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Integrated Practical Solutions

Acid Sulfate Soil Management Plan

Proposed Harrington Waters Lifestyle Village
26, 48 and 56 Manor Road, Harrington

Prepared for
Bayline Homes and Developments

Project 31872.02
July 2019



Document History

Document details

Project No.	31872.02	Document No.	R.002.Rev0
Document title	Report on Acid Sulfate Soil Management Plan Proposed Harrington Waters Lifestyle Village		
Site address	26, 48 and 56 Manor Road, Harrington		
Report prepared for	Bayline Homes and Developments		
File name	31872.02.R.002.Rev0.ASSMP		

Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Joel Cowan	Michael Gawn	10 July 2019

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1	0	Danny Bayly, Bayline Homes and Developments

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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Appendix A: About This Report

Acid Sulfate Soil Management Plan

Proposed Harrington Waters Lifestyle Village

26, 48 and 56 Manor Road, Harrington

1. Introduction

This Acid Sulfate Soil Management Plan (ASSMP) has been prepared for the proposed Harrington Waters Lifestyle Village at 26, 48 and 56 Manor Road, Harrington. The work was carried out for Bayline Homes and Development.

It is understood that an eleven (11) stage subdivision is proposed for the site which covers an area of approximately 23 hectares and will include the following:

- 292 residential allotments;
- Upgrade of Manor Road to include kerb and guttering, approximately 380 m in length;
- Approximately 4 km of internal roadways;
- Car parking and caravan storage;
- Wetland areas adjacent to Manor Road;
- Proposed detention basins;
- Sewer pump station;
- Village green including retail shops, short term accommodation and rec centre; and
- Tennis courts, club house, gym, bowling green and a mens shed.

It is further understood that filling will be imported and placed on the site up to 1.5 m in height to raise surface levels.

It is assumed that excavation of onsite natural materials would be limited to removal of surficial topsoil for placement of filling and installation of services in some areas. Therefore based on the above assumption it is estimated that site preparation may comprise excavations of up to about 1 m depth, however localised deeper excavations could be required in some areas.

The ASSMP was prepared to provide the following information:

- Acid sulfate soil (ASS) soil management strategies;
- Monitoring program for soil, surface water and groundwater quality; and
- Contingency procedure.

Reference has been made to the NSW Acid Sulphate Soil Management Advisory Committee Guidelines (ASSMAC), August 1998 (ASSMAC, 1998) and the Queensland Acid Sulfate Soil Technical Manual, Soil Management Guidelines (QASSIT), June 2014 (QASSIT, 2014), and results of previous investigation on the site and experience with similar and nearby works in ASS, in preparation of this ASSMP.

2. Background Information / Summary of Acid Sulfate Soil Conditions

Douglas Partners Pty Ltd (DP) has undertaken two previous investigations (DP (2004) and DP (2013)) on the site and has also undertaken a number of investigations in the vicinity of the site for the adjacent residential developments.

The previous investigation (DP, 2004) indicated that actual acid sulfate soils (AASS) were not present, however, the results indicated that potential acid sulfate soils (PASS) were present within the samples tested from the site. The previous investigation also indicated that PASS would be present but mainly below the water table. The results of the laboratory testing previously undertaken (DP, 2004) suggested indicative liming rates in the order of about 2.5 to 20 (agricultural) kg / tonne. However it was noted that the alluvial materials are variable in composition and as such neutralisation rates are therefore also likely to vary with a preliminary liming rate of 24 kg lime / tonne recommended.

3. Potential for Oxidising Acid Sulfate Soils

Based on the proposed development, excavations below existing surface levels is expected to be limited to within the upper 1 m depth across the site for removal of topsoil and site preparation for placement of filling. However, some localised deeper excavations could be required, particularly in the area of the proposed regional gravity sewer pump station which could be to 6 m deep.

The following activities may expose ASS to oxidising conditions during construction:

- Stripping of topsoil and unsuitable material for placement of fill;
- Spoil generated during installation of the buried services through the underlying natural soils, beneath the previously placed dredged sand filling;
- Excavation for proposed basins and sewer pump station; and
- Dewatering of excavations within ASS.

