DUNEDIN CITY COUNCIL | kaunihera ā-rohe o Ōtepoti

Memorandum

TO:	Kirstyn Lindsay, Consultant Planner
FROM:	Logan Copland, Planner – Transportation
DATE:	25 June 2021
SUBJECT:	**LUC-2020-405** **700 BIG STONE ROAD, BRIGHTON**

1 APPLICATION:

Resource consent is sought to establish a landfill at 700 Big Stone Road, Brighton, within Designation D659 – *Proposed Smooth Hill Landfill – Proposed Landfilling and Associated Refuse Processing operations and Activities.* The applicant is Dunedin City Council.

The application is assessed in three parts, as follows:

1. The first part is the discharge consents required from ORC and fall outside of DCC jurisdiction
2. The second part is the resource consent for the proposed upgrade of McLaren Gully Road (including its intersection with State Highway 1) and Big Stone Road, and the creation or enhancement of wetlands outside the designation area. Parts of the required upgrade will fall outside of the existing legal road alignment, therefore necessitating adjustment of the legal road boundaries.
3. The third part is the outline plan for the landfill within the designation area. Conditions can be recommended but not required under the outline plan process as per Section 176 of the Resource Management Act 1991.

Notwithstanding the above, Transport has been subsequently advised by City Planning's consultant planner that the Outline Plan component of the proposal does not form part of the current application, meaning that Item 3 above does not form part of this application. That notwithstanding, the effects of the landfill once operating have been assessed within this memorandum, for completeness.

The landfill will have a capacity of approximately 6 million cubic meters (equivalent to 5 million tonnes), and an expected life (based on current Dunedin disposal rates) of approximately 40 years. The landfill will receive waste only from commercial waste companies or bulk loads. It will not be open to the public.

The key considerations from a transport perspective are:

- The ability of the surrounding transport network to cater for the anticipated additional vehicle movements, including heavy vehicle movements once the facility is operating.
- Whether or not the proposed roading upgrades will ensure that the transportation network will operate safely and efficiently.
- The temporary effects of the proposed roading upgrades on the ongoing operation of the transport network, during the construction phase.

- The new vehicle access to Big Stone Road.
- The realignment of McLaren Gully Road and Big Stone Road.

The site is zoned Coastal Rural in the 2GP, but as noted above, is subject to Designation D659. McLaren Gully Road and Big Stone Road are both classified as Local Roads in the 2GP's Road Classification Hierarchy, whereas Allanton-Waihola Road (State Highway 1) is classified as a Strategic Road. DCC is the road controlling authority (RCA) for McLaren Gully Road and Big Stone Road, whereas Waka Kotahi – NZ Transport Agency is the RCA for Allanton-Waihola Road. For completeness, it is noted that the Transport Agency is the RCA responsible for the safe and efficient operation of the State Highway 1/McLaren Gully Road intersection.

Therefore, for the sake of clarity, the reader is advised that the assessment that follows is limited to the effects of the proposal on the local transport network and does not extend to actual or potential effects on the State Highway Network. Such effects will need to be considered and assessed by Waka Kotahi - NZ Transport Agency as the RCA for Allanton-Waihola Road.

The application is supported by an integrated transport assessment (ITA) prepared by GHD, which has been updated as part of the further information response. This report relates to the updated version of the ITA, dated 30 May 2021.

It is noted that the proposal has decreased in scale since application was originally lodged. In particular, the size of the landfill has been reduced. The entirety of the revised landfill lies within the footprint of Stage 1 and Stage 2 of the original design. The original western Stages 3, 4 and 5 no longer form part of the proposal. In overall terms, for completeness, the following is noted, when compared with the original design proposal:

- The landfill footprint has reduced from 44.5ha to 18.6ha.
- Landfill (gross) capacity is reduced from approximately 7.9-million m3 to 3.3-million m3
- Net waste capacity is reduced from 6.2-million m3 to 2.9-million m3
- The predicted landfill life has reduced from 55 years to 40 years

For completeness, the reader is also advised that this memorandum has been peer reviewed be an external consultant traffic/transportation engineer.

2 SURROUNDING TRANSPORT INFRASTRUCTURE / ACCESSIBLITY:

The site has frontage to Big Stone Road along its south-eastern boundary, where vehicle access to the landfill is proposed. The main vehicle access route to the landfill will be via Allanton-Waihola Road, McLaren Gully Road and Big Stone Road. McLaren Gully Road intersects with State Highway 1 with a T-intersection configuration, which is controlled via give-way signage and road markings on the McLaren Gully Road leg.

