

Comment on the Stage 1B1 Papakura to Drury South State Highway 1 Improvements applications and notices of requirement

Contact details

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Gleeson Contractors Limited can receive emails and the above email address is correct.

Introduction and background

1. Gleeson Contractors Limited (**GCL**) is the owner of 69 Creek Street, Drury (**Site**). The Site is adjacent to State Highway 1 and Bremner Road, as shown on the plan in **Appendix 1** to these comments. GCL's comments are limited to the parts of the Waka Kotahi project relating to the widening of State Highway 1 in the vicinity of the Site, the demolition and construction of the Bremner Road bridge and related works.
2. As an owner of land adjacent to the land on which the project is to be undertaken, GCL was invited to comment on the project in accordance with clause 17(4)(f) of Schedule 6 of the COVID-19 (Fast-track Consenting) Act 2020.
3. Existing development on the Site comprises three, connected, double-height industrial units and at-grade parking at its northern end, with an at-grade storage area to the south. The industrial units are leased to separate tenants for a mix of industrial and commercial activities.
4. GCL has development aspirations for the Site, which would see it developed with a large three-storey industrial building. GCL is concerned to ensure that the project does not impact on its ability to use and develop its land, now and in the future. It seeks that appropriate conditions are imposed to protect the Site from the actual and potential adverse effects of the project.
5. GCL's detailed comments on the project are set out below.

Retaining walls and dewatering effects

6. The project requires significant earthworks and construction of retaining walls to create additional space for additional lanes on State Highway 1, as well as the replacement Bremner Road bridge. Resource consent is sought for dewatering associated with the earthworks and retaining walls.
7. The application and AEE outline the potential effects from those activities in a general manner and a specialist groundwater assessment has been provided in Appendix H to the application (**Assessment**).¹
8. The groundwater assessment reports the findings of a high-level study based on preliminary design and limited investigations. The Assessment identifies the most significant sources of potential ground movement as excavation, outward retaining wall deflections (and associated settlements / lateral deformations), settlement from

¹ For example, see AEE at 2.1.5, and Appendix H at 4.2.

construction of the piling platform and construction surcharge, and groundwater drawdown.²

9. The Assessment provides an estimate of potential damage to buildings on the Site (and other nearby properties) , which is based on a number of assumptions, in particular because the retaining wall form and construction is not yet known. On the basis of modelling (which includes further assumptions), the Assessment concludes that the estimates of building damage to the Site are “consistent with ‘Negligible’ to ‘Very slight’ classifications corresponding to ‘Aesthetic’ damage effects only.”³
10. The Assessment describes a proposed mitigation and monitoring regime at a general level, which is intended to be subject to refinement at the detailed design stage.⁴ The proposed conditions of consent simply refer to the description of the proposed mitigation and monitoring regime, rather than prescribing mitigation or monitoring requirements.⁵
11. It is incumbent upon an applicant for resource consent to assess the effects of the activity with such detail as corresponds with the scale and significance of the effects of the activity on the environment and, where adverse effects are expected, to appropriately manage them. This is particularly the case in the fast-tracked consenting process for a listed project, where the Expert Consenting Panel cannot decline the application and appeal rights are limited. GCL considers that the applicant has not properly assessed the adverse effects of the project on the Site and that the proposed conditions are inadequate. Given the lack of assessment and large number of assumptions in the Assessment (including that alarm and alert levels have not been identified), GCL considers that the applicant has not adequately assessed the effects of the proposed earthworks, dewatering and retaining wall construction on the Site.
12. In the time available to provide comments (and due to Auckland’s COVID-19 Alert Levels) GCL has not been able to obtain specialist advice regarding the effects of the proposed earthworks, dewatering and retaining wall construction. Accordingly, GCL seeks:
 - a. further assessment is undertaken of the potential effects of proposed earthworks, dewatering and retaining wall construction on the Site; or
 - b. conditions are imposed to required such further assessment and appropriate mitigation at the time of detailed design; and
 - c. amendments are made to the conditions to provide a clearer and more certain mitigation and monitoring regime in relation to these effects.
13. An example of the type of robust set of conditions that GCL is aware of is attached as **Appendix 2** to these comments.

Access issues

14. Following construction, the project proposes to reinstate the two commercial vehicle crossings at the boundary of the Site with Bremner Road.⁶ However, the width of the lane on Bremner Road nearest that boundary is proposed to be narrowed to 3.5m⁷

² At 4.2.3.

³ At 4.2.6.

⁴ At 5.1 and Appendix D of the Assessment.

⁵ Conditions GW.1-GW.4.

⁶ As shown on drawing 0153.

⁷ As shown on typical cross section SV on drawing 0214.

and it appears that there will be changes to the grade of that part of Bremner Road to accommodate the raising of the Bremner Road bridge.

15. GCL has been unable to find any information in the application, AEE and supporting reports that demonstrates that the reinstated commercial vehicle crossings will be fit for purpose, taking into account the changes to Bremner Road. In the time available to provide comments (and due to Auckland's COVID-19 Alert Levels) GCL has not been able to obtain specialist advice on whether its access to Bremner Road will be fit for purpose following the completion of the project. Accordingly, GCL seeks:
- a. details are provided to demonstrate that the access will be fit for purpose (i.e. an assessment of vehicle tracking etc); or
 - b. conditions are imposed to require that detailed design demonstrates that the access will be fit for purpose.

