

Appendix 1: Overview of Production stations and bulk liquid storage and handling facilities

Motunui and Waitara Valley Methanol Production Facilities

Established in the 1980s, the two methanol production facilities are located at Waitara Valley and Motunui are operated by Methanex New Zealand Limited. These facilities represent major assets given their large scale and their significant contribution to economic and social wellbeing of the New Plymouth District.

The Motunui Methanol Production Facility is capable of producing 1.8 million tonnes of chemical grade methanol, (using gas from various Taranaki providers) and occupies approximately 100 hectares of land. The Waitara Valley Methanol Production Facility occupies approximately 22 hectares of land and is capable of producing 500,000 tonnes of high purity chemical grade methanol a year (imported from the Motunui Methanol Production Facility).

Situated in rural settings, the respective sites are characterised by an array of large, tall buildings, towers and flues, extensive pipework and supporting structures and large areas of hard surfacing.

Ngāti Rahiri hapū are recognised as having an historic link with the Motunui site

Noise effects

Council occasionally receives noise complaints which generally relate to noise generated by unplanned shut downs and emergency works (including flaring) at the facilities. The noise effects of the sites are well understood from extensive monitoring carried out by Methanex. When unplanned noise events do occur and the relevant noise limits are breached, Methanex have protocols in place to inform Council of incidents. Methanex also consult through their own Community Advisory Panel which is made up of representatives from the local community. This panel is designed to maintain relationships and communication process between Methanex and the local communities surrounding its operations.

While Methanex is proactive in informing Council of problems and also interacting with the local community, the District Plan Review has identified the generic noise provisions that apply in a Rural Environment Area (and under which Methanex have resource consent) are not providing the optimum outcomes in terms noise management for these facilities. Specifically, issues have arisen with the monitoring of noise due to the variations in meteorological conditions and, at Motunui, noise contamination from traffic on SH 3.

Council has held discussions with Methanex regarding the best approach to take with managing noise from the Motunui and Waitara Valley plants. These discussions resulted in a discussion paper being provided by Hegley Acoustic Consultants on behalf of Methanex.

The discussion paper considers two options for managing noise:

1. Retain measurement and assessment using the 1991 versions of NZS 6801 and NZS 6802.
2. Update the modelling and control measures to utilise the 2008 versions of the Standards.

The main difference between the two approaches is that the 2008 version uses slight downwind conditions whereas the 1991 versions use zero met conditions.

Council's noise advisors recommended that the latest version of the Standard should be used. This option results in the predicted noise contours being slightly further from the site. This difference is purely due to the modelling and does not allow any more noise to be generated than is currently the case. This change also means that the difficulty in monitoring is overcome by the company undertaking sound intensity measurements of each piece of plant on each site and then using those measurements to predict the noise propagation. This approach is considered to be an effective and efficient method as it allows a check to be made on individual plant items².

