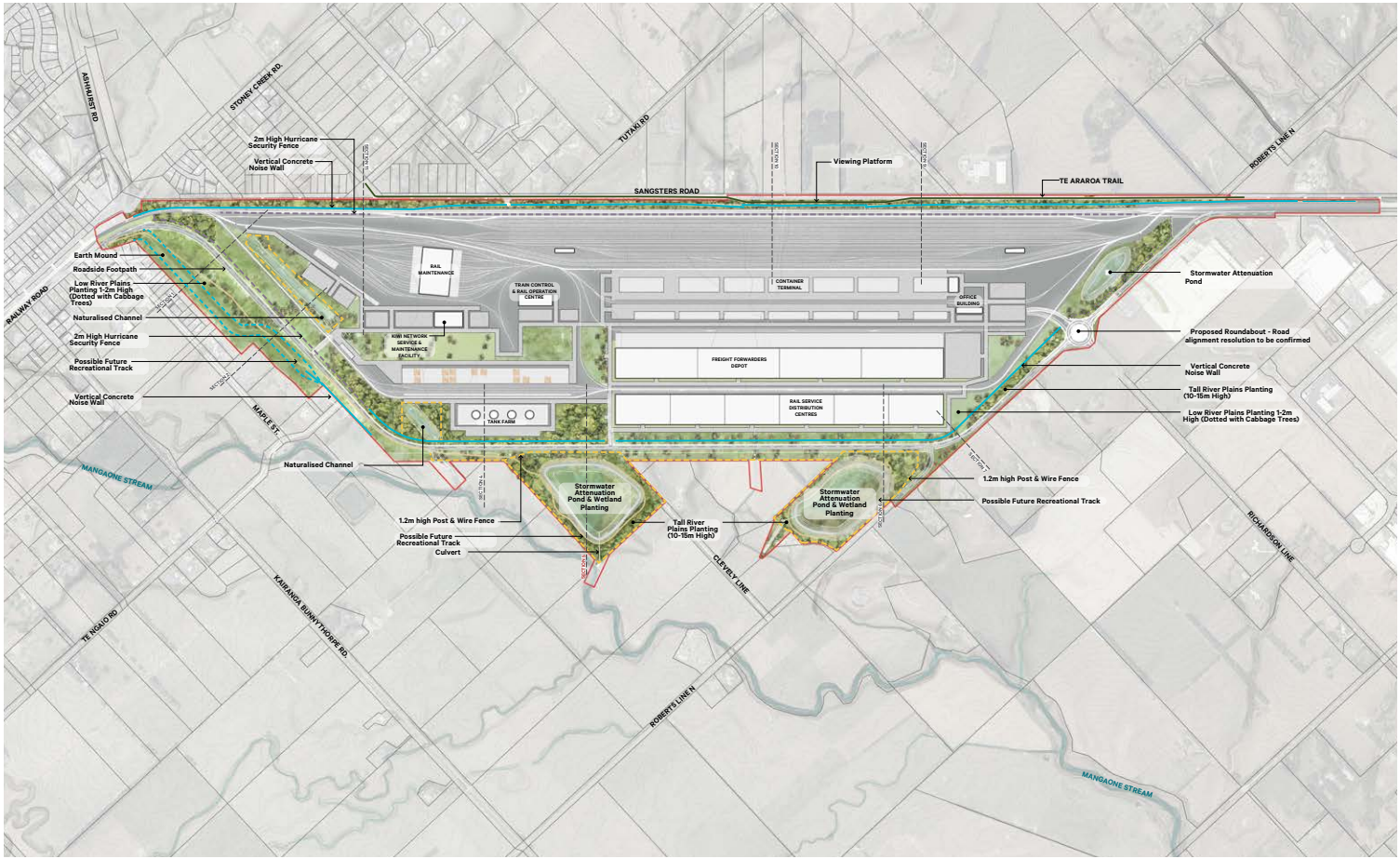
Regional Freight Hub



Regional Freight Hub

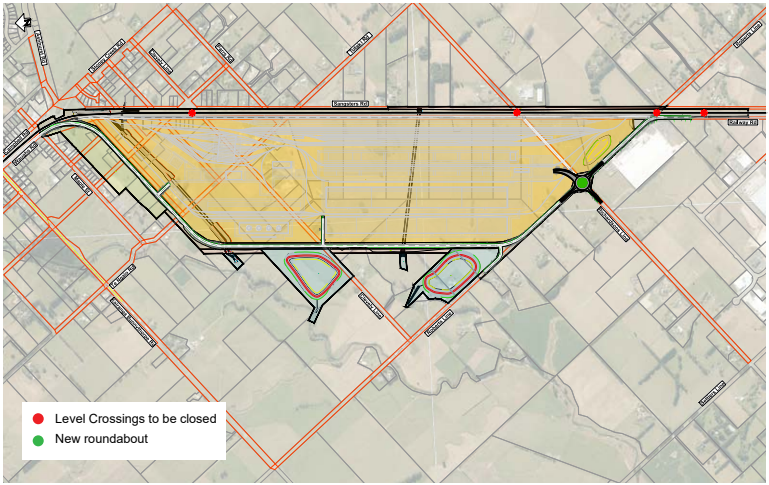
Roading, traffic and level crossings

Roading impacts and pedestrian and commuter safety are a key focus for KiwiRail. As part of our transport changes we will be investigating improvements to roading connections and level crossings around the Hub. This will include a focus on improving safety for people in and around Bunnythorpe, particularly as the frequency of trains increase in the future.

The Regional Freight Hub will require fairly significant roading changes in the immediate area. These include:

- The location of the Hub will trigger a need to close the existing alignment of Railway Road (between Maple Street and Roberts Line) to provide for Hub operations. It will be replaced with a new 4km long road around the western boundary of the Hub. At this stage, there will be three entrances to the Hub from the road network.
- The Roberts Line / Richardsons Line intersection needs to be upgraded, probably into a roundabout, as this forms the main entrance to the Hub from the south. Provision needs to be made on Roberts Line for large truck movements and to provide for local traffic flows.
- The closure of sections of Railway Road results in a change to the Roberts Line / Railway Road intersection.
- The public level crossings at Roberts Line and Clevely Line and the private level crossings at Sangsters Road and south of the Hub will be closed, reducing the interaction between people/vehicles and trains and the associated risks.
