Transport noise corridors mapping tool

User Guide for the online property search tool (February 2020)

Queensland Development Code Mandatory Part 4.4 - Buildings in a transport noise corridor

Queensland Government

What is the transport noise corridor mapping tool?

The State Planning Policy Interactive Mapping System (SPP mapping tool) is a geographic information system (GIS) hosted by the Department of State Development, Manufacturing, Infrastructure and Planning. The SPP mapping tool can be used to determine if a property is located within a transport noise corridor (TNC). The SPP mapping tool provides users with a mapped image and report about a property's transport noise corridor status. This information may be required as part of a building or development application.

The *Queensland Development Code MP 4.4 – Buildings in a transport noise corridor* (QDC 4.4) sets the mandatory building standards to ensure residential buildings located on noise affected properties are designed and constructed to reduce transport noise for the dwellings' occupants. The mapping tool is intended to provide a search result for properties when demonstrating compliance with QDC 4.4. A property may be located in one or more of the following TNCs:

- **State-controlled road** – either a mandatory or voluntary area. Where a residential property is located within the mandatory area (wholly or partly), it will need to comply with the relevant noise category measures under QDC 4.4. Where a residential property is located within the voluntary area (wholly or partly), the building owner can choose to include the relevant noise category measures under QDC 4.4.
- **railway**
- **local government road**[1].

Purpose of this guide

This user guide provides building industry professionals and homeowners with detailed information on:

- how to access and use the SPP mapping tool to determine if a property is located in a TNC,
- how to locate properties that the search function cannot easily find, and
- what to do if a problem is encountered when using the SPP mapping tool.

A Quick guide is also available as an introductory guide to assist with using the mapping tool.

[1] Only where a local government has gazetted a road as a TNC under the *Building Act 1975*. To date, Logan City Council and Redland City Council have designated roads as transport noise corridors under the Building Act. For all other local government areas, building applicants are recommended to contact the relevant local government to check for any planning scheme requirements that may apply in the area.

Abbreviations used in this guide

dB(A)	decibels measured on the ‘A’ weighting frequency
LG	Local Government
QDC	Queensland Development Code
QDC 4.4	Queensland Development Code MP 4.4 – Buildings in a transport noise corridor
TNC	transport noise corridor (as designated under the Building Act).

How to use the SPP mapping tool

Accessing the mapping tool (Figure 1)

To access the SPP mapping tool to undertake a property search:

- visit the SPP mapping tool at: https://spp.dsdip.esriaustraliaonline.com.au/geoviewer/map/planmaking (or alternatively type SPP mapping into an web browser)
- scroll down to the bottom of the page and tick the disclaimer, then click on the green box on the left hand side called **Access Plan Making Mapping**. The mapping tool will open in a new window and begin by showing a map of Queensland as the starting point as shown in Figure 1. To access the TNC mapping layers:

1. click on **Information Purposes** (the grey box located on the left hand side of the page)
2. click on **TRANSPORT INFRASTRUCTURE** to make the TNC layers appear
3. tick the box **All** to show all the State and local government TNC layers.

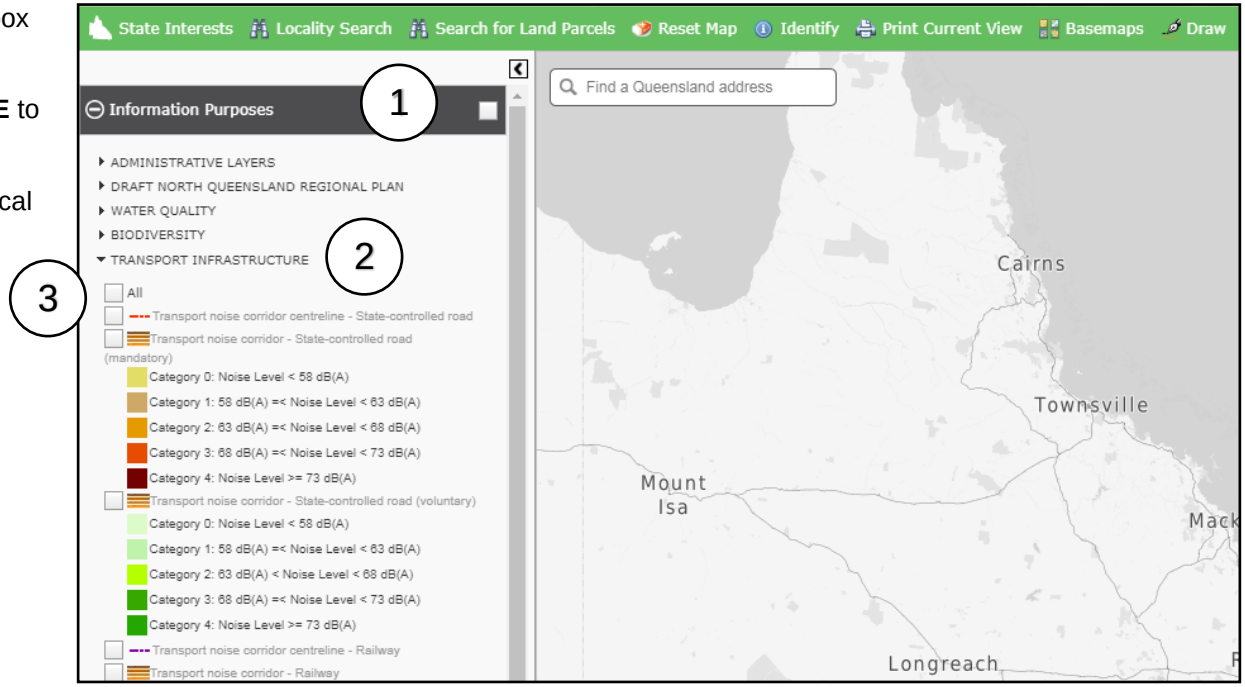


Figure 1: Opening screen of SPP mapping tool and accessing the designated TNC

Mapping tool functions (Figure 2)

After accessing the SPP mapping tool, a range of functions are available to assist with the property search, as shown in Figure 2, including:

1. **Search for Land Parcels** function
2. **Identify** and **Print Current View** functions
3. **Zoom** tool
4. **Scale bar**
   (this will automatically adjust when zooming in or out of the map, either via using the zoom tool or scrolling with the mouse)
5. a list of mapping layers available to select / deselect:
   - **State-controlled road**, both MANDATORY area and VOLUNTARY area, and **Noise corridor centreline** for state-controlled roads
   - **Railways**, including a centerline for railways.

When the **All** box is ticked, all designated TNCs will be displayed when the property search result is generated. These layers will also be displayed when zooming the map at different scales.

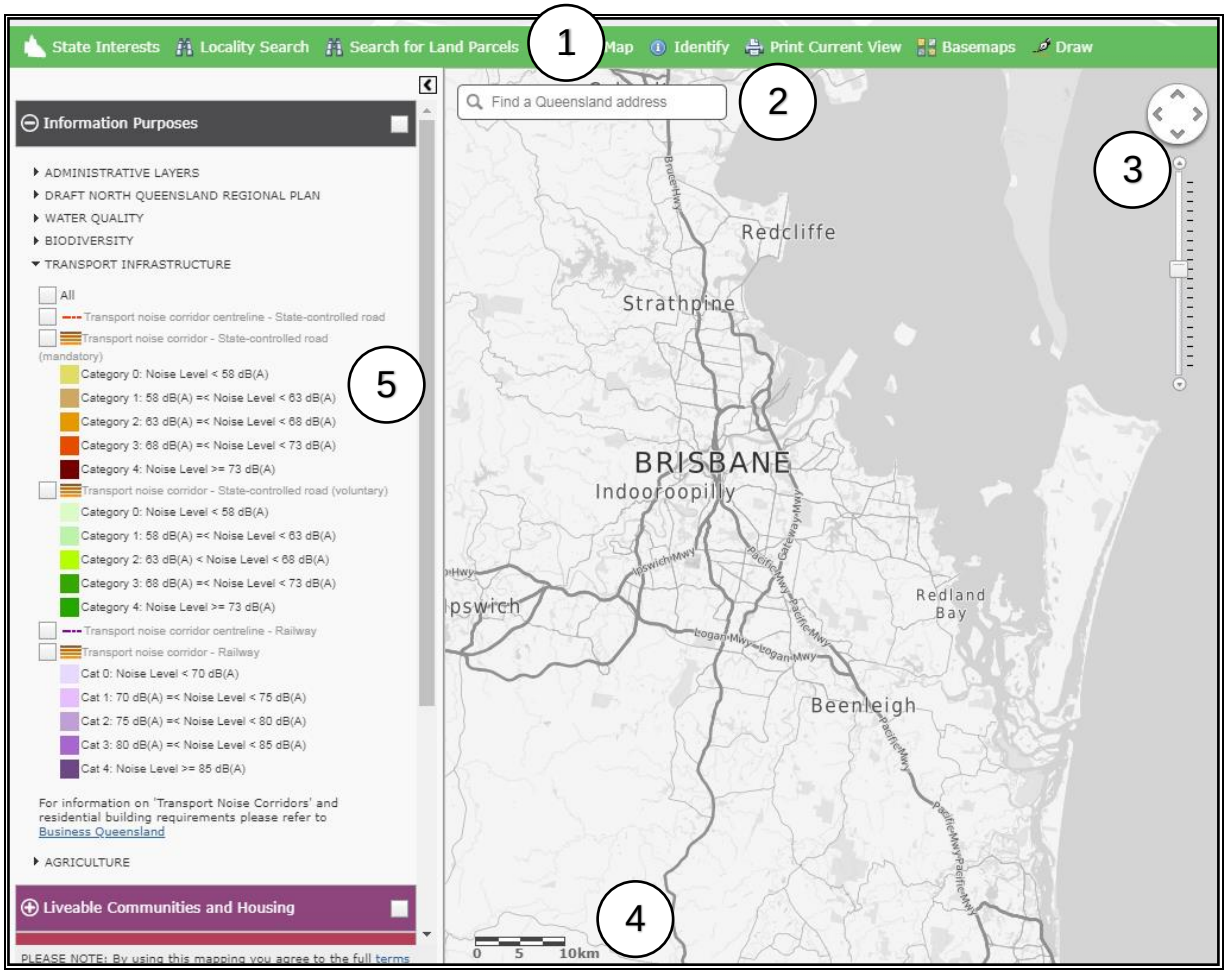


Figure 2: Mapping tool functions

Searching for a property

To search By Street Address (Figure 3a)

To search by street address:

1. click on the **Search for Land Parcels** function
2. click on **By Street Address** tab
3. type the street address details into the boxes provided
4. click on the **Search** button.