Uncertain and inconsistent information

16. GCL notes that it is unclear from the application and supporting materials the extent of works proposed in the vicinity of the Site:
- a. Drawings 0115 and 0153 show different extents of retaining both to the west (SH1) and the north (Bremner Road) of the Site.
 - b. At page 11, the AEE states that a retaining wall will be located on the southern side of Bremner Road (Ch. 380 – 430) in order to retain the raised Bremner Road alignment. However, it then states that this is to retain the properties to the north of Bremner Road. Drawing number 0153 shows a retaining wall on the north and not the south side of Bremner Road.
 - c. At page 11, the AEE states that the highest point of the proposed retaining wall along the eastern side of SH1 between Bremner Road and Drury Interchange (Ch.13650 – 14020) is at the SH1 Bremner Road Overbridge, being 9m high. However the Assessment states that the retaining wall at the Site (which is immediately adjacent to the SH1 Bremner Road Overbridge) will be "<4.5m with 1:2 2m backslope". GCL has been unable to locate any further information in relation to the dimensions of the proposed retaining wall adjacent to the Site.
 - d. At page 12, the AEE states that temporary retaining walls may be required adjacent to the Site (on both SH1 and Bremner Road), however these have not been addressed in the Assessment.
17. GCL seeks that these matters are clarified.

Decisions sought by GCL

18. For the reasons above, GCL seeks that the Expert Consenting Panel makes the decisions requested at paragraphs 12, 15 and 17 above.

Dated this 24th day of September 2021



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M J Doesburg

for and on behalf of **Gleeson Contractors Limited**

Appendix 1 – GCL Site



**Appendix 2 – Example dewatering / settlement conditions – Consent
WAT60330074**

See conditions 73 onwards, in particular

discharge of contaminants.

iii. A spill contingency plan in the event that there is any discharge of contaminants to the coastal marine area.

iv. Methods to ensure public safety

d. Site reinstatement upon completion of construction activity.

The consent holder shall undertake all works within, and immediately adjacent to, the coastal marine area in accordance with the approved construction management plan.

Harbourmaster Notification

64. The Harbourmaster's Office (Auckland Transport Harbourmasters Office, Private Bag 92250, Auckland, 1142 or HarbourMaster@aucklandtransport.govt.nz) shall be notified in writing at least ten working days prior to construction activity commencing in the coastal marine area.

As-Built Plans

65. Within one month of the completion of the consented construction activities, a complete set of "as built" plans shall be supplied to the Council, the Harbourmaster's Office (Auckland Transport Harbourmasters Office, Private Bag 92250, Auckland, 1142 or HarbourMaster@aucklandtransport.govt.nz) and the Hydrographic Office (Chief Hydrographer, National Topo/Hydro Authority, Land Information New Zealand, Private Box 5501, Wellington).

Maintenance Requirements

66. The outfall shall be maintained in a good and sound condition, and any repairs that are necessary shall be made, subject to obtaining any necessary resource consents.

Conditions applicable to consent WAT60330074 only

DEFINITIONS

Words in the ground dewatering (take) and groundwater diversion consent conditions have specific meanings as outlined in the table below.

Alarm Level	Specific levels at which actions are required as described in the relevant conditions.
Alert Level	Specific levels at which actions are required as described in the relevant conditions.

Bulk Excavation & Ground Treatment	Includes all excavation and ground treatment that could potentially affect groundwater, including for shafts, structures, and the tunnel, and the associated ground treatments (e.g., injection grouting). It excludes minor enabling works and piling less than 1.5m in diameter.
Completion of Dewatering	Means, in the case of tunnels and shafts, when the tunnel and shafts have been constructed and effectively no further groundwater is being taken/diverted for the construction of shafts in accordance with the design.
Completion of Construction	Means when the Code Compliance Certificate (CCC) is issued by Auckland Council
Completion of Excavation	Means the stage when all Bulk Excavation has been completed and all foundation/footing excavations within 10 meters of the perimeter retaining wall have been completed.
Condition Survey	Means an external visual inspection or a detailed condition survey (as defined in the relevant conditions).
Damage	Means physical harm that impairs the value, usefulness, or normal function of a building, structure or services. In relation to buildings, includes Aesthetic, Serviceability, Stability, but does not include Negligible Damage as described in the table below.
External visual inspection	A condition survey undertaken for the purpose of detecting any new external Damage or deterioration of existing external Damage. Includes as a minimum a visual inspection of the exterior and a dated photographic record of all observable exterior Damage.
GSMCP	Means Groundwater and Settlement Monitoring and Contingency Plan
Mobil Service Station	Means the Mobil Service Station at 8-14 Quay Street.
Monitoring Station	Means any monitoring instrument including a ground or building deformation station, inclinometer, groundwater monitoring bore, retaining wall deflection station, or other monitoring device required by this consent.
POAL	Means Ports of Auckland Limited.
Port	Means the Port of Auckland at 1 Sunderland Street,

Parnell, Auckland 1010

RL	Means Reduced Level
Seasonal Low Groundwater Level	Means the annual lowest groundwater level prior to Commencement of Dewatering.
Services	Include fibre optic cables, sanitary drainage, stormwater drainage, gas and water mains, power and telephone installations and infrastructure, road infrastructure assets such as footpaths, kerbs, catch-pits, pavements and street furniture.
SQEP	Means Suitably Qualified Engineering Professional taking advice where appropriate from specialists such as hydrogeologists, geotechnical engineers, engineers experienced in port and marine structures, power engineers experienced with underground cables etc.
SQBS	Means Suitably Qualified Building Surveyor. In the case of POAL assets or infrastructure, all condition assessments and surveys must be carried out by a SQEP.

