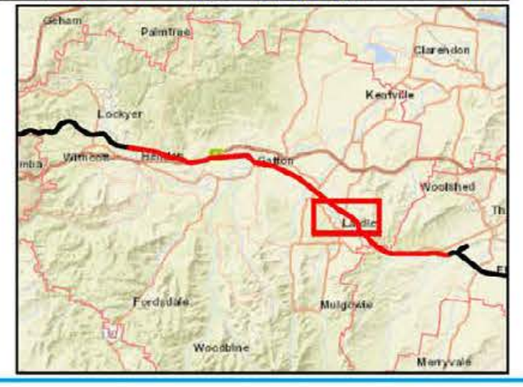
- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities




A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

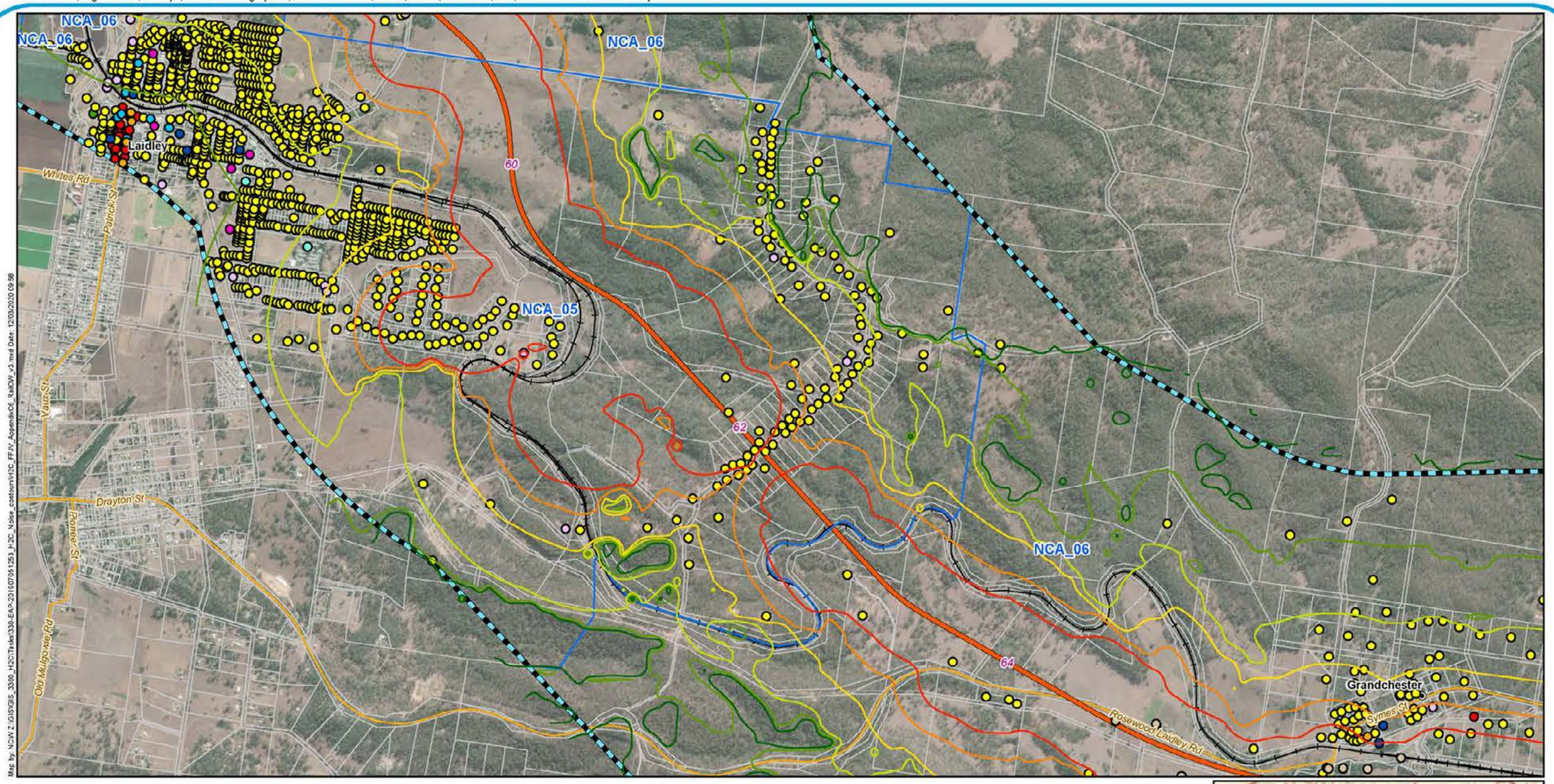
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

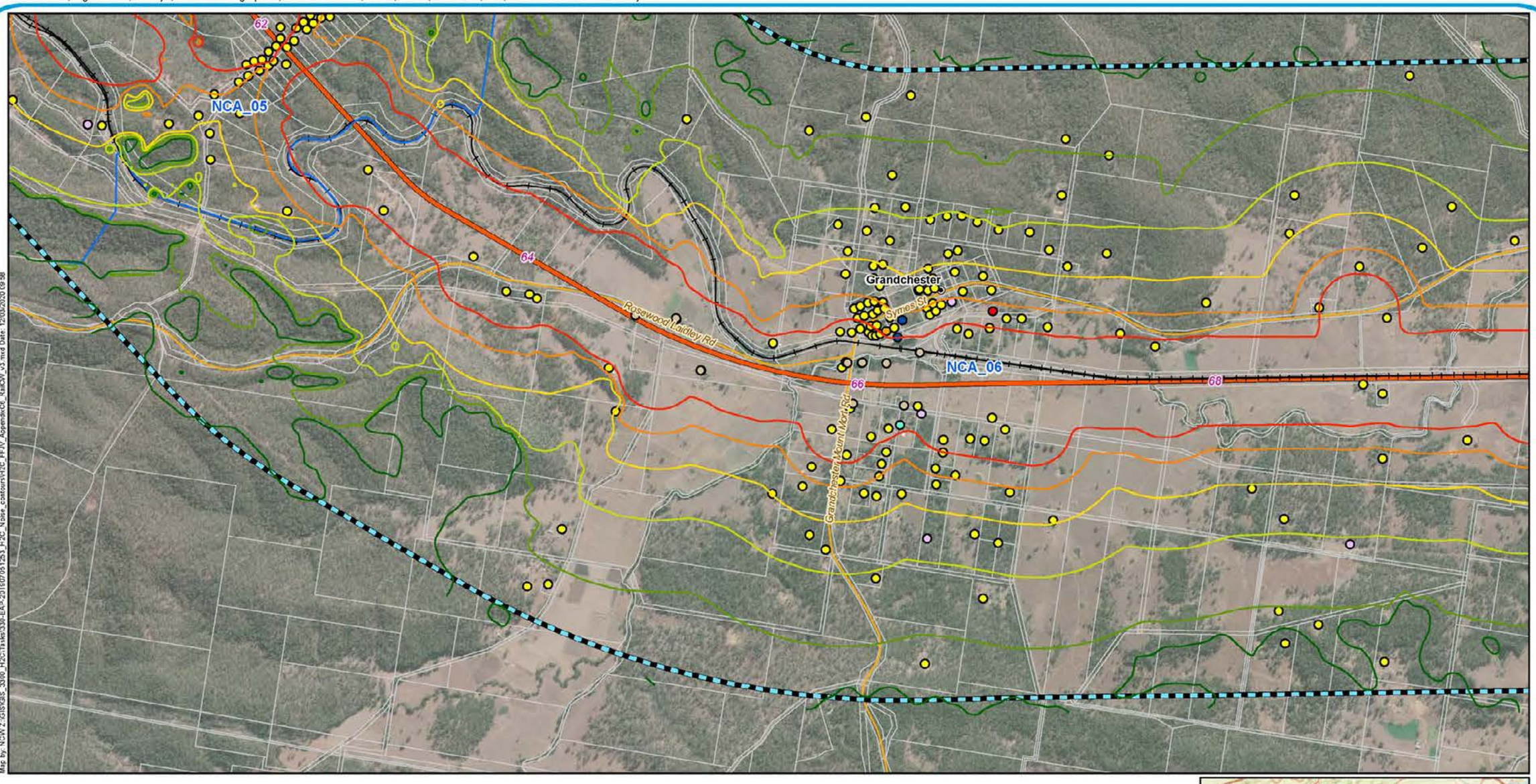
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NSW Z:\GIS\GIS_3300_H2C\Tables\330-EAP-20160705125 3_H2C_Noise_contours\H2C_FF\V_AppendixC6_RailCW_v3.mxd Date: 12/03/2020 09:58

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

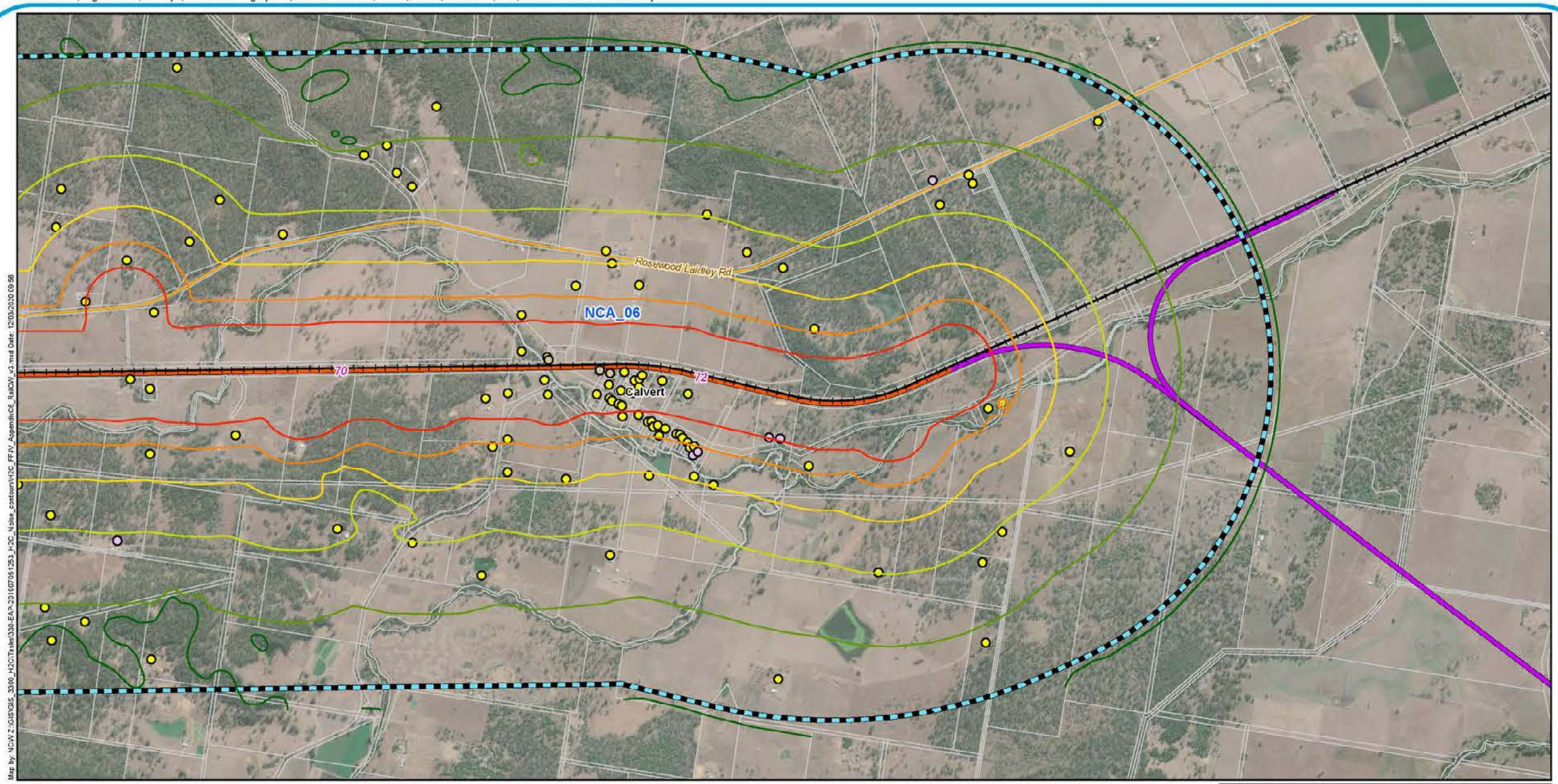
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3390_H2C\Tasks\3390-EAA-20160705\253_H-2C_Noise_contours\H2C_FF_IV_AppendixC6_RailCW_v3.mxd Date: 12/03/2020 09:58

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

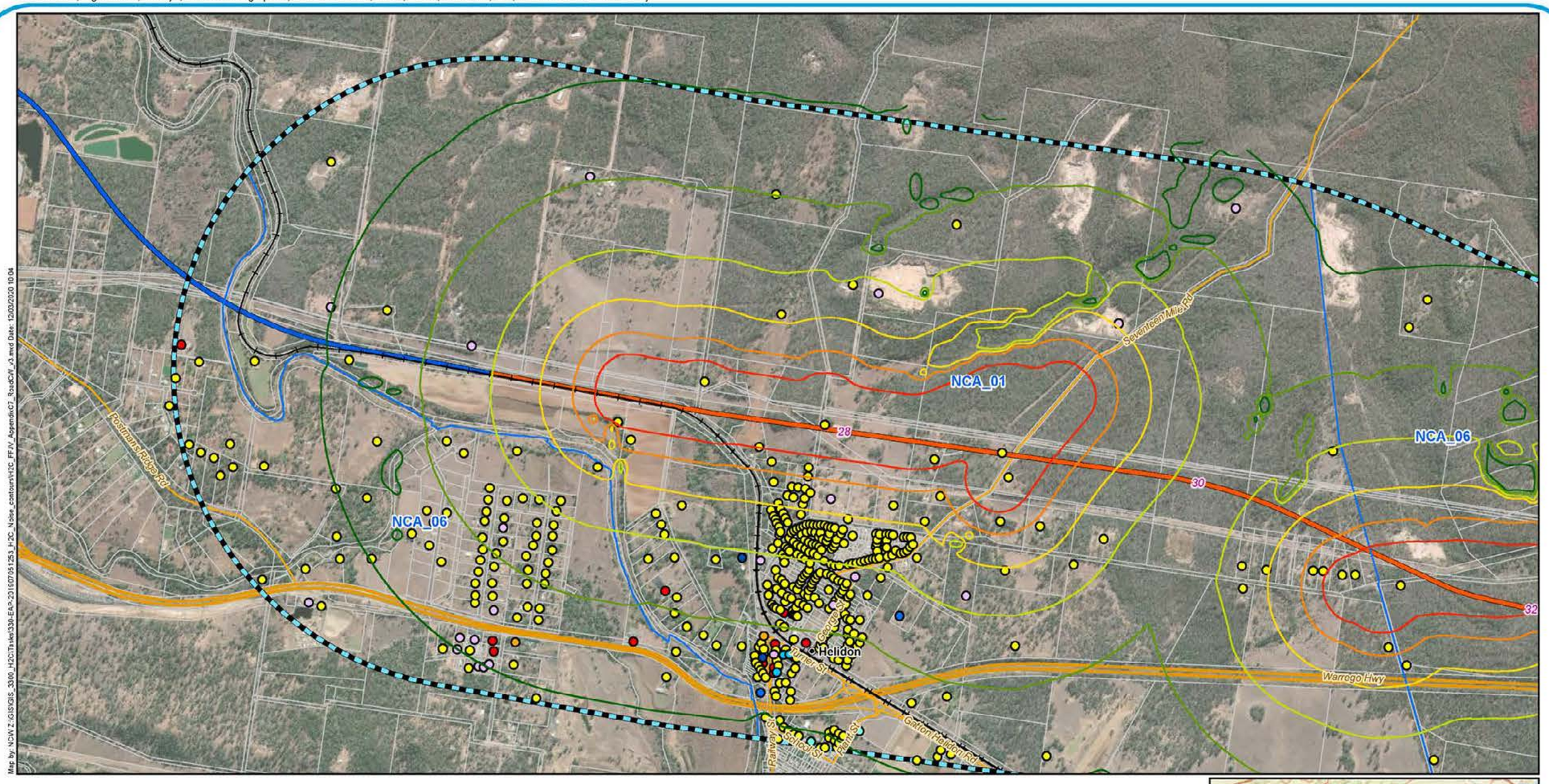
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C6 - Construction Noise Contours - Rail Civil Works** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC7_RoadCW_v3.mxd Date: 12/03/2020 10:04

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

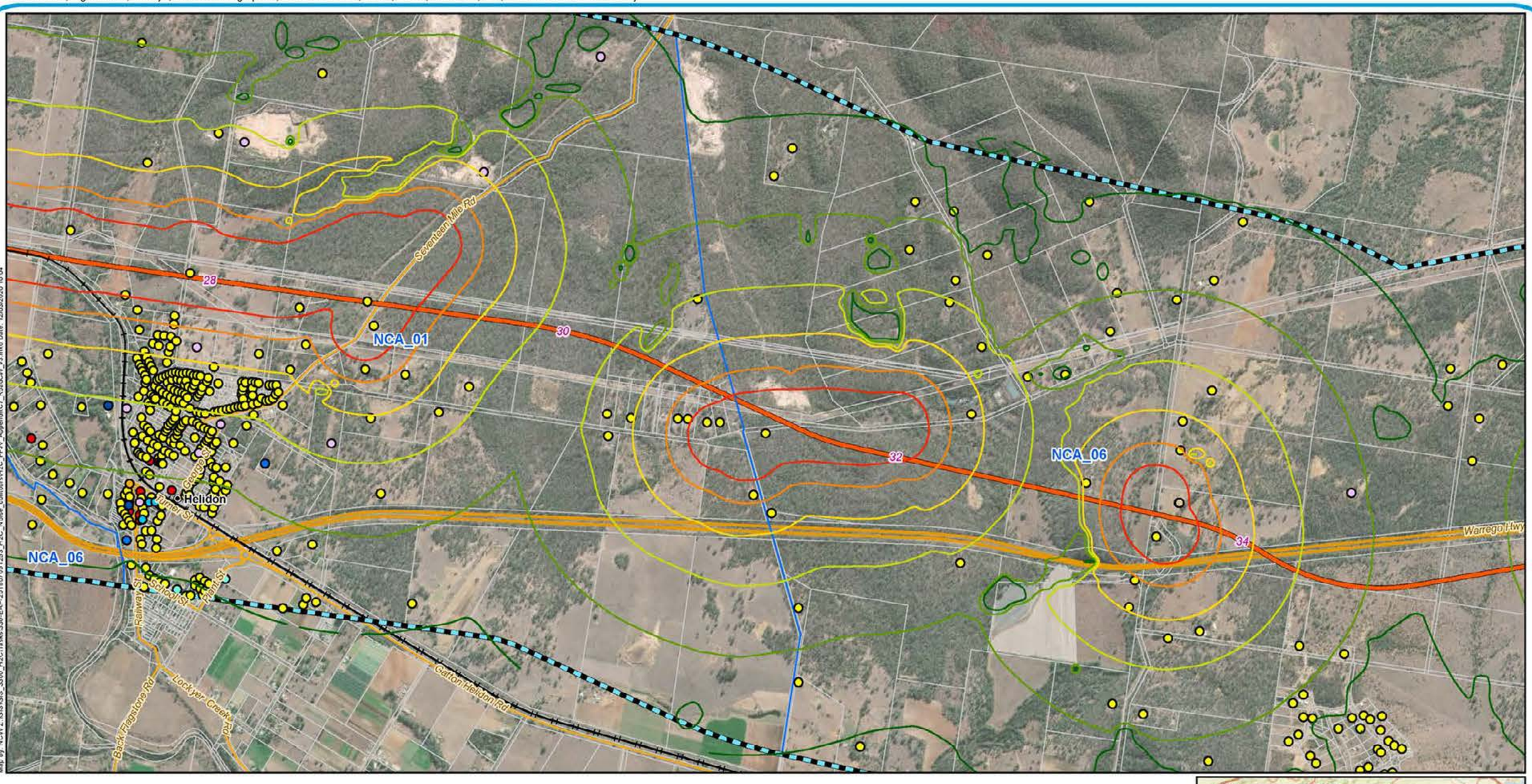
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community