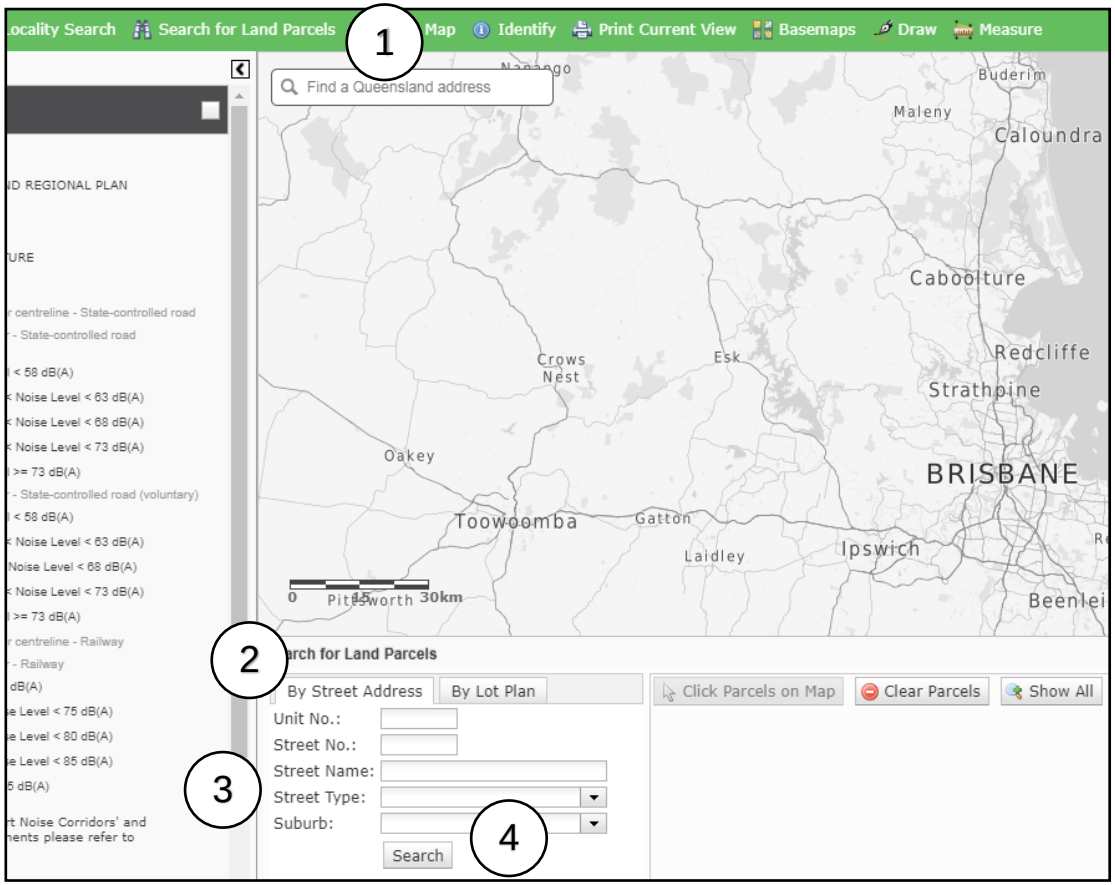


Figure 3a: Property search options - By Street Address

To search By Lot Plan (Figure 3b)

To search by lot plan:

1. click on the **Search for Land Parcels** function
2. click on **By Lot Plan** tab
3. type the lot plan details into the box provided
4. click on the **Search** button.

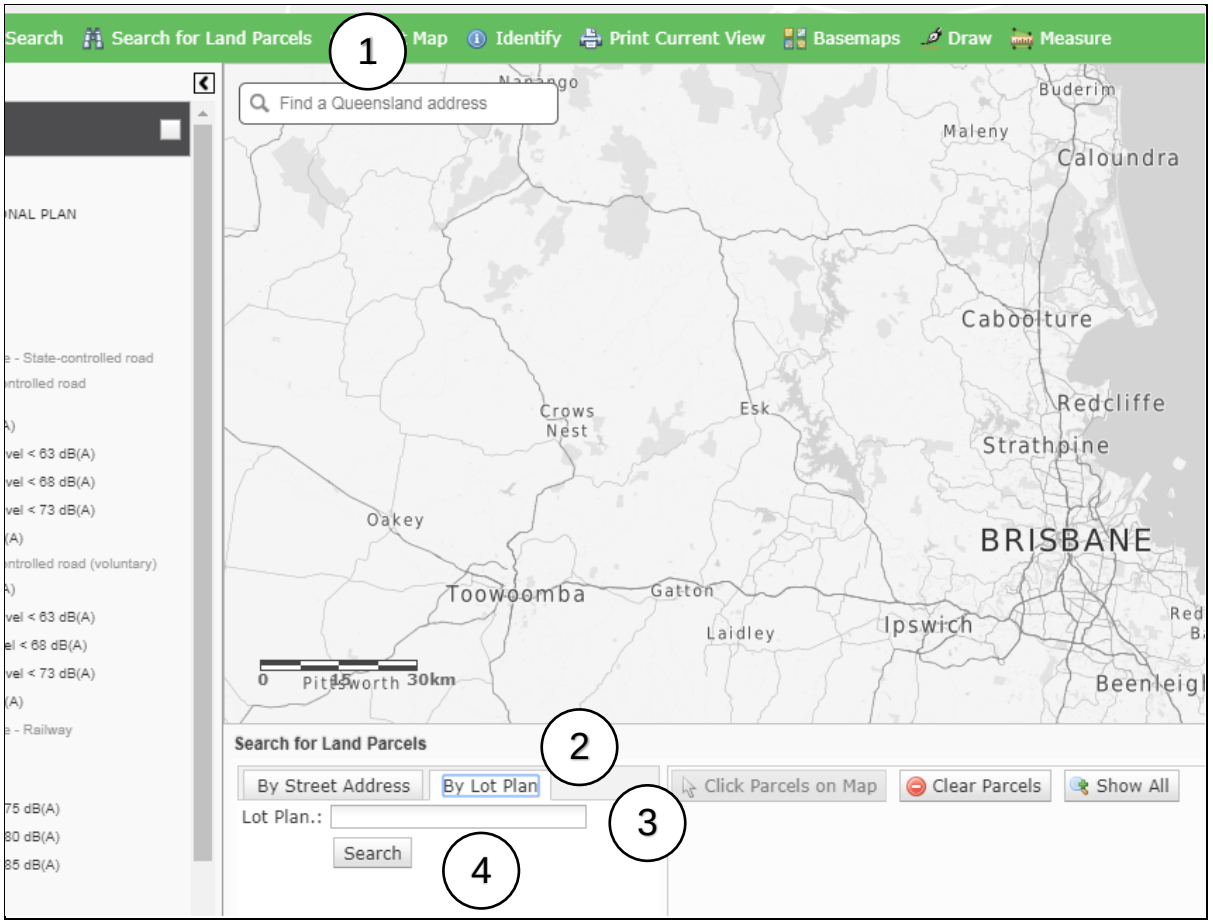


Figure 3b: Property search options - By Lot Plan

Search result screen

If the property is recorded in the SPP mapping tools database, the following information will be displayed after the screen automatically zooms into the property:

- A box will appear titled **Mapping Layers for State Interests**. This box does not contain any TNC data and is information for land use planning issues associated with various other SPP mapping layers; therefore close this box.
- The searched property will be shown with a **red boundary outline** in the centre of the screen. It will identify if the property is located within or outside of a designated TNC. Click on the black 'X' on the right-hand side of the **Search for Land Parcels** bar to close the bottom half of the screen.
- Users must confirm that the identified allotment is the correct property searched (i.e. is the lot plan number and/or street address correct). If the identified allotment is not correct, the property's location should be checked by:
  - resubmitting the search using the alternative search option (i.e. use the By Lot Plan tab if By Street Address was previously used),
  - cross referencing the lot plan number against the survey plan or registered plan with land title information, or
  - scan the general location using the view options available via the Basemaps function e.g. Hybrid Aerial or Aerial (refer Basemaps on page 22 of this guide). Alternatively, check details available from another online mapping tool, such as the Queensland Globe service (https://qldglobe.information.qld.gov.au/).
- If the identified property cannot be found, a manual search will need to be carried out (see 'Manual Search' on page 10 of this guide).
- The various types of TNCs are shown as coloured contours, with examples shown in Figure 4. The key on the left hand side of the SPP mapping tool shows their type and associated noise category contour colours (see Figure 4 – Point 1), as summarised in Table 1.

