

DUNEDIN GOSPEL HALL TRUST



GLENELG GOSPEL TRUST

326 FACTORY ROAD, MOSGIEL



Resource Consent Application

Prepared by
Cubitt Consulting Ltd
June 2015

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FORM 9
APPLICATION FOR A RESOURCE CONSENT
UNDER SECTION 88 OF THE RESOURCE MANAGEMENT ACT,
1991

To: Manager - Resource Consents
Dunedin City Council
PO Box 5045
Dunedin

Glenelg Gospel Trust hereby applies for the resource consents described below:

1. The current owner of the site is:

Arthur Thomas Wilson, Christina June Wilson and Public Trust

2. The location to which this application relates is:

The site is located at 326 Factory Road, Mosgiel and is legally described as Lot 2 DP12108 and Section 41 Block V East Taieri Survey District (CRF 51980).

3. The type of resource consent sought is:

Subdivision and land use consent.

4. A description of the activity to which the application relates:

Subdivision Consent:

To subdivide the 5.0034 hectare Rural zoned property into 2 allotments as follows:

Lot 1 – 2.39 hectares

Lot 2 – 2.6134 hectares

An easement to convey water across Lot 1 to service Lot 2 in the future will also be required. The location and details of this easement is not yet known.

Land Use Consent:

(a) To authorise the construction and operation of a church and associated facilities (including a manse) on Lot 1 with a maximum capacity event of 1300 people (plus 15% buffer).

(b) To authorise the construction of a new dwelling on Lot 2 of the proposed subdivision.

The proposed activities are fully described in the attached application and AEE at section 1.2.

5. The following additional resource consents are required in relation to this proposal and have been applied for:

Not applicable.

6. **We attach an assessment of effects that the proposed activity may have on the environment in accordance with Section 88 and the Fourth Schedule of the Act.**
7. **We attach other information required to be included in the application by the District Plan or Regional Plan or Regulations**
 - (a) Site and Building Plans
 - (b) Written approvals (to be forwarded once received)
 - (c) A Statutory and District Plan Assessment is incorporated in the AEE.
 - (d) The deposit for a notified application will be forwarded upon invoice.

Dated at Dunedin on 31 June 2015



Signed _____

**Allan Cubitt, Director of Cubitt Consulting Ltd
As Agent for Glenelg Gospel Trust**

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Description of Proposal

1.1 Description of Site

The site is located at 326 Factory Road, Mosgiel and is legally described as Lot 2 DP 12108 and Section 41 Block V East Taieri Survey District (CRF 51980). Located at the intersection of Factory Road and Puddle Alley, the site has formed vehicular access to both.

The site was subject to a two lot non-complying subdivision application in April 2014. This application was unsuccessful with one of the main reasons being that *"...insufficient information has been supplied with the application, or during the Hearing to assess whether the effects of the proposal are less than minor"*. The decision was appealed to the Environment Court and we understand that the appeal has been placed on hold until this application is determined.

The site is of a relatively flat topography which gently falls to the west. The existing dwelling is located on the highest point of the property. A number of drainage ditches run through and around the property while a 200mm diameter Council water reticulation main runs through the northern portion of the site. Overhead power wires also cross the site in a location similar to the water main.

The site also contains significant plantings. At the northern end, the property is characterised by mixed mature shelter and amenity plantings with Silver Birch, Poplar and Eucalyptus being dominant species. Along the Puddle Alley boundary at the southern end a poplar shelterbelt is a dominant element and there are also mature trees within the site.

The current owner of the site has owned the land for over 40 years and until late 2014 operated a poultry farm and egg production business from the property. This was established circa 1970. Along with a dwelling, there is an assortment of buildings and sheds on the site for this purpose. The main poultry sheds located on the site are as follows (also see map of current use attached as Appendix 3):

- Poultry shed measuring 23m long x 10 m wide and 4.3 m high to peak of gable (2.5m high at each side of gable).
- Poultry shed measuring 53m long x 13 m wide and 4.3 m high to peak of gable (2.5m high at each side of gable)
- Poultry shed measuring 53m long x 13 m wide and 6.0 m high to peak of gable (5m high at each side of gable)

All sheds are constructed of timber framing and clad with iron roof and fibreboard or iron wall claddings. There are also a number of smaller sheds and silos within the property.

In addition to this large footprint of built development, the poultry farm generated a number of adverse effects in the surrounding environment. With respect to traffic effects, these arose from the transport of feed, on-site retail of eggs and delivery of the product to the market. Initially feed was transported to the farm about 2 or 3 times per day from a feed mixing plant in Paterson Rd, Wingatui. A feed mixing unit was then constructed on site and the feed was then bulk delivered by truck and trailer to the site about once per month.

A significant amount of the eggs were sold at the site which generated reasonably high levels of traffic entering and exiting the site. Most on-site retail sales took place on weekends, which became very busy. It was not uncommon on Saturdays and Sundays for

a line-up of cars queuing from the shed on the western boundary (Shed 1 on attached plan) out the gate to Factory Rd. Initially these vehicles had to turn around inside the gate and then exit onto Factory Rd again. As the traffic increased another driveway was added so that traffic could enter from Factory Rd and then exit onto Puddle Alley

The other traffic generating activity was the delivery of the product to regular clients. These deliveries were carried out by the farms own truck and van.

The operation also generated significant quantities of hen manure. This waste was stored on site and removed by contractors. A double level poultry shed (shed 3) was built and that enabled the manure to fall through from the cages to the ground level. This manure was cleaned out by contractors every 6-12 months. Contractors would bring their own machinery (loaders and trucks etc.) and would cart the waste out over the course of a day or two. This component of the activity led to a number of complaints in relation to odour and the attraction of flies.

The area surrounding is rural in character but in the immediate context to the south-east of Factory Road in particular, the area is relatively densely settled and less open than typical in the Rural zone. This illustrated by the size of the adjoining properties as follows:

Factory Road:

- 324 – 2.8158 ha
- 322 – 4.0554 ha
- 308 – 4.0469 ha
- 306 – 8.2657 ha
- 290 – 2.0234 ha
- 284 – 3.1864 ha

Puddle Alley:

- 95 – 2.9689 ha
- 144 – 4.0474 ha
- 108 – 5.4541 ha
- 73 – 8.5114 ha
- 72 – 4.0791 ha

The Invermay Agricultural Research Centre and the Duncan Venison buildings are located nearby to the north. The buildings associated with these activities are of an institutional and industrial scale and character respectively.

1.2 Proposed Activity

The purpose of the proposal, which was not made apparent in the April 2014 application, is to enable the establishment of a church at the site for use by the local Brethren community. This church is to replace their congregations existing church at 81A Glenelg Street, Kaikorai Valley. This site is considered more suitable to the needs of the congregation as the Church's membership grows. The churches fundamental philosophy is based upon the individual family unit and the wider family community. This means the congregation naturally grows as families grow.

The site is ideally placed to service not only the Dunedin Brethren community (particularly as Mosgiel grows) but also the wider, regional congregation (Timaru through to Invercargill) which meets on a regular basis. The site is easily accessed (being located on

an efficient road network) and situated on the fringe of the urban area so that effects can be more readily managed but is not so isolated to cause inefficiencies. It already contains a significant buffer of vegetation and can be easily serviced. The site is also large enough to accommodate what is a large church campus. There are few, if any, similar sites located within the urban area of Dunedin.

The site has become available because Mrs Wilson, who is the owner of the site, is now of an age such that she cannot continue on with the poultry operation. The property was offered for sale in March 2013, but there was no interest in the poultry farm operation.

However the church does not need the entire 5 hectares of the site. To that end a subdivision is proposed that reflects the size of the two immediately adjoining properties (324 Factory Road at 2.8 hectares and 95 Puddle Alley at 2.9 hectares). Two allotments of approximately 2.5 hectares each will be created to ensure the rural-residential amenity of the surrounding properties is maintained. The scheme plan is attached as Appendix 2.

Lot 1 (2.39 ha) is to contain the proposed church, an associated car park and manse as illustrated on the concept site plan. The existing dwelling and buildings associated with the poultry operation within this allotment will be demolished.

Fluent Solutions Ltd has investigated the site and concludes that waste can be disposed of safely on site without adverse effects on the environment (report attached at Appendix 5). Their report contains a concept plan that illustrates the areas proposed for wastewater disposal and stormwater attenuation. However the option of connecting to a reticulated sewage disposal system is also being investigated. Because the site is located within an 'Urban Water Supply Area', it is the intention of the applicants to connect the water main that passes through the property. It is also intended to underground the power lines that cross Lot 1.

The concept plans in Appendix 4 illustrates the existing landscaping on the site and the landscaping proposed. A closed board paling fence will also be erected between the car parks western boundary and the neighbour (and manse) to the west (being 324 Factory Road) for noise attenuation purposes.

The design of church building will be similar to those built by the Brethren community around the country (some images are attached in appendix 4). The location, footprint and elevation of the church are illustrated on the attached plans. The approximate footprint of the church will be in the order of 1303m². The bus canopy illustrated on the floor plan is unlikely to be built at this church. Despite its size, the maximum height above finished ground level will be 7.37 metres (at the gable peak). It is anticipated that the manse will be a single storey house of between 250 to 300m² in area.

The Church building will be used for Church & Worship Services, Gospel Preaching's, Marriage and Funeral Services and Special Church Services of full capacity as required. The special capacity events can be between 6 months and 2 years apart.

The frequency of services and approximate number of attendees is set out in the table below. It is possible that some of these times may need to be varied occasionally to suit the needs of the various different services.

As with any facility for religious worship it is important that the times and frequency of services are not strictly regulated as they must be available at any time for a soul in need. For similar reasons, the actual numbers attending each individual ceremony cannot be given as Churches do not turn new members away. Furthermore, with the congregations

fundamental philosophy being based upon the individual family unit (and the wider family community), the congregation naturally grows as families grow.

Table 1: Services and Approximate Number of Attendees

Day	Times	Frequency	Approx. No of attendees	Comments
Sunday	5:30am - 6:30am	Weekly	50	
Sunday	9:30am - 12:30pm	Weekly	200-800	Can be 2-3 weeks between these events
Sunday	4:30pm - 6:00pm	Weekly	150-250	
Monday	6:00pm - 7:00pm	Weekly	50	
Tuesday	7:00pm - 9:30pm	Weekly	150-250	
Wednesday	7:00pm - 9:30pm	Weekly	150-250	
Thursday	7:00pm - 9:30pm	Weekly	150-250	
Friday	6:00pm - 9:30pm	Weekly	150-250	
Saturday	8:00am - 9:30am	Monthly	150-250	
Saturday	10:00am - 11:30am	Weekly	150-250	
Tuesday	2:00pm-5:00pm	as required	150-250	Weddings
Any Day	12:00 noon - 2:00pm	as required	150-500	Funerals
Any Day	8:00am - 9:00pm	as required	1300	Capacity Event

The table is based what is currently expected at the site. However we request that a 15% buffer be provided on these figures to allow for the circumstances mentioned above. It is also possible that in some instances the facility will not be used at all for the above occasions. (For example the Sunday mid-morning service is often only held every 2nd or 3rd Sunday). The above frequencies are intended as a guide to normal use but any consent must recognise the purpose of a church and how this may affect meeting attendances.

The capacity event would not be a continuous event in the time shown but could be anytime within these times for approx. 3-4 hours. This could also occur in a series of events up to a three day maximum duration. Marquees may be required at these times to provide additional space for the attendees while also protecting them from the weather. The marquees will be temporary structures erected next to the church building and in a location that will ensure noise does not migrate off site. They will be used for one off events, and will not be in place for more than a couple of weeks at a time. The marquees are not likely to exceed a combined area of 1000m².

Car parking and associated access has been designed on the basis of the figures above and the characteristics of the surrounding road network. The access and number of parks is based on a nationally recognised design and layout for the church group and the work of Mr Andy Carr, a traffic engineer with Carriageway Consulting. The site provides a total of 160 car parking spaces, which will accommodate a congregation of 631 people. This is sufficient for the majority of events at the site, other than the largest of Sunday services where up to 800 people may attend (920 people including the 15% contingency) and the capacity events of 1,300 people. As the capacity events occur at most once every six months, and greater use will be made of minibuses and coaches', the extent of car parking calculated for such events is unlikely to arise in practice. However given the greater use of larger vehicles, specific provision will need to be made for the parking of these vehicles, and any other overflow, within the balance of the site to the south of the Church. A traffic management plan will be developed to address this issue. This application also seeks

consent to increase the marked car park area up to 200 spaces. This will be attached the proposed car park (most likely in the grassed area directly in front of the church and in the vacant space to the south of the car park) and will be appropriately constructed and drained.

Lot 2 (2.6 hectares) will be created for a rural-residential lifestyle purpose. A building platform of 2500m² has been shown in the northern portion of the lot. It is set 12 metres back from Puddle Alley and 10 metres back from the boundary of Lot 1. The dwelling is anticipated to be a single storey building in the range of 250m² to 300m² in area. The attached Platinum Homes Corsica house design has an area of 260m² and provides some guidance as to what a dwelling may look like on the site. However consent is not sought on the basis of this design.

The internal boundary of the subdivision has been designed to ensure that the existing access to Puddle Alley adjacent to the building platform is retained in Lot 2. It also ensures that part of the residential site is located within the 'Urban Water Supply Area', with the intention that the new dwelling can connect the water main that passes through Lot 1. The ability for the new dwelling within Lot 2 to do this will need to be protected by way of the appropriate easements.

1.3 Status of Activity

The subject site is zoned **Rural** in the Dunedin City District Plan.

Factory Road is classified as a District Road in the District Plan Road Hierarchy, while Puddle Alley is a collector road. A small sliver of high class soil is located along the western boundary of the site but will not be affected by the proposal. The site is also subject to the Designation 275 – Dunedin International Airport Approach and Land Use Controls but this has no implications for the proposal. The northern tip of the site is also located within the Groundwater Protection zone B but again this has no implications for the proposal.

Subdivision

Subdivision within the Rural zone is a discretionary (restricted) activity under Rule 18.5.1 where the minimum area of the site is not less than 15 hectares. As the two new lots will be under the required minimum site area, the proposal is a **non-complying activity** under the Plan.

Residential Land Use

In the Rural zone, Rule 6.5.2(iii) permits residential activity at a density of 1 residential unit per site provided that the minimum area of the site is not less than 15 hectares. As Lot 2 does not comply with this standard, the new dwelling is a **non-complying activity** pursuant to Rule 6.5.7(i).

Church Land Use

The proposed Church (and associated infrastructure and manse) is considered a 'community support activity'. Community support activities are defined in the Plan as:

"... means the use of land and buildings or collection of buildings which are used for the primary purpose of supporting the health, welfare, safety, education, culture and spiritual well-being of the community including childcare facilities and community police offices but excludes hospitals, recreational activities, facilities which have or require a liquor licence or which provide restaurant facilities."

'Community support activities' are anticipated in the rural zone and are therefore identified as **discretionary activities** pursuant to Rule 6.5.6(ii).

Generally the approach adopted by Councils is to 'bundle' activity categories and accord the proposal the highest activity category. However it is generally not appropriate to bundle different types of consents (e.g., discharges, water takes, subdivision and land-use). It is also not appropriate to bundle two sets of activities that are spatially discrete and where their respective environmental effects do not significantly overlap. In this case the subdivision and the proposed residential activity for Lot 2 are non-complying and can be bundled accordingly. However the church is a discretionary activity and will be located within a separate parcel of land from the new residence, which is visually separated by existing plantings. We believe the church should be assessed as a **discretionary activity**.

2. Assessment of Environmental Effects

2.1 Introduction

In assessing the proposal, it is important to consider the effects of the proposal in the context of the existing environment and the permitted baseline which still includes the effects of the hen farm at the site. At the time of preparing this AEE, the hen farm still retains existing use rights and could be reactivated. These effects include the sites built density (and its bulk and location), noise, odour, waste generation and traffic effects as described in section 1.1 above.

Section 6.7 and 18.6.1 of the District Plan contain a range of assessment criteria in respect to rural activities and subdivision activities respectively. The key matters of that section will be addressed in the following assessment. Having regard to the criteria set out in the plan, the following are considered to be the main issues that need to be addressed:

- Natural character and landscape values
- Amenity values
- Bulk and location issues
- Intensity of the activity
- Transportation/Access
- Water Supply, Storm water and Foul Sewage disposal
- Lot size and dimension
- Noise and glare
- Hazards
- Conflict and Reverse Sensitivity

These issues are addressed below. Because the site has previously been subject to a resource consent application, a number of these issues have already been assessed by Council. Where the circumstances or issue has not changed since the last application, we refer to and comment on, where necessary, the Section 42A reports original assessment. Further assessment is given where the effects of the application are different to the previous application.

2.2 *Natural Character, Landscape, Amenity Values and Bulk and Location of Buildings (Assessment Matters 6.7.3, 6.7.9, 6.7.13, 18.6.1(s))*

As was acknowledged in the original Section 42A report, the density of the surrounding area is already in excess of that anticipated by the Plan. We have highlighted that above in section 1.1 and this is also addressed in Mr Moore's report attached at Appendix 6. This is important as any amenity and landscape effects assessment must recognise that the

existing, receiving environment particularly to the south-east of Factory Road, is relatively densely settled and less open than typical of the Rural zone.

The assessment must also recognise that there are a number of large buildings, of an industrial and institutional character, located in the immediate neighbourhood (Invermay Agricultural Research Centre and Duncan Venison) and that the site itself contains a number of large buildings. While the poultry farm is a legitimate rural activity, it does have a built density relative to site area that is greater than a normal rural site. The poultry farm buildings located within Lot 1 will be removed as part of the development, as will the existing dwelling. This will ensure that overall built density on Lot 1 will remain at a similar level while improving the visual amenity of the property. The church building will also be located well back from the boundaries and effectively screened from surrounding viewpoints. The manse will be located in a similar position to an existing poultry shed but will integrate readily with the existing character of the neighbourhood given the existence of a number of dwellings along Factory Road to the east.

The large poultry shed on Lot 2 is to be retained but overall built density on this site will not be dissimilar to many of the sites in this location. Furthermore the significant boundary and shelter plantings within both allotments will be retained (for the most part) and will be enhanced. These plantings will continue to screen the built development within the site.

Taking these factors into account, the effect of the proposal on the amenity and rural character of the location is considered to be minimal. This is also the conclusion that Mr Moore has arrived at in his assessment of the proposal. He states that:

The effect of these changes will mean that the character of the site internally will change from that of a derelict poultry farm to that of a church campus with a significant area in car parks with a parkland perimeter. From external locations however, given the strong perimeter tree framework, the character of the landscape will be little changed. The 2m high chain link fence and occasional car park lighting will suggest a non-traditionally rural land use within the site and glimpses through will probably continue to be available from directly adjacent. In this setting however, with the Invermay campus and the Duncan Venison industrial facilities nearby, as well as a swathe of rural residential density housing to the west of the site, I believe that the proposed church will integrate acceptably. Overall, it is my assessment that any adverse effects on the rural landscape character will be minor.

Mr Moore has proposed a number of mitigation measures to minimize the effects of the proposed church and house on the rural landscape amenity values of the area as follows:

- *The proposed church building and future manse are to be finished in colours that minimize contrast with the surrounding rural landscape. As a guide, the dominant colours of the buildings are to be darker tones with no more than 30% light reflectivity values.*
- *All existing buildings on the site are to be removed*
- *The existing boundary plantings are to be managed and enhanced as illustrated in the landscape concept plan (Figure 4) to substantially retain and / or enhance screening of buildings on the site from external viewpoints.*
- *All perimeter fencing adjacent to the public roads is to be of light visual density (see-through) such as wire mesh construction.*

Mr Moore is also comfortable with the new dwelling proposed for to Lot 2. He believes *"a new single storey house on the proposed building platform, finished in recessive colours as proposed, will have minimal impact and will integrate readily with the existing fairly densely settled and well planted rural landscape character."* Again he promotes a number of mitigation measures to minimize the effects on the rural landscape amenity values of the area as follows:

- *The future house (and any accessory buildings) is to be finished in colours that minimize contrast with the surrounding rural landscape. As a guide, the dominant colours of the buildings are to be darker tones with no more than 30% light reflectivity values.*
- *The existing boundary plantings are to be managed and enhanced to substantially retain and / or enhance screening of buildings on the site from external viewpoints.*
- *All perimeter fencing is to be standard rural post and wire fencing no more than 1.2m high.*

Overall, amenity and rural character effects are considered to be no more than minor.

2.3 Intensity of Activity (Assessment Matters 6.7.5), (Transportation and Property Access (Assessment Matters 6.7.24, 18.6.1(c) and (m))

As with any church, it will only be used intermittently as illustrated by Table 1. Obviously Sunday will be the busiest day at the church with early morning and late afternoon gatherings. Every two or three weeks there will also be a larger mid-morning gathering on Sundays. There will be gatherings on Saturday morning but the remainder of the gatherings will be held during weekday evenings.