**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

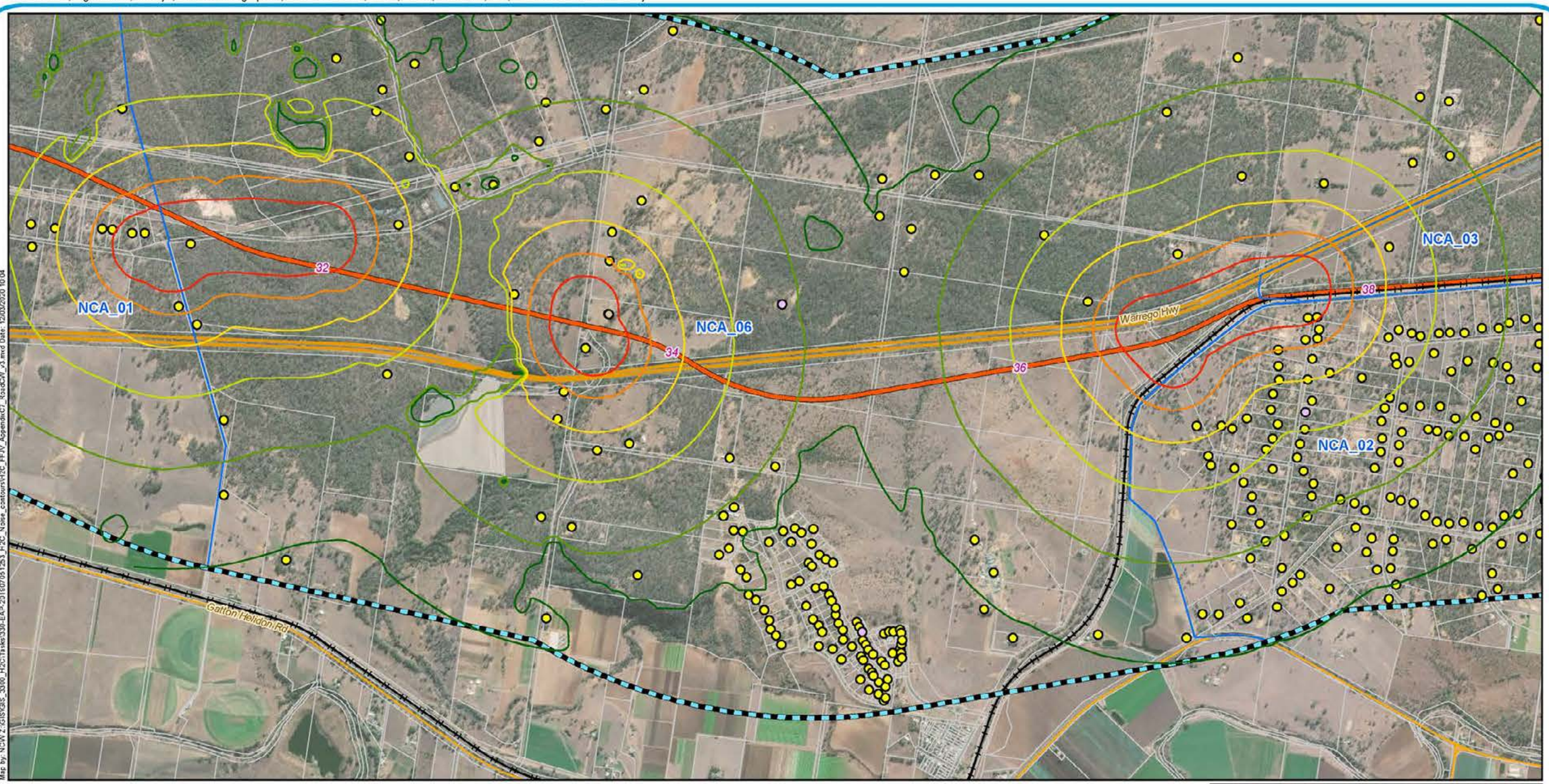
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAS-20160709\253_H2C_Noise_contours\H2C_FF\V_AppendixC7_RoadCW_v3.mxd Date: 12/03/2020 10:04

**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

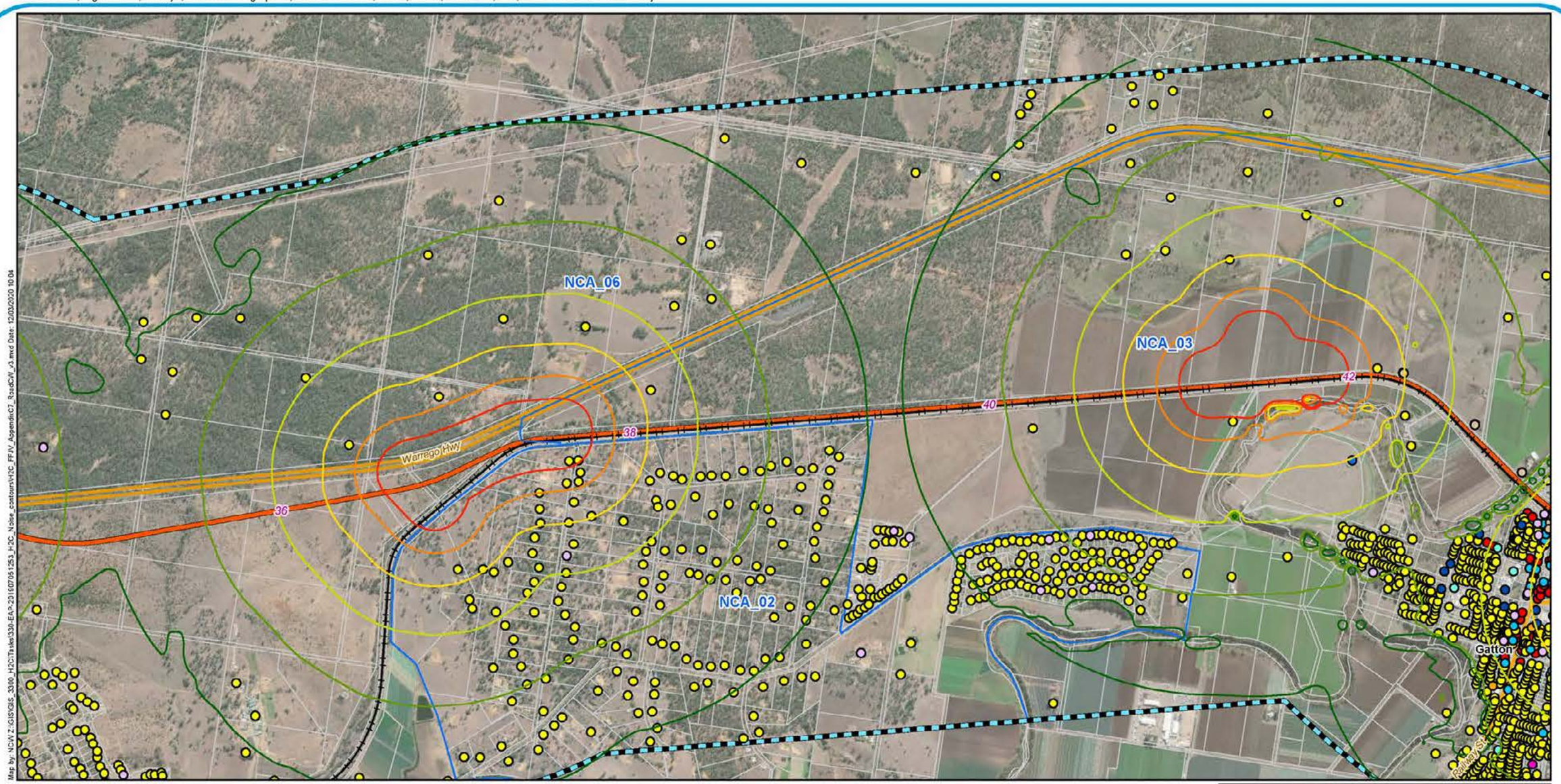
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

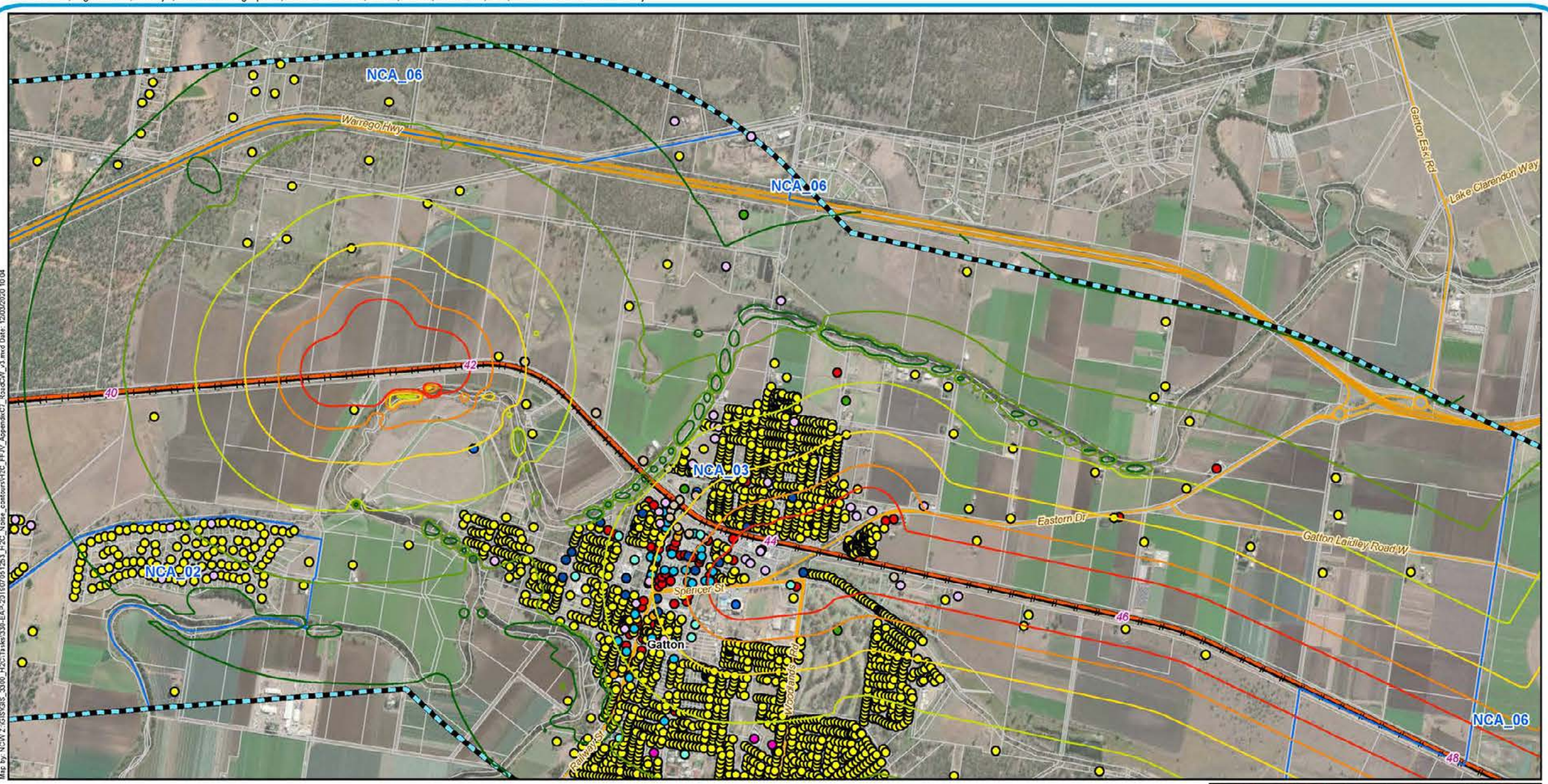
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

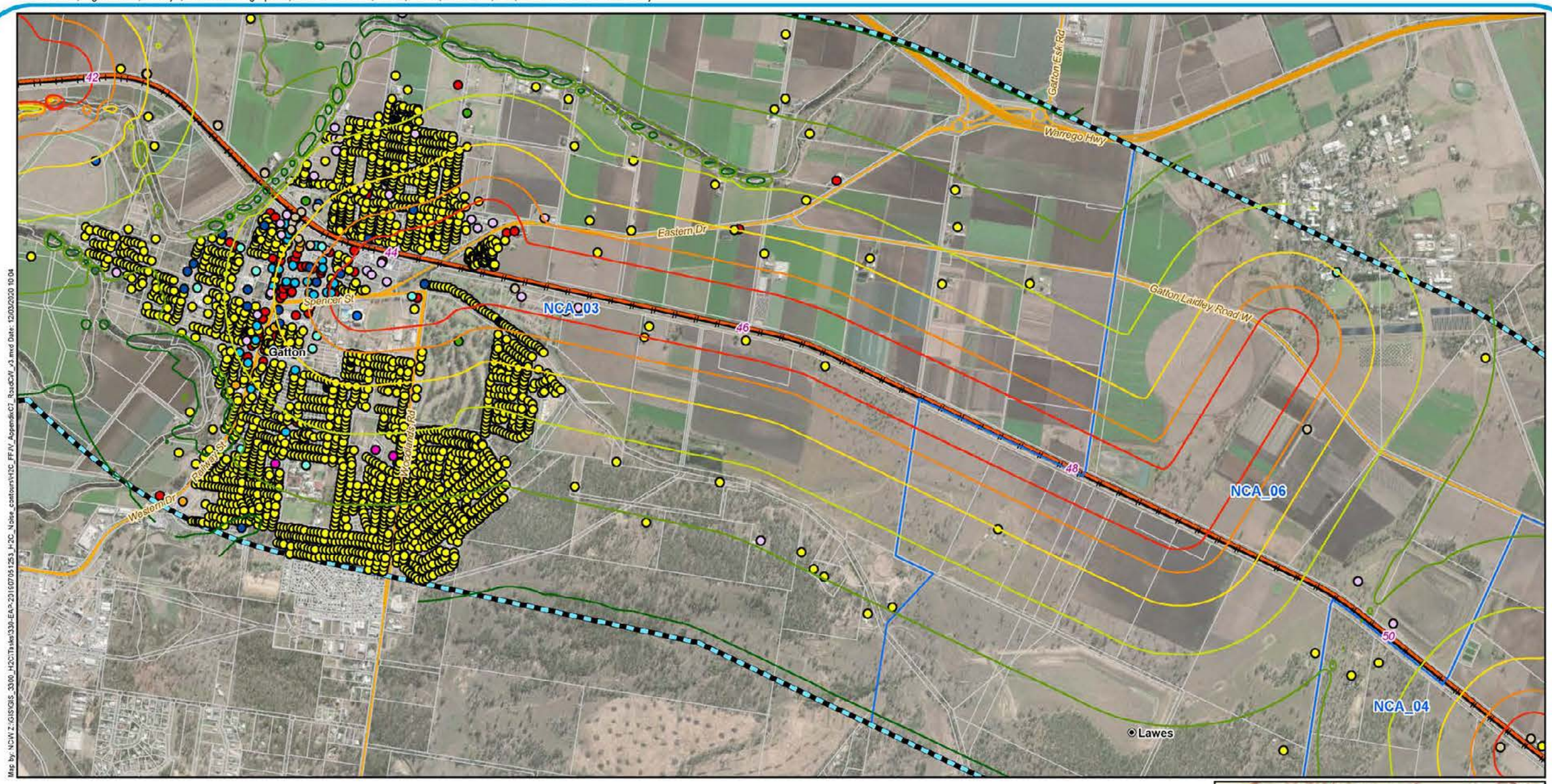
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: N:\W Z:\GIS\GIS_3300_H2C\Tasks\3300-EA>20160705\253_H-2C_Noise_contours\H2C_FF\V_Appendix\C7_RoadCiv_v3.mxd Date: 12/03/2020 10:04

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

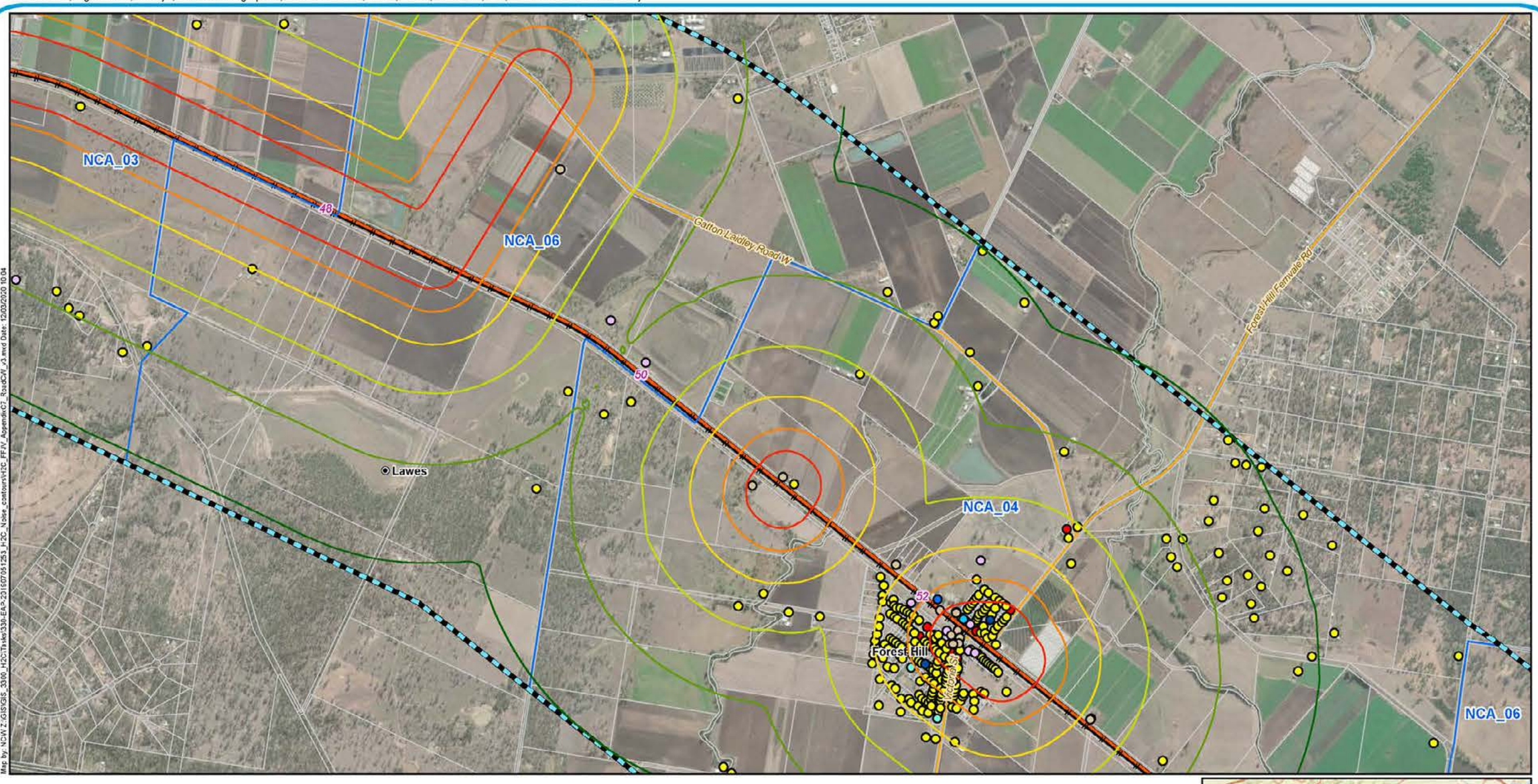
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

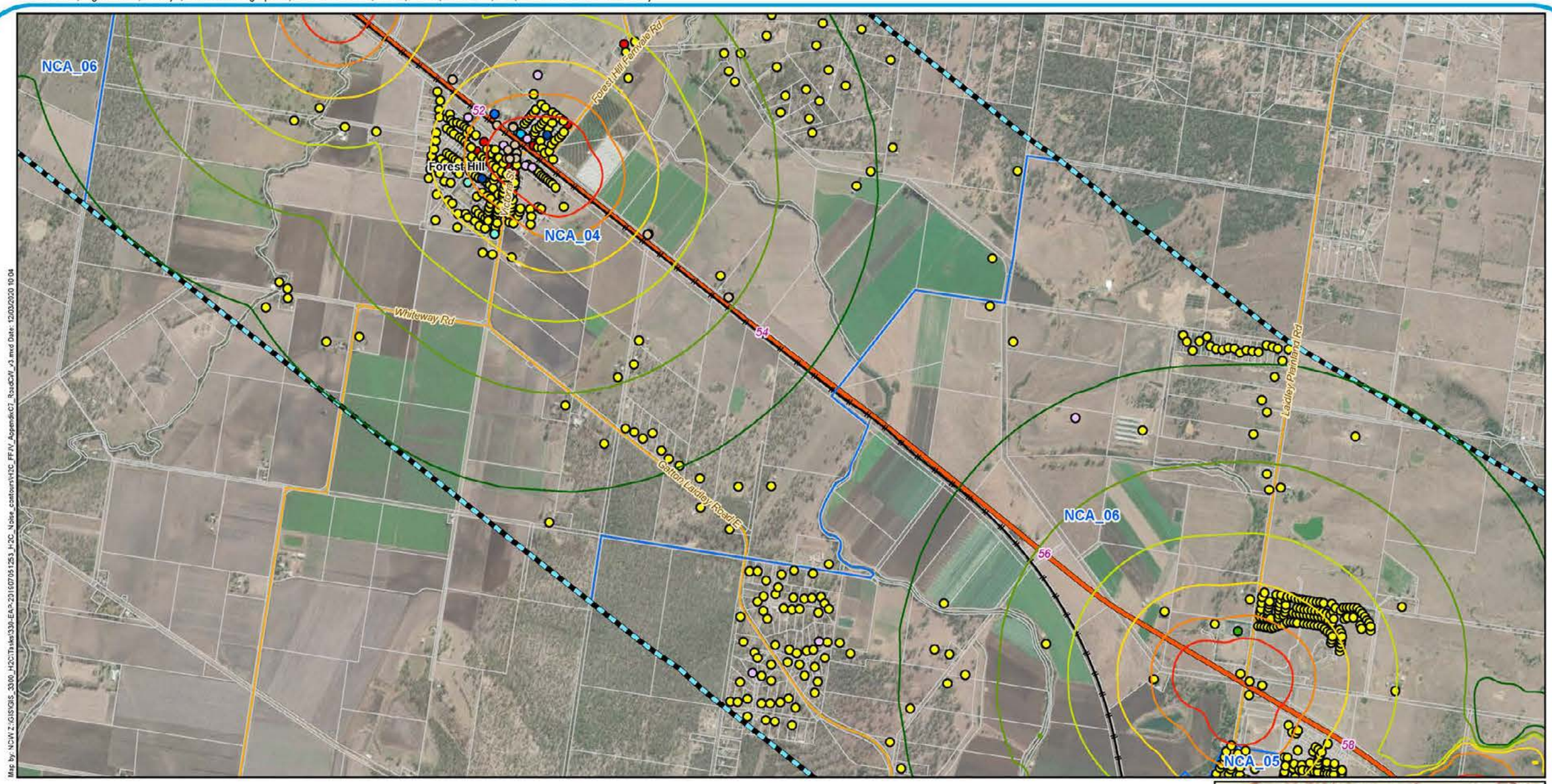
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