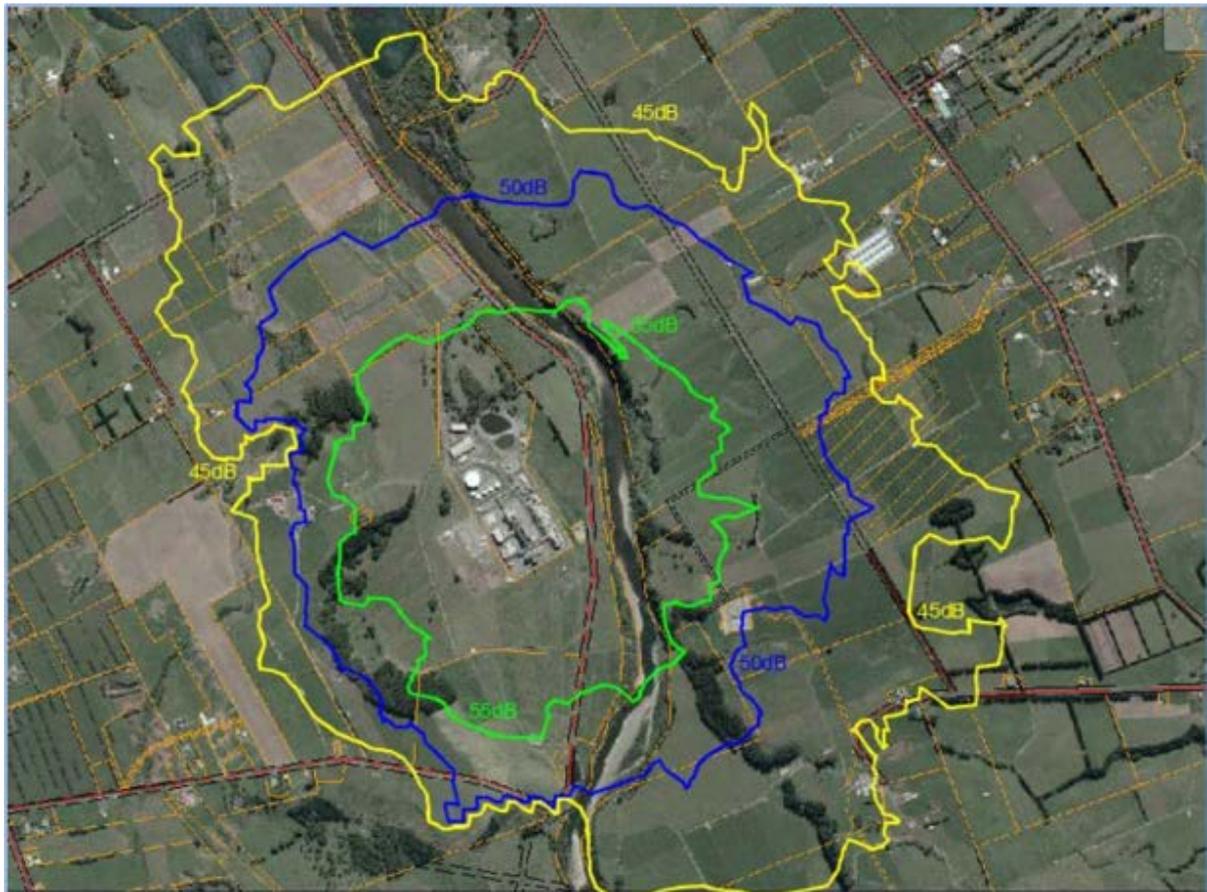
The following figures are provided by Methanex in the Hegley document and show the predicted noise contours based on the 2008 methodology.

Figure 1: Motunui Plant Noise Contours, dB LAeq



² Over the life of the Operative District Plan, technology has advanced for noise measurement and prediction modelling. Using noise measurement data, computer noise models are now used by the facilities which can predict the noise effects at any point in the area surrounding the sites. When any component in the facility is to be maintained or replaced, the noise effects are taken into account, with the best practicable option being chosen to either reduce or not increase noise levels. Noise contours can now be applied that accurately reflect noise emissions.

Figure 2: Waitara Valley Plant Noise Contours, dB L_{Aeq}



It is considered that the suggested changes to the methodology (i.e. recognition of meteorological conditions) would be beneficial and would provide improved monitoring certainty. It is considered the most efficient and effective way to implement this approach would be through the application of site-specific noise contours and standards which apply the metrological conditions with a noise level of 50dB L_{Aeq} (15 min).

Hazardous Substance use/storage

The Motunui and Waitara Valley Methanol Production Facilities are recognised as upper tier Major Hazardous Facilities (MHF) and are primarily managed by the HSNO and HSWA regulations.

In assessing the approach to managing hazardous substances, the District Plan Review has set out to ensure that the District Plan is using the most up to date method of assessment (i.e. cease using the HFSP) and that the District Plan does not duplicate the HSNO or HSWA regulations. However, whether the HSNO and HSWA regulations effectively manages the risks to human health to acceptable levels is not always clear. For example, changes to a facility may be routine maintenance, replacement of equipment, upgrading of equipment or adding new equipment or increasing the capacity of the facility. In assessing what is an "acceptable/unacceptable risk", there is no single measure or threshold for all situations and it depends on context. Individual people may have different views (tolerance) as to what an acceptable level of risk.

Drawing from existing site features, safety information, emergency response plans, periodic inspections and maintenance programmes, Methanex have analysed the risks presented by

the hazardous substances on site, from which Location Specific Individual Risk Contours have been established for the facilities. Council understands Methanex and working on producing a risk contour for each of their facilities.

Traffic movements

Traffic movements include workers and trade vehicles entering/exiting the sites. These effects are controlled by means on-site vehicle stacking areas and having one primary access point to the site, from State Highway 3. Generally, the traffic movements from the Methanex sites are not significant. However, during periods where the plants shut down and maintenance is carried out, the plants can generate high levels of traffic due to the considerable increase of workers and support staff visiting the site. These traffic movements are generally accommodated by the existing road network due to the location of the facilities on/or near the state highway and keeping the local community up to date with changes through the Methanex Community Advisory Panel.