Potentially the most significant effect associated with this level of activity is the traffic generated by the proposal. As consequence, Mr Carr was commissioned to assess the implications of the proposal for the surrounding road network and recommend any mitigation he considered appropriate. His report is attached at Appendix 8.

As Mr Carr's report notes, the District Plan classifies Puddle Alley at the site frontage as a 'Collector Road'. The purpose of such a road is to *"distribute and collect local traffic within and between neighbourhoods and...provide for traffic movement and property access"* Factory Road and Puddle Alley north of the site are District Roads, which *"provide connections between the regional roads and connect major rural, suburban, commercial and industrial areas"*.

Mr Carr has assessed the intensity of the proposed activity on this roading network. He concluded that *"the traffic generated by the development can be accommodated on the adjacent roading network without capacity or efficiency issues arising, even when the maximum number of attendees are present. Levels of service at the intersection remain very good, even allowing for all arrivals and departures to coincide with the existing peak hour on the road network."* Mr Carr also confirmed that there would be no adverse safety effects from the proposal and that the existing sight distances available for vehicles turning to or from Puddle Alley (southeast) are excellent.

Mr Carr had significant input into access and the car park layout for the site. Accordingly these aspects of the proposal comply with all transportation requirements of the District Plan. He does note however that there is likely to be a small amount of overflow car parking during the very largest events. This parking can be accommodated on the balance

area of the site to the south of the Church (which may eventually be formed as permanent car park), and is therefore unlikely to result in any significant safety or efficiency effects. He recommends a traffic management plan condition to deal with this issue at the larger events.

Overall Mr Carr concludes that *"the proposed development can be supported from a traffic and transportation perspective and it is considered that there are no traffic and transportation reasons why consent could not be granted"*.

As such, any adverse effects arising from the intensity of the activity on the safe and efficient operation of the roading network are considered to be minor. Other effects relating to the intensity of the activity are considered below in 2.4, 2.7 and 2.8.

2.4 Services: Provision for electricity, telephone, stormwater, water and effluent disposal (Assessment Matters 18.6.1(d) (n) (o) and (p))

The property sits within the 'Urban Water Supply Area' and is serviced by a reticulated water supply. The existing dwelling within Lot 1 is connected to this reticulated water supply. Upon subdivision, Lot 1 will lie completely within the 'Urban Water Supply Area' while the northern portion of Lot 2, which includes part of the building platform, also lies within the 'Urban Water Supply Area'. As a consequence it is proposed to connect both the church and associated manse on Lot 1 and the new dwelling on Lot 2 to the water main. An easement will be provided to enable the connection from Lot 2. Connection to this supply will also ensure appropriate fire protection is provided.

With respect to effluent disposal, there is currently no reticulated sewerage system servicing the property, with the nearest connection being approximately 1.4km to Wingatui Road. As a consequence of this, Fluent Solutions have been engaged to undertake site investigations and to assess on-site and off-site wastewater servicing options for the proposed development. They have also been asked to advise on stormwater management options. Their report is attached at Appendix 5.

Because the proposed development is primarily a church, wastewater flows will generally be higher on weekends and significantly lower throughout the week. As a consequence, Fluent Solutions have considered a variety of flow scenarios for the purposes of preliminary design. Under all scenarios considered, they have assumed 35 standard toilet bowls, 10 urinals, no kitchen facilities, reduced flush toilets and urinals, and manual flush urinals. No shower or cooking facilities will be provided on site. Balanced daily flows (l/d) between the four scenarios considered vary between the regular 500-700 l/d versus the occasional 2,500-3,000 l/d for special events.

Fluent Solutions have advised that both onsite and off-site wastewater management techniques are feasible. At this stage, utilisation of the two potential reticulated sewer connection points (being the Invermay gravity sewer, and the DCC sewer system located at Wingatui Road) are not being pursued further. With respect to on-site disposal, Fluent Solutions have advised that a secondary or advanced secondary treatment will be necessary prior to effluent dispersal by a pressure compensating drip line irrigation system. This is due to the area available for wastewater dispersal being limited by the use of the site, the proximity ORC Schedule Drain, together with the low permeability of the soils on site.

With respect to stormwater flows from the site, we note that they ultimately enter the scheduled drain along the southeast boundary of the site. This drain then flows to the Owhiro Stream which is part of the East Taieri Drainage Scheme and Lower Taieri Flood Protection Scheme. Because of the sensitivity downstream, increased runoff due to

development will need to be mitigated. This generally requires the management of post-development outflows off site to be equal to, or less than, flows existing on the pre-developed property.

Given the size of the church building and the area of hard surfaced car park, Fluent Solutions were also commissioned to assess this matter. They found that due to the favourable grade of the land the most cost-effective means of restricting stormwater discharges off site will be a stormwater detention pond system, which will provide storage to limit outflows to a flow equal to or less than those of the site before development. This is to be located in the south eastern corner of the site and will incorporate a surface area of about 800m² and an average depth of 0.3m. Stormwater from 10 and 100 year ARI storms will be piped or channelled via overland flow paths towards the detention area. Outflows from the detention system will then enter the drain running along the south eastern boundary of the site.

The existing dwelling is fully reticulated for electricity and telecommunication services from existing reticulation in the area. The church, manse and new dwelling proposed for Lot 2 will be serviced in a similar way.

In conclusion, the site can be fully serviced and we do not expect any adverse effects to a result from this aspect of the proposal.

2.5 Lot Size and Dimensions and Physical limitations (Assessment matters 18.6.1(q),and (k))

As noted in section 1.2 above, the site is considered ideal for the church in that it is large enough to accommodate a sizable building, a large area of parking and the other necessary infrastructure while retaining an appropriate buffer to surrounding sites to ensure adverse effects are minimised. There are few, if any, such sites available within the more densely settled part of the city.

However the Church does not need the entire 5 hectares of the site to achieve its goal and the surplus land is therefore proposed as an allotment for rural-residential purposes. The size of the proposed allotments reflects the size of the two immediately adjoining properties at 324 Factory Road (2.8 hectares) and 95 Puddle Alley (2.9 hectares). At approximately 2.5 hectares, the size and dimensions of the lots will maintain the rural-residential amenity of the surrounding properties.

With respect to physical limitations, the power lines that cross the northern part of Lot 1 are to be undergrounded to minimise disruption to the car park area and also to improve the visual aesthetic of the development. Servicing issues are dealt with in 2.4 above while Hazards are dealt with in section 2.6 below.

In conclusion the lot size and dimension is appropriate to the proposed use and reflects the surrounding development. There are no physical limitations that impact on the use of the site for the proposed activities.

2.6 Hazards and Safety (Assessment Matters 8.13.12 and 8.13.17)

The issue of natural hazards and HAIL was addressed in the Section 42A report on previous application. The author of that report, Mr Roberts, commented as follows:

Council's Hazards advisors (MWH) have not raised any significant issues relating to natural hazards, aside from two issues which can be dealt with at building consent stage.

The Otago Regional Council (ORC), in their submission have raised a number of natural hazard issues, in particular suggest the site is exposed to flooding. The ORC notes a minimum floor level is provided in the LIM report attached to the application, however the ORC believe this is not sufficient to rely upon this floor level to mitigate against flooding risk. The ORC have not suggested an appropriate floor level.

The ORC have also raised the issue of liquefaction, which MWH have suggested could be addressed at building consent stage. I consider the MWH approach to be a sensible one.

The ORC also raised the issue of the application lacking a Hazardous Industries and Activities List (HAIL) assessment. This has subsequently been undertaken and a search of the Council's records has not raised any issues that would further trigger the provisions of the National Environmental Standard for managing soil contamination (NES).

Mr Roberts's conclusion is supported by the geo-technical report prepared by Mr Jon Linqvist, which is attached at Appendix 7. Dr Linqvist was commissioned by the applicant in December 2013 to assess the geological conditions of the property and concluded that the site is "well suited to building."

2.7 Easements (Assessment matter 18.6.1(ii))

CFR 51980 is subject to a Land Covenant in Easement Instrument 5659671.4. That covenant effectively prevents the owners of CFR 89878 from objecting to the operation of the poultry operation at the site.

A 'right to convey water' easement will need to be created over Lot 1 in favour of Lot 2 to enable Lot 2 to connect to the water reticulation.

2.8 Noise, Lighting and Glare

The activities conducted on the site are of a passive nature and consist of prayer meetings, the Lord's Supper (communion), gospel preaching's, and bible reading meetings. Generally music or musical instruments will not be amplified at these times. In this context, the main sources of noise on the site will be from the following activities:

- The sounds of worship (singing without amplification)
- Traffic movements to and from the site
- The movement of people between the carpark and the building

Noise from activities undertaken within the building will not be apparent outside the building. This is because the church building will be acoustically treated to a high standard to ensure noise from the outside does not affect the services held within it. This will have the reverse benefit of also ensuring that noise does not escape from the building and adversely affecting neighbouring property owners.

With respect to car park and traffic noise, the proposal has been designed to ensure this is kept to a minimum. The church has been sited some distance from the neighbouring property at 324 Factory Road, with the carpark located to the east of the building. A closed board paling fence will extend from the building to the north along edge of the car park.

These design features will mitigate any noise generated from the car park area. We also note that meetings conclude no later than 9.30pm so all attendees will generally be off site by 10pm.

As noted above, marquees may be used at the capacity events. However these special capacity events are rare and will generally occur between 6 months and 2 years apart. Furthermore they are not continuous events in the time shown within the table in section 1.2 above, but could occur anytime within these times for approx. 3-4 hours duration. This could also occur in a series of events with up to a three day maximum duration. Hence they are very occasional and short duration activities. The marquees will be sited in the car park with the church building again providing noise attenuation. Noise effects from this activity will therefore be minor.

Overall noise effects from the proposal are expected to be minor or less and should comply with the noise standards of the plan.

For obvious safety and security reasons, the car park will be lit at night when the church is in use. The light poles will be no more than 8-10 metres high, with the light being shielded and directed down into the car park. Given that the site is effectively screened by significant boundary plantings, lighting within the car park will barely be visible off site. Rule 21.5.4 sets the standard of no more than 8 lux of light onto any other site used for residential purposes during night-time hours, measured at the windows of any such residentially occupied building. The proposal will comply with this. Hence there will be no adverse effects on amenity values of adjoining properties or the wider neighbourhood.

2.9 Conflict and Reverse Sensitivity (Assessment Matters 6.7.26)

The District Plan requires consideration of the extent to which the proposal will conflict with existing rural activities or affect their ability to continue to operate. As has been noted above, the neighbourhood to south east of Factory Road is essentially a rural - residential neighbourhood and this proposal is in keeping with that character. Consequently there is little opportunity for conflict or reverse sensitivity issues to arise in this neighbourhood. In fact the proposal is more compatible with the neighbourhood than the poultry farm which has led to a number of complaints from neighbours in the past.

2.10 Cumulative effects

While a church campus could not be considered a traditional rural land use, the zone does provide for community support activities as discretionary activities and such facilities are not uncommon in the rural area (particularly community halls). The Invermay campus has developed over the years and is now a significant feature of the area. Their buildings are larger and more obvious than what is proposed here, which will effectively be screened by the existing plantings. Hence awareness of the church will generally be relatively low and adverse rural character effects will be minor. The visual amenity of the property will be improved with the removal of a number of dilapidated buildings and the enhancement of the existing plantings. Mr Moore has also concluded that a further house on proposed lot 2 will have no more than minor effects on rural character and associated amenity values. Mr Carr has confirmed that the roading network has the capacity to absorb the traffic generated by the proposal.

As a consequence, any adverse cumulative effects on rural character are considered to be minor.

2.11 Conclusion

Given the nature of the site, the nature and character of the surrounding environment, and the character of the proposed use, we expect the proposal to integrate well in this environment. Overall, adverse environmental effects are considered to be no more than minor.

3. District Plan Policy Framework

The key sections of the District Plan are 3.1 Sustainability, 3.2 Rural Section and 3.3 Transportation. Each of these sections is considered below.

3.1 Sustainability

The four key issues dealt with by the sustainability provisions of the plan that relate to this proposal are as follows:

- (i) The protection of significant natural and physical resources – Objectives - 4.2.4, Policy 4.3.4, 4.3.6 and 4.3.10
- (ii) Amenity Values - Objective 4.2.1 and Policy 4.3.1
- (iii) Infrastructure - Objectives 4.2.2 and 4.4.3, Policies 4.3.2 and 4.3.5.
- (iv) Zoning - Policy 4.3.7, 4.3.8.

3.1.1 *The protection of significant natural and physical resources - Objectives 4.2.4, Policy 4.3.4, 4.3.6*

Objective 4.2.4 and Policy 4.3.4 seek to protect the natural and physical resources of the City. This site is identified as containing a small strip of high class soil located along the western boundary. It is potentially occupied by the existing poultry farm buildings but will not be affected by the church building or the new dwelling proposed for Lot 2. We note that the bulk of the high class soil located to the west of the site is generally occupied by small lifestyle properties.

3.1.2 *Amenity Values - Objective 4.2.1 and Policy 4.3.1*

Objective 4.2.1 and Policy 4.3.1 deal with enhancing and maintaining the amenity values of Dunedin. As will be evident from the discussion above, this area is characterised by sites that are all non-complying rural allotments. The properties to the south east of Factory Road are essentially rural-residential in nature. Hence any effects of allowing this proposal on the existing amenity values of the area will be minimal. Removal of the poultry farm buildings and development of the site for a church campus is likely to have a positive effect on visual amenity values.

3.1.3 *Infrastructure - Objectives 4.2.2 and 4.2.3, Policies 4.3.2 and 4.3.5.*

Objectives 4.2.2 and 4.2.3 seek to manage the infrastructure sustainably and to ensure that the level of infrastructural services provided is appropriate to the potential density and intensity of development and amenity values of the area. The existing dwelling is connected to the electricity, telephone and water services available in the area. The proposed development will be serviced in a similar manner as both allotments are located within the 'Urban Water Supply' boundary

(at least partially in the case of Lot 2). Sewage and stormwater can be easily dealt with on site. Policies 4.3.2 and 4.3.5 require developments that result in the unsustainable expansion of infrastructure be avoided. The existing services have sufficient capacity to enable the church and a further residential dwelling to be connected. The proposed development is therefore consistent with infrastructure objectives and policies of the District Plan.

3.1.4 Zoning - Policy 4.3.7, 4.3.8.

Policies 4.3.7 and 4.3.8 require zoning to provide for uses and developments which are compatible within identified areas and to avoid the indiscriminate mixing of uses and developments. As already noted, the proposed allotments are of a size that is consistent with the existing environment of this particular locality. The neighbouring properties are essentially rural residential developments and Churches are generally considered compatible with residential areas. Hence they cannot be considered incompatible with rural residential activities. Consequently the proposal avoids the indiscriminate mixing of uses and developments.

3.2 Rural Section

Despite community support activities being discretionary activities in the rural zone, the objectives and policies do not address these activities. Hence the policy framework provides limited support for the proposal. However despite this, the proposal does not offend the effects based policies of the zone.

Policies 6.3.3 and 6.3.12 seek to discourage land fragmentation and the establishment of non-productive uses of rural land. As discussed above this area is already reasonably well fragmented and the surrounding area also contains a range of non-productive activities such as rural residential development, Invermay, the Duncan Venison abattoir and the race course to the south. The subdivision is only proposed to enable the establishment of a community support activity, which is discretionary in the zone. Hence it is anticipated in the zone and cannot be said to be offending this policy suite accordingly.

Policy 6.3.14 addresses cumulative effects. This matter has been addressed above. It has been concluded that cumulative effects will be minor.

Objective 6.2.2 and Policy 6.3.6 seek to maintain or enhance the character and amenity of the rural area. As discussed in 2.2 above, the effect on the rural character and amenity will be minimal.

3.3 Transportation – Objective 20.2.4 and Policy 20.3.4

Objective 20.2.4 is designed to maintain and enhance a safe, efficient and effective transportation network. Policy 20.3.4 ensures that traffic generating activities do not adversely affect the safe, efficient operation of the roading network. As discussed above in 2.3 the effects on the safe and efficient functioning of the transportation network will be no more than minor.

3.4 Conclusion – Objectives and Policies

Having considered the Objectives and Policy framework of the District Plan, we have concluded that this proposal is not contrary to that framework and is, for the most part, consistent with the relevant policy framework.

4. Section 104D and True Exception Test

The subdivision and the new dwelling on Lot 2 are non-complying activities. Section 104D of the Act sets out a test that non-complying activities must pass before they can be considered for consent. The test has two limbs, being that the activity must have no more than a minor adverse effect on the environment or that it must not be contrary to the policy framework of the District Plan. The conclusion reached above is that the proposal passes both these tests. Consequently Council can consider the proposal for consent.

Given that the activity passes both limbs of the section 104D test, the only other issue that needs to be considered is the question of plan integrity and precedent. Recent judgments made by the Environment Court, direct Council to be wary of granting consent to non-complying activities on the basis that granting consent to non-complying activities could adversely affect the integrity of the Plan. The question therefore is whether the activity could adversely affect the integrity of the Plan by creating an 'undesirable precedent' or whether the proposed activity or site is a 'true exception' taking it outside the generality of the provisions of the plan and the zone. The Courts have acknowledged that a proposal does not need to be unique to do this.

In our view this proposal meets the true exception test because of the nature of the surrounding environment and the nature of the proposed activity. The surrounding environment is not typical of the Rural zone, being of rural residential character and one that contains large industrial and institutional buildings. The proposed subdivision is only necessary to enable the development of a discretionary activity, being the church, which needs a large area of land to operate from. The Central Activity zone and the Local Activity zone are the only zones that permit community support activities. However there are few, if any sites, suitable to accommodate the churches needs within these zones or other zones within the District Plan such as residential zones. This site is falling into disrepair and it is unlikely any permitted rural use will be found for it. The proposed use will have a similar built density to the poultry farm without the adverse effects that have caused concern to neighbours over the years.

The development of a church is a relatively unique and one off type development. As a consequence precedent effects will not be of concern. The subdivision and new dwelling on Lot 2 is only occurring to enable the development of the church. Hence a subdivision at this density solely for rural residential purposes could not rely on the granting of this consent as a precedent.

Consequently it is our view that granting consent in this case would not create difficulties for Council in administering the District Plan consistently.

5. Affected Persons and Notification

The applicant has consulted adjoining landowners about the proposal. Written approvals will be sought from these people and will be forwarded on to Council if and when received. However we assume that this application will be processed on a notified basis.



COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952



Search Copy

R. W. Muir
Registrar-General
of Land

Identifier 51980
Land Registration District Otago
Date Issued 02 September 2002

Prior References
OT10C/260 OT4B/773

Estate Fee Simple
Area 5.0034 hectares more or less
Legal Description Section 41 Block V East Taieri Survey
District and Lot 2 Deposited Plan 12108

Proprietors
Arthur Thomas Wilson, Christina June Wilson and Public Trust

Interests
Fencing Provision in Transfer 359238 - 18.8.1970 at 2.30 pm (affects Lot 2)
Subject to Section 345(2A)(a) and (b) Local Government Act 1974
Land Covenant in Easement Instrument 5659671.4 - 16.7.2003 at 9:00 am
7112636.4 Mortgage to ANZ National Bank Limited - 14.11.2006 at 9:00 am

Christine Wilson

this plan is for Resource Consent Purposes Only.
All boundary dimensions and allotment areas are
subject to final survey.