Category of Damage	Normal Degree of Severity	Description of Typical Damage (<i>Building Damage Classification after Burland (1995), and Mair et al (1996)</i>)	General Category
0	Negligible	Hairline cracks less than 0.1mm.	Aesthetic Damage
1	Very Slight	Fine cracks easily treated during normal redecoration. Perhaps isolated slight fracture in building. Cracks in exterior visible upon close inspection. Typical crack widths up to 1mm.	
2	Slight	Cracks easily filled. Redecoration probably required. Several slight fractures inside building. Exterior cracks visible, some repainting may be required for weather-tightness. Doors and windows may stick slightly. Typically crack widths up to 5mm.	
3	Moderate	Cracks may require cutting out and patching. Recurrent cracks can be masked by suitable linings. Brick pointing and possible replacement of a small amount of exterior brickwork	Serviceability Damage

		may be required. Doors and windows sticking. Utility services may be interrupted. Weather tightness often impaired. Typical crack widths are 5mm to 15mm or several greater than 3mm.	Stability Damage
4	Severe	Extensive repair involving removal and replacement of walls especially over door and windows required. Window and door frames distorted. Floor slopes noticeably. Walls lean or bulge noticeably. Some loss of bearing in beams. Utility services disrupted. Typical crack widths are 15mm to 25mm but also depend on the number of cracks.	
5	Very Severe	Major repair required involving partial or complete reconstruction. Beams lose bearing, walls lean badly and require shoring. Windows broken by distortion. Danger of instability. Typical crack widths are greater than 25mm but depend on the number of cracks.	

Table 1: Building Damage Classification

Note: In the table above the column headed “Description of Typical Damage” applies to masonry buildings only and the column headed “General Category” applies to all buildings.

Consent Expiry

67. The take (dewatering) and groundwater diversion consent shall expire on 17 February 2026 unless it has been surrendered or cancelled at an earlier date pursuant to the RMA.

Review Condition

68. Under section 128 of the RMA, the conditions of this consent WAT60330074 may be reviewed by the Council at the consent holder’s cost within six months after Completion of Dewatering and subsequently at annual intervals thereafter in order:
- a. To deal with any adverse effects on the environment which may arise or potentially arise from the exercise of this consent and which it is appropriate to deal with at a later stage
 - b. To vary the monitoring and reporting requirements, and performance standards, in order to take account of information, including the results of previous monitoring and changed environmental knowledge on:
 - i. ground conditions

- ii. aquifer parameters
- iii. groundwater levels; and
- iv. ground surface movement

Notice of Commencement of Dewatering

69. The Council and POAL shall be advised in writing at least 10 working days prior to the date of the Commencement of Dewatering.

Design of Tunnel and Shafts

70. The design and construction of the tunnel, shafts and associated works (including ground treatment) shall be undertaken in accordance with the specifications contained in the AEE reports and associated s92 documentation detailed in condition 1. In particular the, retaining walls for the shaft at Inlet Shaft, Inlet Structure, Outlet Shaft, and Outlet Channel shall be constructed using a secant pile wall (or equivalent), and the pipe installation between the shafts will be completed with a closed face tunnel boring machine with face support capability or equivalent.

Excavation Limit

71. The Bulk Excavation shall not extend below:
- a. RL -17.80 m for Inlet Shaft
 - b. RL -16.40 m for Outlet Shaft
 - c. RL -2.53 m for Inlet Structure and Twin Pipelines Excavation
 - d. RL -3.10 m for Outlet Channel

Damage Avoidance

72. All excavation, dewatering systems, retaining structures and works associated with the diversion or taking of groundwater, shall be designed, constructed and maintained so as to avoid Damage to buildings, structures and Services on the site or adjacent properties.

Alert and Alarm Levels

73. The activity shall not cause any ground settlement or movement greater than the Alarm Level thresholds specified in Schedule A below. Alert and Alarm Levels are triggered when the following Alert and Alarm Trigger thresholds are exceeded:

Schedule A: Alarm and Alert Levels			
Movement		Trigger Thresholds (+/-)	
		Alarm	Alert
(a)	Differential vertical settlement between any two Ground Surface Deformation Stations (the Differential Ground Surface Settlement Alarm or Alert Level)	1:800	1:1200
(b)	Total vertical settlement from the pre-excavation baseline level at any Ground Surface Deformation Station in vicinity of the Inlet Works (the Total Inlet Works Ground Surface Settlement Alarm or Alert Level):		
i)	GC11, GC21, GC31 & GC41	15 mm	12 mm
ii)	GC12, GC23, GC32 & GC42	10 mm	8 mm
iii)	GC13, GC22, GC33 & GC43	8 mm	6 mm
iv)	GC14, GC24, GC34 & GC44	5 mm	3 mm
(c)	Total vertical settlement from the pre-excavation baseline level at any Ground Surface Deformation Station in vicinity of the Pipeline Works (the Total Pipeline Works Ground Surface Settlement Alarm or Alert Level):		
i)	ALL ARRAY B	5 mm	3 mm
(d)	Total vertical settlement from the pre-excavation baseline level at any Ground Surface Deformation Station in vicinity of the Outlet Works (the Total Outlet Works Ground Surface Settlement Alarm or Alert Level):		
i)	GA11 & GA14	5 mm	3 mm
ii)	GA12 & GA13	8 mm	6 mm
(e)	Total vertical settlement from the pre-excavation baseline level at adjacent Building Deformation Stations BM01 and BM02 (the Differential Building Settlement Alarm or Alert Level)	1:800	1:1200
(f)	Total vertical settlement from the pre-excavation baseline level at Building Deformation Stations BM01 and BM02 (the Total Building Settlement Alarm or Alert Level)	10 mm	5 mm

(g)	Distance below the pre-dewatering Seasonal Low Groundwater Level and any subsequent groundwater reading at any groundwater monitoring bore in vicinity of the Inlet Works (the Inlet Works Groundwater Alarm or Alert Levels):		
i)	MW1	N/A	0.40 m
ii)	MW2	N/A	0.52 m
iii)	MW5	N/A	0.53 m
iv)	MW8	0.50 m	0.40 m
v)	MW11	0.38 m	0.06 m
vi)	MW12	0.55 m	0.21 m
(h)	Distance below the pre-dewatering Seasonal Low Groundwater Level and any subsequent groundwater reading at any groundwater monitoring bore in vicinity of the Inlet Outlet Works (the Outlet Works Groundwater Alarm or Alert Levels):		
i)	MW3	N/A	0.04 m
ii)	MW4	N/A	0.41 m
iii)	MW6	0.46 m	0.37 m
iv)	MW7	0.50 m	0.40 m
v)	MW9	0.46 m	0.37 m
vi)	MW10	0.43 m	0.35 m

Note: The locations of the Monitoring Stations listed in Schedule A are shown on the plan titled *“Proposed Pipeline -Settlement Instrumentation & Monitoring Plan - Sheets 1&2”, Rev:4, prepared by “GHD Limited”, dated “05.07.19”*.

These levels may be amended subject to approval by the Council in consultation with POAL as part of the Groundwater Settlement Monitoring and Contingency Plan (GSMCP) approval process, and, after the receipt of pre-dewatering monitoring data, building condition surveys and recommendations from a suitably qualified engineering professional (SQEP), but only to the extent that avoidance of Damage to building, structures and Services can still be achieved.

There are conditions below that must be complied with when the Alert and Alarm Level triggers are exceeded. These include actions that must be taken immediately including seeking the advice of a SQEP.

Alert Level Actions

74. In the event of any Groundwater Alert Level being exceeded the consent holder shall:
- a. Increase the frequency of review groundwater level monitoring data to 48-hourly.
 - b. Check the level of any Ground Surface or Building Settlement monitoring stations in the vicinity of the groundwater alert level exceedance and compare to its trigger levels.

In the event of any Ground Surface or Building Settlement Alert Level being exceeded the consent holder shall:

- c. Notify the Council and Kiwi Rail Asset Engineer (where exceedance relates to Arrays C1 or C3) within 24 hours.
- d. Notify the Council, the Manager of the Mobil Service Station (where exceedance relates to Array C2), and POAL (where the exceedance relates to Arrays A or B) within 24 hours.
- e. Re-measure all Monitoring Stations within 30 metres of the affected monitoring location(s) to confirm the extent of apparent movement.
- f. Ensure the data is reviewed, and advice provided, by a SQEP on the need for mitigation measures or other actions necessary to avoid further deformation. Where mitigation measures or other actions are recommended those measures shall be implemented.
- g. Submit a written report, prepared by the SQEP responsible for overseeing the monitoring, to the Council for certification within five working days of Alert Level exceedance. The report shall provide an analysis of all monitoring data (including wall deflection) relating to the exceedance, actions taken to date to address the issue, recommendations for additional monitoring (i.e. the need for increased frequency or repeat condition survey(s) of building or structures) and recommendations for future remedial actions necessary to prevent Alarm Levels being exceeded. The consent holder shall consult on the recommendations with the affected asset owner prior to their being finalised as part of the certification process by Council. All comments received from the affected asset owner must be provided to Council and the consent holder must provide reasons why any feedback has not been adopted.
- h. Measure and record all Monitoring Stations within 30 metres of the location of any Alert Level exceedance every two days until such time the written report referred to above has been submitted to the Council
- i. Provide copies of all reports prepared under this condition to Mobil (the manager of the service station) and POAL within two working days of being

provided to Council.