McLaren Gully Road runs in a south-eastern direction some 4000m from State Highway 1 before it reaches its intersection with Big Stone Road. The road surface is metalled at this location and there does not appear to be any formal intersection controls. From this intersection, the route will continue in a southwestern direction along Big Stone Road, some 350m before reaching the proposed vehicle access location to the landfill.

McLaren Gully Road and Big Stone Road are currently unsealed and have substandard geometry to safely and efficiently accommodate two-way vehicular traffic. Both roads are

classified as Local Roads in the 2GP's Road Classification Hierarchy. According to a recent estimate (June 2020) sourced from Council's RAMM Database, McLaren Gully Road has an estimated ADT of 70 vpd, and Big Stone Road has an estimated ADT of 50 vpd where it runs past the proposed vehicle access location.

State Highway 1 has a posted speed limit of 100km/h as it passes the McLaren Gully Road intersection. McLaren Gully Road and Big Stone Road both have a posted speed limit of 100km/h. The 85th percentile operating speeds on McLaren Gully Road and Big Stone Road is unknown since there has been no speed data recorded on these roads. There is no dedicated pedestrian or cycling infrastructure on McLaren Gully Road or Big Stone Road.

As noted in the ITA, there are several residential properties that use McLaren Gully Road and Big Stone Road as their main vehicle access. These properties will therefore be affected by the proposed road upgrade works, and there will be a need for a comprehensive Construction Traffic Management Plan (CTMP) to minimise these effects as far as practicable. This aspect is discussed in more detail under 'Construction Traffic', below.

3 TRAFFIC GENERATION:

The ITA includes an assessment of traffic generation associated with the landfill when operating at full capacity, and traffic generation associated with the construction phase.

3.1 Landfill Traffic Effects:

As noted above, there will be no public access provided to the landfill. The site will therefore only receive deliveries from commercial operators, which are expected to be primarily by way of heavy commercial vehicles (HCVs), ranging from 6-wheel trucks though to truck and trailer units and B-Trains. The revised ITA calculates that the landfill will generate an average of 10 heavy vehicle return trips per day, with a maximum of 25 per day. Additional truck movements (up to 25 per day) will be generated for the first 9 years, which will also include cartage of leachate/water. While public access will be excluded, the facility will still generate light vehicle traffic associated with landfill staff. The ITA estimates that the facility will generate up to 25 light vehicle movements per day.

The application promotes the upgrading of McLaren Gully Road and Big Stone Road, as well as the McLaren Gully Road/State Highway 1 intersection, in light of the anticipated traffic increases. While the ITA draws conclusions of the effects of the proposed landfill on the safety and efficiency of the McLaren Gully Road / State Highway 1 intersection, it is reasonably clear that the proposed development will have effects on the State Highway network that are potentially more than minor. In that regard, consultation with Waka Kotahi NZ Transport Agency is considered necessary to ensure that these effects are mitigated through appropriate measures as agreed between the applicant and Waka Kotahi NZ Transport Agency.

Construction Traffic:

Construction is anticipated to occur over two construction seasons, generally defined between October-May. From a transport perspective, it is noted that the initial construction activities will include the upgrade to the McLaren Gully Road / SH1 intersection plus the McLaren Gully Road and Big Stone Road upgrades. The site access from Big Stone Road will also be constructed in the initial stages.

The landfill is to be developed in stages, with one stage being filled with waste while the next stage is constructed. Construction will therefore be recurring every two-five years during the life of the landfill.

The applicant proposes to prepare a Construction Traffic Management Plan (CTMP) and submit to Council and Waka Kotahi – NZ Transport Agency for approval. The details of the CTMP will include, but will not necessarily be limited to:

- Construction dates and times of work
- Nature and frequency of activities and traffic movements
- Truck route diagrams between the landfill and the external road network
- Specific measures to be followed when delivering special loads, such as the excavators, to avoid peak periods on the state highway
- Temporary traffic management measures to manage the interactions of construction traffic and other road users in a safe manner – especially for the period of work to upgrade the intersection of SH1 and McLaren Gully Road
- Details of the site access/egress throughout the construction period, including any limitations on heavy vehicle movements
- Measures to eliminate or minimise the impact on existing users of McLaren Gully Road such as residents and other commercial activities

As McLaren Gully Road is currently utilised for logging/forestry operations, it will also be important for the CTMP to manage ongoing co-ordination with traffic generated by those activities, during the construction phases. A condition of consent is recommended in accordance with the above.