Each allotment to be self sufficient with regard to effluent disposal

Approved

**Proposed Subdivision of
Lot 2 DP 12108 and
Sec 41 Blk V East Taieri SD
Address 326 Factory Road**

Comprised in CT 51980

Survey
Services

Surveying Consultants

Drawing File 330 FACI X PROJ CAD

176.433 Mor. 13. 19027

PLANNING APPLICATION DIAGRAM

TERRITORIAL AUTHORITY DUNEDIN CITY
Prepared by TL SURVEY SERVICES LTD
Scale : 300 Date May 2015



Appendix 3 - Existing Site features





Figure 1 : Site Location and Subdivision Plan



Figure 2 : View toward the site from Factory Road



Figure 3 : View toward the site from Puddle Alley

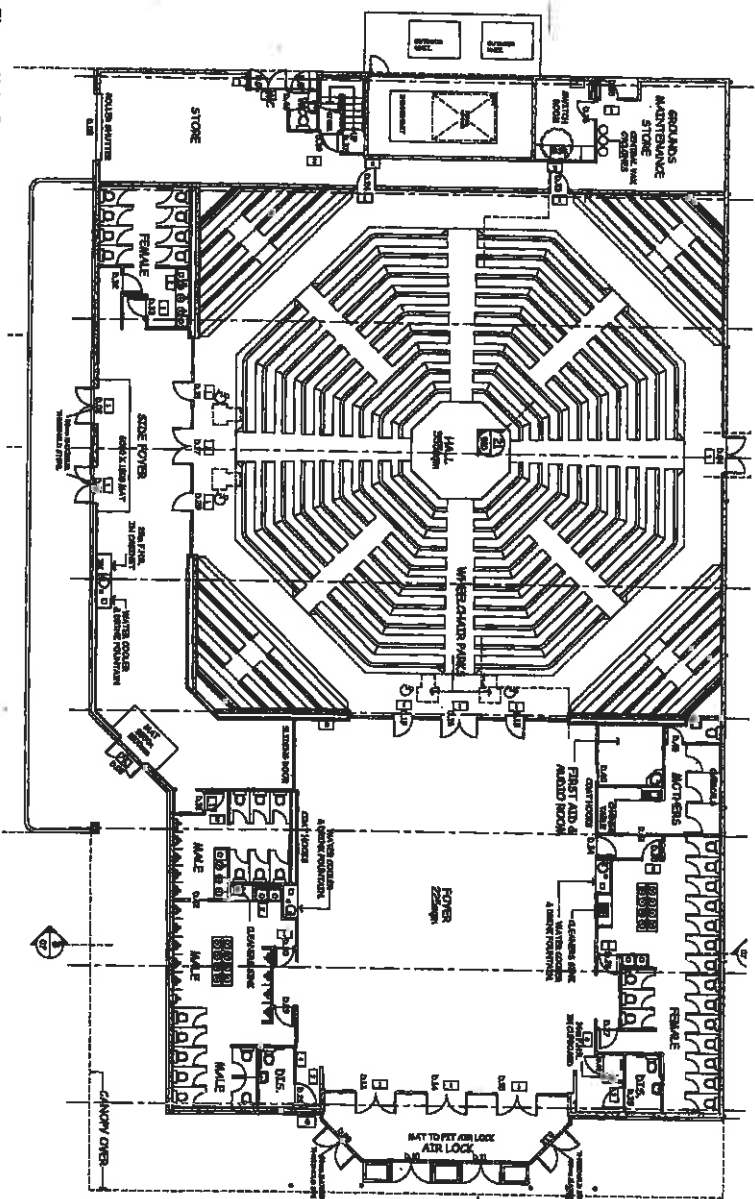


Figure 4(a) : Proposed church building – Floor Plan

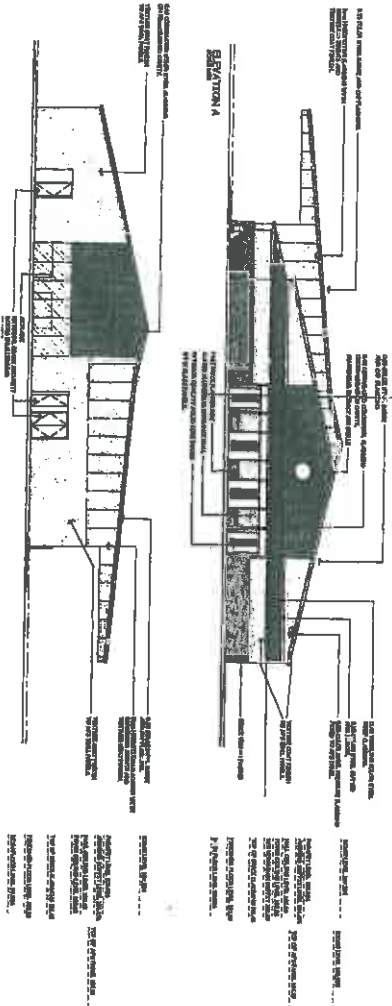


Figure 4(b) : Proposed church building – Elevations

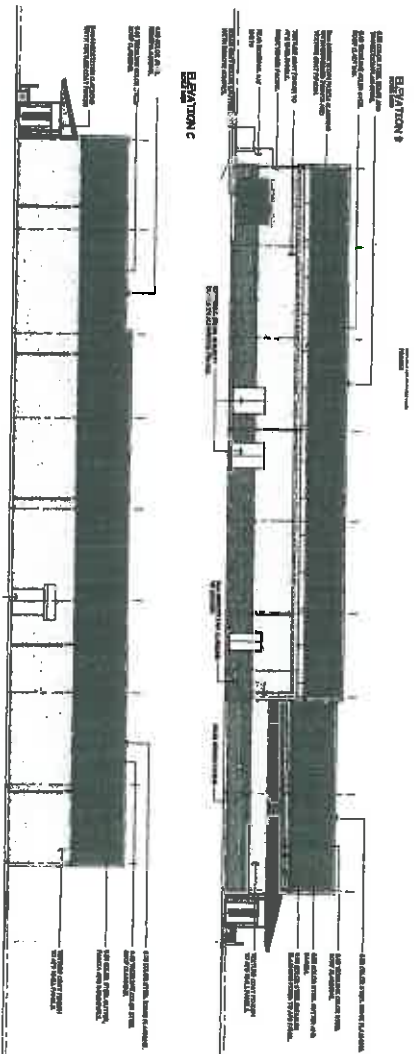


Figure 4(c) : Proposed church building – Image

The proposed church building will be similar in design and character to the building shown

Key

- Existing trees – to be retained / managed to enhance amenity and screening
- Proposed trees – Species to integrate with the character of existing plantings and to include Betula, Alnus, Eucalyptus, Nothofagus, Pittosporum
- Lawn
- Paved areas
- Sealed car park (160 parks shown)

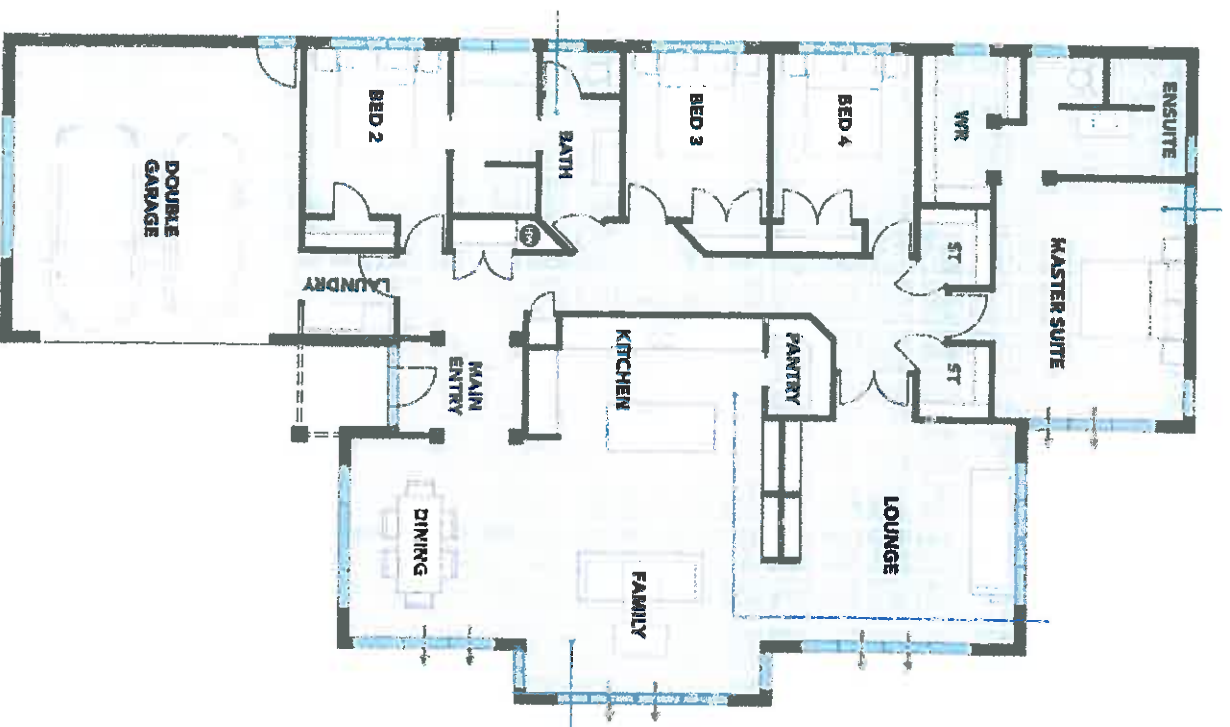


Figure 5 : Proposed Church, 326 Factory Road.
Proposed site and landscape concept plan

MIKE MOORE
 BSc, Dip LA, MBER, ANZILA
 LANDSCAPE ARCHITECT

To: Mrs G.P. Moore
 Tel: (03) 479 0833, Fax: (03) 479 0834, cell: 0274 390 416
 Email: m.moore@xtra.co.nz

Scale: 1:500 (A3)
 June 2015



The plan and image above is intended to provide a general indication of the scale of a dwelling that could be built on the Lot 2 building platform.

Figure 6 : Indicative dwelling – Proposed Lot 2



(0-450 mm PER PERSON)
MAXIMUM BUILDING HEIGHT ABOVE F.L. = 7.370m

MINISTER SCHEME FLOOR PLAN

POSSIBLE WALLS TO BE 90cm THICK STUDY AT 600mm CENTRES

CODE COMPLIANCE STORAGE

1	EXIT
2	EXIT →
3	♂ TOILET
4	♀ TOILET →
5	FIRE EVACUATION PROCEDURES SIGN
6	POPE ALARM INDICATION PANEL

CH-991	ALREADY FOR NZ USE	9/07
How Many Entered	Bushes Description	Notes
THE NEW ZEALAND CHURCH AND GOSPEL HALLS ASSISTANCE FUND		

P.O. Box 83, Weymouth

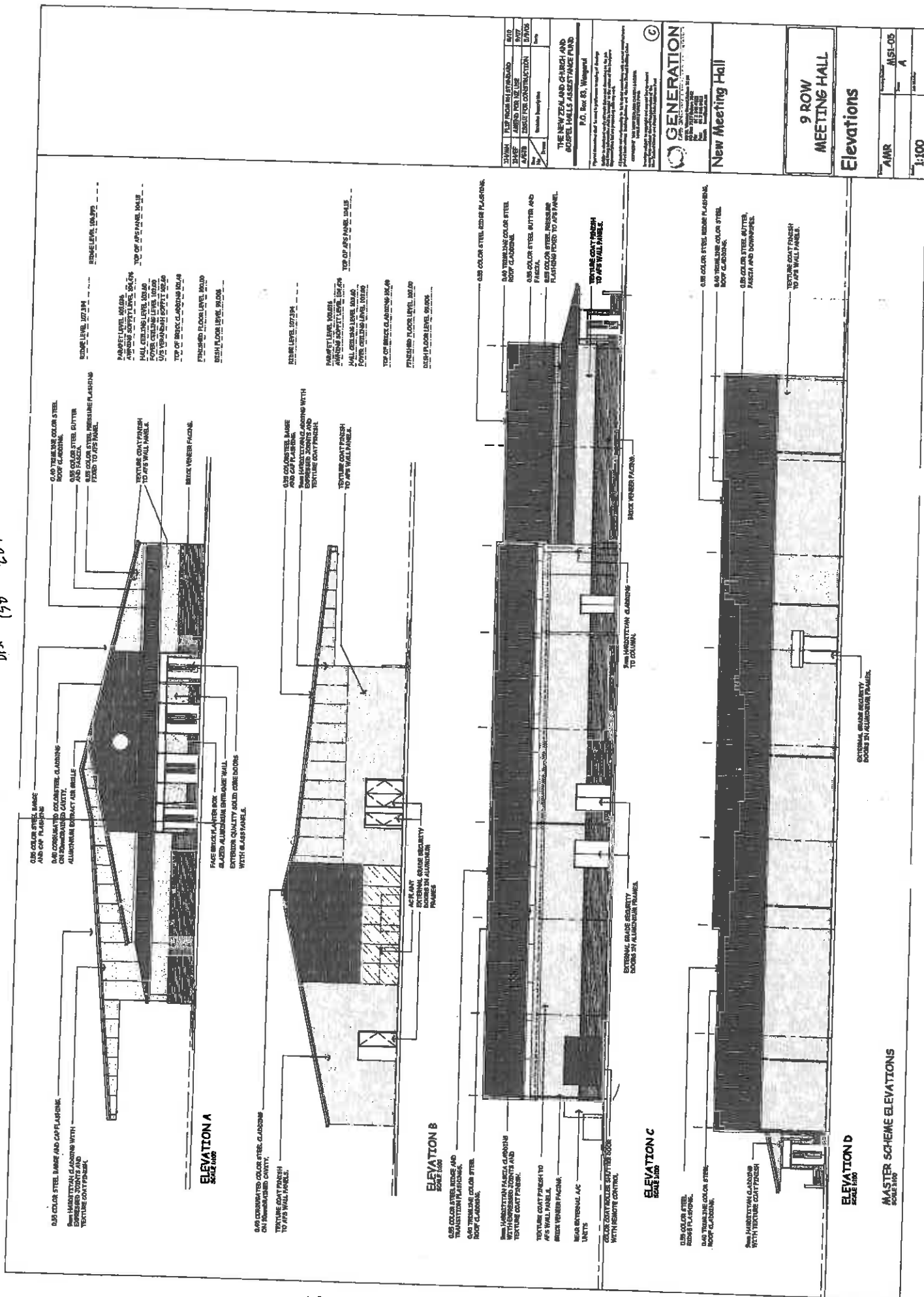
GENERATION
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PO Box 7410, Dallas, TX 75207
972.355.5500
www.generation.com

**9 ROW
MEETING HALL**

Floor Plan

AMR	MSI-02
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Scale 1:100



**Glenelg Gospel Hall Trust
Revision 1**

Proposed Brougham Park Development
326 Factory Road

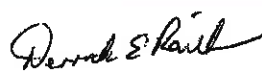
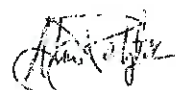
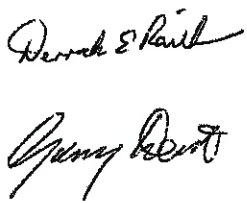
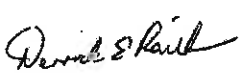
Preliminary Wastewater and
Stormwater Management Study

June 2015

The logo for Fluent SOLUTIONS. The word 'Fluent' is in a large, white, sans-serif font, and 'SOLUTIONS' is in a smaller, white, sans-serif font below it. The logo is set against a dark blue background that is part of a larger graphic design consisting of several overlapping blue and green geometric shapes.

www.fluentsolutions.co.nz

Glenelg Gospel Hall Trust
Proposed Brougham Park Development
Preliminary Wastewater and Stormwater Management Study

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**Glenelg Gospel Hall Trust
Revision 1**

**Proposed Brougham Park Development
Preliminary Wastewater and Stormwater Management Study**

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1.0 Introduction

1.1 General

Fluent Solutions has been engaged by Glenelg Gospel Hall Trust to undertake site investigations and to assess on-site and off-site wastewater servicing options and stormwater management options for the proposed development of Brougham Park at 326 Factory Road, Mosgiel.

There is currently no reticulated sewerage system servicing the property, with the nearest connection being approximately 1.4km to Wingatui Road. The property is however, serviced by a reticulated water supply.

1.2 The Site

The site is located at 326 Factory Road, 3.6km east of Mosgiel town centre (Figure 1.2.1).



Figure 1.2.1: Site Location

The site is approximately 2.4ha in size and is characterised by flat to gentle slopes towards the southern point of the property.

The proposed development plans include the construction of a new church and associated carpark. Part of the site is intended to be reserved for a future residence. Figure 1.2.2 below shows the concept development plan for the site. The red shaded area is designated for a possible residential dwelling as a caretaker's residence. The blue shaded area is being reserved as part of the church's land holding.

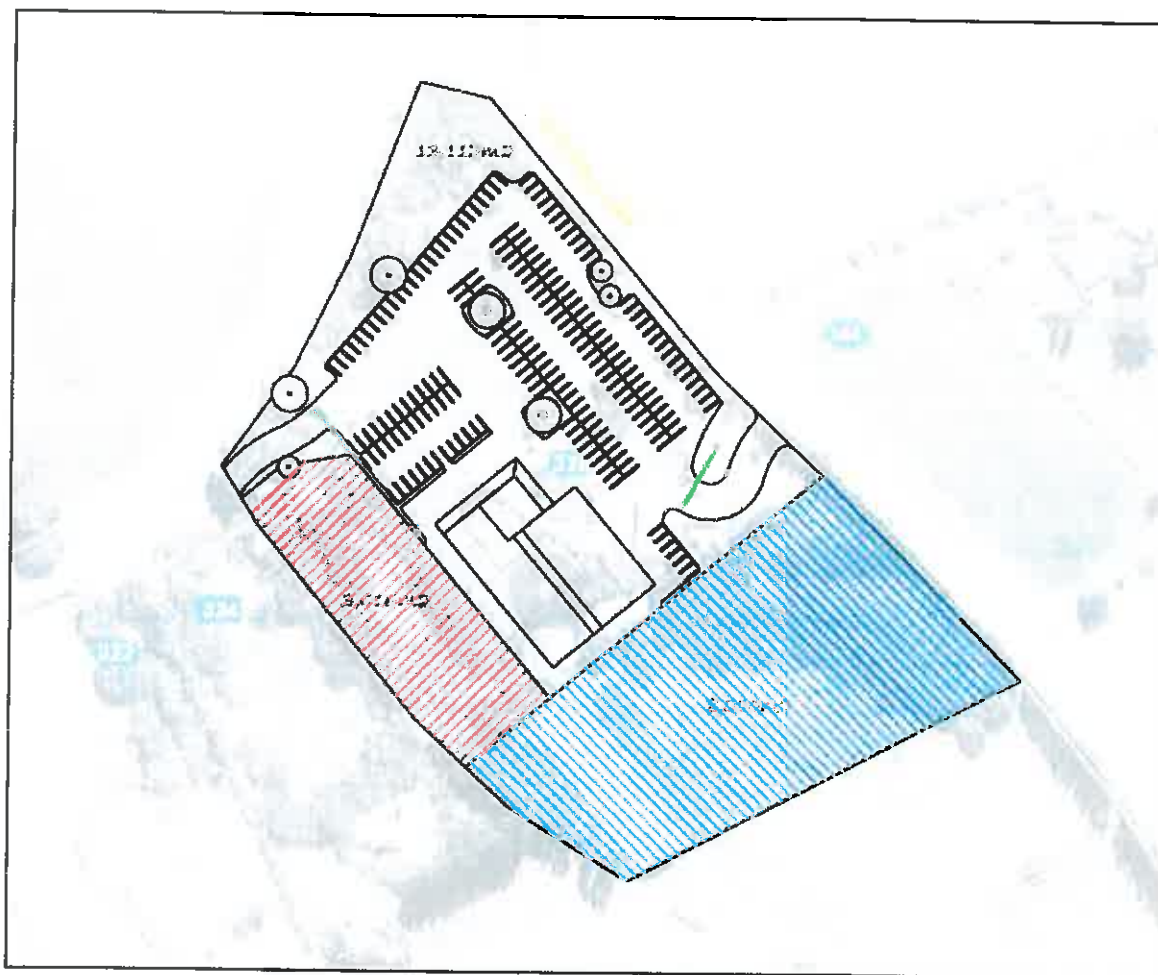


Figure 1.2.2: Concept Plan for 326 Factory Road

2.0 Preliminary Site Assessment

2.1 General

A preliminary geological site assessment (December 2013) was conducted by Jon K Lindqvist, Geological Consultant, to assess geotechnical conditions at the property. This assessment identifies the soil characteristics of the property and enables the suitability of the in-situ soils to support on-site wastewater dispersal.

Additionally, Fluent Solutions conducted a site visit on 16 June 2015 to determine site-use constraints of the proposed development, to determine suitable areas for on-site wastewater treatment and stormwater management. Off-site wastewater servicing options were also investigated.

2.2 Site Assessment

Jon K Lindqvist's geological investigation concluded subsoils of variable clay and silt contents (full report available in the Appendices). For wastewater management design purposes, the soil types are considered Category 6 (conservative) according to AS/NZS: 1547:2012 On-site Domestic-Wastewater Management, having an application rate for

secondary treated effluent of 2.0mm/d. Further permeability tests will be necessary for detailed design and could determine a slightly higher loading rate. However, the present assessment is considered appropriate and conservative for current consenting purposes.

An Otago Regional Council Scheduled Drain runs through the northernmost area of the site and along the southeastern boundary. Working in close proximity to or crossing the drain may require bylaw approval.

3.0 Wastewater Management System

3.1 Wastewater Management Design Criteria

Because the proposed development is primarily a church, wastewater flows will generally be higher on weekends and significantly lower throughout the week. Therefore, a variety of flow scenarios have been considered for the purposes of preliminary design. This includes flow buffering for special high attendance events. The four scenarios are outlined below and a more detailed analysis, including flow calculations, is available in the Appendices.