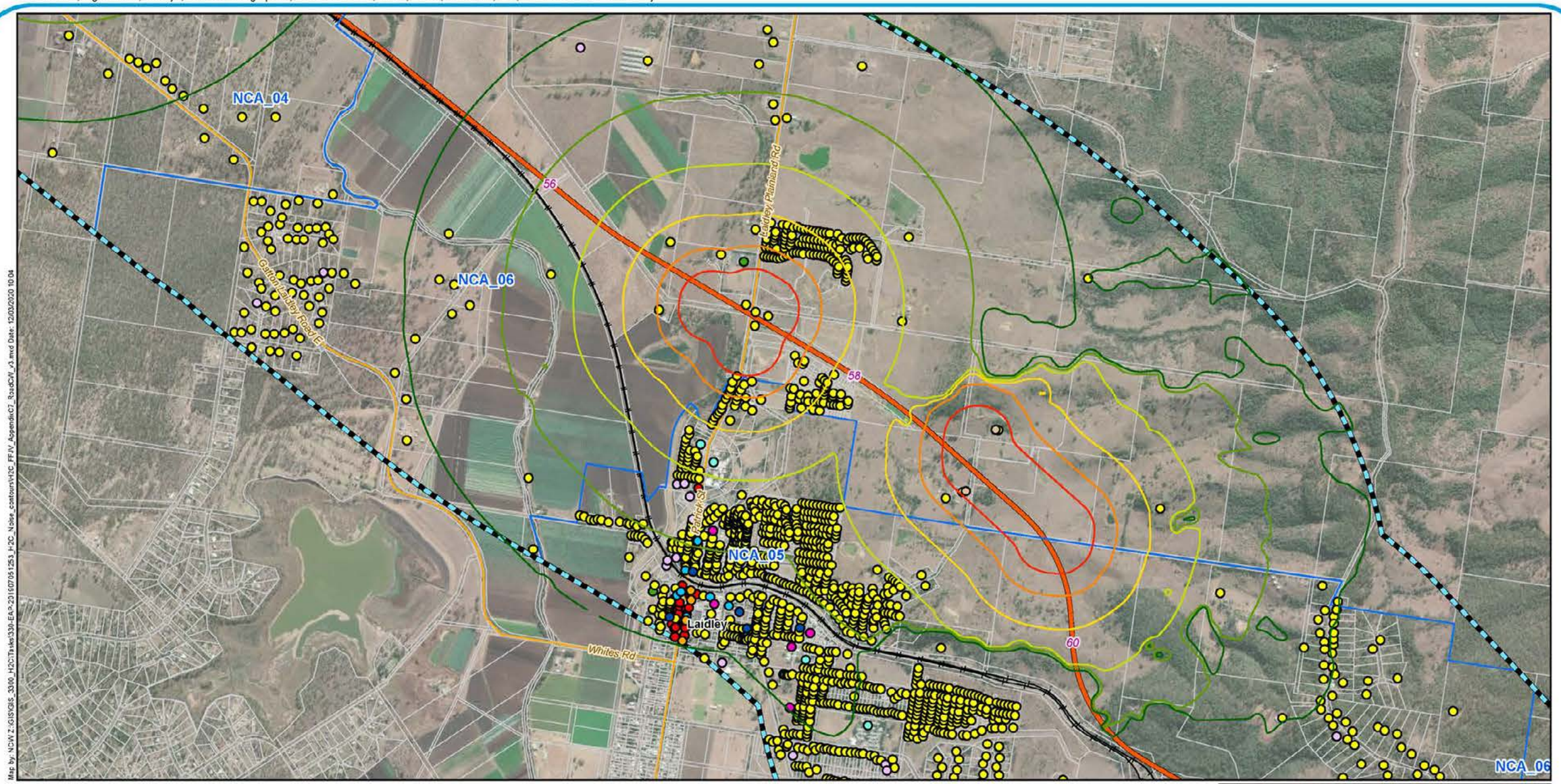
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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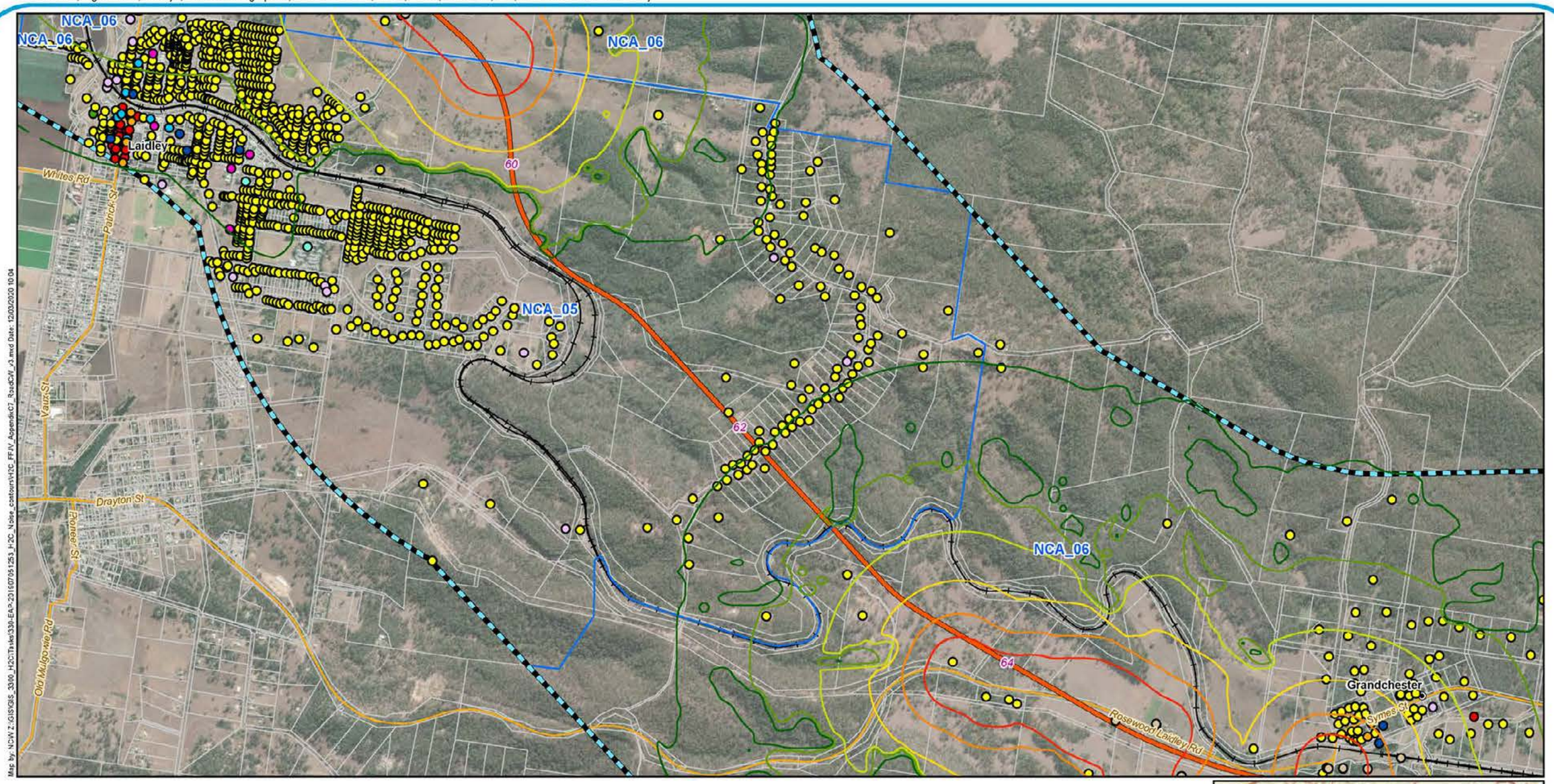


Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC7_RoadCW_v3.mxd Date: 12/03/2020 10:04

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
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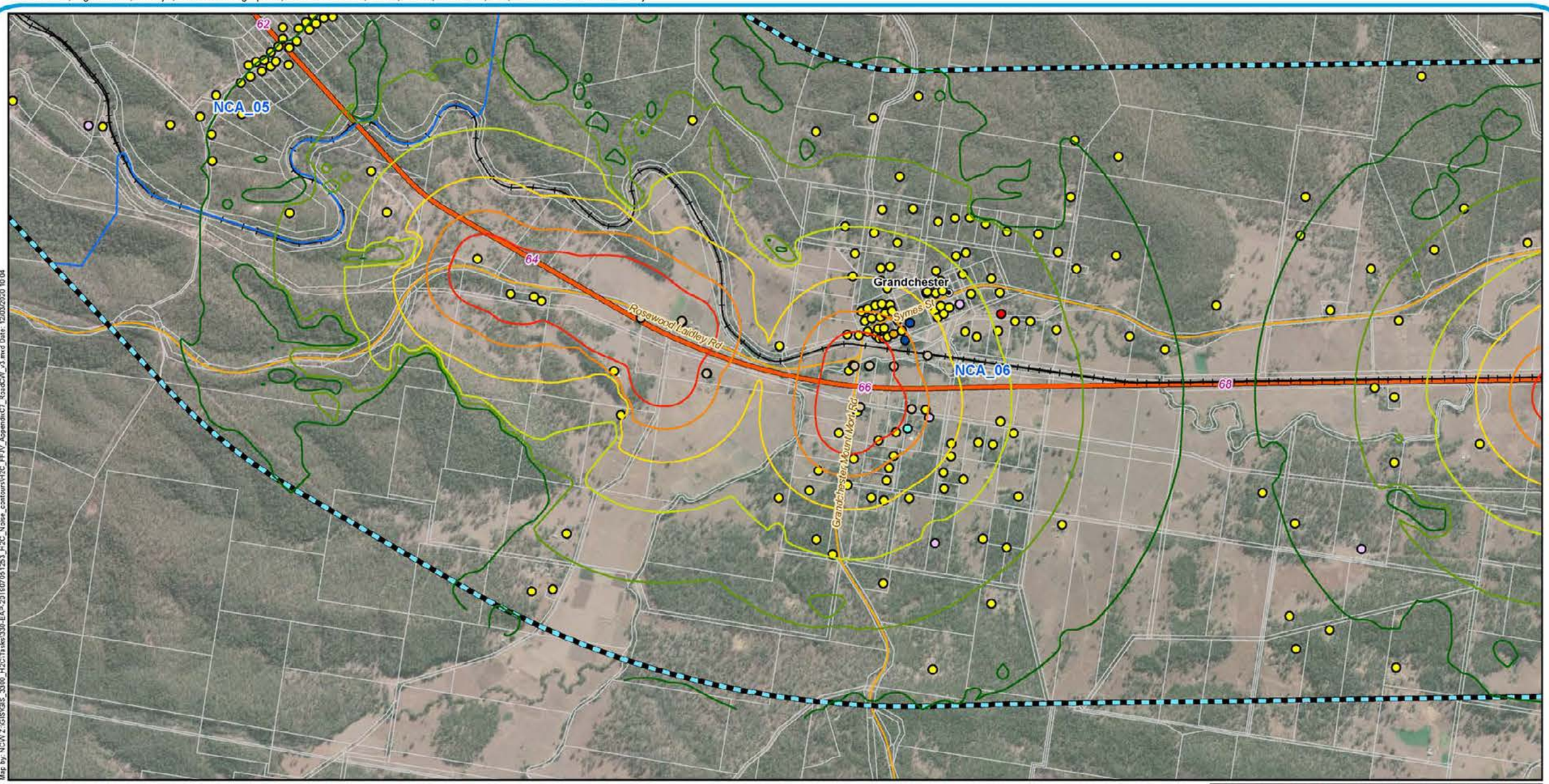


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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

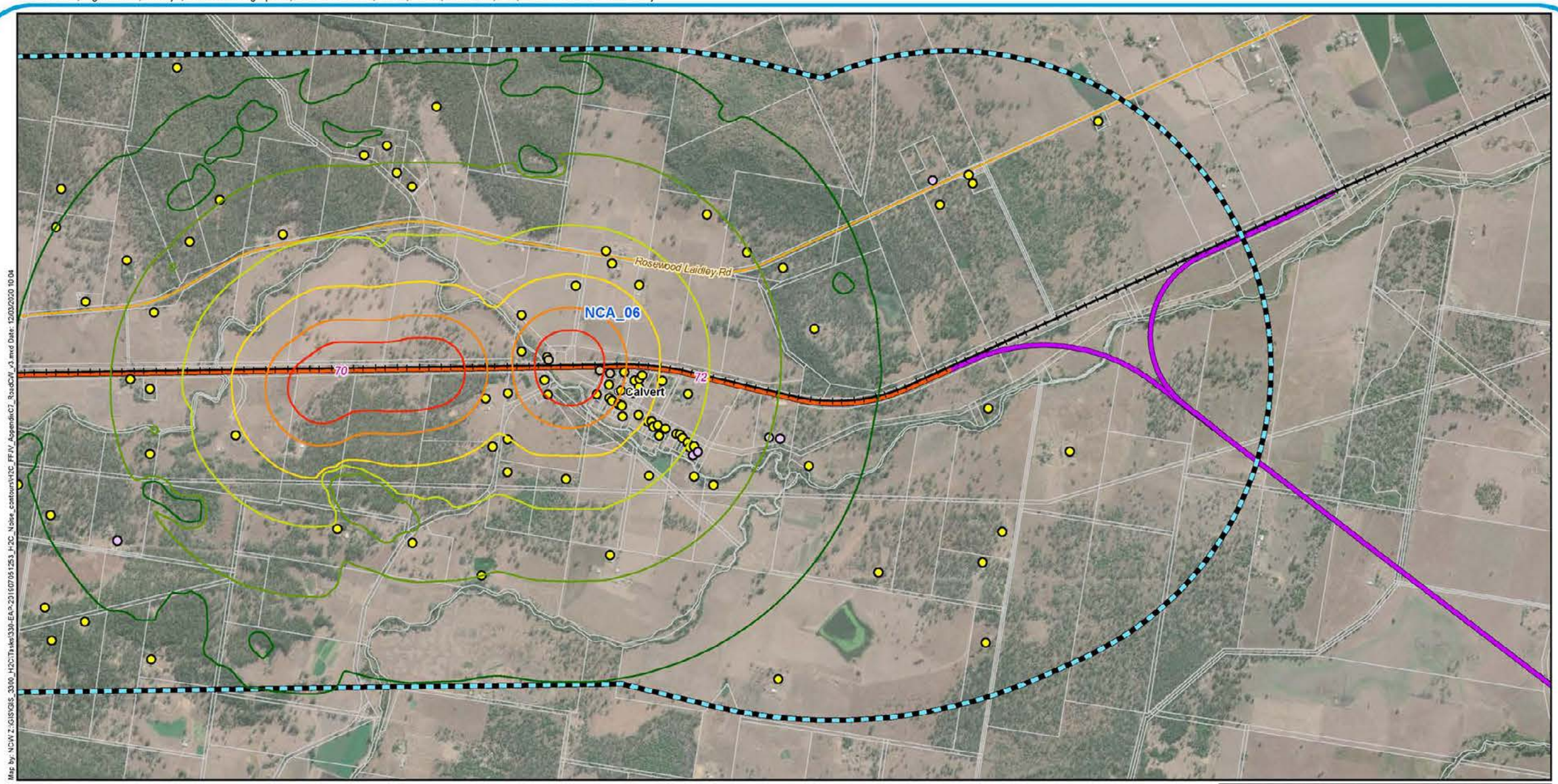
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3390_H2C\Tasks\339-EAA-20160705\253_H2C_Noise_contours\H2C_FF\V_Appendix\C7_RoadCiv_v3.mxd Date: 12/03/2020 10:04

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

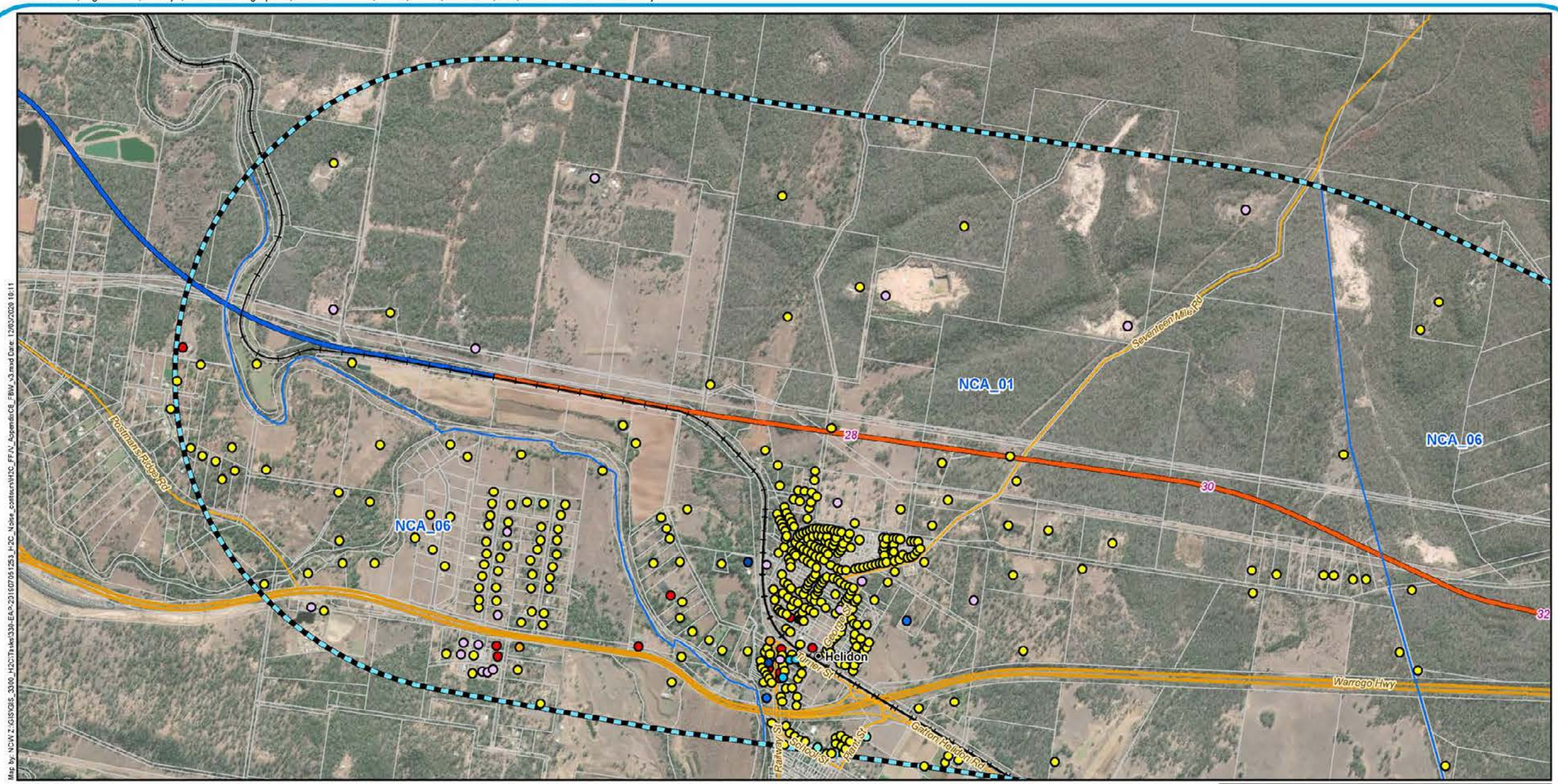
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C7 - Construction Noise Contours - Road Civil Works** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

