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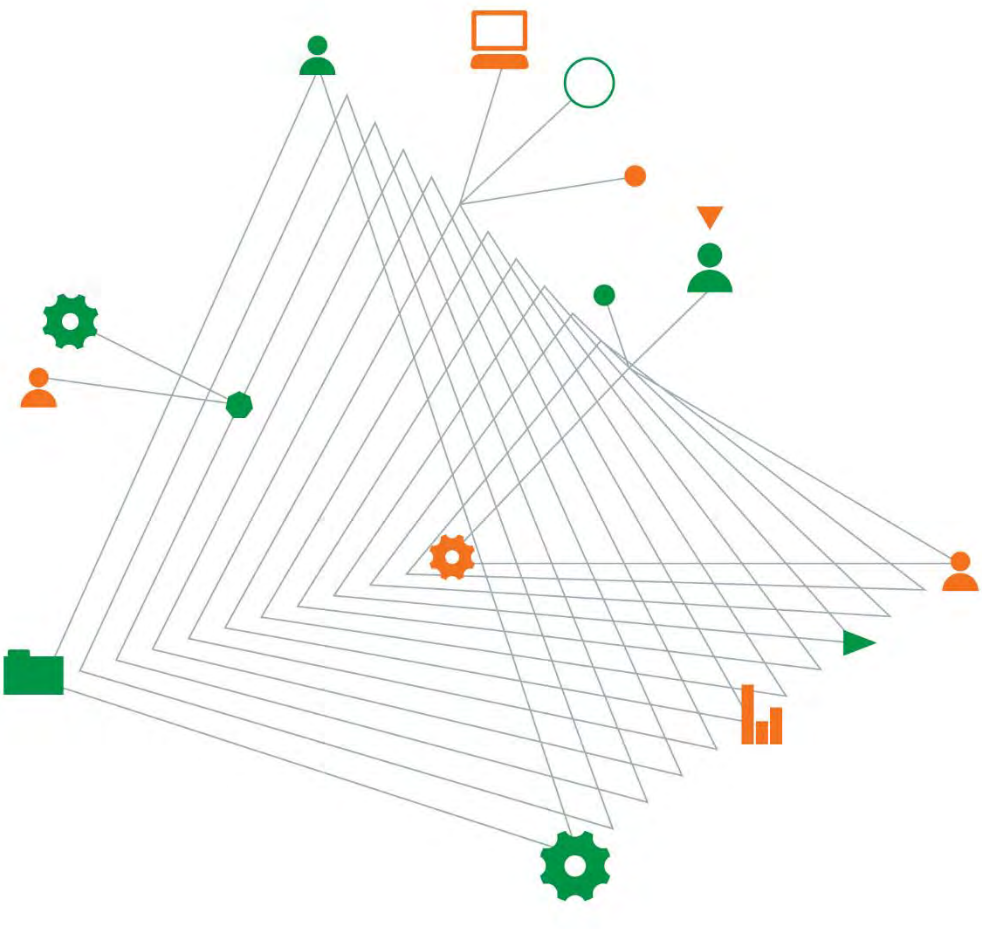
Huntingdale Estate, Oakleigh South, VIC

Domain 4 Backfill Design Report
GEOTABTF09257AA-AQ Rev14

16 December 2022



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Huntingdale Estate, Oakleigh South, VIC

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16 December 2022

GEOTABTF09257AA-AQ Rev14

This letter presents our design report for the backfill of the excavation known as Domain 4, Huntingdale Estate, Oakleigh South. One electronic (pdf) copy is presented for your information.

This report should be read in conjunction with Coffey Letter GEOTABTF09257AA-BE dated 2 February 2015.

The updates in this report include addition of drawing D25 which presents indicative finished surface levels, and minor clarifications regarding the treatment of slimes in Section 4.2.3. This Domain 4 Backfill Design Report supersedes the previous versions of this report.

Should you have any questions regarding this report, please contact Ian Pedler or the undersigned.

For and on behalf of Coffey

KJones

Kathryn Jones

Associate Geotechnical Engineer

Quality Information

Revision History

Revision	Description	Date	Originator	Reviewer	Approver
<v1 draft>	DRAFT	17 April 2014	DBA	IVP	DBA
Rev 01	Design Report	18 September 2014	DBA	IVP	DBA
Rev 02	Design Report	25 September 2014	DBA	IVP	DBA
Rev 03	Design Report	8 October 2014	DBA	IVP	DBA
Rev 04	Design Report	9 October 2014	DBA	IVP	DBA
Rev 05	Design Report	13 November 2014	DBA	PS	DBA
Rev 06	Design Report	17 November 2014	DBA	PS	PS
Rev 07	Design Report	4 February 2015	DBA	IVP	DBA
Rev 08	Design Report	5 February 2015	DBA	IVP	DBA
Rev 09	Design Report	12 June 2015	DBA	DBA (minor revisions)	DBA
Rev 10	Design Report	25 September 2015	DBA	DBA (minor revisions)	DBA
Rev 11	Design Report	7 March 2019	MWF	IVP	MWF
Rev 12 Draft	Design Report	21 September 2022	FK/KJ	IVP	KJ
Rev 12	Design Report	14 October 2022	KJ	IVP	KJ
Rev 13	Design Report	13 December 2022	KJ	IVP	KJ
Rev 14	Design Report	16 December 2022	KJ	IVP	KJ

Distribution

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Rev 14	1	PDF	Kim Ly (Sterling Global Pty Ltd)	16 December 2022
Rev 14	1	PDF	Tetra Tech Coffey Pty Ltd Library	16 December 2022

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1. Introduction

This report presents a design prepared by Tetra Tech Coffey Pty Ltd (Coffey) for the controlled filling of the former quarry pit, designated as Domain 4 (Zone 4 in the Statement of Environmental Audit (SoEA)[1]), on the Talbot Village site which is located at 1221 to 1249 Centre Road, Oakleigh South, Victoria.

The design was commissioned by Mr Glen Slimmon of Sinclair Brook, on behalf of Talbot Road Finance Pty Ltd by email dated 20 March 2013, following acceptance of Coffey proposal GEOTABTF09257AA-AB dated 20 February 2013.

This revision of the report includes design changes to the groundwater drainage system and addresses the comments by peer reviewer (Golder Associates) (ref 1418940-001-L-Rev0 dated 17 December 2014) presented in Coffey letter GEOTABTF09257AA-BE dated 2 February 2015.

The pit will be filled with engineered fill under Level 1 supervision in accordance with in AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Development,". A stormwater retention system covering an area of around 1 ha is proposed along the eastern boundary of the Domain.

The layout of the overall site is shown on Drawing D01-Rev00 and a plan of Domain 4 with contours of the existing surface level are shown on Drawing D03-Rev03.

2. Design philosophy

The development of Domain 4 will require the filling of the existing quarry pit with engineered fill to create an engineered fill platform up to 20m thick to reach the proposed design level of approximately RL 60m. The construction of the engineered fill platform will include the removal of clay slimes, soft sediments and uncontrolled fill which have been placed in the northern half of the site. Where practical to do so, these materials may be re-used as engineered fill on the site.

The construction of the engineered fill platform within the quarry pit will need to be carefully controlled and managed to ensure adequate subgrade preparation is undertaken, only suitable fill materials are used and that the fill is spread, moisture conditioned and compacted in an engineered manner, such that relatively uniform behaviour of the fill platform and the finished surface can be relied upon with confidence to perform to acceptable levels to allow development to occur. Coffey have prepared a Site Backfilling Protocol (ENAUABTF00751AA_R02_final Rev06, dated 25 September 2015) which outlines the procedures which should be followed during the backfilling of the former quarry pit.

Residential style buildings are routinely supported on engineered fill and guidelines for the construction of engineered fill are presented in AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments." However, given the history of this site and the surrounding areas, which includes the presence of landfills containing clay slimes and landfill materials, and that the controlled fill is to be up to 20m thick, it is considered that additional engineering design and performance requirements will need to be developed and accurately assessed to ensure acceptable performance standards are satisfied.

The additional requirements include environmental controls and settlement monitoring (included in Section 5). Monitoring of the settlements will be undertaken to assess when the primary consolidation is complete and secondary consolidation commences. After the completion of primary consolidation and uniform rates of settlement (anticipated to be approximately 6 to 18 months following completion of the fill placement, settlement to be assessed via ongoing routine surveys) the site can be released

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[1] Ken Mival of EHS Support (2020) *53X Environmental Audit of Land at 1221-1249 Centre Road and 22 Talbot Avenue, Oakleigh South, Vic*, Ref. AUS##C01679_2019, dated 13 May 2020

for infrastructure development. Site wide geotechnical reports and earthworks filling reports can be used to assist with the design of future infrastructure and structures.

This report presents a geotechnical design for the works, which includes a detailed works specification and a detailed settlement monitoring program with nominated settlement criteria.

3. Site conditions

3.1. History

Based on the available aerial photographs, it appears that quarrying activities commenced in the northern portion of Domain 4 during the 1970s. The photographs show that the pits at the eastern and northern portions of the site were excavated and locally backfilled prior to 1975. Another pit, overlapping the northern end of the western pit, was also excavated and partially backfilled during the 1970s. This overlapping pit was observed to be excavated and inundated with water as early as 1975. An earthen dividing wall has been constructed near the north western corner of the site, and clay slimes have been deposited behind this wall. The western pit, in its current form, was observed to be inundated with water as early as 1991.

3.2. Surface conditions

Domain 4 comprises a partially backfilled quarry. The southern part of Domain 4 is the deepest part of the excavation, and contains standing water and up to 2m of silt and clay sediments. The northern part of Domain 4 has been partially filled with clay slimes and variable fill materials.

3.3. Subsurface conditions

The northern part of Domain 4 has been partially filled with clay slimes and variable fill materials. Based on the results of Coffey's 2004 investigations, the clay slimes are understood to be approximately 5m deep. The depth of the fill material is expected to be about 5m thick as encountered in test pit TP01. It is understood that in the past, concrete had been placed within the Domain 4 quarry. The volume and extent of the concrete is not known. The boreholes drilled during Coffey's 2004 investigation were located at the northern end of the pit and showed the natural materials at the floor level to comprise medium dense to dense dark grey silty and clayey sand.

Environmental sampling has been conducted within Domain 4 and the results of this assessment (presented in Coffey report ENAUABTF00751AA_R07_Rev01 dated 24 June 2014) indicate that the fill materials in Domain 4 comprise clayey sand and sandy clay with some bricks, concrete, tree roots and siltstone cobbles and boulders and extend to depths in excess of 5m. Clay and silt sediments were also encountered in the southern part of Domain 4 to depths of up to 2.3m and extend to an approximate RL of 40m. Further details on the slimes in the north-west corner are presented in Section 4.2.3. Four cross-sections showing the existing site conditions and the expected natural ground level are presented in Drawings D04-Rev02 to D07-Rev02.

4. Engineered fill construction

4.1. General

As noted above, it is proposed to backfill the former quarry pit in a controlled manner to form an engineered fill platform that is suitable to support the construction of roads, lanes, open spaces, infrastructure and buildings. The objective of the controlled filling is to provide a relatively uniform platform to support the proposed services and structures that will behave in a predictable manner and within tolerable differential settlement limits for the development. To achieve this objective, construction of a zoned fill platform is proposed, as shown on Drawing D08-Rev02. The main layers from the finished surface are:

Table 4.1 - Engineered fill layers

Layer Description	Design Thickness (m)	Approximate Volume (m^3) CAD and Hand Calc	Material Description	Comments
Topsoil	0.3	19,000	Silty sand, Sandy silt or similar	Spread and track rolled to form a suitable growing medium
Type 1 - Capping	1.7 (minimum)	106,000	Clay, Sandy clay or Clayey sand	Placed and compacted in an engineered manner, suitable for the establishment of trees and the installation of underground services
Type 2 – Structural Fill	4 (minimum)	200,000	Weathered sedimentary rock, Clayey sand or non-descript crushed rock (NDCR)	Placed and compacted in an engineered manner
Type 3 – Controlled Fill	8 to 12	375,000	Clays, Sands and Gravel	Placed and compacted in an engineered manner
Fine Drainage Layer	0.5	105,000	Coarse grained crushed rock up to 40mm	Includes drainage layers within the controlled fill
Medium Drainage Layer	0.5	15,000	Graded rock fragments 5mm to 100mm (Note A)	Only required above the coarse drainage layer
Coarse Drainage Layer	1 (minimum)	30,000	Rock and concrete fragments – 75mm to 300mm (Note A)	Only required below RL 43m

Assumptions

1. Excavation to levels as shown in Drawing D10-Rev02 to D19-Rev02
2. Fill layers as shown in Drawing D08-Rev02
3. Volumes are compacted volumes and bulking factors will need to be applied to assess loose thickness
4. Finished surface level is nominally RL60-62m
5. The existing slimes may be used as Type 3 Fill provided the slimes are appropriately moisture conditioned and any unsuitable materials are removed.

Note A:

Where piled foundations are required to support the buildings, the basal drainage layer would need to be modified to accommodate the installation of piles. Depending on the piling method, it is proposed to limit the drainage layers to a maximum particle size of 75mm for driven piles and 100mm for CFA piles in these areas between RL 40m and RL 44m.

Further details regarding suitable materials for the various layers are presented in the following sections together with descriptions of various aspects of the design.

It should be noted that prior to the placement of the above fill, approximately 140,000m^3 of fill, slimes and sediment will need to be removed. The removal of this material is discussed in the following sections. The majority of the excavated material will be suitable for use as controlled fill.

A settlement monitoring system will need to be established during construction and maintained following completion of the filling to ensure that long-term settlement will be within tolerable levels for the proposed development.

The placement of fill will be in areas defined in Drawing D21-Rev02. These areas have been identified to allow for appropriate volumes of material to be place and tested efficiently.

Domain 4 backfill sections are shown in Drawing D10-Rev02 to D19-Rev02. Indicative finished surface levels are presented on Drawing D25.

4.2. Site preparation

4.2.1. Removal of water

Water is present at the base of Domain 4 which will need to be removed prior to the commencement of earthworks. The current excavation is acting as a sump for the site and is being recharged from groundwater at the site. Significant pumping will be required to drain this excavation progressively as the fill is placed across the site. On-going pumping of the groundwater from sump pumps would also be required to maintain a groundwater level between 1m to 2m below the surface of the fill throughout the filling activities. The actual level that the groundwater is maintained below the fill surface will depend on the performance of the fill during compaction.

Given the volume of water that is present within the excavation and the likely timeframe that it will take to place and compact the drainage layer, it may be necessary to construct a series of bunds as described in Drawing D20-Rev02. The materials used for the bunds should comprise predominately clay materials and should be track rolled in layers of approximately 300mm thickness to achieve the required compaction criteria. Once no longer required, the bunds can be removed and the material re-used in subsequent bunds or as controlled fill.

4.2.2. Removal / treatment of sediment

There are significant volumes (approximately 10,000m^3) of sediment comprising predominately clay and silt with some organic materials, rubbish, steel and wood in the in the southern part of Domain 4. Prior to the placement of engineered fill all of the sediment will need to be removed. Based on the investigations undertaken in this area, the sediments are understood to be up to 2.3m thick. The base of the sediments is understood to be approximately at RL 40m.

Subject to careful sorting to remove any unsuitable materials and careful moisture conditioning, the sediment materials may be suitable for use as engineered fill within the fill platform.

Treatment of the sediment would involve excavation and drying over a period of time to allow the material to be re-used as engineered fill provided that the dried sediment met the requirements for suitable materials for engineered fill as described in sections 4.4, 4.5, and 4.6.

The excavated sediment may be stockpiled and dried in designated areas shown on Figure D23_Rev01.

4.2.3. Removal / treatment of slimes

There are significant volumes (approximately 50,000m^3) of slimes in the northern part of Domain 4. Prior to the placement of engineered fill all of the slimes will need to be removed.

Treatment of the slimes would involve excavation and drying over a period of time to allow the material to be re-used as engineered fill provided that the dried slimes meet the requirements for suitable materials for engineered fill as described in sections 4.4, 4.5, and 4.6. Alternatively, the addition of lime to the clay slimes could be considered. Additional assessment would be required prior to adopting this treatment option.

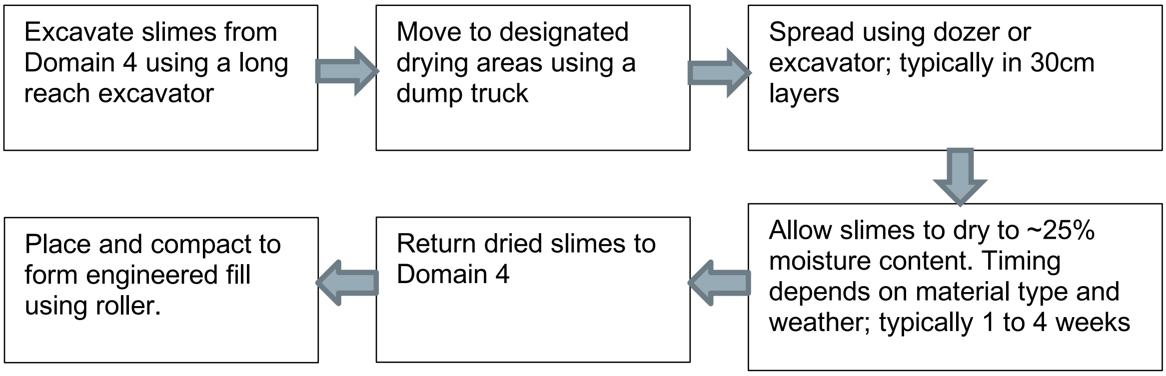
Contamination testing of the slimes was undertaken in November 2018 in support of the environmental audit for the site (ref. ENAUABTF00751AB_R01[2]). Based on the results of the testing the slimes are considered suitable for use as 'Type 3' fill.

The excavated slimes may be stockpiled and dried in designated areas shown on Figure D23_Rev01.

The slimes would be excavated from their current location in Domain 4 by using a long reach excavator. The excavated slimes would then be transported using a dump truck to the drying areas set back 40m from the eastern site boundary as shown on Figure D23_Rev01 where they would be spread using a small dozer or excavator. The drying area would be surrounded by a 1m high bund wall with 2H:1V downstream batter, 1m wide crest and 1H:1V inside batter. Truck movements for slimes transport would be within the site using internal, temporary haul roads which would be at least 30 metres from site boundaries.

Once spread in the bunded slimes drying area/s shown in the Site Plan, the slimes would lay in place for a period of 1 to 4 weeks depending on weather conditions to allow for the slimes to dry to the approximate optimum moisture content for compaction (in this case about 25%). The wet slimes would be limited to 0.5m thickness within the bunded area. Once the slimes have been dried out, they will be temporarily stockpiled within the bunded area to the maximum levels shown on Figure D23_Rev01 and then removed and replaced in Domain 4 as engineered fill. In order dry out all the slimes, this process may need to be repeated 3 to 6 times.

It is considered that by only drying the slimes to a moisture content of approximately 25%, dust production will be kept to a relatively low level. Should adverse weather conditions for dust production occur (hot and windy for a period of days; e.g. days predicted to be in excess of 35°C or with a strong wind direction change) then some dust suppression by means of watering will be applied. Facilities to apply water to the slimes will be available on site; comprising either a water cart or a temporary reticulated spray system. Rain falling over the slimes drying area will be retained within the perimeter bund wall.



4.2.4. Removal of uncontrolled fill and unsuitable materials

There are significant volumes (approximately 80,000m^3) of uncontrolled fill in the northern part of Domain 4 and along the centre of the site forming the bund. Prior to the placement of engineered fill

[2] Coffey (2020) *Environmental Site Assessment Huntingdale Estate 1221 to 1249 Centre Road, and 22 Talbot Avenue, Oakleigh South, VIC*. Ref: ENAUABTF00751AB_R01. 1st May 2020.

all of the uncontrolled fill will need to be removed. The uncontrolled fill can be re-used as engineered fill within Domain 4 subject to removal on any unsuitable materials

There are materials in the base of the excavation which are not considered suitable for use as engineered fill. These materials include but are not limited to:

- Soils containing organic materials such as tree roots branches, grasses etc.
- Waste materials (building waste, rubbish etc.)

It is understood that concrete waste has also been buried beneath the fill materials in Domain 4. This material may be used as part of the engineered fill provided any steel reinforcing has been removed and approval has been granted by the appointed EPA auditor for the use of the concrete at the site.

4.2.5. Stability of the quarry excavation

In order for the backfilling works to proceed in a safe manner, it is important to consider the stability of the existing batters in Domain 4. The results of the slope stability assessment performed for Domain 4 are summarised in the following sections.

Detailed results of the stability assessments including a pseudostatic stability analysis under earthquake loading are presented in Coffey's Report ref 754-GEOTABTF09257AA-EG dated 21 September 2021 which is included in Appendix C.

4.2.5.1. Eastern batters

The results of the stability assessment show that the existing batters have an FOS for global stability of approximately 1.3 or greater. The results also show an appropriate FOS exists for instability at Talbot Avenue provided the recommendations below are followed:

- Localised parts of the batters which are steeper that 45° and have exhibited signs of fretting should be trimmed back to a maximum slope angle of 45°. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted so that any local fretting will not impact on the safety of workers.
- An exclusion zone of minimum 4m from the crest of the batter should be maintained throughout the construction of the fill platform in Domain 4. It is noted that this is based on the assessed section of the eastern batter which is the steepest. A reduced exclusion zone may be considered for other parts of the site but specific assessment would be required. A plan showing the exclusion zone is presented in Figures B1 and B2 in Appendix B.

  The width of the road between the exclusion zone and the eastern edge of the bitumen road is about 2.5m. In order to accommodate a 2.4m wide truck, the barriers may be positioned within the exclusion zone such that the truck wheel tracks do not encroach within the exclusion zone. Due to the narrow trafficable width, additional measures such as reduced speed limits, improvement to the road shoulder and bollard/barriers next to telegraph poles may need to be considered.
- It is recommended that the batter face within this zone is not cut, trimmed or modified until such time as the fill against the face has reached a level of 55m AHD, which can be reviewed at the time of any proposed construction work.
- Given the nature of these batters and the ongoing works associated with the filling of the excavation, it is recommended that routine visual assessments are undertaken to identify any signs of instability and implementation of remedial actions if required to maintain safe batter conditions.

4.2.5.2. Western batters

The results of the stability assessment show that the existing batters have a FOS for global stability of approximately 1.3 or greater and an appropriate FOS exists against instability at Huntingdale Road provided the localised parts of the batters which are steeper that 45° exhibiting signs of fretting are battered back to a maximum slope angle of 45°. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted in a manner any local fretting will not impact on the safety of construction personnel.

4.2.5.3. Southern batters

The initial assessment in 2017 was conducted to assess the stability of the batters within the Domain 4 boundary as the geometry and loading of the adjacent buildings was unknown. For those preliminary analyses purposes, the building was represented by a 40kPa loading on the original ground surface.

Coffey has not sought the details of the adjacent building as the overall stability of the adjacent site lies with the designers of those structures. Based on site observations, the new buildings comprise a 3-story building with a single basement extending about 2m below ground level. Typically, the loading from a residential floor is less than 10 kPa. A 2m deep basement results in an unloading of the site by about 40 kPa assuming that 1m thick soil is equivalent to about 20kPa. These assumptions indicate the construction of building with a basement is likely to have resulted in “unloading” of the adjacent building site, i.e. a reduction in the load applied to the top of the pit batters.

(i) <u>Stability of the adjacent site and building</u>

The results of the stability assessment indicates that the minimum FOS is 1.00 for shallow failure of the batter. The FOS for a failure surface starting at the Domain 4 boundary and extending to near the base of the pit is 1.20.

The FOS for failure through the buildings is well in excess of 1.5 that is normally adopted value for assessing the stability of slopes.

(ii) <u>Batter stability – worst case</u>

In the worst case the south batter could fail when the FOS falls below 1. In that situation, the soil above the failure surface will rotate along the failure surface which has the effect of reducing the driving force on the failure surface. After removal of the surface with a FOS of 1, the FOS at the edge of the building as well as the FOS of the surface extending across the building exceed the FOS of 1.5 indicating that any local instability of the south batters will not materially affect the stability of the adjacent buildings.

(iii) <u>Batter stability during dewatering</u>

Based on the modelling results it is considered acceptable to draw the pond down at a rate of 0.1m per day. The drawdown rate could be increased to a maximum of 0.2m per day but with a maximum aggregate of 1m over any 10-day period.

4.2.5.4. Northern batters

Four scenarios were assessed for northern batters:

- Scenario 1: Existing slope geometry and without a preload;
- Scenario 2: Existing slope geometry with a 2m high preload stockpile at the crest;
- Scenario 3: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, but without preload; and
- Scenario 4: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, with a 2m high preload stockpile at the crest.

A surcharge simulating a loaded truck on the haul road was applied in all scenarios.

The results show that for the current batter geometry for scenarios 1 and 2, the Factor of Safety (FOS) is 2.1. For scenario 3, which applies when the slope has been extended during the Domain 4 backfilling, the FOS is 1.3. Scenario 4 includes the preload in the Scenario 3 model, which has no effect on the FOS of 1.3. Scenario 4 also shows that the FOS of 1.5 extends halfway through the batter of the preload.

A FOS of 1.3 is considered acceptable for the temporary case while backfilling is occurring during construction.

The results of the stability assessment indicate the preload may be constructed to the southern side of the existing gravel track with a 3H:1V batter slope with a FOS of 1.3. The edge of the existing track varies between 3m and 5.7m from the crest of the north wall of the pit. It is recommended that the track be modified to maintain a 4m exclusion zone in accordance with the current Domain 4 backfill design report.

The construction of the preload on the southern side of the existing gravel track will require the construction of a new access road to the north of the existing track over the preload. Prior to earth works occurring between the pit crest and the haul road, the Contractor will need to prepare a risk assessment and slope stability management work plan that takes into account working near the crest of the pit.

4.2.6. Site survey

Once the site has been prepared for backfilling, a detailed survey of the prepared site will need to be conducted to provide contours at 0.25m intervals. The survey shall be used to determine the volumes of fill which will be required as well as assisting with settlement calculations and environmental controls.

Ongoing survey of the placed fill layers will be required for quality control purposes to ensure appropriate layer thicknesses are maintained and adequate keying in to the batters is achieved. Survey must be conducted at a frequency of no fewer than one survey for every 5 layers placed.

4.2.7. Subgrade preparation

The following procedure is recommended for preparation of the subgrade prior to the placement of engineered fill.

- The exposed subgrade must be proof rolled using a fully loaded water cart or similar.
- Any excessively wet, soft or weak areas identified during the proof rolling process must be removed and replaced with approved crushed rubble or rock fill material as described in section 4.4 of this report. Excavations to remove any soft or weak areas should have side slopes battered not steeper than 1.5H:1V.

4.3. Groundwater control and drainage layer

A drainage system comprising a drainage layer of at least 2m thick is proposed to be placed at the floor of the pit to control the rise of the water-table during backfilling. A number of drainage layers are also provided through the engineered fill to facilitate the groundwater flow through the engineered fill as shown in Drawing D08 Rev02.

The original Domain 4 backfill design incorporated an engineered drainage layer based on previous hydrogeological assessment and modelling undertaken by HLA Pty Ltd (HLA) in 2005[3]. The HLA

[3] HLA (2005) *Groundwater Numerical Modelling, Former Quarry Talbot Avenue, Oakleigh*. 11th July 2005

assessment included three alternative scenarios for backfilling of the quarry, and modelled the expected groundwater levels.

A updated hydrogeological assessment and numerical groundwater model[4] was prepared by Coffey (2018) in support of the environmental audit and associated EPA Clean-Up to the Extent Practicable (CUTEP) determination. Additional transient groundwater modelling[5] was also undertaken by Coffey (2019) to evaluate the rates of groundwater recovery for a range of different backfill designs including incorporating drainage trenches as opposed to a continuous drainage layer.

Based on the results of the groundwater modelling and Coffey's experience at similar sites, the final adopted design for the drainage layer encompasses a 2m thick continuous drainage layer to ensure the function of the drainage system.

The drainage layer should have a permeability of at least 10^{-4} m/s and we propose that it comprise a coarse crushed concrete rubble, off-spec brick (with <3% fines) or a durable rock material such as weathered basalt over the lower 1.5m, and a 40mm size ballast, or similar over the upper 0.5m. A nominal maximum fragment size of 300mm, intermixed with smaller fragments to a nominal minimum size of 100mm, may be adopted for the lower 1m of the layer. A transitional layer comprising smaller graded fragments (say, 5mm to 100mm) may be included over the next 0.5m. The upper 0.5m of the layer should comprise a 40mm size gravel, such as ballast or similar, which we expect would need to be imported to site as a quarry or recycled product. A section of the proposed drainage layer is presented on Drawing D08-Rev02.

It is considered that the top of the drainage layer will need to be covered with geotextile separator (Bidim A24 or similar) over the drainage layer, prior to the placement of the engineered fill to prevent the migration of fine materials from the surrounding soils to the drainage layer. Depending on performance a geotextile with a higher "G" rating may be required. Several thin horizontal drainage layers comprising a well graded 20mm size gravel with maximum 3% fines (<0.075mm), through the engineered fill at nominal 4m vertical centres are proposed to assist the control of groundwater (refer Drawing D08-Rev02). Vertical Chimney drains are also required and must comprise a 20mm well graded gravel with maximum 3% fines (<0.075mm).

Given that some structures may need to be supported on piled foundations due to their size or the potential for differential settlements across the excavation boundaries, the basal drainage layer would need to be modified in these areas to accommodate the installation of piles. As such, depending on the piling method, it is proposed to place a granular zone with a maximum particle size of 75mm for driven piles and 100mm for CFA piles in these areas between RL 40m and RL 44m (refer to Table 4.1). These materials should be placed in accordance with the methodology described in Section 4.4 below. Other areas which may require piles such as across the existing batters are not expected to intersect the basal drainage layer.

4.4. Controlled fill layer (Type 3)

The controlled fill (Type 3) may comprise materials such as clays, sands or weathered rock, but excluding materials such as topsoils, boulders, coarse rubble or other unsuitable materials. We recommend that engineered fill material be required to have a maximum particle size after compaction of 75mm.

The controlled fill (Type 3) materials should be placed in thin layers not exceeding 300mm loose thickness and be moisture conditioned to within +/- 3% of the soil's Optimum Moisture Content (OMC)

[4] Coffey (2018) *Groundwater Flow Modelling and Qualitative Contamination Assessment*. Ref: 754-ENAUABTF00751AD-R02. 1st October 2018.

[5] Coffey (2019) *Huntingdale Estate - Transient Groundwater Flow Model*. Ref: 754-ENAUABTF00751AD-R03. 11th February 2019.

and be compacted to achieve a dry density ratio of at least 95% Standard, in accordance with AS1289 5.1.1 and 5.4.1 or 5.7.1.

Materials that do not pass the above compaction requirements by having more than 20% oversize material can be compacted using a method specification developed during initial filling activities.

It is proposed that drainage layers be included within this engineered fill at 4m centres up to RL55m, as shown on Drawing D08-Rev02. The drainage layer should be placed and compacted as described in this section and comprise a 40mm size gravel, such as ballast or similar.

4.5. Structural fill layer (Type 2)

The structural fill (Type 2) layer is proposed to be of a higher quality fill material than the Type 3 controlled fill to reduce the magnitude of potential differential settlements that may develop across the site. The structural fill layer is to be 4m thick and comprise materials such as weathered sedimentary rock, clayey sand or non-descript crushed rock (NDCR). The structural fill materials should be required to have a maximum particle size after compaction of 50mm and have a liquid limit not exceeding 50%. Other materials may be considered, but should be submitted for approval.

Depending on the settlement behaviour of the controlled fill, consideration would be given to the inclusion of a geogrid layer, such as a Tensar SS40 or similar, near to the base of the structural fill layer to assist in reducing differential movements. The need for the geogrid layer would be assessed during construction.

The structural fill (Type 2) should be placed in thin layers not exceeding 200mm loose thickness and be moisture conditioned to within +/- 3% of the soil's Optimum Moisture Content (OMC) and be compacted to achieve a dry density ratio of at least 98% Standard, in accordance with AS1289 5.1.1 and 5.4.1 or 5.7.1.

4.6. Capping layer (Type 1)

A 1.7m thick capping layer has been included to assist the establishment of vegetation and allow excavation for underground services and other infrastructure.

The capping layer should comprise material such as clayey sand, sandy clay or clay and should be required to have a maximum particle size after compaction of 50mm and have a liquid limit not exceeding 50%.

The capping fill (Type 1) materials should be placed in thin layers not exceeding 200mm loose thickness and be moisture conditioned to within +/- 3% of the soil's Optimum Moisture Content (OMC) and be compacted to achieve a dry density ratio of at least 98% Standard, in accordance with AS1289 5.1.1 and 5.4.1 or 5.7.1.

The capping layer should be covered with topsoil to a thickness of about 0.3m.

4.7. Compaction control and supervision

The earthworks shall be carried out under Level 1 Inspection and Testing in accordance with AS3798-2007: 'Guidelines on Earthworks for Commercial and Residential Developments' in the presence of a full time suitably experienced geotechnical professional to observe the subgrade preparation, fill placement and compaction and nominate the requirements for geotechnical testing accordingly. The level of compaction shall be checked by field density testing in accordance with Table 8 of AS3798.

Following the placement of the engineered fill, a statement of compliance report shall be issued outlining that the fill has been placed in accordance with the specification.

At the completion of the filling, a report will be required that sets out the inspections, sampling and testing that has been carried out, and the locations and results of the tests. In addition, the base and top of each of the fill zones should be surveyed and presented in the Level 1 report, together with final surface levels. The report will also need to express an opinion that the works, as far as can be determined, comply with the requirements of the specification and drawings.

It is recommended that all earthworks be carried out during dry weather conditions where possible. Provision should be made for the effective diversion and removal of all surface water from the subgrade from any source. Temporary drains and effective pumping equipment or other means to dewater the earthworks should be provided.

4.8. Environmental audit requirements

The Domain 4 backfilling (and any associated importation of fill) must be undertaken in accordance with the conditions of the SoEA prepared for Zone 4 and Zone 4a.

This includes that the backfilling of the Zone 4 quarry void is reviewed and verified by an environmental auditor appointed under Part IXD of the Environment Protection Act 1970 (or its successor), as being compliant with the SoEA and associated management plans and is suitable for the proposed land uses, including sensitive uses.