4 PROPOSED ROADING UPGRADES:

For the purposes of this assessment, the roading upgrades have been separated out into two components; the first being the upgrades to McLaren Gully Road and Big Stone Road and the second being the upgrades to the McLaren Gully Road/State Highway 1 intersection. That notwithstanding, it is emphasised that Waka Kotahi NZ Transport Agency will be required to review and approve all design and upgrade works associated with this intersection upgrade.

4.1 MCLAREN GULLY ROAD AND BIG STONE ROAD UPGRADES:

As noted above, McLaren Gully Road and Big Stone Road are both proposed to be upgraded from the State Highway 1 intersection (inclusive), up to the point of the proposed landfill vehicle access location on Big Stone Road, to ensure the road formations are sufficient to safely and efficiently accommodate two-way vehicular traffic for the design vehicle.

The typical cross-section/design parameters for the McLaren Gully Road and Big Stone Road upgrades promoted within the ITA are below:

- Two-lane / two-way sealed road carriageway comprising one 3.5m wide movement lane in each direction, with widening where necessary to accommodate the design vehicle swept paths (High productivity motor vehicle (HPMV)) in accordance with Austroads Part 3.
- Formed shoulders at least 0.5m wide, comprising 0.25m wide sealed and 0.25m unsealed portions.
- Swale drainage on both sides, with 5H:1V roadside slope, 1m base and 4H:1V boundary slope.
- Cut face slope to be 1H:4V beyond swale, based on observed cut faces and desktop review of geotechnical investigations.
- Vertical gradients limited to 10%.

- Embankments slopes at 30 degrees.
- Designed to accommodate a High Productivity Motor Vehicle (HPMV) (equivalent to B Double).
- Adjustment of legal road boundaries where the upgraded roads fall outside of the existing legal road alignment.

The above typical cross section design is based on the presumption that the minimum available road reserve width is 20m (noting that road re-alignment is required, which is discussed in more detail, below). The above design parameters are considered to be generally consistent with Table 3.2 of NZS4404:2010 – *Land Development and Subdivision Infrastructure* for a rural 'make and move' road, except that there is no specific provision for pedestrians proposed. In that regard, the ITA notes that McLaren Gully Road and Big Stone Road are predominantly utilised by logging trucks, and therefore, walking and cycling on these roads is not actively encouraged.

Taking into account the surrounding land uses on Big Stone Road and McLaren Gully Road, and whilst acknowledging that these roads do serve a limited number of residential properties, it is considered that there would be little demand for active transport infrastructure, such as footpaths or cycle-lanes on these roads. On that basis, Transport considers that the proposed typical cross-section and design parameters are generally appropriate for the anticipated use of these roads, however it should be emphasised that this is subject to detailed design.

Detailed engineering plans, showing the details of the upgrading of McLaren Gully Road and Big Stone Road, must be submitted to and approved by the DCC Transport Group prior to construction. The plans must be prepared in accordance with the DCC Code of Subdivision and Development 2010, and/or alternative land development/traffic engineering standards as accepted by the DCC Transport Group.

Upon completion of construction of the required roading upgrades, all works must be tested to demonstrate that they meet the acceptance requirements of the DCC Code of Subdivision and Development, or alternative land development/traffic engineering standards as accepted by the DCC Transport Group.

Upon completion of all of the roading works, the works shall be certified as having been constructed in accordance with the approved plans and specifications, and as-built plans, detailing full asset data, must be provided to the DCC Transport Group.

Furthermore, any existing vehicle accesses abutting the sections of McLaren Gully Road and Big Stone Road subject to the proposed upgrades, will need to be hard surfaced from the edge of the carriageway(s) toward the property boundaries for a distance of not less than 5.0m, and be adequately drained for their duration, pursuant to Rule 6.6.3.6.a of the 2GP.

4.2 MCLAREN GULLY ROAD / STATE HIGHWAY 1 INTERSECTION UPGRADES:

The ITA promotes improvements to this intersection, to ensure that it will operate safely, and to an appropriate Level of Service. In particular, the following improvements are proposed:

- Flag Lighting
- 3.5m wide right turn bay with 180m taper
- 3.5m wide auxiliary left-turn entry lane with 180m deceleration taper and painted separator

- Localised shoulder widening for left-turn egress movements.