Table 1: TNC types, noise categories and contour colours

Noise Category	State-controlled roads – MANDATORY AREA	State-controlled roads – VOLUNTARY AREA	Railways
4	Brown	Dark Green	Violet
3	Orange	Green	Purple
2	Gold	Light Green	Mauve
1	Beige	Pale Green	Lavender
0	Yellow	Soft Green	No colour

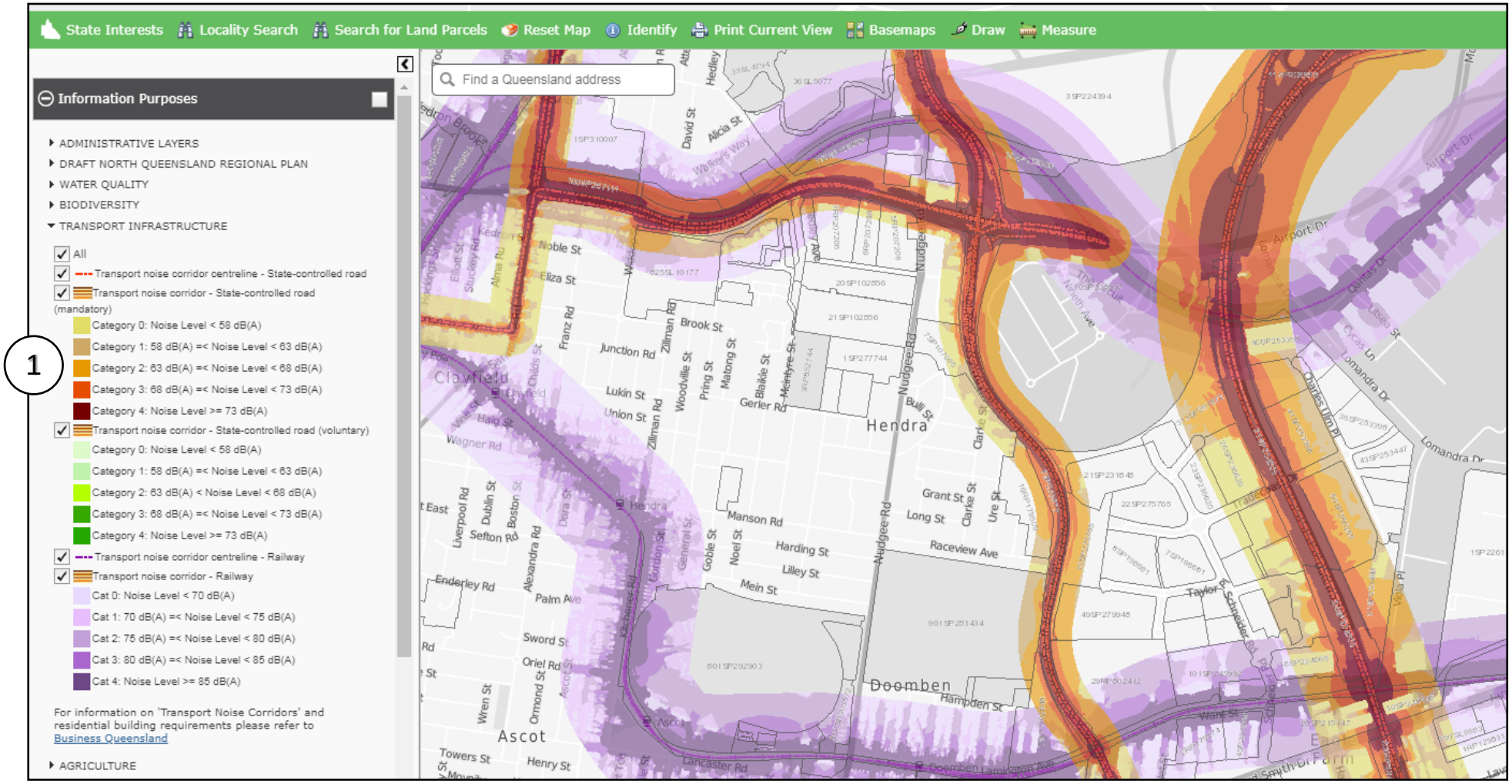
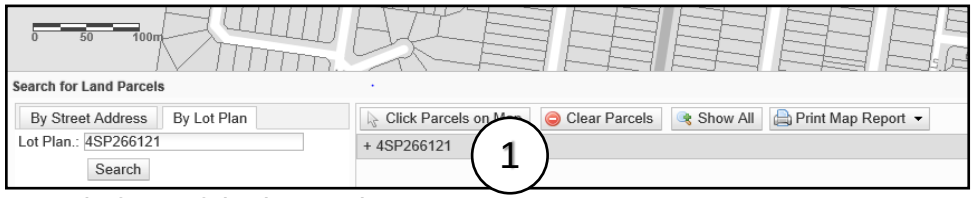


Figure 4: State and local government TNCs with contours showing relevant noise categories

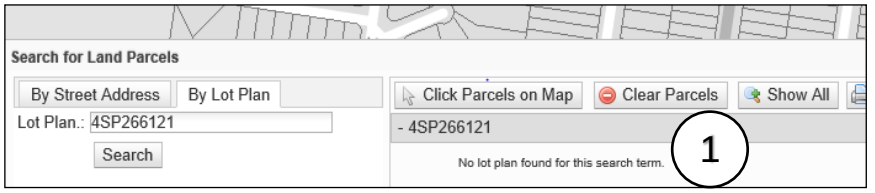
What if the property cannot be found?

Although the SPP mapping tools database is updated monthly with registered property details, some addresses, such as new residential estates or a recently subdivided property, may not be recorded. In these cases, no result will be available and no property will appear with a red boundary after clicking **Search**. Instead, only the lot plan number will appear in the **Search for Land Parcels** screen with a **+** sign in front of it (see Figure 5a – Point 1). Clicking on the + sign will provide further information on the searched property. In cases where the text appears '**No lot plan found for this search term**', this confirms that the property is not yet recorded in the SPPs database (see Figure 5b – Point 1).



1. **+** in front of the lot number

Figure 5a: Property data link



2. text appearing "No lot plan found…"

Figure 5b: Confirmation that the property is not recorded on the mapping database

To continue searching for the property, first confirm that the street address or lot plan details were entered correctly (including spelling and locality). If the search was undertaken using the street address search function, try again using the lot plan search (or vice versa).

If the property cannot be found, a manual search can be carried out.

Manual search

To find the location of the property, try one or a combination of the following:

- obtain a copy of the survey plan or registered plan which contains land title information and checking details for adjoining properties
- identify the lot plan number for the original (or parent) lot from which the new estate or subdivided property was created
- go to the broad location of the property and check for similar property shapes in that area
- using the **Basemaps** function (e.g. Hybrid Aerial or Aerial) to identify nearby local landmarks
- by checking details available from another online mapping tool, such as the Queensland Government's Queensland Globe service (https://qldglobe.information.qld.gov.au/).

If referencing from a survey plan with a known boundary from the original (or parent) lot on the survey plan, the SPPs mapping tools' **Measure** function can be used to identify the location of a lot within the new estate or subdivided property (see 'Using the Measure function' on page 18 of this guide).

Allotments and units within a Building Unit Plan (Group Title)

Allotments and units that form part of a building unit plan (BUP) arrangement, commonly referred to as group title, which are typically covered by a body corporate, may not be individually identified in the SPP mapping tool. Therefore, they may not be found when undertaking a TNC property search. However, users may be able to identify other parts of the same BUP using the **By Lot Plan** or **By Street Address** search functions.

If the allotment or unit cannot be located, users will need to refer to information from a registered plan for the site covered by the BUP. Details from this can be used to assist with identifying the position of that allotment or unit from the SPP mapping tool.

For example, Figure 6 – Point 1 shows the property boundary of a BUP. The SPP mapping tool also shows the outline of individual allotments within the BUP. However, it does not identify lot numbers for each of them. Instead, the mapping tool labels these lots as the entire BUP reference.

As shown with the search result map on Figure 4, this BUP is primary affected by noise categories 1 and 2, with a small parts in category 3 and 4. To identify the noise category that applies to a particular allotment within the BUP, users will need to refer to the registered plan for the BUP and then use the **Measure** function to identify the location of that lot (see 'Using the Measure function' on page 18 of this guide) and the relevant noise category that applies for the allotment or unit.

1. Area covered by a building unit plan

Figure 6: Allotments and units within a Building Unit Plan (Group Title) arrangement

Understanding the property search results

A property search can result in one of the following three scenarios:

1. **Property is not located within a TNC (Figure 7)** - the proposed residential building will not need to comply with any QDC 4.4 building requirements.
2. **Property is located in a single noise category (Figure 8)** - the proposed residential building will need to comply with the relevant building requirements for that noise category under QDC 4.4. For example, if the search result shows the property is located solely within Category 1, then only Category 1 building requirements will apply.
3. **Property is located across multiple noise categories (Figures 9a and 9b)** - where the building's footprint sits across multiple noise category areas, then the relevant part of the proposed residential building will need to meet the particular building requirements of each corresponding noise category (i.e. the search result shows the property within a TNC across multiple colour contours). For overlapping noise corridors, such as a state-controlled road and a railway, the building will have to meet the requirements of the highest noise category that applies to each respective part of the building.