4.9. Indicative construction program

Table 4.3 shows a likely timeframe for the backfilling works. It should be noted that there is potential for significant variation in this timing due to external factors such as weather and material availability.

Table 4.2 Likely construction timeframes

Stage of Work		Likely Timeframe	Comment
Site Preparation			
	Removal of Water	1 to 2 weeks	
	Removal / treatment of sediment	2 to 4 weeks	Will depend on weather conditions
	Removal / Treatment of Slimes	4 to 16 weeks	Will depend on weather conditions
	Removal of Unsuitable Material	Ongoing throughout the site preparation	
	Site Survey	Ongoing throughout the site preparation	
	Subgrade Preparation	Ongoing throughout the site preparation	
Importing and placing Fill Materials			
	Stockpiling of imported fill materials	Ongoing throughout the backfilling works	Will depend on availability of materials
	Construction of Engineered Fill	1.5 to 3 years	Will depend on contractor progress, weather conditions, and material availability
	Survey	Ongoing throughout the backfilling works	
	Settlement Monitoring	Ongoing throughout the backfilling works	

5. Settlement issues

Settlement of the engineered fill will occur. Settlements in the order of 1% of the fill thickness have been reported for controlled fill comprising mostly granular soils and significantly higher percentages (up to about 5%) could occur for more clayey fills. Given the expected fill materials, we anticipate settlements of between 2% and 4% of the total fill thickness. Settlement predictions indicate that primary consolidation settlement of between 300mm and 700mm may be expected within the fill materials. Secondary consolidation is anticipated to continue at the rate of between 50mm to 100mm per 100 years. This is based on an anticipated average C_{α} of 0.005. Values of C_{α} for normally consolidated are noted to be in the range of 0.03 to 0.005[6]. It is likely that the clays placed will be over-consolidated due to compaction. As such we have adopted a C_{α} of 0.005 for this settlement estimate. These values would be refined during the placement of the fill as monitoring occurs. For this reason settlement monitoring during placement is critical. It should be noted that a portion of this settlement will occur during construction as the fill embankment increases in thickness.

Settlement monitoring will need to continue for a significant period following filling to ensure that any settlements are within tolerable levels and to allow for the release of individual sites for construction. It is expected that the settlement monitoring would need to continue for a 6 to 12 months following the completion of the primary consolidation which is expected to be around 6 to 18 months following completion of the fill placement.

Areas of potentially high differential settlement are expected at the edge of the quarry between the natural and filled ground. As discussed previously, these areas have been identified as exclusion zones that may require special foundation treatment such as piled foundations, flexible service connections and increased grades for roads and services. Consideration may be given to constructing roads or easements through these areas.

Settlement monitoring would comprise a series of 12 settlement plate clusters (each containing 3 plates) and 29 surface settlement pins, installed at various depths within the fill on a grid pattern across the pit, at approximately 75m intervals, and at other key locations such as at the edges of the old pit. The locations of the settlement monitoring plates are shown on Drawing D09-Rev02 and the plate construction details are shown on Drawing D24_Rev01. A series of three plates will be installed at each location, targeting the base of the engineered fill, the base of the structural fill and the base of the capping. The monitoring points should comprise a steel plate, at least 500mm by 500mm in size with a riser pipe attached. As filling proceeds, the riser pipes are extended. A typical configuration of the settlement plates is shown on Drawing D08-Rev02.

Other methods of settlement monitoring such as liquid settlement gauges and hydrostatic profile gauges could be considered in conjunction with, or as alternatives to riser pipes, which are susceptible to damage or disturbance if not carefully protected. The final layout of the settlement monitoring instrumentation will depend heavily on the final cell layout that is adopted. The main aim is to have suitable coverage of the site with some built in redundancy in case of loss of instrumentation.

6. Footing systems

Subject to structural settlement requirements of the buildings and ongoing settlement of the engineered fill platform, it is considered that the one to three storey lightweight residential buildings may be supported on rigid raft footing systems founded within the engineered fill platform. For preliminary purposes, it is considered that shallow footings for buildings located within the engineered fill would typically be proportioned for an allowable bearing pressure of 100kPa. Depending on the settlement sensitivities of the proposed buildings, consideration may need to be given to supporting buildings on piles founded beneath the fill. It is understood that this may be considered in areas where differential settlements of the fill are anticipated such as over the quarry batters and are anticipated to

[6] Das, Braja M. (2002) – Principals of geotechnical engineering, 5th edition

comprise concrete piles driven to refusal in the dense to very dense natural sands. Allowance for negative skin friction (down drag) would need to be considered during pile design. The use of piled footings may lead to differential settlement between the building and the surrounding ground and will require careful consideration of service connections.

Site classification reports will need to be prepared for each allotment and will need to account for the particular conditions at this site. Given the thickness of fill, the allotments will be classified as Class P in accordance with AS2870-2011 "Residential Slabs and Footings." As the fill will have been placed under Level 1 supervision in accordance with AS3798-2007, it may be possible for some of the allotments to be reclassified, if assessed in accordance with the following engineering principles as noted in Section 2.5.3(c) of AS2870-2011.

"The assessment shall consider the movement of the fill and the underlying soil from the condition at constructed to the long-term equilibrium moisture conditions. Allowance shall be made for construction variations in moisture conditions."

The thickness of engineered fill is expected to be variable and to reduce rapidly near to the site boundaries. This variation in fill thickness may result in significant changes in settlement, which may approach or exceed the differential settlement limits discussed in AS2870-2011. This will require the buildings be supported on piled footing systems or designed in accordance with engineering principles.

7. Landfill gas

The Statement of Environmental Audit (SoEA) prepared for the site includes a requirement that as part of the site redevelopment an in-ground pathway intervention (landfill cap and boundary venting system) be constructed in Domain 1. The purpose of the pathway intervention in this area being to control the vertical and lateral migration of landfill gas (i.e. prevent vertical migration to overlying structures or lateral migration off-site or to areas of lower gas risk) being generated from the former landfill.

A conceptual design for the Domain 1 landfill gas pathway intervention was prepared in support of the environmental audit[7] (Coffey 2020), noting that it is conceptual only (i.e. to support the audit) and is still subject to detailed design and environmental auditor verification as part of the site redevelopment (as a condition of the SoEA).

The Domain 1 landfill extends into the northern section (batter slope) of Domain 4. Whilst the volume of waste in the batter slope of Domain 4 is relatively small and not expected to produce significant volumes of gas, the exact extent of wastes in this area has not been completely defined due to access constraints. The Domain 1 pathway intervention measures have been designed to extend into Domain 4 to the base of the quarry void (i.e. to natural soil) to ensure that any residual wastes at the Domain 1 – Domain 4 interface are incorporated within the cap extent.

At the Domain 4 interface, the pathway intervention measures will comprise a compacted clay cap with high permeability gravel gas collection layer to be installed in lifts as the quarry void is filled. The gas collection trench would transport any gas back towards Domain 1 to discharge at the boundary venting system to be installed between Domain 1 and Domain 4. The detailed design of the boundary venting system will be completed as part of the Domain 1 pathway intervention detailed design and is not required for the purposes of backfilling Zone 4.

Depending on the built form, piling is likely to be required across the Domain 1 and Domain 4 interface. As such, depending on the piling method, it is recommended that the proposed high permeability gravel gas collection layer comprises a maximum particle size of 75mm for driven piles and 100mm for CFA piles in these areas. The clay cap must be compacted to at least 95% Standard

[7] Coffey (2020) *Conceptual Design of Site Management Measures*. Ref: ENAUABTF00751AB_R14. 1st May 2020.

maximum dry density, at between 2% and 3% wet of Standard Optimum Moisture Content. The hydraulic conductivity of the compacted clay cap must be less than 1 x 10^{-9} m/s. Permeability testing on an undisturbed sample of the compacted clay cap must be conducted at a frequency of no greater than 1 test per 5,000m^3 compacted.

Further detail on the backfilling of Domain 4 and interface with Domain 1 is outlined in Drawing D22_Rev00.

The component of the landfill cap and final position of the boundary venting trench may require adjustment during Domain 1 landfill cap detailed design and following construction of the boundary venting system.

8. Stormwater management and retention

An assessment of the required stormwater retention volume required has been conducted by Afflux Consulting (Stormwater Management Consultant). Depending on the ultimate design of the wetland, a low permeability liner such as a compacted clay, HDPE or GCL liner may be required to reduce infiltration into the engineered fill layers below.

9. Closure

The attached “Important Information about Your Coffey Report” provides additional information in the uses and limitations of this report.

Drawings

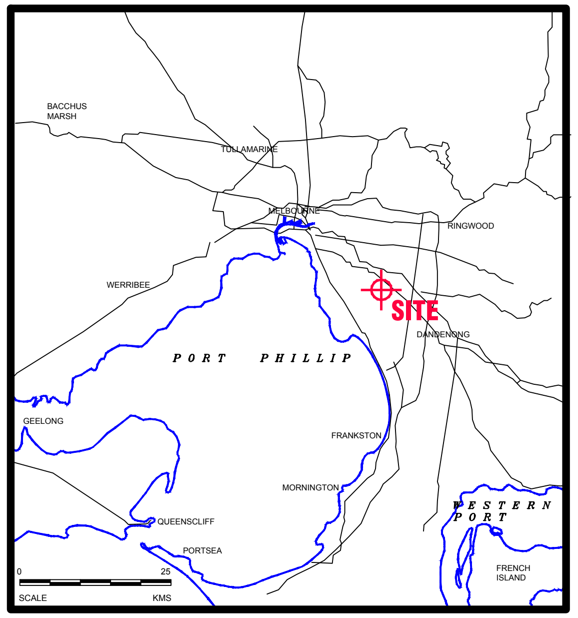
HUNTINGDALE ESTATE
DOMAIN 4 DETAILED DESIGN

N

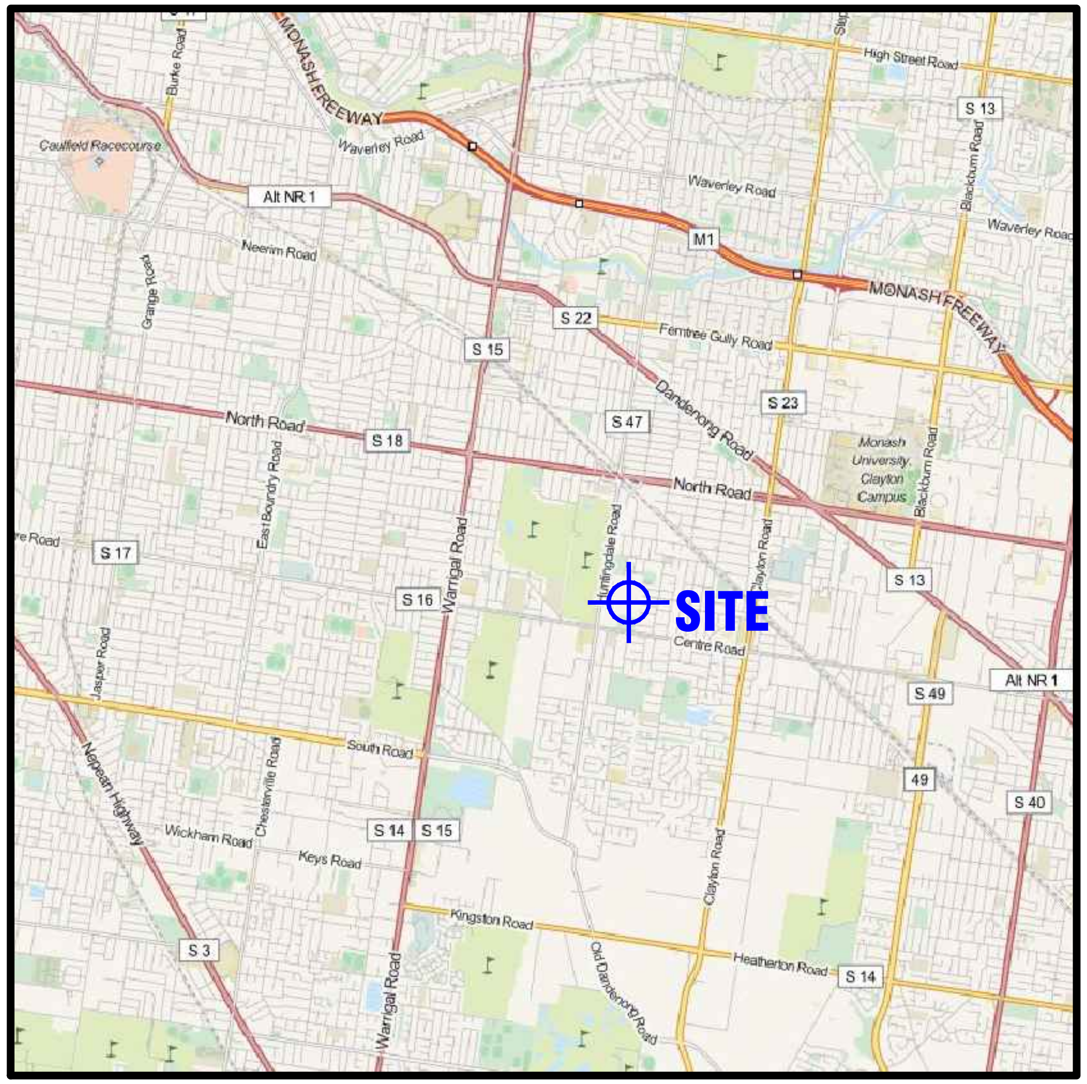
DRAWING REGISTER:

DWG No.	TITLE
D01	SITE LAYOUT
D02	DOMAIN 4 LAYOUT
D03	CONTOUR PLAN
D04	SECTION EXISTING CONDITION
D05	SECTION EXISTING CONDITION
D06	SECTION EXISTING CONDITION
D07	SECTION EXISTING CONDITION
D08	BACKFILL DETAIL
D09	SETTLEMENT PLATE LAYOUT
D10	SECTION AA' AND SECTION BB'
D11	SECTION CC' AND SECTION DD'
D12	SECTION EE' AND SECTION FF'
D13	SECTION GG' AND SECTION HH'
D14	SECTION II' AND SECTION JJ'
D15	SECTION KK'
D16	SECTION LL' AND SECTION MM'
D17	SECTION NN' AND SECTION OO'
D18	SECTION PP' AND SECTION QQ'
D19	SECTION RR'
D20	DOMAIN 4 BUND LAYOUT
D21	ENGINEERED FILL CELL LAYOUT
D22	DOMAIN 4-DOMAIN 1 INTERFACE DETAIL
D23	DOMAIN 1 LANDFILL CAP CONCEPT
D24	SETTLEMENT PLATE DETAIL

PROJECT ID: GEOTABTF09257AA-BC



GENERAL AREA MAP



REGIONAL AREA MAP

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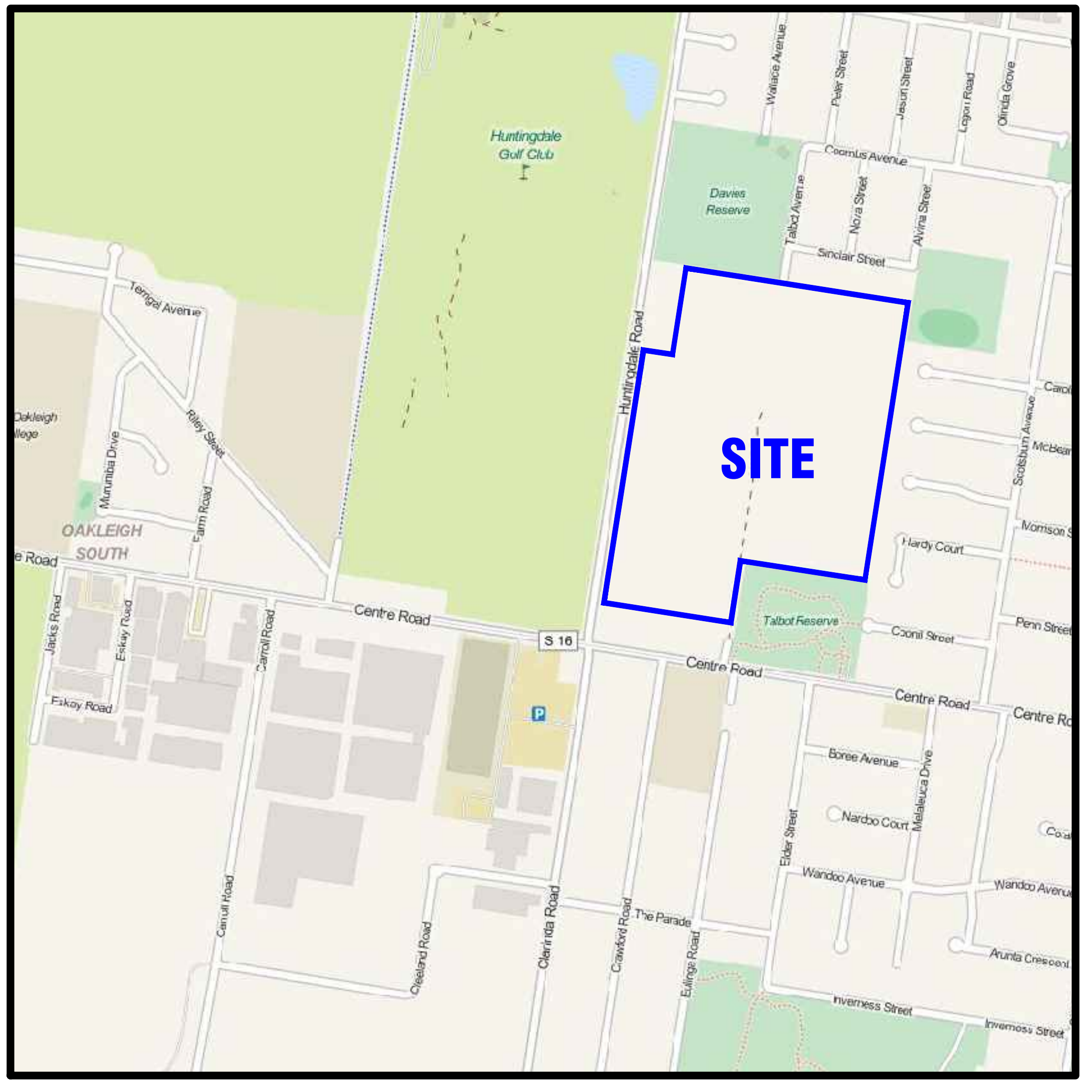

LOCAL AREA MAP

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	REV00. ORIGINAL ISSUE	LH	DA	04/12/14
	REV01. FOR TENDER	LH	DA	17/12/14
	REV02. FOR PLANNING	MB	FK	27 / 05 / 22

drawn	LH
approved	
date	27 / 05 / 22
scale	AS SHOWN
original size	A3

coffey

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	FACE SHEET
project no:	GEOTABTF09257AA-AQ
figure no:	D00_Rev02

IMAGERY SOURCE: Nearmap (06-09-2020)

revision no.	description	drawn	approved	date
01	TITLE REVISED	FK	IVP	27.07.22
00	ORIGINAL ISSUE	GY	FK	08.09.21

LEGEND

- DOMAIN BOUNDARY
- SITE BOUNDARY
- CADASTRE

MXD Template Reference: 09257AA_EE_GIS002_v0_2

N

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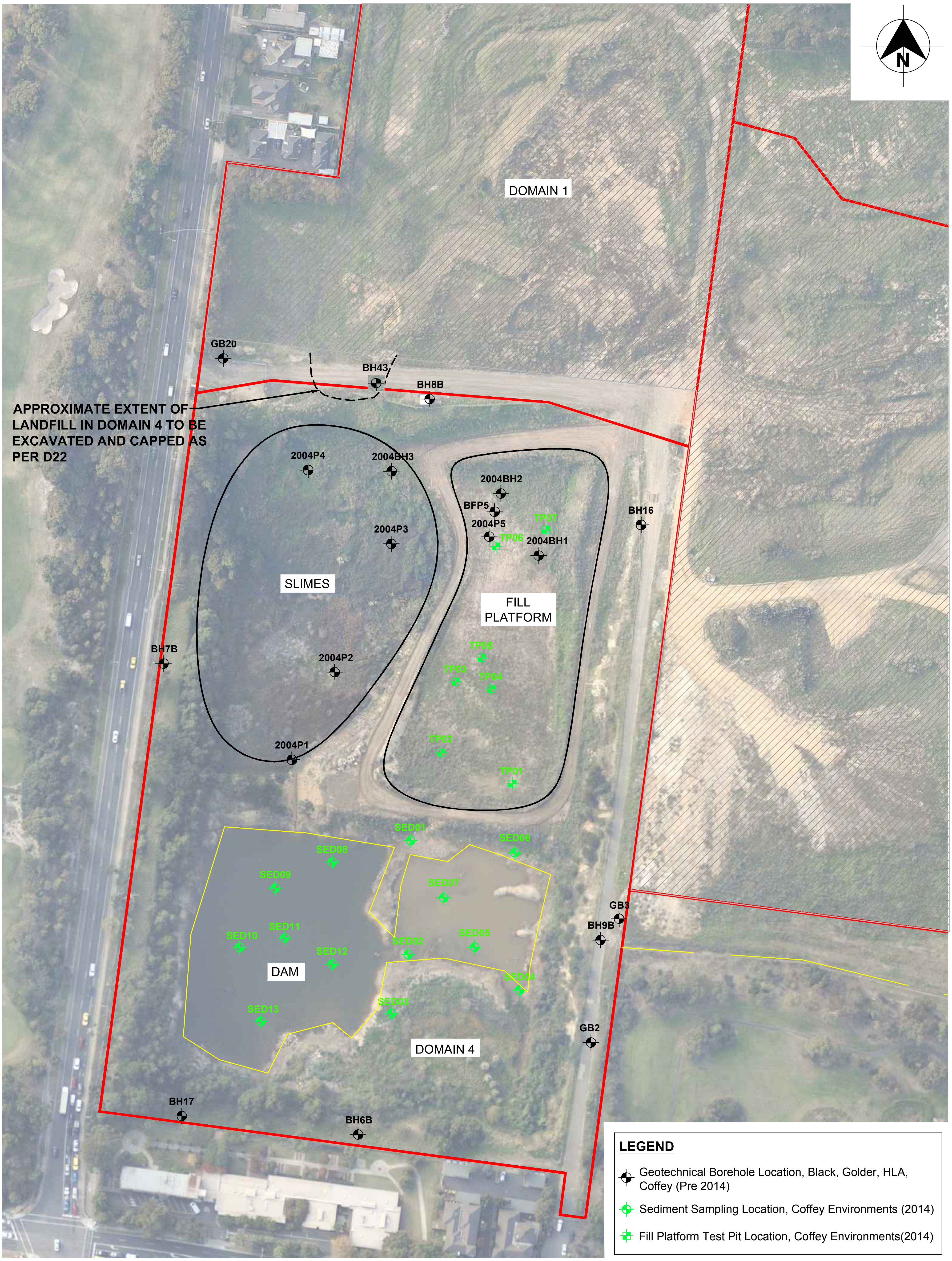
Projection: GDA 1994 MGA Zone 55

drawn	GDY
approved	FK
date	27.07.2022
scale	1:2,000
original size	A3

coffey
A TETRA TECH COMPANY

client:	HUNTINGDALE ESTATE NOMINEES PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN 1221-1249 CENTRE ROAD & 22 TALBOT AVENUE OAKLEIGH SOUTH, VICTORIA
title:	SITE GEOTECHNICAL DOMAINS
project no:	GEOTABTF09257AA-AQ
figure no:	D01-Rev01
rev:	0



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		LH	MF	9/21
	Title Revised	FK	IVP	7/22

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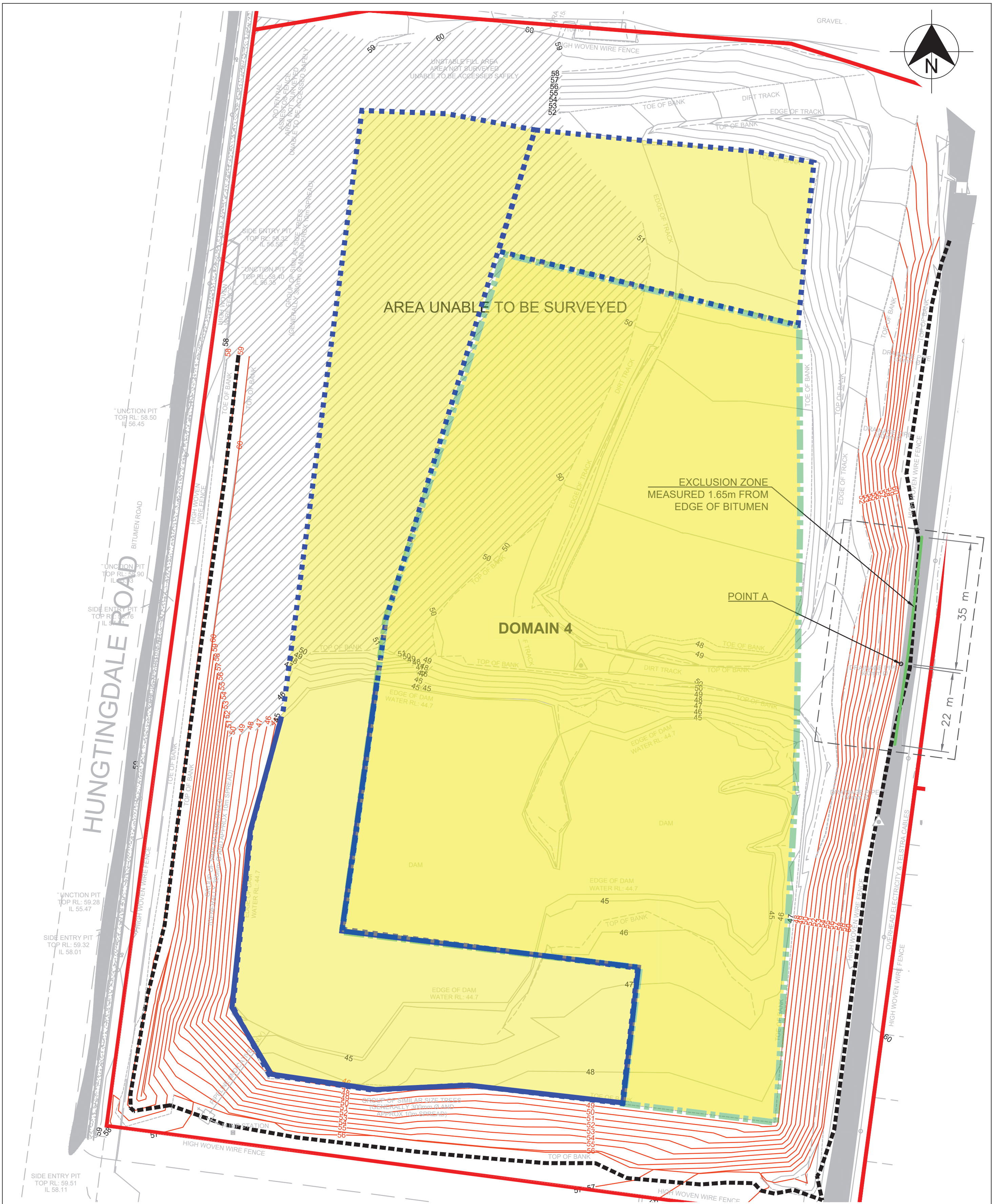
drawn	FK/LH
approved	
date	16 / 9 / 21
scale	1:1500
original size	A3

coffey

client:	Huntingdale Estate Nominees Pty Ltd		
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	DOMAIN 4 LAYOUT		
project no:	GEOTABTF09257AA-AQ	figure no:	D02-Rev02



NOTE:
CONTOURS FROM TAYLORS DEVELOPMENT
STRATEGISTS DRAWING 0180D-D1-REV_A (12/06/2013)

LEGEND

- Drainage layer
- Critical Batter Slope (Contour)
- Exsting Surface Level Contour
- 3m Exclusion Zone
- Areas that drainage layer may need to be modified

no.	Description	Drawn	Approved	Date
		XO	DA	09/15
	Inclusion of the areas requiring modification of drainage layer	XO	MF	07/19
	Amendment of the areas requiring modification of drainage layer	FK	IVP	05/22
	Drainage layer added	KJ	IVP	10/22

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approved	MF
date	27/05/22
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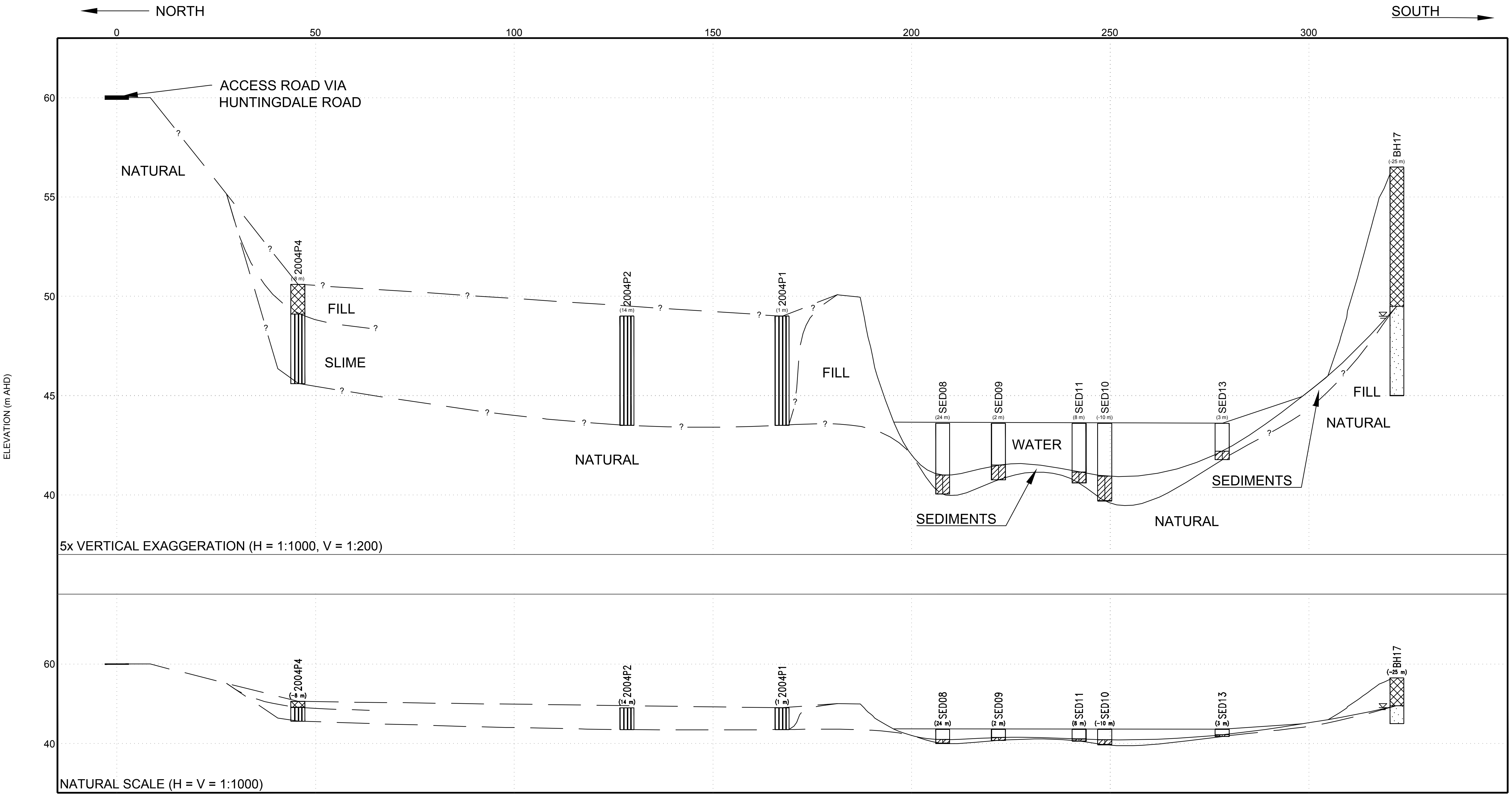
coffey
A TETRA TECH COMPANY

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	CONTOUR PLAN
project no:	GEOTABTF09257AA-AQ
figure no:	D03_Rev03



POST LEGEND

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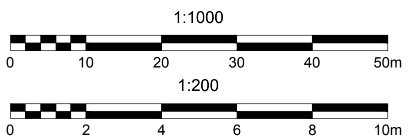
Baseline Offset
Weathering EW - DW
Consistency F - H
Vane Shear VS=50/23kPa
SPT N Value N=4
Drilling Water Info
Pocket Penetrometer (kPa) PP=50

Piezometer
Min mbgl Date
Max mbgl Date
Top Response Zone
Bottom Response Zone

MATERIAL GRAPHIC

SLIMES
SILTY CLAY
FILL
SAND

Geological boundaries are only known at the test site locations and have been inferred between the test sites. These geological boundaries have been provided to assist with the geological interpretation and should not be considered to represent actual boundaries that may vary from these lines.