The ITA noted that the above improvements are primarily required to address perceived and anticipated road safety concerns associated with increased demand at the intersection, which will be created by the operation of the proposed landfill. The ITA notes that there are secondary benefits associated with intersection efficiency and capacity.

The ITA also undertook speed management assessment at the intersection, which concluded that implementing a Intersection Zone (ISZ) using Rural Intersection Activated Warning Signs (RIAWS) would be appropriate. The ITA considers that such measures would improve safety without having to permanently reduce the posted speed limit on the State Highway. That said, the ITA notes that through consultation with Waka Kotahi NZ Transport Agency, this section of State Highway 1 is being considered as part of an overall corridor speed management study. It is understood from the ITA that the Transport Agency decided against supported RIAWS at this intersection until such time that the study is complete.

While the above comments are useful in the sense that they provide some background, it is strongly emphasised by the report writer that the final design of this intersection is a matter for the Transport Agency to consider and assess. It is therefore appropriate that written approval from Waka Kotahi is sought in respect of this proposal. An advice note is recommended to that effect.

As noted above, while the proposed improvements are intended to mitigate the adverse effects of the activity on the safety and efficiency of the transport network, there remains potential for the proposal to have more than minor effects on the State Highway Network. As above, consultation with Waka Kotahi NZ Transport Agency will be required to ensure that the proposed improvements are acceptable to Waka Kotahi NZ Transport Agency as the RCA for State Highway 1.

5 REALIGNMENT OF MCLAREN GULLY ROAD AND BIG STONE ROAD:

The road realignment required for the upgrade of McLaren Gully Road and Big Stone Road involves the acquisition of private land for road, right of support easements, and stopping of road. Transport Planning understands that this process is being progressed pursuant to Section 17 of the Public Works Act 1981 (PWA). This process involves 'give and take' of land. For the sake of clarity, the process is summarised below (a four-step process):

1. Obtain agreements with landowners based on land requirement plans. These agreements include an embedded consent of the parties to declare land to be acquired as legal road pursuant to Section 114 of the PWA.
2. Settlement and transactions. Compensation is paid to landowners and compensation certificates are registered on the relevant Records of Title.
3. Undertake physical roading works.
4. Legalisation survey (final definition of new boundaries, which could be slightly different than the areas approximated in the initial agreements/land requirement plans) and gazetting of land for road/road to be stopped. At that stage, the status of the affected land formally changes.

6 SITE ACCESS

The main access to the site will be from Big Stone Road, approximately 350m southwest of the McLaren Gully Road/Big Stone Road intersection. There is an existing vehicle access in this

location, which will need to be upgraded in accordance with Council's Industrial Specification for Vehicle Entrances. A condition is recommended to that effect. This vehicle access will be used by all staff, construction traffic, waste and leachate trucks. As above, public access will not be permitted.

Big Stone Road has a posted speed limit of 100km/h. Therefore, a minimum sight distance of 139m is required for this vehicle access, as per Rule 6.6.3.2.b.vi. The available sight distance to the south/southwest exceeds this requirement, however the available sight distance to the northeast is slightly short, at around 125m. Sight visibility is currently affected by a crest on Big Stone Road. Attention should therefore be given to sight lines at the vehicle access as part of the upgrade to Big Stone Road. A condition is recommended which ensures that a minimum sight distance of 139m is achieved at the vehicle access. The sight distance must be measured in accordance with Figure 6B.13 of the 2GP.

This vehicle access assessment is limited to the location and design of the vehicle crossing to Big Stone Road and does not extend to the internal site boundary at this stage. This is because the Outline Plan component of the development is not currently being assessed. Such assessments will be undertaken upon receipt of the Outline Plan. An advice note is recommended to ensure that Transport has the opportunity to assess the Outline Plan, once submitted.

However, for completeness if is noted that a wheel wash will be located on the site. This is shown to be well separated from the road boundary. The wheel wash is intended to ensure any tracked waste is removed from trucks before departing from the site via the weighbridge and main gate. It is expected this arrangement will ensure that deleterious material is managed onsite and will prevent such material from being tracked onto Big Stone Road. This is due to large separation of the wheel wash from Big Stone Road. That notwithstanding, a condition is recommended, for completeness, to ensure that deleterious material is not permitted to track onto Big Stone Road.