- Alternative formed access to the road network exists for relevant properties on Clevely Line. Access options for the Sangsters Road properties which currently use the Clevely Line crossing will be investigated. This will include looking at the option of forming an access route to the eastern end of Roberts Line along the unformed section of Sangsters Road.
- Sections of Clevely Line and Te Ngaio Road on the western side of Railway Road will be closed to form part of the Hub site.

The form of other existing roads around the Hub and their road speed are expected to be reviewed as part of the detailed traffic assessment for the Hub.



Western boundary cross section – shows Roberts Line, potential recreational path through the wetland and the new road (taken from Section 6 on the main map).

The Te Araroa New Zealand trail follows Sangsters Road and the relocation of Railway Road will have no impact on the route. The option of creating an access for residents along the unformed section of Sangster Road may improve the route.

Other walking and cycling improvement opportunities between Bunnythorpe and the Hub and the North East Industrial Zone on the additional land needing to be designated on the western side of the new hub are to be investigated.

Regional Freight Hub

Stormwater and flooding

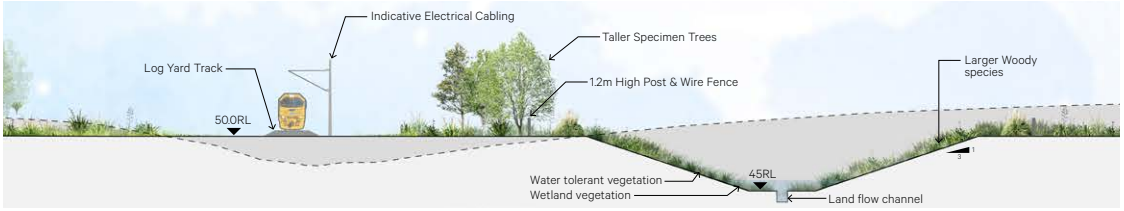
The Hub site is a part of the wider Mangaone Stream catchment. Catchments in the order of 1,200ha in total drain through the Hub site from east of Railway Road and the North Island Main Trunk Rail line (NIMT), and into the Mangaone Stream to the west of the Hub site. The predominant land use of this contributing catchment is rural pastoral.

Flood levels and flood extents on the Hub site are influenced by the flows through the site but appear to be largely controlled in extreme events by the flood levels and flooding from the Mangaone Stream.