Groundwater during the previous investigation (DP, 2004) was encountered between 1.2 m and 2 m depth below the ground surface with an RL of approximately 0.7 m to 1.4 m AHD. The average groundwater RL for the site is approximately 1.0 m, AHD. It should be noted that groundwater levels are transient and are affected by factors such as soil permeability and prevailing weather conditions and will therefore vary with time.

It is strongly recommended that further acid sulfate soil investigation is undertaken on a stage by stage basis to further characterise the presence and extent of acid sulfate soils. It is noted that only limited and localised excavation below existing surface levels may be required for the development. Further investigation may allow greater characterisation of ASS and minimisation of the need for treatment of ASS.

4. Management Strategy

4.1 Management of Acid Sulfate Soils

4.1.1 Soil Treatment Strategy

Neutralisation of potential acid sulfate soils (PASS) and actual acid sulfate soils (AASS), herein referred to as ASS, should be undertaken in accordance with the ASSMAC and QASSIT guidelines, as discussed below. Soils requiring assessment / treatment are outlined in Sections 2 and 3 of this report.

Based on experience with similar projects, it is normally recommended that ASS are progressively excavated (i.e. staged to minimise the length of trench / amount of soil exposed), neutralised, and backfilled as soon as possible (i.e. within 24 hours of excavation). This will minimise requirements for bunding and leachate collection systems. If this is not practical, temporary stockpiles should be located away from nearby sensitive receptors (e.g. waterways), where possible.

If stockpiling of ASS is required for longer periods (i.e. greater than 24 hours), or the stockpile is located adjacent to a sensitive receptor, the material should be contained within a suitable bunded area with an impermeable base and neutralised prior to backfilling. Any leachate produced in the bunded area should be contained for monitoring and treatment as discussed below.

A guard layer of lime should be hand broadcast over the ground surface prior to stockpiling. A rate of 2 kg/m² of Grade 1 agricultural lime per vertical metre of filling should be used.

Suitable neutralising agents for acid sulfate or PASS include agricultural lime (CaCO₃), calcined magnesite (MgO or Mg(OH)₂), and dolomite (MgCO₃·CaCO₃).

The required dosing rate for lime treatment should be calculated from the following, which includes a factor of safety of 1.5:

Alkali Material Required (kg)

$$\text{per unit volume of soil (m}^3\text{)} = \left(\frac{\% S \times 623.7}{19.98} \right) \times \frac{100}{\text{ENV}(\%)} \times D \times \text{FOS}$$

Where: %S = existing and potential acidity (% S units);

623.7 = % S to mol H⁺/t;

19.98 = mol H⁺/t to kg CaCO₃/t;

D = Bulk density of soil (t/m³, e.g.: 1.4 for excavated clay);

1.5 = safety factor (FOS);

ENV = Effective Neutralising Value (e.g. 80% for Grade 1 Agricultural lime).

Note: The ENV is calculated based on the molecular weight, particle size and purity of the neutralising agent and should be confirmed for the proposed neutralising agent in accordance with QASSIT (2014).

It is recommended that Grade 1 agricultural lime is used for the neutralisation of ASS excavated during construction.

4.1.2 Liming and Monitoring Procedure

The following liming / monitoring procedures are recommended for the treatment of ASS:

- The surface of the bunded soil / treatment area / stockpile area should be dosed with approximately 2 kg/m^2 of agricultural lime per metre height of stockpile as a precautionary measure to neutralise any acidic leachate released;
- All identified and segregated ASS should be contained within a suitably bunded area, as outlined above, and kept moist to minimise oxidation, prior to treatment with lime. Progressive neutralisation will minimise the area required for bunding;
- The base of excavations within ASS areas should also be treated with approximately 1 kg/m^2 of agricultural lime.