Visual effects

Two crude methanol plants (Motunui 1 and 2) and associated distillation units (Distillation-III and Distillation-IV) are located in the centre of the Motunui Methanol Production Facility. These distillation towers are the tallest structures on the site (51.5 m), followed by the flares on the eastern plant boundary (50.5 m). The majority of buildings / structures on-site are of heights in the range of 10 – 20 m. There is a large hard surfaced area in the south-west corner of the plant, which is used as a laydown area. The utilities include sludge lagoons, storm-water, blowdown, and off-spec ponds are all located on the eastern boundary of the plant. The Methanol product storage is located on the northern boundary of the plant, adjacent to the cooling tower.

With regards to Waitara Valley Methanol Production Facility, one crude methanol plant is located in the southern area of the plant, with two distillation units (Distillation I and Distillation II) located further towards the centre of the plant. The distillation towers are the tallest structures on the site (51.5 m), followed by the reformer stack (38m). The majority of buildings / structures on-site are in the range of 10-20m. The Methanol product storage is located to the north of the processing area, the tallest tank being 20m high. Storm-water, firewater and process ponds are located in the north-east corner of the site, with the cooling tower and utilities area located on the eastern boundary. There is a large flat area on the western side of the plant, which is used as a laydown area.

The Motunui site has landscaped areas on its southern boundary. These provide screening and are made up of well-established and mature plantings of native trees. These plantings are maintained and enhanced on a regular basis. Although well screened at road level, the tall distillation towers can be seen from various locations, especially when travelling north along State highway 3.

The Waitara Valley site has landscaped areas on its entrance road, off Mamaku Road, with future landscape areas planned on the boundary facing Mamaku Road. The views of the facility are naturally screened by existing topography and vegetation, with wider public views of the facility visible across the Waitara river flats from State Highway 3.

Conclusions

In reviewing the District Plan it is apparent that the two Methanex sites have unique operational needs and associated environmental effects. Given these findings, there is a need to develop a 'bespoke' zoning which is tailored to address those needs and effects.

Using the Special Purpose zone framework that is set out in National Planning Standards 2019, the new Special Purpose Zone must address the following matters:

- The need to recognise and provide for the sustainable management of the Methanex facilities and infrastructure taking into account the significant private investment in terms of scale of development.
- The need to provide a framework which caters for change and development of the facilities while also maintaining environmental quality.
- The need to establish appropriate levels of development and activity that is compatible with the surrounding environment.
- The need to establish Location Specific Individual Risk Contours to manage hazardous substances on site.
- The need to establish Noise Control Boundaries to manage noise emissions on sites.

Pohokura Production Station

The Pohokura Production Station (PPS) is operated by OMV New Zealand Limited and is located on New Plymouth District's northern coastline at Motunui approximately 20km north of New Plymouth. PPS lies immediately to the west of Methanex Motunui a methanol processing plant. PPS processes hydrocarbons from the Pohokura Gas Field (located offshore), received from a wellhead platform located 9 km off the coast, and an onshore well site (Otaraoa Road). Situated in a rural setting, and is characterised by an array of large, tall buildings, towers and flues, extensive pipework and supporting structures and large areas of hard surfacing.

Ngāti Rahiri hapū are recognised as having an historic link with the area.

Noise effects

There are similarities to the noise effects described above for the Motunui Methanol plant. When the PPS was established, a noise assessment determined the noise generated could be effectively managed to comply with the noise limits for the Rural Zone. These noise limits were imposed as conditions of the resource consent and a noise management plan was prepared to ensure compliance with these conditions (noise limits).

Hazardous Substance use/storage

There are similarities to hazardous substances use/storage for the PPS with the Methanex sites discussed above. Council understands OMV and working on producing a risk contour for the PPS.

Traffic movements

Existing access to the site is via a heavy vehicle entrance off SH3. Exit from the site is onto Otaraoa Road and onto SH3 through the stop-sign controlled Otaraoa/SH3 intersection. The traffic movements and circumstances for the PPS are very similar to Methanex described above.

Visual effects

The PPS has an assortment of buildings and structures distributed across the site and facility. Notable buildings and structures which influence the visual effects of the facility include:

- Flare Stack 30m high.
- Condensate Storage Tank 15.5m high.
- Glycol Contactor 15.5m high.
- Stabiliser Column 23.1m high.
- Hot Oil Heater 35.5m high.