7 CONCLUSION

Overall, the proposed upgrades to Big Stone Road, McLaren Gully Road and the McLaren Gully Road/State Highway 1 intersection are likely to have effects on temporary access to residential properties that rely on these roads for vehicle access. Additionally, as there are reasonably substantial upgrades proposed to the McLaren Gully Road / State Highway 1 intersection (albeit noting that these are proposed with the intention to mitigate potential effects on the safety and efficiency of the transport network once the facility is operating), the proposal is likely to have effects on the state highway network that are potentially more than minor. In that regard, it is recommended that written approval from Waka Kotahi NZ Transport Agency is sought.

CONDITIONS:

Road Upgrading Requirements

(i) The proposed design of the McLaren Gully Road/State Highway 1 intersection upgrade must be submitted to and approved by Waka Kotahi NZ Transport Agency, prior to construction.

(ii) All investigations, detailed design, and construction of the road upgrades must be supervised by a suitably qualified and experienced Chartered Professional Engineer (CPEng).

(iii) Detailed engineering plans, showing the details of the upgrading of McLaren Gully Road and Big Stone Road, must be submitted to and approved by the DCC Transport Group prior to construction.

(iv) The detailed design of all road upgrades, including cut and fill slopes, must be informed by geotechnical investigations and be in accordance with the Dunedin Code of Subdivision and Development 2010, or alternative land development/traffic engineering standards as accepted by the Dunedin City Council.

(v) Upon completion of construction of the required roading upgrades, all works must be tested to demonstrate that they meet the acceptance requirements of the DCC Code of Subdivision and Development, or alternative land development/traffic engineering standards as accepted by the Dunedin City Council.

(vi) The upgrade works to the State Highway 1/McLaren Gully Road intersection must be approved by Waka Kotahi NZ Transport Agency.

(vii) Upon completion of all of the roading works, the works shall be certified by a CPEng as having been constructed in accordance with the approved plans and specifications, and as-built plans, detailing full asset data, must be provided to the DCC Transport Group.

(viii) As per the requirements of Rule 6.6.3.6.a, all existing driveways adjoining the upgraded (sealed) McLaren Gully Road and/or Big Stone Road must be hard surfaced from the edge of the respective road carriageways, toward the respective property boundaries for a distance of not less than 5.0m and be adequately drained.

Construction Traffic Management

(ix) A Construction Traffic Management Plan (CTMP) must be prepared by an individual who is appropriately qualified to produce temporary traffic management plans. The CTMP must include measures to ensure the safe, effective, and efficient interaction of construction activity with other road users, and specifically address the following matters:

a. Delivery of heavy or outsized loads, such as excavators, to avoid peak periods on State Highway 1.
b. Management of the interactions of construction traffic and other road users.
c. Minimising the impact on existing users of McLaren Gully Road and Big Stone Road users such as residents and other commercial activities.

The Construction Traffic Management Plan must be provided to Waka Kotahi NZ Transport Agency for review and acceptance, and then submitted to the Dunedin City Council for approval. It must address the requirements of this condition prior to commencement of the road upgrade works.

(viii) The road upgrade works must be undertaken in accordance with the approved CTMP.

Vehicle Access, Onsite Car Parking and Manoeuvring:

(ix) The new vehicle access must be a minimum 5.0m, maximum 9.0m formed width, hard surfaced from the edge of the Big Stone Road carriageway, toward the property boundary for a distance of not less than 5.0m and be adequately drained for its duration.

(x) The new vehicle access must be constructed in accordance with Council's Industrial Specification for Vehicle Entrances.

(xi) A minimum sight distance of 139m must be achieved at the new vehicle access to Big Stone Road unless an assessment from a suitably qualified transport expert determines that a lesser sight distance can be supported from a road safety perspective. The sight distance must be measured in accordance with Figure 6B.13 of the 2GP.

Ongoing Conditions:

(xii) All traffic associated with the landfill must use the route described within the application, unless a hazard is present on this route which renders it inoperable.

(xiii) The applicant must ensure that deleterious material does not, at any stage, migrate onto the Big Stone Road carriageway.

ADVICE NOTES:

1. The vehicle crossing, between the road carriageway and the property boundary, is within legal road and will therefore require a separate Vehicle Entrance Approval from DCC Transport to ensure that the vehicle crossing is constructed/upgraded in accordance with the Dunedin City Council Vehicle Entrance Specification (note: this approval is not included as part of the resource consent process).
2. The vehicle access will need to be designed so that sight distances are optimised.
3. It is recommended that written approval from Waka Kotahi NZ Transport Agency is obtained.
4. It is advised that in the event of future development on the site, Transport would assess provisions for access, parking and manoeuvring upon receipt of an Outline Plan application.