The assessment of the stormwater related to the design and operation of the Hub has considered:

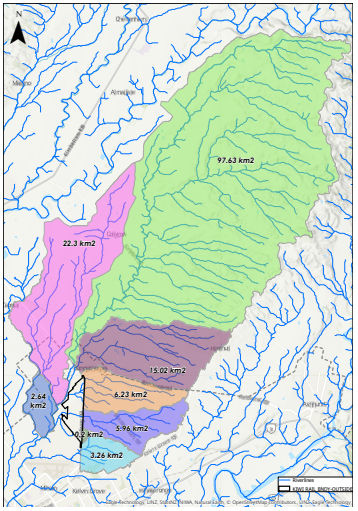
1. The passage of stormwater flows through the site from upstream catchments.
2. The potential impact on downstream flood levels caused by the proposed Hub site development.
3. The consideration of environmental impacts and mitigation; including the downstream water quality impacts as well as the on-site impacts with the potential loss of streams.
4. The consideration for the on-site implementation of low impact design solutions.

While it is expected that there will be culverts under the Hub site to convey water through it, where possible there will be retention and enhancement of open channel systems.



Northern boundary cross section – open culvert for through-site water flows (taken from Section 2 on the main map).

Western boundary cross section – settlement pond, wetland planting, new road (taken from Section 5 on the main map).



Catchment Map

The Regional Freight Hub will need to ensure that water from the lower catchment on the map flows through the Hub site

The designation also includes land which is intended to incorporate the construction of detention ponds. The principle purpose of the detention ponds is to allow for the reduction of peak flows from the developed Hub site, to avoid increased flood levels downstream. Other low impact design measures to be considered include:

- The selection of neutral building materials to limit the generation of contaminants, such as zinc.
- The provision of at source techniques such as swales and raingardens beside roads and carparks within the site.
- The collection and reuse of stormwater runoff from roof areas on the site. The required holding tanks for the storage of roof water will be settlement and pre-treatment tanks, with overflows going to the downstream treatment wetlands.
- Construction effects related to stormwater are associated with earthworks. Regional consents will be sought, and it is expected the conditions of these consents will require a Construction Environmental Management Plan (CEMP). The CEMP sets out the measures to be employed to manage and mitigate the effects of the earth works and site formation.
- Typical techniques for managing sediment discharge are expected to include measures such as:
- Limiting the area of exposed earthworks at any one time (staging of the works).
- Limiting the time of exposure of surfaces cleared of vegetation.
- Exposing surfaces at times of year when they are less susceptible to erosion and dust generation and managing these exposed surfaces.
- Limiting slopes in exposed areas.
- The construction of clean water diversions around exposed areas.
- The construction and maintenance of sedimentation facilities.
- The diversion of flows around work sites, particularly for work within existing watercourses.
- The stabilisation of exposed areas as soon as possible after earthworks has been completed.

Regional Freight Hub

Noise and visual

Noise barriers include both wall type structures and berms/bunds and are a widely recognised form of noise mitigation. Their design needs to be fit for purpose (reducing noise levels for residents) while minimising impacts on character and views from the surrounding and wider environment. The form and use of the barriers will also include consideration of several factors such as maintenance, appearance, site constraints, safety, graffiti, and sustainability.

Typically, noise barriers are located close to the noise source. But for some areas, a barrier located closer to houses may be more effective. Generally, the higher the barrier, the greater the level of noise reduction. Noise barriers around some parts of the Hub could be as high as 5 metres.

Noise barriers need to reflect local land-use and integrate with the overall landscape character. In some locations there needs to be a careful consideration of their height to avoid overshadowing. Wherever possible sight lines for surveillance need to be ensured to provide for personal security.

Examples from Melbourne of different heights and materials (source NZTA Noise Barrier Design Guide)

Planting on its own is not an effective noise barrier but is often incorporated to address the appearance of a noise barrier. As shown by the following images, related to the Newmarket Viaduct Replacement Project in Auckland where a noise wall was installed between State Highway 1 and Mt Hobson Road, landscape planting can soften the view for adjacent properties. In this instance, a creeper was selected on the state highway and to minimise the likelihood of graffiti.

Directly before planting, topsoil and mulch implemented

1 year after planting, mix of trees, shrubs and grasses

2 years after planting

5 years after planting, achieving coverage to reduce ongoing maintenance of planting

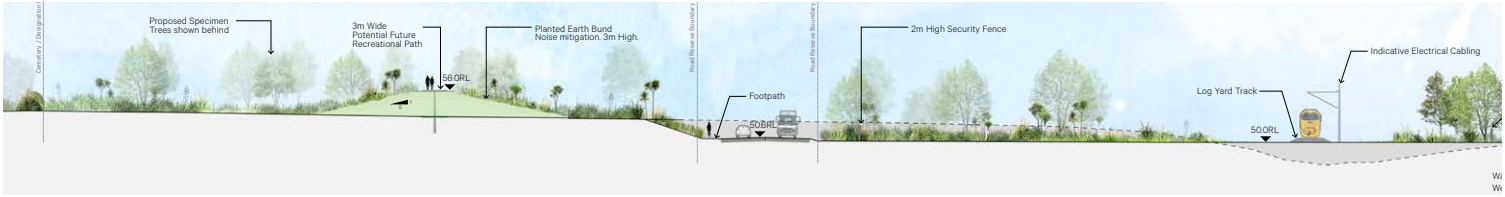
Eastern boundary cross section – Noise wall and planting, next to the North Island Main Trunk Line (taken from Section 10 on the main map).