Further information is provided below about how to apply these search results.

Note

On 29 January 2020, TNC mapping for state-controlled roads and railways was updated using terrain (or topographical) modelling. This type of mapping considers local factors that can influence the extent of transport noise from state-controlled roads and railways, such as the existence of known noise barriers, topography and buildings. It also incorporated the most up to date traffic information such as vehicle volumes, speed environment, pavement type and heavy vehicles for state-controlled roads and train type, train frequency, speed environment and track type for railways.

The updated TNCs for state-controlled roads and railways more accurately represent the transport noise impacts on land adjacent to these corridors. As a result, the updated mapping is now accurate enough for most property owners to avoid undertaking an on-site noise assessment to measure the actual level of transport noise affecting a property.

1. Property <u>is not located</u> within a TNC (Figure 7)

If after entering the property details and the red property (see Figure 7 - Point 1) boundary appears outside of a coloured corridor, then the search result will mean that the property is not located within a TNC.

Always check that the **All** box (see Figure 7 - Point 2) is ticked to confirm that all the TNCs mapping layers are turned on.

Print and save a copy of the property's search result for future reference (see 'Printing and saving a search result' on pages 23-24 of this guide).

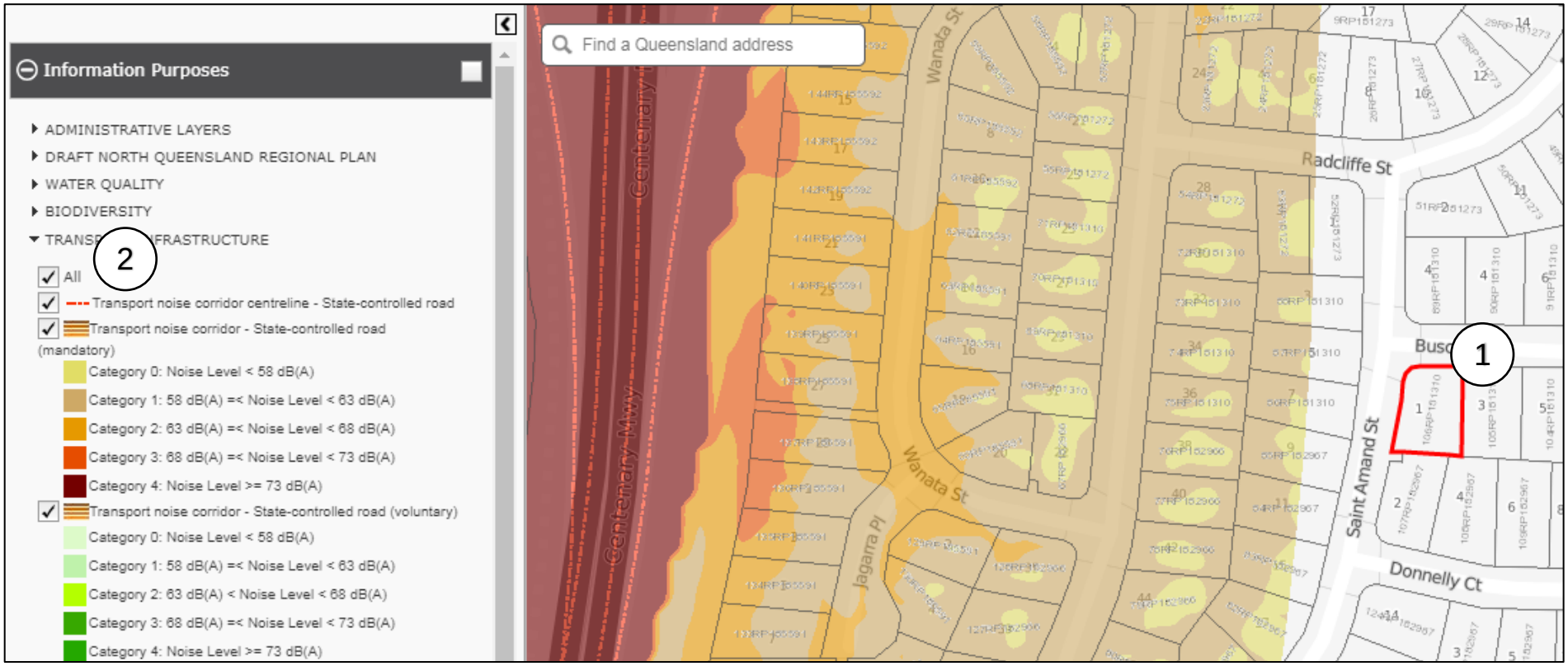


Figure 7: Search result showing a property not located within a TNC

2. Property is located in a single transport noise category (Figure 8)

A property is affected by only one transport noise category if it lies wholly within a single coloured contour (see Figure 8 - Point 1). Use the **Key** to identify which noise category applies to the property (see Figure 8 - Point 2).

Print and save a copy of the property's search result for future reference (see 'Printing and saving a search result' on pages 23-24 of this guide).

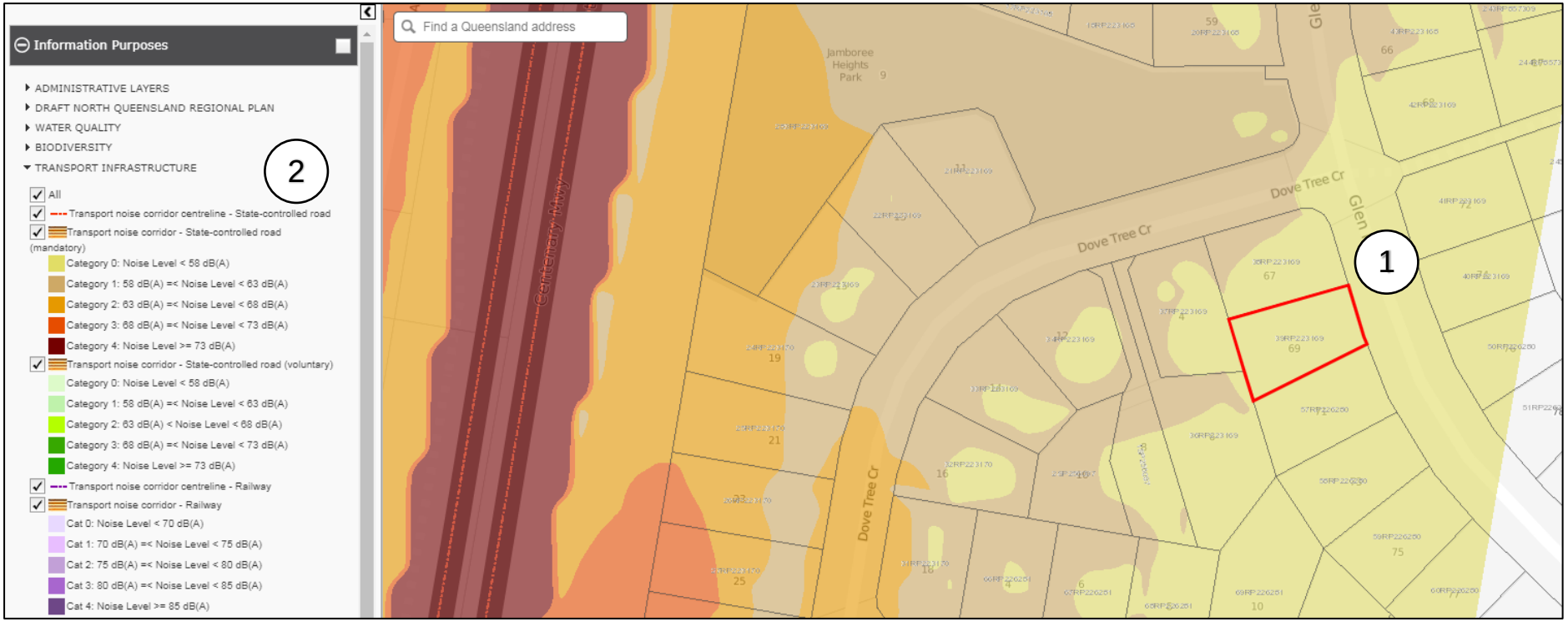


Figure 8: Search result showing the property is located within a TNC and affected by a single transport noise category - state-controlled road (MANDATORY area)

3. Property is located across multiple transport noise categories (Figures 9a and 9b)

A property can be affected by multiple noise categories, either:

- from a single TNC (see Figure 9a - Point 1), or
- from overlapping TNCs (see Figure 9b - Point 1).