- **Scenario 1: "normal" week lower attendance flows**
 - This scenario assumes short evening meetings Monday through Saturday and a lower attendance (300 persons) on Sunday.
- **Scenario 2: "normal" week high attendance flows**
 - Once again, short evening meetings are assumed Monday through Saturday. Sunday attendance is much higher (700 persons).
- **Scenario 3: "special" week; flows buffered over 1 week**
 - A long weekend event, such as a retreat is included in this scenario. Meetings are still held for one hour Tuesday through Friday.
- **Scenario 4: "special" week; flows buffered over 2 weeks**
 - This scenario includes two long weekend scenarios in a row.

Scenarios 3 and 4 incorporate flow buffering to reduce the peak loading on the system and the dispersal field.

All scenarios assume 35 standard toilet bowls, 10 urinals, no kitchen facilities, reduced flush toilets and urinals, and manual flush urinals.

Between the four scenarios, balanced daily flows (l/d) vary between the regular 500-700 l/d versus the occasional 2,500-3,000 l/d for special events.

Options for onsite and offsite wastewater management are considered in the following sections.

3.2 On-site Wastewater Management

3.2.1 Design Philosophy

The design of an on-site wastewater management system is dependent on many variables, including soil drainage properties, contours, ground steepness, available area for effluent dispersal and effluent

flows. For the site in question, areas available for wastewater dispersal are limited by planned development, use of the site, and the ORC Schedule Drain proximity. This, together with the low permeability of the soils on site, means that primary treated only (e.g. septic tank) effluent dispersal is not feasible. Instead, secondary or advanced secondary treatment would be recommended prior to effluent dispersal by a pressure compensating drip line irrigation system.

Pressure compensating drip line is small diameter (16mm) pipe with effluent “emitters” spaced at regular intervals. The pipe is laid in the topsoil layer at shallow depth (typically around 100 – 150mm depth) or even laid on the surface and covered with mulch or woodchips. Drip irrigation applies the effluent directly to the surface topsoil layer to help disperse the effluent to encourage both ground soakage and plant uptake of moisture.

Drip line is suited to incorporation within landscaped areas and gardens, providing beneficial irrigation to such areas.

3.2.2 Land Area Required

The land area required for a drip irrigation system is directly related to the wastewater flow generation and the sustainable effluent loading rate to the soil. As irrigation systems have some robustness to accommodate peak flows, for this preliminary assessment it is appropriate to determine the required irrigation area based on a weekly-averaged daily flow and an irrigation rate of 2mm/d. On this basis, the total irrigation area required is between 1,300-1,500m². Figure 3.2.2.1 below shows the area that could be utilised for on-site wastewater management via the drip irrigation technique (yellow), providing about 1,400m² of irrigation area. Some reduction in this area may prove possible at the time of detailed design due to the infrequent nature of special events.

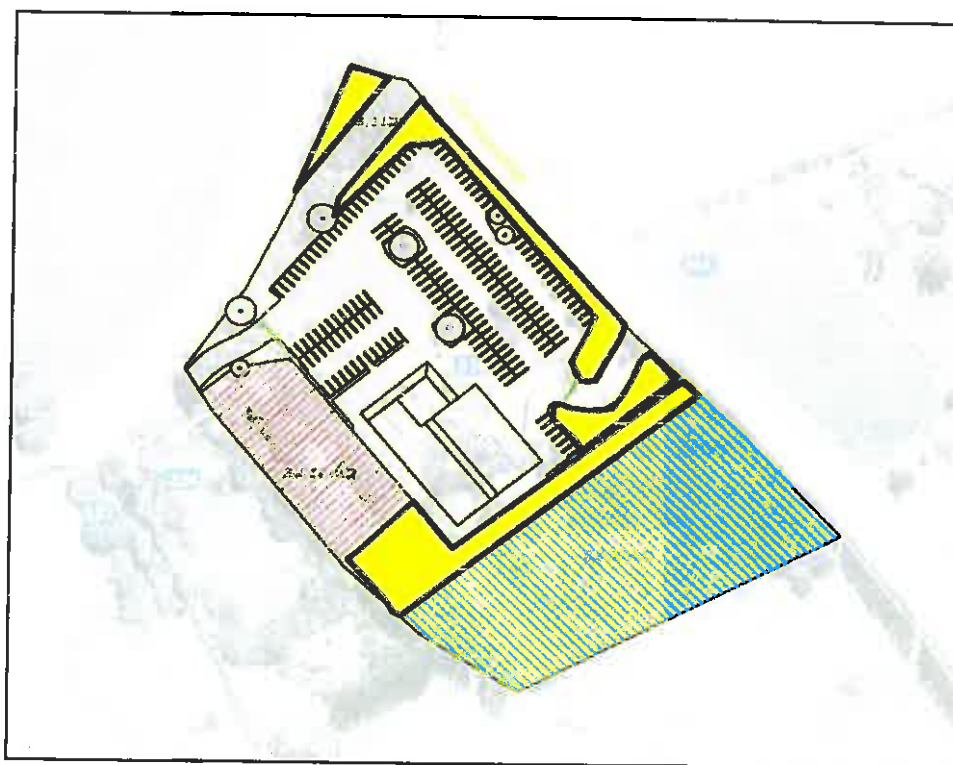


Figure 3.2.2.1: Proposed Areas for Drip Line

3.2.3 Environmental Effects

It is important to consider any adverse environmental effects when discharging wastewater to land. In order to protect the integrity of the environment, the preliminary design of the on-site wastewater treatment system includes low effluent loading rates. This precaution is to ensure that the soil will be able properly soak away the discharge, without allowing the effluent to flow overland and negatively impact neighbouring farming practices.

Discharge of effluent to land is governed by the Otago Regional Plan: Water, and a Resource Consent and an Assessment of Environmental Effects will be required if an on-site wastewater system is chosen to serve the proposed development and the maximum weekly-averaged flow is above 2000L/d.

3.3 Off-site Wastewater Management

There are two potential reticulated sewer connection points:

1. The Invermay gravity sewer, and
2. The Dunedin City sewer system located at Wingatui Road, as shown in Figure 3.3.1 below.

Connection to the Invermay sewer is not considered practical because of the need to obtain approval from the Crown Research owner (which may or may not be possible) and more particularly the need to then share in the ongoing trade waste charges that apply to that line.

Option 2 is the more practical connection point, but assumes that an extra-ordinary sewer connection application to the DCC would be successful.



Figure 3.3.1: Sewer Connection Location

For a development of this nature, a pressure sewer system is considered most appropriate, wherein the preferred method is a STEP system. A STEP (Septic Tank Effluent Pumping) system wherein wastewater is collected in a septic tank and only the effluent is pumped away to the city sewer. Sludge that accumulated in the septic tank over time is periodically removed by conventional tankering. The advantage of this system is that only liquid is

pumped away so operational and maintenance costs are reduced and pipe sizes are kept small (around 50mm size). The system is suitable for other properties to connect into, in a similar manner, if this was found to be desirable.

Development levies and ongoing DCC wastewater charges would apply to this off-site servicing approach.

4.0 Stormwater Management System

4.1 Stormwater Management Design Criteria

Stormwater flows from the site ultimately enter the scheduled drain along the southeast boundary of the site. The drain then flows to the Owhiro Stream which is part of the East Taieri Drainage Scheme and Lower Taieri Flood Protection Scheme. Because of the sensitivity downstream, increased runoff due to development will need to be mitigated. Dunedin City Council (DCC) standards require management of post-development outflows off site to be equal to or less than flows existing on the pre-developed property.

4.1.1 Rainfall Hyetographs

Rainfall information for the site was derived from rainfall depth-duration-frequency data specified for Mosgiel and a revised rainfall hyetograph (rainfall intensity versus time graph) for a range of storm durations. This was based on the *Dunedin Integrated Catchment Management Plans, Rainfall and Tidal Analysis Report*, as per DCC standards.

4.2 Site Stormwater Management System

4.2.1 Description of Preliminary Design

Due to the favourable grade of the land, a stormwater detention pond system is likely the most cost-effective means of restricting stormwater discharges off site. The stormwater detention system will provide storage to limit outflows to a flow equal to or less than those of the site pre-developed. Outflows from the stormwater detention system will then enter the drain running along the southeastern boundary of the site.

The stormwater detention area will be located at the southeastern corner of the site (Figure 4.2.1.1). Preliminary calculations estimate a surface area of about 800m² and an average depth of 0.3m for the stormwater detention system. A pipe reticulation system and/or overland flow paths will capture and channel stormwater from the 10 and 100 year ARI storms towards the detention area.

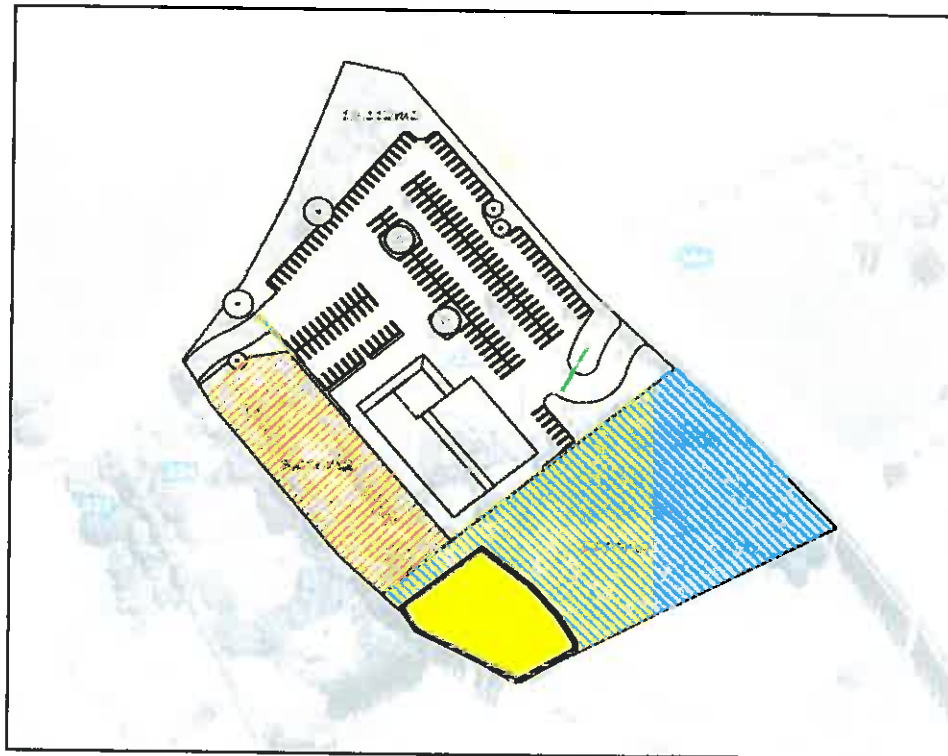


Figure 4.2.1.1: Stormwater Detention Area Location

5.0 Summary

The purpose of this report was to assess the feasibility of wastewater servicing options and stormwater management for a proposed development at 326 Factory Road. Through a preliminary site investigation and further assessment, it has been determined that both on-site and off-site wastewater management techniques are feasible. Stormwater is able to be managed through a stormwater detention system located at the southeast corner of the site.

APPENDIX A

Geotechnical Report

**Geotechnical Assessment of
326 Factory Road
Dunedin**

Report prepared for

**Glenelg Gospel Trust
Dunedin**

11 December, 2013

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1 Introduction

The writer was requested by Roy Senior, agent for the property purchaser, to assess the geotechnical conditions of a property at 326 Factory Road.

2 Site Topography & Geology

The property is southeast of the intersection of Puddle Alley and Factory Road, northeast Taieri Plain, at an elevation of approximately 32 m above sea level¹ (Figure 1). The property is well drained, with gentle slopes 3-5° to the southeast over most of the area, included land in the vicinity of the existing dwelling; increasing to 5-7° in the southeast corner. An unlined storm water drain approximately 1 m deep and 2.5 m wide runs along the southern and western property boundary, inside the property (Figures 1, 2). It has an approximate 0.68 km² farmland catchment to the north and is normally dry.

The property is positioned on the lower flank of a ridge that extends west of Abbot's Hill at the north end of Chain Hills, down to Taieri Plain. According to geological mapping of McKellar (1990) (Figure 4), the greater portion of the property is underlain at depth by volcanic rocks of the Dunedin Volcanic Group. Basaltic rock and associated volcanic pebble conglomerate beds are exposed in the vicinity but not on the property itself. Mapping of volcanic bedrock beneath the property is likely to have been based on landform analysis and perhaps also on subsurface data gathered during the drilling of holes for power pylons that traverse the property along the original position of Factory Road; previous to realignment of the intersection with Puddle Alley to the north. Traces of the former road now incorporated within the property are visible in the photo-map (Figure 1).

A check of the shallow subsoils was made by hand augering 9 test holes to depths of 1.2 m (Figure 1). Apart from holes 1 and 2 in the vicinity of the former gravel section

¹ This height estimate from topographic map spot heights compares with typical 14-18 m land elevations in Mosgiel township 2 km to the southwest.

of Factory Road (Figure 3), seven test holes showed a similar succession, as given below:

0 - 25 cm ($\pm$ 5) : Greyish brown silt loam (topsoil).

25 - 40 cm: Moderately firm mottled greyish brown and yellow brown silty clay with plant roots (sub-soil transition zone).

40-120⁺ cm: Firm yellowish grey silty clay and firm grey sandy silt This appears to be a mixture of wind-blown dust (loess deposit) and overbank sediment from Silver Stream prior to deep incision in modern times.

McKellar (1990) mapped a further geological unit, Wingatui Formation (Figure 4) for layers of sand silt and mud found in the shallow subsurface that may be represented in the auger holes by pale grey slightly sandy silt. The subsoil is likely to have been derived in part from wind-blown dust that accumulated during the Last Glaciation, approximately 10,000 years before present. Due to its variable clay content, loess in the Dunedin area may show a degree of shrink-swell behaviour during drying and wetting cycles, however it provides a stable foundation material where suitably designed piles or footings extend below the zone of root penetration and seasonal soil drying. The loess layer in the Dunedin area is commonly between 1 and 3 m in thickness.

3 Flooding and Alluvial Fan Hazards

With respect to flooding hazard, the property lies on the northern margin of Taieri Plain Area 21 described by O'Sullivan et al (2013) as follows:

Area 21: Wingatui

Parts of this area are exposed to flood hazard from the Owhiro Stream and, to a lesser extent, Silver Stream and the hill catchments to the east. The Silver Stream is deeply incised at this location. The area lies within the East Taieri Drainage Scheme, which provides land drainage to a rural standard.

Only remarks with respect to the incised bed and east catchment area of Silver Stream are pertinent to the property under discussion. According to the present owner no wells or water bores are located on the property. Although the depth to groundwater

could not be measured directly, the unconfined groundwater surface is approximately 24 m above sea level at this location (Anon, undated) equivalent to a depth below ground surface of around 6 m.

4 Seismic Risk

The greater Dunedin area is considered to be one of the least seismically active areas in New Zealand (McCahon et al 1993). No active faults are known in the immediate vicinity of the property and no rockfall or slump hazards have been identified within the property. Given the inferred significant depth to groundwater, the potential shaking liquefaction risk is minimal.

5 Conclusions & Recommendations

- A** From the information available, the property is considered well suited for building.
- B** Although the possibility of soft organic-rich floodplain deposits at depth can not be completely ruled out without extensive drilling, no potential instability issues have been identified.
- C** With respect to redevelopment of the site, it is recommended that an inspection is made during the digging of footings or pile holes to check for potentially weak subsoil materials that were not detected during the hand augering survey, and that footing trenches are excavated beyond the base of any root-penetrated or loosely packed sub-soil materials.
- D.** The area is considered to be of low seismic risk.

5 References

Anonymous, undated: Assessment of Nitrogen Sensitive Zone loading limits. Appendix B: Modeling of the North Taieri Groundwater System around Mosgiel. Otago Regional Council on-line report.

McCahon IF, Yetton MD, Cook DRL. 1993: The Earthquake Hazard in Dunedin. Report prepared for EQC Project 91/56. Soils and Foundations Ltd. 150 p.

McKellar IC. 1990: Geology of the Southwest Dunedin urban area 1:50 000. New Zealand Geological Survey urban series Map 2. Department of Scientific and Industrial Research, Wellington.

O'Sullivan K, Goldsmith M, Palmer G. 2013: Natural Hazards on the Taieri Plains, Otago. Otago Regional Council report, March 2013.

Figures 1-4 appended -

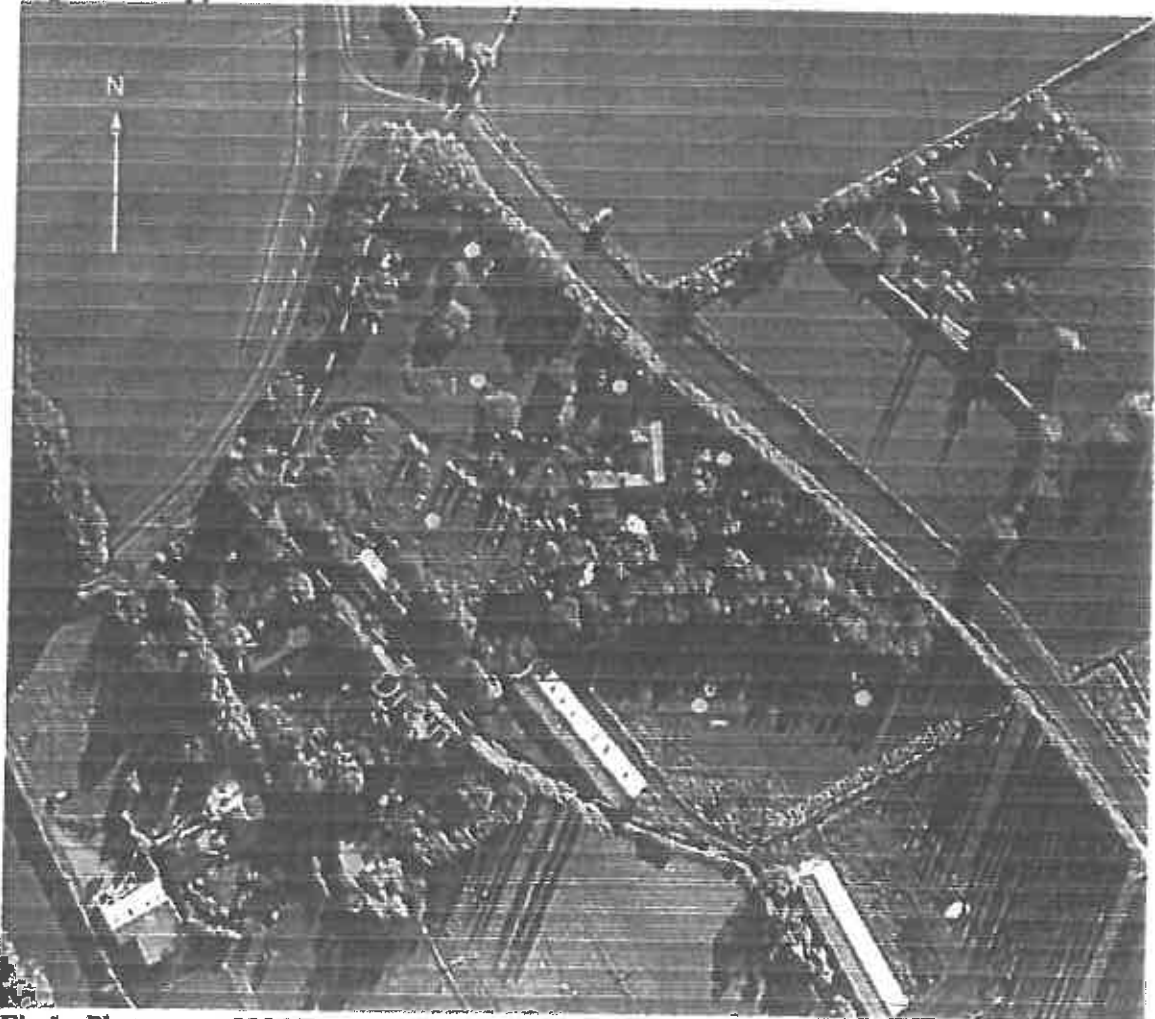


Fig 1 Photomap of 326 Factory Road. Locations of shallow hand augered holes are indicated with round symbols. Hole 1 is centered over the original position of Factory Road prior to realignment. The blue dashed line shows the position of a drainage channel inside the west and south property boundary.



Fig. 2 View to east of the drain along the southern property boundary.