KiwiRail

Regional Freight Hub

Noise and visual

Given the rural/semi-rural environment around the Hub, where space is available, landscaped earth bunds might be an appropriate solution to integrate it into the landscape. Bunds may be an effective solution on their own or may need a noise wall on top. The location and design will be determined through a site by site analysis.



Northern boundary cross section – shows bund, new road, and rail line in Hub (taken from Section 1 on the main map).

The planting expected to be incorporated around and within a larger development site is typically guided by the project's landscape architect and ecologist. Palmerston North City Council District Plan includes a useful design guide in relation to the North Eastern Industrial Zone that could be used to guide site planting, to integrate the Regional Freight Hub into its surroundings.

KiwiRail will need to be consider the impact of foliage on its operations when determining the species selected for specific locations and the height of trees for used for screen planting where they could overshadow nearby dwellings.

The guide notes that shrubs are likely to reach a minimum height at maturity of 4 metres. Species selection should include both fast growing species for initial screening, and suitable longer lasting species. Again, the use of the different species will need to be carefully considered.

KiwiRail expects to have areas of planting that will add natural character and encourage local biodiversity.

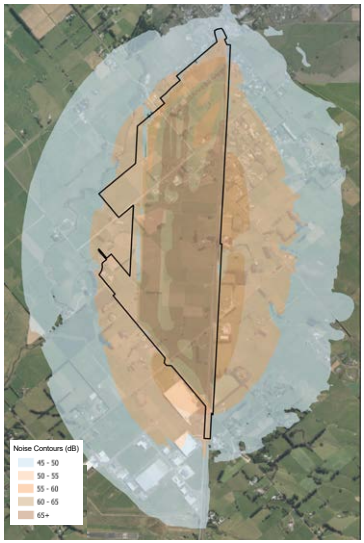
The details of the planting design are expected to be provided at the Outline Plan of Works stage in the process (i.e. after the site designation process is completed). As part of this KiwiRail will look, where appropriate, to meet the design guide's requirements, including:

- Keep dense vegetation, structures, and other visual obstructions well clear of footpaths and cycleways.
- All planting is to be maintained to a high standard.
- Planting is to be included in amenity areas.

Due to the large vehicles moving to and around the Hub, the planting design will also need to allow good sightlines at intersections, rail crossings and other points of potential conflict.

Wider strips of land are needed to create higher bunds, which means that landscaped earth bunds may not be always appropriate. In such cases higher noise walls can still be designed with planting in front, to fit in with the landscape. Other uses, such as walkways or cycleways, could also be incorporated into bunds.

Examples of earth bunds (source NZTA Noise Barrier Design Guide)



Indicating expected noise levels activity at the Hub will produce.

Regional Freight Hub

Light and dust

Lighting

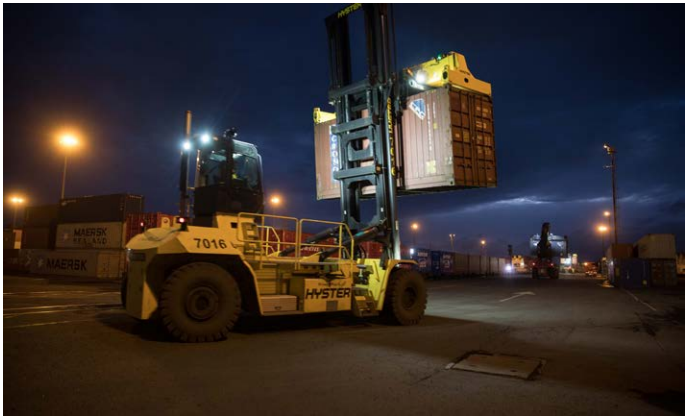
Large outdoor operational areas need to be well lit for safety reasons. While the safety of people working at and visiting the Hub is a key consideration, the proximity of the site to other activities, particularly the approach and take-off paths for the Palmerston North Airport and residential dwellings must also be considered.