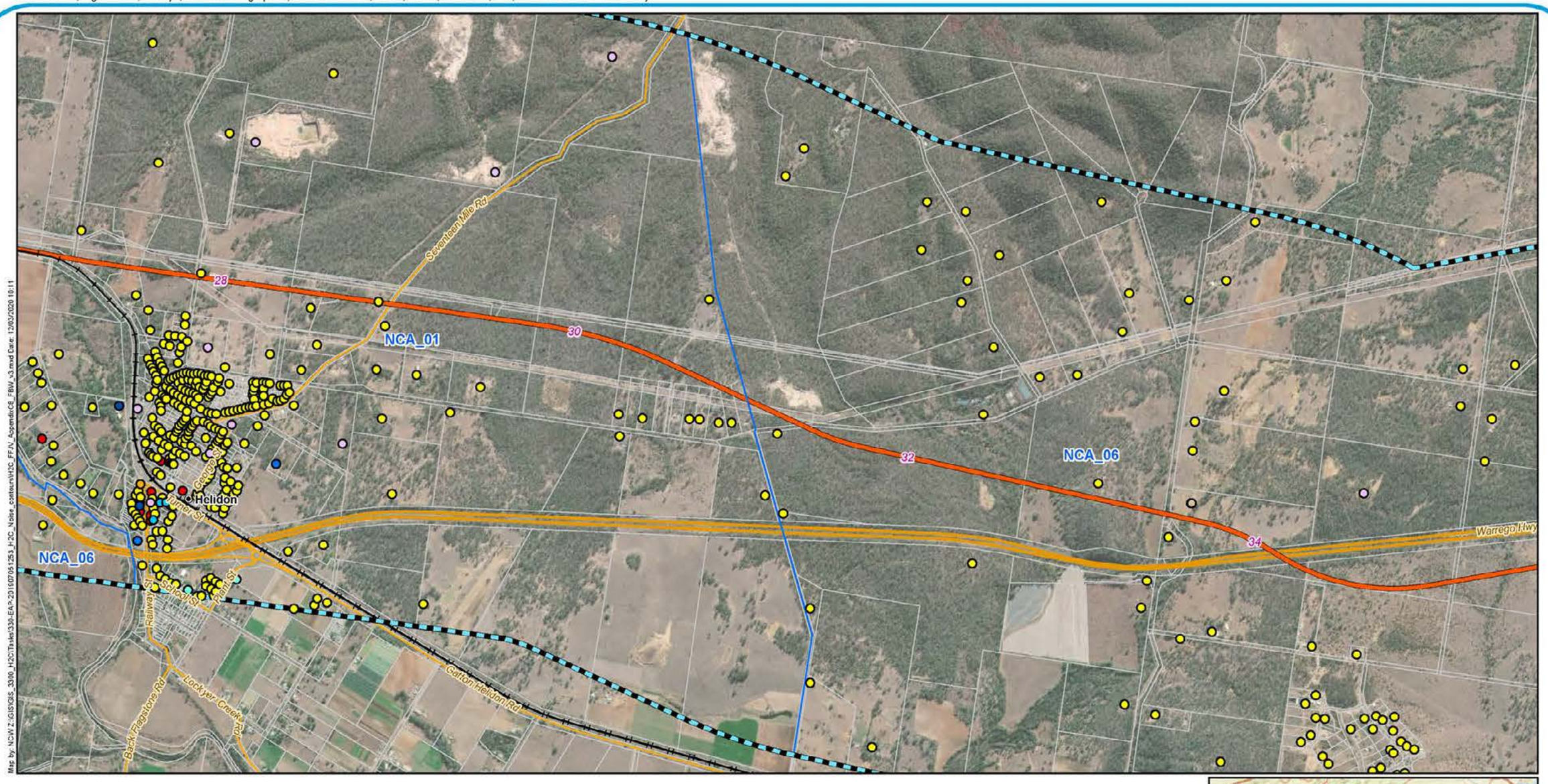
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NSW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-20160705125 3_H2C_Noise_contours\H2C_FFJV_AppendixC8_FBW_v3.mxd Date: 12/02/2020 10:11

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

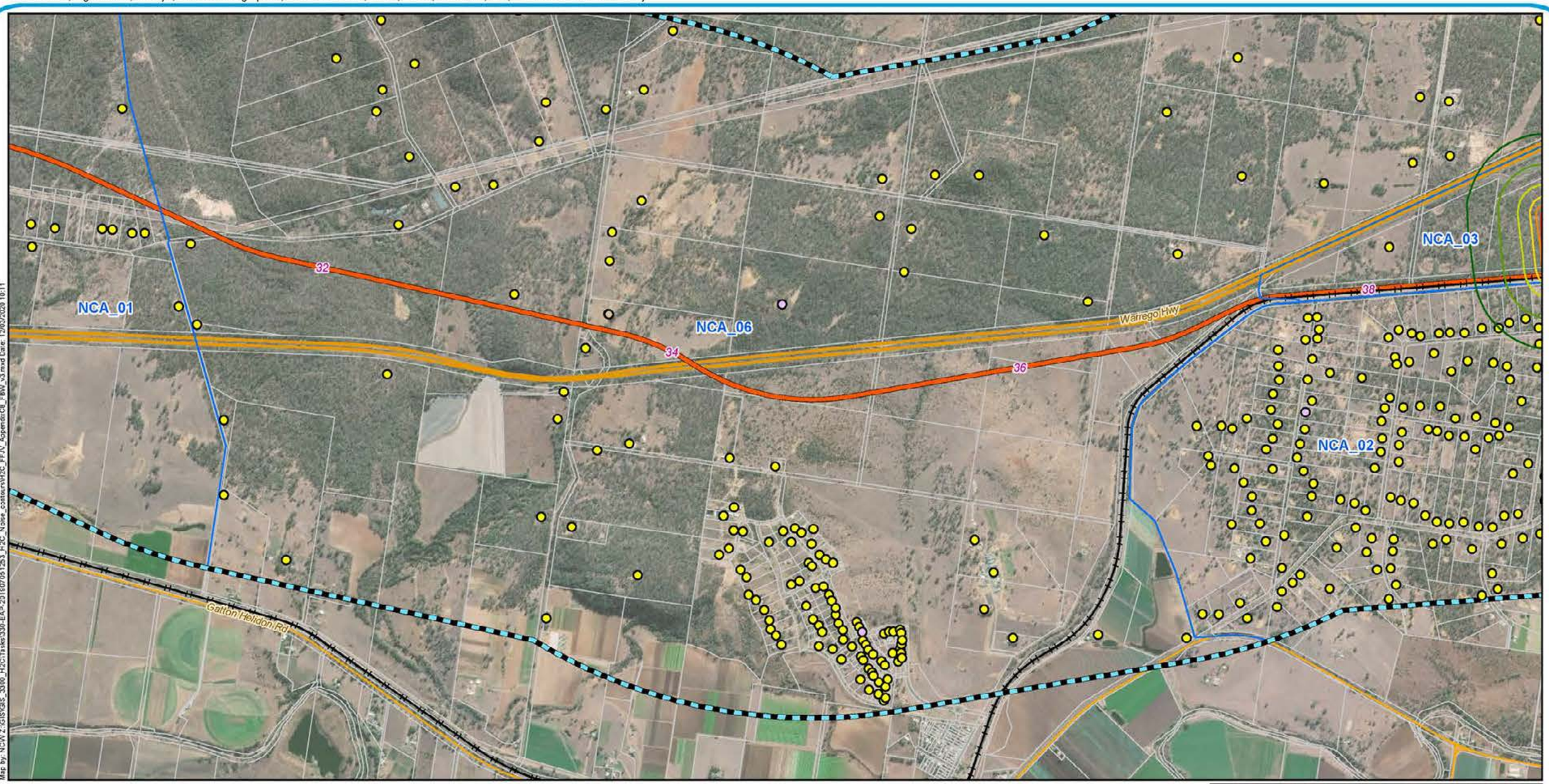
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

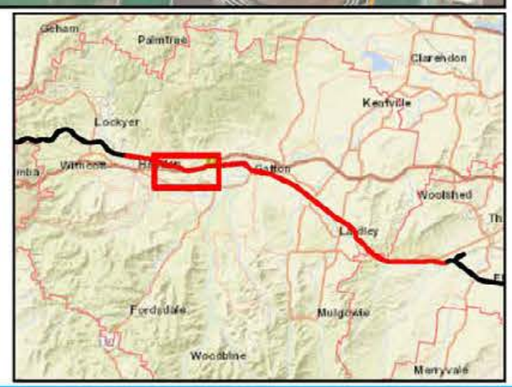
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential




A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

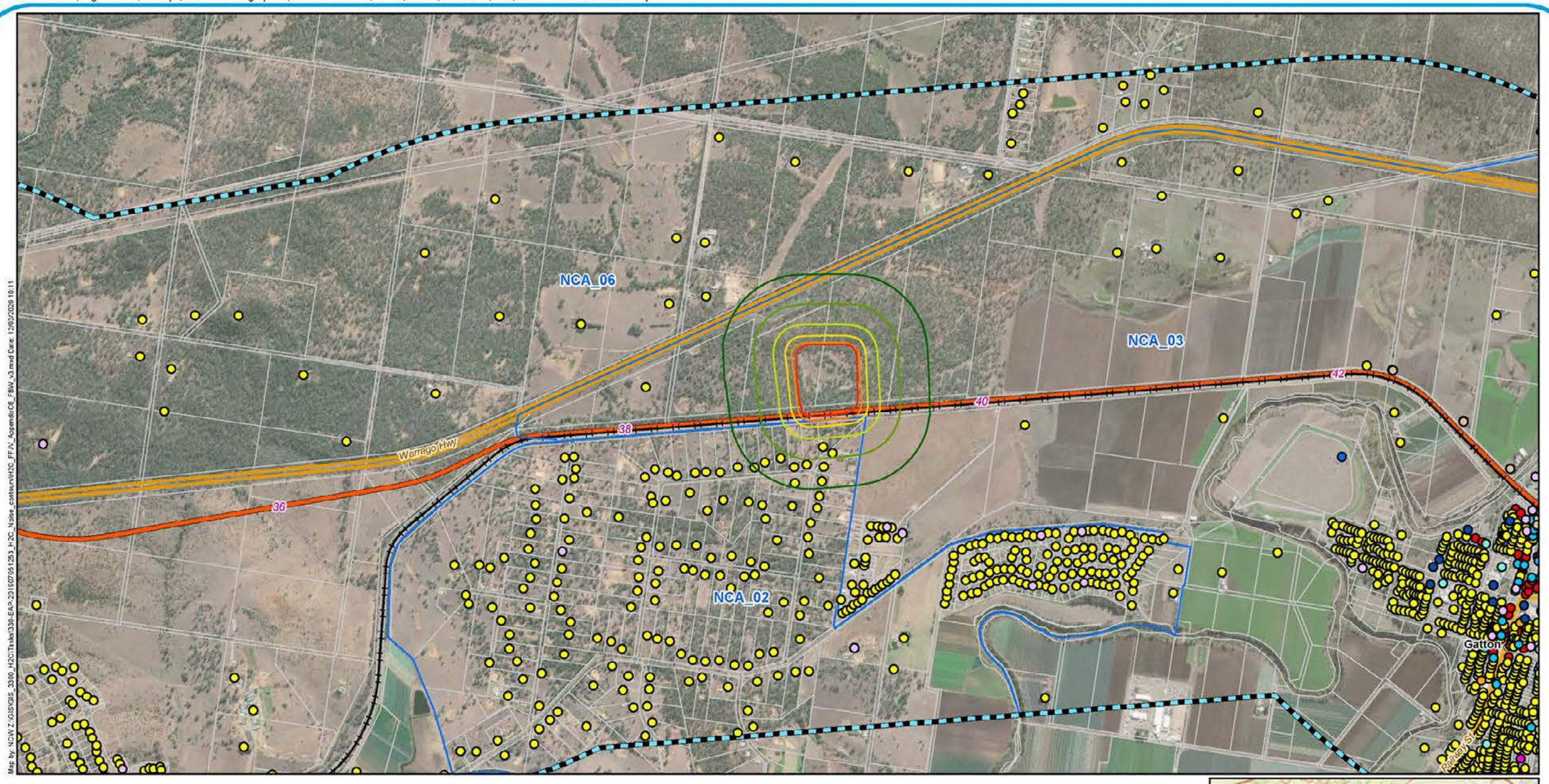
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EA>20160705\1253_H2C_Noise_contours\H2C_FF\V_Appendix\C8_FBW_v3.mxd Date: 12/03/2020 10:11

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

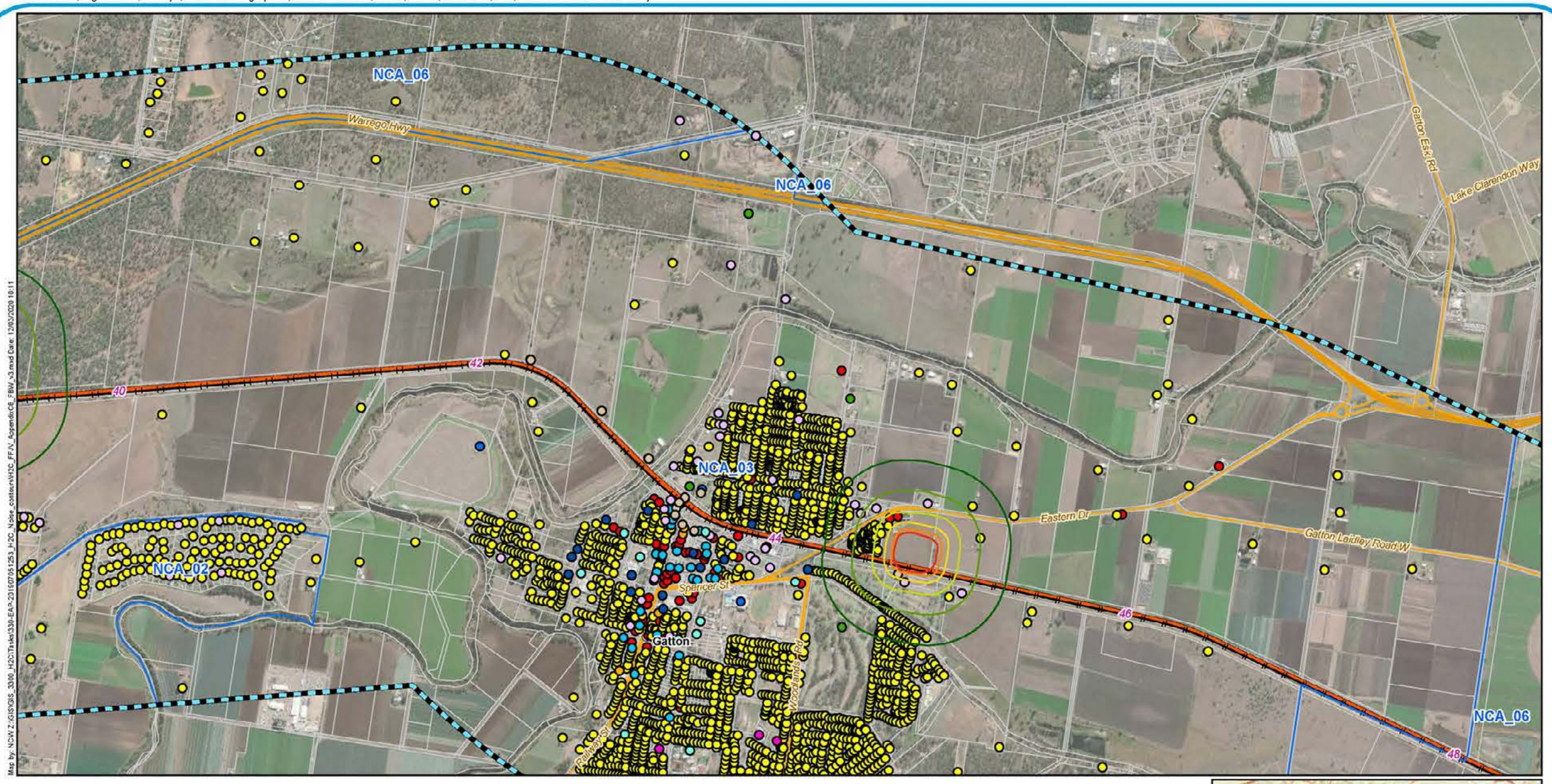
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community






**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

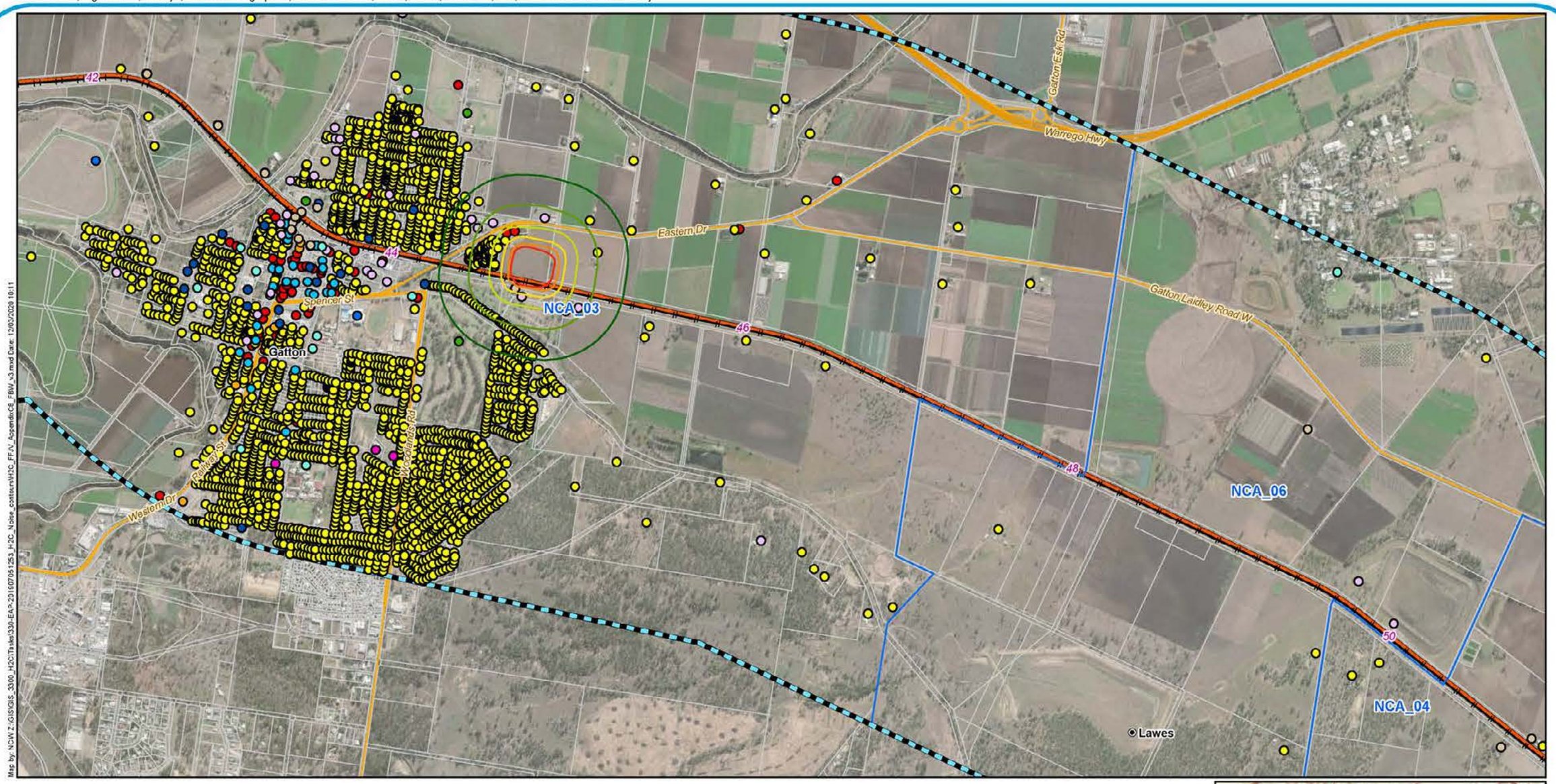
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