Based on the available laboratory test results (acidity results) from the previous investigations (DP, 2004), lime application rates for stockpiled ASS varies between 2.5 kg lime per tonne of excavated soil ($\sim 4.5 \text{ kg/m}^3$), and 20 kg lime per tonne of excavated soil ($\sim 36 \text{ kg/m}^3$). It is recommended, however, that an initial rate of application of about 10 kg of hydrated lime per tonne of soil (i.e. $\sim 19 \text{ kg/m}^3$), is trialled to minimise the risk of over-liming. Given the possible volume of ASS which will require treatment, the treatment levels required would be classified as very high in accordance with QASSIT (2014). Lime treatment should be conducted as follows:

- Soils should be neutralised as soon as practicable, (and within 24 hours for bunded treatment areas, or four hours for stockpiles adjacent to trenches) following excavation;
- The neutralising agent and ASS should be thoroughly mixed and aerated using, for example, an agricultural lime spreader and excavator. The soil should be treated in layers up to 300 mm thick to encourage aeration (i.e. incorporate treatment with progressive excavation);
- Thorough mixing may be achieved by reducing the thickness of the treatment layers, and using a rotary hoe, or similar;
- It should be noted that the actual lime rate required will also depend on the results of monitoring during neutralisation. Additional lime will be required if monitoring results indicate that appropriate neutralisation has not been achieved. Conversely the liming rate may decrease if monitoring suggests over liming is occurring;
- Sampling and testing should be undertaken in accordance with Section 5 to verify the neutralisation treatment. The acceptance criteria is discussed in Section 5.2. Depending on the results of testing, reapplication of lime may be necessary to gain adequate neutralisation;
- Upon confirmation of treatment, the neutralised ASS may be suitable for re-use on-site subject to geotechnical suitability. With reference to QASSIT (2014) guidelines and as an additional precaution, it is recommended that treated ASS soil be placed at least 1 m below the proposed residential developments.

If the treated soil is to be disposed off-site, additional testing will be required to assess disposal options in accordance with the NSW Waste Classification Guidelines (NSW EPA, 2014). It should be noted that treated ASS is not able to be classified as either virgin excavated natural material (VENM) or excavated natural material (ENM).

4.1.3 Neutralising Leachate

Leachate water collected from bunded areas and stockpiles (in catch ponds, if required), and extracted groundwater should be neutralised as necessary before release. Calcined magnesite (magnesium hydroxide, burnt magnesite, or magnesite) is the recommended neutralising agent as it produces a two-step reaction, which proceeds rapidly at acidic pH, and slows down as higher pH is approached, and hence reduces the potential for over-neutralisation to occur.

Whilst hydrated lime is well suited to the treatment of acid sulfate soils, it does not dissolve readily in water; hence it should not be used for adjusting the pH of water. Hydrated lime (Ca(OH)_2) could be considered as an alternative to calcined magnesite. Hydrated lime is more soluble than agricultural lime making it more suited to treating water, but it has a high pH value ($\text{pH} \sim 12$). Therefore, if hydrated lime is to be used to treat water, it should be added incrementally with care and thoroughly mixed to prevent overshooting the desired pH.

The alkali should be added to the leachate/discharged groundwater water as a slurry. Mixing of the slurry is best achieved using an agitator.

The amount of neutraliser required to be added to the leachate or discharged groundwater can be calculated from the equation below:

$$\text{Alkali Material Required (kg)} = \frac{M_{\text{Alkali}} \times 10^{-\text{pH initial}}}{2 \times 10^3} \times V$$

Where: pH initial = initial pH of leachate
 V = volume of leachate (litres)
 M_{Alkali} = molecular weight of alkali material (g/mole)

Note: molecular weight of calcined magnesite (M_{MgO}) = 40 g/mole;
 Molecular weight of hydrated lime ($M_{\text{Ca(OH)}_2}$) = 74 g/mole.

As a guide, the approximate quantities of hydrated lime or calcined magnesite which would be required to neutralise acidic water to pH 7 are provided in Table 1.