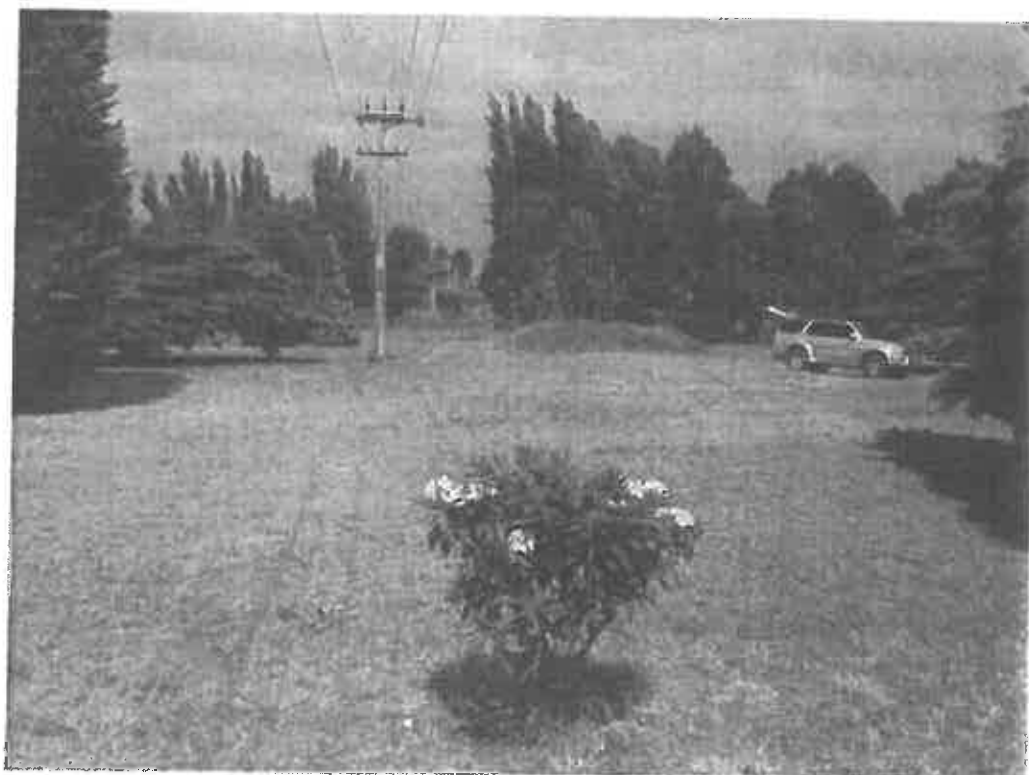


Fig. 3 View to northeast of a former section of Factory Road.

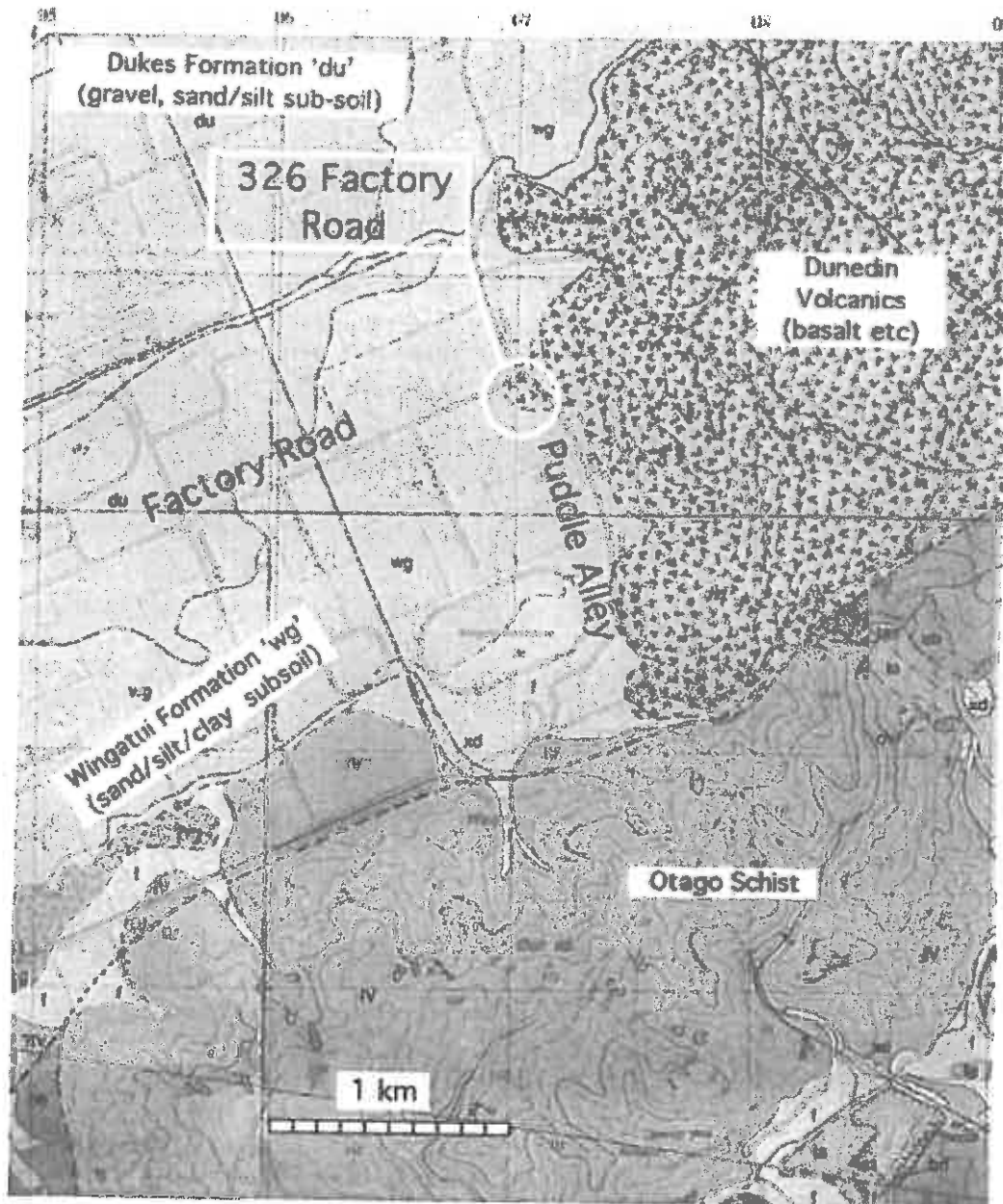


Figure 4 Geological map of bedrock and subsoil sedimentary deposits of northeast Taieri Plain and flanking hills, extracted from McKellar (1990).

APPENDIX B

Flow Calculations

Glenelg Gospel Trust - Wingatui Church Development

Assessment of Wastewater Flows

Underlying Assumptions:

35 standard toilet bowls; 10 urinals

No kitchen facilities

Reduced flush toilets; urinals

Manual flush urinals

Scenario 1 - "normal" week lower attendance flows								
Activity	Assumptions	Design Population	Days /week	Per Capita Flow Allowance	Useage %	Total flow/day	Total flow/week	balanced daily flow (l/d)
1 Mon - Fri: Evening meetings for 1hr only	Facilities used infrequently 20% use the toilets	100	5	10	20	200	1000	143
2 Saturday: (As for 1)	(As for 1)	100	1	10	20	200	200	29
3 Sunday: 300 - 700 for 2 hours every 2nd Sunday	Most would use toilets	300	1	10	80	2400	2400	343
Total weekly flow							3600	514
Total Daily Balanced Flow (Sc.1)								

Scenario 2 - "normal" week higher attendance flows								
Activity	Assumptions	Design Population	Days /week	Per Capita Flow Allowance	Usage %	Total flow/day	Total flow/week	balanced daily flow (l/d)
1. Mon - Fri: Evening meetings for 1hr only	Facilities used infrequently 20% use the toilets	150	5	7	20	210	1050	150
2. Saturday: (As for 1)	(As for 1)	150	1	7	20	210	210	30
3. Sunday: 300 - 700 for 2 hours every 2nd Sunday	Most would use toilets	700	1	7	80	3920	3920	560
Total weekly flow								
Total Daily Balanced Flow (Sc.2)								740

Scenario 3 - "Special" week; flows buffered over 1 week								
Activity	Assumptions	Design Population	Days /week	Per Capita Flow Allowance	Useage %	Total flow/day	Total flow/week	balanced daily flow (l/d)
1 Tues - Fri: Evening meetings for 1hr only	Facilities used infrequently 20% use the toilets	150	4	7	20	210	840	120
2 3-day long weekend event (1 - 2/year)	950 full capacity 4 to 5 hours attendance each day	950	3	7	100	6650	19950	2850
Total weekly flow								
Total Daily Balanced Flow (Sc. 3)								20790
								2970

Scenario 4 - "Special" week; flows buffered over 2 weeks								
Activity	Assumptions	Design Population	Days /week	Per Capita Flow Allowance	Usage %	Total flow/day	Total flow/2 week period	balanced daily flow (l/d)
1 Tues - Fri: Evening meetings for 1hr only	Facilities used infrequently 20% use the toilets	150	4	7	20	210	840	60
2 3-day long weekend event (1 - 2 /year)	950 full capacity 4 to 5 hours attendance each day	950	3	10	100	9500	28500	2036
3 Second week as per Scenario 2							5180	370
Total fortnight flow								
Total Daily Balanced Flow (Sc.4)								34520
								2466

Proposed Church : 326 Factory Road, Mosgiel

Proposed Church 326 Factory Road, Mosgiel

Landscape Assessment Report

1 July 2015



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Introduction

Glenelg Gospel Trust have applied for resource consent to subdivide a 5 ha property at 326 Factory Road, Mosgiel, and to develop a church building with associated car park and manse. Consent is also sought for a building platform on the balance lot. The site has been used as a poultry farm and is zoned Rural in the Dunedin City District Plan. The proposed church development is a discretionary activity whilst the subdivision and new residential activity is a non-complying activity. Figure 1 shows the location of the site and the proposed subdivision.

The purpose of this report is to present a landscape concept plan for the proposed development and to provide a landscape and visual **assessment** of the effects of the project. The report is structured as follows:

- Site and area description
- Landscape Values
- The proposed development
- Recommended mitigation measures.
- Statutory Planning Assessment
- Conclusion

Site and area description

The property is located at the north-eastern end of the Taieri Plain at the intersection of Factory Road and Puddle Alley. The land is flat / very gently rolling with gentle falls to the west, and has previously been used as a poultry farm. There are 3 poultry sheds and a house along with a few smaller sheds and silo's, currently existing on the site. The primary access point is currently off Factory Road at the north-west corner of the site but there are also secondary access ways off Puddle Alley. At the northern end, the property is characterised by mixed mature shelter and amenity plantings with Silver Birch, Poplar and Eucalyptus being dominant species. Along the Puddle Alley boundary at the southern end a poplar shelterbelt is a dominant element and there are also mature trees within the site. A significant drainage ditch runs southward near the Factory Road

boundary and continues along the western boundary toward the Owhiro Creek. Currently, overhead power wires cross the site but these will be relocated below ground.

The area surrounding is rural in character but in the immediate context to the south-east of Factory Road in particular, relatively densely settled and less open than typical in the Rural zone. The Invermay Agricultural Research Centre and the Duncan Venison buildings are located nearby to the north.

Figures 2 and 3 illustrate the character of the site and area.

Landscape Values

The area in question has no landscape values of recognized significance in the Dunedin City District Plan or other statutory documents. Being zoned 'rural' however amenity values generally associated with rural character are relevant. 'Key elements of rural character' mentioned under Objective 6.2.2 and Policy 6.3.5 in the Plan include a predominance of natural over human made features, a high ratio of open space relative to the built environment, significant areas of pasture, crops, forestry or indigenous vegetation, the presence of farmed animals and the absence of urban elements (infrastructure / sealed roads etc).

The wider landscape has an attractive rural character, the key contributors to which are the open paddocks, shelter trees and hedgerows. Whilst the area has a considerable number of buildings present (including buildings with an industrial and institutional scale and character) there is significant screening by trees and natural elements dominate. The trees around the boundary of the site contribute to this effect and effectively screen the existing buildings within.

The proposed development

The proposed development involves subdivision of the property into two lots of 2.39 and 2.61 ha. Lot 1 on the Factory Road, Puddle Alley corner is to be developed as the site

for a church building and associated car park and manse, whilst Lot 2 is to be developed as a small rural lot with a 2500m² building platform identified.

Lot 1

It is proposed that all the existing buildings are demolished and that this lot be developed for the church as illustrated in Figures 4(a) – 4(c). Access would be off Puddle Alley and the existing access off Factory Road would be used for service access only. The proposed building is to have a similar scale and character to the building illustrated in Figure 4(c). It will be approximately 27 x 50m with a floor area of approximately 1303 m² and a maximum height of approximately 7.5m. The proposed materials are textured plasterboard, colorsteel and brick. The building will have a relatively simple gabled form and the colour scheme will be subdued, similar to that shown in Figure 3(c). The church building will be located to provide significant separation from its southern and western boundaries.

A large paved forecourt will be developed outside the main entry with seating, and a sealed parking area for 160 cars will be provided. Grassed overflow parking areas are available at the southern end of lot 1 and additional sealed parks may be developed in the future as demand dictates. Car park lighting will be provided as required and will be appropriately shielded to minimize light spill beyond the site. The site / landscape development plan is illustrated in Figure 5. As shown in Figure 5 a 30 x 15m building platform is proposed to the west of the church building for development of a manse in the future. A single storey house of up to 300 m² is envisaged.

The development will require the removal of some of the trees within the site but it is intended to substantially retain all the boundary trees with only thinning and tidy-up work proposed and a few trees removed to provide for the new entry. New trees will be planted to enhance the perimeter screening and to provide for internal amenity. The main species proposed will be selected to integrate with the character of the existing plantings and will include Himalayan Birch (*Betula utilis* Var *Jaquemontii*), Alder (*Alnus* sp), Eucalyptus sp, New Zealand Beech (*Nothofagus* sp) and *Pittosporum* sp. A 2m high fence is proposed to be erected around the boundaries for security reasons. This will

have a see through, wire mesh character to minimize its visual impact. No signage other than a small sign on the gate with security information and contact numbers is proposed.

Lot 2

Lot 2 is proposed to be developed as a small (2.61 ha) rural site with a 2500 m² building platform located at its northern end. Figure 6 illustrates a 261 m² single storey dwelling as an indication of the scale of dwelling proposed for this site.

Recommended mitigation measures

In order to minimize the effects of the proposed church and house on the rural landscape amenity values of the area the following mitigation measures / conditions are proposed.

Lot 1

- The proposed church building and future manse are to be finished in colours that minimize contrast with the surrounding rural landscape. As a guide, the dominant colours of the buildings are to be darker tones with no more than 30% light reflectivity values.
- All existing buildings on the site are to be removed
- The existing boundary plantings are to be managed and enhanced as illustrated in the landscape concept plan (Figure 4) to substantially retain and / or enhance screening of buildings on the site from external viewpoints.
- All perimeter fencing adjacent to the public roads is to be of light visual density (see-through) such as wire mesh construction.

Lot 2

- The future house (and any accessory buildings) is to be finished in colours that minimize contrast with the surrounding rural landscape. As a guide, the dominant colours of the buildings are to be darker tones with no more than 30% light reflectivity values.
- The existing boundary plantings are to be managed and enhanced to substantially retain and / or enhance screening of buildings on the site from external viewpoints.
- All perimeter fencing is to be standard rural post and wire fencing no more than 1.2m high.

Landscape and visual effects assessment

Introductory comments

The following assessment distinguishes between landscape effects (i.e. effects on landscape character) and visual effects (i.e. effects on viewer's experience). In discussing the significance of effects I will adopt a four point scale with the terms defined as follows, aligned to the terminology of the RMA:

Descriptor	Definition
De minimus	Negligible
Minor	Small
Moderate	More than minor but less than significant
Significant	Major / large

Landscape effects

The proposed development of a church on this site will result in some earthworks to cater for the building site and carparks but as the site contours are gentle changes to the

existing landform character will be minor. The development will result in the removal of some trees, mainly within the central part of the site, but new plantings will be established that will compensate for this. The perimeter plantings will be retained largely intact other than where the new access way is to be developed and for tree management work to tidy the grounds and enhance amenity. The numerous existing buildings on proposed Lot 1 will be removed to be replaced by one larger building and eventually, a manse.

The effect of these changes will mean that the character of the site internally will change from that of a derelict poultry farm to that of a church campus with a significant area in car parks with a parkland perimeter. From external locations however, given the strong perimeter tree framework, the character of the landscape will be little changed. The 2m high chain link fence and occasional car park lighting will suggest a non-traditionally rural land use within the site and glimpses through will probably continue to be available from directly adjacent. In this setting however, with the Invermay campus and the Duncan Venison industrial facilities nearby, as well as a swathe of rural residential density housing to the west of the site, I believe that the proposed church will integrate acceptably. Overall, it is my assessment that any adverse effects on the rural landscape character will be minor.

With regard to Lot 2, a new single storey house on the proposed building platform, finished in recessive colours as proposed, will have minimal impact and will integrate readily with the existing fairly densely settled and well planted rural landscape character.

Visual effects

The key viewpoints surrounding the site are Factory Road and Puddle Alley and the houses in the properties adjacent.

Factory Road

Figure 2 illustrates a view toward the site from Factory Road. These show that the proposed church building, manse and surrounding car park will be effectively screened

by trees around the property boundary as well as vegetation in the adjacent properties. The proposed chain-link fence will suggest a non-traditional use within but will have low visual impact. Any lighting effect will be minor due to its intermittent nature and due to screening by planting. Adverse visual effects on rural amenity will be minor.

Puddle Alley

Figure 3 illustrates a view toward the site from Puddle Alley and as for Factory Road, show that the proposed church building and associated elements will be effectively screened by the existing site perimeter plantings. Whilst glimpses through the vegetation will probably continue to be possible from the section of Puddle Alley directly adjacent, the proposed church campus will not appear significantly out of place given the mixed uses (Invermay and Industrial uses) in the general area. The proposed colour controls on the building will ensure its visual impact is low and the proposed plantings will minimize the awareness of large areas of car parking and any effects of occasional lighting. Whilst the chain link fence will suggest a non-traditionally rural use within, its visual impact will be low given its see through character and the dominance of the trees behind.

The proposed building site on Lot 2 is adjacent to Puddle Alley but will be substantially screened by the existing poplar hedgerow. A house may be glimpsed through the hedgerow but will not appear out of place in this relatively densely settled rural locality. The proposed colour controls will ensure its visual impact is low.

Any adverse visual effects on rural amenity will be minor.

Residential property at 324 Factory Road

Proposed Lot 1 is directly adjacent to the house at 324 Factory Road to the east. The proposed church building is to be located approximately 40m from the boundary and the development will also result in the removal of an unused poultry shed. The proposed manse will be approximately 10m from the boundary in a similar location to the existing shed. There is a well-established planted buffer already existing at 324 Factory Road and trees on the subject site also help to screen. Whilst some trees would require

removal when the proposed manse is developed there will still be significant screening in place and it is intended to enhance this with additional tree planting. In my assessment any adverse visual effects on amenity values at this site will be minor.

Residential property at 144 Puddle Alley

The house at 144 Puddle Alley is located approximately 110m from the boundary of the site and is slightly elevated relative to it. The existing boundary plantings, augmented with additional plantings, will ensure that any visibility of the proposed church buildings and car parks is minimal. The proposal will also result in the demolition of a number of smaller existing buildings, and the proposed subdued colour scheme for the church will also assist to ensure minimal visual impacts. When services are held, there could be visual effects associated with occasional lighting and arising from an unusual number of vehicles moving in and out of the site which will reinforce awareness that the property is a church campus rather than used for a more traditional rural activity. In this setting, with Invermay and an industrial site nearby, this is not considered particularly significant.

There could also be some potential visibility of a new house on Lot 2 from this property but any visual effects associated with this are considered minor due to screening by boundary trees and the location of Lot 2 out of the likely main northward focus of views from 144 Puddle Alley. It is also considered that another house will integrate readily with the existing landscape character in this locality.

Overall, visual effects on this property are assessed as minor.

Other residential viewpoints

A house on Lot 2 is likely to have some visibility from houses at 95 and 108 Puddle Alley. Any adverse visual amenity effects on these properties are assessed as minor given the considerable viewing distances (approximately 250m and 230m respectively) and the screening / contextual impact of the adjacent trees. Additionally, it is my assessment that an additional house in this area will integrate readily, given the existing character of the landscape.

Statutory planning assessment

The relevant District Plan assessment matters are found in the Rural and Subdivision sections of the plan (Sections 6.7 and 18.6.1). Those that address landscape matters are outlined below, with brief comment as follows:

Rural Zone Assessment Matters

6.7.1 Sustainability

The objectives and policies of the Sustainability Section

The relevant provisions are Objective 4.2.1 and Policy 4.3.2, which seek to maintain and enhance amenity values. This is dealt with below.