Alarm Level Actions

75. In the event of any Alarm Level being exceeded at any ground or building deformation pin Monitoring Station, the consent holder shall:
- a. Immediately halt construction activity, including excavation, dewatering or any other works that may result in increased deformation, unless halting the activity is considered by a SQEP to be likely to be more harmful (in terms of effects on the environment) than continuing to carry out the activity.
 - b. Notify the Council and Kiwi Rail Asset Engineer (where exceedance relates to Arrays C1 or C3) within 24 hours of the Alarm Level exceedance being detected and provide details of the measurements taken.
 - c. Notify the Council and the Manager of the Mobil Service Station (where exceedance relates to Array C2) within 24 hours of the Alarm Level exceedance being detected and provide details of the measurements taken.
 - d. Notify the Council and POAL (where the exceedance relates to Arrays A or B) within 24 hours of the Alarm Level exceedance being detected and provide details of the measurements taken.
 - e. Undertake a condition survey (this could comprise either a detailed condition survey or an external visual inspection at the discretion of the SQEP responsible for overseeing the monitoring) by a SQEP of any building or structure located adjacent to any Monitoring Station where the Alarm Level has been exceeded. For the Mobil service station, this includes a survey of the integrity of the underground storage tanks and pipes.
 - f. Take advice from the author of the Alert Level exceedance report (if there was one) in consultation with affected owners and occupiers on actions required to avoid, remedy or mitigate adverse effects on ground, buildings or structures that may occur as a result of the exceedance.
 - g. Not resume construction activities (or any associated activities), halted in accordance

with paragraph (a) above, until any mitigation measures (recommended in accordance with paragraphs (f) above) have been implemented to the satisfaction of a SQEP.
 - h. Submit a written report, prepared by the SQEP responsible for overseeing the monitoring, to the Council and affected owners and occupiers on the results of the condition survey(s), the mitigation measures implemented and any remedial works and/or agreements with affected parties within five working days of recommencement of works. All comments received from affected owners and occupiers must be provided to Council and the consent holder

must provide reasons why any feedback has not been adopted.

76. Should an underground fuel alarm be triggered on the Mobil site, the consent holder shall:
- a. on notification from the Manager of the Mobil Service Station that an underground fuel alarm has been triggered, notify the Council and the Manager of the Mobil Service Station of the works that were being undertaken when the alarm was triggered;
 - b. within 24 hours of receiving notice that an underground fuel alarm has been triggered, liaise with the Manager of the Mobil Service Station and engage a suitably qualified engineering professional (SQEP) to make an assessment of the cause of the alarm;
 - c. if the alarm has been triggered by construction works that have been undertaken by the consent holder, immediately halt construction activity, including excavation or any other works;
 - d. take advice from the Manager of the Mobil Service Station and a suitably qualified engineering professional (SQEP) on the actions required to avoid, remedy or mitigate adverse effects on the underground storage tanks and pipes that may occur as a result of the construction activities;
 - e. not resume construction activities (or any associated activities), halted in accordance with paragraph (c) above, until any mitigation measures (recommended in accordance with paragraph (d) above) have been implemented to the satisfaction of a SQEP and where necessary, a test of the integrity of the underground fuel system has been undertaken;
 - f. Submit a written report, prepared by the SQEP responsible for overseeing the monitoring, to the Council and Manager of the Mobil Service Station, on the results of the condition survey(s), the mitigation measures implemented and any remedial works and/or agreements with affected parties within five working days of recommencement of works.

Groundwater and Settlement Monitoring and Contingency Plan (GSMCP)

77. At least 20 days prior to the Commencement of Dewatering, a Groundwater and Settlement Monitoring and Contingency Plan (GSMCP) prepared by a (SQEP), shall be submitted to the Council for written certification. Any later proposed amendment of the GSMCP shall also be submitted to the Council for further written certification.

Before the GSMCP is sent for certification, a copy shall be sent to POAL and Mobil for their comments. All of POAL's and Mobil's comments must be provided to Council and the consent holder must provide reasons why any feedback has not been adopted.

A copy of the GSMCP shall be provided to the Manager of the Mobil Service Station and POAL within two working days of being provided to the Council.

The overall objective of the GSMCP shall be to set out the practices and procedures to be adopted to ensure compliance with the consent conditions and shall include, at a minimum, the following information:

- a. A monitoring location plan, showing the location and type of all Monitoring Stations including groundwater monitoring bores, and ground surface and building deformation pins. The monitoring plan should be based on the plan titled *“Proposed Pipeline -Settlement Instrumentation & Monitoring Plan - Sheets 1&2”, Rev:4, prepared by “GHD Limited”, dated “05.07.19”*. In any case where the location of a Monitoring Station differs substantively from that shown on the plan titled *“Proposed Pipeline -Settlement Instrumentation & Monitoring Plan -Sheets 1&2”, Rev:4, prepared by “GHD Limited”, dated “05.07.19”*, a written explanation for the difference shall be provided at the same time that the GSMCP is provided.
 - b. Final completed schedules B to D (as per the conditions below) for monitoring of groundwater, ground surface and building deformation (including any proposed changes to the monitoring frequency) as required by conditions below.
 - c. All monitoring data, the identification of Services susceptible to Damage and all building/Service condition surveys undertaken to date, and required by conditions of this consent.
 - d. A bar chart or a schedule, showing the timing and frequency of condition surveys, visual inspections and all other monitoring required by this consent, and a sample report template for the required two monthly monitoring.
 - e. All Alert and Alarm Level Triggers (including reasons if changes to such are proposed, for example as a result of recommendations in the building condition surveys or data obtained from pre-dewatering monitoring).
 - f. Details of the contingency actions to be implemented if Alert or Alarm Levels are exceeded.
78. All construction, dewatering, monitoring and contingency actions shall be carried out in accordance with the certified GSMCP. No Bulk Excavation (that may affect groundwater levels) or other dewatering activities shall commence until the GSMCP is certified in writing by the Council.