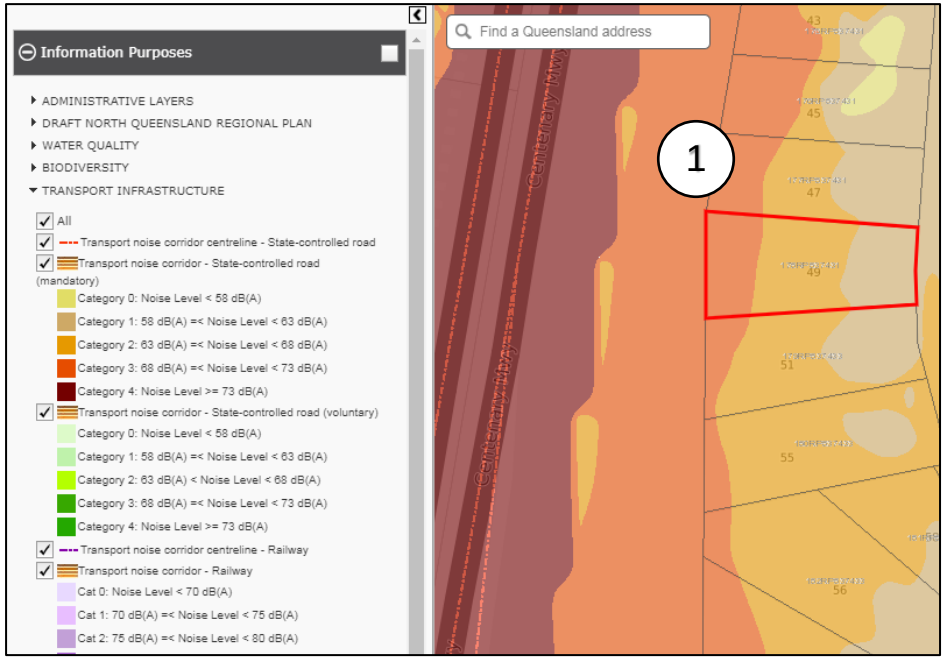


Figure 9a: Property affected by multiple noise categories from a single noise corridor - state-controlled road (MANDATORY area)

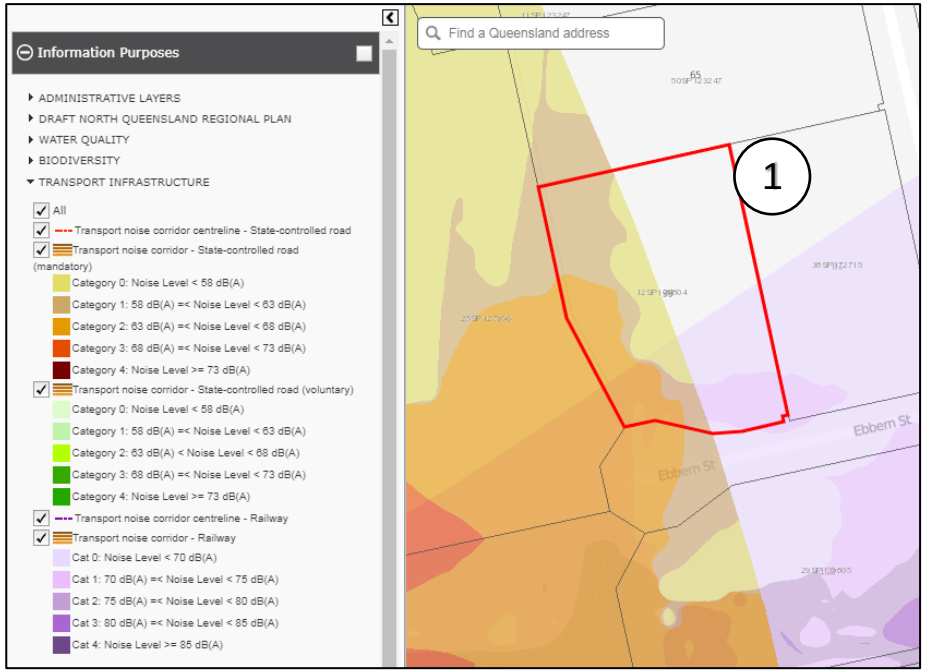


Figure 9b: Property affected by multiple noise categories from overlapping noise corridors - state-controlled road (MANDATORY area) and railway

Types of modelling

TNCs within the SPP mapping tool have been modelled in two ways: terrain modelling and flat earth modelling. From January 2020, only terrain modelling is used in the SPP mapping tool.

1. **Terrain modelling** - accounts for local conditions that may influence the extent of transport noise from the corridor to adjacent properties, such as slope (topography), the existence of known noise barriers and buildings. While terrain modelling is more complex than flat earth modelling, it provides a more accurate result given it is based on local conditions. The TNC is typically displayed as irregular, as noise categories can change suddenly over a short distance (Figure 10a). Terrain modelling has been used for state-controlled roads, railways and may be used for local government roads.
2. **Flat earth modelling** – **(no longer used by the Department of Transport and Main Roads)** is based on monitored noise levels but does not take into account local conditions, such as slope or the presence of known noise barriers. The TNC is displayed as regular and smooth, with noise categories typically running parallel over long distances (Figure 10b). Flat earth modelling may be used for local government roads.

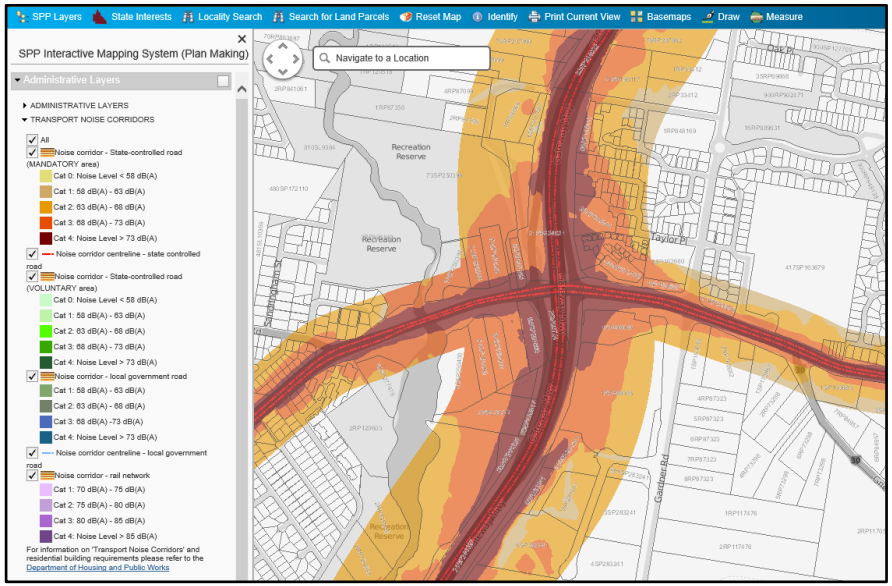


Figure 10a: Image of terrain modelling - state-controlled roads (MANDATORY areas)

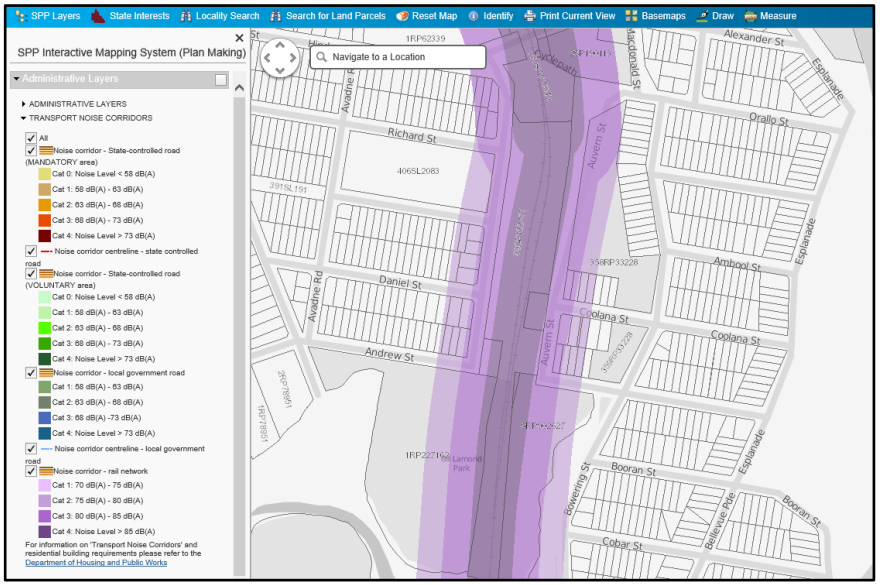


Figure 10b: Image of flat earth modelling - railway

Understanding terrain modelling

As terrain modelling provides a higher degree of mapping detail, which may result in sudden changes in noise category contours and in some instances islands within the corridor, a residential building will need to account for these differing distances at the property level.

Noise categories can increase or decrease where the characteristics of the road alter (such as speed limits, gradient or type of road surface) and subsequently the associated noise levels in that corridor can suddenly change. These changes can be identified by the width of the relevant noise category and can curve inwards or outwards within a property. Therefore, the corresponding measurements for all noise categories and where they change need to be accounted for when assessing their extent within the property.

To assist with identifying the extent of the noise category area, the **Measure** function can be used to determine the changing noise category distances within a property.

Using the Measure function (Figure 11)

Once the property has been identified, scroll in or use the zoom tool to view the property as much as possible while keeping its entire outline visible on the screen. The relative distance and changes for each noise category will need to be measured from the property boundary using the following steps:

1. Click on the **Measure** function (see Figure 11 - Point 1) - a pop up box titled Measure will appear (see Figure 11 - Point 2). It contains three measuring options, and from left to right the icons are:

    = **Area**  = **Distance**  = **Location**

2. To measure distances, click on the **Distance** icon in the middle (see Figure 11 - Point 3).

   Note: Users can change the measurement unit to Miles, Kilometres, Feet or Yards by clicking on the drop down menu inside this box (small down facing arrow).

3. To start measuring the distance, click on the edge of the property boundary closest to the TNC. A green flag will appear as the starting point, then for the finishing point, make another click on the outer edge of the relevant noise category on the property. A second green flag will appear and a blue line will join the two green flags (see Figure 11 - Point 4).

4. The distance measured in metres between the two green flags will be displayed in the **Measure box** under the subheading **Measurement Result** (see Figure 11 - Point 5).

To clear the result and make another measurement, click on the **Distance** icon again.