6.7.3 Amenity Values

(i) The effect that the activity will have on amenity values

As outlined above it is my assessment that any adverse visual effects on amenity values will be minor due largely to the screening provided by existing (and proposed trees) but also because of the mixed use character of the surrounding environment.

6.7.4 Cumulative Effect

The cumulative effect of the activity on the natural and physical resources of the city including, but not limited to, cumulative adverse effects in relation to:

(i) Amenity values

(ii) Rural character

There will be some cumulative adverse effect on rural character given that the proposed church campus is not a traditional rural land use. This will continue a trend already begun with the development of Invermay. Given the screening, awareness of the church will generally be relatively low and adverse rural character effects will be minor. Amenity

values based on rural character will be impacted to a small extent but visual amenity effects more generally are likely to be positive because a number of dilapidated buildings will be removed and replaced by new buildings and because existing plantings around the church site will be managed and developed to enhance their appearance and their screening function. A further house on proposed lot 2 will have no more than minor effects on rural character and associated amenity values.

6.7.9 Bulk and Location

The bulk and location of buildings and their effect upon the amenity values of the site, adjoining sites, adjoining roads and the surrounding areas.

The proposed church building will have bulk characteristics that are greater than the buildings currently existing on the site. In the wider landscape context however, it is not dissimilar in scale to some of the Invermay buildings and generically, rural buildings can be of significant scale. The church building will be located well back from the boundaries and effectively screened from surrounding viewpoints. In my assessment adverse effects on amenity associated with its bulk and location will be minor. The proposed manse and the dwelling on Lot 2 will have bulk and location characteristics that will integrate readily with the character of the existing landscape.

6.7.13 Visual Impact

- (i) The visual impact arising from an activity on the character of the rural landscape, visual amenity and significant views.*
- (ii) The potential effect of structures on significant views from public viewpoints, including visibility from State Highway 1.*
- (iii) The effect of an activity on the open amenity of the rural area.*

The effect of the church on the character of the rural landscape will be minor due to the site being well screened. There will be some awareness of a non-traditionally rural activity due to glimpses through the trees, fencing and lighting but the effects of this on amenity values will be low in my assessment. Given the already strongly planted boundaries of the site and the presence of many buildings existing on it already effects

on the open amenity of the rural area will be minimal. An additional house on lot 2 will have minor visual impact and will integrate with the existing landscape character.

6.7.15 Residential Units

- (i) The cumulative effects of an increased density of residential development in this location.*
- (iv) the extent to which a residential unit on the site affects the amenity and economic well-being of neighbouring properties.*
- (v) The degree to which amenities relating to the open nature of the environment are compromised.*

Residential density will increase from one house to two (including the proposed manse). In my opinion houses on both proposed sites will integrate readily in this context with no more than minor adverse amenity effects on adjacent properties, given the existing planted framework and existing relatively high built density. Overall, built impact will be fairly similar to that existing presently as although the proposed church building is of significant scale, numerous existing buildings will be removed or demolished. The existing site plantings mean that openness is already low, and the proposed development will not change this.

6.7.21 Trees

The objectives and policies of the Trees Section

The majority of the objectives and policies in the Tree's section are not of particular relevance to this application. Policy 15.3.3 however is considered relevant, and reads as follows:

Require tree planting or other landscape treatment associated with development where this will avoid, remedy or mitigate any adverse effects on the environment.

The mitigation measures proposed include provisions to both retain existing trees and to plant additional ones to remedy and mitigate adverse landscape effects.

6.7.25 Landscape

The objectives, policies and assessment matters of the Landscape Section.

These matters are discussed below.

Landscape Section Objectives, Policies and Rules

Objective 14.2.3

Ensure that land use and development do not adversely affect the quality of the landscape

Objective 14.2.4

Encourage the maintenance and enhancement of the quality of Dunedin's landscape

Policy 14.3.4

Encourage development which integrates with the character of the landscape and enhances landscape quality

It is my assessment that the proposed development is consistent with these provisions.

Landscape Section Assessment Matters (Section 14.7)

14.7.1 Visibility

The effects of the visibility of the proposed activity or development from the main public viewpoints.

This matter has been addressed above.

14.7.2 Adverse Effects

The extent to which any adverse effects on the landscape can be avoided, remedied or mitigated.

A package of mitigation measures have been proposed to ensure that adverse effects are avoided, remedied or mitigated.

14.7.3 Sympathetic Siting and Design

The extent to which the activity or development is sympathetic to the forms, character and scale of the landscape in its siting and design.

The proposed church development is anomalous in this setting in terms of its character and usage, although not significantly so, given the mixed use character in the vicinity. It is larger than the existing sheds and house on the site but larger scale buildings are not restricted in in the Rural zone by the District Plan. The building will be effectively screened however, and landscape character and visual effects will be minor. A house on the building platform proposed for lot 2 will have an existing well planted context and the indicative design shown would integrate acceptably with existing rural character in terms of its scale and proposed colour controls.

14.7.4 Landscape Features and Characteristics

The extent to which the activity or development impacts upon the important landscape features and characteristics to be protected, preserved or conserved (identified in part 14.5 of this section) within the relevant landscape management area.

As the site is not within a landscape management area, this assessment matter is not relevant.

14.7.5 Compatibility of Scale and Character

The extent to which the activity or development is compatible with its landscape setting in terms of its scale and character.

This matter has been discussed under 14.7.3 above.

Subdivision Assessment Matters

(g) The appropriateness of retaining amenity planting or planting trees and other vegetation on the site to maintain or enhance the amenity of the area and the need for conditions relating to landscape planting and maintenance

The screening provided by the existing boundary plantings is key to the acceptability of the proposed development. A landscape development concept plan has been prepared to promote maintenance and enhancement of the landscape buffer and screening around the site, and a condition requiring appropriate management of the planting is recommended.

Conclusion

The subject site is within the rural outskirts of Mosgiel, approximately 2km from the edge of the urban area to the north-east. The area has a mixed use character with areas of relatively high built density to the west of the site, areas of more open rural land, and the presence of the Invermay agricultural research complex and a meat processing facility nearby. Whilst it has rural character amenity values there are no landscape values of particular significance.

The proposed development involves subdividing the approximately 5 ha site into two roughly equal sized lots and developing lot 1 for a church and lot 2 as a small rural site with a building platform. To protect rural amenity values mitigation measures pertaining to both proposed lots are proposed.

Proposed Church : 326 Factory Road, Mosgiel

The effects of the proposed church on the landscape character and visual amenity of the area are assessed as being minor due to the effective screening provided by existing perimeter plantings in particular. It is proposed to protect and enhance the screening function of this planting. A house on Lot 2 will integrate readily in this context but mitigation measures are also proposed for this to minimize the visual impact of built form.

It is my conclusion that whilst there will be some cumulative adverse effect on rural character, this will be minor, and the proposed development is generally compatible with the landscape / visual relevant provisions of the Dunedin City District Plan.

Mike Moore

Landscape Architect

**Geotechnical Assessment of
326 Factory Road
Dunedin**

Report prepared for

**Gleneig Gospel Trust
Dunedin**

11 December, 2013

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1 Introduction

The writer was requested by Roy Senior, agent for the property purchaser, to assess the geotechnical conditions of a property at 326 Factory Road.

2 Site Topography & Geology

The property is southeast of the intersection of Puddle Alley and Factory Road, northeast Taieri Plain, at an elevation of approximately 32 m above sea level¹ (Figure 1). The property is well drained, with gentle slopes 3-5° to the southeast over most of the area, included land in the vicinity of the existing dwelling; increasing to 5-7° in the southeast corner. An unlined storm water drain approximately 1 m deep and 2.5 m wide runs along the southern and western property boundary, inside the property (Figures 1, 2). It has an approximate 0.68 km² farmland catchment to the north and is normally dry.

The property is positioned on the lower flank of a ridge that extends west of Abbot's Hill at the north end of Chain Hills, down to Taieri Plain. According to geological mapping of McKellar (1990) (Figure 4), the greater portion of the property is underlain at depth by volcanic rocks of the Dunedin Volcanic Group. Basaltic rock and associated volcanic pebble conglomerate beds are exposed in the vicinity but not on the property itself. Mapping of volcanic bedrock beneath the property is likely to have been based on landform analysis and perhaps also on subsurface data gathered during the drilling of holes for power pylons that traverse the property along the original position of Factory Road; previous to realignment of the intersection with Puddle Alley to the north. Traces of the former road now incorporated within the property are visible in the photo-map (Figure 1).

A check of the shallow subsoils was made by hand augering 9 test holes to depths of 1.2 m (Figure 1). Apart from holes 1 and 2 in the vicinity of the former gravel section

¹ This height estimate from topographic map spot heights compares with typical 14~18 m land elevations in Mosgiel township 2 km to the southwest.

of Factory Road (Figure 3), seven test holes showed a similar succession, as given below:

0 - 25 cm (± 5) : Greyish brown silt loam (topsoil).

25 - 40 cm: Moderately firm mottled greyish brown and yellow brown silty clay with plant roots (sub-soil transition zone).

40-120⁺ cm: Firm yellowish grey silty clay and firm grey sandy silt This appears to be a mixture of wind-blown dust (loess deposit) and overbank sediment from Silver Stream prior to deep incision in modern times.

McKellar (1990) mapped a further geological unit, Wingatui Formation (Figure 4) for layers of sand silt and mud found in the shallow subsurface that may be represented in the auger holes by pale grey slightly sandy silt. The subsoil is likely to have been derived in part from wind-blown dust that accumulated during the Last Glaciation, approximately 10,000 years before present. Due to its variable clay content, loess in the Dunedin area may show a degree of shrink-swell behaviour during drying and wetting cycles, however it provides a stable foundation material where suitably designed piles or footings extend below the zone of root penetration and seasonal soil drying. The loess layer in the Dunedin area is commonly between 1 and 3 m in thickness.

3 Flooding and Alluvial Fan Hazards

With respect to flooding hazard, the property lies on the northern margin of Taieri Plain Area 21 described by O'Sullivan et al (2013) as follows:

Area 21: Wingatui

Parts of this area are exposed to flood hazard from the Owhiro Stream and, to a lesser extent, Silver Stream and the hill catchments to the east. The Silver Stream is deeply incised at this location. The area lies within the East Taieri Drainage Scheme, which provides land drainage to a rural standard.

Only remarks with respect to the incised bed and east catchment area of Silver Stream are pertinent to the property under discussion. According to the present owner no wells or water bores are located on the property. Although the depth to groundwater

could not be measured directly, the unconfined groundwater surface is approximately 24 m above sea level at this location (Anon, undated) equivalent to a depth below ground surface of around 6 m.

4 Seismic Risk

The greater Dunedin area is considered to be one of the least seismically active areas in New Zealand (McCahon et al 1993). No active faults are known in the immediate vicinity of the property and no rockfall or slump hazards have been identified within the property. Given the inferred significant depth to groundwater, the potential shaking liquefaction risk is minimal.

5 Conclusions & Recommendations

A From the information available, the property is considered well suited for building.

B Although the possibility of soft organic-rich floodplain deposits at depth can not be completely ruled out without extensive drilling, no potential instability issues have been identified.

C With respect to redevelopment of the site, it is recommended that an inspection is made during the digging of footings or pile holes to check for potentially weak subsoil materials that were not detected during the hand augering survey, and that footing trenches are excavated beyond the base of any root-penetrated or loosely packed sub-soil materials.

D. The area is considered to be of low seismic risk.

5 References

Anonymous, undated: Assessment of Nitrogen Sensitive Zone loading limits. Appendix B: Modeling of the North Taieri Groundwater System around Mosgiel. Otago Regional Council on-line report.

McCahon IF, Yetton MD, Cook DRL. 1993: The Earthquake Hazard in Dunedin. Report prepared for EQC Project 91/56. Soils and Foundations Ltd. 150 p.

McKellar IC. 1990: Geology of the Southwest Dunedin urban area 1:50 000. New Zealand Geological Survey urban series Map 2. Department of Scientific and Industrial Research, Wellington.

O'Sullivan K, Goldsmith M, Palmer G. 2013: Natural Hazards on the Taieri Plains, Otago. Otago Regional Council report, March 2013.

Figures 1-4 appended -

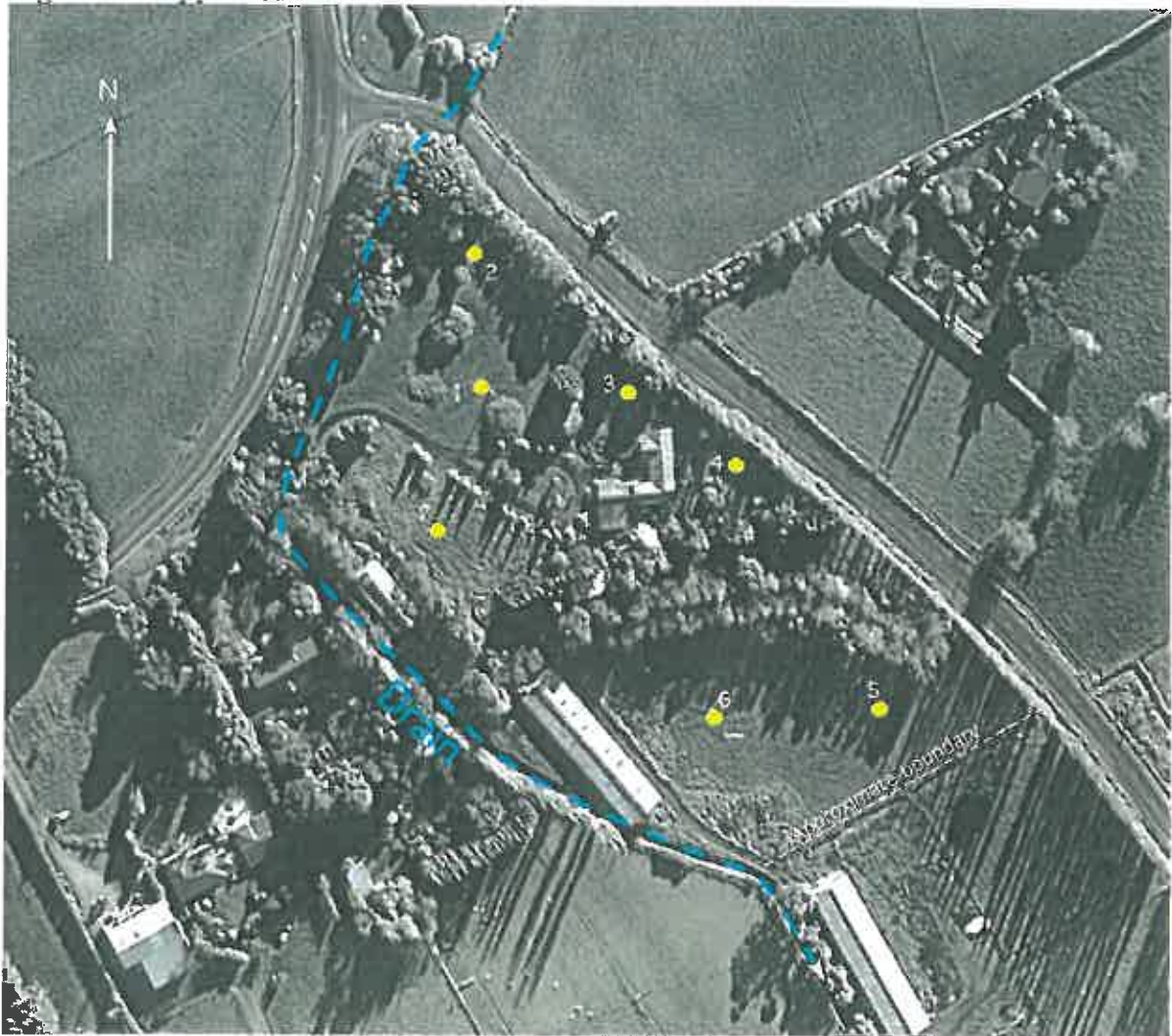


Fig 1 Photomap of 326 Factory Road. Locations of shallow hand augered holes are indicated with round symbols. Hole 1 is centered over the original position of Factory Road prior to realignment. The blue dashed line shows the position of a drainage channel inside the west and south property boundary.



Fig. 2 View to east of the drain along the southern property boundary.



Fig. 3 View to northeast of a former section of Factory Road.

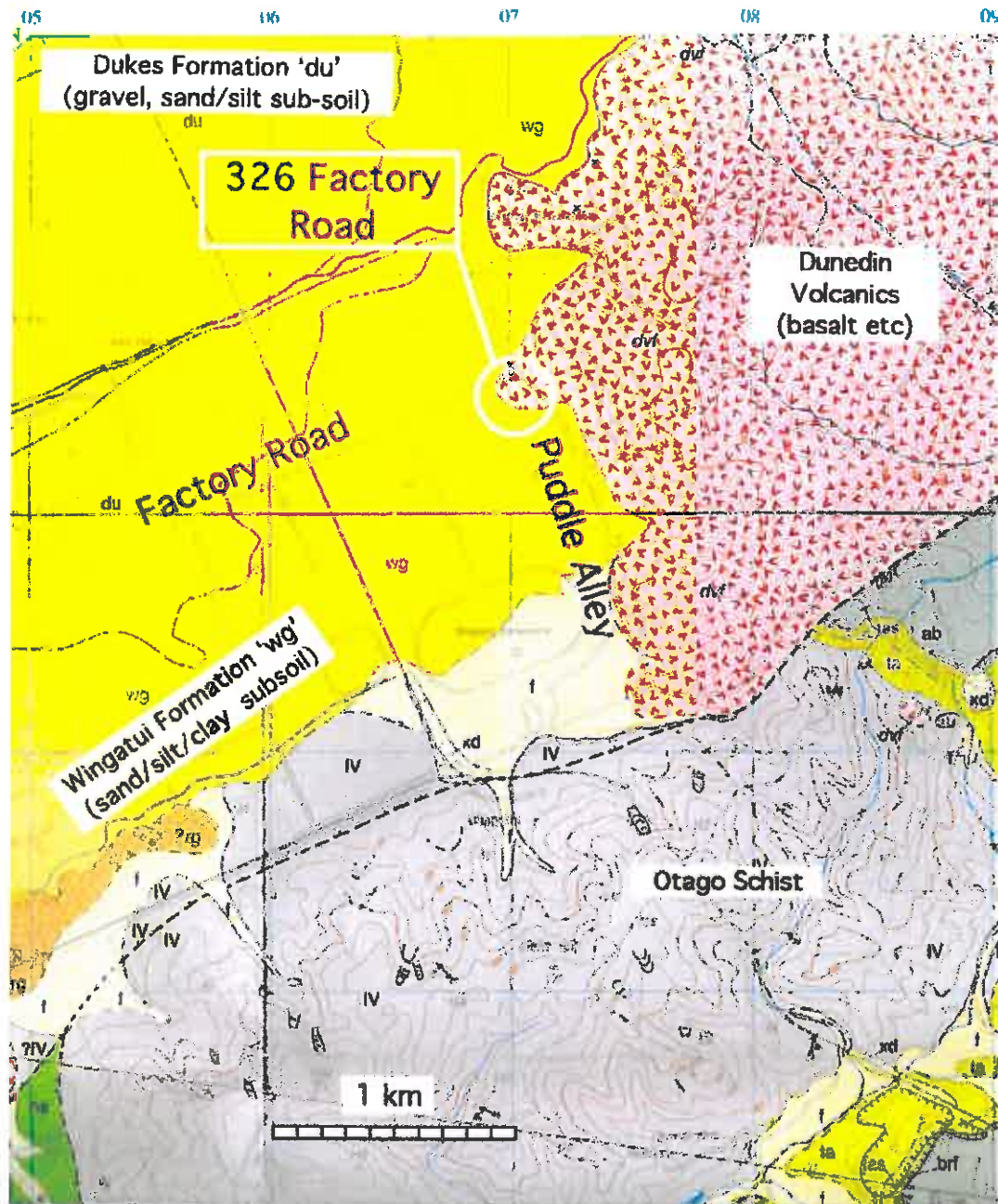
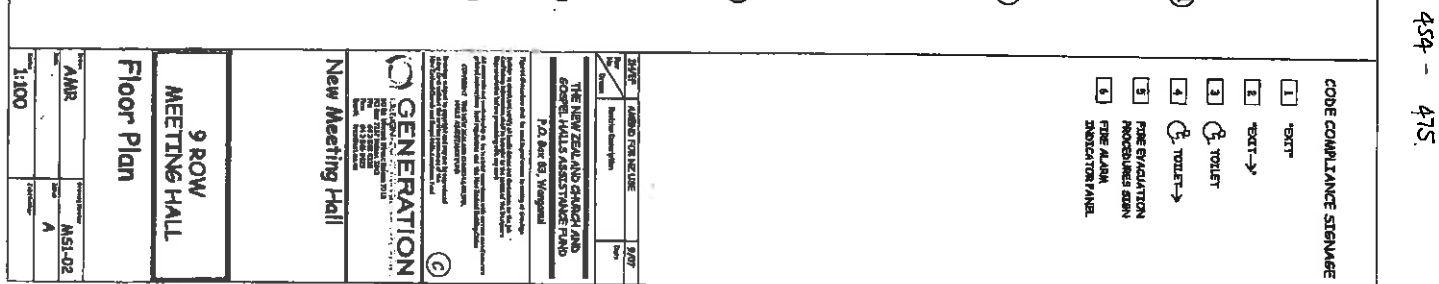


Figure 4 Geological map of bedrock and subsoil sedimentary deposits of northeast Taieri Plain and flanking hills, extracted from McKellar (1990).