The majority of other buildings / structures on-site are of heights in the range of 10 – 20 m.

The site contains buffer planting and riparian vegetation along the unnamed tributary of the Waipapa Stream. Although well screened at road level, the taller structures can be seen from various locations, especially when travelling north along State highway 3.

Conclusions

In reviewing the District Plan it is apparent that the PPS has unique operational needs and associated environmental effects. Given these findings, there is a need to develop a 'bespoke' zoning which is tailored to address those needs and effects.

Using the Special Purpose zone framework that is set out in National Planning Standards 2019, the new Special Purpose Zone must address the following matters:

- The need to recognise and provide for the sustainable management of the PPS taking into account the significant private investment in terms of scale of development.
- The need to provide a framework which caters for change and development of the facilities while also maintaining environmental quality.
- The need to establish appropriate levels of development and activity that is compatible with the surrounding environment.
- The need to establish Location Specific Individual Risk Contours to manage hazardous substances on site.

McKee Mangahewa Production Station

Beginning operation in 1984, the McKee and Mangahewa Production Station (MMPS) is a hydrocarbon processing and export facility located on Otaraoa Road, 12 kilometres inland from Waitara. The MMPS produces natural gas, condensate, LPG and oil from the McKee and Mangahewa oil and gas fields. The facility is a Network Utility Operator (as defined in Section 166 of the RMA) and owner is Todd Energy Limited (Todd).

The plant footprint is approximately 8 hectares and sits within a 30 hectare parcel of Todd owned land located off Otaraoa Road. It is a receiving point for a network of 20 well sites and gathering lines around the area. At the production station, the well fluids are processed (separated and stabilised) into a natural gas stream, an oil stream and water. The treated natural gas is compressed and injected into the natural gas export lines. The MMPS contains equipment such as compressors, cooling fans, distillation units, dewatering plants and storage vessels. There is also a workshop and office on site.

There are three high points of the surrounding valley that are sites of cultural significance to Otaraoa Hapū and Te Atiawa.

Currently, the MMPS operates under a suite of resource consents granted by New Plymouth District Council and Taranaki Regional Council.

Noise effects

The main source of noise at MMPS is from an expansion compressor which is used to increase the pressure of the gas by reducing its volume and from a two high-pressure natural gas trains which treat fluids. Todd have indicated that possible expansion plans in the future would include additional expansion compressor.

MMPS operates under the 1991 versions of NZS 6801 and NZS 6802 and a 45dBA noise contour has been developed as part of the resource consent(s) for the site. Todd have indicated that this standard meets their requirements, including future the future expansion compressor that may be required.

Council's noise advisors have advised it is appropriate in this case to continue to use the 1991 version of the standards due to the location of the facility, separation from sensitive noise activities and record of compliance with the noise standards.

Hazardous Substance use/storage

There are similarities to hazardous substances use/storage for the MMPS with the Methanex sites discussed above. Drawing from existing site features, safety information, emergency response plans, periodic inspections and maintenance programmes, Todd have analysed the risks presented by the hazardous substances on site, from which Location Specific Individual Risk Contours have been established for the facilities.

Traffic movements

Daily heavy and light vehicle movements are also required to service the plant and its staff, and to export LPG and condensate. Access to and from the site is via Otaraoa Road which is classed as a Rural Road.

Existing access to the site is via a heavy vehicle entrance off SH3. Exit from the site is onto Otaraoa Road and onto SH3 through the stop-sign controlled Otaraoa/SH3 intersection. Traffic movements include workers and trade vehicles entering/exiting the sites.

The traffic movements and circumstances for the MMPS are very similar to Methanex described above. To help manage traffic to and from MMPS, Todd have developed a traffic management plan which maps heavy traffic routes to and from MMPS and for other Todd well sites in the vicinity. The management plan brings in various speed restrictions depending on the stretch of rural road and the sensitivity of the activities. For example speed limits are set between 15-60km on the surrounding rural network, no heavy traffic movements on school bus routes between morning and afternoon pick-ups and drop offs, no heavy vehicles or traffic carrying hazardous substances during night time hours. In addition, Todd has upgraded parts of the road network to accommodate large trucks.