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		MT	DA	12/14
	Title Revised	FK	IVP	07/22

drawn	MT
approved	
date	27 / 07 / 22
scale	AS SHOWN
original size	A3

coffey

client: Huntingdale Estate Nominees Pty Ltd

project: DOMAIN 4 BACKFILL DESIGN
HUNTINGDALE ESTATE, OAKLEIGH SOUTH

title: CROSS-SECTION A-A'

project no: GEOTABTF09257AA-AQ fig no: D04 rev: 02

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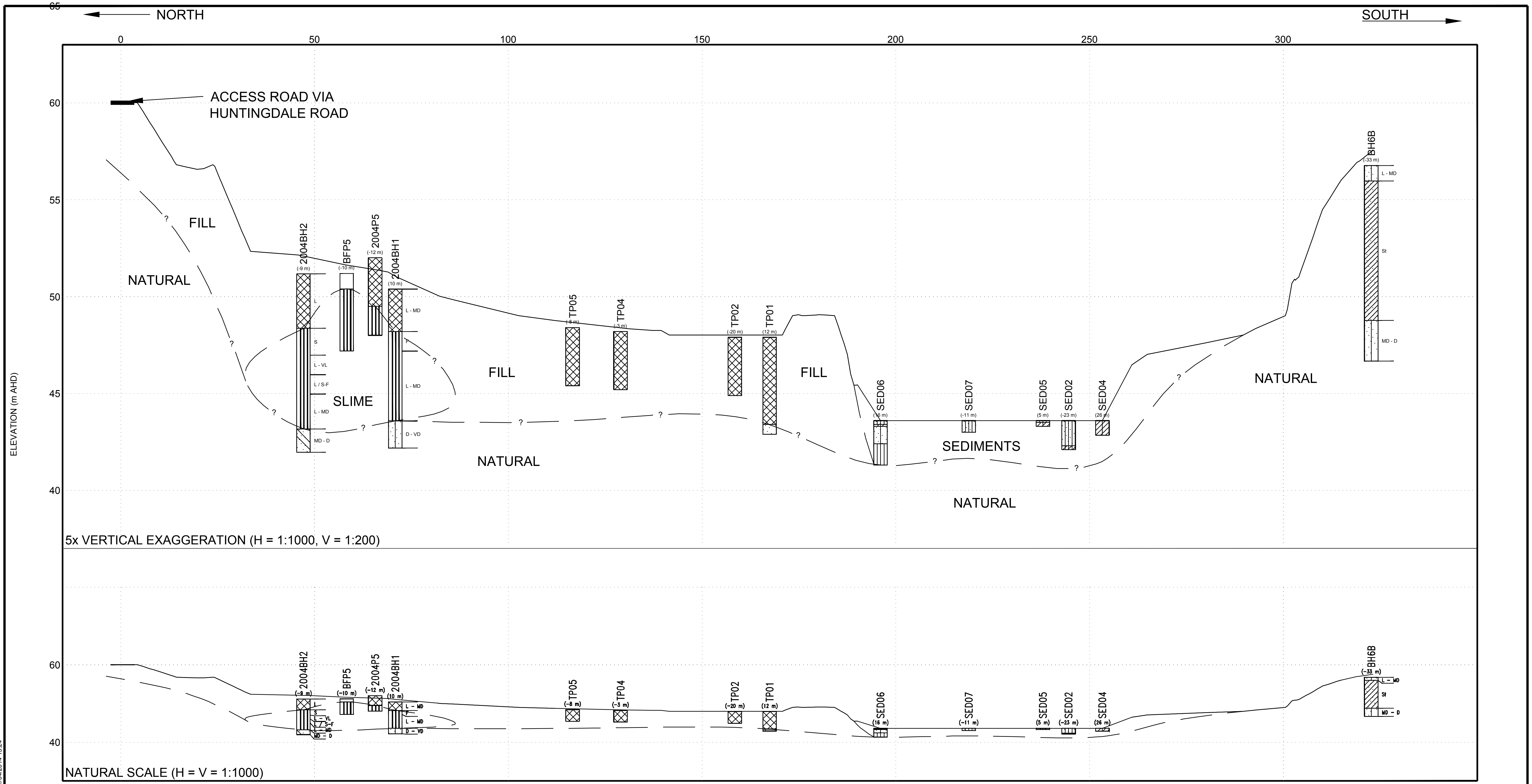

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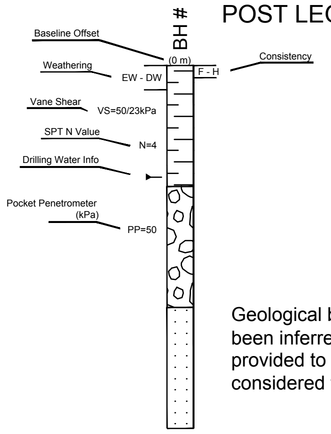

MATERIAL GRAPHIC

FILL
CLAYEY SAND
CLAYEY SILT
SAND
SLIMES
SANDY CLAY
SILTY CLAY
SILTY SAND
SANDY SILT
SILT

Geological boundaries are only known at the test site locations and have been inferred between the test sites. These geological boundaries have been provided to assist with the geological interpretation and should not be considered to represent actual boundaries that may vary from these lines.

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1:200 (0, 2, 4, 6, 8, 10m)
Coord.System: MGA94 Zone 55 Height Datum: AHD

no.	Description	Drawn	Approved	Date
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		MT	DA	12/14
	Title Revised	FK	IVP	07/22

drawn	MT
approved	
date	27 / 07 / 22
scale	AS SHOWN
original size	A3

coffey

client: Huntingdale Estate Nominees Pty Ltd

project: DOMAIN 4 BACKFILL DESIGN
HUNTINGDALE ESTATE, OAKLEIGH SOUTH

title: CROSS-SECTION B-B'

project no: GEOTABTF09257AA-AQ | fig no: D05 | rev: 02

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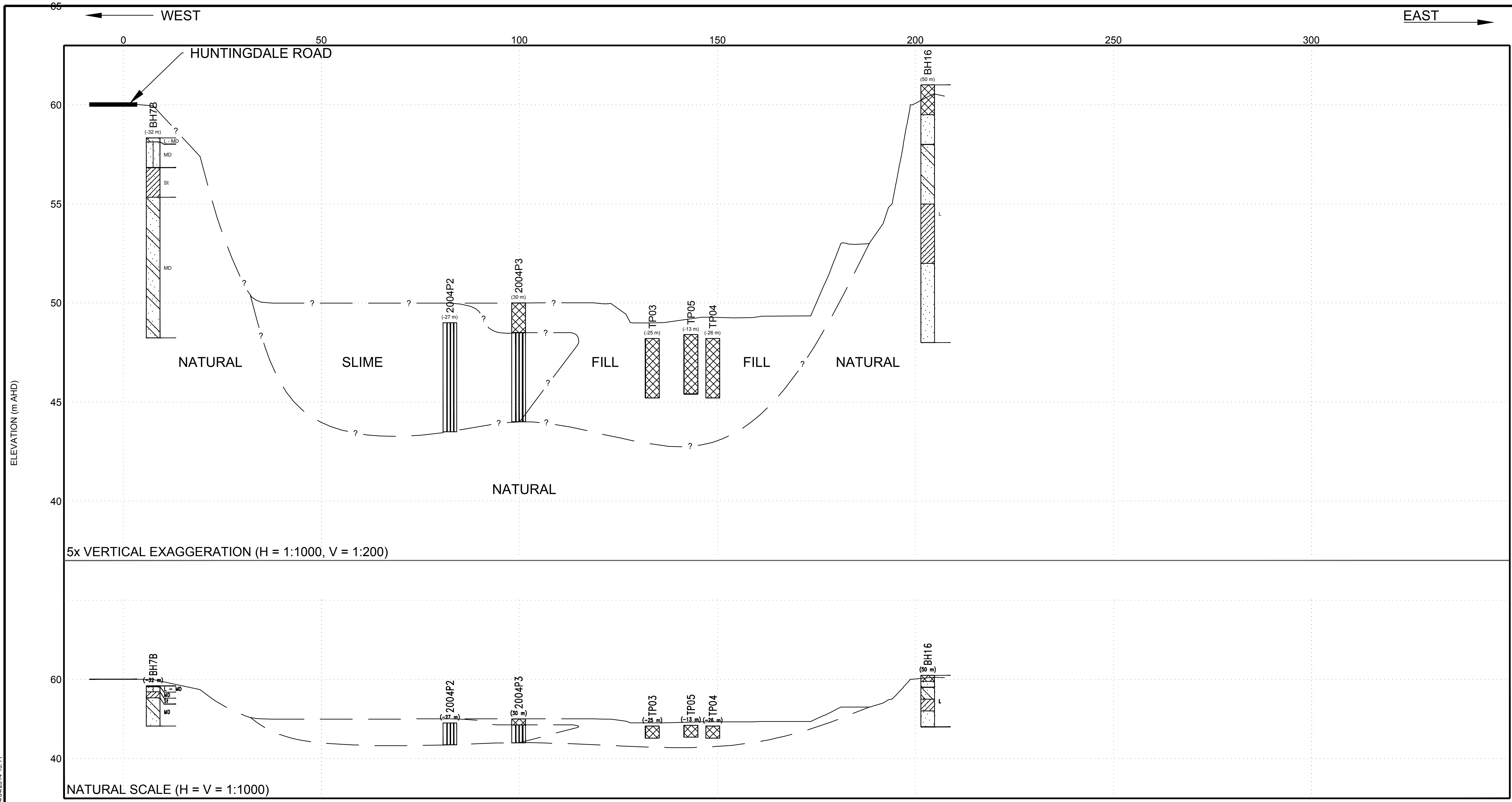

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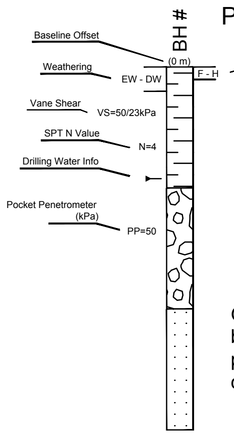
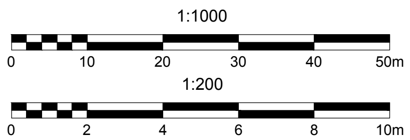


MATERIAL GRAPHIC

- SLIMES
- FILL
- SAND
- CLAYEY SAND
- SANDY CLAY
- SILTY SAND

Geological boundaries are only known at the test site locations and have been inferred between the test sites. These geological boundaries have been provided to assist with the geological interpretation and should not be considered to represent actual boundaries that may vary from these lines.



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		MT	DA	12/14
	Title Revised	FK	IVP	07/22

drawn	MT
approved	
date	27 / 07 / 22
scale	AS SHOWN
original size	A3

coffey

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	CROSS-SECTION C-C'
project no:	GEOTABTF09257AA-AQ
fig no:	D06
rev:	02

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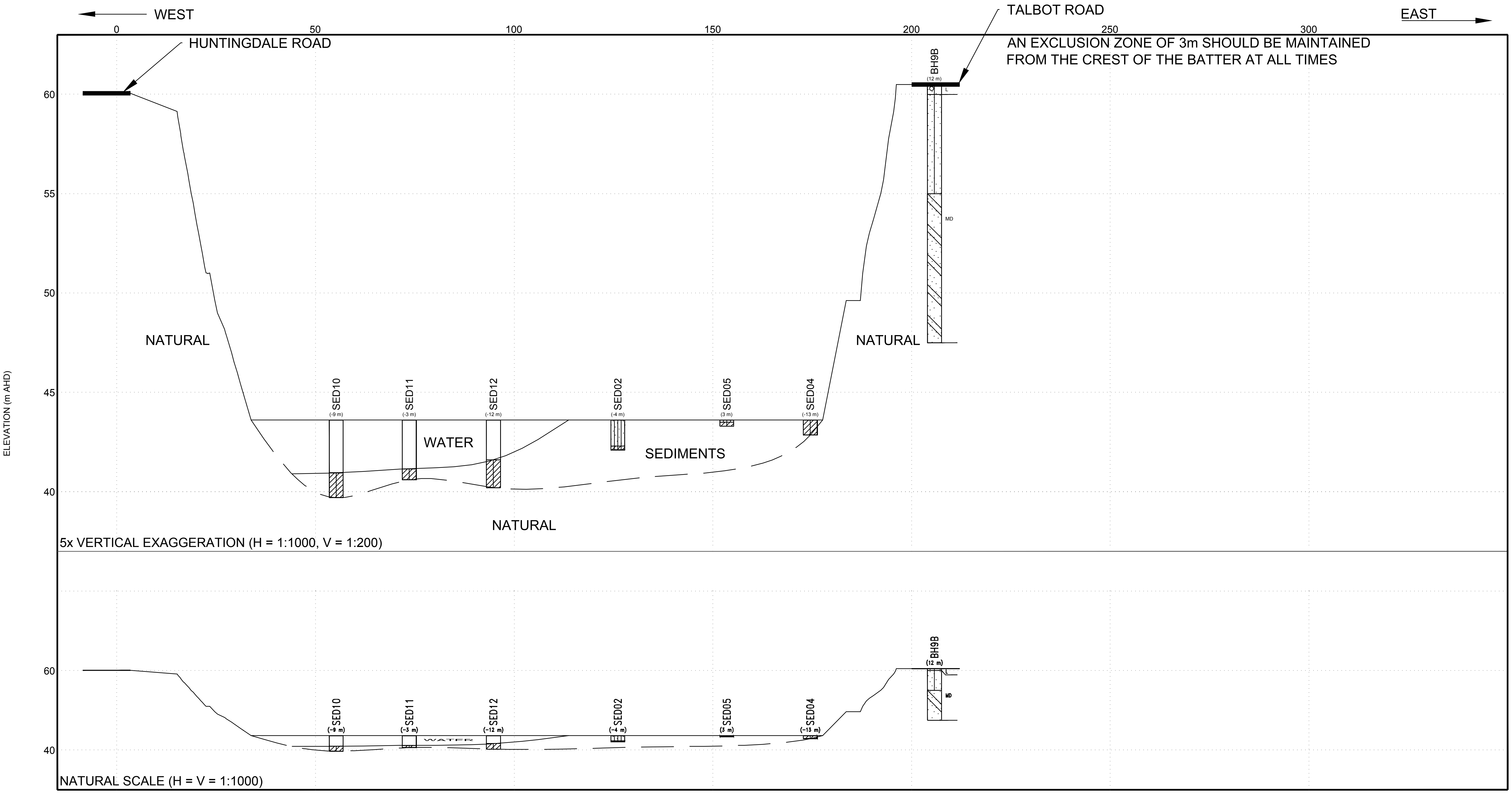
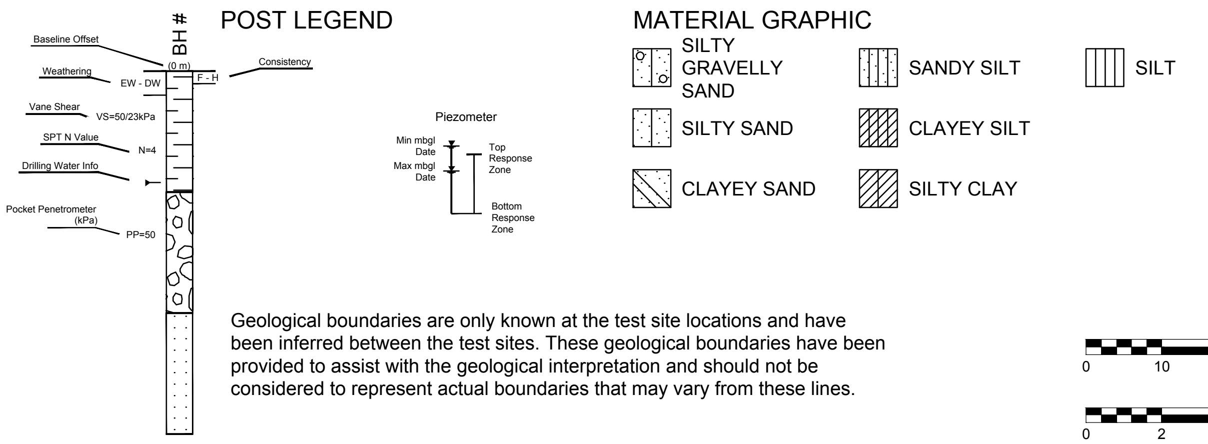
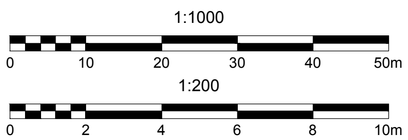




Geological boundaries are only known at the test site locations and have been inferred between the test sites. These geological boundaries have been provided to assist with the geological interpretation and should not be considered to represent actual boundaries that may vary from these lines.



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		MT	DA	12/14
	Title Revised	FK	IVP	07/22

drawn	MT
approved	
date	27 / 07 / 22
scale	AS SHOWN
original size	A3

coffey

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	CROSS-SECTION D-D'
project no:	GEOTABTF09257AA-AQ
fig no:	D07
rev:	02

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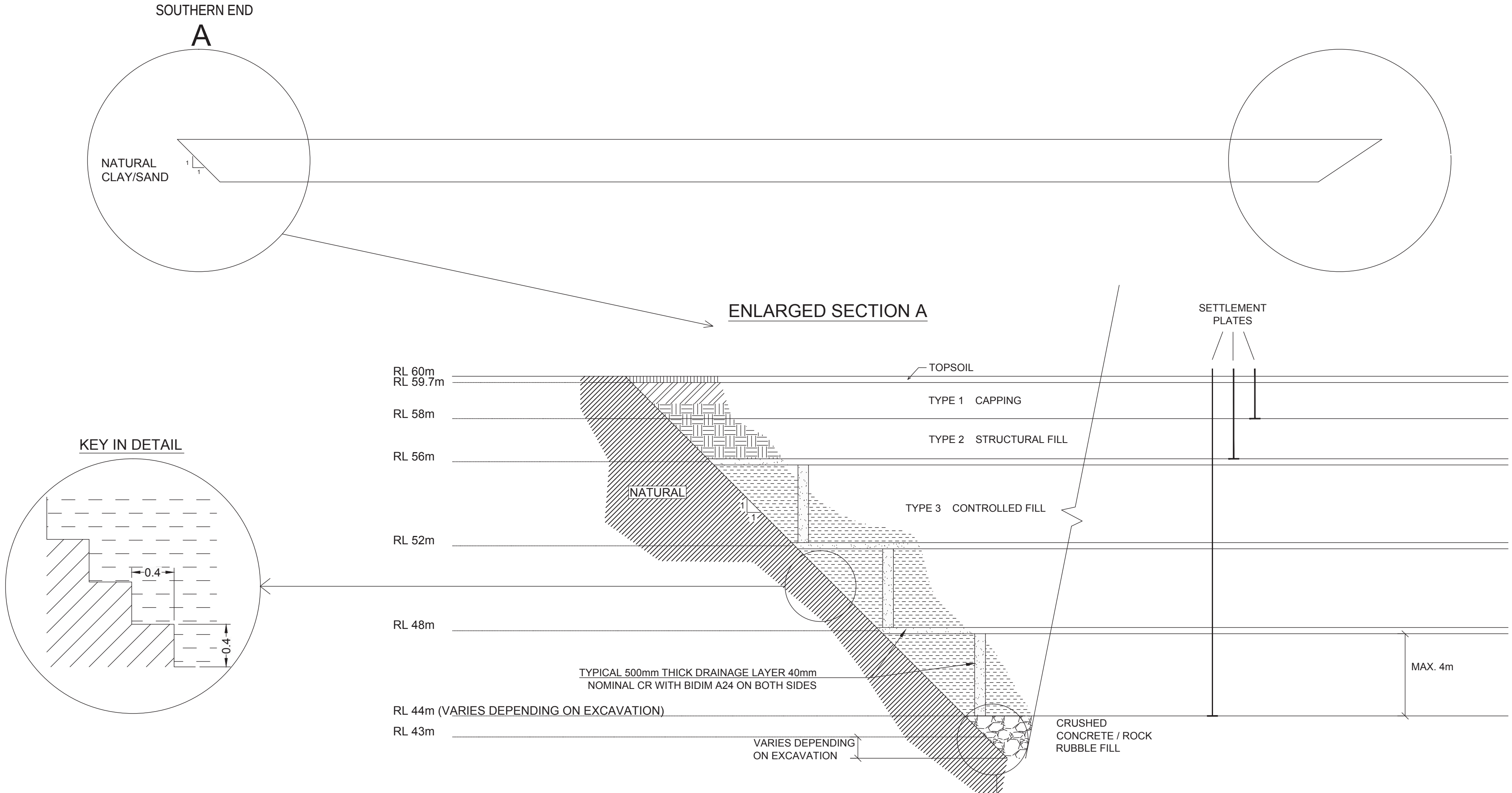
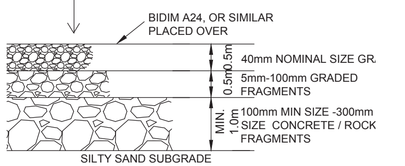


CRUSHED RUBBLE FILL DETAIL



SCALE 1:100

LEGEND

- TOPSOIL
- TYPE 1 CAPPING - SANDY CLAY, CLAY OR CLAYEY SAND
- TYPE 2 STRUCTURAL FILL - CRUSHED MUDSTONE, CLAYEY SAND, NON-DESCRIPT CRUSHED ROCK
- TYPE 3 CONTROLLED FILL - ON-SITE / IMPORTED SOILS COMPRISING CLAY , SANDS AND GRAVELS
- DRAINAGE LAYER - SAND / GRAVEL
- CRUSHED RUBBLE FILL (SEE DETAIL)
- SETTLEMENT PLATE

NOTES:

1. BATTER SLOPES PRELIMINARY ONLY AND SUBJECT TO DETAILED ASSESSMENT
2. ALL FILL MATERIALS TO MEET REQUIREMENTS OF ENVIRONMENTAL AUDITOR
3. ALL FILL TO BE PLACED UNDER LEVEL 1 SUPERVISION AS PER AS3798-2007

revision	description	drawn	approved	date
		DA	IVP	11/14
		DA	IVP	12/14
	TITLE REVISED	FK	IVP	05/22

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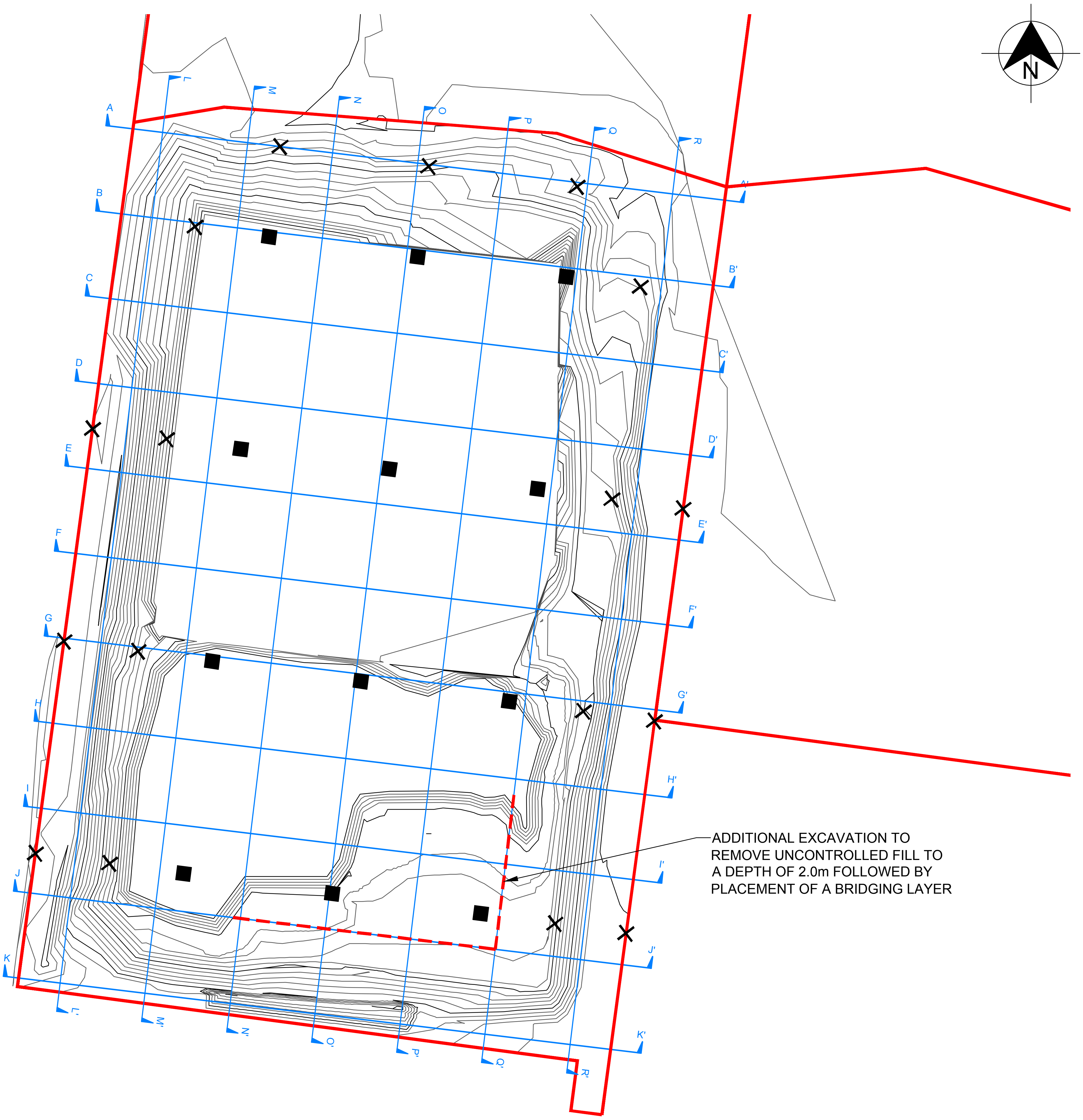
SCALE 1:200 (A3) METRES

drawn	DA / FK
approved	
date	27 / 05 / 22
scale	AS SHOWN
original size	A3

coffey

client:	Huntingdale Estate Nominess Pty Ltd		
project:	ZONE 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	BACKFILL DETAIL		
project no:	GEOTABTF09257AA-AQ	figure no:	D08_Rev02



NOTE: CONTOURS REPRESENT THE EXPECTED EXCAVATION LEVEL

TABLE 1 : COORDINATES OF SECTIONS

SECTION	START		END	
	EASTING	NORTHING	EASTING	NORTHING
AA'	333115.08	5801017.84	333338.46	5800990.89
BB'	333111.48	5800988.06	333334.86	5800961.10
CC'	333107.89	5800958.28	333331.27	5800931.32
DD'	333104.30	5800928.49	333327.67	5800901.53
EE'	333100.70	5800898.71	333324.08	5800871.75
FF'	333097.11	5800868.93	333320.48	5800841.97
GG'	333093.51	5800839.14	333316.89	5800812.18
HH'	333089.92	5800809.36	333313.30	5800782.40
II'	333086.32	5800779.57	333309.70	5800752.61
JJ'	333082.73	5800749.79	333306.11	5800722.83
KK'	333079.13	5800720.01	333302.51	5800693.05
LL'	333137.33	5801035.30	333097.79	5800707.68
MM'	333167.12	5801031.71	333127.57	5800704.09
MM'	333196.90	5801028.12	333157.36	5800700.49
OO'	333226.68	5801024.52	333187.14	5800696.90
PP'	333256.47	5801020.93	333216.93	5800693.30
QQ'	333286.25	5801017.33	333246.71	5800689.71
RR'	333316.03	5801013.74	333276.49	5800686.11

LEGEND

SECTION LINE

SETTLEMENT PLATE WITH SURFACE PIN

SURFACE PIN

0 15 30 45 60 75

SCALE 1:1500 (A3) METRES

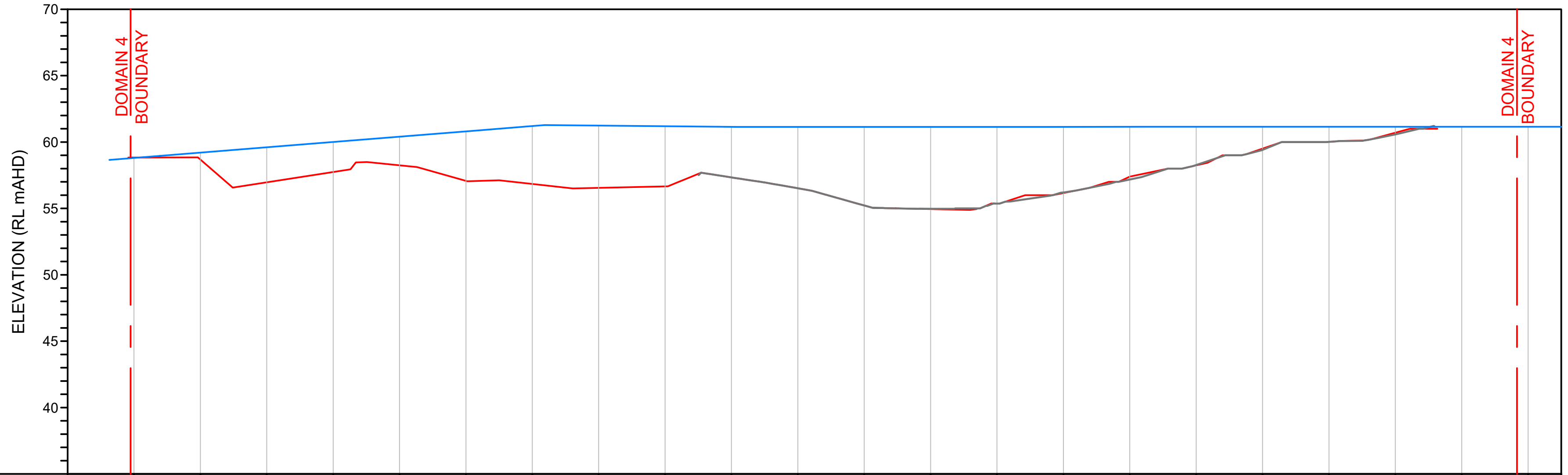
no.	Description	Drawn	Approved	Date
		MT	DA	07/13
		MT	DA	12/14
	Title Revised	FK	IVP	05/22

drawn	FK/LH
approved	
date	27 / 05 / 22
scale	1:1500
original size	A3

coffey

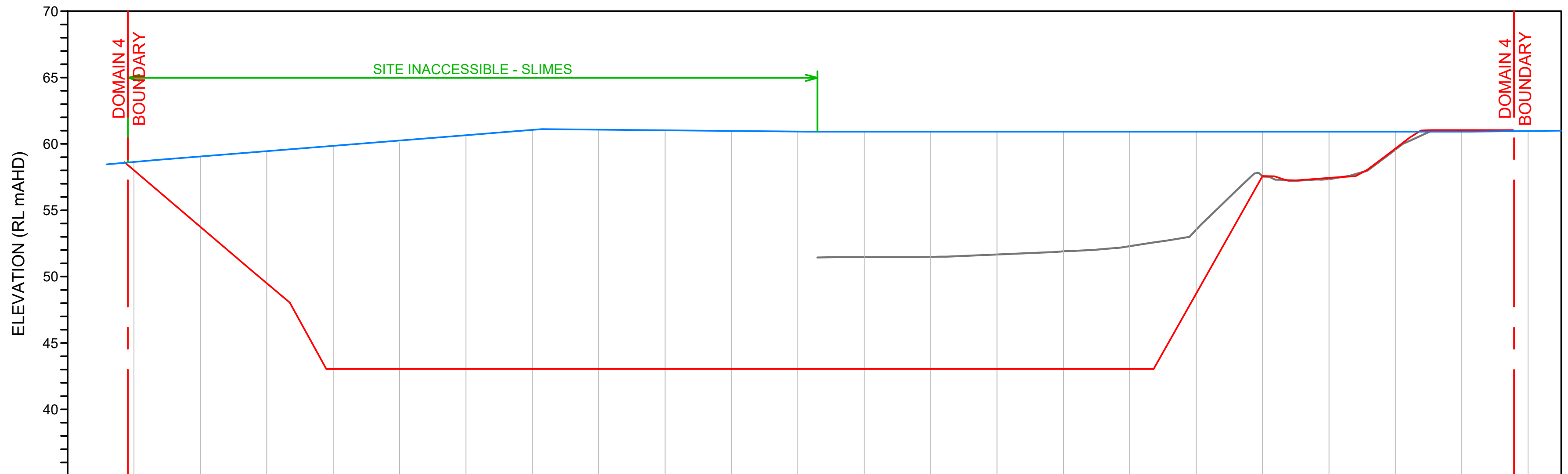
client:	TALBOT ROAD FINANCE PTY LTD		
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	SETTLEMENT PLATE LAYOUT		
project no:	GEOTABTF09257AA-AQ	figure no:	D09_Rev02

EXISTING SURFACE LEVEL
LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
FINISHED SURFACE LEVEL



DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		58.804	59.202	59.603	60.004	60.404	60.805	61.206	61.241	61.192	61.142	61.140	61.141	61.142	61.144	61.145	61.147	61.148	61.149	61.151	61.152	61.153	61.155	61.155
EXPECTED EXCAVATION LEVEL(mAHD)		58.839	58.684	56.964	57.741	58.245	57.079	56.845	56.550	56.658	57.336	56.517	55.221	54.949	55.363	56.158	57.391	58.245	59.508	60.010	60.699			
EXISTING LEVEL(mAHD)											57.336	56.517	55.221	54.971	55.363	56.195	57.175	58.270	59.411	60.016	60.571			

SECTION A-A'
HORZ: 1:1000
VERT: 1:500



DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		58.640	59.055	59.456	59.857	60.257	60.658	61.059	61.075	61.026	60.977	60.927	60.921	60.921	60.922	60.923	60.923	60.924	60.925	60.925	60.926	60.927	60.970	60.995
EXPECTED EXCAVATION LEVEL(mAHD)		58.017	53.752	49.500	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	49.000	57.583	57.392	59.567	61.000		
EXISTING LEVEL(mAHD)													51.477	51.484	51.670	51.907	52.297	53.539	57.583	57.346	59.567	61.000		

SECTION B-B'
HORZ: 1:1000
VERT: 1:500

revision description	drawn	approved	date
	LH	DA	12/14
Revision of the final site levels	BZ	FK	05/22
Revised expected excavation	BZ	IVP	09/22
Annotated boundaries and slimes extents	KJ	IVP	12/22