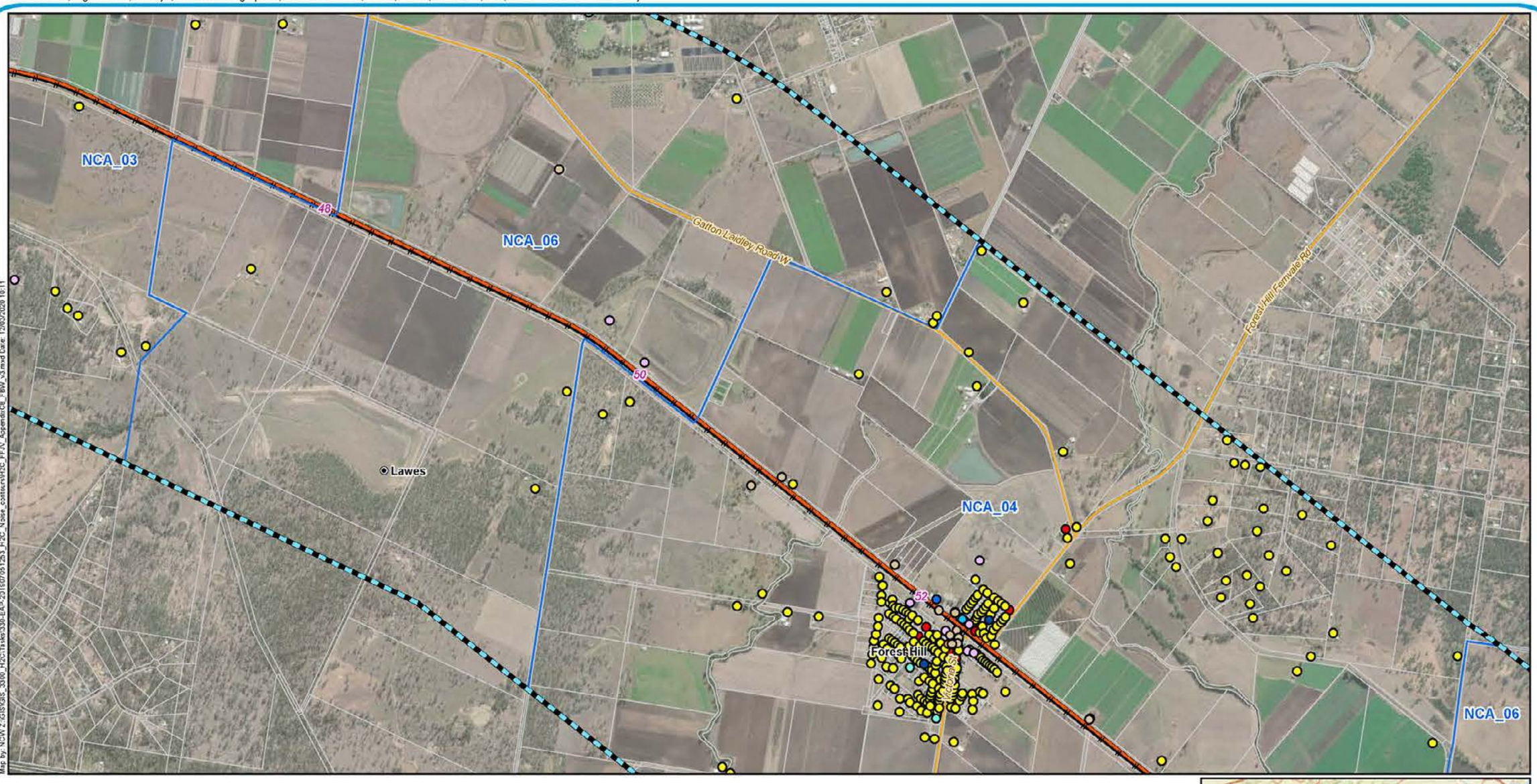
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

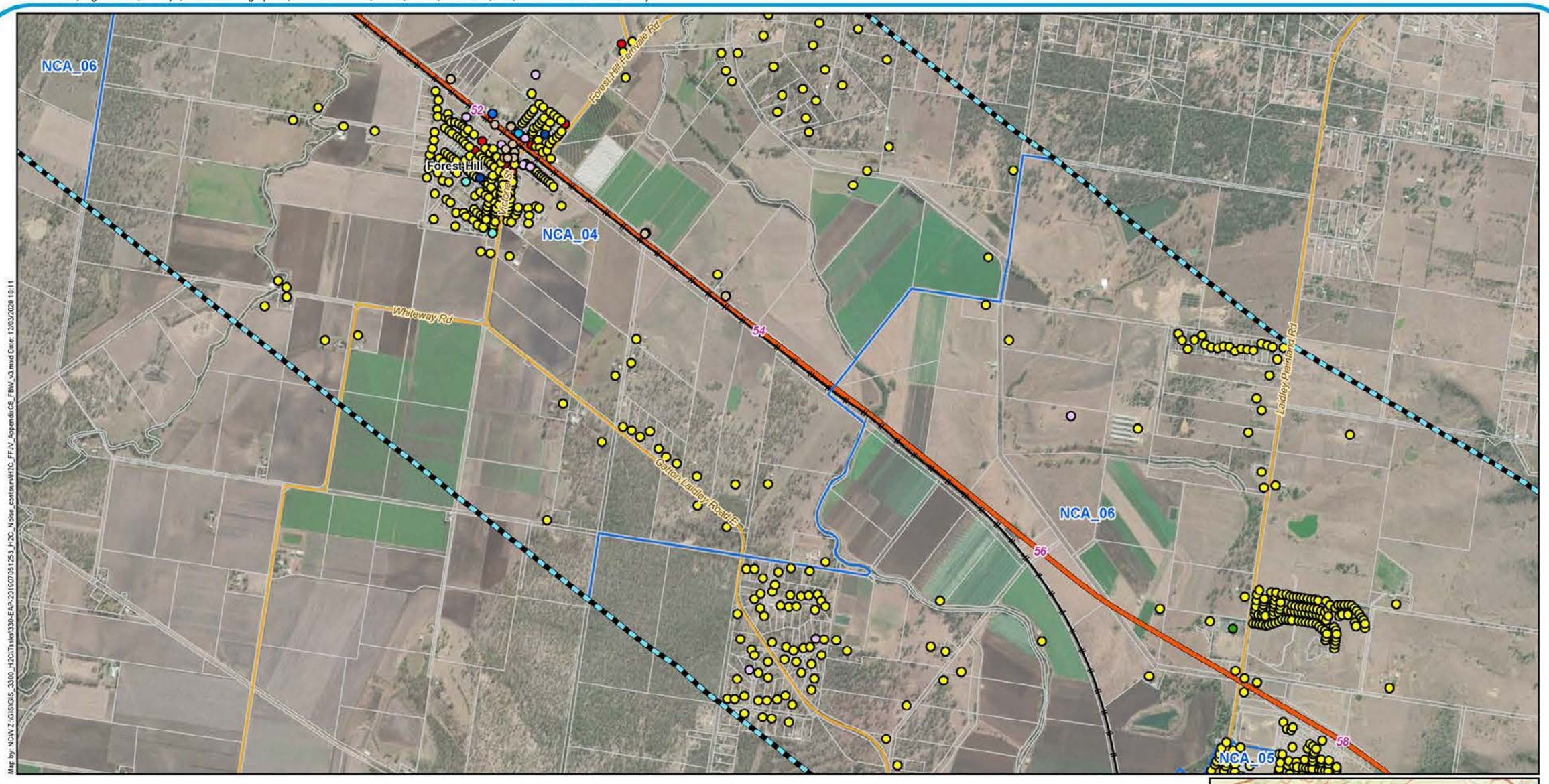
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

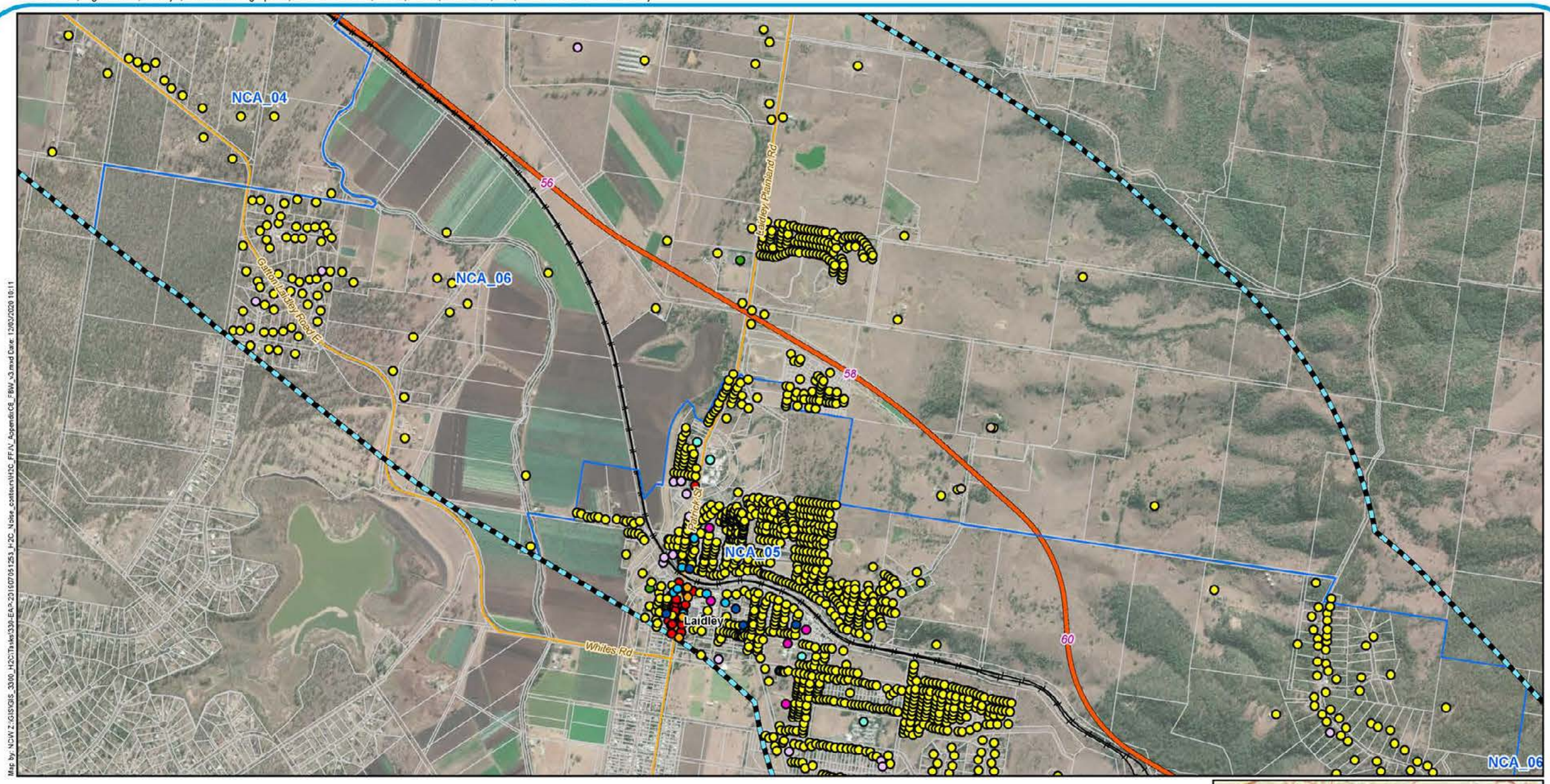
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

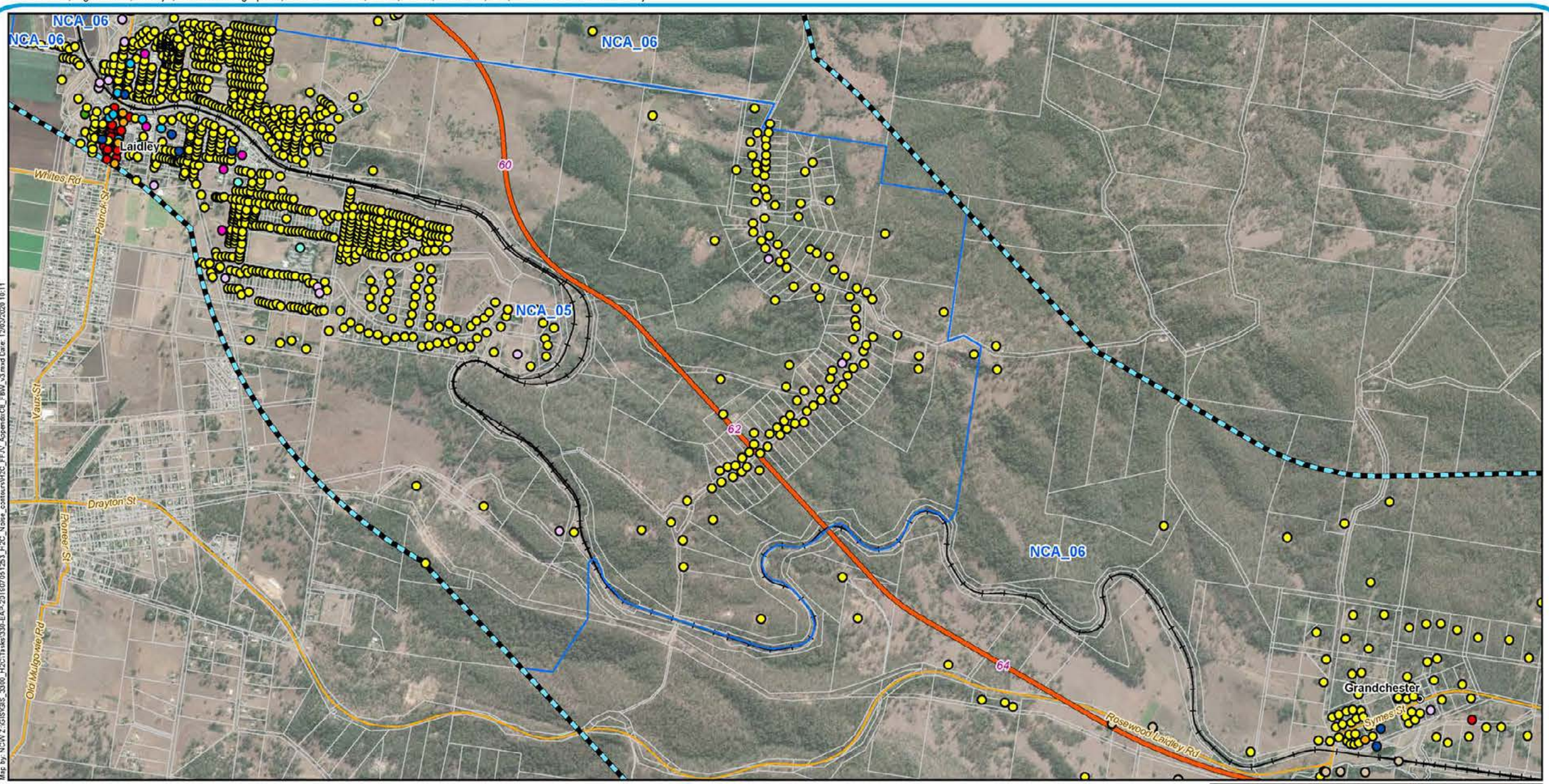
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

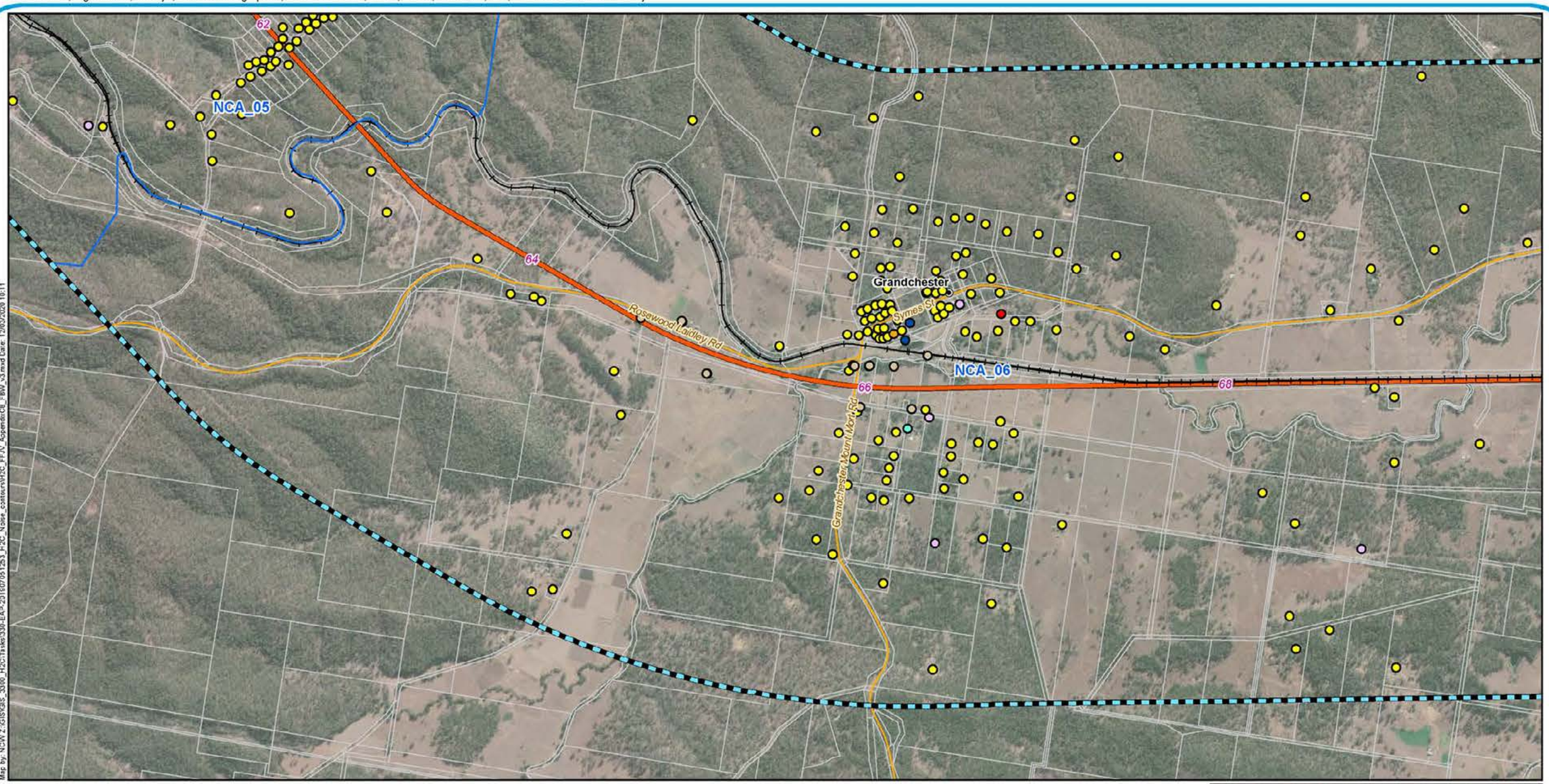
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

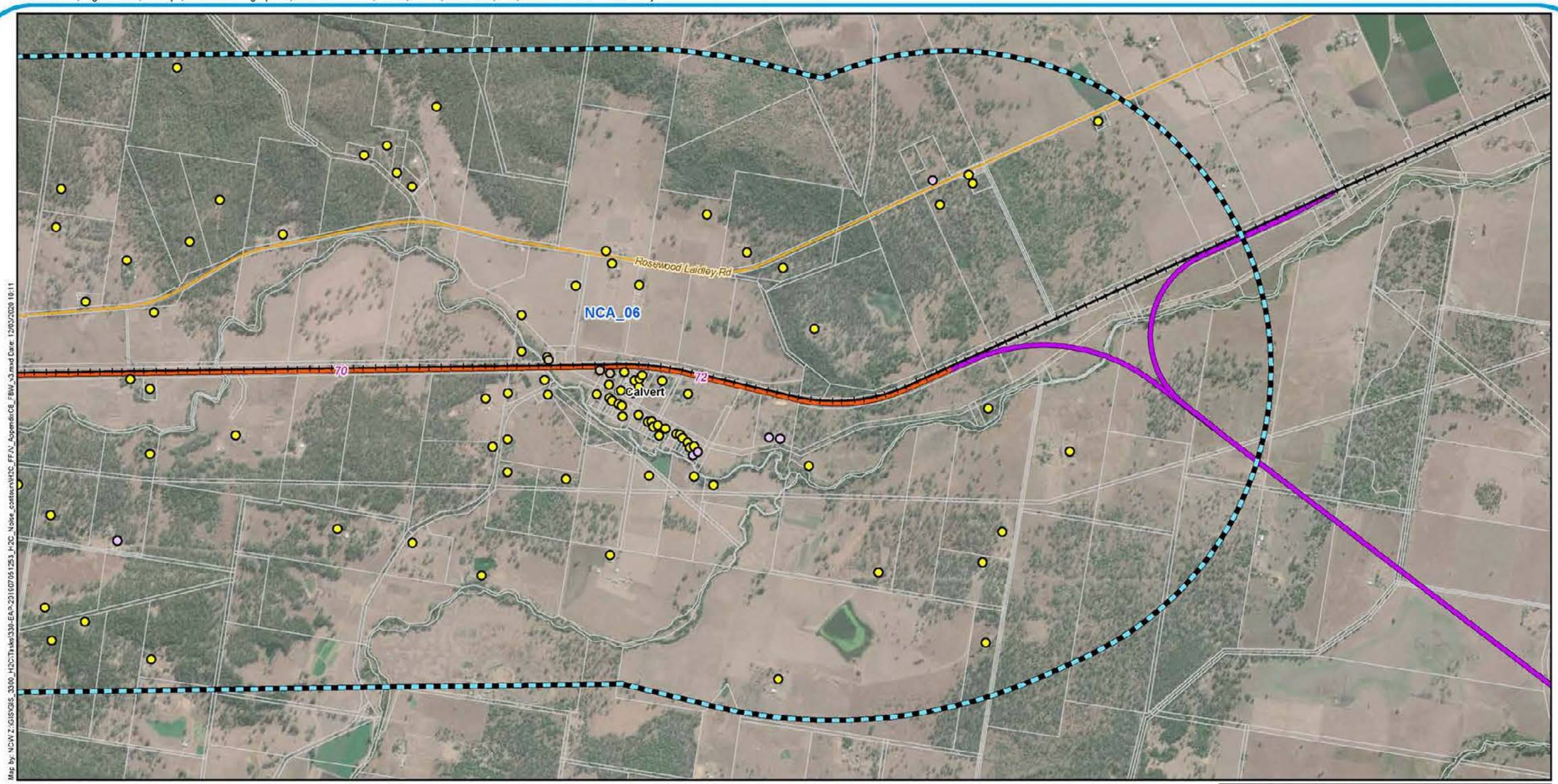
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