CORSICA

□ Platinum Plan Series



Everything Kiwis call home



CORSICA

DESIGN OVERVIEW

Floor Size (m²) 261



APPROXIMATE ROOM SIZES (m)

DINING	3.7 x 4.2
FAMILY	4.9 x 5.1
LOUNGE	4.5 x 4.6
GARAGE	6.0 x 6.0
MASTER SUITE*	4.0 x 5.0
BEDROOM 2	3.0 x 3.5
BEDROOM 3	3.0 x 3.5
BEDROOM 4	3.0 x 3.5

* Size includes ensuite and built-in wardrobe

LAYOUT OVERVIEW

Home Layout:
Central



Kitchen Layout:
Single wall with island



Bath Layout:
Three way



Ensuite Layout
Separate



FOR MORE INFORMATION ABOUT
THIS DESIGN: > platinumhomes.co.nz
keyword search CORSICA

1 m² ACCESS

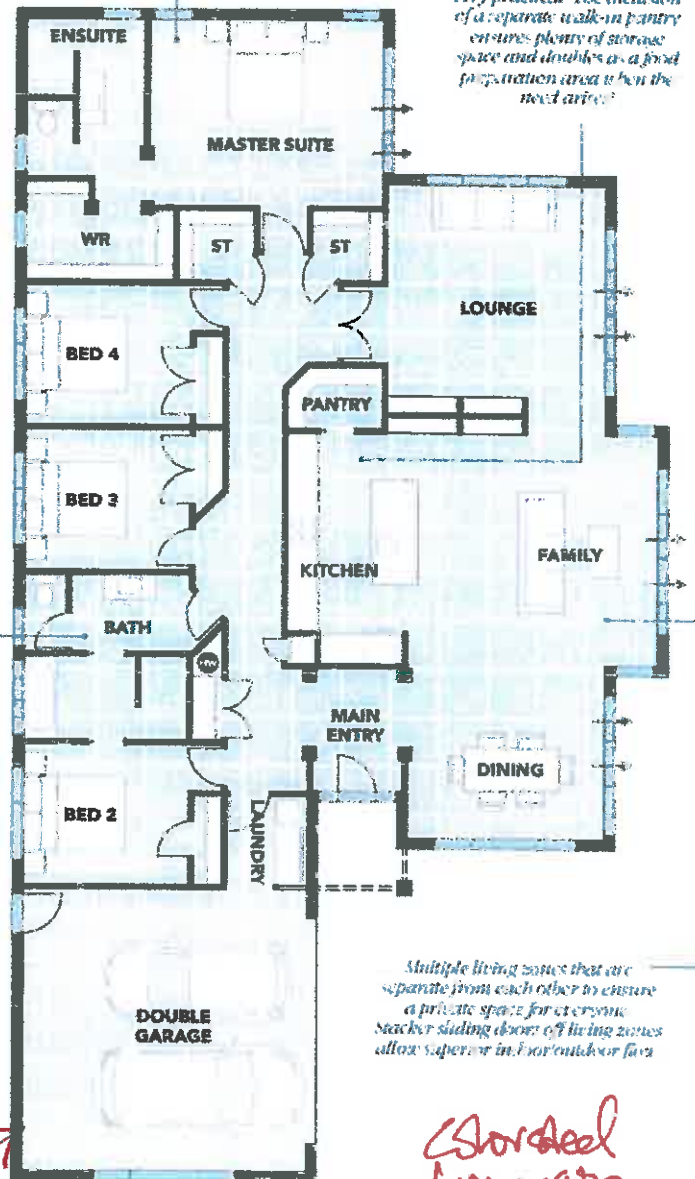
The master suite uses a separated layout breaking the area into three zones — sleeping, wardrobe and ensuite. Each space is a distinctly different space from the other.

The design of the Corsica is based on a central layout which flows from the kitchen into the lounge. This home features a high stud ceiling throughout adding to the sense of space.

The kitchen design uses a L-shape with island bench layout — easy access and very practical! The inclusion of a separate walk-in pantry ensures plenty of storage space and doubles as a food preparation area when the need arises!

The bathroom design uses a three-way layout in which the bath and shower, toilet suite and vanity sit in separate interconnected rooms. Practical for a family that shares the space.

Multiple living zones that are separate from each other to ensure a private space for everyone. Slacker sliding doors off living zones allow superior in-floor outdoor flow.



Red brick veneer.

Shoredel long run roofing.
single storey.

BEACH SERIES

ALPHA SERIES

PLATINUM SERIES

SIMILAR DESIGNS: PAUANUI (240m²)

WATERFORD (237m²)

MERSEY (225m²)

MILLWATER (232m²)

MONTEREY (240m²)

RIVIERA (360m²)

The Corsica is a single storey home with a central layout. It features a high stud ceiling throughout, adding to the sense of space. The kitchen design uses a L-shape with island bench layout — easy access and very practical! The inclusion of a separate walk-in pantry ensures plenty of storage space and doubles as a food preparation area when the need arises! The bathroom design uses a three-way layout in which the bath and shower, toilet suite and vanity sit in separate interconnected rooms. Practical for a family that shares the space. Multiple living zones that are separate from each other to ensure a private space for everyone. Slacker sliding doors off living zones allow superior in-floor outdoor flow.



The design of the impressive **Platinum Homos® Corsica** centers around its ultra modern kitchen. The kitchen area features the practicality of a walk-in pantry, island bench and ample space. The **Corsica** has many added benefits — tiled showers in both bathrooms, duo store rooms, a sliding door semi-ensuite off bedroom two, large walk-in wardrobe off the master — there's so much to love about this home. Slider access off all the rooms facing the front make this home a great choice for those who appreciate the outdoors. To maximise the comfort in this home, provision is made for the addition of a double-back gas or wood fire providing warmth in both the lounge and family room.



> The family room (above), kitchen (above left) and house exterior (left) of the **Platinum Series CORSICA**.

Glenelg Gospel Trust

Proposed Church, Mosgiel Dunedin

Transportation Assessment



CARRIAGEWAY
CONSULTING

traffic engineering | transport planning



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CCL file reference	14126 puddle alley ta draft 3
Status	Draft 3
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1. Introduction

- 1.1. The Glenelg Gospel Trust proposes to establish and operate a church and associated manse at a site on Factory Road, Mosgiel. The church will be able to accommodate congregations of up to 800 people, and up to 1,300 people for special events, although congregations of this size are expected to only occur infrequently and numbers are more likely to be in the order of 150-250 people per service/function.
- 1.2. This Transportation Assessment sets out a detailed analysis of the transportation issues associated with the proposed church including changes in travel patterns that are likely to arise. Where potential adverse effects are identified, ways in which these can be addressed are set out.
- 1.3. This report is cognisant of the guidance specified in the New Zealand Transport Agency's 'Integrated Transport Assessment Guidelines' and although travel by private motor vehicle is addressed within this report, in accordance with best practice the importance of other transport modes is also recognised. Consequently, travel by walking, cycling and public transport is also considered.

2. Site Overview

2.1. Location

- 2.1.1. The site is situated approximately 3.3km northeast of Mosgiel town centre, to the immediate south of the Factory Road / Puddle Alley intersection and is zoned as Rural in the Dunedin City District Plan ('District Plan'). The location of the site in the context of the local area is shown in Figure 1 and in more detail in Figure 2.

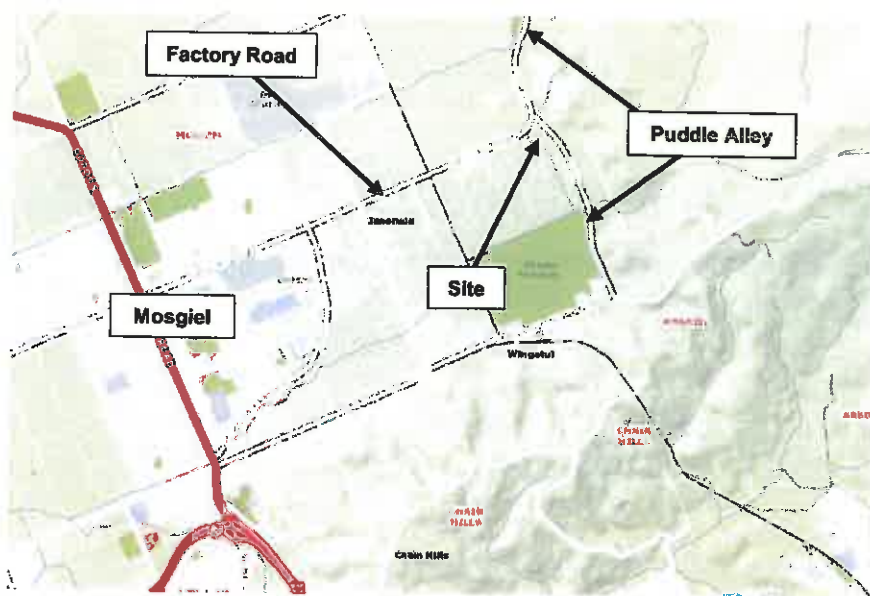


Figure 1: General Location of Development Site



Figure 2: Aerial Photograph of Development Site and Environs

2.2. Road Hierarchy

- 2.2.1. The District Plan classifies Puddle Alley at the site frontage as a Collector Road, a type of road which “*distribute and collect local traffic within and between neighbourhoods and...provide for traffic movement and property access*” (District Plan, Method 20.4.2). Factory Road and Puddle Alley north of the site are District Roads, which “*provide connections between the regional roads and connect major rural, suburban, commercial and industrial areas*” (District Plan, Method 20.4.2).

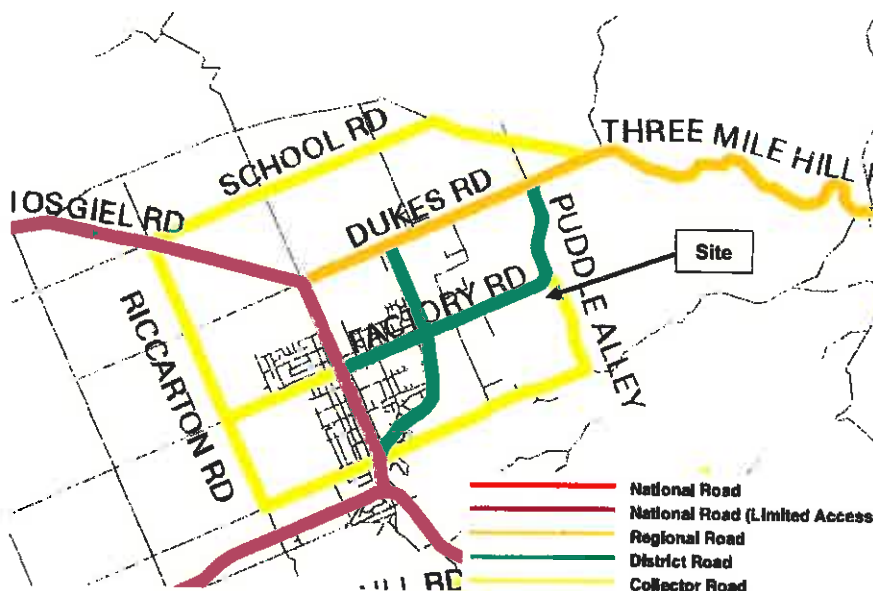


Figure 3: Extract from District Plan Map 73 Showing Roading Hierarchy

- 2.2.2. Neither Puddle Alley nor Factory Road are included within the Dunedin Strategic Cycle Network although for completeness it is noted that the urban section of Factory Road (which lies 2km west of the site) is part of a strategic cycle route.



3. Current Transportation Networks

3.1. Road Network

- 3.1.1. Towards the east of the site, Puddle Alley has a rural road formation, with no kerbs or edgelines but a centreline. The seal width is 6.0m, and on the western (site) side there is a gravelled berm of 1.6m width and then a 2.8m grass verge. On the eastern side of the road is a 0.5m gravelled berm and then an 8m grassed verge which includes a swale. The road is subject to an 80kmh speed limit.



Photograph 1: Puddle Alley Looking North (Site on Left of Photograph)

- 3.1.2. Puddle Alley has a gently curving horizontal and vertical alignment. Towards the south of the site, the road descends and curves towards the west, with the vertical alignment meaning that sections of the road have a batter slope on both sides.



Photograph 2: Puddle Alley Looking North Showing Batter Slopes

- 3.1.3. Factory Road lies towards the north of the site. This is also a rural road with a 6.6m wide carriageway with edgelines and a centreline, and sealed shoulders varying in width up to 2.5m. The road is subject to an 80km/h speed limit.



Photograph 3: Factory Road Looking Southwest

- 3.1.4. Factory Road meets Puddle Alley at a priority ('give-way') intersection, but the arrangement is somewhat unusual in that the northern approach is also known as Puddle Alley.



Photograph 4: Factory Road / Puddle Alley Intersection

- 3.1.5. The Factory Road / Puddle Alley northbound approach is some 3.3m wide, with the southbound traffic lane being 4.1m wide. There is an auxiliary right turn lane for vehicles turning from Factory Road to Puddle Alley (southeast) of 3.3m width.



Photograph 5: Factory Road / Puddle Alley Intersection

- 3.1.6. The minor approach meets the major road on a curve at the latter where the carriageway turns through approximately 90 degrees, and there are chevron boards provided to alert drivers to the alignment (but no advisory speed limit). The sight distance for vehicles emerging from Puddle Alley (southeast) to the north is considerable (in excess of 300m) but to the south is limited by a field boundary to 135m.



Photographs 6 and 7: Sight Distances to the Left and Right at the Factory Road / Puddle Alley Intersection

- 3.1.7. Towards the north, Puddle Alley has a similar layout to Factory Road, with a 6.6m wide carriageway, edgelines, a centreline and sealed shoulders of varying widths.



Photograph 8: Puddle Alley Looking South Towards Factory Road

3.2. *Non-car Modes of Transport*

- 3.2.1. None of the roads in the area have footpaths and there is also no cycling infrastructure. There are no bus stops in the immediate vicinity.

3.3. *Future Changes*

- 3.3.1. The Dunedin City Integrated Transport Strategy does not include any changes to the transportation networks in the vicinity of the site.

4. Current Transportation Patterns

4.1. Traffic Flows

- 4.1.1. Dunedin City Council carries out regular traffic counts on the key vehicle routes throughout the city, but no turning volumes are available at the Factory Road / Puddle Alley intersection (which is likely to be due to the light traffic flows in the area) and consequently new traffic surveys were commissioned. These were undertaken during the evening peak period (3:30pm to 6pm) of Monday 25 May 2015. Based on the data collected, the volumes in the evening peak hour were calculated and are shown below.

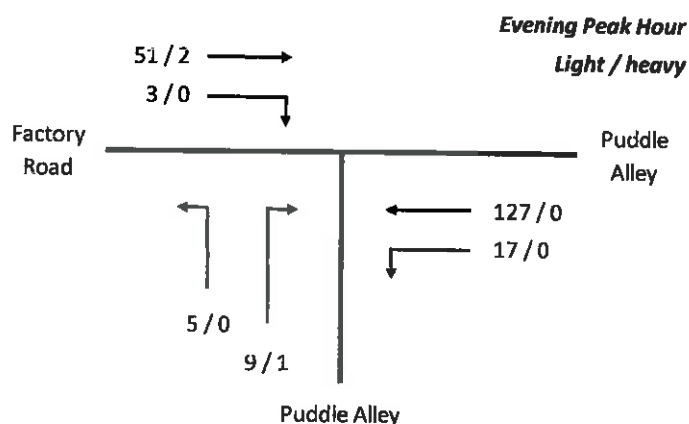


Figure 4: Traffic Survey Results, Factory Road / Puddle Alley Intersection

- 4.1.2. Overall, the traffic volumes observed at the intersection were relatively low, with a total of 215 vehicles observed in the peak hour of which 84% were associated with the 'straight ahead' movement on the major road. Very few heavy vehicles were observed, and including all survey data collected, heavy vehicles comprised just 2.0% of the total traffic flow.
- 4.1.3. By definition, traffic flows at other times during weekdays will be less than during the peak hour and at weekends traffic flows on a typical road are commonly less than those during weekdays. Accordingly, the volumes set out in Figure 4 above represent the highest traffic volumes that are likely to pass through the intersection.
- 4.1.4. The Austroads Guide to Traffic Management Part 3 ('Traffic Studies and Analysis') sets out thresholds regarding the need for detailed traffic analyses at intersections, and the traffic flows below which detailed analyses of unsignalised intersections are unnecessary. An extract from this is replicated below.

Major Road Type	Traffic Volumes (Vehicles Per Hour)	
	Major Road	Minor Road
Two lane road	400	250
	500	200
	600	100

Table 1: Extract from Table 6.1 of Austroads Guide to Traffic Management Part 3 (Intersection Volumes below which Capacity Analysis is Unnecessary)

- 4.1.5. It can be seen that the current traffic flows passing through the Factory Road / Puddle Alley intersection in the evening peak hour are significantly below these thresholds and accordingly

a detailed analysis of the intersection performance is not required. Any delays at the intersection are therefore likely to be as a result of the geometry rather than vehicle queuing.

- 4.1.6. The Austroads Guide to Traffic Management Part 3 ('Traffic Studies and Analysis') also sets out a method by which the level of service provided by a road can be calculated. Using this method, Factory Road presently provides Level of Service B, which is described by the guide as *"in the zone of stable flow where drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream"*. Puddle Alley (adjacent to the site) provides Level of Service A, described as *"a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent"*.

4.2. Non-Car Modes of Travel

- 4.2.1. The volumes of pedestrians and cyclists using Factory Road and Puddle Alley were also observed during the survey. However none were recorded.
- 4.2.2. It is acknowledged that the route is unlikely to be used for commuter travel on foot or by cycle, because the location of major employers is not within the typical distances covered by these modes of transport. It is possible that there is some use of the road network for recreational walking and cycling but even allowing for this, it is unlikely that either Factory Road or Puddle Alley are used by significant numbers of pedestrians and cyclists.
- 4.2.3. There are no bus routes which use Factory Road or Puddle Alley. The closest service passes 1.9km towards the west (the 'Mosgiel Loop' which operates with a 40-minute frequency).

4.3. Road Safety

- 4.3.1. The NZTA Crash Analysis System has been used to establish the location and nature of the recorded traffic accidents in the vicinity of the development site. All reported accidents on Factory Road and Puddle Alley between 2010 and 2014 (plus the partial record for 2015) were identified over a distance of 200m on either side of the site. This showed that there were 6 reported accidents in the area, as set out below.

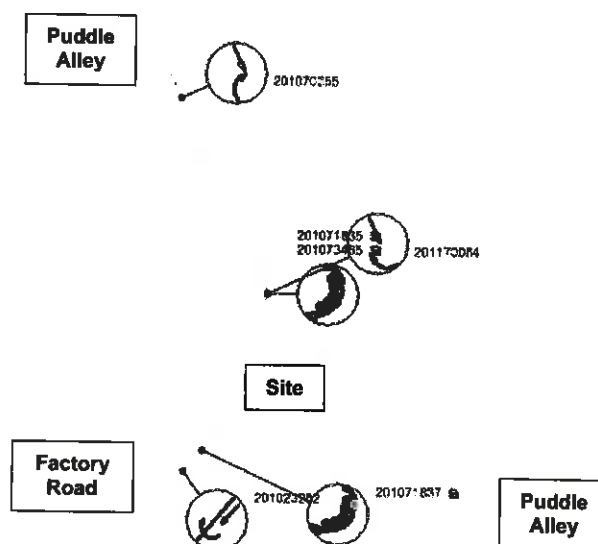


Figure 5: Location of Reported Traffic Accidents

- 4.3.2. Of the 6 accidents, only one resulted in any injuries. This occurred towards the southwest of the study area when a vehicle reversing from a private driveway was struck by a passing vehicle travelling from north to west, and caused minor injuries.
- 4.3.3. The remaining accidents did not result in injuries. Three accidents occurred at the Factory Road / Puddle Alley intersection, of which two involved only a single vehicle travelling from north to west which lost control and left the road. However these were as a result of the curve of the road rather than the intersection per se. One accident occurred when a driver emerging from Puddle Alley failed to give-way and was struck by a vehicle travelling from north to southwest.
- 4.3.4. One of the two remaining accidents also occurred due to the curve of the road, and involved a driver losing control of their vehicle and skidding off the road. One accident took place at the entrance to the Invermay Research Facility towards the north of the Factory Road / Puddle Alley intersection when a car turning right into the site was struck by a southbound vehicle.
- 4.3.5. Overall, 3 of the 6 accidents arose due to a vehicle entering the curve too quickly and the driver losing control. However in the past two years, yellow chevron boards have been installed at the curve to make it more conspicuous and it is of note that no accidents of this nature have been recorded since then.