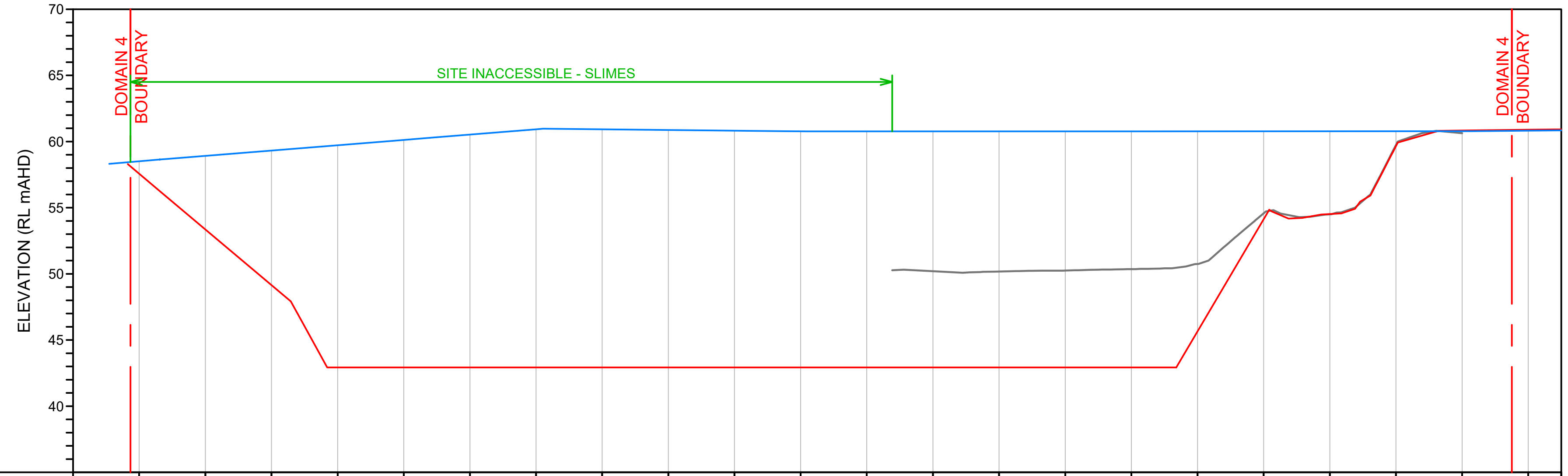
10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

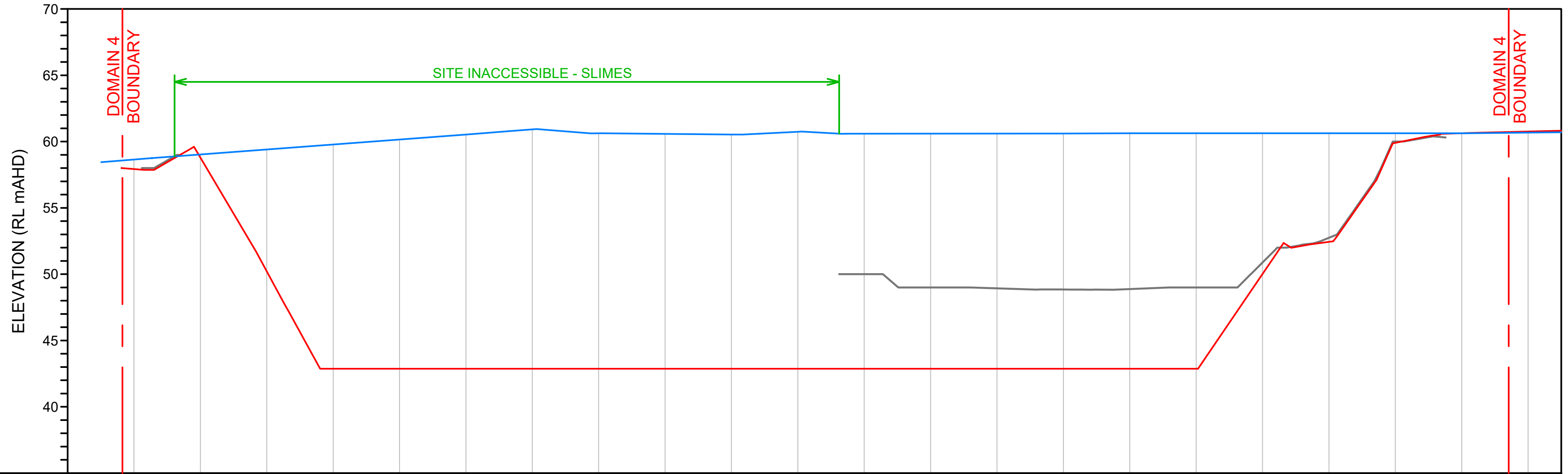
client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION AA' AND BB'
project no:	GEOTABTF09257AA-BC
figure no:	D010_Rev04

——— (black line)	EXISTING SURFACE LEVEL
——— (red line)	LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
——— (blue line)	FINISHED SURFACE LEVEL



INDICATIVE DESIGN LEVEL (mAHD)		58.510	58.922	59.323	59.723	60.124	60.525	60.925	60.923	60.874	60.824	60.775	60.771	60.771	60.772	60.773	60.773	60.774	60.775	60.775	60.776	60.777	60.822	60.847
EXPECTED EXCAVATION LEVEL(mAHD)		57.645	53.436	49.230	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	45.000	54.572	54.600	59.733	60.914	60.978	61.000
EXISTING LEVEL(mAHD)														50.202	50.179	50.245	50.358	50.743	54.572	54.503	59.733	60.637		
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTIONC-C'
HORZ: 1:1000
VERT: 1:500



INDICATIVE DESIGN LEVEL (mAHD)		58.648	59.033	59.406	59.780	60.153	60.526	60.925	60.622	60.578	60.530	60.735	60.599	60.601	60.601	60.611	60.623	60.624	60.625	60.625	60.626	60.627	60.674	60.699
EXPECTED EXCAVATION LEVEL(mAHD)		58.060	58.931	50.352	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	50.882	52.566	60.038	60.759	60.884	60.944
EXISTING LEVEL(mAHD)													50.000	49.000	48.935	48.844	48.880	49.000	50.882	52.746	60.000			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION D-D'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date
		LH	DA	12/14
	Revision of the final site levels	BZ	FK	05/22
	Revised expected excavation	BZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

10 0 10 30 50
Horizontal Scale (metres) 1:1000

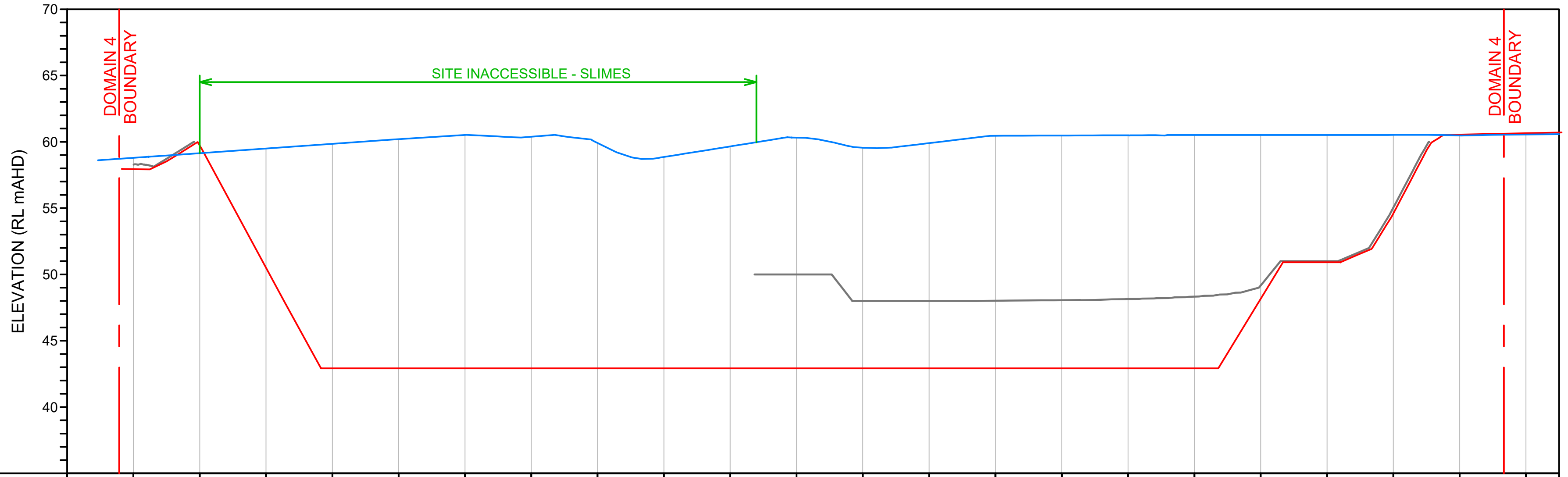
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

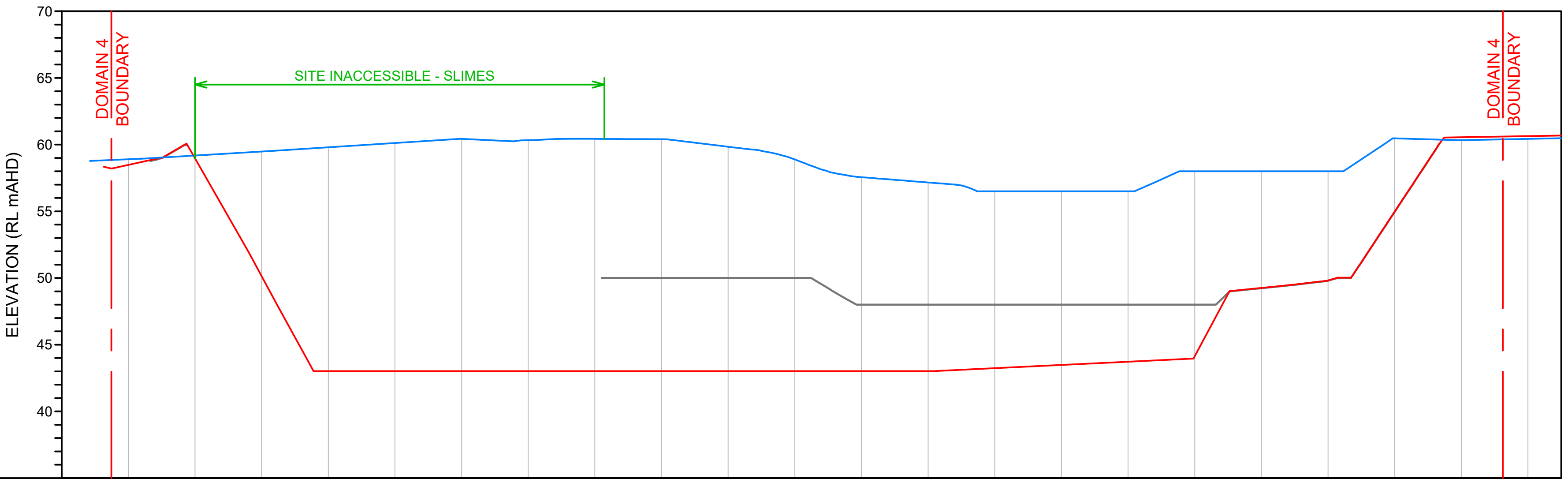
client:	TALBOT ROAD FINANCE PTY LTD		
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	SECTION CC' AND DD'		
project no:	GEOTABTF09257AA-BC	figure no:	D011_Rev04

EXISTING SURFACE LEVEL
LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
FINISHED SURFACE LEVEL



DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		58.795	59.146	59.498	59.850	60.199	60.523	60.384	59.910	58.855	59.653	60.319	59.554	59.904		60.475	60.496	60.519	60.518	60.518	60.520	60.480	60.549	60.574
EXPECTED EXCAVATION LEVEL(mAHD)		58.019	59.485	50.236	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	49.165	51.000	55.036	60.630	60.733	60.785
EXISTING LEVEL(mAHD)												50.000	48.000	48.000	48.016	48.056	48.146	48.323	49.165	51.000	55.036			

SECTION E-E"
HORZ: 1:1000
VERT: 1:500



DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		58.899	59.180	59.480	59.798	60.122	60.435	60.328	60.429	60.408	59.840	58.890	57.556	57.162	56.500	56.500	56.500	58.000	58.000	58.000	60.472	60.329	60.429	60.479
EXPECTED EXCAVATION LEVEL(mAHD)		58.459	58.963	50.120	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.221	43.462	43.702	44.045	49.237	49.794	54.955	60.537	60.619	60.659
EXISTING LEVEL(mAHD)										50.000	50.000	50.000	48.000	48.000	48.000	48.000	48.000	48.000	49.237	49.794	54.955			

SECTION F-F'
HORZ: 1:1000
VERT: 1:500

revision: description	drawn	approved	date
	LH	DA	12/14
Revision of the final site levels	BZ	FK	05/22
Revised expected excavation	BZ	IVP	09/22
Annotated boundaries and slimes extents	KJ	IVP	12/22

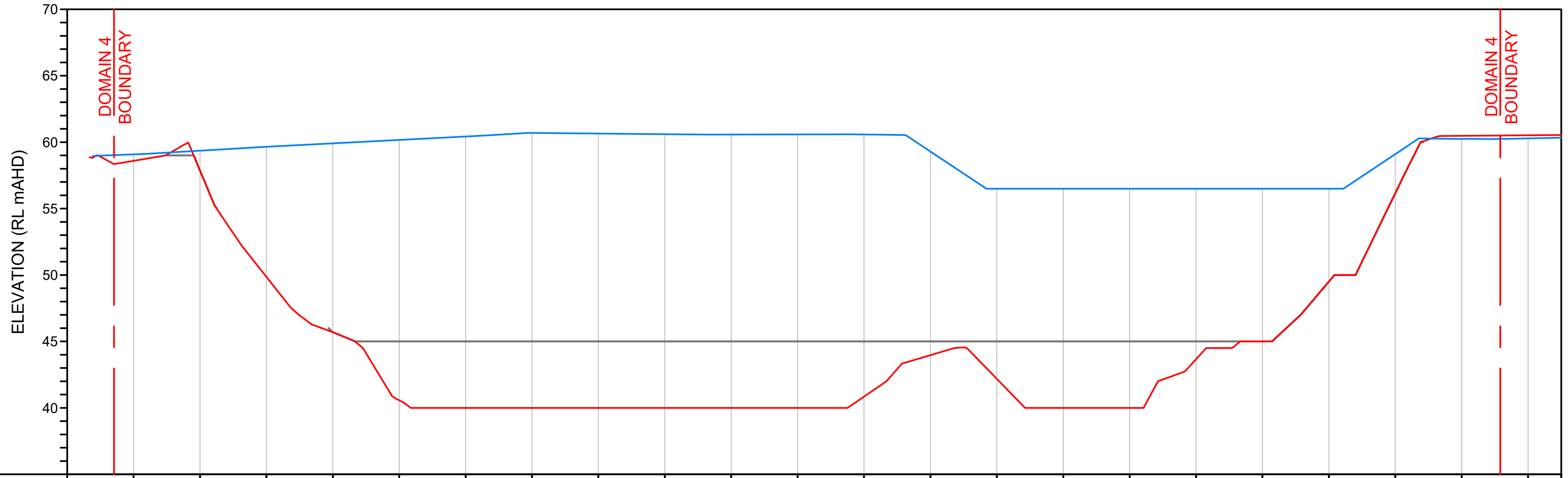
10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

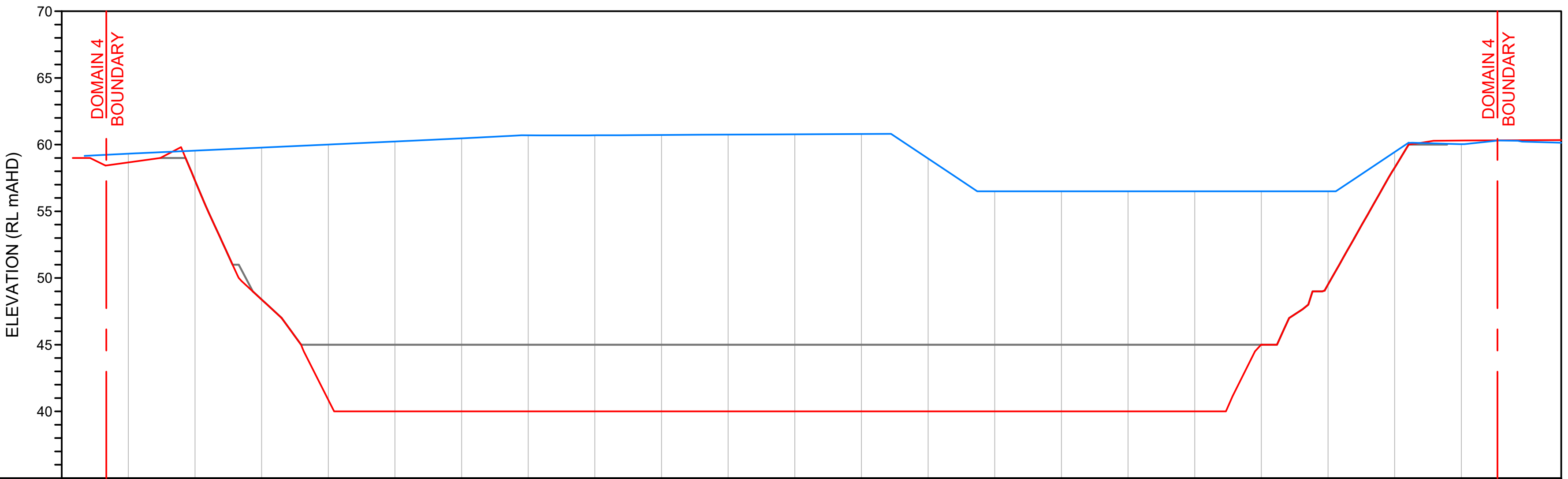
client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION EE' AND FF'
project no:	GEOTABTF09257AA-BC
figure no:	D012_Rev04

— (black)	EXISTING SURFACE LEVEL
— (red)	LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
— (blue)	FINISHED SURFACE LEVEL



	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		59.079	59.356	59.655	59.914	60.172	60.429	60.697	60.647	60.597	60.568	60.578	60.576	59.299	56.500	56.500	56.500	56.500	56.500	56.500	59.103	60.250	60.283	60.334
EXPECTED EXCAVATION LEVEL(mAHD)		58.593	57.858	49.852	45.696	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.846	43.967	42.183	40.000	40.000	43.666	45.000	49.504	56.161	60.476	60.519	60.541
EXISTING LEVEL(mAHD)			57.858		45.696	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	56.161			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION G-G'
HORZ: 1:1000
VERT: 1:500



	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000
INDICATIVE DESIGN LEVEL (mAHD)		59.316	59.547	59.777	60.007	60.237	60.466	60.695	60.697	60.723	60.749	60.775	60.800	58.959	56.500	56.500	56.500	56.500	56.500	56.500	59.446	60.036	60.216	60.142
EXPECTED EXCAVATION LEVEL(mAHD)		58.668	57.313	48.386	40.859	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	45.000	49.504	58.272	60.311	60.331	60.339
EXISTING LEVEL(mAHD)			57.313	48.386	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	58.272			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION H-H'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date
		LH	DA	12/14
	Revision of the final site levels	BZ	FK	05/22
	Revised expected excavation	BZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

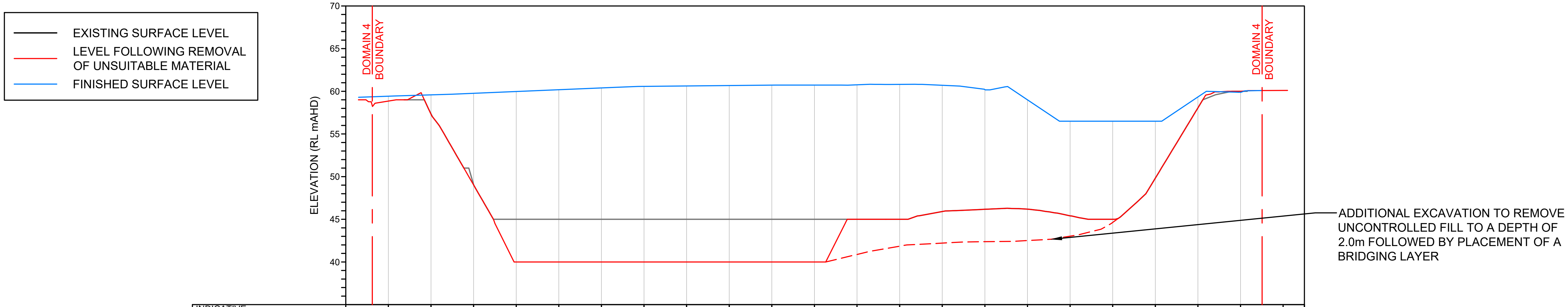
10 0 10 30 50
Horizontal Scale (metres) 1:1000

5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

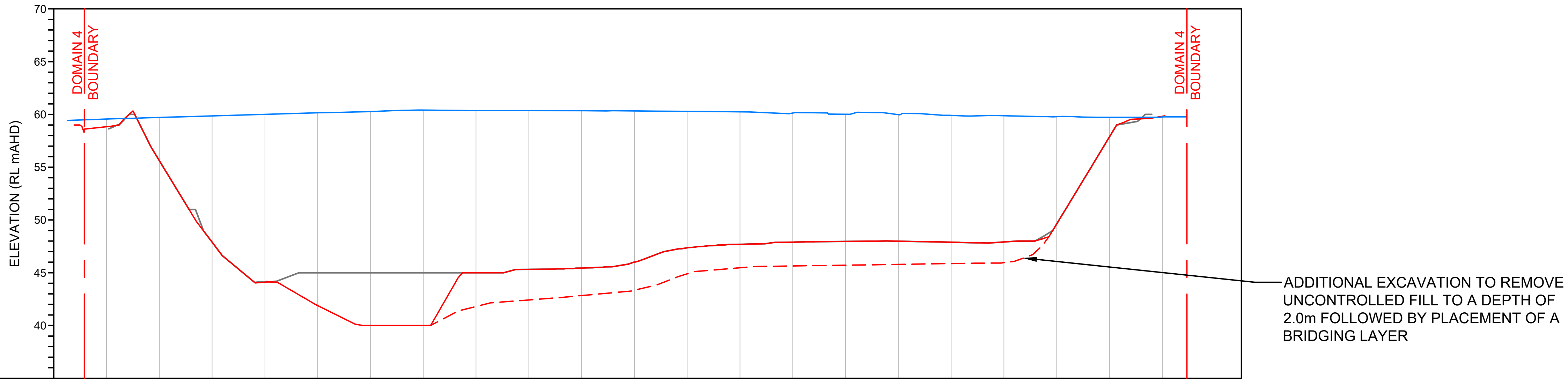
TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION GG' AND HH'
project no:	GEOTABTF09257AA-BC
figure no:	D013_Rev04



INDICATIVE DESIGN LEVEL (mAHD)		59.429	59.582	59.761	59.971	60.182	60.392	60.574	60.626	60.677	60.728	60.728	60.760	60.807	60.703	60.201	59.005	56.500	56.500	56.500	59.332	59.885		
EXPECTED EXCAVATION LEVEL(mAHD)		58.854	57.307	49.025	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	45.000	45.000	45.906	46.172	46.186	45.407	45.000	49.817	58.055	60.000	60.102	
EXISTING LEVEL(mAHD)			57.360	49.051	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.906	46.172	46.186	45.407	45.000	49.817	58.055	60.000		
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION I-I'
HORZ: 1:1000
VERT: 1:500



INDICATIVE DESIGN LEVEL (mAHD)		59.562	59.713	59.861	60.009	60.158	60.269	60.408	60.360	60.354	60.349	60.334	60.286	60.249	60.133	60.018	59.983	59.907	59.873	59.789	59.726	59.765		
EXPECTED EXCAVATION LEVEL(mAHD)		60.099	60.127	60.183	60.127	60.067	59.900	60.053	60.162	60.201	60.200	59.896	59.661	59.651	59.628	59.624	60.000	59.926	59.888	59.848	59.809	59.632		
EXISTING LEVEL(mAHD)		60.099	60.127	60.183	60.127	60.067	59.900	60.053	60.162	60.201	60.200	59.896	59.661	59.651	59.628	59.624	60.000	59.926	59.888	59.848	59.809	59.632		
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION J-J'
HORZ: 1:1000
VERT: 1:500

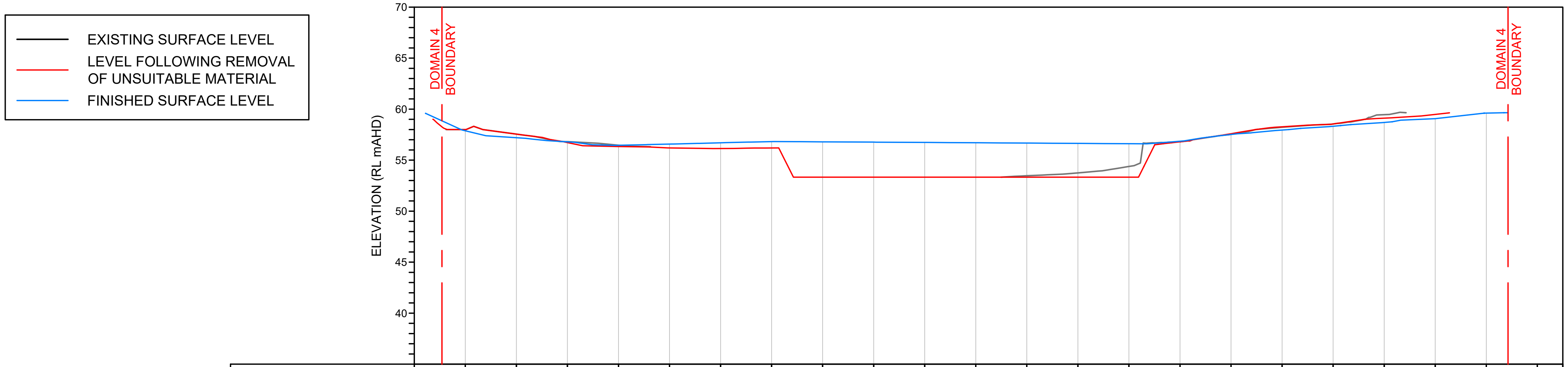
revision	description	drawn	approved	date
		LH	DA	12/14
	Revision of the final site levels	BZ	FK	05/22
	Revised expected excavation	BZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH
COFFEY

client:	TALBOT ROAD FINANCE PTY LTD		
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	SECTION II' AND JJ'		
project no:	GEOTABTF09257AA-BC	figure no:	D014_Rev04



INDICATIVE DESIGN LEVEL (mAHD)		57.877	57.199	56.789	56.456	56.572	56.702	56.820	56.796	56.765	56.735	56.704	56.673	56.643	56.612	56.857	57.517	57.949	58.325	58.693	59.068	59.614		
EXPECTED EXCAVATION LEVEL(mAHD)		58.000	57.552	56.718	56.331	56.194	56.142	56.196	53.329	53.329	53.329	53.329	53.330	53.330	53.331	56.798	57.591	58.264	58.547	59.113	59.482			
EXISTING LEVEL(mAHD)		58.000	57.553	56.808	56.465								53.469	53.753	54.381	56.822	57.529	58.225	58.547	59.459				
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION K-K'
HORZ: 1:1000
VERT: 1:500

revision description	drawn	approved	date
	LH	DA	12/14
Revision of the final site levels	BZ	FK	05/22
Revised expected excavation	BZ	IVP	09/22
Annotated boundaries and slimes extents	KJ	IVP	12/22

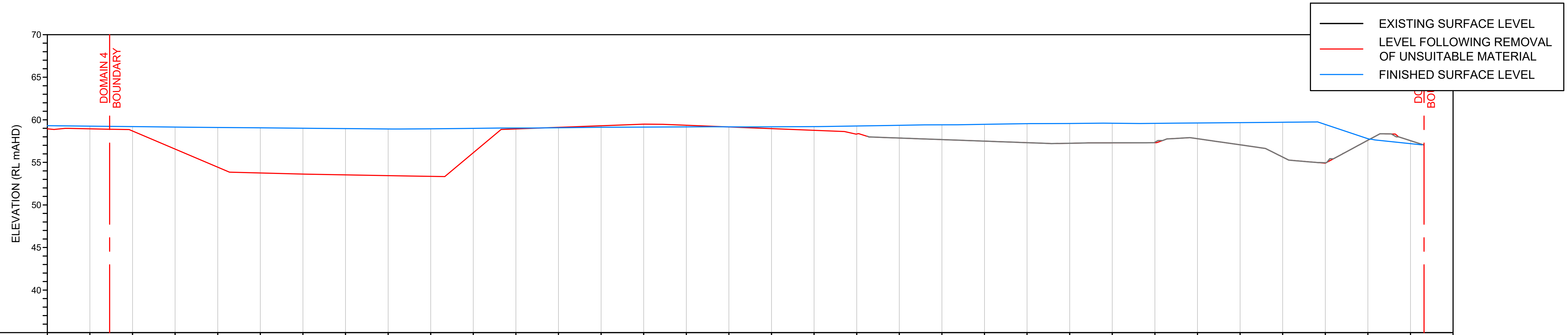
10 0 10 30 50
Horizontal Scale (metres) 1:1000

5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

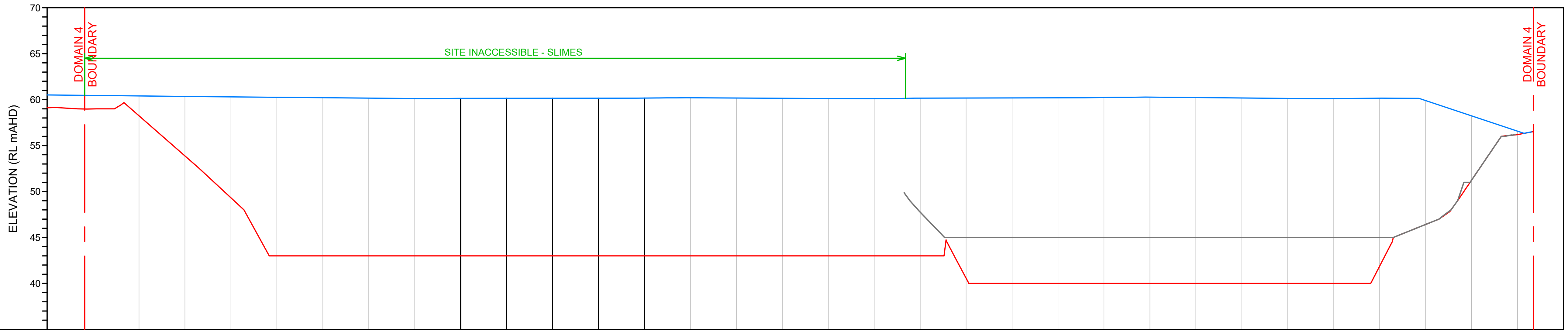
client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION KK'
project no:	GEOTABTF09257AA-BC
figure no:	D015_Rev04



INDICATIVE DESIGN LEVEL (mAHD)	59.311	59.256	59.202	59.147	59.100	59.056	59.011	58.967	58.922	58.939	58.994	59.033	59.069	59.124	59.146	59.170	59.176
EXPECTED EXCAVATION LEVEL(mAHD)	58.938	58.940	58.684	56.560	54.436	53.752	53.619	53.526	53.436	53.352	56.133	58.931	59.116	59.301	59.485	59.360	59.161
EXISTING LEVEL(mAHD)																	
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

INDICATIVE DESIGN LEVEL (mAHD)	59.180	59.204	59.272	59.356	59.410	59.467	59.547	59.571	59.596	59.582	59.625	59.669	59.713	59.448	57.783	57.198	
EXPECTED EXCAVATION LEVEL(mAHD)	58.963	58.764	58.335	57.858	57.676	57.495	57.313	57.242	57.294	57.307	57.778	57.063	55.617	54.902	57.598	57.552	
EXISTING LEVEL(mAHD)				57.858	57.676	57.495	57.313	57.242	57.294	57.360	57.778	57.063	55.617	54.949	57.598	57.553	
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION L-L'
HORZ: 1:1000
VERT: 1:500



INDICATIVE DESIGN LEVEL (mAHD)	60.514	60.459	60.404	60.350	60.302	60.258	60.213	60.169	60.124	60.143	60.148	60.153	60.158	60.172	60.199	60.173	60.148
EXPECTED EXCAVATION LEVEL(mAHD)	59.109	58.993	58.245	53.876	49.321	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000
EXISTING LEVEL(mAHD)																	
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

INDICATIVE DESIGN LEVEL (mAHD)	60.122	60.103	60.160	60.172	60.183	60.195	60.237	60.272	60.227	60.182	60.136	60.113	60.157	59.902	58.237	56.572	
EXPECTED EXCAVATION LEVEL(mAHD)	43.000	43.000	43.000	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	41.885	46.413	51.240	56.194	
EXISTING LEVEL(mAHD)			47.762	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.413	51.240		
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION M-M'
HORZ: 1:1000
VERT: 1:500

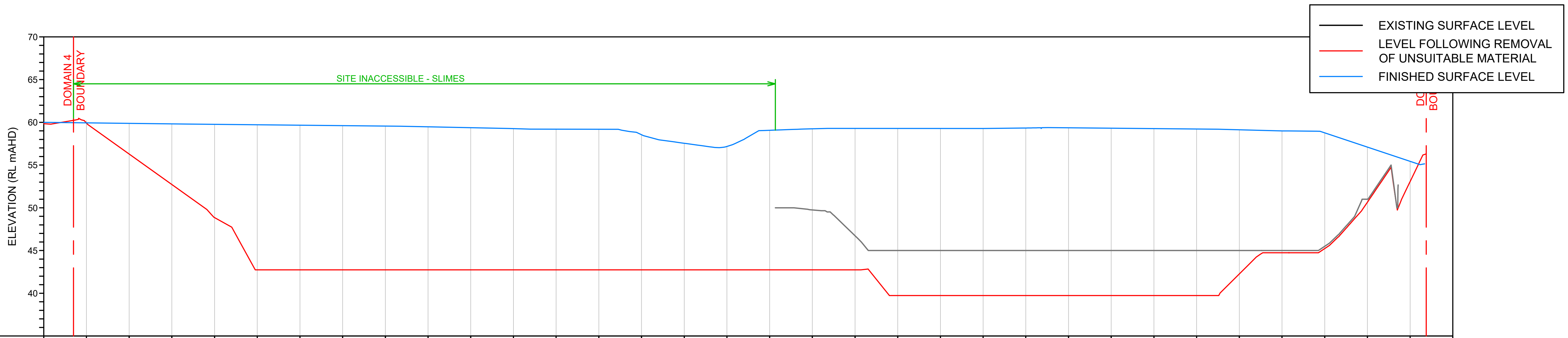
revision	description	drawn	approved	date
		LLH	DA	12/14
	RevisRevision of the final site levels	EBZ	FK	05/22
	RevisRevised expected excavation	EBZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