Table 1: Recommended Dosing Rates for Water using Hydrated Lime or Calcined Magnesite (in kg)

Water pH	Dosing Rate (kg of Ca(OH)_2)			Dosing Rate (kg of MgO)		
	2 m ³ #	5 m ³ #	10 m ³ #	2m ³ #	5 m ³ #	10 m ³ #
2	0.74	1.85	3.7	0.4	1.0	2.0
3	0.074	0.185	0.37	0.04	0.1	0.2
4	0.0074	0.0185	0.037	0.004	0.01	0.02
5	0.00074	0.00185	0.0037	0.0004	0.001	0.002
6	0.000074	0.000185	0.00037	0.00004	0.0001	0.0002

Notes to Table 1:

volume of extracted water

It should be recognised that portable holding and treatment tanks may be required to allow on site neutralisation of water generated by dewatering activities prior to disposal.

The leachate may also need time in a settling tank or similar to reduce suspended solids within discharge water.

Notwithstanding regulatory authority requirements, the leachate / discharged groundwater should meet the water quality criteria presented in Section 5.2 prior to discharge.

4.2 Dewatering

Based on previous experience, the following procedure is recommended in order to minimise potential adverse impacts resulting from excavation and dewatering of ASS during construction:

- Minimise the dewatering depth required for construction (i.e. as close as practicable to the invert level of the excavation);
- Minimise the time and volume of exposed ASS (i.e. stage excavation and dewatering);
- Collection of extracted groundwater in a multi stage sedimentation tank and neutralise as necessary prior to release;
- The extracted groundwater could then be discharged to a bunded area away from the dewatering site (i.e. evaporation/infiltration) or possibly to the stormwater or sewer system, subject to regulatory requirements. It is important to note that testing of groundwater was not undertaken as part of this assessment;
- The pH of the extracted water should be monitored prior to discharge. Neutralisation should be undertaken, as discussed in Section 4.1.3, if discharge water pH falls below natural groundwater levels (evaporation/infiltration) or regulatory requirements (stormwater disposal); and
- Undertake monitoring as recommended in Section 5 below.

5. Monitoring Strategies

5.1 Procedures

Monitoring programs for the various construction and treatment methods discussed are outlined below.

5.1.1 Soil Neutralisation / Management

It is recommended that the following inspections and monitoring be undertaken when excavating acid sulfate materials, based on guidelines in the ASSMAC and QASSIT manuals:

- Daily inspection of liming operations during excavation;
- Sampling and testing after lime treatment (i.e. measurements of soil pH in distilled water and pH in peroxide), should be undertaken at an initial frequency of at least one sample per 50 m³ of excavated soil, or daily (whichever is greater) to assist in confirming the neutralisation treatment;

- Analysis of one composite sample per 500 m³ of full chromium suite analysis by a NATA accredited laboratory to confirm appropriate neutralisation;
- If verification soil screening tests indicate that appropriate neutralisation has not occurred, further lime application and mixing will be required, followed by additional testing;
- Nearby creeks/drains should be periodically monitored for pH prior to and during construction.

The frequency of testing could be reduced depending on the results of the monitoring and the consistency of the excavated ASS.

5.1.2 Dewatering

Extracted groundwater should be temporarily stored in a multi stage sedimentation tank, and neutralised as necessary. The pH of extracted water associated with areas of ASS should be monitored twice daily (am, pm) prior to discharge. The groundwater could be discharged overland (i.e. evaporation / infiltration), or discharged to stormwater / sewer subject to regulatory requirements and licences.

Neutralisation should be undertaken if discharge water pH falls below natural background surface and/or groundwater levels (for overland discharge) or regulatory requirements (stormwater or sewer discharge). Natural groundwater pH should be confirmed at the commencement of dewatering.

A contingency procedure should be in place to allow lime / calcined magnesias dosing and monitoring to confirm neutralisation prior to discharge. Similarly nearby creeks / drains should be periodically monitored for pH prior to and during construction.

5.1.3 Reporting

A record of treatment of ASS should be maintained by the contractor and should include the following details:

- Date;
- Chainage/location;
- Time of excavation and backfilling (i.e. duration of time stockpile has been exposed);
- Neutralisation process undertaken;
- Lime rate utilised; and
- Results of monitoring (soil and water).

A record of dewatering activities should also include the following:

- Groundwater pH at commencement of dewatering; and
- Daily pH monitoring of discharge water and surface waters in the vicinity of discharge (i.e. upstream, adjacent to, and downstream of the works).