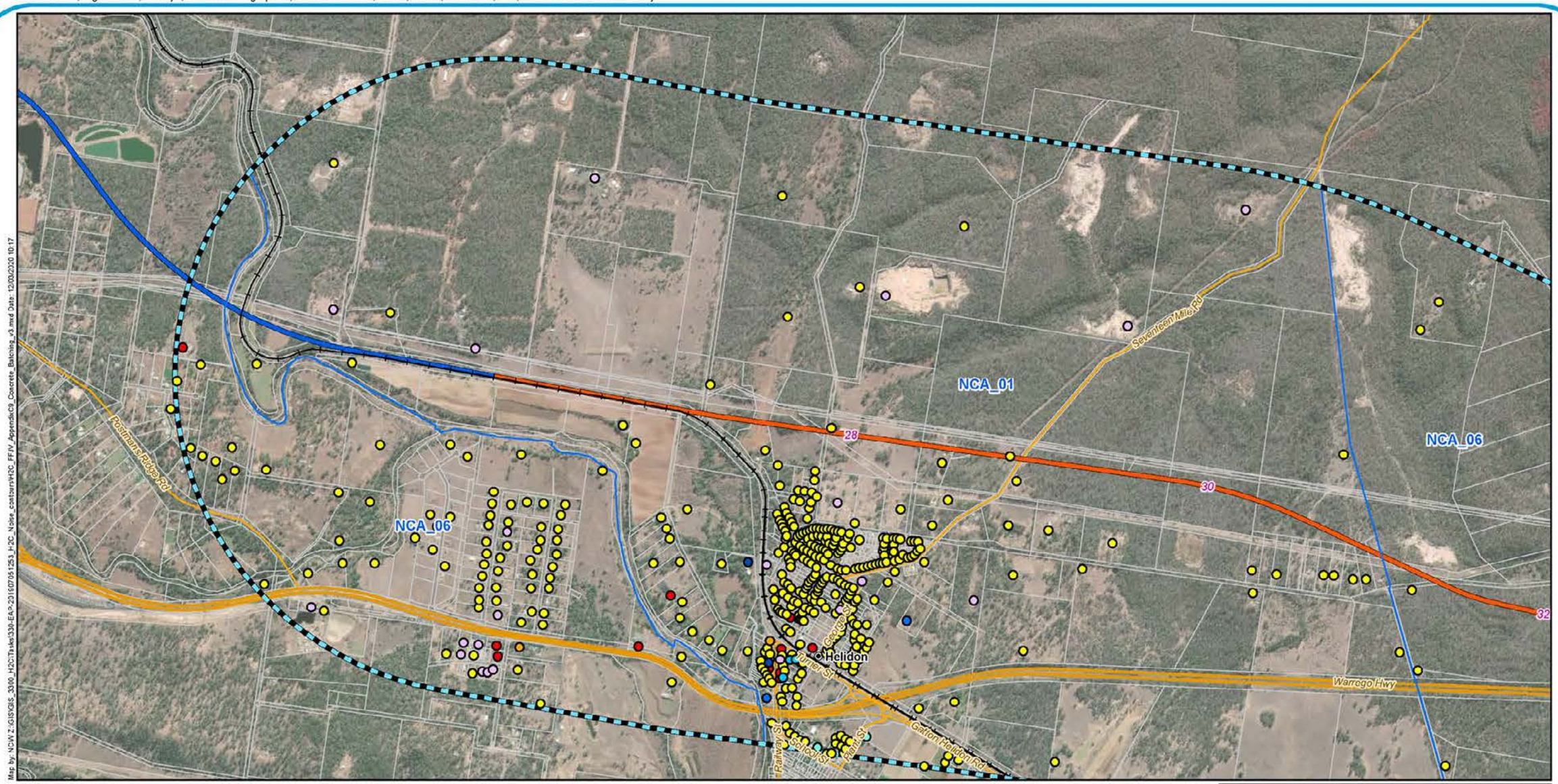
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C8 - Construction Noise Contours - Flash Butt Welding** Map 12 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- G2H project alignment
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

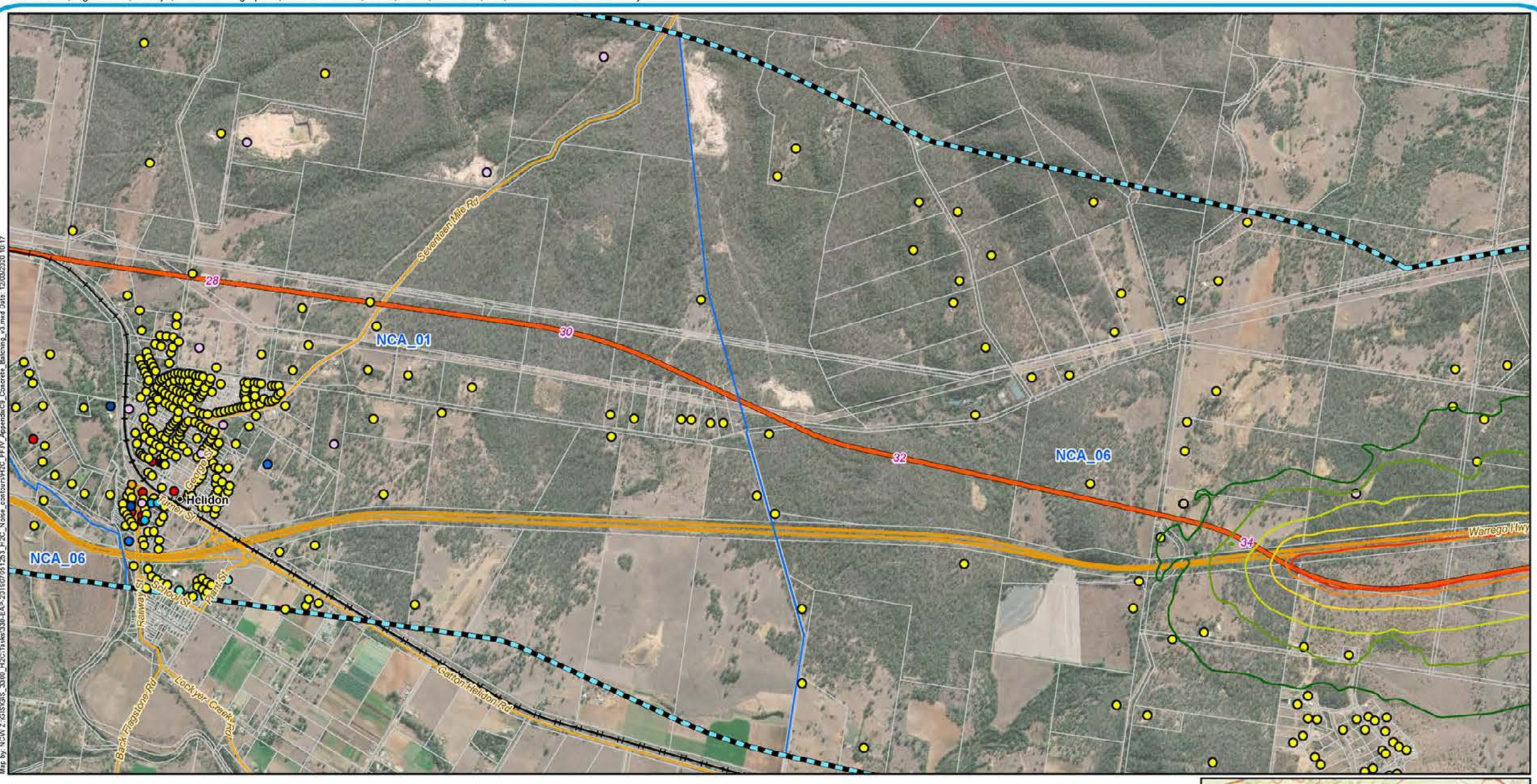
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 1 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

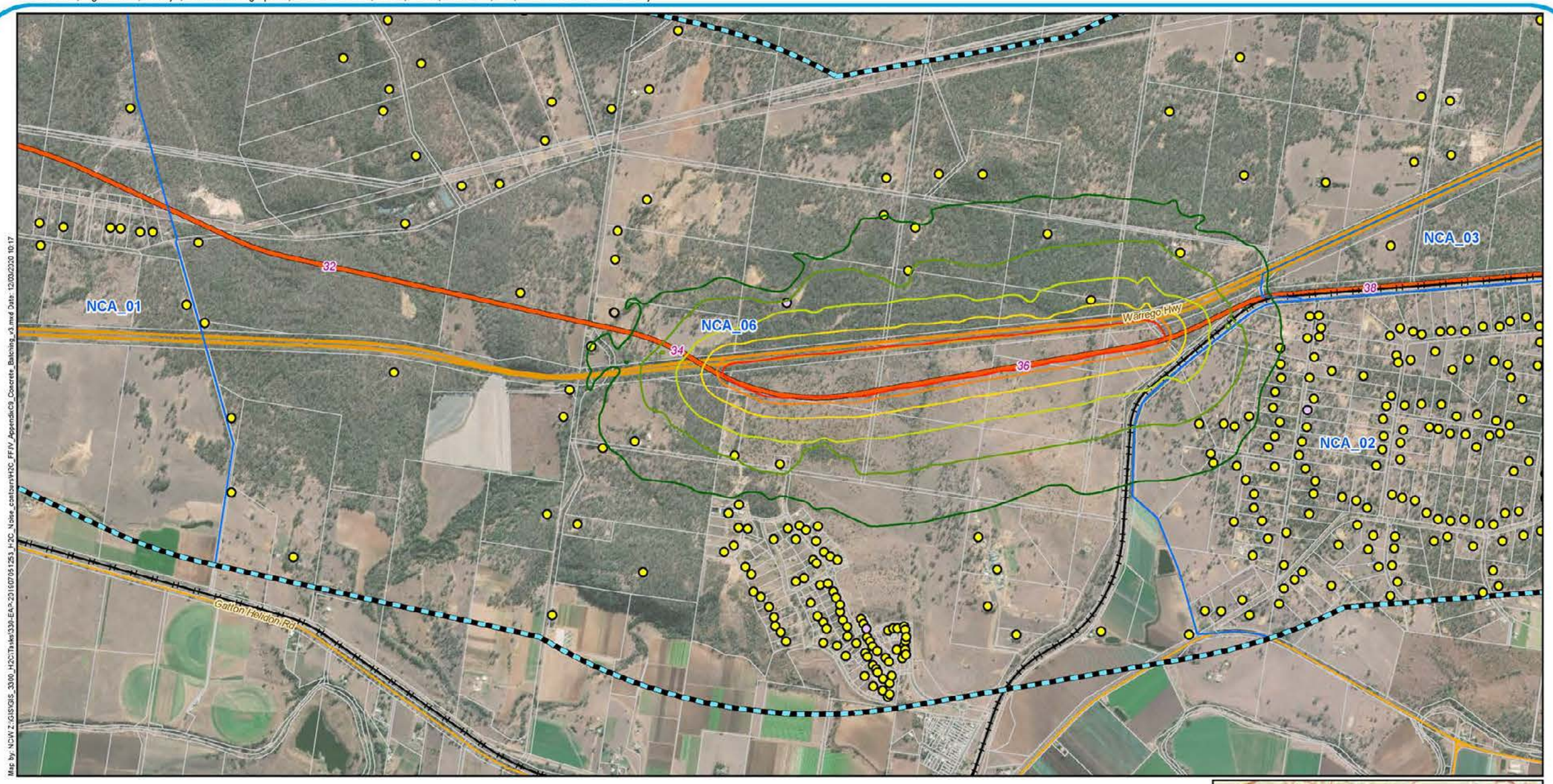
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 2 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

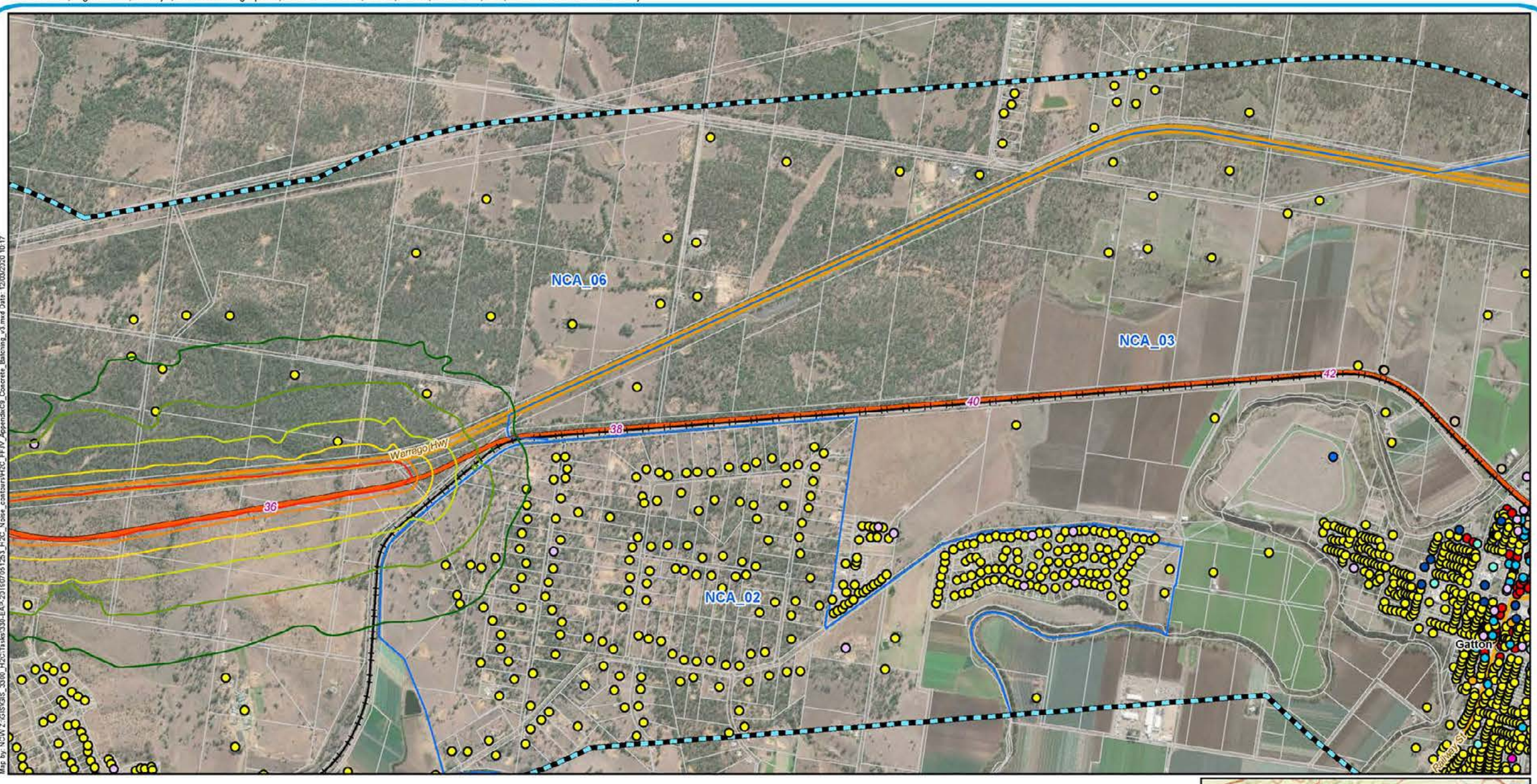
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 3 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC9_Concrete_Batching_v3.mxd Date: 12/03/2020 10:17

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

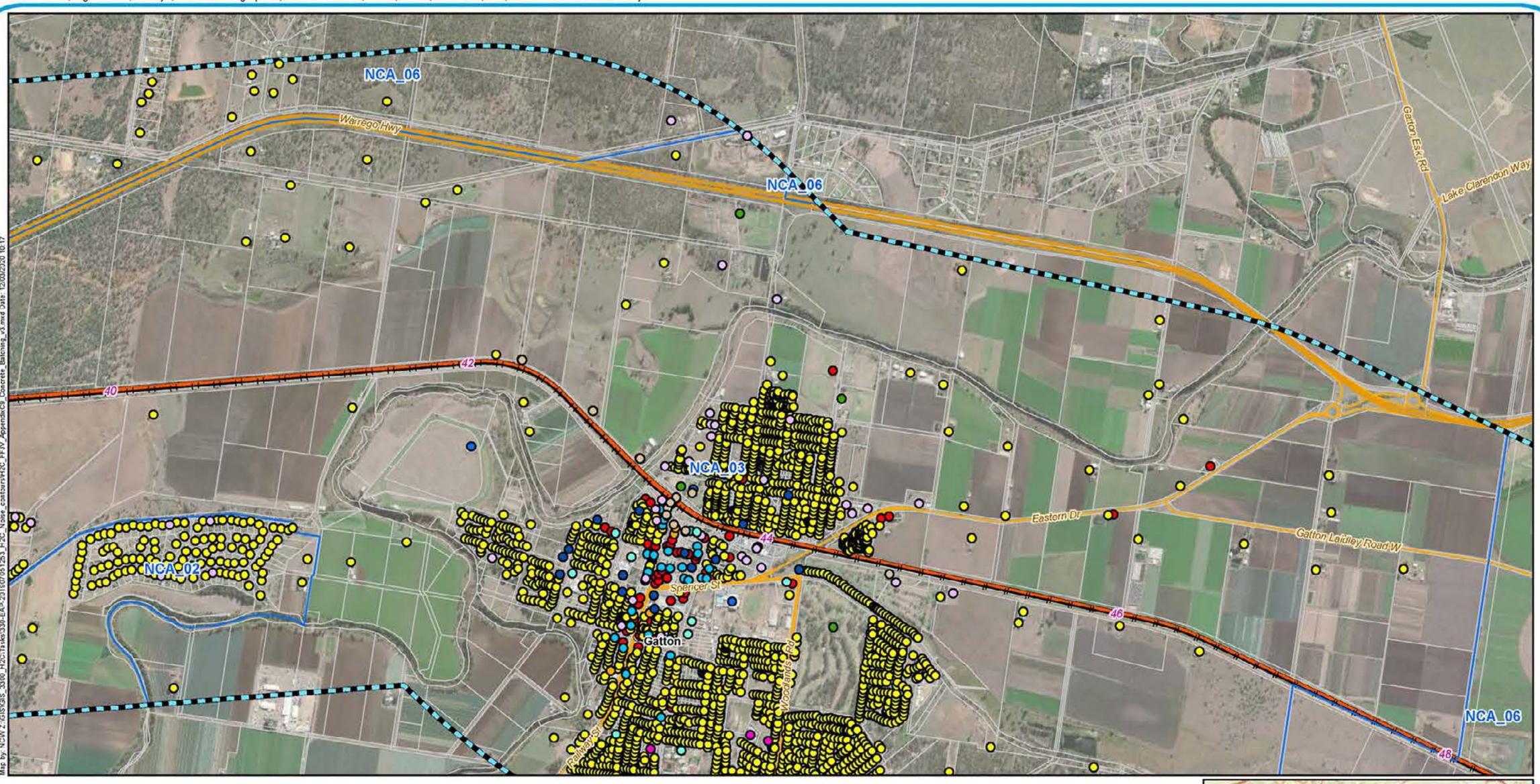
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 4 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