Visual effects

The MMPS has an assortment of buildings and structures distributed across the site and facility. Notable buildings and structures which influence the visual effects of the facility include:

- Four columns associated with the MET 2 Plant that range between 27 and 37 metres.
- A 16 metre high cooler unit associated with the MET 2 Plant.
- 3 columns associated with the LPG plan which are 24, 20 and 12 metres high.

The majority of other buildings / structures on-site are of heights in the range of 10 – 20 m.

The site contains buffer planting and it relatively well screened and contained by the surrounding topography.

Conclusions

In reviewing the District Plan it is apparent that the MMPS has unique operational needs and associated environmental effects. Given these findings, there is a need to develop a 'bespoke' zoning which is tailored to address those needs and effects.

Using the Special Purpose zone framework that is set out in National Planning Standards 2019, the new Special Purpose Zone must address the following matters:

- The need to recognise and provide for the sustainable management of the MMPS taking into account the significant private investment in terms of scale of development.
- The need to provide a framework which caters for change and development of the facilities while also maintaining environmental quality.
- The need to establish appropriate levels of development and activity that is compatible with the surrounding environment.
- The need to establish Location Specific Individual Risk Contours to manage hazardous substances on site.

Omata Tank Farm

The Omata Tank Farm is a bulk liquid storage and handling facility for the distribution of hydrocarbon product through Port Taranaki on behalf of a range of customers from fields throughout Taranaki. There are 14 tanks in a number of compound areas on the site which are supported by a network of above-ground pipes, buildings and utilities. The tanks contain methanol, hydrocarbons, condensate (light oil) and some crude oil which is piped and trucked in from producing fields and other businesses. Products contained within the tanks are piped to Port Taranaki where they are shipped to refineries for processing, either within New Zealand or internationally.

Tank farm customers and their use is as follows:

- OMV Limited - Operate four of the tanks; three tanks on their 'Energy Infrastructure Limited (EIL)' site and one on their 'T-3500' site. The tanks hold condensate (light oil) and some crude oil.
- Methanex New Zealand Ltd - Own two sites within the Omata Tank Farm known as Omata Tank Farm 1 and Omata Tank Farm 2. Omata Tank Farm 1 contains two storage tanks which are used for methanol storage. Omata Tank Farm 2 contains two ex-gasoline storage tanks. Omata Tank Farm 2 is currently non-operational but could be used for methanol storage in the future.
- Energy Infrastructure Limited - own two sites within the Omata Tank Farm which accommodate 4 tanks used for oil.
- Lattice Energy - Own and operate a site known as the Kupe Omata Tank Farm. The site contains two storage tanks which receive and store condensate from the Kupe Production Station in Manaia. The Kupe Omata Tank Farm receives condensate by road tanker and contains two bay tanker unloading facilities for this purpose. The site also contains a control building and utilities.
- Beach Energy/New Zealand Oil Services Ltd - Port Taranaki own a site within the Omata Tank Farm which is leased by BP Oil and operated by New Zealand Oil Services Ltd. The site contains four storage tanks used for storage of hydrocarbons.

Ngā Mahanga-a-Tairi hapū are recognised as having an historic link with the area.

Noise effects

The Tank Farm operates under the 1991 versions of NZS 6801 and NZS 6802. Aside from traffic noise to and from the site, the site is quiet and Council has received no noise complaints. In this regard, the 1991 versions of NZS 6801 and NZS 6802 are managing noise emissions to a satisfactory standard.

Hazardous Substance use/storage

Omata Tank Farm as a whole, plus the NZOSL and Methanex tanks are recognised as upper tier Major Hazardous Facilities (MHF) and are primarily managed by the HSNO and HSWA regulations. See Methanex discussion above. Council understands the owners and operators of the tank farm are considering whether to collectively or individually to produce a risk contour for this facility.

Traffic Effects

Access to the Omata Tank Farm is from Centennial Drive, a road which links State Highway 44 and 45. Traffic movements include tankers and small numbers supervisors/workers entering/exiting the site, and given the nature of the activities on site, vehicle movements are low.

Visual Effects

The tanks are primarily concentrated on the north portion of the Omata Tank Farm site and vary in size, and range in height from 14 – 25 metres. The main tank sites are fenced with hurricane security fencing approximately 3m in height. The perimeter of the wider 85ha site is fenced with wire and batten fencing.