In the past KiwiRail has used flood lights on high towers (up to 36 metres) for rail operational areas, but for the Regional Freight Hub, the use of lower lighting structures will be investigated in the rail operational areas. Towers may still be needed in the container transfer and storage areas.

Parking areas and access roads are typically lit by poles (6 to 8 metre mounting height) with standard street LED luminaires. Overall, the lighting levels will be tailored to particular uses/ requirements, rather than a site wide approach, meaning that adverse effects due to light spill will be minimised.

The effects of lighting will be assessed as part of the Notice of Requirement, however the lighting design will not be finalised until later, as part of the detailed design of the Hub.

A lighting model will be developed to determine if all exterior lighting can comply with the relevant lighting standards at the boundary (the lighting standard in the District Plan for the North East Industrial Zone). If they cannot then further consents will be required. New public roads are expected to be lit to comply with the PNCC's road standards.



Dust

Dust control methods are used to prevent or reduce the movement of dust during earthworks or operations.

These methods include:

- Water Sprinkling – where water is applied via a water cart or sprinkler system. It may be necessary to add chemical adhesives or use other measures, for example in summer when water supply is short. It may be possible to reuse water in sediment retention ponds for this purpose.
- Adhesives – these are generally synthetic materials that are applied to the soil surface to act as binding agents. The materials used need to be acceptable to the Regional Council.
- Barriers – such as solid board fences, fences with dust suppression jets, or hay bales can be placed at right angles to the prevailing air currents.
- Mulches and vegetation are also often used to stabilise open areas.

The effects of dust generated from the Regional Freight Hub's operations will be considered as part of the Notice of Requirement and in more detail as part of a future regional consent application.

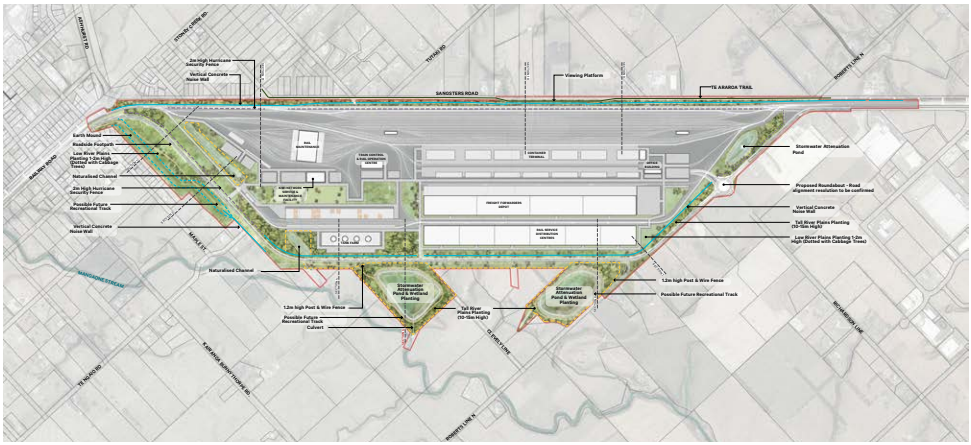
A Dust Management Plan is also common practice and may be developed at the regional consenting stage. It may include:

- Soil characteristics and whether the timing/staging of operations will assist in dust reduction.
- Wind direction and the location of sites that rely on roof water for drinking
- Methods to reduce vehicle speeds
- Operational considerations – staging of area, progressive stabilisation etc.
- Types of measures used – water, vegetation, and/ or chemical suppressants
- Contingency measures - for severe wind problems (e.g. ceasing works if the primary method of control is not effective)
- Signage and indications of contact numbers for dust complaints.
- Periodic inspection of areas that have been protected to ensure adequate coverage.

Type of activity that can create dust.

Regional Freight Hub

Next Steps



The project team have used the feedback received and are currently preparing the Notice of Requirement (NoR)

The KiwiRail Board will consider the proposal to confirm the Hub footprint prior to lodging the NoR

KiwiRail lodges the NoR with Palmerston North City Council (PNCC), in late October

KiwiRail asks PNCC to publicly notify the NoR for submissions

Submission period

Hearing

Panel recommendation to KiwiRail

KiwiRail responds to the Panel recommendation (this is open to appeal)

Future Stages

- KiwiRail to acquire all required land
- KiwiRail to obtain funding to develop the Hub
- Detailed design commences
- Regional resource consents and Outline Plan of Work prepared and lodged
- Contracts awarded for formation of site.