Pre-Dewatering Structure Survey

79. Prior to the Commencement of Dewatering a detailed condition survey of the buildings and structures as specified in Schedule B below shall be undertaken by a SQEP or SQBS and a written report shall be prepared and reviewed by the SQEP responsible for overseeing the monitoring.

Only a SQEP shall undertake detailed condition surveys of buildings and structures located within the Port.

The consent holder shall request in writing the approval of the owners and occupiers of the buildings and structures specified in Schedule B to undertake a building condition survey. The SQEP or SQBS shall invite the owners and occupiers to identify any concerns they wish to be considered in any condition survey, and these shall be taken into account as appropriate.

The detailed condition survey shall be submitted for certification by Council at least 10 working days prior to the commencement of dewatering. A copy of the detailed condition survey shall be provided to the owners and occupiers of the buildings and structures in Schedule B.

This condition does not apply where written evidence is provided to the Council that the owner of a property has confirmed they do not require a detailed condition survey

The detailed condition survey shall include:

- a. A description of the type of foundations to the structures identified (including any subsurface structures such as underground storage tanks, pipes, and piles).
- b. A description of existing levels of Damage considered to be of an aesthetic or superficial nature.
- c. A description of existing levels of Damage considered to affect the serviceability of the structure where visually apparent without recourse to intrusive or destructive investigation.
- d. An assessment as to whether existing Damage may or may not be associated with actual structural Damage and an assessment of the susceptibility of structures to further movement and Damage.
- e. Photographic evidence of existing observable Damage.
- f. A review of proposed Alarm and Alert Levels to confirm they are appropriately set and confirmation that any ground settlement less than the Alarm Level will not cause Damage.
- g. An assessment of whether the monitoring frequency is appropriate.
- h. An assessment of whether the locations and density of deformation stations shown on the plan titled "*Proposed Pipeline -Settlement Instrumentation & Monitoring Plan -Sheets 1&2*", Rev:4, prepared by "GHD Limited", dated "05.07.19" are adequate and appropriate for the effective detection of change to structure condition.

Schedule B: Buildings/Structures that require Detailed Condition Survey		
Number	Address	Property known as
1	14 Quay Street	Mobil Oil NZ Ltd forecourt/car wash (including underground storage tanks, infrastructure and common areas required for access to the Service Station and structures on common areas associated with the Service Station (e.g. the price mast).
2	Rail tracks within POAL land, including the rail power line poles	NIMT (Kiwi Rail)
3	Quay Street	Auckland Transport
4	POAL Sheds 2 and 6, cranerail, the rail grid, the seawall along Freyberg Wharf, Freyberg Wharf, the hardstand used for marine and port activities, the 11 kV power, fibre, and water lines	Ports of Auckland

Pre-Dewatering Services Condition Survey

80. Prior to the Commencement of Dewatering, a condition survey of potentially affected stormwater and wastewater services shall be undertaken in consultation with the relevant service provider.

This condition does not apply to any service where written evidence is provided to the Council that the owner of that service has confirmed they do not require a condition survey.

External Visual Inspections during Dewatering

81. External visual inspections of the surrounding ground and neighbouring buildings and structures identified in Schedule B shall be undertaken for the purpose of detecting any new external Damage or deterioration of existing external Damage. Inspections are to be carried out weekly from the Commencement to Completion of Dewatering. A photographic record is to be kept, including time and date, of each inspection and all observations made during the inspection, and should be of a quality that is fit for purpose. The SQEP or SQBS shall take into account any concerns identified by the relevant owners and occupiers that they wish to be included in any conditions survey.

The results of the external visual inspections and an assessment of the results are to be reviewed by the SQEP responsible for overseeing the monitoring and

included in the bimonthly monitoring report for the relevant monitoring period. A copy of the results of the external visual inspection and an assessment of the results shall be sent to the relevant owners and occupiers of the Buildings in Schedule B.

This condition does not apply to any land, building or structure where written evidence is provided to the Council confirming that the owner of the land, building or structure does not require visual inspections to be carried out.

Completion of Dewatering - Building, Structure and Services Condition Surveys

82. Between six and twelve months after Completion of Dewatering a detailed condition survey of all previously surveyed buildings, structures, stormwater and wastewater Services, shall be undertaken by a SQEP or SQBS and a written report shall be prepared. The report is to be reviewed by the SQEP responsible for overseeing the monitoring and then submitted to the Council, within one month of completion of the survey. The Report shall be provided to the owners and occupiers of the buildings and structures in Schedule B within two working days of being provided to the Council. The Report shall be sent to the relevant occupiers of the Buildings in Schedule B.

The condition survey report shall make specific comment on those matters identified in the pre-dewatering condition survey. It shall also identify any new Damage that has occurred since the pre-dewatering condition survey was undertaken and provide an assessment of the likely cause of any such Damage. The survey shall have regard to any matters of concern identified by the relevant owners and occupiers.