The tanks are highly visible due to the large structures that are located on an open and elevated coastal site. The industrial nature of the area is further reinforced by the national grid lines and support towers going through the site. The tanks are especially visible from long views from Omata and Beach Road looking north and from Paritutu Rock and Mt Moturoa. The tanks can be viewed from some residential streets in Spotswood, although a stand of pine trees next to the Herekawe Stream walkway to help to screen visual effects. Their size/scale is most prominent from Centennial Drive. Screening could be enhanced along this road.

Some steps have been taken to minimise the visual impact of the tanks by:

- Using a green non-reflective paint to help them blend into the background.
- Boundary planting along Beach and Te Ngahoro Roads.

Other screening includes revegetating road cutting along Centennial Drive and natural features such as small hills and other landscape features.

Conclusions

In reviewing the District Plan it is apparent that the Omata Tank Farm has unique operational needs and associated environmental effects. Given these findings, there is a need to develop a 'bespoke' zoning which is tailored to address those needs and effects.

Using the Special Purpose zone framework that is set out in National Planning Standards 2019, the new Special Purpose Zone must address the following matters:

- The need to recognise and provide for the sustainable management of the Omata Tank Farm taking into account the significant private investment in terms of scale of development.
- The need to provide a framework which caters for change and development of the facilities while also maintaining environmental quality.
- The need to establish appropriate levels of development and activity that is compatible with the surrounding environment.
- The need to establish Location Specific Individual Risk Contours to manage hazardous substances on site.

Paritutu Tank Farm

Managed by Todd Energy, the Paritutu Tank Farm consists of five 20 metre high 12,440 m³ capacity floating-roof hydrocarbon liquid storage tanks. Supported by a network of above-ground pipes, buildings and utilities, the hydrocarbons are piped and trucked in from producing fields and other businesses. Products contained within the tanks are piped to Port Taranaki where they shipped to refineries for processing, either within New Zealand or internationally.

Ngāti Te Whiti hapū are recognised as having an historic link with the area. Northwest views from the land to the islands continue to hold spiritual and cultural significance to hapū.

Noise effects

The Tank Farm operates under the 1991 versions of NZS 6801 and NZS 6802. Aside from traffic noise to and from the site, the site is quiet and Council has received no noise complaints. In this regard, the 1991 versions of NZS 6801 and NZS 6802 are managing noise emissions to a satisfactory standard.

Hazardous Substance use/storage

Paritutu Tank Farm is recognised as upper tier Major Hazardous Facilities (MHF) and are primarily managed by the HSNO and HSWA regulations. See Methanex discussion above. Council understands the owners and operators of the tank farm are considering whether to produce a risk contour for this facility.

Traffic Effects

Access to the Omata Tank Farm is from Centennial Drive, a road which links State Highway 44 and 45. Traffic movements include tankers and small numbers supervisors/workers entering/exiting the site, and given the nature of the activities on site, vehicle movements are low.

Visual Effects

Despite being painted in a green non-reflective paint to help them blend into the background, the tanks are highly visible due to the fact they are large structures that are located on an open and elevated site. Their size/scale is most prominent from Centennial Drive, Port View Crescent and Paritutu Road. Screening could be enhanced along these road boundaries.

The tanks are highly visible from Paritutu Rock and Mt Moturoa. As part of the District Plan Review on urban viewshafts in New Plymouth³, the importance of views from Mt Moturoa have been reassessed. It has been concluded that the existing Operative District Plan Section 3 heights (i.e. 25m) that overlays the tank farm (and port land) is inappropriate as it allows for too much height and important Sugar Loaf Island and sea views could be lost. The recommendation is that the Section 3 splay should be extended and that the height lowered to 10m to prevent expansive views being foreshortened by development occurring close to the viewshaft. This recommendation as a direct impact on the Paritutu Tank Farm.

³ Urban Viewshafts Study, Bluemarble August 2017

Conclusions

In reviewing the District Plan it is apparent that the Paritutu Tank Farm has unique operational needs and associated environmental effects. Given these findings, there is a need to develop a 'bespoke' zoning which is tailored to address those needs and effects.

Using the Special Purpose zone framework that is set out in National Planning Standards 2019, the new Special Purpose Zone must address the following matters:

- The need to recognise and provide for the sustainable management of the Paritutu Tank Farm taking into account the significant private investment in terms of scale of development.
- The need to provide a framework which caters for change and development of the facilities while also maintaining environmental quality.
- The need to establish appropriate levels of development and activity that is compatible with the surrounding environment.
- The need to establish Location Specific Individual Risk Contours to manage hazardous substances on site.