Photograph 9: Chevron Boards at the Factory Road Curve

- 4.3.6. The sight distances at the Factory Road / Puddle Alley intersection (135m and more than 300m to the left and right respectively) are appropriate for vehicle speeds of 64km/h and 100km/h (under the Austroads Guide to Road Design Part 4A ('Unsignalised and Signalised Intersections')). In view of the horizontal curve in the road which reduces vehicle speeds from the maximum 80km/h permitted, it is considered that these sight distances are appropriate.
- 4.3.7. The remaining three accidents occurred at different locations, and there do not appear to be any common causes that suggest any inherent deficiencies in the roading network.

5. Proposal

- 5.1. The proposal is to establish a church for the use of the local Brethren community, which will replace an existing church at Glenelg Street in the Kaikorai Valley, approximately 6km to the east. The building will potentially be used on all days of the week, for worship services, marriage and funeral services, and (infrequent) special services. On a regular basis however, the greatest use of the building will be on Sundays when up to three services may take place:

Day	Times	Frequency	Approximate Number of Attendees	Comments
Sunday	5:30am - 6:30am	Weekly	50	
Sunday	9:30am - 12:30pm	Weekly	200 - 800	Can be 2-3 weeks between these events
Sunday	4:30pm - 6:00pm	Weekly	150 - 250	
Monday	6:00pm - 7:00pm	Weekly	50	
Tuesday	7:00pm - 9:30pm	Weekly	150 - 250	
Wednesday	7:00pm - 9:30pm	Weekly	150 - 250	
Thursday	7:00pm - 9:30pm	Weekly	150 - 250	
Friday	7:00pm - 9:30pm	Weekly	150 - 250	
Saturday	8:00am - 9:30am	Monthly	150 - 250	
Saturday	10:00am - 11:30am	Weekly	150 - 250	
Tuesday	2:00pm - 5:00pm	As required	150 - 250	Weddings
Any Day	12:00pm - 2:00pm	As required	150 - 500	Funerals
Any Day	8:00am - 9:00pm	As required	1,300	Capacity event, at most once every 6 months

Table 2: Services and Approximate Attendances

- 5.2. The church will be served by a car park of 160 spaces, including four spaces that are suitable for the mobility impaired. The car park access will be onto the Puddle Alley, approximately 100m southeast of the Factory Road / Puddle Alley intersection. No auxiliary turning lanes will be provided at the access and no associated widening of Puddle Alley is proposed.
- 5.3. A service access is proposed towards the south of the site, in the location of the current site access. Due to the acute angle at which the access meets Factory Road, this is not proposed to be used by the congregation and its use will be restricted.
- 5.4. A manse is also proposed to be constructed at the site.



Figure 6: Site Layout

- 5.5. The layout includes a pedestrian walkway across the car park to the main building entrance. It is understood that this will be raised where it crosses the parking aisle, in part to act as a focus for pedestrian movements and to ensure that they are accommodated safely but also to act as traffic calming devices to reduce the speeds of vehicles within the aisles.

6. Traffic Generation and Distribution

6.1. Traffic Generation

- 6.1.1. Traffic generated by churches can arise from two general sources – the use of the building for worship, and the use of the building for social events associated with the church. Data provided by the applicant and based on surveys carried out at the existing church in Kaikorai Valley shows an average traffic generation of 0.254 (car) trips per person, based on data collected with a congregation of 465 people who travelled in 118 cars.
- 6.1.2. Using the information above, the traffic generation of each expected event can be calculated. An allowance has been made of an additional 15% in the figures to accommodate growth at the church (other than for the absolute maximum capacity events where no additional allowance has been made).

Day	Times	Frequency	Approximate Number of Attendees	Vehicles In	Vehicles Out
Sunday	5:30am - 6:30am	Weekly	50	15	15
Sunday	9:30am - 12:30pm	Weekly	200 - 800	59 - 233	59 - 233
Sunday	4:30pm - 6:00pm	Weekly	150 - 250	44 - 72	44 - 72
Monday	6:00pm - 7:00pm	Weekly	50	15	15
Tuesday	7:00pm - 9:30pm	Weekly	150 - 250	44 - 72	44 - 72
Wednesday	7:00pm - 9:30pm	Weekly	150 - 250	44 - 72	44 - 72
Thursday	7:00pm - 9:30pm	Weekly	150 - 250	44 - 72	44 - 72
Friday	7:00pm - 9:30pm	Weekly	150 - 250	44 - 72	44 - 72
Saturday	8:00am - 9:30am	Monthly	150 - 250	44 - 72	44 - 72
Saturday	10:00am - 11:30am	Weekly	150 - 250	44 - 72	44 - 72
Tuesday	2:00pm - 5:00pm	As required	150 - 250	44 - 72	44 - 72
Any Day	12:00pm - 2:00pm	As required	150 - 500	44 - 144	44 - 144
Any Day	8:00am - 9:00pm	As required	1,300	330	330

Table 3: Services and Approximate Attendances

- 6.1.3. It is likely that the bulk of arrivals at the church will take place over the 30 minutes prior to a service starting, but departures are likely to occur within a shorter timeframe. However the layout of the car park itself will restrict vehicle movements onto the frontage road as there is (deliberately) only one exit lane to avoid the potential for queuing at the Factory Road / Puddle Alley intersection.
- 6.1.4. For the largest events, traffic is likely to arrive and depart over a much more extended period of time, and higher use is likely of vehicles such as minibuses and coaches which have a greater vehicle occupancy. Both of these factors will reduce the impacts of the traffic flows associated with the larger events.
- 6.1.5. The traffic generation of the manse will be the same as a typical residential property, with a weekday volume of 8 vehicle movements per day and 1 vehicle movement in the peak hours. As such, the manse will give rise to considerably less traffic than the church, and it has therefore not been considered further within this assessment.



6.2. Trip Distribution

- 6.2.1. In this instance, the distribution of trips associated with travel to and from the church will change over time as new members join and existing members move on. However, there are two generic routes that could be used to travel between the existing church location and that which is proposed, via Three Mile Hill Road towards the north or via the Southern Motorway towards the south. The former is shorter (12.3km compared to 16.2km) but the difference in journey time is minimal (about 1.5 minutes) due to the latter having a better vertical and horizontal alignment. The alignment may also make the Southern Motorway more attractive to less confident drivers.
- 6.2.2. Accordingly, for the purposes of this analysis, two scenarios have been considered, one allowing for 70% of traffic to approach from and depart to the southwest at the Factory Road / Puddle Alley intersection and the other allowing for 70% of traffic to approach from and depart to the north at the intersection.



7. Effects on the Transportation Networks

7.1. Rooding Network Capacity

- 7.1.1. Allowing for the traffic generation and distributions noted previously, the increase in traffic at the Factory Road / Puddle Alley intersection can be found. For this assessment, it is anticipated that vehicles will arrive over a 30-minute period before a service/event and depart over 20 minutes once the service/event ends, and the existing flows on the frontage roads have been factored accordingly. The additional 15% contingency has been included within this analysis.

Number of Attendees	Incoming Vehicles (30-minute Period)			Outgoing Vehicles (20-minute Period)		
	Entering Site	Total Volume on Major Road	Total Volume on Minor Road	Exiting Site	Total Volume on Major Road	Total Volume on Minor Road
50	15	115	8	15	67	20
150	44	144	8	44	67	49
200	59	159	8	59	67	64
250	72	172	8	72	67	77
500	144	244	8	144	67	149
800	233	333	8	233	67	238

Table 4: Traffic Generation of Church and Passing Traffic Volumes

- 7.1.2. If these flows are then factored to the equivalent traffic flow per hour, then a comparison can be made with the thresholds set out in Table 1 above, where an analysis is required of the Factory Road / Puddle Alley intersection.

Number of Attendees	Incoming Vehicles (Equivalent 1-Hour Period)		Outgoing Vehicles (Equivalent 1-Hour Period)	
	Total Volume on Major Road	Total Volume on Minor Road	Total Volume on Major Road	Total Volume on Minor Road
50	230	16	200	60
150	288	16	200	150
200	320	16	200	192
250	340	16	200	231
500	488	16	200	447
800	666	16	200	714

Table 5: Total Traffic Flows on the Rooding Network (Shaded Cells Represent Combinations Which Exceed the Thresholds where Assessments are Required)

- 7.1.3. The computer software package Sidra Intersection has been used to evaluate the performance of the intersection under the traffic loadings where an analysis is required, and the results are summarised below.



Approach	70% Travelling From Southwest			70% Travelling From North		
	Queue Length (veh)	Average Delay (s)	Level of Service	Queue Length (veh)	Average Delay (s)	Level of Service
Factory Road	0	8.1	A	1	9.7	A
Puddle Alley (East)	0	8.8	A	0	11.5	B
Puddle Alley (North)	0	7.8	A	0	7.8	A

Table 6: Assessment of Factory Road / Puddle Alley Intersection, 800 Attendees Entering the Site Plus 15%

Approach	70% Travelling From Southwest			70% Travelling From North		
	Queue Length (veh)	Average Delay (s)	Level of Service	Queue Length (veh)	Average Delay (s)	Level of Service
Factory Road	0	8.1	A	0	8.1	A
Puddle Alley (East)	1	8.7	A	2	9.0	A
Puddle Alley (North)	0	7.8	A	0	7.8	A

Table 7: Assessment of Factory Road / Puddle Alley Intersection, 500 Attendees Exiting the Site Plus 15%

Approach	70% Travelling From Southwest			70% Travelling From North		
	Queue Length (veh)	Average Delay (s)	Level of Service	Queue Length (veh)	Average Delay (s)	Level of Service
Factory Road	0	8.1	A	0	8.1	A
Puddle Alley (East)	2	8.8	A	6	10.9	B
Puddle Alley (North)	0	7.8	A	0	7.8	A

Table 8: Assessment of Factory Road / Puddle Alley Intersection, 800 Attendees Exiting the Site Plus 15%

- 7.1.4. It can be seen that excellent levels of service continue to be provided on all approaches, with minimal queues and delays (noting that the delays shown include for the delays due to drivers slowing in order to negotiate the intersection, as well as delays due to the presence of other vehicles). The highest delays occur under the scenario of 800 people in the congregation with 70% of these turning to the right onto Puddle Alley (north), but even under this situation, delays of less than 11 seconds per vehicle can be expected.
- 7.1.5. At the site access itself, the thresholds set out in Table 1 are not exceeded under any scenarios due to the very low existing volumes on Puddle Alley, and therefore the access will operate with an excellent level of service.
- 7.1.6. As set out above, the approach taken in this analysis has been conservative by assuming that the traffic travelling to and from the church will occur at the same time as the peak traffic flows on the road network. In practice this is unlikely to happen, meaning that the modelled queues and delays are likely to be higher than will be seen on at the intersection.



7.2. Non-Car Modes of Travel

- 7.2.1. The presence of the church will result in higher traffic volumes on both Factory Road and Puddle Alley, and will therefore result in reduced crossing opportunities for any pedestrians in the area. However, pedestrian numbers are very low due to the lack of amenities and employment opportunities within a viable walking distance, and as the church traffic generation is generally low for the majority of the time it is considered that in practice there would be negligible impact on pedestrians.
- 7.2.2. Within the site itself, there is provision made for pedestrians to walk through the car park, which will reduce any potential for conflicts between those walking and drivers seeking a parking space.

7.3. Road Safety

- 7.3.1. The accident history in the vicinity of the site does not indicate that there are any particular features or factors that would affect, or be affected by, the proposed development.
- 7.3.2. Sight distances at the proposed site access are 80m towards the left (north) and 175m towards the south (right). Under the Austroads Guide to Road Design Part 4A ('Unsignalised and Signalised Intersections') these distances are appropriate for approach speeds of 45km/h and 80km/h. The latter corresponds to the maximum permitted speed on the road, but the former is considerably less than the legal maximum. However all traffic approaching the site from the north will have slowed to negotiate the Factory Road / Puddle Alley intersection and will be travelling at speeds in the order of 40km/h. The sight distance is therefore appropriate for the prevailing vehicle speeds.

8. District Plan Matters

8.1. Introduction

- 8.1.1. The District Plan sets out a number of transportation-related rules with which any development is expected to comply. An assessment of the proposed development against these rules has been undertaken and the results are summarised below.

8.2. Rule 20.5.5: Parking Performance Standards

8.2.1. Part i: Calculation of On-Site Parking Requirements

- 8.2.1.1. The District Plan does not stipulate any specific parking requirements for churches within the Rural zone. Where the Plan is silent on particular land uses, the Council has historically accepted an approach of devising the appropriate car parking requirement from first principles, which in this case can be undertaken using the expected traffic generation of the church. In essence, the number of vehicles entering the site equates to maximum parking accumulation expected for that particular size of congregation.
- 8.2.1.2. The site provides a total of 160 car parking spaces and this is sufficient to accommodate a congregation of 631 people. As seen in Table 3, this is sufficient for the majority of events at the site, other than the largest of Sunday services where up to 800 people may attend (920 people including the 15% contingency) and the capacity events of 1,300 people.
- 8.2.1.3. The capacity events occur at most once every six months, and as set out above it is highly likely that greater use will be made of minibuses and coaches, meaning that the extent of car parking calculated is unlikely to arise in practice. However given the greater use of larger vehicles, specific provision will need to be made for parking of these (as the on-site parking accommodates only cars). A traffic management plan is therefore required which can address the overall management of parking, and this is recommended as a condition of consent.
- 8.2.1.4. The scenario of a congregation of 920 people (800 people plus 15% contingency) is also unlikely to arise on a regular basis, but would result in 233 cars being parked (and hence an overflow of 73 vehicles). If the lawned area towards the south of the building was used then this could accommodate a further 18 vehicles, and 10 vehicles could be parked on the verge at the service access, and thus up to 45 vehicles would need to be parked elsewhere. It is understood that in this circumstance, the additional vehicles would all be accommodated on the balance of the lot, an area of approximately 8,000sqm which lies towards the southeast of the main car park. An area of this size is able to accommodate more than 120 vehicles.
- 8.2.1.5. In view of the infrequent occasions that parking overflow would occur and the generally low traffic flows on the network, this is not considered that this is likely to result in adverse safety or efficiency effects.

8.2.2. Part ii: Location and Availability of Parking Spaces

- 8.2.2.1. Under this rule, a vehicle occupying any parking space should have access to the road at all times without the need to move another vehicle, and parking spaces are to be provided on the site of the activity requiring them. The site layout shows that this is achieved.



8.2.3. Part iii: Parking Spaces for People with Disabilities

8.2.3.1. With 160 parking spaces provided within the site, there is a requirement under this rule to provide 4 spaces for mobility impaired drivers and these are provided. The parking spaces are 3.6m wide, 5.2m long and have an aisle of 6m, meeting the District Plan requirements.

8.2.4. Part iv: Queuing Spaces

8.2.5. Queuing space is required to be provided at a site access, measured from the site boundary to the point where conflict with vehicles already within the site may arise and for 160 spaces, a distance of 24m is required. The proposed layout shows that this is achieved.

8.2.6. Part v: Design of Parking Spaces

8.2.6.1. Under this rule, the maximum gradient of parking spaces must be no greater than 1 in 20, and the parking spaces, access and manoeuvring areas must be formed, surfaced and permanently marked. There are no reasons why these requirements could not be achieved at the proposed development.

8.2.6.2. The standard parking spaces are each 5.2m long, at least 2.5m wide and have an aisle width of at least 6.0m, and therefore all comply with the District Plan.

8.2.7. Part vi: On-site Manoeuvring

8.2.7.1. There are a number of requirements under the District Plan for on-site manoeuvring. The proposed layout provides parking spaces that fully meet the District Plan requirements and therefore it is not expected that there will be any difficulties with vehicles entering or exiting the spaces.

8.2.7.2. There is a requirement under Part (e) of this rule that no vehicles should be required to reverse off the site, and that no vehicle should be required to undertake more than one reverse movement when manoeuvring into or out of any required parking space. The layout of the spaces as a standard 'row+aisle' arrangement means that this is achieved.

8.3. Rule 20.5.6: Vehicle Loading Performance Standards

8.3.1. Part i: Design of Loading Areas

8.3.1.1. There is no requirement under the District Plan for a loading facility to be provided at the proposed development. In practice, the nature of the activity is such that loading/unloading will be an extremely infrequent occurrence and in many cases, will be accomplished using a motor car rather than a truck (since any goods will generally be small) and at times when the congregation is unlikely to be present.

8.4. Rule 20.5.7: Vehicle Access Performance Standards

8.4.1. Part i: Maximum Number of Vehicle Crossings

8.4.1.1. Only one vehicle crossing is proposed onto Puddle Alley (southeast) as permitted under the District Plan.



8.4.2. Part ii: Minimum Sight Distances from Vehicle Crossings

8.4.2.1. The site does not have frontage onto a state highway and thus this rule does not apply. The issue of sight distances is discussed further in Section 5.3 above.

8.4.3. Part iii: Distances of Vehicle Crossings from Intersections

8.4.3.1. The closest intersection to the site lies towards the northwest, where Puddle Alley meets Factory Road. Given the classifications of these roads (a Collector Road and District Road respectively), and the prevailing speed limit of 80km/h, a separation distance of 40m is required between the site access and the intersection, and this is provided.

8.4.4. Part iv: Vehicle Access Standards

8.4.4.1. As Puddle Alley is sealed, the site access must also be sealed for at least 5m within the site. There does not appear to be any reason why this could not be achieved (and in practice it is expected that the entire access and parking area will be sealed as per Rule 20.5.5(v)). Similarly, there are no reasons why any changes of gradient should exceed the permitted maximum values set out in this rule.

8.4.5. Part v: Dimension Requirements for Vehicle Access on a Site

8.4.5.1. In view of the nature of the land use, the vehicle access can be no wider than 9m. The proposed layout shows that this will be achieved.

8.4.5.2. This rule also requires that the minimum legal width of an access must be 6m, with a minimum 5m formed width. These are achieved at the proposed development.

8.5. Summary

8.5.1. The proposed site layout complies with all the transportation requirements of the District Plan. For completeness, there is likely to be a shortfall in the number of on-site parking spaces at the times when the very largest of events are held, but for the services with 920 people (that is, a congregation of 800 people plus a 15% contingency) there may be an overflow of up to 73 vehicles. Anticipating that these are parked on the balance of the lot (which is adjacent to the sealed car park), no adverse safety or efficiency effects will arise due to the limited number of times that this scenario will occur.

8.5.2. There is also likely to be off-site parking when one of the capacity events is held. However under this situation, it is anticipated that a traffic management plan will be required due to the use of larger vehicles (minivans and coaches) for which there is no specific provision within the site and this can also address overall parking management.

9. Conclusions

- 9.1. This report has identified, evaluated and assessed the various transport and access elements of a proposed church adjacent to the Factory Road / Puddle Alley intersection, Mosgiel. Overall it is considered that the traffic generated by the development can be accommodated on the adjacent roading network without capacity or efficiency issues arising, even when the maximum number of attendees are present. Levels of service at the intersection remain very good, even allowing for all arrivals and departures to coincide with the existing peak hour on the road network.
- 9.2. The accident history in the vicinity of the site does not indicate that there would be any adverse safety effects from the proposal and the existing sight distances available for vehicles turning to or from Puddle Alley (southeast) are excellent as the minor road lies on a curve of the major road.
- 9.3. The proposed site layout complies with all transportation requirements of the District Plan, although for completeness there is likely to be a small amount of overflow car parking during the very largest events. Such parking will take place on the balance of the lot adjacent to the sealed car park, and is unlikely to result in any significant safety or efficiency effects arising.
- 9.4. One condition of consent has been recommended, that the largest of events are controlled by a traffic management plan, in part due to the number of large vehicles that are likely to be present (minivans and coaches, for which there is no provision made within the site) and in part due to the potential for off-site car parking to occur.
- 9.5. Overall, and subject to the preceding comments, the proposed development can be supported from a traffic and transportation perspective and it is considered that there are no traffic and transportation reasons why consent could not be granted.

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Duties	Task	Description
Fire Warden	-	In an evacuation: Is responsible for checking part of the building.