If the post-construction condition surveys demonstrate that damage has occurred that has been caused by the activities authorised by this consent, the consent holder shall offer to, and, if accepted by relevant the owner / occupier, shall rectify the damage at the consent holder's cost, as soon as practicable, in consultation with the relevant owners and occupiers of the building, structures, or services

This condition does not apply to any building, structure or Service where written evidence is provided to the Council confirming that the owner of that building, structure, or Service does not require a condition survey to be undertaken.

Additional Surveys

83. Additional condition surveys of any building, structure, or Service within the area defined by the extent of groundwater drawdown or ground movement (as defined in the report titled "*Proposed Pipeline -Settlement Instrumentation & Monitoring Plan - Sheets 1&2*", prepared by "*GHD Limited*", dated "*05.07.19*" (Rev 4) shall be undertaken for the purpose of investigating any Damage potentially caused by ground movement resulting from dewatering or retaining wall deflection. A written report of the results of the survey shall be prepared and/or reviewed by the SQEP

responsible for overseeing the monitoring. The report shall be submitted to the Council and the relevant owners and occupiers of the buildings, structures or services surveyed.

84. The requirement for any such additional condition survey will cease six months after the Completion of Dewatering unless ground settlement or building deformation monitoring indicates movement is still occurring at a level that may result in Damage to buildings, structures, or Services. In such circumstances the period where additional condition surveys may be required will be extended until monitoring shows that movement has stabilised and the risk of Damage to buildings, structures and Services as a result of the dewatering is no longer present.
85. If the post-construction condition surveys demonstrate that damage has occurred that has been caused by the activities authorised by this consent, the consent holder shall offer to, and, if accepted by relevant the owner / occupier, shall rectify the damage at the consent holder's cost, as soon as practicable, in consultation with the relevant owners and occupiers of the building, structures, or services.

Groundwater Monitoring

86. Groundwater bores are to be established to the specifications outlined in Table 3 of the report titled *Ports of Auckland Stormwater Outfall Update of the Groundwater Assessment (Rev C), GHD Limited, November 2019*, at the groundwater monitoring bore locations shown on the plan titled *“Proposed Pipeline -Settlement Instrumentation & Monitoring Plan -Sheets 1&2”, Rev 4, prepared by “GHD Limited”, dated “05.07.19”* or in the approved GSMCP. Groundwater level monitoring is to be undertaken in accordance with Schedule C below:

Schedule C: Groundwater Monitoring Frequency					
Bore Name	Location		Groundwater level monitoring frequency (to an accuracy of 10mm)		
	Easting (mE)	Northing (mN)	From bore Construction until one month before Commencement of Dewatering	One month before Commencement of Dewatering to Completion of Dewatering	From Completion of Dewatering until 3 months later
MW1, MW2, MW5, MW8, MW11, MW12	Tbc	Tbc	6-hourly readings – with data collected at least monthly, and for a minimum of 2-	6-hourly readings – with data collected at least weekly	6-hourly readings– with data collected at least weekly

[INLET WORKS]			months.		
MW3, MW4, MW6, MW7, MW9, MW10 [OUTLET WORKS]			6-hourly readings – with data collected at least monthly, and for a minimum of 2-months.	6-hourly readings – with data collected at least weekly	6-hourly readings– with data collected at least weekly

87. The monitoring frequency may be changed if approved by the Council. Any change shall be specified in the GSMCP. In addition, the three-month monitoring period post Completion of Dewatering may be extended, by the Council, if measured groundwater levels are not consistent with inferred seasonal trends or predicted groundwater movement.

Advice Notes:

If groundwater level measurements show an inconsistent pattern immediately prior to the

Commencement of Dewatering (for example varying more than +/-200mm during a month), then further readings may be required to ensure that an accurate groundwater level baseline is established before dewatering commences.

When determining the Seasonal Low Groundwater Level for the GSMCP, monitoring data from an existing (suitable) borehole(s) may be able to be used, with an appropriate correlation, to establish the lowest level in the new monitoring boreholes listed in Schedule C.

Ground Surface and Building Deformation Monitoring

88. Ground Surface and Building Deformation Monitoring Stations shall be established and maintained at the approximate locations shown on the plan titled “Proposed Pipeline - Settlement Instrumentation & Monitoring Plan -Sheets 1&2”, Rev 4, prepared by “GHD Limited”, dated “05.07.19”. The Monitoring Stations will be monitored at the frequency set out in Schedule D. The purpose of the Monitoring Stations is to record any vertical or horizontal movement. Benchmark positions shall be established no less than 30 metres away from the excavated area.

Schedule D: Ground Surface and Building Monitoring			
Monitoring Station and type	Frequency		
	Pre-Commencement of Dewatering	Commencement to Completion of Dewatering	Post-Completion of Dewatering