A record should also be maintained confirming contingency measures and additional treatment if undertaken.

A final report should be issued upon completion of the works presenting the monitoring regime and results, and confirming that adverse environmental impact has not occurred during the works.

5.2 Acceptance Criteria

Soil

Based on guidance in QASSIT 2014, further treatment may be required if monitoring of the material indicates the following acceptance criteria is not met:

- For treated soils, the neutralisation capacity should exceed the existing plus potential acidity by at least a factor of 1.5;
- pH (KCL) is to be greater than 6.5.

QASSIT also recognises that thorough mixing is not always achieved and hence provides further guidance on treated soil conditions which depends on soil texture as follows:

- Coarse grained soils:
 - o Net acidity is not to exceed 18 moles H⁺/tonne (0.03%S)
 - o If any one sample has net acidity between 0 and 18 mole H⁺/tonne (0.03%S) then the average of four spatially adjacent samples (including the exceedence) shall be zero or less
- Poorly Buffered Sands:
 - o Net acidity is not to exceed 6 moles H⁺/tonne (0.01%S)
 - o If any one sample has net acidity between 0 and 6 mole H⁺/tonne (0.01%S) then the average of four spatially adjacent samples (including the exceedence) shall be zero or less

Depending on the results of testing, re-application of lime may be necessary to gain adequate neutralisation, or additional mixing with ASS may be required if over-liming has occurred. Care should be taken to ensure over-liming does not occur.

- If pH of soil in water is less than background values additional treatment may be required. Applicable background values are those present within the area proposed for re-use of treated ASS (i.e. background pH of soils within re-use areas). At the commencement of ASS construction activities, it is recommended that the background soil pH is determined within the nominated re-use areas (where required);

Water

Notwithstanding regulatory requirements, it is recommended that the pH of discharge from dewatering or leachate are within background groundwater pH levels and that the ANZECC Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) be considered before discharging any waters to the environment. Background pH and EC levels should be confirmed prior to the commencement of works.

6. Contingency Plan

Remedial action will be required if the agreed standards or acceptance criteria are not being achieved. Remedial action shall comprise mixing of additional lime through the excavated material and neutralisation of groundwater. The required mixing rate to remediate the soil or groundwater should be confirmed by monitoring tests.

If re-injection of groundwater is proposed, a contingency plan should be in place to allow neutralisation and confirmation monitoring prior to re-injection if groundwater pH levels are low or fall below natural background levels.

During periods of heavy or prolonged rainfall, stockpiling of ASS should be appropriately contained/bunded to collect leachate for testing and neutralisation (if required) prior to discharge (refer Section 4.1).

Sufficient lime should be stored on site during construction for the neutralisation of ASS and contingency measures.

Management of ASS during construction should be conducted by an experienced contractor and qualified environmental consultant.

7. References

- ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.
- ASSMAC. (1998). *Acid Sulfate Soil Manual*. NSW Acid Sulfate Soil Management Advisory Committee.
- DP. (2004). *Report on Geotechnical Investigation, Proposed Rural Residential Subdivision, Manor Road, Harrington, Project 31872*. Douglas Partners Pty Ltd.
- DP. (2013). *Report on Geotechnical Investigation, Proposed Residential Subdivision - Stages 1 to 4, Manor Road, Harrington, Project 31872.01*. Douglas Partners Pty Ltd.
- NSW EPA. (2014). *Waste Classification Guidelines, Part 1: Classifying Waste, November 2014*. NSW Environmental Protection Authority.
- QASSIT. (2014). *Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines*. Dear SW, Ahern CR, O'Brien LE, Dobos SK, McElnea AE, Moore NG and Watling KM, Department of Science, Information, Technology, Innovation and the Arts, Queensland Government.

8. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 26, 48 and 56 Manor Road, Harrington with reference to DP's proposal PMQ190028 dated 31 May 2019 and acceptance received from Danny Bayly of Bayline Homes and Developments dated 3 June 2019. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Bayline Homes and Developments for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP.

for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental / groundwater components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

About This Report

About this Report

Douglas Partners



Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

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This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.