Repeat the above process for each relevant transport noise category that affects the property and its respective distance.

For a curved TNC, measure perpendicular to the outer edge of the noise category to where the residential building is to be located on the property for the distance.

The distances can be transferred to a registered plan or scaled site plan to calculate the noise category(s) affecting the residential building.

Print and save a copy of the property's search result for future reference (see 'Printing and saving a search result' on pages 23-24 of this guide).

1. Click on the **Measure tool**
2. a pop up box titled **Measure** will appear
3. Click on the **Distance** button - 
4. Measure the distance.
5. The distance measured in metres between the two green flags will be displayed in the Measure box

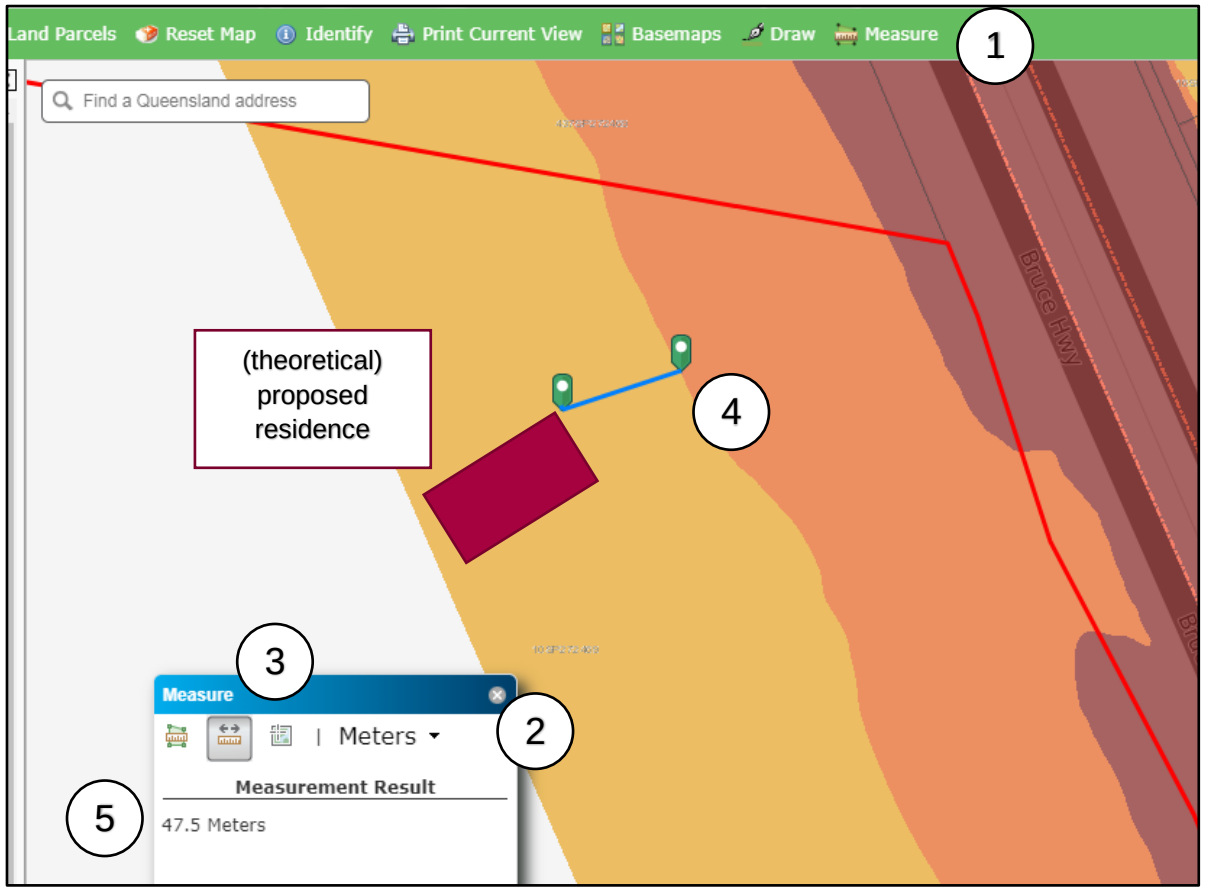


Figure 11: Using the Measure function for a property within a single TNC affected by multiple noise categories from terrain modelling

Using the Identify function (Figure 12a and 12b)

The **Identify** function can provide extra details regarding the property and TNC. It can be accessed by completing the following steps:

1. Click on the **Identify** function
2. Click directly on the adjacent TNC centreline to the property. A pop-up box titled **Attributes** will then appear. It will contain the type of TNC.

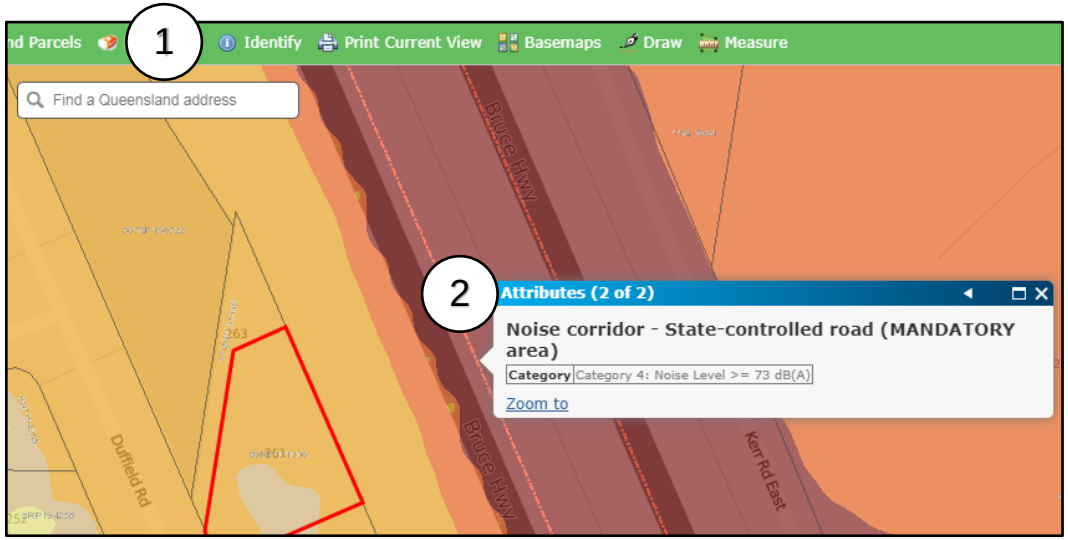


Figure 12a: Using the Identify function for a property within a single TNC affected by multiple noise categories from terrain modelling - state-controlled road (MANDATORY area)

3. Click on the small white arrow along the top right of the **Attributes** box to scroll through to the extra details for the property and TNC.
4. The associated characteristics for the property and TNC will be displayed, including the corridor name, speed limit, current and predicted annual average daily traffic (AADT), traffic growth rate and type of road surface

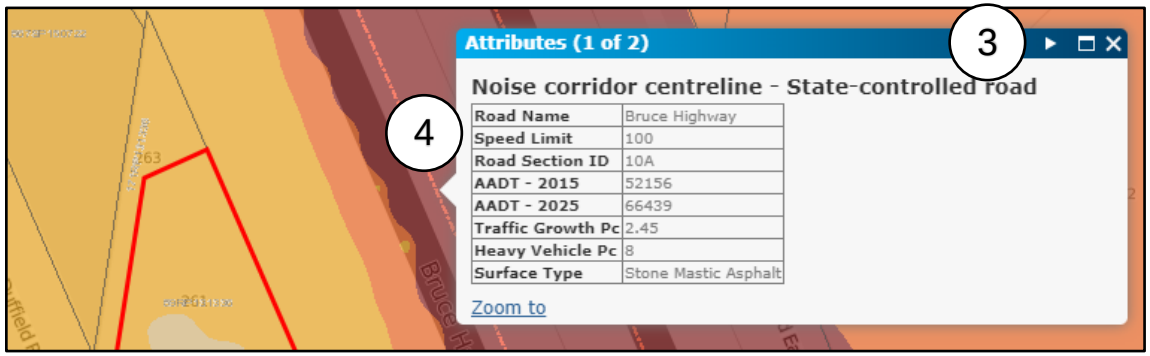


Figure 12b: Using the Identify function for a property within a single TNC affected by multiple noise categories from terrain modelling - state-controlled road (MANDATORY area)

Understanding overlapping transport noise corridors

A property can be affected by more than one TNC where the categories overlap (see Figure 13a – Point 1). In these circumstances the highest noise category or categories will prevail and must be used in the assessment process for compliance with QDC 4.4.