<i>Ground:</i> <i>Inlet Works</i> <i>Array C1, 4 Points</i> <i>(GC11 to GC14);</i> <i>Array C2, 4 points</i> <i>GC21 to GC24;</i> <i>Array C3, 4 points</i> <i>(GC31 to GC34)</i>	Twice to a horizontal and vertical accuracy of +/- 2mm (achieved by precise levelling)	Weekly	Monthly for 6 months
<i>Ground:</i> <i>Pipeline</i> <i>Array B1, 3 Points</i> <i>(GB11 to GC13);</i> <i>Array B2, 3 points</i> <i>GB21 to GB23);</i> <i>Array B3, 3 points</i> <i>(GB31 to GB33)</i>	Twice to a horizontal and vertical accuracy of +/- 2mm (achieved by precise levelling)	Weekly	Monthly for 6 months
<i>Array B4, 3 points</i> <i>GB41 to GB43);</i> <i>Array B5, 3 points</i> <i>GB51 to GB53);</i>			
<i>Ground:</i> <i>Outlet Works</i> <i>Array A1, 4 Points</i> <i>(GA11 to GA14);</i>	Twice to a horizontal and vertical accuracy of +/- 2mm (achieved by precise levelling)	Weekly	Monthly for 6 months
<i>Buildings:</i> <i>Shed 6</i> <i>BM1&BM2</i>	Twice to a horizontal and vertical accuracy of +/- 2mm (achieved by precise levelling)	Weekly	Monthly for 6 months

The monitoring frequency may be changed, if approved by the Council.

Access to Third Party Property

89. Where any monitoring, inspection or condition survey in this consent requires access to property/ies owned or occupied by a third party, and access is declined or subject to unreasonable terms, the consent holder shall provide a report to the Council prepared by a SQEP identifying an alternative monitoring programme. The report shall describe how the monitoring will provide sufficient early detection of deformation to enable measures to be implemented to prevent Damage to buildings, structures or Services. This report shall be prepared in consultation with the affected third party. Written approval from the Council shall be obtained before an alternative monitoring option is implemented.

Contingency Actions

90. If the consent holder becomes aware of any Damage to buildings, structures or Services potentially caused wholly, or in part, by the exercise of this consent, the consent holder shall:
- a. Notify the Council and the asset owner and occupier(s) within 24 hours of the consent holder becoming aware of the Damage.
 - b. Cease works until such time as alternative construction methods have been agreed in writing with the Council (in consultation with the SQEP and owners and occupiers of the building, structures, or services).
 - c. Prepare a report by a SQEP (engaged by the consent holder at its cost that describes the Damage; identifies the cause of the Damage; identifies methods to remedy the Damage that has been caused to its previously surveyed appearance and structural integrity; identifies the potential for further Damage to occur, and describes actions that will be taken to avoid further Damage (including potentially ceasing works).
 - d. Provide a copy of the report prepared under b. above for certification to the Council and the owners and occupiers of the building, structures or services within 10 working days of notification under a. above.
 - e. Offer to, and, if accepted by the owners and occupiers of the building, structures or services, at the consent holder's cost, rectify the damage as soon as practicable in accordance with the remedial measures set out in the report prepared under b. above, in consultation with the owners and occupiers of the building, structures or services.

Advice Note:

It is anticipated the consent holder will seek the permission of the damaged asset owner to access the property and asset to enable the inspection/investigation. It is understood that if access is denied the report will be of limited extent.

Building, Structure, and Services Surveys and Inspections

91. A copy of all pre-dewatering building, structure condition surveys, and Service condition surveys and photographic records of external visual inspections required by this consent shall be submitted to the Council with the GSMCP. All other condition surveys and photographic records required by this consent shall be provided to the Council upon request. Owners and occupiers of the Buildings identified in Schedule B shall be provided with all such records relating to their respective buildings within five working days of those requests being finalised or sent to the Council, whichever is sooner.

Reporting of Monitoring Data

92. At monthly intervals, a report containing all monitoring data required by conditions of this consent shall be submitted to the Council. This report shall include a construction progress timeline, the monitoring data recorded in that period, and, a comparison of that data with previously recorded data and with the Alert and Alarm Levels for each Monitoring Station.
93. Upon Completion of Construction, one electronic data file (excel workbook) containing digital data for all groundwater monitoring bores shall be provided to the Council. Data should include the monitoring bore name, type, location (NZTM easting / northing and elevation), screened depth for groundwater monitoring bores, absolute and relative readings (and their units of measure) and the date / time of each reading. The worksheets should contain data values only (no formulas, circular references or links to other sheets)

Notice of Completion

94. The Council shall be advised in writing within 10 working days of when excavation and dewatering has been completed. Owners and occupiers of the Buildings etc identified in Schedule B shall also be advised in writing within 10 working days of when excavation and dewatering has been completed. Occupiers of the Buildings identified in Schedule B shall also be advised in writing within 10 working days of when excavation and dewatering has been completed.

Conditions applicable to consent DIS60330076 only

Duration

95. Pursuant to section 123 of the Act, this consent shall expire on 217 February 20226 unless it has been surrendered or cancelled at an earlier date pursuant to the RMA.

Advice Note:

If any contamination exceeding the Permitted Activity soil acceptance criteria, set out in Chapter E30 of the AUP(OP), is retained within the site upon the completion of the proposed land-disturbance activity, a long-term contaminant discharge consent under Chapter E30 of the AUP(OP) may be required for the site.

Management of Excavation

96. All excavation in the work areas shall be managed to minimise any discharge of debris, soil, silt, sediment or sediment-laden water from the subject site to either land, stormwater drainage systems, watercourses or receiving waters.

Erosion and Sediment Control

97. Erosion and sediment controls shall be installed along the boundaries of the disturbance areas in accordance with the updated Contaminated Land Management Plan as required by condition 46 and Auckland Council guidance