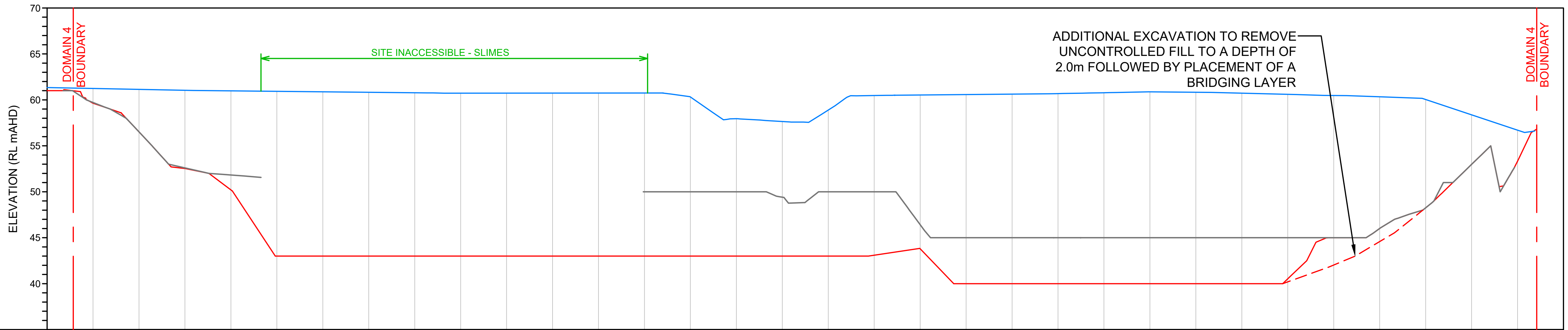
TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION LL' & MM'
project no:	GEOTABTF09257AA-BC
figure no:	D016_Rev04



INDICATIVE DESIGN LEVEL (mAHD)	61.362	61.301	61.241	61.180	61.126	61.075	61.024	60.974	60.923	60.837	60.732	60.622	60.559	60.553	59.910	58.911	58.546	60.429	60.602	60.648	60.647	60.646	60.646	60.697	60.724	60.675	60.626	60.576	60.488	60.360	60.130	58.463	56.796	
EXPECTED EXCAVATION LEVEL(mAHD)	60.106	60.180	56.550	52.985	49.117	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	42.528	45.000	45.495	50.915	53.329	
EXISTING LEVEL(mAHD)																			49.744	46.727	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.495	51.000		
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION N-N'
HORZ: 1:1000
VERT: 1:500



INDICATIVE DESIGN LEVEL (mAHD)	61.340	61.240	61.140	61.040	60.978	60.927	60.877	60.826	60.775	60.728	60.731	60.734	60.738	60.741	60.318	57.950	57.643	58.892	60.469	60.529	60.578	60.626	60.683	60.775	60.878	60.829	60.728	60.600	60.477	60.334	60.038	58.370	56.703	
EXPECTED EXCAVATION LEVEL(mAHD)	61.000	59.631	56.517	52.533	50.205	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.072	43.644	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.528	45.000	46.009	48.250	52.977	53.329	
EXISTING LEVEL(mAHD)		59.717	56.517	52.596	51.824									50.000	50.000	50.000	49.408	50.000	50.000	46.415	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.009	48.250	52.977		
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION O-O'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date
		LH	DA	12/14
	Revision of the final site levels	BZ	FK	05/22
	Revised expected excavation	BZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

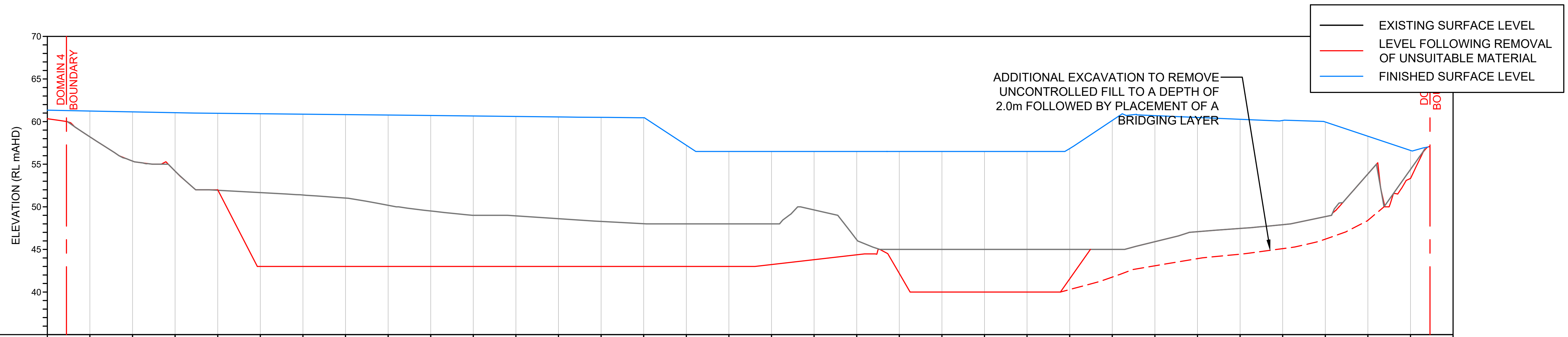
Horizontal Scale (metres) 1:1000 (10 0 10 30 50)

Vertical Scale (metres) 1:500 (5 0 5 15 25)

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

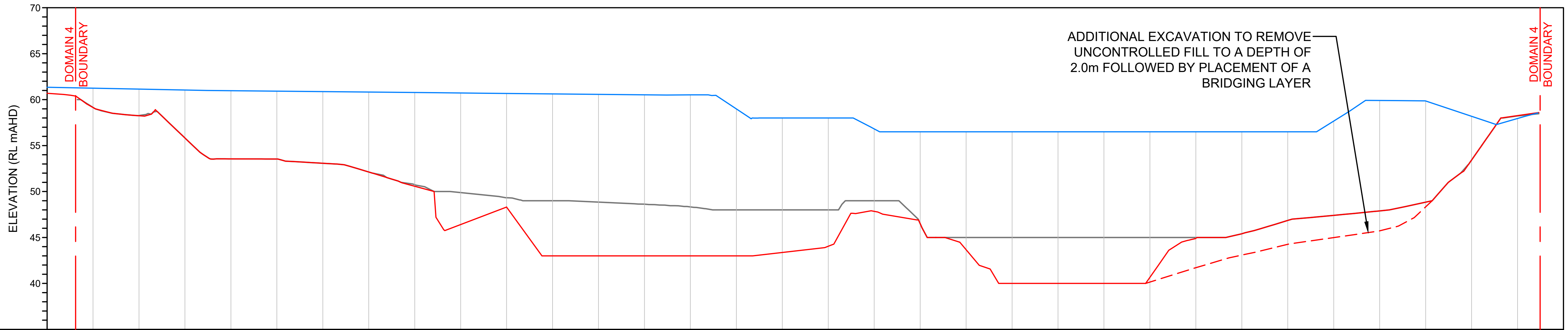
TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION NN' & OO'
project no:	GEOTABTF09257AA-BC
figure no:	D017_Rev04



DISTANCE (m)	INDICATIVE DESIGN LEVEL (mAHD)	EXPECTED EXCAVATION LEVEL(mAHD)	EXISTING LEVEL(mAHD)
0.000	61.344	60.340	
10.000	61.244	58.210	58.210
20.000	61.144	55.363	55.363
30.000	61.044	54.185	54.185
40.000	60.972	52.000	51.942
50.000	60.922	43.000	51.670
60.000	60.872	43.000	51.386
70.000	60.822	43.000	51.025
80.000	60.772	43.000	50.179
90.000	60.717	43.000	49.511
100.000	60.659	43.000	49.000
110.000	60.601	43.000	48.935
120.000	60.543	43.000	48.602
130.000	60.498	43.000	48.280
140.000	60.454	43.000	48.016
150.000	57.227	43.000	48.000
160.000	56.500	43.000	48.000
170.000	56.500	43.221	48.000
180.000	56.500	43.794	49.634
190.000	56.500	44.366	46.142
200.000	56.500	42.183	45.000
210.000	56.500	40.000	45.000
220.000	56.500	40.000	45.000
230.000	56.500	40.000	45.000
240.000	56.835	42.165	45.000
250.000	60.138	45.000	45.000
260.000	60.703	45.906	45.906
270.000	60.486	47.078	47.078
280.000	60.270	47.465	47.465
290.000	60.133	47.900	47.900
300.000	59.947	48.846	48.846
310.000	58.280	53.858	53.858
320.000	56.613	53.331	54.381
330.000			

SECTION P-P'
HORZ: 1:1000
VERT: 1:500



DISTANCE (m)	INDICATIVE DESIGN LEVEL (mAHD)	EXPECTED EXCAVATION LEVEL(mAHD)	EXISTING LEVEL(mAHD)
0.000	61.348	60.689	
10.000	61.248	59.142	59.155
20.000	61.148	58.245	58.270
30.000	61.048	55.824	55.824
40.000	60.974	53.551	53.551
50.000	60.924	53.539	53.539
60.000	60.874	53.077	53.077
70.000	60.824	52.122	52.122
80.000	60.774	50.572	50.743
90.000	60.724	46.406	49.883
100.000	60.674	48.314	49.325
110.000	60.624	43.000	49.000
120.000	60.574	43.000	48.848
130.000	60.524	43.000	48.624
140.000	60.519	43.000	48.323
150.000	58.987	43.000	48.000
160.000	58.000	43.371	48.000
170.000	58.000	44.045	48.000
180.000	56.814	47.843	49.000
190.000	56.500	46.511	46.511
200.000	56.500	43.666	45.000
210.000	56.500	40.000	45.000
220.000	56.500	40.000	45.000
230.000	56.500	40.000	45.000
240.000	56.500	40.663	45.000
250.000	56.500	44.913	45.000
260.000	56.500	45.407	45.407
270.000	56.500	46.854	46.854
280.000	57.666	47.402	47.402
290.000	59.907	47.890	47.890
300.000	59.854	48.845	48.845
310.000	58.187	53.428	53.428
320.000	57.950	58.264	58.225
330.000			

SECTION Q-Q'
HORZ: 1:1000
VERT: 1:500

revision

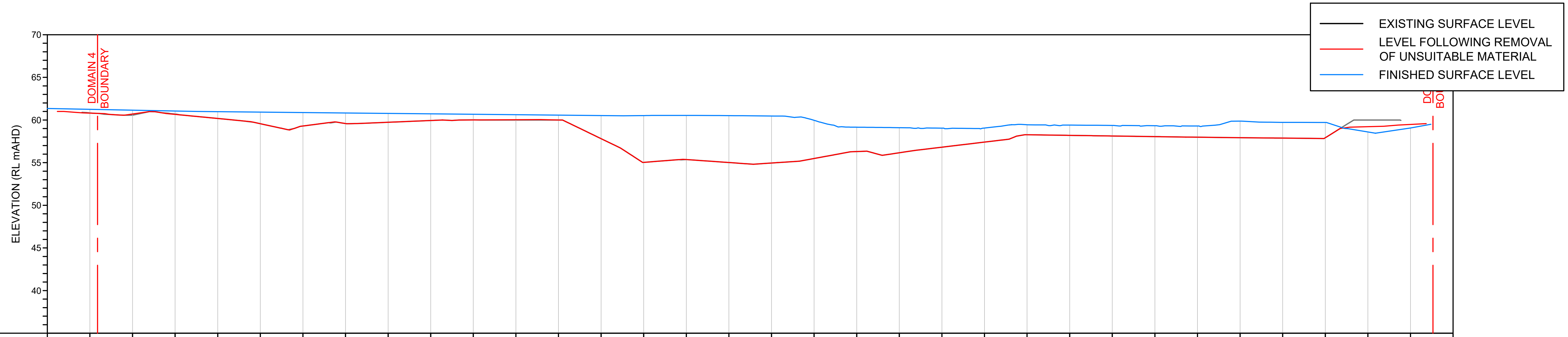
description	drawn	approved	date
	LH	DA	12/14
Revision of the final site levels	BZ	FK	05/22
Revised expected excavation	BZ	IVP	09/22
Annotated boundaries and slimes extents	KJ	IVP	12/22

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION PP' & QQ'
project no:	GEOTABTF09257AA-AQ
figure no:	D018_Rev04



INDICATIVE DESIGN LEVEL (mAHD)	61.352	61.252	61.152	61.052	60.976	60.926	60.876	60.826	60.776	60.726	60.676
EXPECTED EXCAVATION LEVEL(mAHD)		60.806	60.699	60.659	60.181	59.567	59.294	59.583	59.733	59.942	60.010
EXISTING LEVEL(mAHD)		60.831	60.571	60.697	60.181	59.567	59.294	59.583	59.733	59.942	60.017
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000

INDICATIVE DESIGN LEVEL (mAHD)	60.626	60.576	60.526	60.520	60.540	60.517	60.472	59.962	59.158	59.102	59.047
EXPECTED EXCAVATION LEVEL(mAHD)	60.038	60.004	57.814	55.036	55.367	55.015	54.955	55.488	56.300	56.161	56.813
EXISTING LEVEL(mAHD)	60.000	60.000	57.814	55.036	55.367	55.015	54.955	55.488	56.300	56.161	56.813
DISTANCE (m)	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000

INDICATIVE DESIGN LEVEL (mAHD)	59.061	59.444	59.402	59.367	59.332	59.297	59.867	59.726	59.715	58.598	59.068	
EXPECTED EXCAVATION LEVEL(mAHD)	57.410	58.272	58.200	58.127	58.055	57.985	57.926	57.877	57.922	59.217	59.482	
EXISTING LEVEL(mAHD)	57.410	58.272	58.200	58.127	58.055	57.985	57.926	57.877	57.922	60.000		
DISTANCE (m)	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION R-R'
HORZ: 1:1000
VERT: 1:500

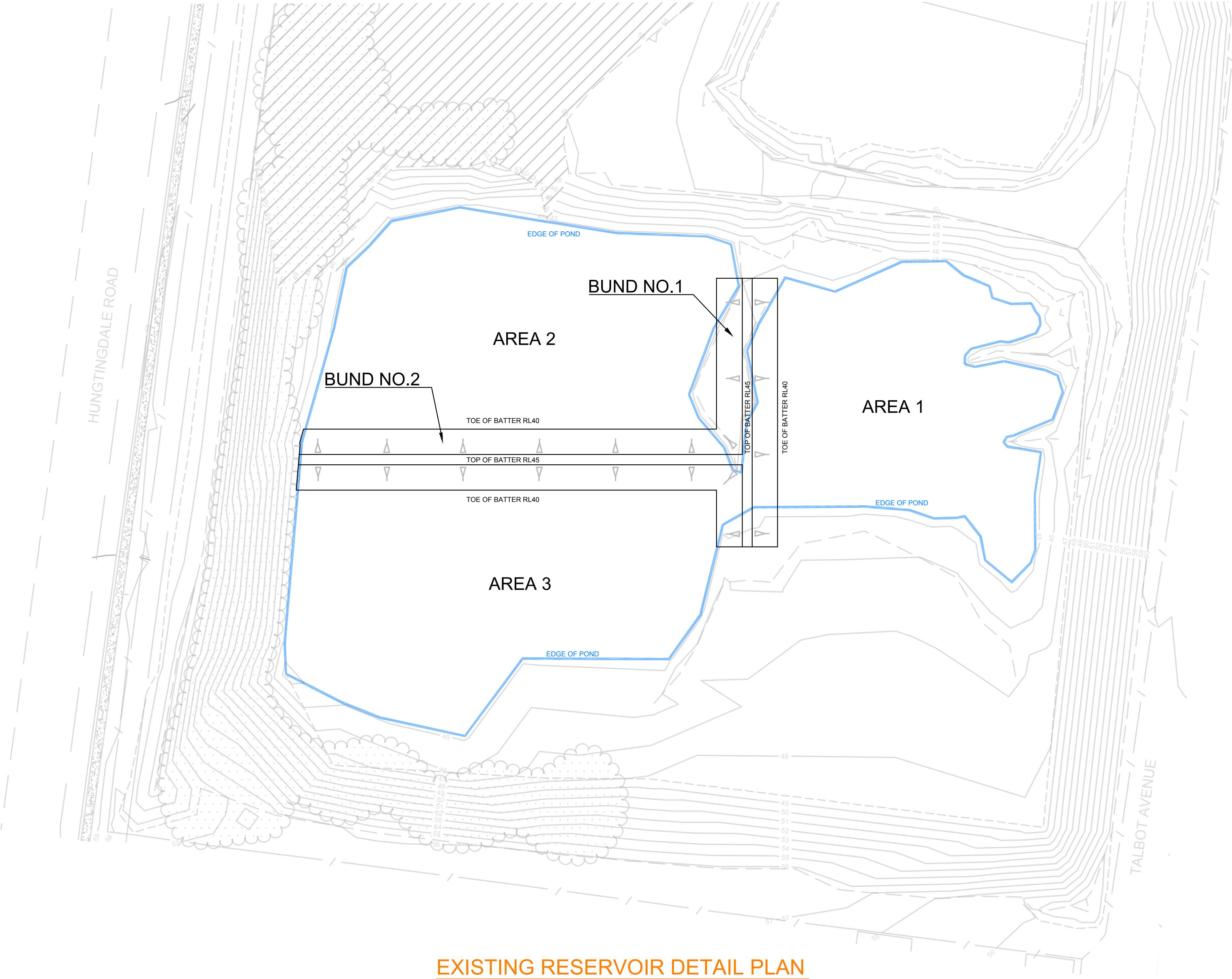
revision	description	drawn	approved	date
		LH	DA	12/14
	Revision of the final site levels	BZ	FK	05/22
	Revised expected excavation	BZ	IVP	09/22
	Annotated boundaries and slimes extents	KJ	IVP	12/22

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	BZ
approved	KJ
date	13/12/2022
scale	AS SHOWN
original size	A3

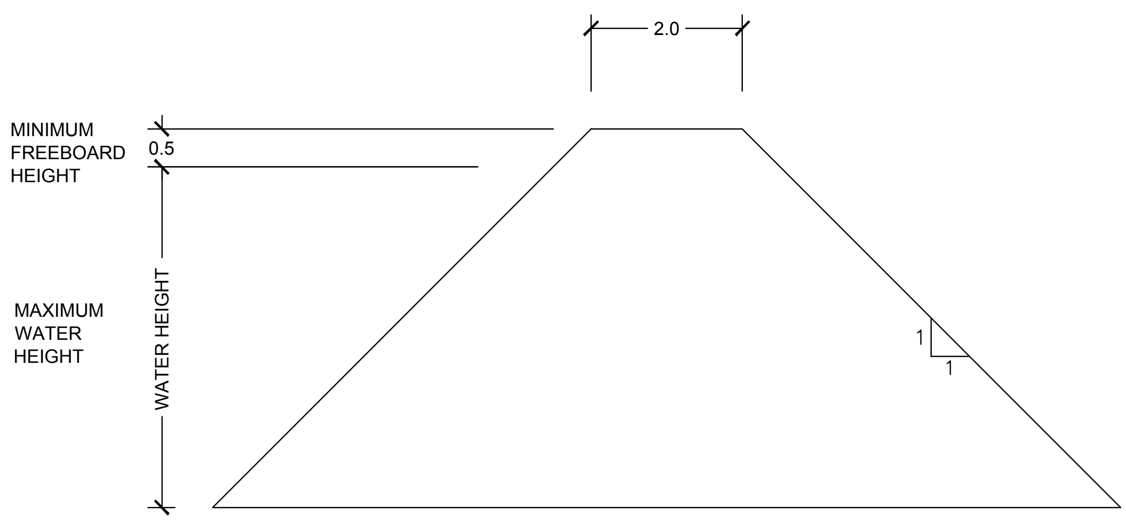
TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD		
project:	DOMAIN 4 BACKFILL DESIGN		
	HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	SECTION RR'		
project no:	GEOTABTF09257AA-AQ	figure no:	D019_Rev04



EXISTING RESERVOIR DETAIL PLAN

SCALE 1:1000



TYPICAL BUND SECTION

SCALE 1:100

NOTES:

ENGINEERED FILL CONSTRUCTION FOR RESERVOIR

- PUMP OUT WATER
- EXCAVATE TO NATURAL SOIL. UNSUITABLE MATERIAL SUCH AS SEDIMENTS, SILTS, ORGANIC MATERIAL AND PARTICLES LARGER THAN 100mm SHOULD BE REMOVED.
- CONSTRUCT BUND NO.1 BY PLACING FILL IN 300mm LOOSE THICKNESS LAYERS IN ACCORDANCE TO THE TYPICAL BUND SECTION AND TRACK ROLL.
- THE EXPOSED SUBGRADE SHOULD BE PROOF ROLLED WITHIN AREA 1.
- PLACE FILL IN AREA 1 TO RL42m IN ACCORDANCE TO DRAWING NUMBER D08.
- REPEAT FOR AREAS 2 AND 3.
- FOLLOWING COMPLETION OF THE DRAINAGE LAYER IN AREA 1. THE SOIL IN BUND NO.1 CAN BE USED AS CONTROLLED FILL.

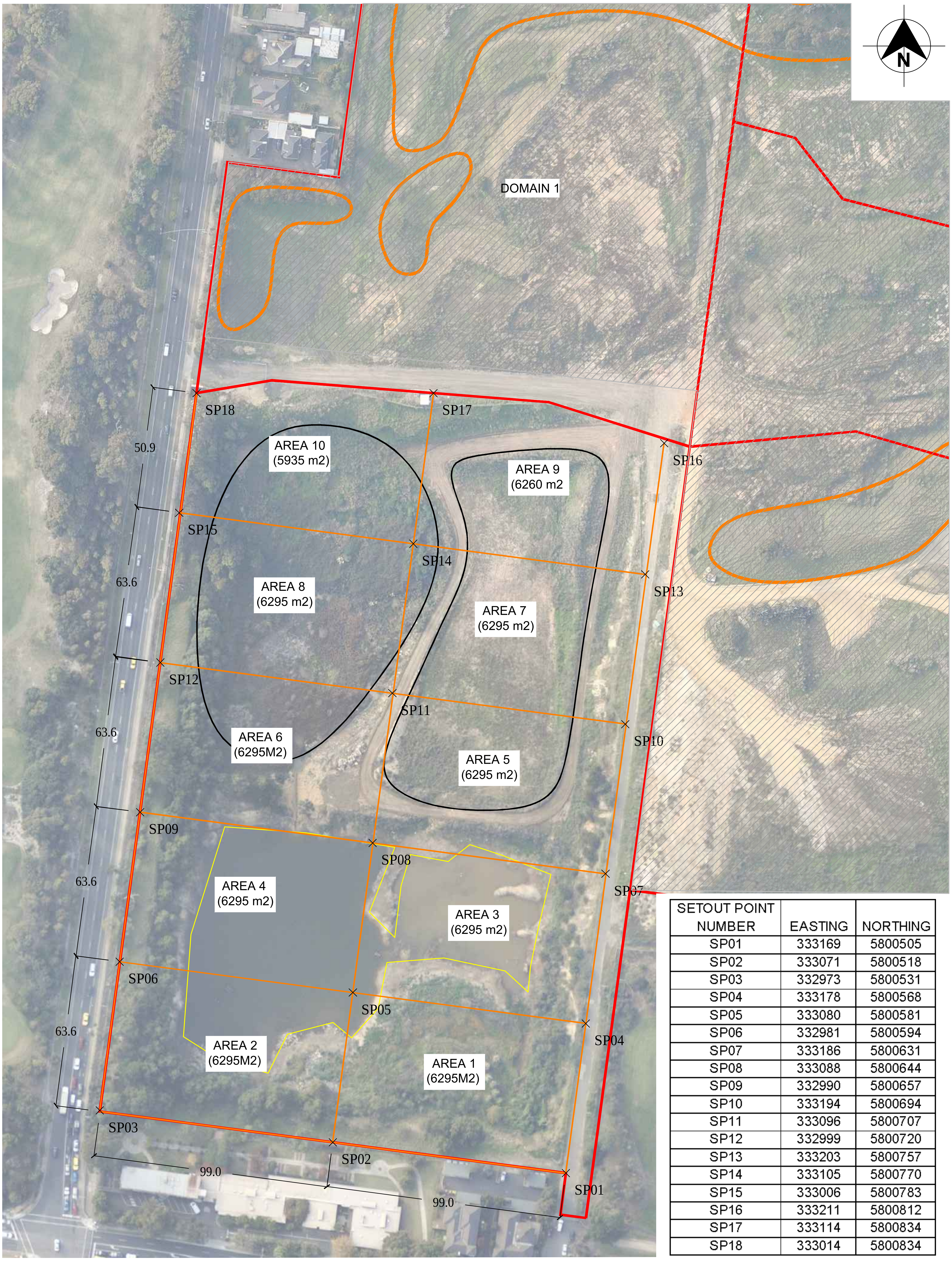
no.	Description	Drawn	Approved	Date
		LH	DA	11/14
		LH	DA	12/14
	Title Revised	FK		02/22

0 10 20 30 40 50
SCALE 1:1000 (A3) METRES

drawn	LH
approved	
date	17 / 2 / 22
scale	AS SHOWN
original size	A3

coffey

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	DOMAIN 4 BUND LAYOUT
project no:	GEOTABTF09257AA-AQ
figure no:	D20_Rev02



SETOUT POINT NUMBER	EASTING	NORTHING
SP01	333169	5800505
SP02	333071	5800518
SP03	332973	5800531
SP04	333178	5800568
SP05	333080	5800581
SP06	332981	5800594
SP07	333186	5800631
SP08	333088	5800644
SP09	332990	5800657
SP10	333194	5800694
SP11	333096	5800707
SP12	332999	5800720
SP13	333203	5800757
SP14	333105	5800770
SP15	333006	5800783
SP16	333211	5800812
SP17	333114	5800834
SP18	333014	5800834

no.	Description	Drawn	Approved	Date
		LH	DA	11/14
		LH	DA	12/14
	Title Revised	FK		07/22

SCALE 0 15 30 45 60 75 METRES 1:1500 (A3)

drawn	LH
approved	
date	27 / 07 / 22
scale	1:1500
original size	A3

coffey

client: Huntingdale Estate Nominees Pty Ltd

project: DOMAIN 4 BACKFILL DESIGN

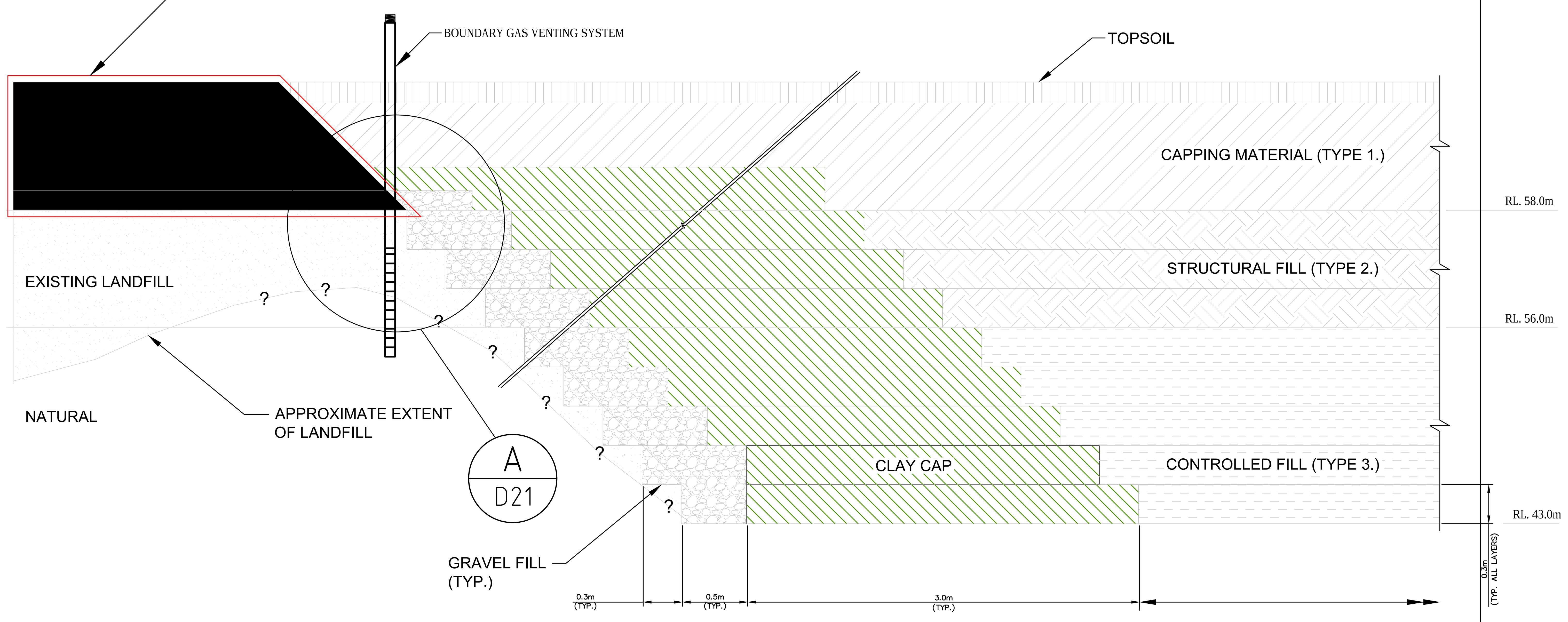
HUNTINGDALE ESTATE, OAKLEIGH SOUTH

title: ENGINEERED FILL CELL LAYOUT

project no: GEOTABTF09257AA-AQ

figure no: D21_Rev02

LANDFILL CAP DETAIL - DOMAIN 1 - DOMAIN 4 INTERFACE

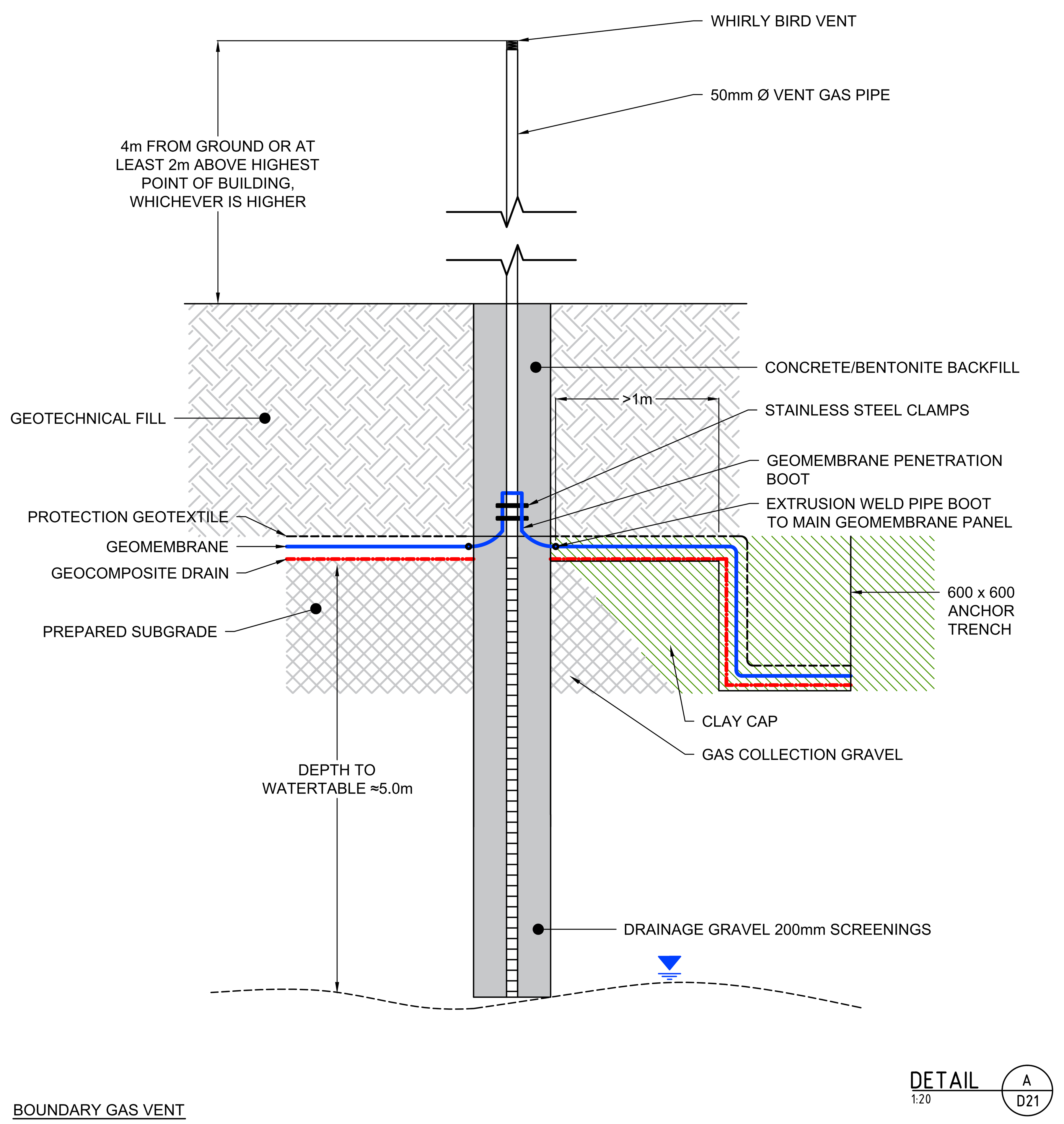


LANDFILL CAP DETAIL NOTES:

1. SITE CUT 300mm HIGH STEP INTO EXISTING SLOPE.
2. PLACE 3.0m WIDE STRIP OF CLAY CAPPING AT 300mm THICK AND COMPACT, SET BACK 500mm FROM TOE OF CUT.
3. PLACE GRAVEL FILL BETWEEN TOE OF CUT AND CLAY CAPPING STRIP, EQUAL TO TOP OF CLAY CAP LEVEL.
4. FILL AREA BEHIND CLAY CAP STRIP WITH TYPE 3 CONTROLLED FILL OR TYPE 2 STRUCTURAL FILL DEPENDENT OF RL. FOR DETAILS REFER DRAWING No. D08_REV_02 .
5. REPEAT STEPS 1 THROUGH 4 UNTIL REACHING THE TOP OF EXISTING SURFACE LEVEL.