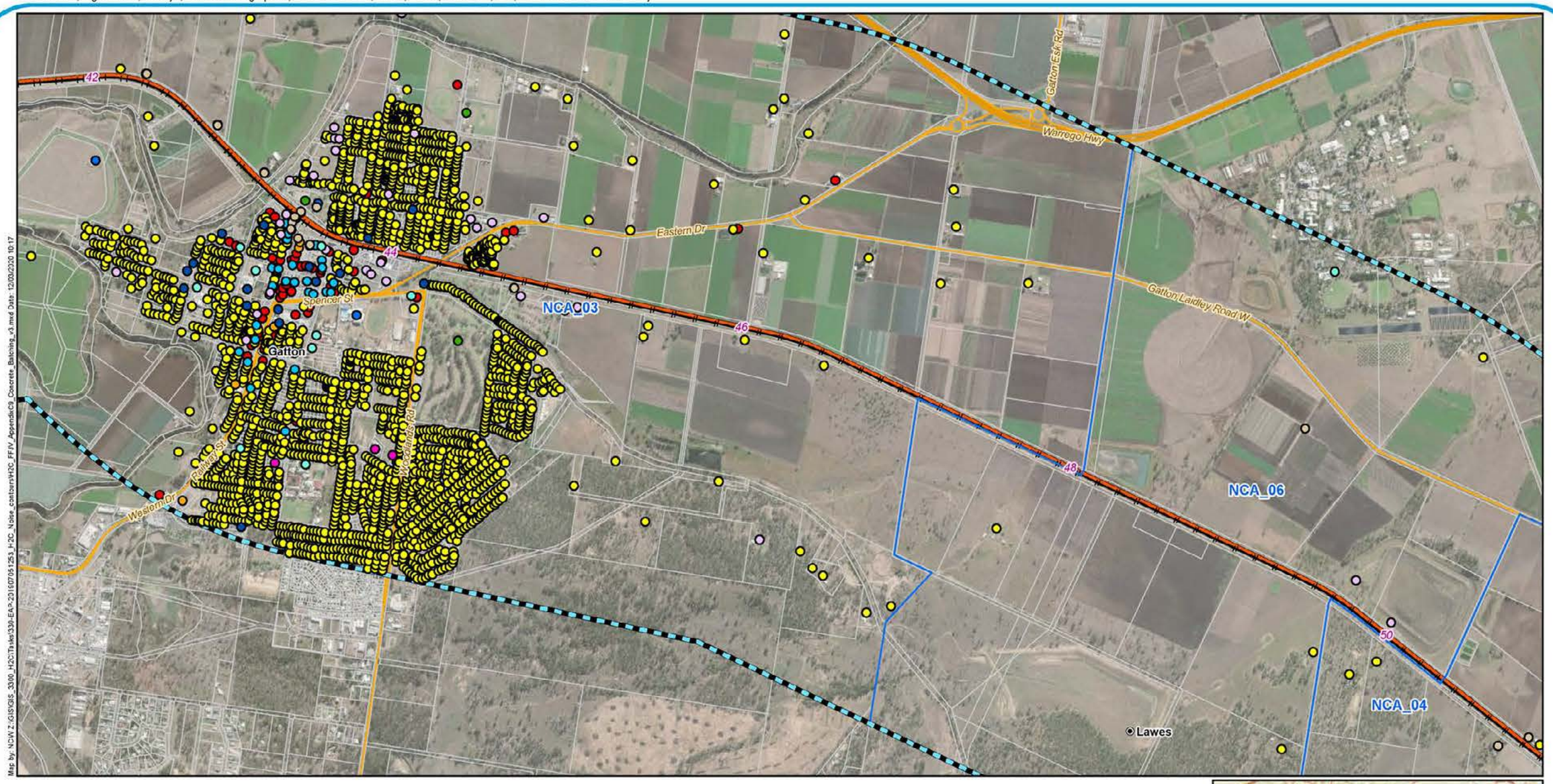
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 5 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

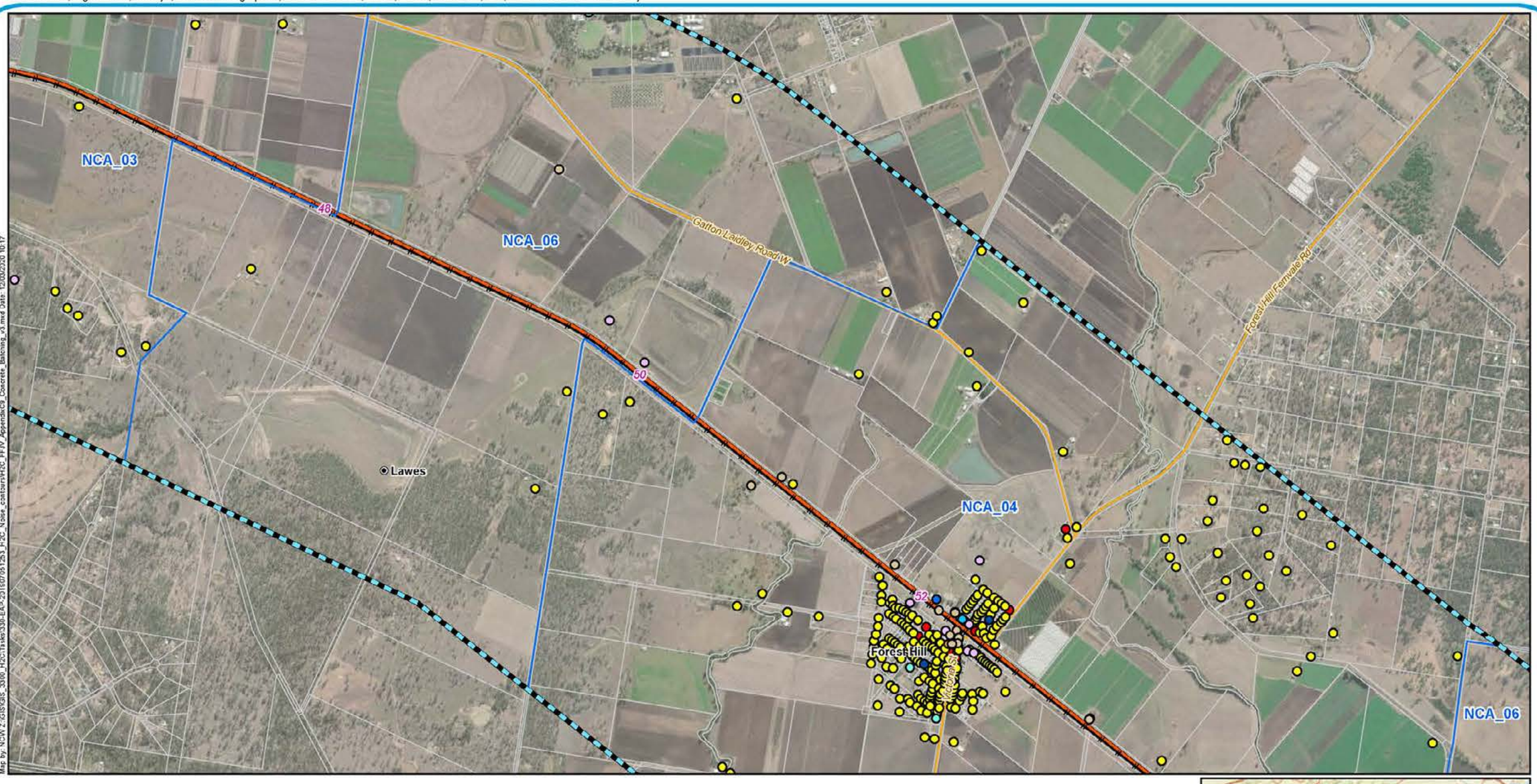
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 6 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

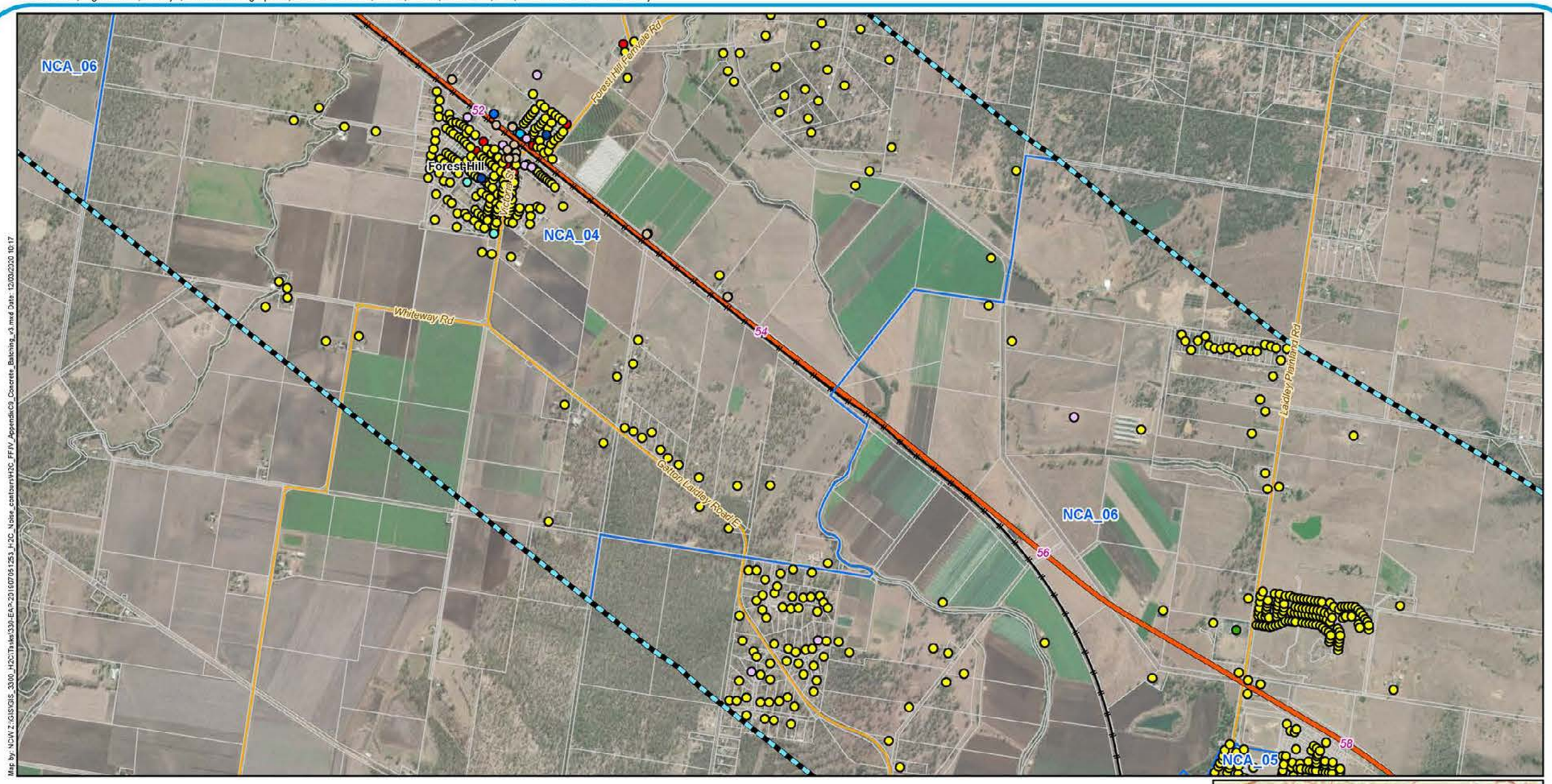
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 7 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: N:\W Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-20160705253_H2C_FF\V_Appendix\C9_Concrete_Batching_v3.mxd Date: 12/03/2020 10:17

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Commercial Office
- Outdoor Recreation
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

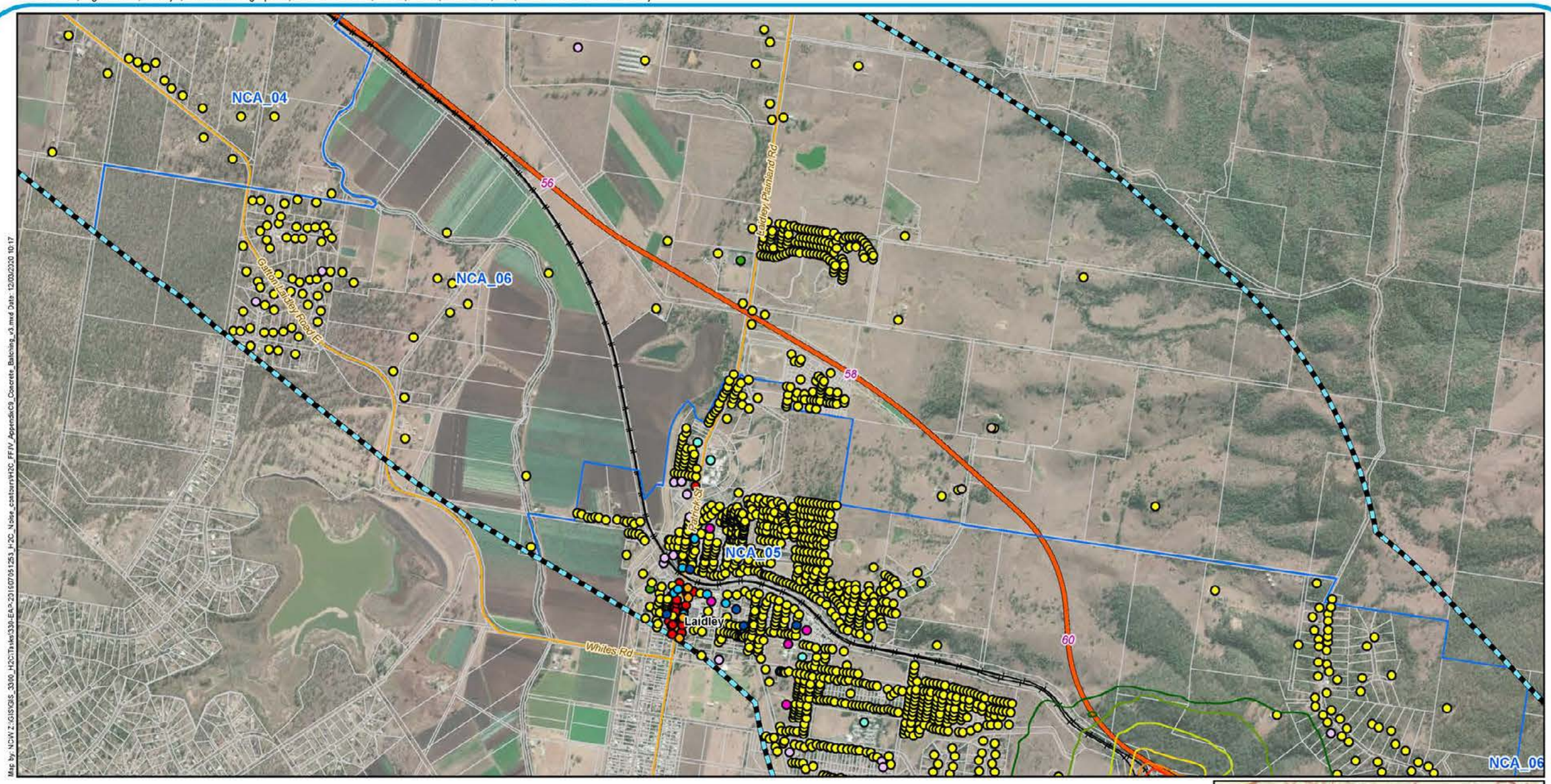
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 8 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

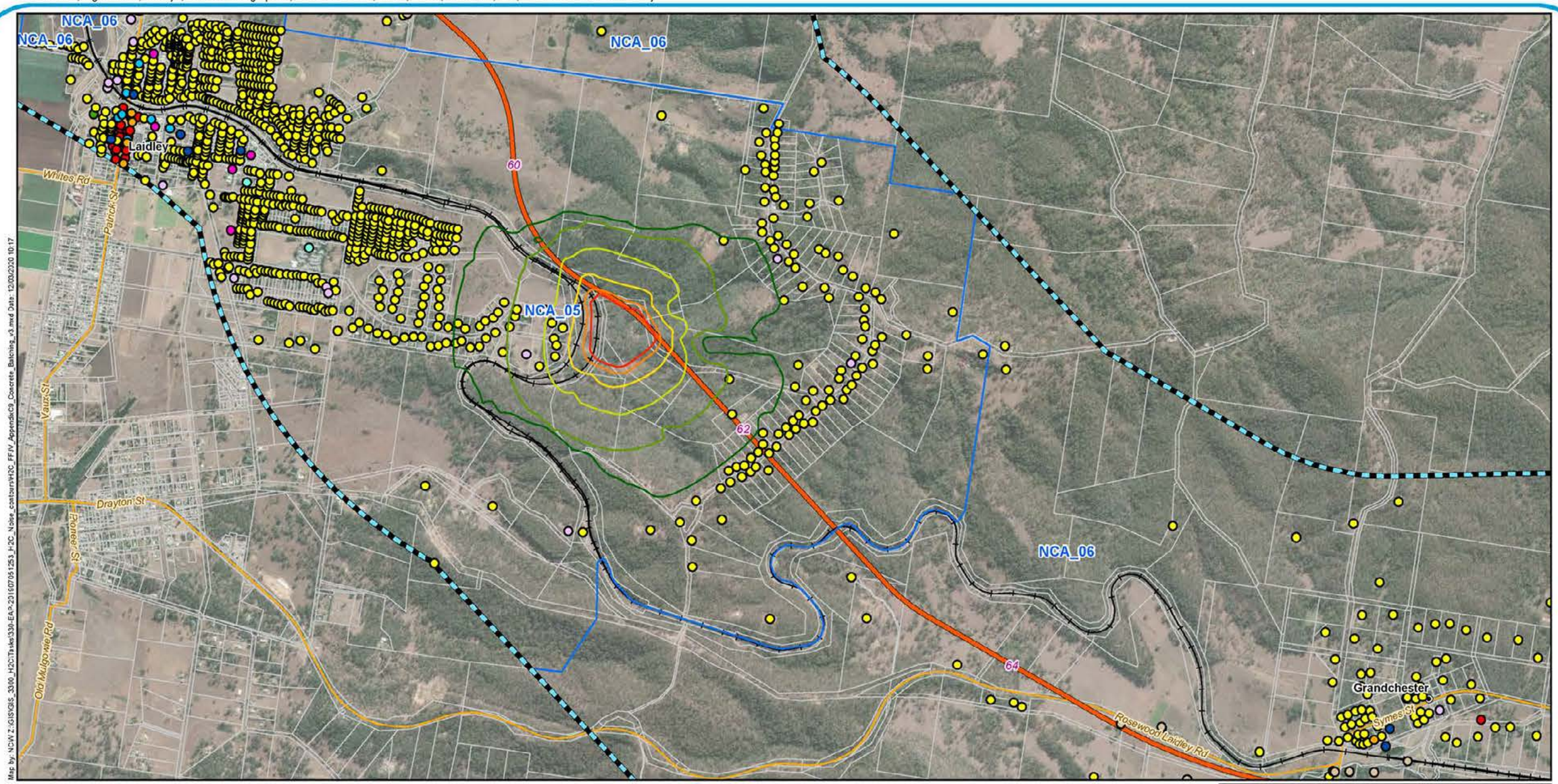
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 9 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Medical/Health Facilities
- Commercial Office
- Residential
- Retail
- Sport Facilities