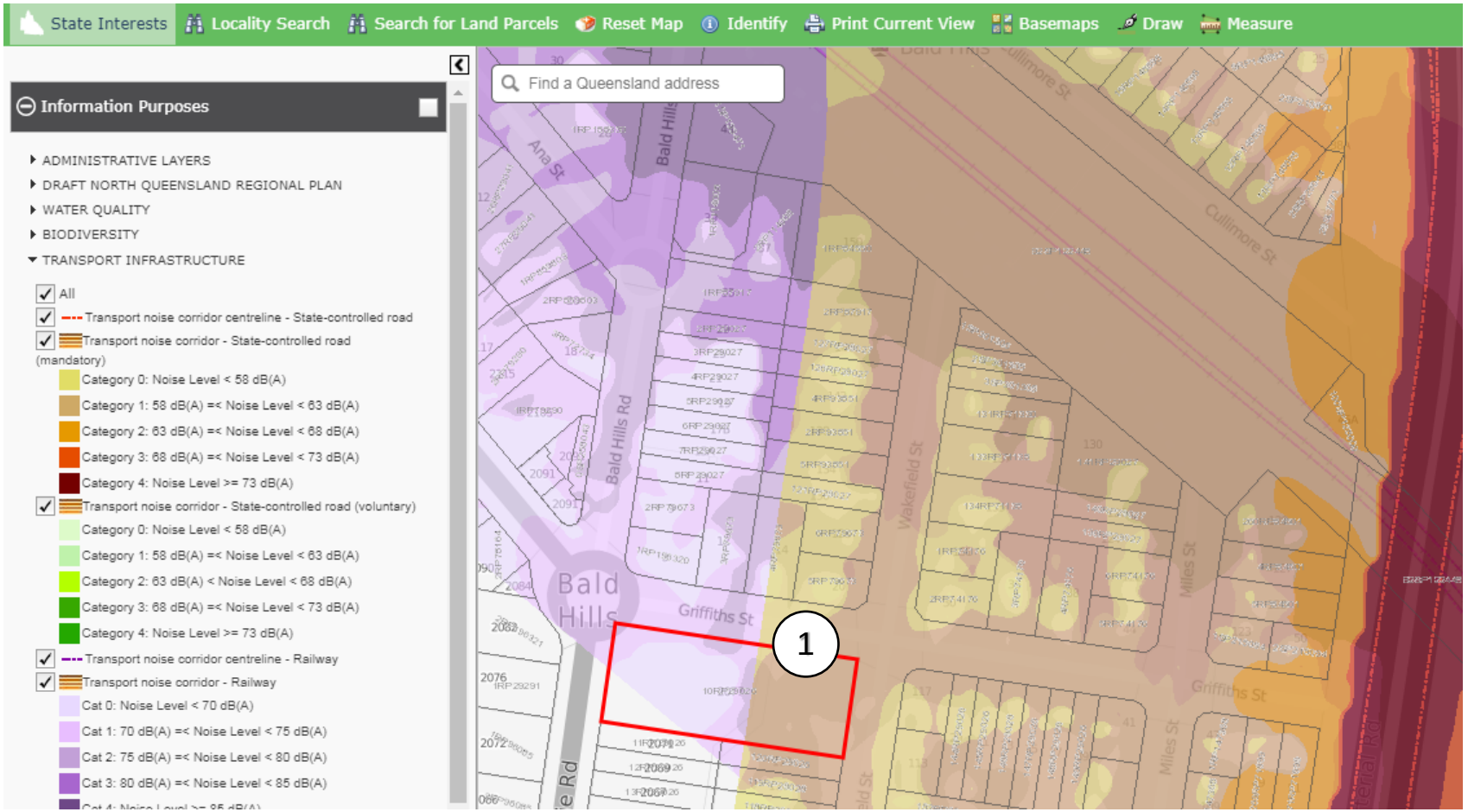


Figure 13a: Property affected by overlapping TNCs - a state-controlled road (MANDATORY area) and a railway

It can be useful to **switch off the separate corridor layers** in the SPP mapping tool key by unticking the appropriate boxes (see Figure 13b – Point 1). This can assist in determining how each designated noise corridor and its categories individually affect the property.

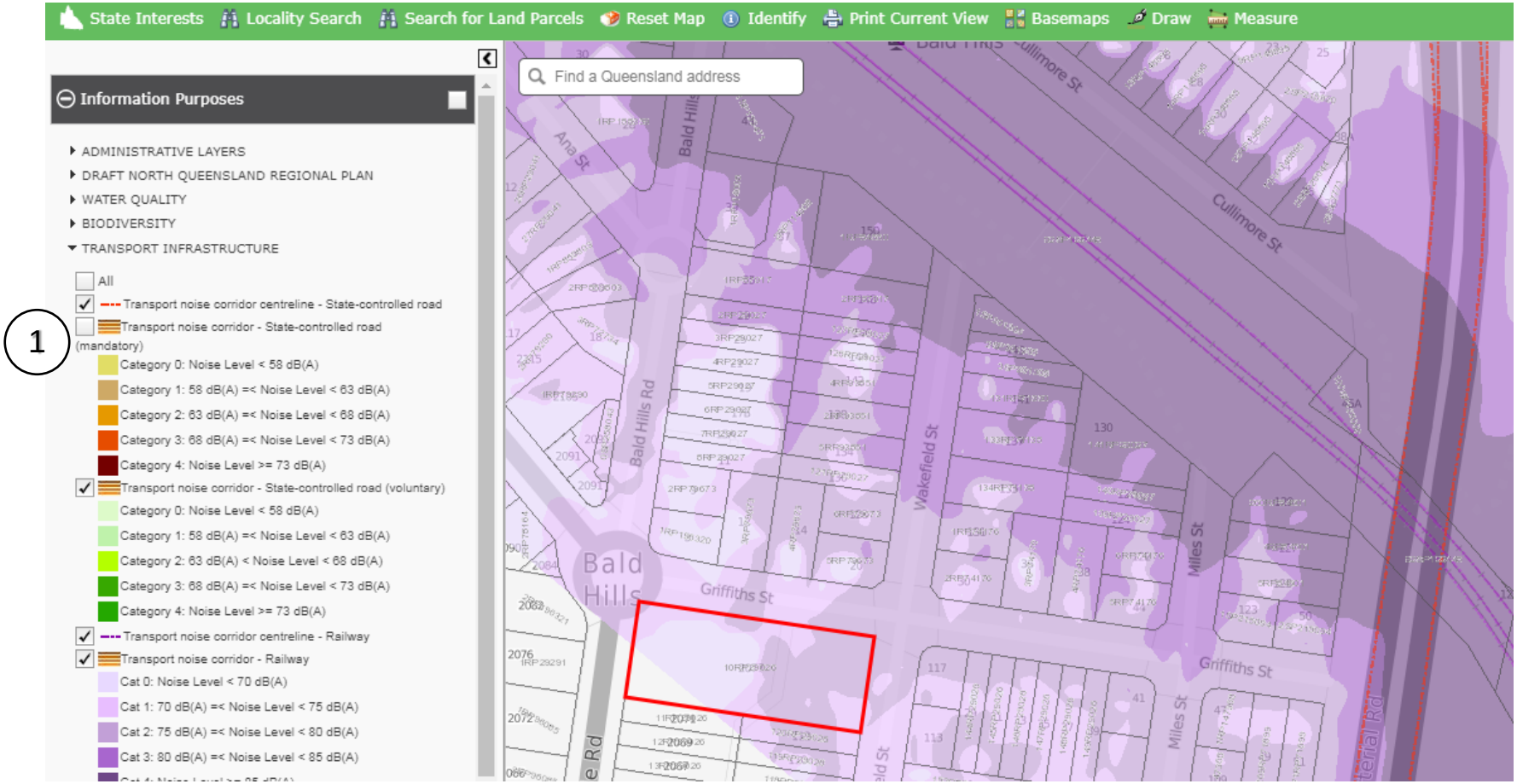


Figure 13b: Switching off one of the overlapping layers to check how the particular TNC affects the property—displaying railway layer only

Basemaps

The SPP mapping tool allows users to change the viewing features of the map via the **Basemaps** function (Figure 14). To change the view:

1. Click on **Basemaps** - a pop up **Basemaps** box will then appear showing four options:
   i. **Greyscale Street** - shows standard property cadastre only
   ii. **Topography** - shows property cadastre with topographic contours
   iii. **Aerial** - shows satellite image with property cadastre
   iv. **Hybrid Aerial** - shows satellite image with property cadastre and extra features, including road names.
2. Click on the preferred view from the **Basemaps** pop-up box.