LEGEND

- Existing Landfill
- Clay Cap
- Gas Collection (Gravel)
- Topsoil
- Type 1 Capping Material
- Type 2 Structural Fill
- Type 3 Controlled Fill
- Drainage Trench For Sand / Gravel



BOUNDARY GAS VENT

DETAIL A D21 1:20

Reference: Coffey Report *"Conceptual Design of Site Management Measures"* ref ENAUABTF00751AB_R14 dated 1 May 2020

rev	description	drawn	approved	date
01	TITLE AND PROJECT NUMBER REVISED	FK		
0	ORIGINAL ISSUE	JH/CGT		

coffey
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www.coffey.com

designed	RG	client:	HUNTINGDALE ESTATE NOMINEE
drawn	JH/CGT	project:	DOMAIN 4 BACKFILL DESIGN
checked	PH		HUNTINGDALE ESTATE, OAKLEIGH SOUTH
approved	TM	title:	DOMAIN 1 - DOMAIN 4 INTERFACE DETAIL
date	28/03/19		
scale at A1	1:250	project no: GEOTABTF09257AA-AQ	drawing no: D22-REV01 rev 01

revision

no.	description	drawn	approved	date
C	REVISED EXTENT OF DRYING AREA	JO	KJ	12.12.22
B	ADDED FILL PLATFORM FROM PROPOSED WORKS PLAN	JO	KJ	13.10.22
A	ORIGINAL ISSUE	HU	KJ	21.09.22

LEGEND

- CONTOUR LINE
- EXTENT OF DATA (UNABLE TO BE SURVEYED)
- DOMAIN
- FENCE
- SITE BOUNDARY
- CADASTRE
- EXISTING FILL PLATFORM TO BE USED AS SLIMES DRYING AREA
- SLIMES AND SEDIMENT DRYING AREA

SCALE 0 20 40 60 80 METRES 1:2,000 (A3)

Projection: GDA 1994 MGA Zone 55

drawn	JO
approved	KJ
date	12.12.2022
scale	1:2,000
original size	A3

TETRA TECH COFFEY

client: HUNTINGDALE ESTATE NOMINEES PTY LTD

project: GEOTECHNICAL SITE INVESTIGATION
1221-1249 CENTRE ROAD & 22 TALBOT AVENUE
OAKLEIGH SOUTH, VICTORIA

title: PROPOSED SLIMES DRYING AREA

project no:	figure no:	rev:
GEOTABTF09257AA	FIGURE D23	C

MXD Template Reference: 09257AA_AQ_GIS001_v0_5

SURFACE PINS:

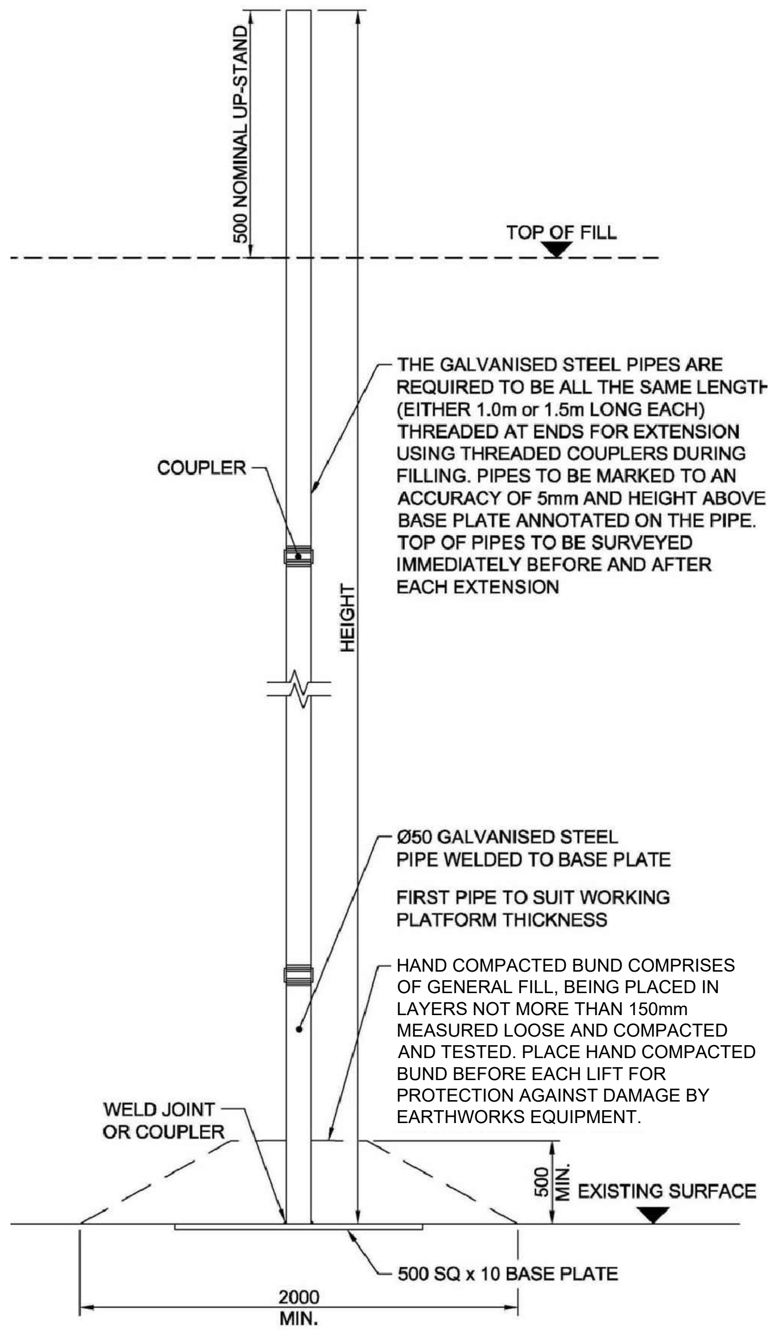
- SURFACE PINS TO BE EMBEDDED IN MINIMUM 300mm x 300mm CONCRETE.
- SURFACE PINS TO BE BRASS OR STAINLESS STEEL, MINIMUM OF 150mm IN LENGTH AND 10mm DIAMETER OR AS APPROVED BY THE SUPERINTENDENT.
- SURFACE PINS ARE TO BE INSTALLED AT THE SETTLEMENT CLUSTER. FOR DETAILS REFER TO TABLE (THIS DRAWING).

SETTLEMENT PLATES:

SETTLEMENT PLATES MUST CONSIST OF 500mm x 500mm x 10mm GALVANISED STEEL PLATES, WITH GALVANISED STEEL EXTENSION RODS WELDED CENTRALLY TO THE BASE PLATES.
EXTENSION RODS ARE TO BE CIRCULAR HOLLOW STEEL OR PVC SECTIONS HAVING A NOMINAL DIAMETER OF 50mm AND MINIMUM WALL THICKNESS OF 2.5mm.

THE INSTALLATION PROCEDURE IS AS FOLLOWS:
- SETTLEMENT PLATES ARE TO BE PLACED ON A PREPARED SURFACE AT EXISTING GROUND LEVELS, PRIOR TO THE PLACEMENT OF EMBANKMENT FILL LAYERS;
- AN EARTH BUND OF DIMENSIONS 2.0m x 2.0m IS TO BE PLACED, BY HAND, AROUND THE EXTENSION ROD FOR THE PURPOSE OF PROTECTING THE ROD FROM SUBSEQUENT EARTHWORKS;
- HIGHLY VISIBLE SAFETY FENCES ARE TO BE PLACED AT THE TOP OF THE INITIAL EARTH BUND;
- SUBSEQUENT MACHINE PLACEMENT OF FILL IS TO BE CARRIED OUT WITHOUT CAUSING THE EXTENSION ROD TO MOVE OR BE DAMAGED; AND
- EXTENSION RODS ARE TO BE CONNECTED TO THE PLATE AS REQUIRED.

SETTLEMENT PLATES ARE TO BE INSTALLED IN A CLUSTER OF 3 AT EACH LOCATION AS SHOWN ON DRAWING No's. GEOTABTF09257AA-BC_D08_REV02 & GEOTABTF09257AA-BC_D09_REV02.
- THE FIRST SETTLEMENT PLATE IS TO BE INSTALLED ON THE PREPARED BASE OF EXCAVATION PRIOR TO PLACING ANY FILL.
- THE SECOND SETTLEMENT PLATE IS TO BE INSTALLED AT RL. 50.0m AT THE BASE OF THE TYPE 2 STRUCTURAL FILL.
- THE THIRD SETTLEMENT PLATE IS TO BE INSTALLED AT RL. 56.0m AT THE BASE OF THE TYPE 1 CAPPING FILL.
- SURFACE PINS ARE TO BE INSTALLED AT THE SETTLEMENT CLUSTER.



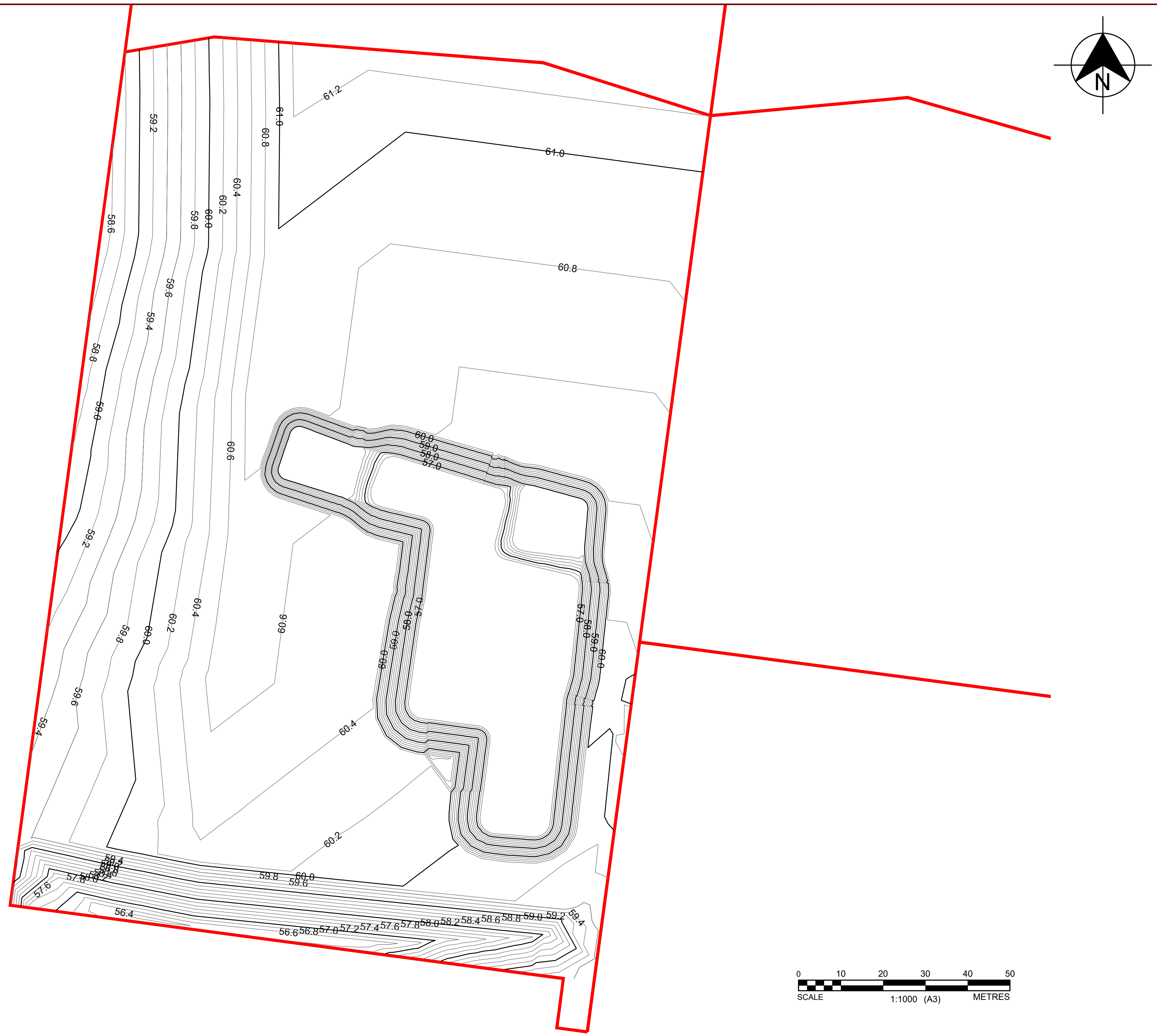
SETTLEMENT PLATES
(N.T.S.)

revision	description	drawn	approved	date
	REV 0 - ADDITIONAL TABLE AND NOTES REVISED	MjB	MF	28/02/2019
	TITLE REVISED	FK		27/07/22

drawn	MjB
approved	MF
date	27/07/2022
scale	N.T.S.
original size	A3

coffey
A TETRA TECH COMPANY

client:	Huntingdale Estate Nominees Pty Ltd
project:	DOMAIN 4 BACKFILL DESIGN
	HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SETTLEMENT PLATE DETAIL
project no:	GEOTABTF09257AA-AQ
figure no:	D24_Rev01



NOTE:

- CONTOURS (BASED ON 19017-00-DSGN EWKS INTERIM.dwg AND 19017-00-DSGN WETLAND.dwg) REPRESENT INDICATIVE FINAL SURFACE LEVEL.

LEGEND

DOMAIN 4 BOUNDARY

FINISHED SURFACE MAJOR CONTOUR

FINISHED SURFACE MINOR CONTOUR

0 10 20 30 40 50
SCALE 1:1000 (A3) METRES

revision	description	drawn	approved	date

drawn	TML
approved	IVP
date	16 DEC 2022
scale	1:200
original size	A3

TETRA TECH COFFEY

client:	TALBOT ROAD FINANCE PTY LTD
project:	ZONE 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	INDICATIVE DOMAIN 4 FINISHED SURFACE LEVELS
project no:	GEOTABTF09257AA-BC
figure no:	D25

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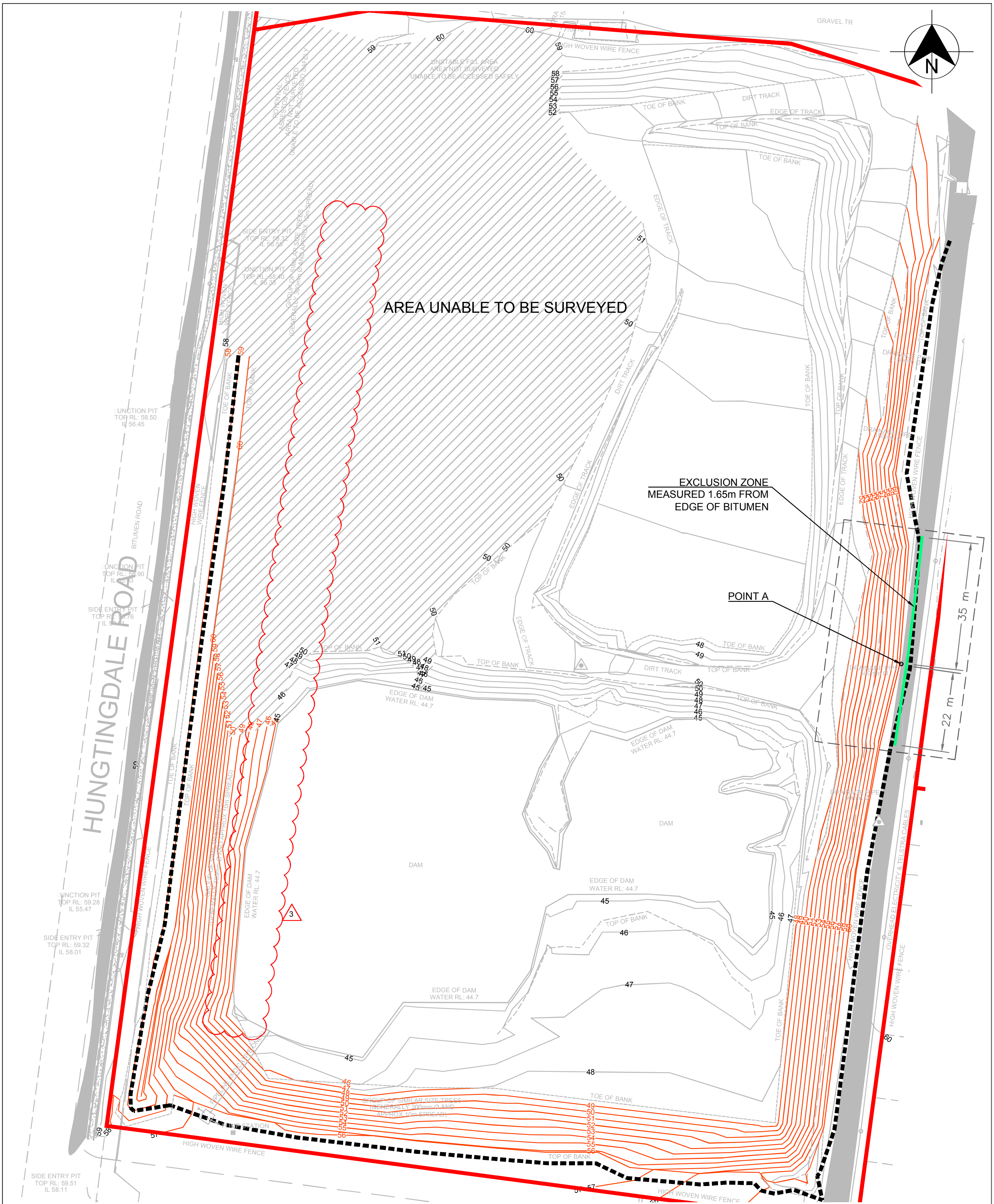
Appendix A – Exclusion Zone at Eastern Batter



3

NOTE:
CONTOURS FROM TAYLORS DEVELOPMENT STRATEGISTS DRAWING 0180D-D1-REV_A (12/06/2013)

LEGEND

Critical Batter Slope (Contour)

E□isting Surface Level Contour

3m E□clusion Zone

0 10 20 30 40 50
SCALE 1:1000 (A3) METRES

drawn	□O
approved	MF
date	01/05/17
scale	1:1000
original size	A3

coffey
A TETRA TECH COMPANY

client: TALBOT ROAD FINANCE PTY LTD

project: Domain 4 Batter Stability
HUNTINGDALE ESTATE, OAKLEIGH SOUTH

title: EXCLUSION ZONE AT EASTERN BATTER

project no: GEOTABTF09257AA

figure no: B1

Appendix B – Domain 4 Batter Stability Assessment Report (ref 754-GEOTABTF09257AA-EG)

Talbot Village, Oakleigh South

Domain 4 Batter Stability Assessment Report

Huntingdale Estate Nominees Pty Ltd
c/- Sterling Global

Reference: 754-GEOTABTF09257AA-EG

21 September 2021

TALBOT VILLAGE, OAKLEIGH SOUTH

Domain 4 Batter Stability Assessment Report

Report reference number: 754-GEOTABTF09257AA-EG
21 September 2021

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QUALITY INFORMATION

Revision history

Revision	Description	Date	Author	Reviewer	Approver
V0	Domain 4 Batter Stability Assessment Report	21 September 2021	H. Khoo F. Khayyer	I. Pedler	F. Khayyer

Distribution

Report Status	No. of copies	Format	Distributed to	Date
V0	1	PDF	Sterling Global	21 September 2021

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FIGURES

ACRONYMS / ABBREVIATIONS

Acronyms/Abbreviations	Definition
BGL	Below ground level
RL	Reduced level
AHD	Australian Height Datum

1. INTRODUCTION

Huntingdale Estate Nominees Pty Ltd (Huntingdale Estate) has engaged Tetra Tech Coffey Pty Ltd (Coffey) to provide geotechnical services in support of a proposed redevelopment within a former sand pit site (Talbot Village site) located to the north east of the intersection of Huntingdale Road and Centre Road, Oakleigh South, Victoria. The proposed development comprises of a range of residential land uses including designated areas of open space and commercial land use.

One component of these geotechnical services has been the slope stability assessment of the existing quarry void located in Domain 4 (Zone 4 in the Statement of Environmental Audit, (HS Support 2020)). This has involved stability assessments of each of the pit walls at various times between 2015 and 2019 which were reported in References 1 to 4.

This report compiles the previous stability analyses and assessment into one report and presents the results of additional slope stability analyses under seismic (earthquake) loading.

This report supersedes all the above previous letters and should be read in conjunction with GEOTABTF09257AA-AQ Rev10 “Zone 4 Backfill Design Report” dated 25 September 2015 (Reference 1).

2. EXISTING QUARRY CONDITIONS

Figures 1 and 2 show the location of Domain 4 in the south west corner of the Talbot Village site.

Figure 3 shows the existing surface levels in 2013 based on Taylors Development Strategist Drawing 0180D-D1-Rev_A (12/06/2013).

The survey information has been used to generate a series of sections through Domain 4 as shown on Figure 3. Typical quarry pit batters are shown on east west sections G-G’ and H-H’ in Figure 4 and M-M’ and O-O’ in Figure 5. These sections show the location of slimes and uncontrolled fill in the nothern half of the site. The slimes and uncontrolled fill will be removed and replaced with engineered fil to create an engineered fill platform up to 20m thick to reach the proposed design surface level of approximately RL 60m.

The sections indicate the quarry pit batter slopes generally range between 40° and 45° except for localised sections of the eastern and western batters which have slopes of about 58°.

3. STABILITY ANALYSES

3.1 ANALYSIS PROGRAM

In order for the backfilling works to proceed in a safe manner, it is important to consider the stability of the existing batters in Domain 4. Stability analyses were conducted using the limit equilibrium method in Rocscience SLIDE computer program. The analyses in 2015 were conducted with Version 6.005 while the later analyses in 2017 and 2019 used Version 7.023 and Version 8.016 respectively. The current additional analyses under seismic (earthquake) loading were performed with Version 9.016.

The SLIDE outputs are provided in Appendix A to E.

3.2 STABILITY MODEL

The analyses presented in the “Zone 4 Backfill Design Report” in 2015 (Reference 1) adopted a model geometry for the quarry wall height and slope angle based on Section G-G as shown in Figures 3 and 4.

The geotechnical model comprises 5m of Silty Sand overlying 15m of Clayey Sand as inferred from BH7B and BH9B for western and eastern batters, respectively (see Figure 6). SPT test results of boreholes conducted within the natural soils on site varied from an N* value of 15 up to 130 blows per 300mm. Based on the correlation between STP values and friction angle (ϕ) presented in Peck (1974), friction angles (ϕ‘) of the sands is estimated to be ranged between 34^0 and 40^0. For the purposes of slope stability assessment in this report, a typical N* value of 30 which is equal to a friction angle (ϕ) of 36^o has been assigned to the sands.

3.3 BACK ANALYSIS

The performance of the batters over the past 20 years provides guidance on the inherent stability of the natural materials. The batter slopes based on the available survey and the ground profile were used to “back analyse” the stability of the batter slopes. The basis of this back analysis was that a minimum Factor of Safety (FOS) of 1.0 applies for global instability for the “steepest” sections for both the eastern and the western batters. That is, the minimum strength parameters required for the slope to be on the point of imminent slope failure.

The results of the back analysis of the western batters are presented in Figure A1 which are based on an assumed conservative groundwater profile extending rising from the base of the quarry to close to Huntingdale Road level about 25m back from the site boundary. A FOS of 1.06 was obtained for a shallow failure in the upper 10m of the slope using the friction angle of 36^o for the sands and a cohesion of 2 kPa for the clayey sands. The result of this analysis gave geotechnical strength parameters which we consider represent conservative values for the materials. These strength parameters are presented in Table 1 together with the results of assessment.

The following Factor of Safety (FOS) has been adopted for global stability in the slope stability assessment:

- A FOS of 1.3 for temporary conditions while excavation or backfilling is occurring during construction;
- A FOS of 1.5 for long term conditions following completion of construction; and
- A FOS of 1.1 for short term conditions during seismic (earthquake) event.

3.4 STABILITY OF THE WESTERN BATTERS

Figures A1 to A3 in Appendix A show the results of an assessment of the western batter using the geotechnical parameters which were derived from the back analysis in Figure A1. A loading of 20kN was included to simulate the potential traffic loading from Huntingdale Road. It is noted that there is an over-steep section at the top of the batter which should be remediated prior to placement of fill within the excavation. Figure A2 shows the FOS for global stability for a failure surface within the site is marginally below 1.3. Figure A3 shows the FOS for a failure surface which would impact Huntingdale Road is 1.41.

Table 1: Summary of results of the global stability assessment for western batters

Analysis	Figure #	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m^3)		Cohesion (kN/m^2)		Internal Friction (ϕ')		
		Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	
West Batter, Back Calculation	A1	20	20	0	2	36	36	1.06
West Batter, Global Stability	A2	20	20	0	2	36	36	1.27
West Batter, Global Stability at Huntingdale Road	A3	20	20	0	2	36	36	1.41

The results of the stability assessment show that the existing batters have a FOS for global stability of approximately 1.3 or greater and an appropriate FOS exists against instability at Huntingdale Road provided the localised parts of the batters which are steeper that 45° exhibiting signs of fretting are battered back to a maximum slope angle of 45°. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted in a manner any local fretting will not impact on the safety of construction personnel.

3.5 STABILITY OF THE EASTERN BATTERS

Figures B1 to B5 in Appendix B show the results of an assessment of the eastern batter using geotechnical parameters which were derived from the back analysis. A loading of 6kN was included to simulate the potential construction traffic on Talbot Road which would be limited to empty trucks. A groundwater profile was assumed to extend from the base of the pit to 1m below ground surface at Talbot Road.

Figure B1 shows the minimum FOS for a shallow failure is 1.17 ignoring the very small and shallow failure surface. The deeper seated failure surface extending back 3.9m from the crest gave a FOS of 1.28, which is marginally below 1.3.

Figure B2 shows the FOS of greater than 1.3 for a shallow failure which intersects the eastern edge of Talbot Road, prior to any traffic loading.

Figure B3 shows the FOS of 1.17 for the critical surface with the applied traffic loading. However, this critical surface is a shallow failure as similar to Figure B1 and would not impact Talbot Road.

Figure B4 shows the FOS of greater than 1.3 for a shallow failure which intersects the eastern edge of Talbot Road as well as the FOS of marginally below 1.3 for global stability with the applied traffic loading.

Figure B5 shows the FOS of greater than 1.3 for a failure on the east and west sides of Talbot road with an applied traffic loading and following a failure of the critical surface shown in Figure B1. This demonstrates that Talbot Road would not be impacted if a shallow failure along the critical surface occurs.

Table 2: Summary of results of the global stability assessment for eastern batters

Analysis	Figure #	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m^3)		Cohesion (kN/m^2)		Internal Friction (ϕ')		
		Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	
East Batter, Back Calculation (Critical surface)	B1	20	20	0	2	36	36	1.17
East Batter, Global Stability	B1	20	20	0	2	36	36	1.28
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – No Load applied	B2	20	20	0	2	36	36	1.43
East Batter, Critical Surface with Traffic Loading applied	B3	20	20	0	2	36	36	1.17
East Batter, Global Stability with Traffic Loading applied	B4	20	20	0	2	36	36	1.28
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied	B4	20	20	0	2	36	36	1.43
East Batter, Global Stability after critical failure	B5	20	20	0	2	36	36	1.38
East Batter, at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied	B5	20	20	0	2	36	36	1.44

The results of the stability assessment show that the existing batters have an FOS for global stability of approximately 1.3 or greater. The results also show an appropriate FOS exists for instability at Talbot Avenue provided the recommendations below are followed:

- Localised parts of the batters which are steeper that 45^{o} which have exhibited signs of fretting should be trimmed back to a maximum slope angle of 45^{o}. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted so that any local fretting will not impact on the safety of workers.
- An exclusion zone of minimum 4m from the crest of the batter should be maintained throughout the construction of the fill platform in Domain 4. It is noted that this is based on the assessed section of the eastern batter which is the steepest. A reduced exclusion zone may be considered for other parts of the site but specific assessment would be required. A plan showing the exclusion zone is presented in Figure B6 in Appendix B.
- Given the nature of these batters and the ongoing works associated with the filling of the excavation, it is recommended that routine visual assessments are undertaken to identify any signs of instability and implementation of remedial actions if required to maintain safe batter conditions.

3.5.1 Additional assessment for eastern batter conducted in 2017

In 2017, an additional stability assessment was performed to refine the quarry crest exclusion zone distance along the eastern batter. The results were presented in Coffey letter GEOTABTF09257AA-BR dated 1 May 2017.

The crest of part of the eastern wall lies relatively close to Talbot Avenue. Power lines and limited road width make the road untrafficable if a 4m exclusion zone is applied at this location, precluding the use of Talbot Avenue for trucks to exit the site.

An additional stability analysis was carried out where the crest is closest to Talbot Avenue to assess the required exclusion zone distance. The batter slope in this area is less steep that the section previously analysed.

The previous 2015 assessment used an equivalent load of 6.0kN/m² over a length of 4.0m. For this assessment, a surcharge of 8.0 kN/m² over a width of 3.0m was adopted to better model the load spread of a truck on the 4.15m wide bitumen road.

Figure B7 (refer Appendix B) shows a potential failure surface with factor of safety of 1.17 that daylights in the road at a distance of 2.0m from the crest for the 3.0m wide surcharge which is applied at a distance of 1.75m from the crest. At this location the survey shows the crest is 0.4m from the western edge of the bitumen. Based on this geometry, it is recommended the truck wheel track exclusion zone of 2.05m be measured as a 1.65m offset from the western edge of the bitumen as shown in Figure B8 (refer Appendix B).

The 1.65m offset distance is to apply for 35m to the north of Point A, and 22m to the south as shown in the Figure B6 (refer Appendix B).

The width of the road between the exclusion zone and the eastern edge of the bitumen road is about 2.5m. In order to accommodate a 2.4m wide truck, the barriers may be positioned within the exclusion zone such that the truck wheel tracks do not encroach within the exclusion zone. Due to the narrow trafficable width, additional measures such as reduced speed limits, improvement to the road shoulder and bollard/barriers next to telegraph poles may need to be considered.

It is recommended that the batter face within this zone is not cut, trimmed or modified until such time as the fill against the face has reached a level of 55m AHD, which can be reviewed at the time of any proposed construction work.

3.6 SOUTHERN BATTERS

3.6.1 2017 stability assessment

A slope stability assessment was previously performed for the southern batters of quarry pit and the results were presented in Coffey letters GEOTABTF09257AA-BS dated 11 September 2017.

The model adopted was based on Section M-M as shown in Figures 3 and 5 with an inferred geological model based on BH17. Groundwater levels were based on the groundwater level in BH17 as reported in Coffey report ENAUABTF00751AB_R01_DRAFT_Rev02 (September 2018). Pond water level was estimated from NearMap images from 14 Jan 2019 and the available site survey contours.

For this preliminary analysis, the 5 storey apartment building was simulated as a 40 kN/m² distributed load on the ground surface. Similar strengths were used for the natural sands as for the western batters. Fill parameters of 2kPa cohesion and effective friction angle of 28 degrees were adopted which are consistent with lower bound properties for silty sand fill. These parameters gave a FOS of 1.00 for batter scale stability and a FOS of 1.29 for global stability with the water table at RL40m which was assumed to be the condition when the fill was placed as shown in Figure C1 in Appendix C.

Figure C2 considers a complete slope failure at the site boundary with the fill placed along the southern boundary and the water level at RL45m. The results show a FOS of 1.17 where the failure slip extends near to the southern boundary.

Figure C3 considers the same failure surface as for Figure C1 but with the pond drained to RL40 which is at the same level as in Figure C2 which represents a critical case. This results in a FOS of 1.08 and shows the rapid draining of the pond decreases the factor of safety by 8%. This is a temporary condition, and as the groundwater level adjusts to the drained pond level the FOS increases to 1.29 as shown in Figure C1. This broad assessment shows the reduction in the water level will reduce the factor of safety marginally over the current conditions and then increase as the slope drains.

For information purposes, Figure C4 shows the case when the pit is filled to RL54m with the factor of safety of 1.8 for failure at the southern boundary which confirms the view that the filled pit will provide a stable condition around the edge of the current pit.

The results of initial stability assessments for southern batters are summarised in Table 3 and the SLIDE outputs are provided in Appendix C.

Table 3: Summary of results of the initial stability assessment in 2017 for southern batters

Analysis	Figure No.	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m^3)		Cohesion (kN/m^2)		Internal Friction (ϕ')		
		Bulk weight	Saturated	Fill Silty Sand	Clayey Sand	Fill Silty Sand	Clayey Sand	
South Batter, Back Calculation as constructed with water level at RL40 (Critical surface)	C1	20	22	2	2	28	36	1.00
South Batter, water level at RL45 (current condition)	C2	20	22	2	2	28	36	1.17
South Batter, rapid dewater pond water level to RL45 for filling of pit	C3	20	22	2	2	28	36	1.08
South Batter, Lower water level to RL40 for filling of pit	C1	20	22	2	2	28	36	1.29
South Batter, pit filled to RL 54	C4	20	22	2	2	28	36	1.87

3.6.2 2019 additional stability assessment

In response to comments received from DEDJTR regarding the stability of the southern batters during dewatering of the pits and also the impact on the existing buildings located adjacent to the south boundary, an additional stability assessment was performed for the southern batters of quarry pit in 2019.

The results of the additional assessment including transient ground water model during dewatering of quarry pit were presented in Coffey letter GEOTABTF09257AA-DB dated 27 February 2019.

The initial assessment in 2017 was conducted to assess the stability of the batters within the Domain 4 boundary as the geometry and loading of the adjacent buildings was unknown. For those preliminary analyses purposes, the building was represented by a 40kPa loading on the original ground surface.

Coffey has not sought the details of the adjacent building as the overall stability of the adjacent site lies with the designers of those structures. Based on site observations, the new buildings comprise a 3-story building with a single basement extending about 2m below ground level. Typically, the loading from a residential floor is less than 10 kPa. A 2m deep basement results in an unloading of the site by about 40 kPa assuming that 1m thick soil is equivalent to about 20kPa. These assumptions indicate the construction of building with a basement is likely to have resulted in “unloading” of the adjacent building site, i.e. a reduction in the load applied to the top of the pit batters

(i) <u>Stability of the adjacent site and building</u>

Figure C5 in Appendix C presents the factors of safety for various parts of the southern batter prior to the inclusion of the new building. The FOS are similar to the values obtained in the 2017 initial assessment (Figure C2). The minimum FOS is 1.00 for shallow failure of the batter.