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

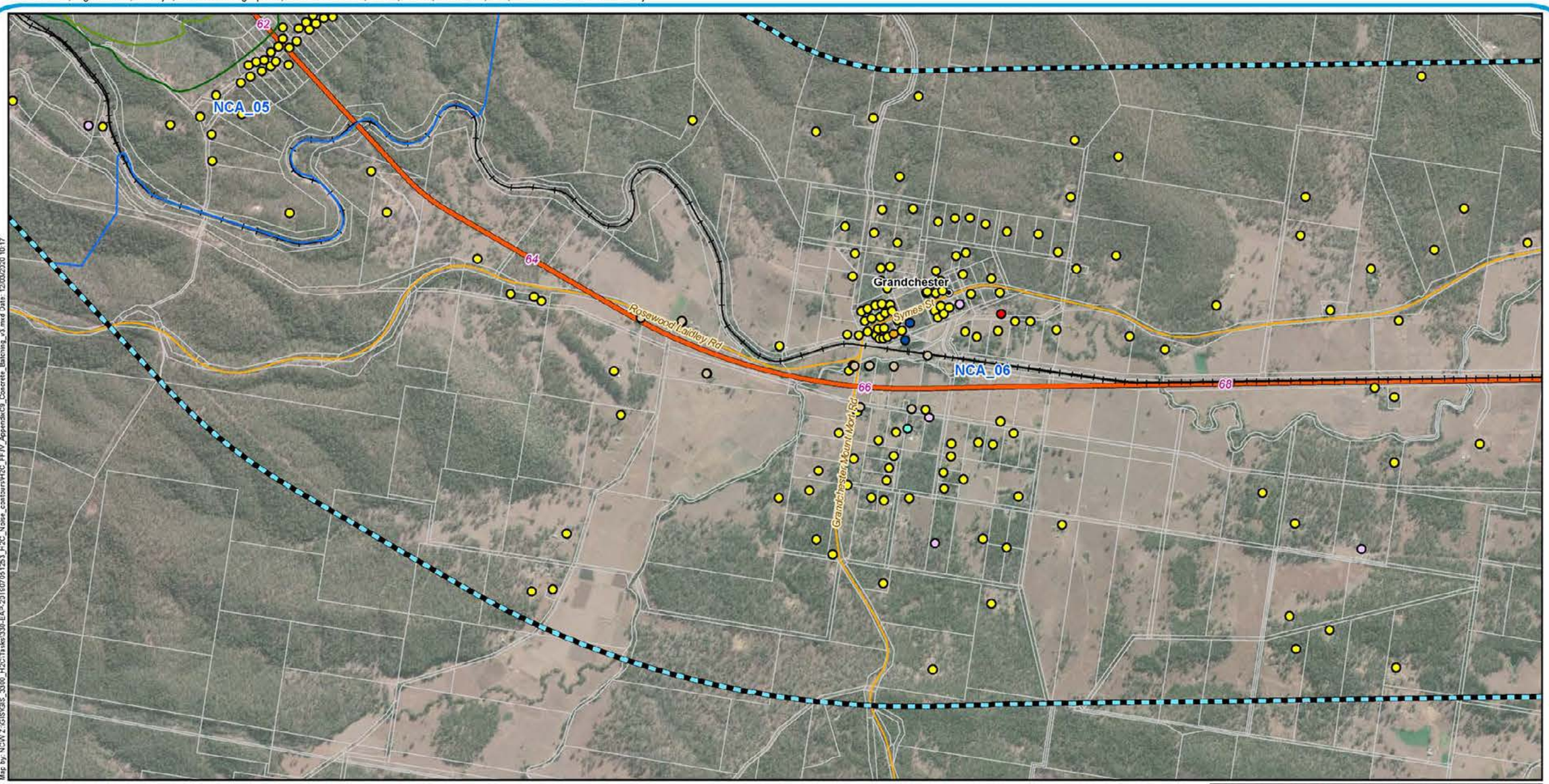
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 10 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Take\330-EA-20160705125\3_H2C_Noise_contours\H2C_FF\V_Appendix\C9_Concrete_Batching_v3.mxd Date: 12/03/2020 10:17

**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Commercial
- Education
- Heritage
- Hotel/Motel
- Industrial
- Residential
- Retail

A3 scale: 1:23,000
0 0.2 0.4 0.6 0.8 1km

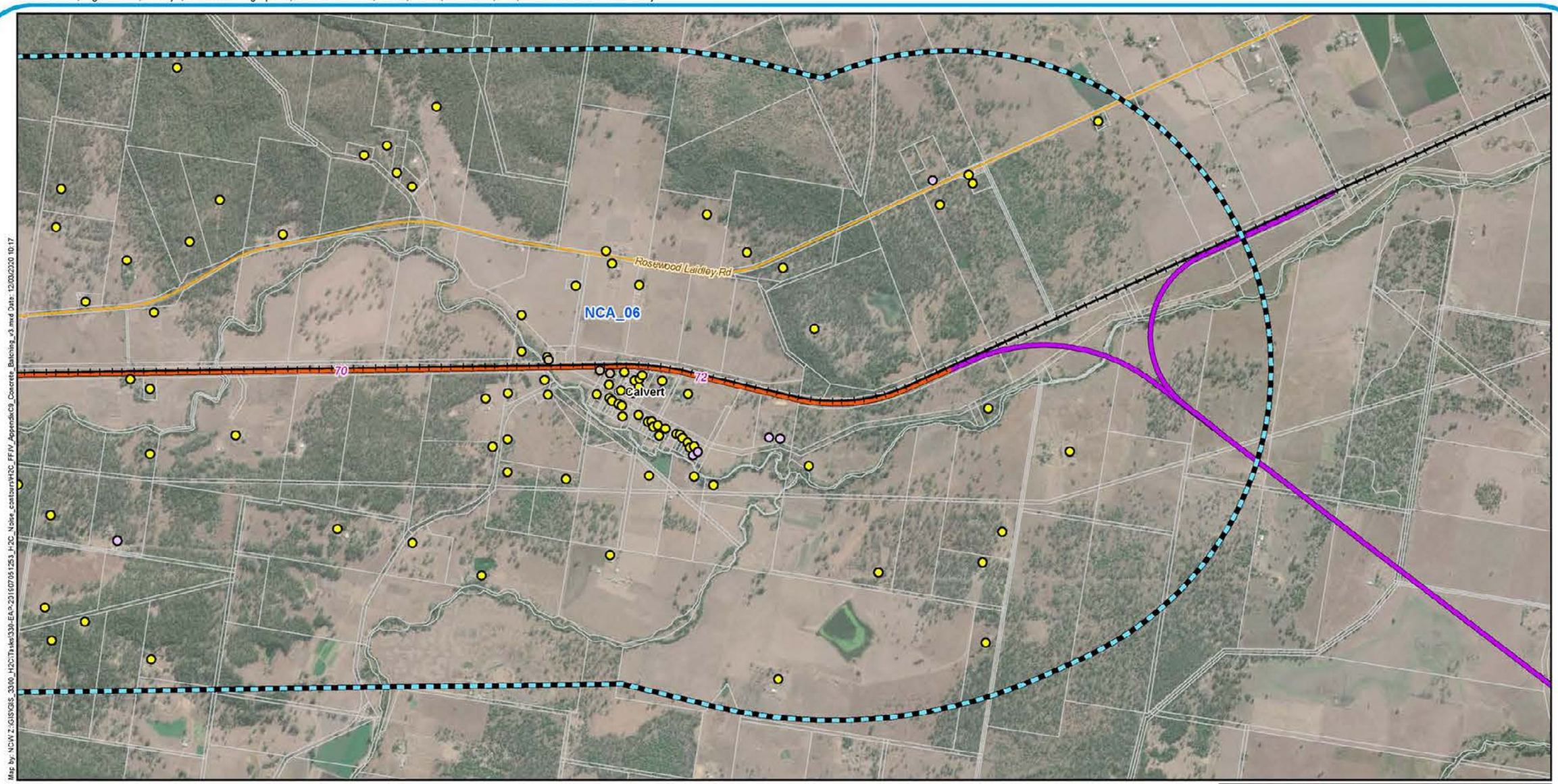
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 11 of 12

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

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**Legend**

- 5 Chainage (km)
- Localities
- Existing rail
- H2C project alignment
- C2K project alignment
- Major roads
- Minor roads
- Cadastre
- NCA
- Noise and vibration study area

**Sound Pressure Level $L_{Aeq}$, dB(A)**

- 45
- 50
- 55
- 60
- 65
- 70

**Sensitive Receptors**

- Heritage
- Industrial
- Residential

A3 scale: 1:23,000

0 0.2 0.4 0.6 0.8 1km

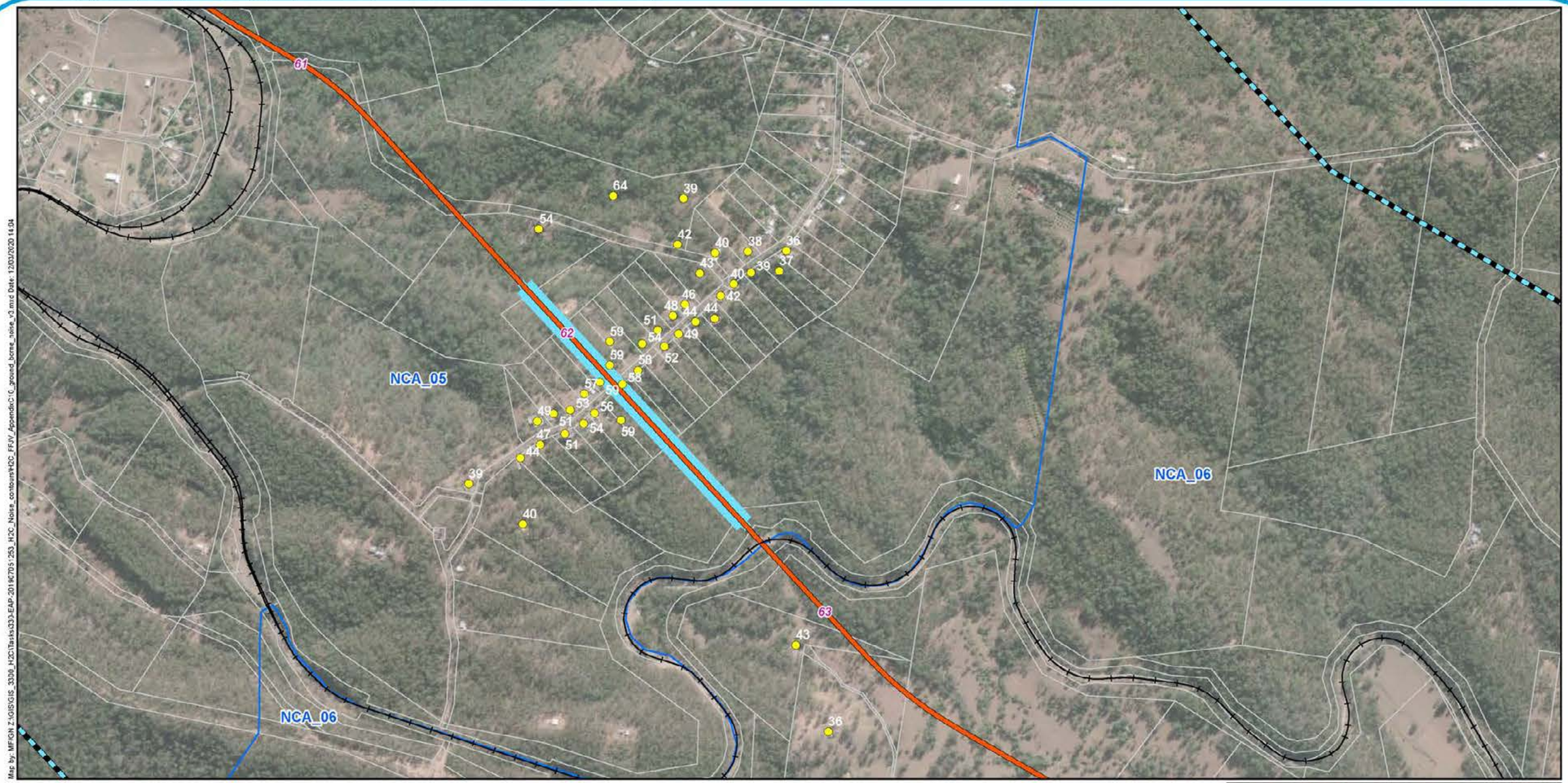
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C9 - Construction Noise Contours - Concrete Batching** Map 12 of 12

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: MFPGN Z:\GIS\GIS_3330_H2C\Tasks\333-EAP-20190705-253_H2C_Noise_contours\H2C_FFJV_Appendix\C\C_ground_borne_noise_v3.mxd Date: 12/03/2020 14:04

**Legend**

- Residential sensitive receptors
- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Tunnel
- Cadastre
- NCA
- Noise and vibration study area

A3 scale: 1:11,000

0 0.1 0.2 0.3 0.4 0.5km

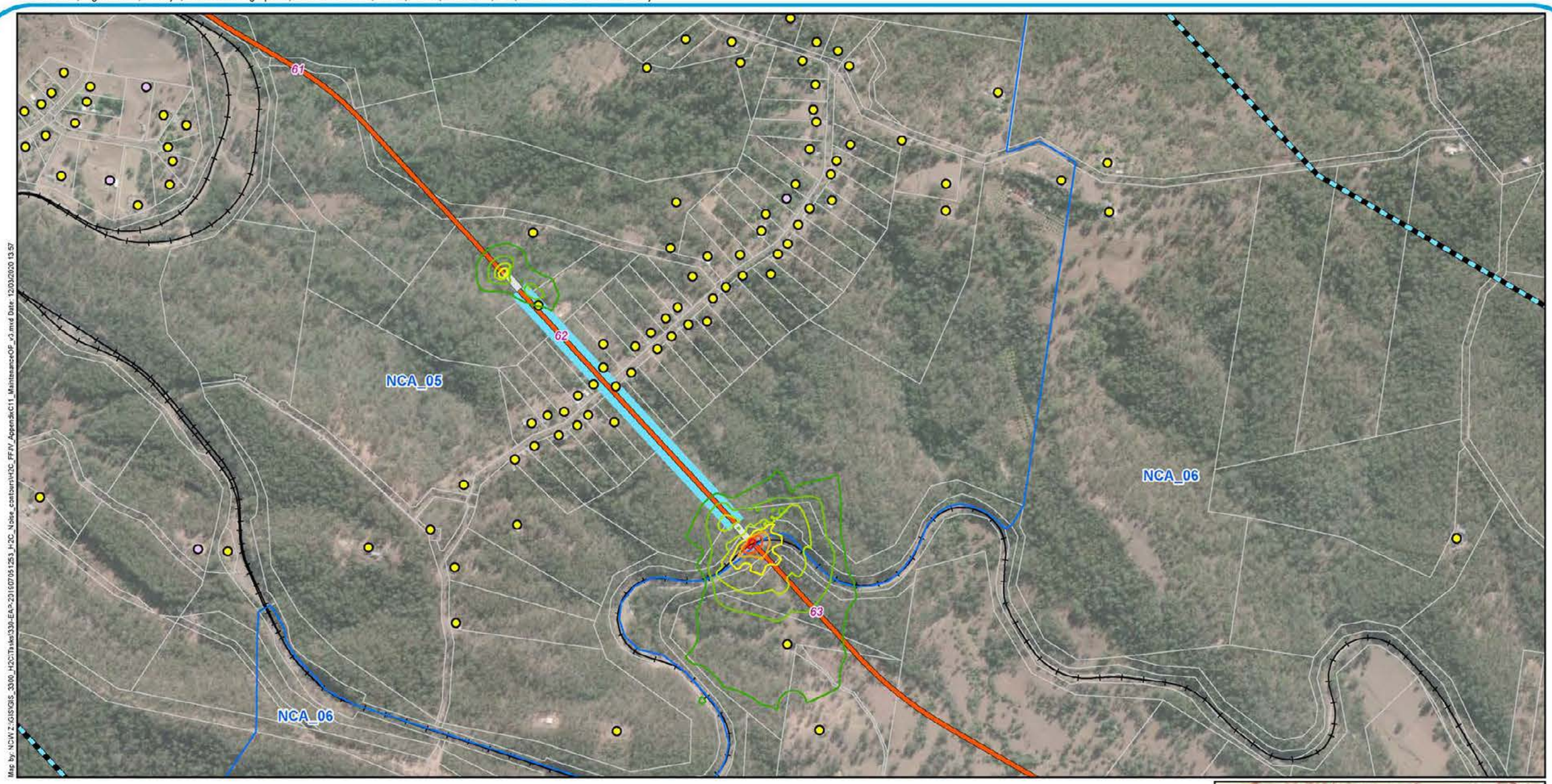
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C10 - Construction Noise Contours - Tunnel construction - Groundborne noise levels** Map 1 of 1

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC11_MaintenanceOP_v3.mxd Date: 12/03/2020 13:57

**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Tunnel
- Cadastre
- Industrial building
- NCA
- Noise and vibration study area

**$L_{Aeq}$, (1hr), dB(A)**

- 30
- 35
- 40
- 45
- 50
- 55
- 60

**Sensitive Receptors**

- Industrial
- Residential

A3 scale: 1:11,000

0 0.1 0.2 0.3 0.4 0.5km

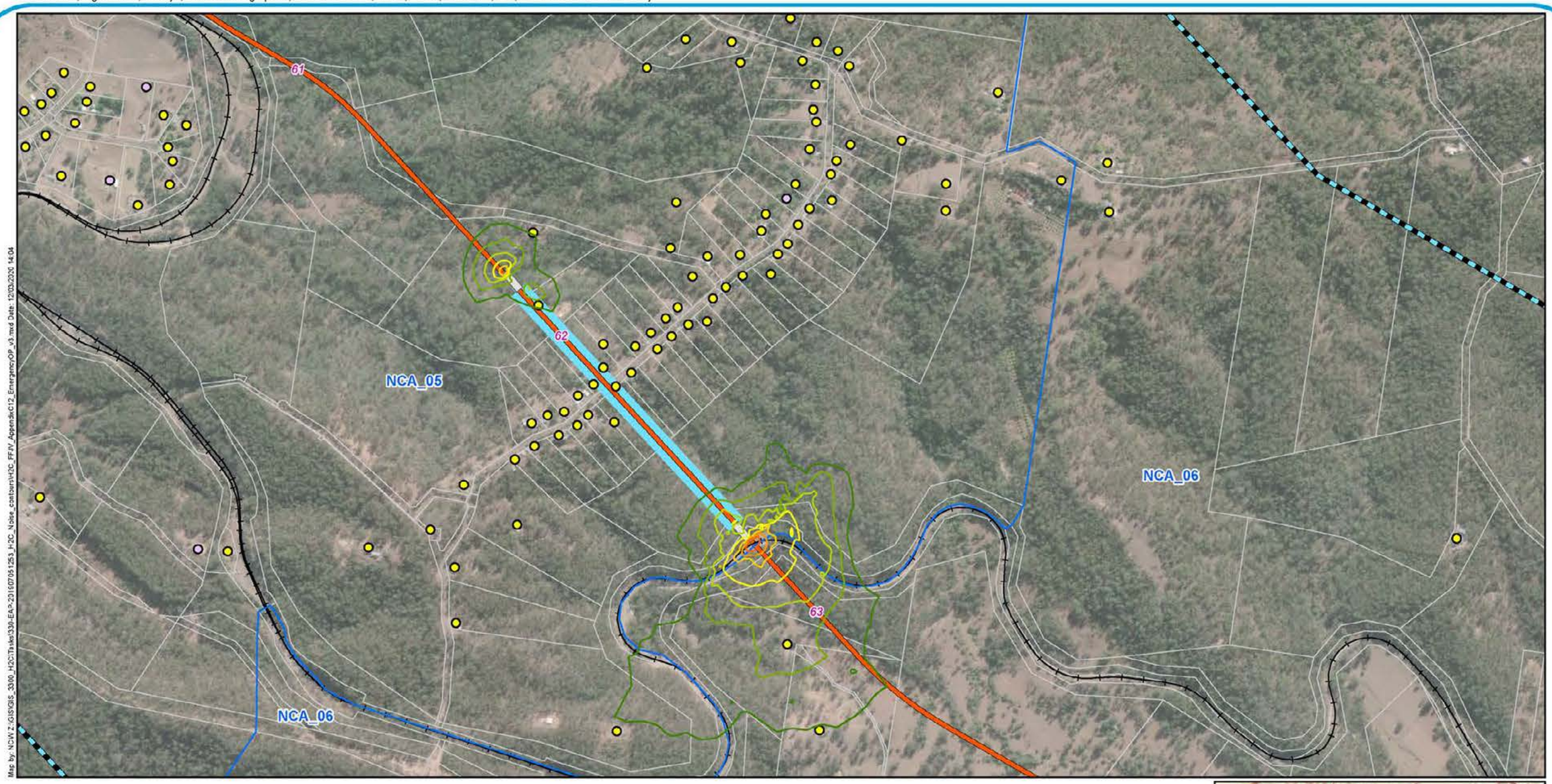
Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C11 - Fixed Infrastructure Noise Impacts - Maintenance Operational Scenario** Map 1 of 1

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community




Map by: NCW Z:\GIS\GIS_3300_H2C\Tasks\330-EAP-201607051253_H2C_Noise_contours\H2C_FFJV_AppendixC12_EmergencyOP_v3.mxd Date: 12/03/2020 14:04

**Legend**

- 5 Chainage (km)
- Existing rail
- H2C project alignment
- Tunnel
- Cadastre
- NCA
- Industrial building
- Noise and vibration study area

**$L_{Aeq}$, (1hr), dB(A)**

- 30
- 35
- 40
- 45
- 50
- 55
- 60

**Sensitive Receptors**

- Industrial
- Residential

A3 scale: 1:11,000

0 0.1 0.2 0.3 0.4 0.5km

Future Freight
Integrating Community, Environment and Engineering

Issue date: 11/03/2020 Version: 3
Coordinate System: GDA 1994 MGA Zone 56

**Helidon to Calvert**

**Appendix C12 - Fixed Infrastructure Noise Impacts - Emergency Operational Scenario** Map 1 of 1