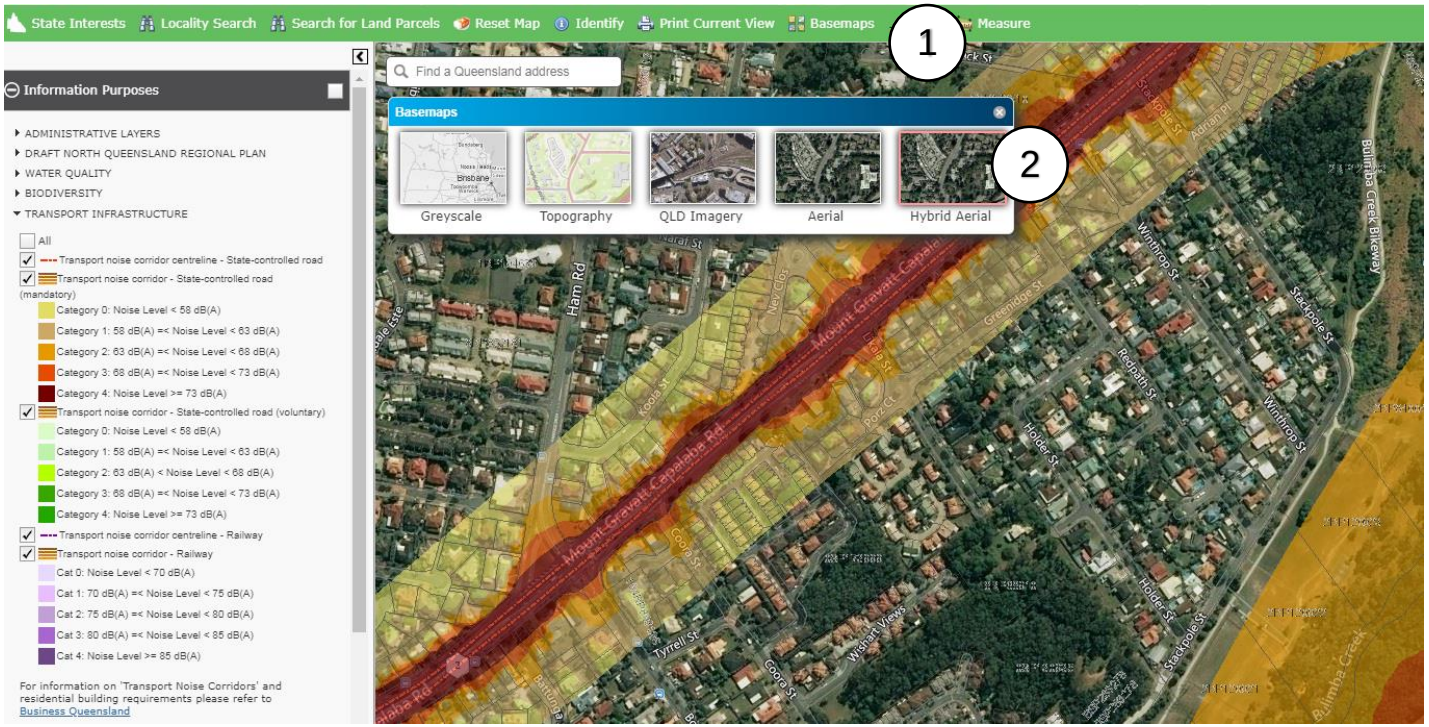


Figure 14: Basemaps function - image shown in Hybrid Aerial view

Printing and saving a search result

Printing a search result

To print a copy of the search result, scroll in or use the **zoom tool** to view the property as clearly as possible while keeping its entire outline visible on the screen, and then use the following steps:

1. click on the **Print Current View** function,
2. a pop-up box titled **Print Current View** will appear. The drop down menu offers a choice of the combined paper size and layout as A4 and A3 in portrait or landscape. Select the type of preferred print size and layout (it may take a few moments for the report to be generated into a .pdf document).
3. select the **Download PDF** function when it displays in the pop-up box:
    - the printing output (.pdf document) will appear separately in a web browser window. This includes the map and associated TNC details for the property. This document can be used as the search result with a building development application.
    - to print, click on the web browser's print function.

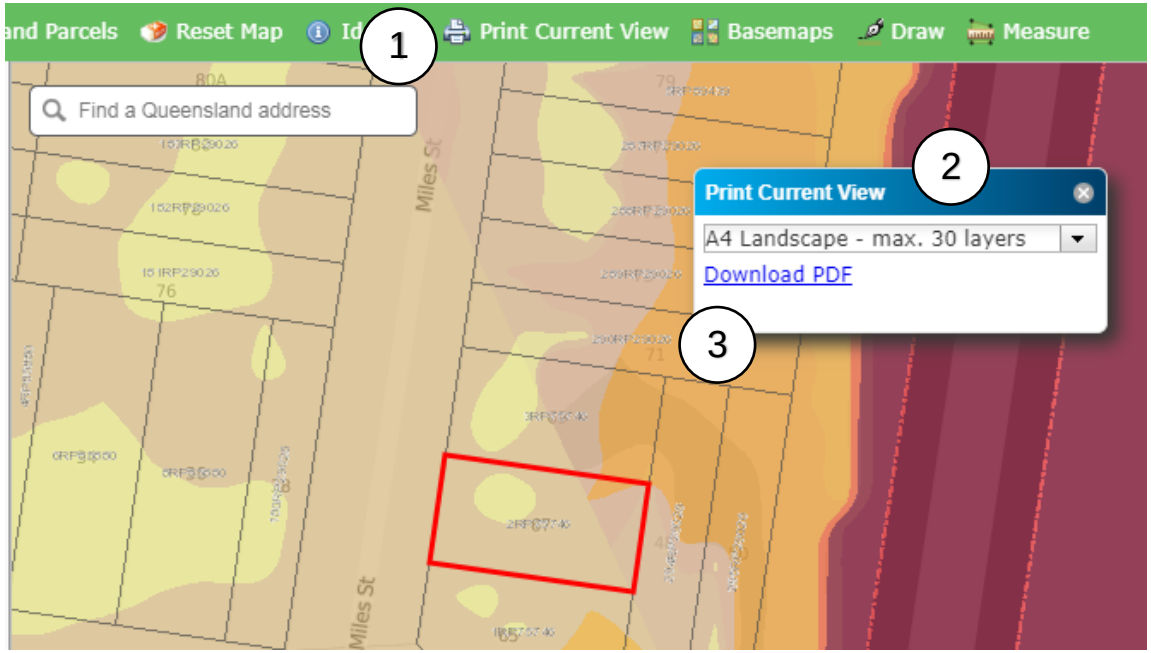


Figure 15: Print Current View function process

Saving a search result

To save a copy of the search result, from the .pdf page used for printing above, click on the web browser's file pathway and follow the prompts to '**Save as'** to save document. As an example, the steps to save the .pdf document for Internet Explorer are:

1. Select the  in the top right hand side of the web browser
2. Select **File**
3. Select **Save as…**

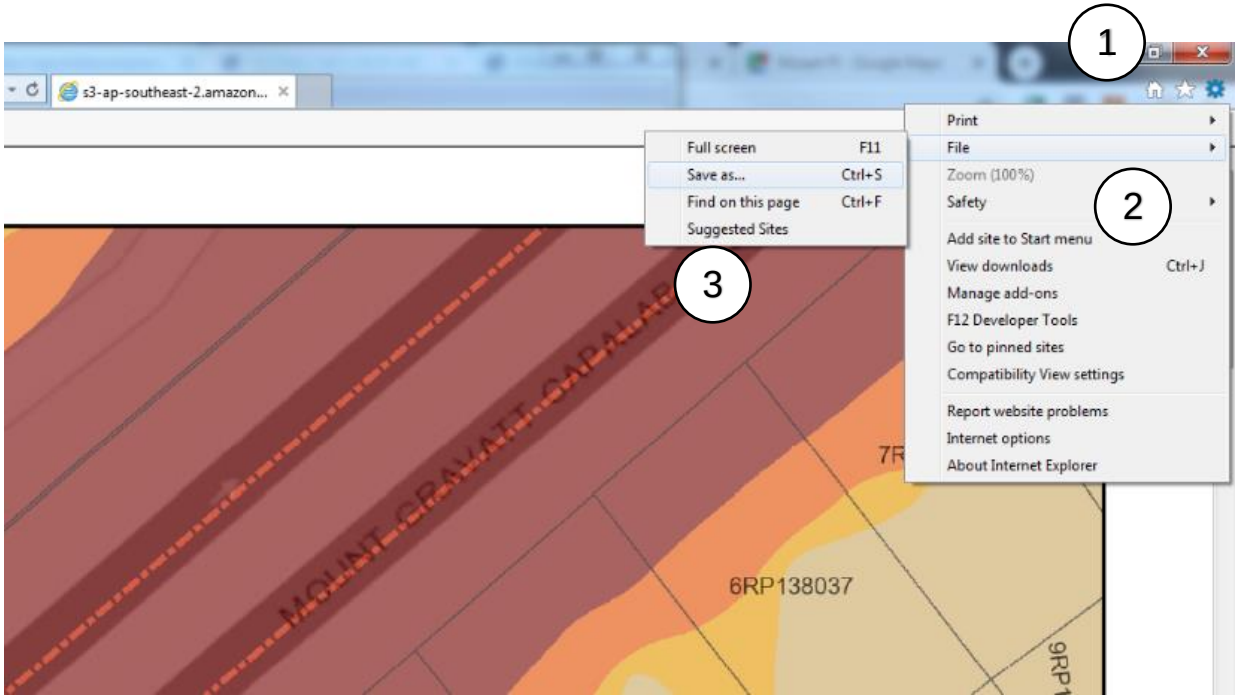


Figure 16: Printing and saving a search result as generated from the .pdf document

Centreline and road misalignment

In some instances with the SPP mapping tool, the TNC centreline and the relevant road may not fully align with each other. Instead, the map may show the centreline and road diverging from each other, or it may show the centreline and road running parallel but off set from each other. Using the **Measure** function to measure from the property's boundary to the relevant width of the particular noise category will still provide the appropriate distance(s) for the property.

Mapping issues

Please note that the Department of Housing and Public Works is not responsible for the mapping of TNCs or the data underlying their designations. For any questions about the mapping data or the location of a designated TNC, please contact:

- **State-controlled road and railway TNCs** - Department of Transport and Main Roads (planningpolicy@tmr.qld.gov.au)
- **Local government TNCs** - relevant local government.

Compliance with QDC 4.4

The proposed residential building will need to comply with the noise reduction requirements for each of the relevant noise categories under QDC 4.4.

Alternatively to the mapping result generated from the SPP mapping tool, a detailed on-site acoustic assessment can be carried out. An on-site acoustic assessment can be used to identify situations where a lower noise category might apply to the property due to features that may affect the noise levels experienced, such as other buildings. This will measure the specific transport noise levels at the property and, based on these results, can provide a tailored building design to comply with the construction requirements for the identified transport noise levels. Where an on-site acoustic assessment is undertaken it will need to meet the requirements for noise assessments as presented in Schedule 3 of QDC 4.4 and is to be undertaken by a suitably qualified person.

Note that an on-site noise assessment may indicate that higher or lower transport noise levels affect the property than was identified for the property using the SPP mapping tool.