The FOS for a failure surface starting at the Domain 4 boundary and extending to near the base of the pit is 1.20.

The FOS for failure through the buildings is also presented with a FOS of 1.86 at the northern edge while the FOS for the entire building is 3.50. These FOS significantly exceed the FOS of 1.5 that is normally adopted value for assessing the stability of slopes.

Figure C5a considers the site after the 2m deep excavation for the adjacent building. The FOS for the batters is similar to that in Figure C5 while the FOS for the failure surface extending back 25m increases as the driving forces are reduced. The FOS for the batters inside Domain 4 are unchanged from the pre-excavation case.

Figure C6 presents the results for the application of the building load. The FOS for the building with the failure surface across the building is 3.48 and similar to the previous analyses. The FOS for a failure surface on the north side of the building is 1.90 which is marginally higher than the FOS of 1.86 for the same failure surface in the pre-excavation model.

The above results show the FOS for the building is well in excess of 1.5 within the acceptable criteria.

(ii) <u>Batter stability – worst case</u>

In the worst case the south batter could fail when the FOS falls below 1. In that situation, the soil above the failure surface will rotate along the failure surface which has the effect of reducing the driving force on the failure surface. Figure C7 shows the batter after the surface with a FOS of 1 has been removed. The resulting FOS at the edge of the building is 1.82 while the FOS for the failure surface extending across the building is essentially unchanged from the previous loading case at 3.43.

These analyses indicate that any local instability of the south batters will not materially effect the stability of the adjacent buildings.

(iii) <u>Batter stability during dewatering</u>

The initial stability assessment in Figure C3 indicated that a rapid drawdown of pond water may temporarily reduce the global stability of the south wall of the Domain 4 pit. The analyses was based on the groundwater level back from the batter remains unchanged and then drops through the slope and provides a “worst case” loading. In reality, the groundwater will drain into the pit over time and reduce the groundwater impact on the overall slope stability.

This transient behaviour was modelled using the 2D finite element transient ground water model within the Rocscience SLIDE computer program, which calculated the ground water surface level within the pit wall over time as the groundwater is drawn down.

Figure C8a shows the initial case with a FOS of 1.18 extending through the slope to the base of the pit. This is similar to the value of 1.20 obtained in Figure C6.

Figure C8b presents the results after 5 days for a drawdown of 0.1m per day. This results in a FOS of 1.16. The FOS after 30 days and 60 days are 1.18 and 1.21 respectively (Figures C8c and C8d). The results indicate that the FOS changes by a few percent (generally less than 2%) during the drawdown process. In all cases the FOS is more than the back-analysed shallow slope failure.

Based on the modelling results it is considered acceptable to draw the pond down at a rate of 0.1m per day. The drawdown rate could be increased to a maximum of 0.2m per day but with a maximum aggregate of 1m over any 10-day period.

The results of additional stability assessments for southern batters are summarised in Table 4 and the SLIDE outputs are provided in Appendix C.

Table 4: Summary of results of the additional stability assessment for southern batters

Analysis	**Figure No.**	**Factor of Safety (FOS)**			
		Shallow	Toe to Domain 4 boundary	North side of building	South side of building
Prior to construction	C5	1.00	1.20	1.86	3.50
After excavation of basement	C5a	1.00	1.28	1.90	4.92
After construction of apartments	C6	1.00	1.20	1.90	3.48
After shallow batter failure	C7	1.04	1.46	1.82	3.43
Transient groundwater drawdown 0.1m per day Initial	C8a	1.00	1.18	1.97	3.46
Transient groundwater drawdown 0.1m per day after 5 days	C8b	1.00	1.16	1.90	3.42
Transient groundwater drawdown 0.1m per day after 30 days	C8c	1.00	1.18	1.90	3.46
Transient groundwater drawdown 0.1m per day after 60 days	C8d	1.00	1.21	1.90	3.49

3.7 NORTHERN BATTERS

A stability assessment for preload design in Domain 1 has been previously performed for the north wall of Domain 4 and the results of the assessment were presented in Coffey letter GEOTABTF09257AA-CX dated 26 March 2019.

The analyses were performed based on Section O-O as shown in Figures 4 and 5.

The geotechnical model was based on subsurface conditions encountered in BH43 and several monitoring wells and gas bores near the crest of the pit at the northern boundary as shown on Figure D1 and summarised in Table D1 in Appendix D. The boreholes encountered landfill foundry sands to a depth of about 9m below ground level, overlying municipal wastes comprising predominantly sands with cobbles of siltstone, metal, glass, PVC, plastic and cloth fragments, down to a depth of 20m below ground level. The landfill sands are generally medium dense to dense, but could be occasionally interbedded with thin layers of loose materials as shown on Figure D2. These observations confirm that the north wall of the Domain 4 pit has been formed in fill materials which were of sufficient strength and impermeable to retain water in the quarry pit.

(Note: additional boreholes BH49 to BH53 drilled during the investigation within Domain 1 in 2020-21 has further confirmed that the landfill sands are generally medium dense to dense).

Four scenarios were assessed:

- Scenario 1: Existing slope geometry and without a preload;
- Scenario 2: Existing slope geometry with a 2m high preload stockpile at the crest;
- Scenario 3: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, but without preload; and
- Scenario 4: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, with a 2m high preload stockpile at the crest.

A surcharge simulating a loaded truck on the haul road was applied in all scenarios.

The stability assessment results including the adopted geotechnical parameters in the stability assessment are shown in Figures D3 to D6 provided in Appendix D.

The results show that for the current batter geometry for scenarios 1 and 2, the Factor of Safety (FOS) is 2.1. For scenario 3, which applies when the slope has been extended during the Domain 4 backfilling, the FOS is 1.3. Scenario 4 includes the preload in the Scenario 3 model, which has no effect on the FOS of 1.3. Scenario 4 also shows that the FOS of 1.5 extends halfway through the batter of the preload.

A FOS of 1.3 is considered acceptable for the temporary case while backfilling is occurring during construction.

The results of the stability assessment indicate the preload may be constructed to the southern side of the existing gravel track with a 3H:1V batter slope with a FOS of 1.3. The edge of the existing track varies between 3m and 5.7m from the crest of the north wall of the pit. It is recommended that the track be modified to maintain a 4m exclusion zone in accordance with the current Domain 4 backfill design report.

The construction of the preload on the southern side of the existing gravel track will require the construction of a new access road to the north of the existing track over the preload. As discussed in the current Domain 4 backfill design report, prior to earth works occurring between the pit crest and the haul road, the Contractor will need to prepare a risk assessment and slope stability management work plan that takes into account working near the crest of the pit.

4. CURRENT STABILITY ASSESSMENT UNDER SEISMIC (EARTHQUAKE) LOADING

4.1 GENERAL

As part of the current scopes, a pseudostatic stability assessment was performed for Domain 4 slope batters under earthquake loading. The earthquake loading was based on 1/500 years return period which gives a Peak Ground Acceleration (PGA) of 0.09g. A horizontal pseudo-static coefficient (k_h) of 0.5PGA, giving k_h=0.045, was adopted in the slope stability under earthquake loading based in accordance with AS4678-2002 “earth-retaining structures”.

4.2 WESTERN BATTERS - SEISMIC LOADING

The slope stability analyses were carried out on similar section to the previous analyses as presented in Table 1 in Section 3.4.

The results of the stability assessment under earthquake loading for western batters are summarised in Table 5 and the SLIDE outputs are provided in Appendix E.

In general, the results of the stability assessment show that the existing western batters have FOS for global stability of greater than 1.1, which is considered to be acceptable under an earthquake event provided the recommendations as listed in Section 3.4 are followed.

Table 1: Summary of results of the stability assessment under earthquake loading for western batters

Analysis	Figure No.	Factor Of Safety (FOS)
West Batter, Global Stability as in Figure A2	E1	1.15
West Batter, Global Stability at Huntingdale Road as in Figure A3	E2	1.26

4.3 EASTERN BATTERS – SEISMIC LOADING

The slope stability analyses were carried out based on similar sections as presented in Table 2 in Section 3.5.

The results of the stability assessment under earthquake loading for eastern batters are summarised in Table 6 and the SLIDE outputs are provided in Appendix F.

In general, the results of the stability assessment show that the existing eastern batters have FOS for global stability of greater than 1.1, which is considered to be acceptable under an earthquake event provided the recommendations as listed in Section 3.5 are followed.

Table 2: Summary of results of the stability assessment under earthquake loading for eastern batters

Analysis	Figure No.	Factor Of Safety (FOS)
East Batter, Critical Surface (only shallow failure) as in Figure B1	F1	1.01
East Batter, Global Stability as in Figure B1	F1	1.16
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – No Load applied as in Figure B2	F2	1.26
East Batter, Critical Surface (only shallow failure) with Traffic Loading applied as in Figure B3	F3	1.01
East Batter, Global Stability with Traffic Loading applied as in Figure B4	F4	1.16
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied as in Figure B4	F4	1.25
East Batter, Global Stability after critical failure as in Figure B5	F5	1.24
East Batter, at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied as in Figure B5	F5	1.35

4.4 SOUTHERN BATTERS – SEISMIC LOADING

The slope stability analyses were carried out based on similar sections as presented in Tables 3 and 4.

The results of the stability assessment under earthquake loading for southern batters are summarised in Table 7 and the SLIDE outputs are provided in Appendix G.

In general, the results of the stability assessment show that the existing southern batters have FOS of approximately 1.0 during construction and dewatering pond water under an earthquake event, which is considered to be marginally stable. However, these analyses indicate that any local or shallow instability of the south batters will not affect the overall stability of the adjacent buildings with FOS typically greater than 1.2, well in excess of the acceptance criteria for short term condition under an earthquake event.

Table 3: Summary of results of the stability assessment under earthquake loading for southern batters

Analysis	Figure No.	Factor of Safety (FOS)			
		Shallow	Toe to Domain 4 boundary	North side of building	South side of building
South Batter, water level at RL45 (current condition) as in Figure C2	G2	1.03		N/A	
South Batter, rapid dewater pond water level to RL45 for filling of pit as in Figure C3	G3	0.96		Refer G5 to G8 results	
South Batter, Lower water level to RL40 for filling of pit as in Figure C1	G1	1.15		Refer G5 to G8 results	
South Batter, pit filled to RL 54 as in Figure C4	G4	1.44		Refer G5 to G8 results	
Prior to construction of apartment as in Figure C5	G5	0.92	1.04	1.22	2.93
After excavation of basement as in Figure C5a	G5a	0.92	1.04	1.30	3.18
After construction of apartment as in Figure C6	G6	0.92	1.04	1.30	2.69
After shallow batter failure as in Figure C7	G7	0.96	1.23	1.27	2.72
Transient groundwater drawdown 0.1m per day Initial as in Figure C8a	G8a	0.96	1.04	1.36	2.77
Transient groundwater drawdown 0.1m per day after 5 days as in Figure C8b	G8b	0.96	1.03	1.36	2.77
Transient groundwater drawdown 0.1m per day after 30 days as in Figure C8c	G8c	0.96	1.05	1.36	2.81
Transient groundwater drawdown 0.1m per day after 60 days as in Figure C8d	G8d	0.96	1.08	1.36	2.83

4.5 NORTHERN BATTERS -SEISMIC LOADING

The slope stability analyses were carried out based on Section O-O and similar scenarios as discussed in Section 3.7.

The stability assessment results under earthquake loading for northern batters are shown in Figures H1 to H4 provided in Appendix H.

The results show that for the current batter geometry for scenarios 1 (refer Figure H1) and 2 (refer Figure H2), the Factor of Safety (FOS) is 1.8 during an earthquake event. For scenario 3 (refer Figure H3), which applies when the slope has been extended during the Domain 4 backfilling, the FOS is 1.2, well in excess of the acceptance criteria for short term condition under an earthquake event. Scenario 4 (refer Figure H4) includes the preload in the Scenario 3 model, which has no effect on the FOS of 1.2.

5. REFERENCES

[1] Coffey Geotechnics Pty Ltd (Coffey), 2015. *Zone 4 Backfill Design Report, Huntingdale Estate, Oakleigh South, VIC.* GEOTABTF09257AA-AQ_Rev10, September 2015.

[2] Coffey Geotechnics Pty Ltd (Coffey), 2019. *Zone 4 Backfill Design Specification, Huntingdale Estate, Oakleigh South, VIC.* GEOTABTF09257AA-BC_Rev10 dated April 2019.

[3] Coffey *Services* Australia Pty Ltd (Coffey), 2017. *Additional Analysis to Refine Quarry Crest Exclusive Zone Distance.* Ref GEOTABTF09257AA-BR, 2017.

[4] Coffey Geotechnics Pty Ltd (Coffey), 2017. *Stability Assessment for Southern Side of Zone 4*. GEOTABTF09257AA-BS dated 11 September 2017.

[5] Coffey Services Australia Pty Ltd (Coffey), 2019a. *North Wall Zone 4, Zone 1 preload stability assessment.* Ref. GEOTABTF09257AA-CX dated 26 March 2019.

[6] Coffey Services Australia Pty Ltd (Coffey), 2019. *Additional Stability Assessment for Southern Side of Zone 4*. GEOTABTF09257AA-DB dated 27 February 2019.

[7] HS Support (2020) 53X Environmental Audit of Land at 1221-1249 Centre Road and 22 Talbot Avenue, Oakleigh South, Vic, Ref. AUS##C01679_2019, dated 13 May 2020.

[8] Coffey Services Australia Pty Ltd, 2020. *Construction Environmental Management Plan (CEMP), 2020. Huntingdale Estate, Oakleigh South, VIC.* Ref. 754-ENAUABTF00751AB_R17 dated 1 May 2020a.

[9] Coffey Services Australia Pty Ltd (Coffey), 2020b. *Former Talbot Quarry – A summary of the geotechnical history of the project.* Ref. GEOTABTF09257AA-DR dated 10 August 2020.

[10] Coffey Services Australia Pty Ltd (Coffey), 2021. *Geotechnical Investigation Report 2020-21 Additional Investigation.* Ref. GEOTABTF09257AA-EC, 2021

[11] Coffey *Services* Australia Pty Ltd (Coffey), 2021a. *Settlement Predictions Report.* Ref GEOTABTF09257AA-ED, 2021.

6. LIMITATIONS

This report has been prepared solely for the use of our client Sterling Global, their professional advisers and relevant authorities in relation to the specific project described in this document. No liability is accepted in respect of it use for any other purpose by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

Your attention is drawn to the attached document entitled "*Important Information about your Coffey Report*".

IMPORTANT INFORMATION ABOUT YOUR TETRA TECH COFFEY REPORT

As a client of Tetra Tech Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Tetra Tech Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Tetra Tech Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Tetra Tech Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Tetra Tech Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Tetra Tech Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Tetra Tech Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Tetra Tech Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Tetra Tech Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Tetra Tech Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Tetra Tech Coffey to work with other project design professionals who are affected by the report. Have Tetra Tech Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Tetra Tech Coffey for information relating to geoenvironmental issues.

Rely on Tetra Tech Coffey for additional assistance

Tetra Tech Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Tetra Tech Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

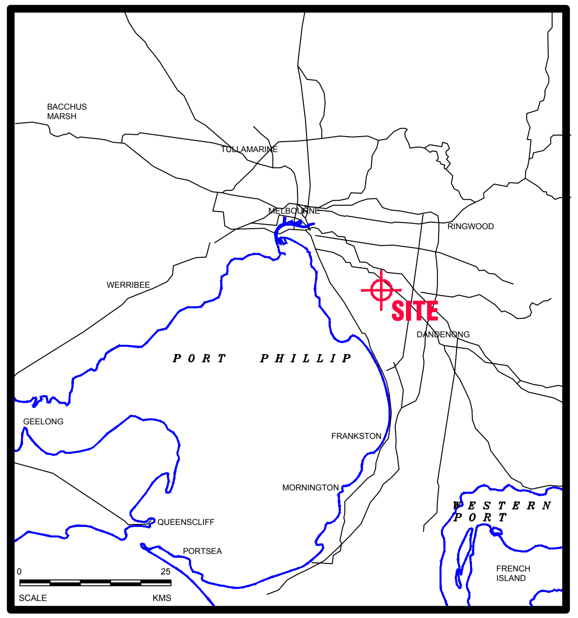
Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Tetra Tech Coffey to other parties but are included to identify where Tetra Tech Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Tetra Tech Coffey closely and do not hesitate to ask any questions you may have.

FIGURES

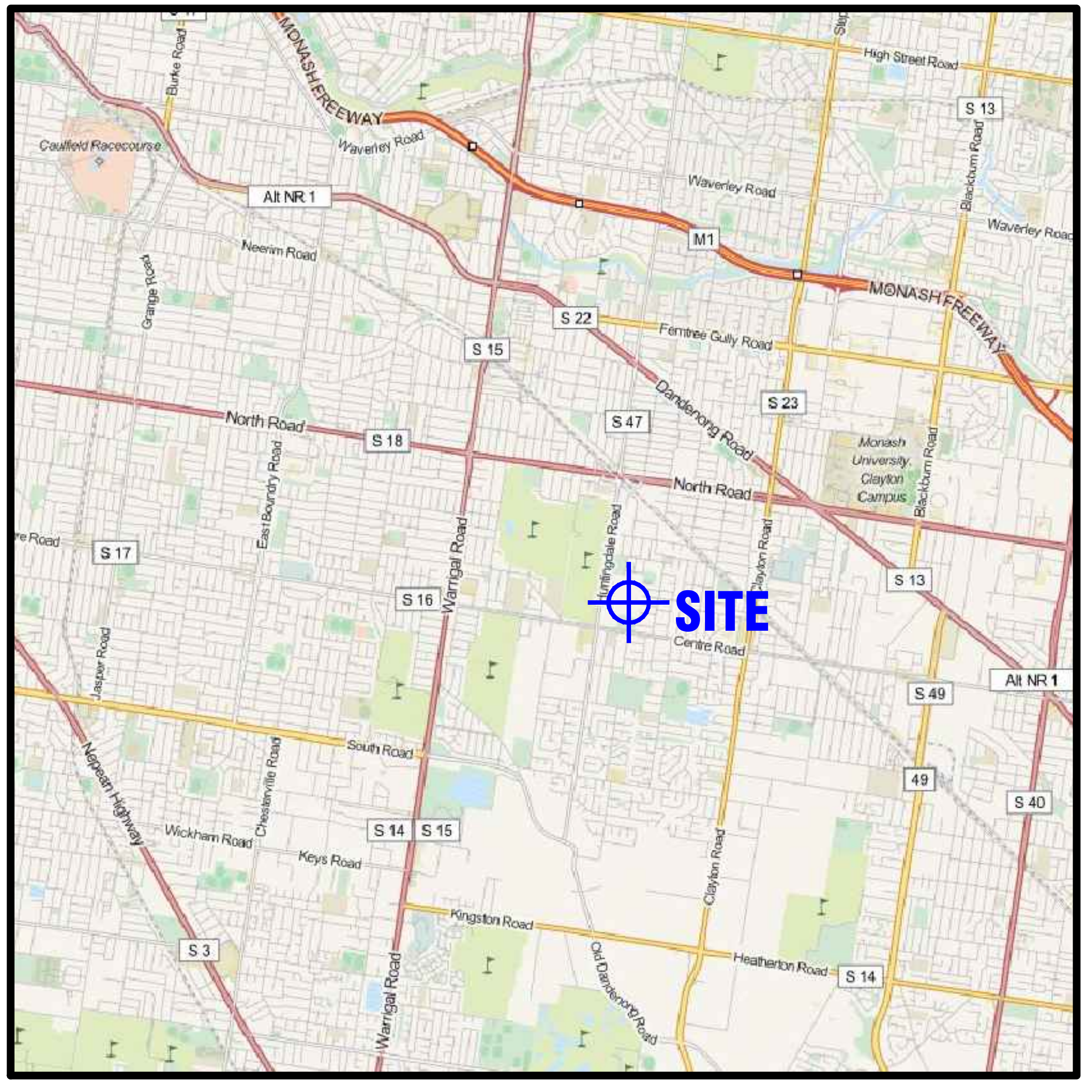
TALBOT VILLAGE
DOMAIN 4 BATTER STABILITY ASSESSMENT

PROJECT ID: GEOTABTF09257AA

N



GENERAL AREA MAP



REGIONAL AREA MAP

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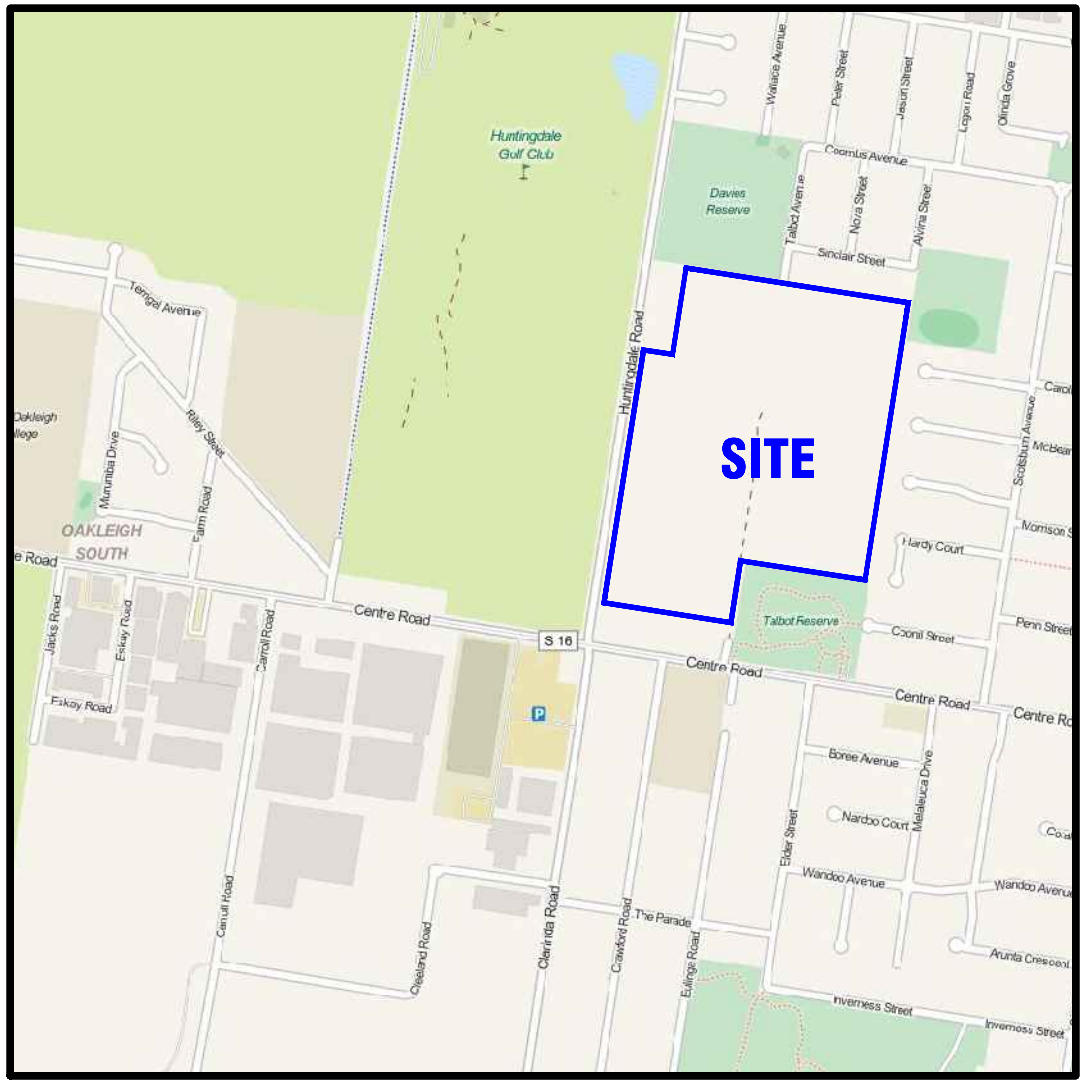

LOCAL AREA MAP

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SCALE 1:15000 (A3) METRES

revision	description	drawn	approved	date

drawn	FK/LH
approved	
date	16 / 9 / 21
scale	AS SHOWN
original size	A3

coffey

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BATTER STABILITY HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SITE LOCALITY PLAN
project no:	GEOTABTF09257AA-EG
figure no:	01

revision

no.	description	drawn	approved	date
A	ORIGINAL ISSUE	GY	FK	08.09.21

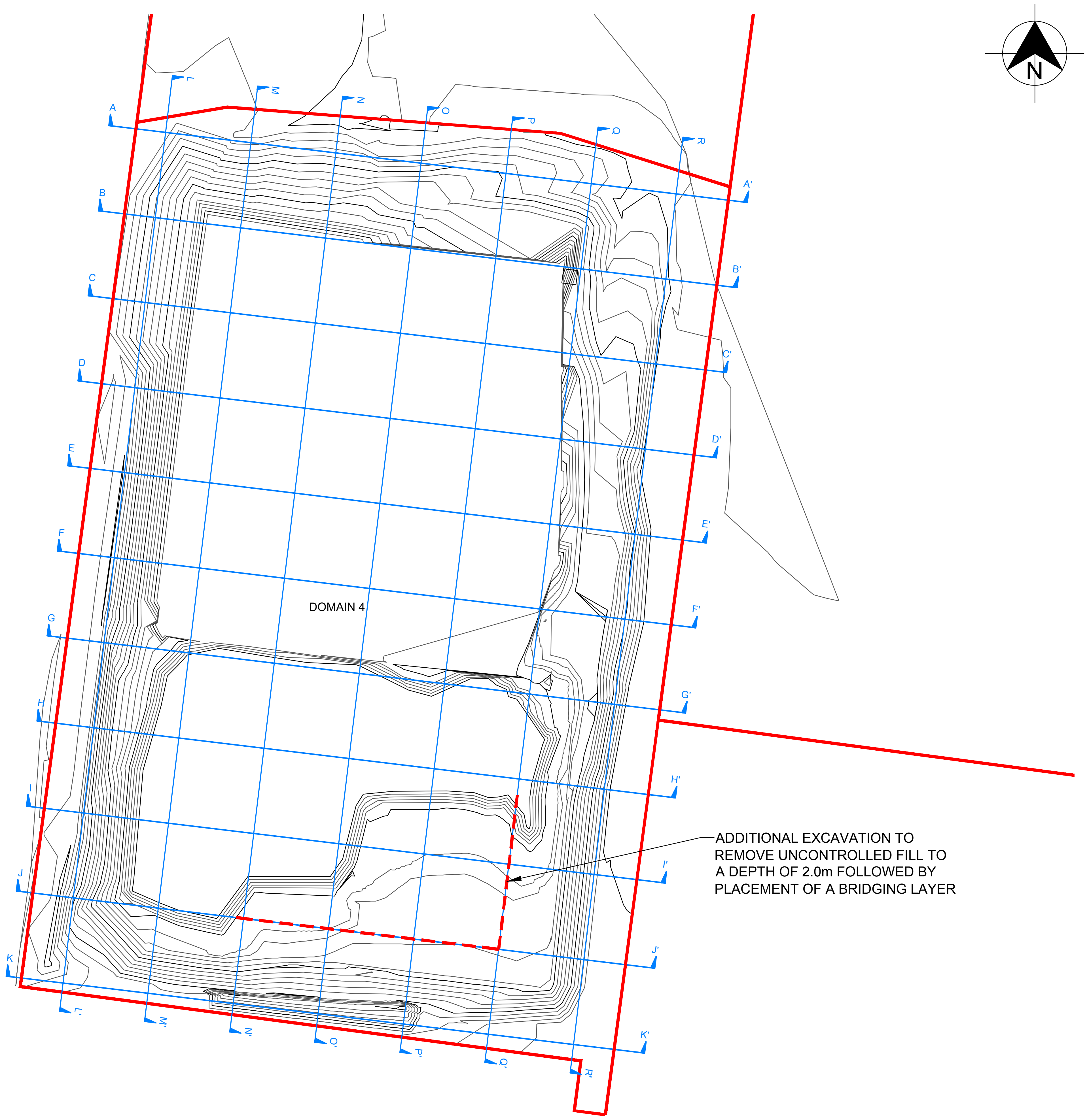
drawn	GDY
approved	FK
date	08.09.2021
scale	1:2,000
original size	A3

coffey
A TETRA TECH COMPANY

client:	HUNTINGDALE ESTATE NOMINEES PTY LTD
project:	GEOTECHNICAL SITE INVESTIGATION 1221-1249 CENTRE ROAD & 22 TALBOT AVENUE OAKLEIGH SOUTH, VICTORIA
title:	SITE GEOTECHNICAL DOMAINS

project no:	figure no:	rev:
GEOTABTF09257AA-EG	02	A

MXD Template Reference: 09257AA_EE_GIS002_v0_2



NOTE: CONTOURS REPRESENT THE EXPECTED EXCAVATION LEVEL

TABLE 1 : COORDINATES OF SECTIONSC

SECTION	START		END	
	EASTING	NORTHING	EASTING	NORTHING
AA'	333115.08	5801017.84	333338.46	5800990.89
BB'	333111.48	5800988.06	333334.86	5800961.10
CC'	333107.89	5800958.28	333331.27	5800931.32
DD'	333104.30	5800928.49	333327.67	5800901.53
EE'	333100.70	5800898.71	333324.08	5800871.75
FF'	333097.11	5800868.93	333320.48	5800841.97
GG'	333093.51	5800839.14	333316.89	5800812.18
HH'	333089.92	5800809.36	333313.30	5800782.40
II'	333086.32	5800779.57	333309.70	5800752.61
JJ'	333082.73	5800749.79	333306.11	5800722.83
KK'	333079.13	5800720.01	333302.51	5800693.05
LL'	333137.33	5801035.30	333097.79	5800707.68
MM'	333167.12	5801031.71	333127.57	5800704.09
MM'	333196.90	5801028.12	333157.36	5800700.49
OO'	333226.68	5801024.52	333187.14	5800696.90
PP'	333256.47	5801020.93	333216.93	5800693.30
QQ'	333286.25	5801017.33	333246.71	5800689.71
RR'	333316.03	5801013.74	333276.49	5800686.11

LEGEND

SECTION LINE

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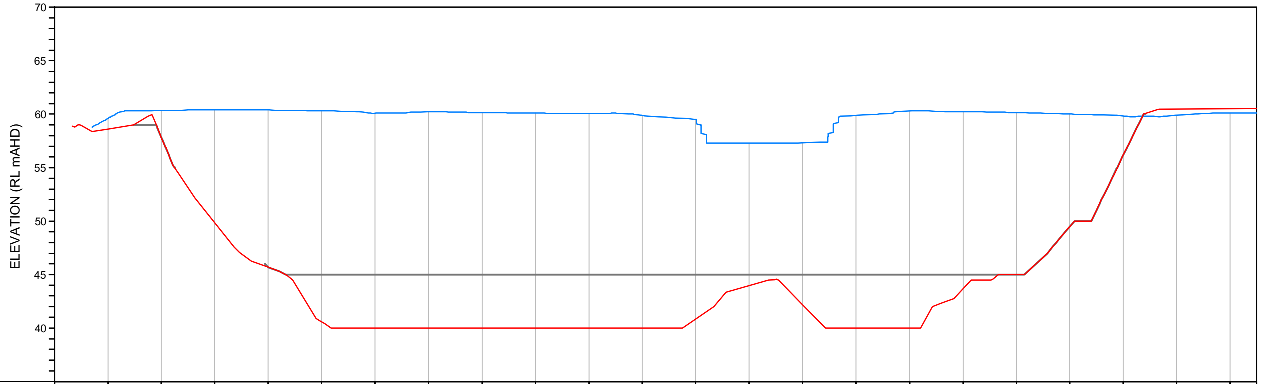
drawn	FK/LH
approved	
date	16 / 09 / 21
scale	1:1500
original size	A3

coffey

client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BATTER STABILITY HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	CROSS SECTIONS LOCALITY PLAN
project no:	GEOTABTF09257AA-EG
figure no:	03

EXISTING SURFACE LEVEL
LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
FINISHED SURFACE LEVEL



DESIGN LEVEL (mAHD)		59.597	60.346	60.401	60.381	60.315	60.090	60.222	60.146	60.094	60.050	59.885	59.507	57.294	57.337	59.890	60.287	60.216	60.147	60.006	59.828	59.909	60.095	60.098
EXPECTED EXCAVATION LEVEL(mAHD)		58.593	57.858	49.852	45.696	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.846	43.967	42.183	40.000	40.000	43.666	45.000	49.504	56.161	60.476	60.519	60.541
EXISTING LEVEL(mAHD)			57.858		45.696	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	56.161			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION G-G'
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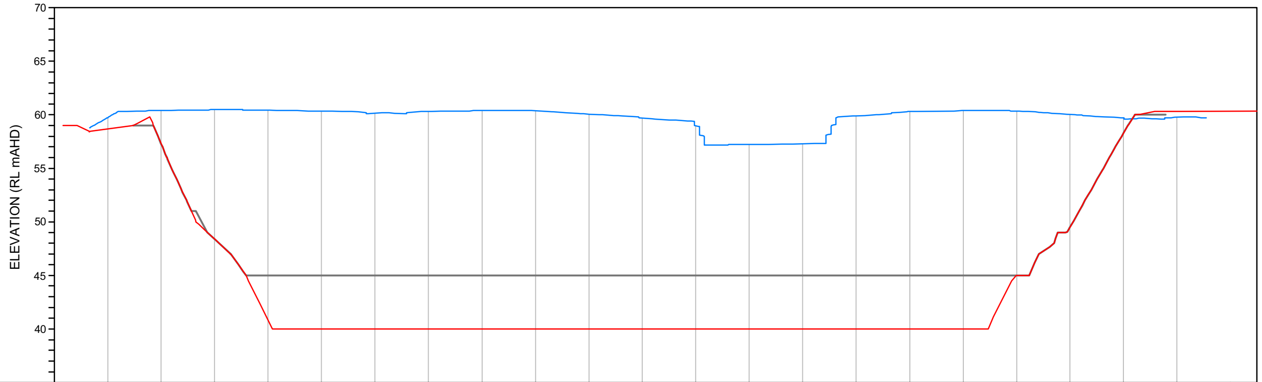
VERT: 1:500



DESIGN LEVEL (mAHD)		59.738	60.403	60.469	60.430	60.355	60.144	60.314	60.398	60.362	60.072	59.679	58.970	57.223	57.276	59.903	60.300	60.390	60.364	60.033	59.701	59.765		
EXPECTED EXCAVATION LEVEL(mAHD)		58.668	57.313	48.386	40.859	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	45.000	49.504	58.272	60.311	60.331	60.339
EXISTING LEVEL(mAHD)			57.313	48.386	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	58.272			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION H-H'
HORZ: 1:1000
VERT: 1:500

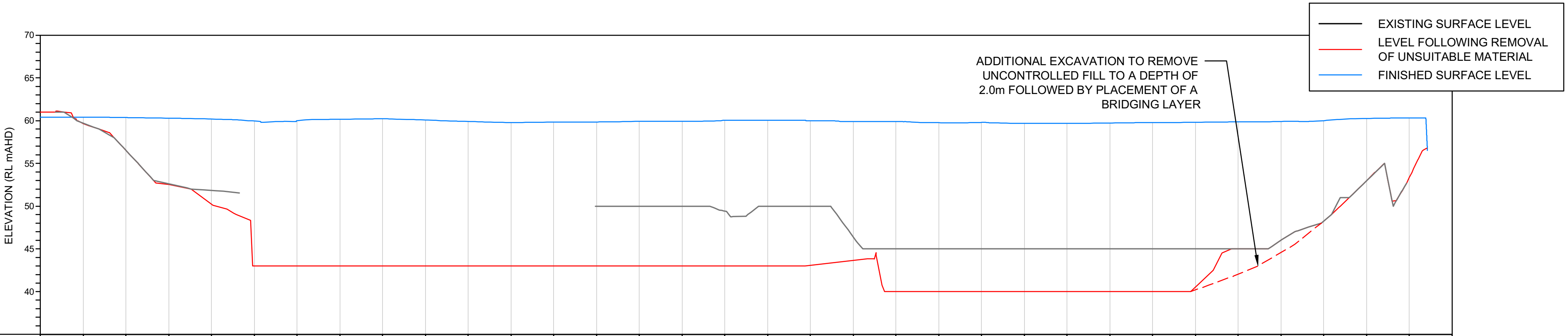
revision	description	drawn	approved	date

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	DA / LH
approved	
date	17 / 12 / 14
scale	AS SHOWN
original size	A3

coffey

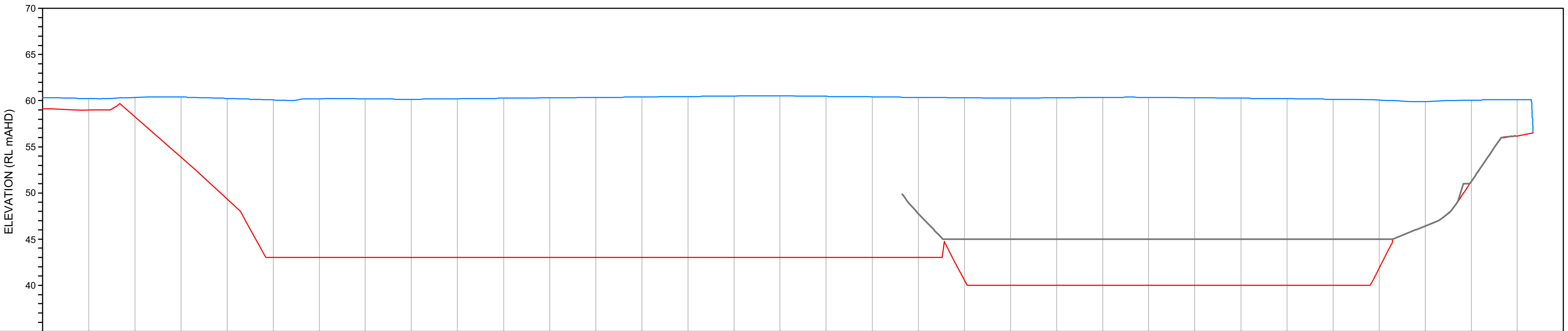
client:	TALBOT ROAD FINANCE PTY LTD
project:	ZONE 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION GG' AND HH'
project no:	GEOTABTF09257AA
figure no:	04



DESIGN LEVEL (mAHD)	60.411	60.404	60.356	60.279	60.173	59.960	60.003	60.146	60.200	60.053	59.907	59.769	59.823	59.842	59.915	59.926	60.007
EXPECTED EXCAVATION LEVEL(mAHD)	61.000	59.631	56.517	52.533	50.205	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000
EXISTING LEVEL(mAHD)		59.717	56.517	52.596	51.824									50.000	50.000	50.000	49.408
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

DESIGN LEVEL (mAHD)	60.010	60.002	59.898	59.885	59.751	59.789	59.679	59.671	59.713	59.761	59.796	59.851	59.896	60.000	60.241	60.312	
EXPECTED EXCAVATION LEVEL(mAHD)	43.000	43.072	43.644	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.528	45.000	46.009	48.250	52.977	53.329	
EXISTING LEVEL(mAHD)	50.000	50.000	46.415	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.009	48.250	52.977		
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION O-O'
HORZ: 1:1000
VERT: 1:500



DESIGN LEVEL (mAHD)	60.316	60.224	60.343	60.401	60.243	60.086	60.203	60.198	60.161	60.207	60.256	60.305	60.353	60.403	60.452	60.502	60.518
EXPECTED EXCAVATION LEVEL(mAHD)	59.109	58.993	58.245	53.876	49.321	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000
EXISTING LEVEL(mAHD)																	
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

DESIGN LEVEL (mAHD)	60.462	60.417	60.360	60.315	60.263	60.313	60.355	60.360	60.317	60.257	60.215	60.155	60.067	59.899	60.059	60.107	
EXPECTED EXCAVATION LEVEL(mAHD)	43.000	43.000	43.000	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	41.885	46.413	51.240	56.194	
EXISTING LEVEL(mAHD)			47.762	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.413	51.240		
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

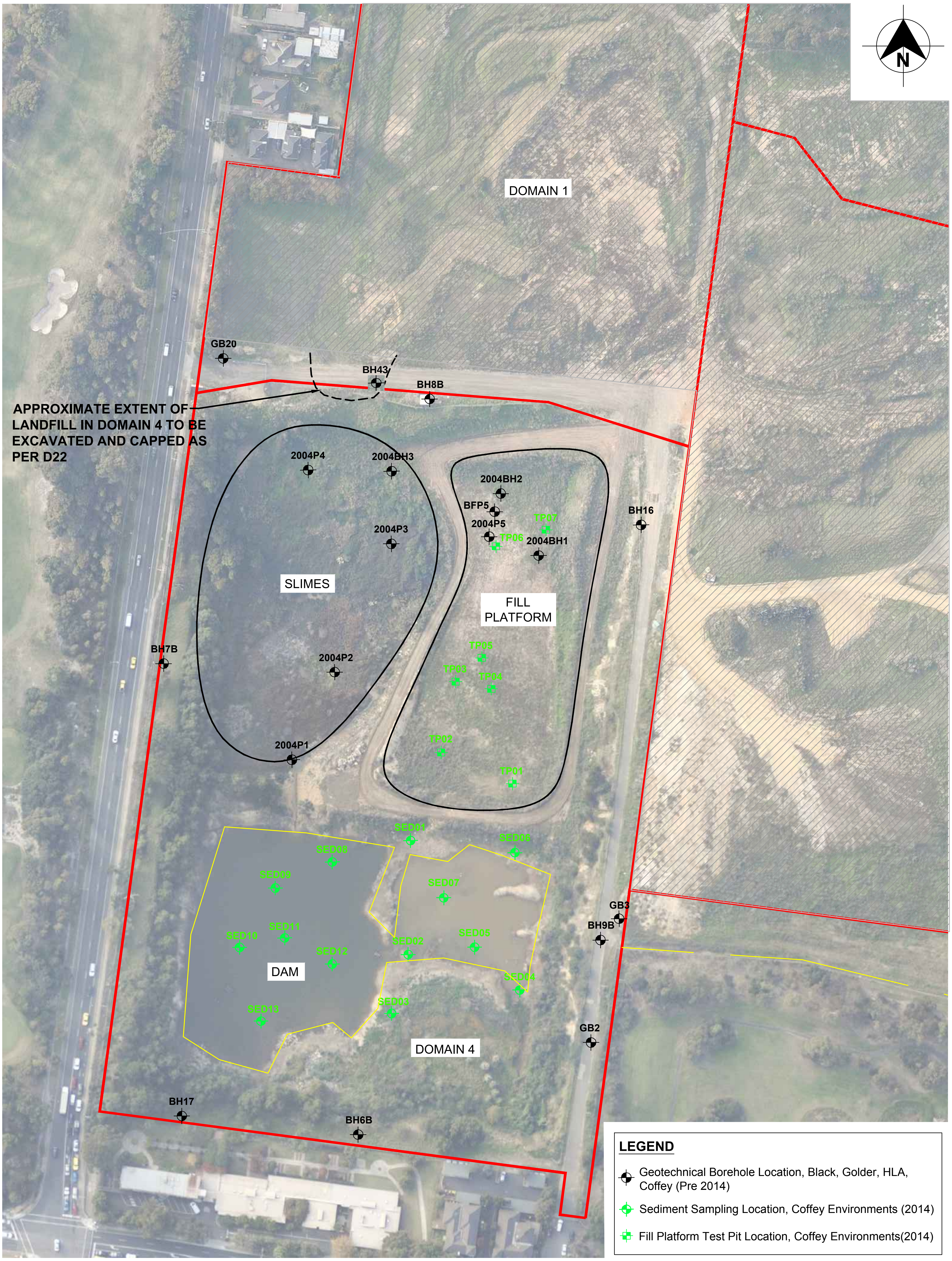
SECTION M-M'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date

10 0 10 30 50
Horizontal Scale (metres) 1:1000
5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	DA / LH
approved	
date	17 / 12 / 14
scale	AS SHOWN
original size	A3

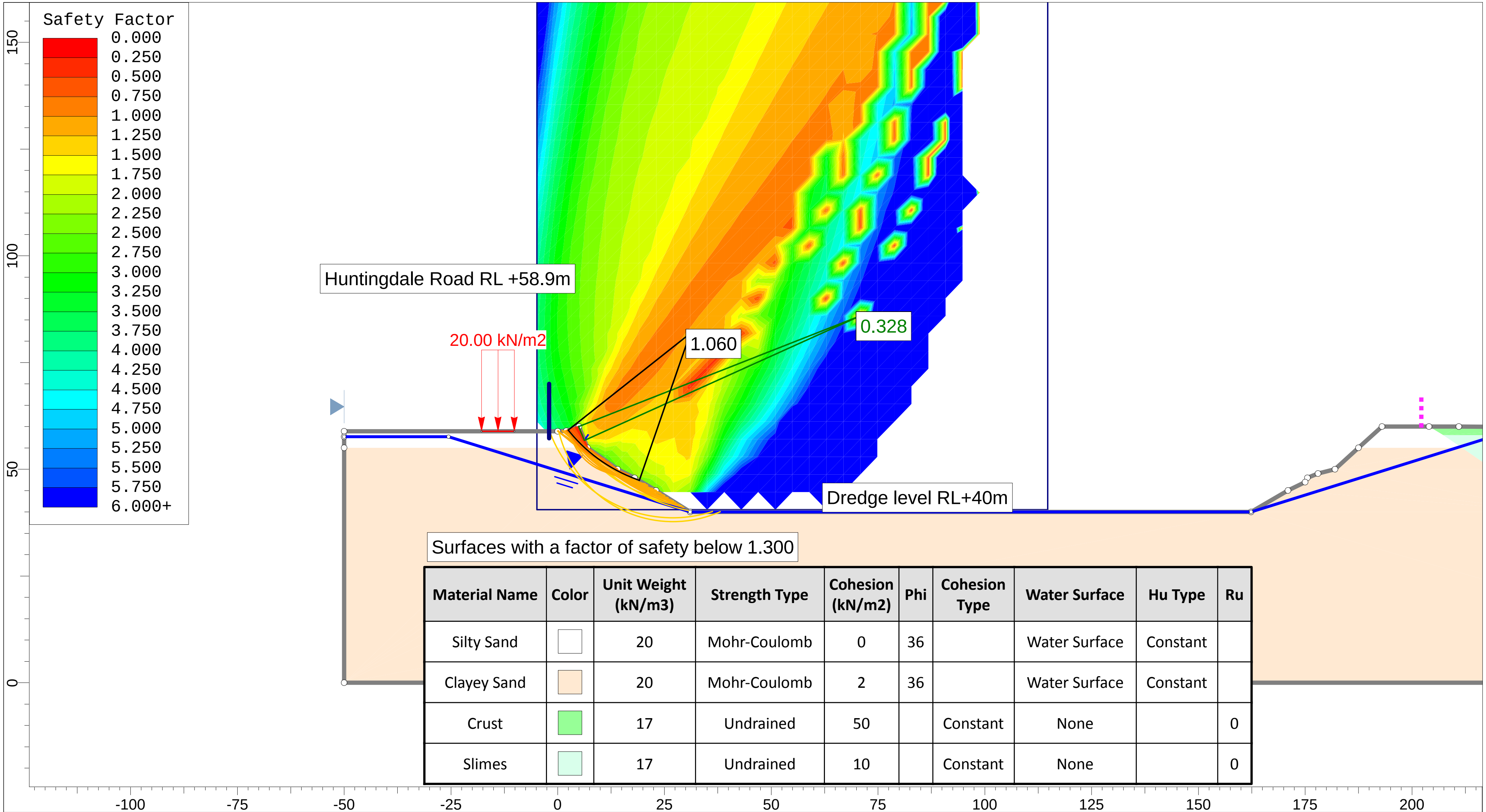
client:	TALBOT ROAD FINANCE PTY LTD		
project:	ZONE 4 BACKFILL DESIGN		
	HUNTINGDALE ESTATE, OAKLEIGH SOUTH		
title:	SECTION OO' & MM'		
project no:	GEOTABTF09257AA	figure no:	05



0 15 30 45 60 75
SCALE 1:1500 (A3) METRES

drawn	FK/LH	coffey	client:	TALBOT ROAD FINANCE PTY LTD
approved			project:	DOMAIN 4 BACKFILL DESIGN
date	16 / 9 / 21			HUNTINGDALE ESTATE, OAKLEIGH SOUTH
scale	1:1500		title:	TEST LOCATIONS PLAN
original size	A3		project no:	GEOTABTF09257AA-EG; figure no: 06

APPENDIX A: SLOPE STABILITY FOR WESTERN BATTERS

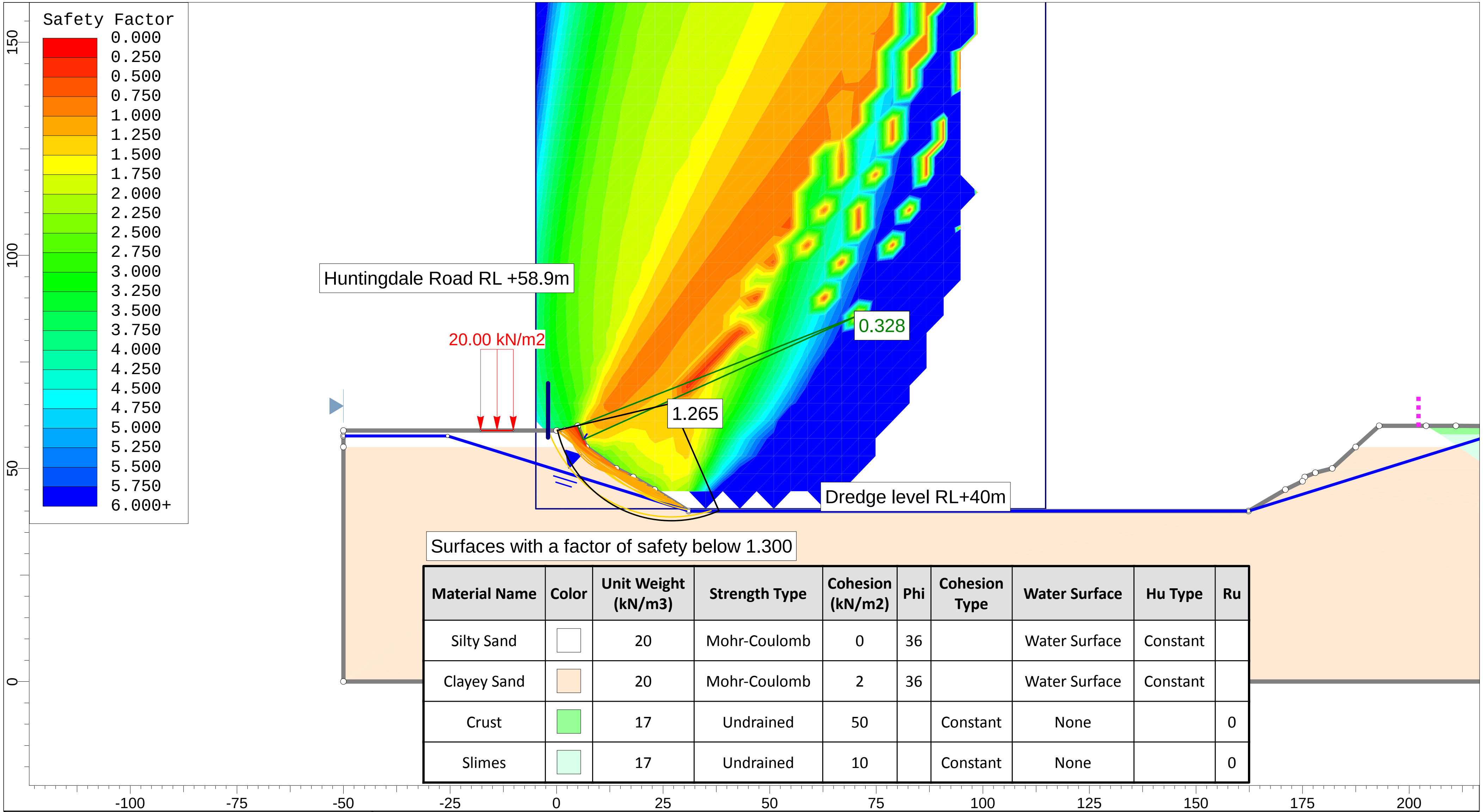


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis - Shallow
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	WEST Figure A1.slim

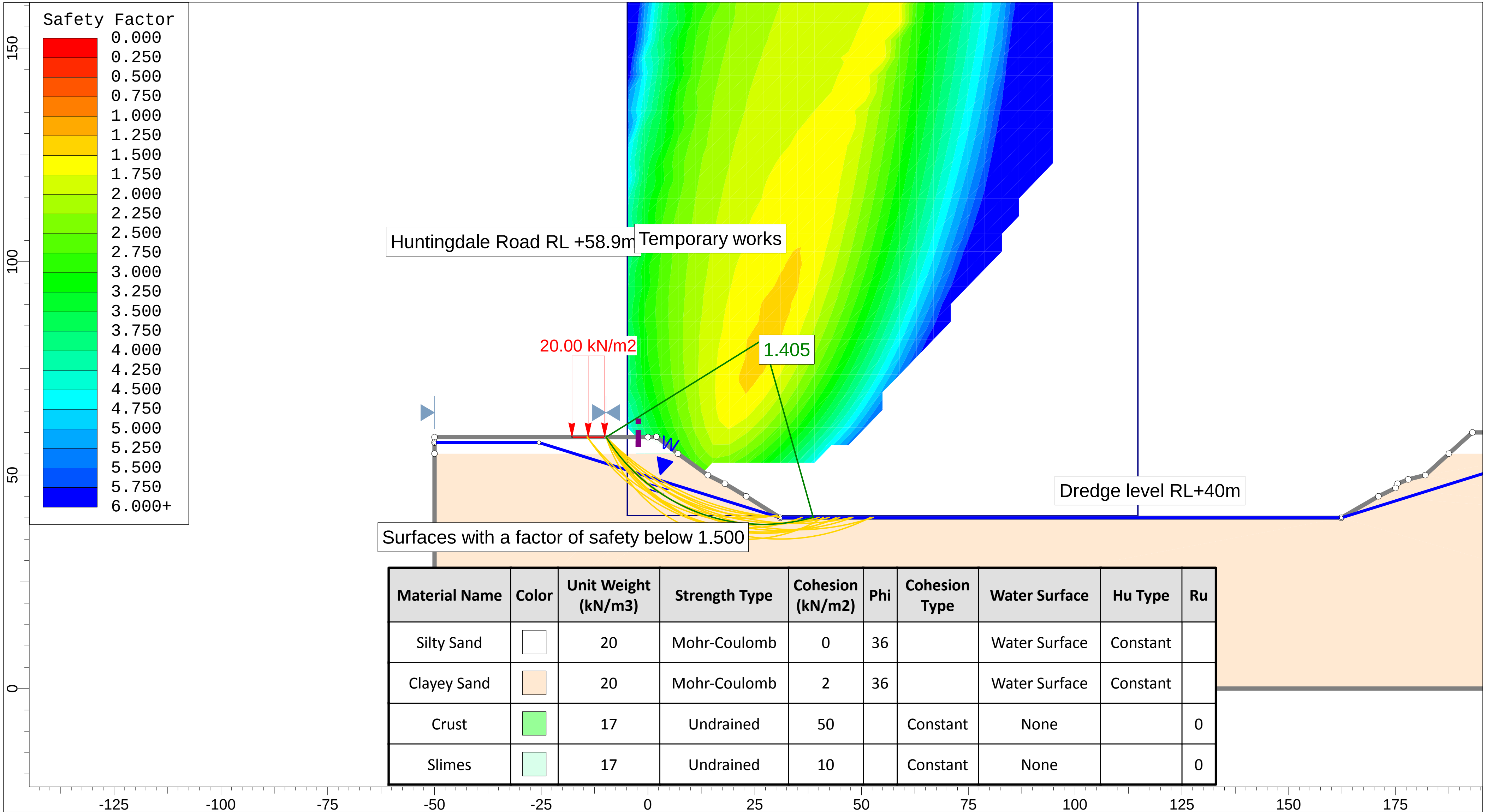


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	West batter - Back analysis - Global		
Drawn By	CB	*Scale*	1:1250
Company	Talbot Road Finance Pty Ltd		
Date	14/01/2015, 2:17:49 PM	*File Name*	BE WEST Figure A2.slim



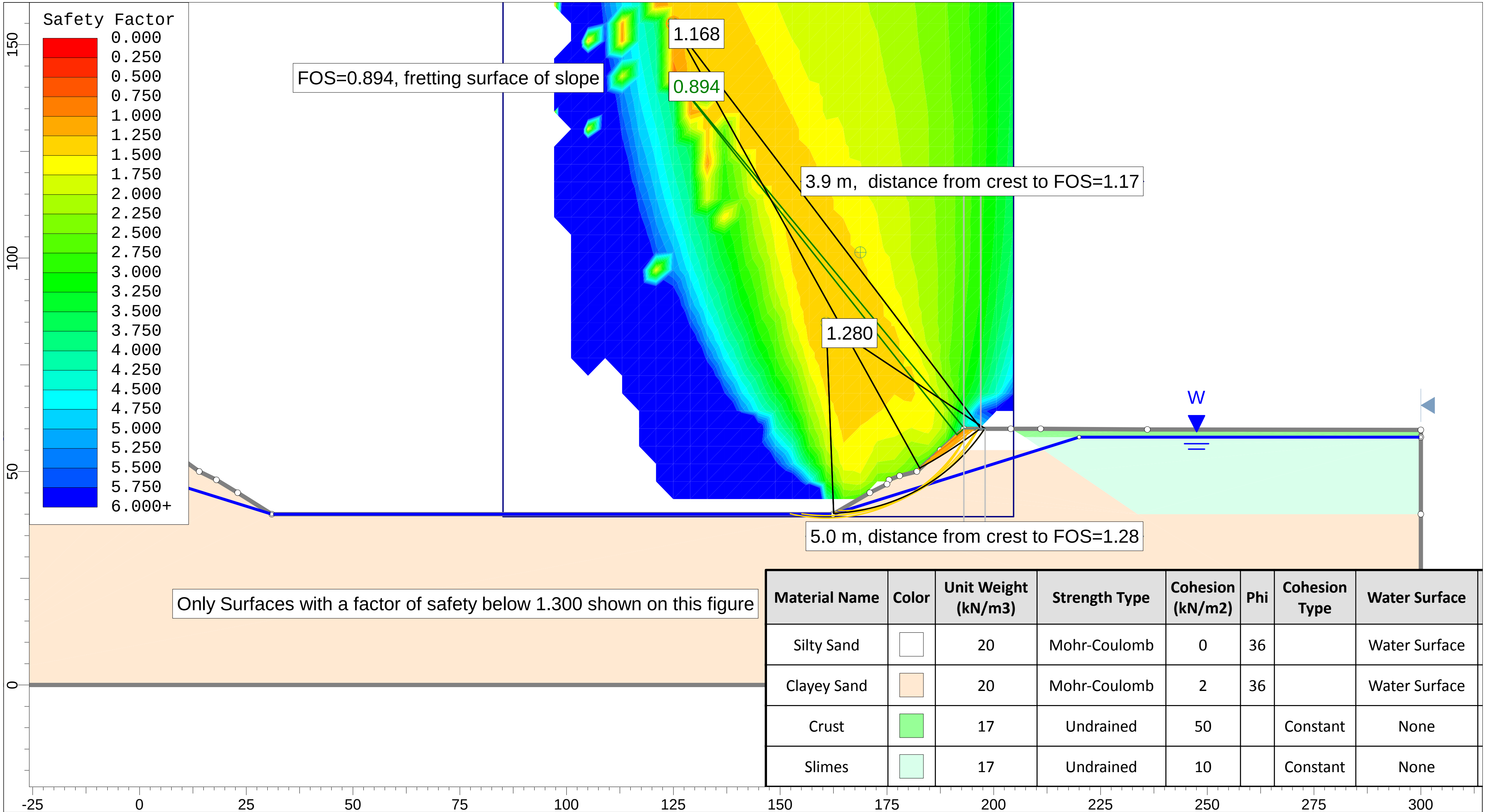
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	West batter - Back analysis - Huntingdale Road		
Drawn By CB	*Scale* 1:1250	*Company* Talbot Road Finance Pty Ltd	
Date 14/01/2015, 2:17:49 PM		*File Name* WEST Figure A3.slim	

APPENDIX B: SLOPE STABILITY FOR EASTERN BATTERS

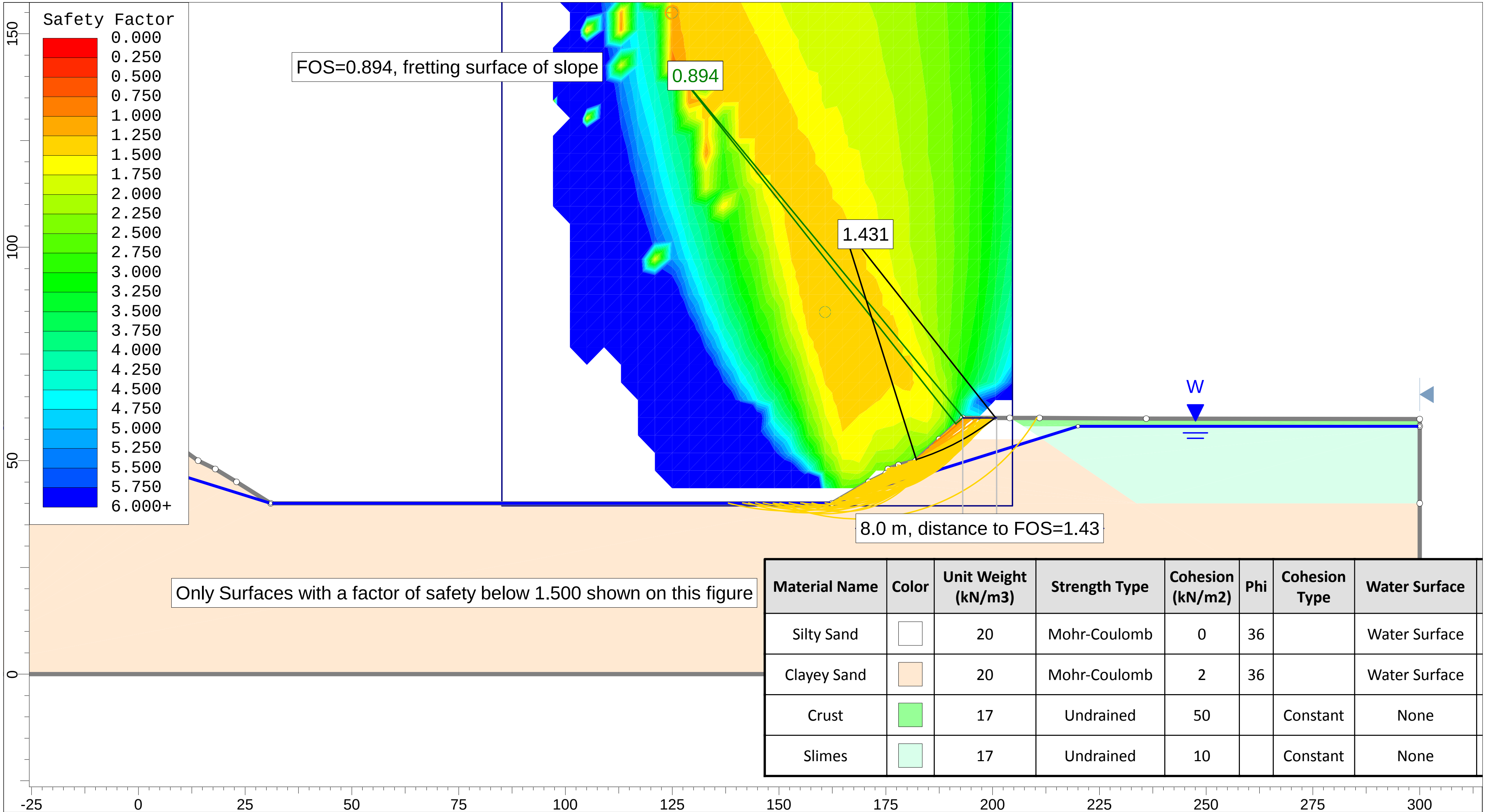


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh South, Victoria		
Analysis Description	East batter - Back analysis - Shallow		
Drawn By CB	*Scale* 1:1250	*Company*	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM	*File Name*	EAST Figure **B1**.slim

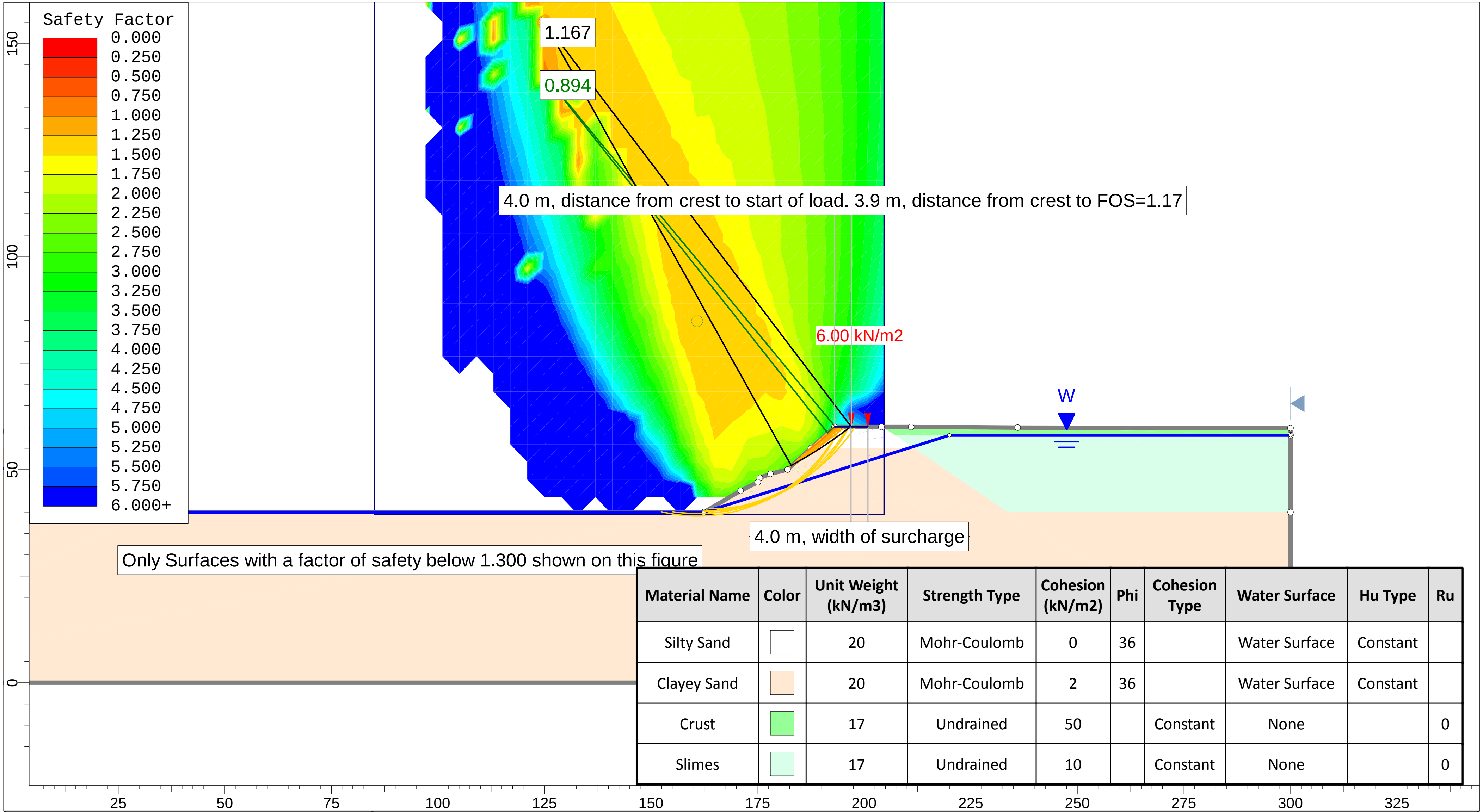


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh South, Victoria
Analysis Description	East batter - Back analysis - Shallow
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	EAST Figure **B2**.slim

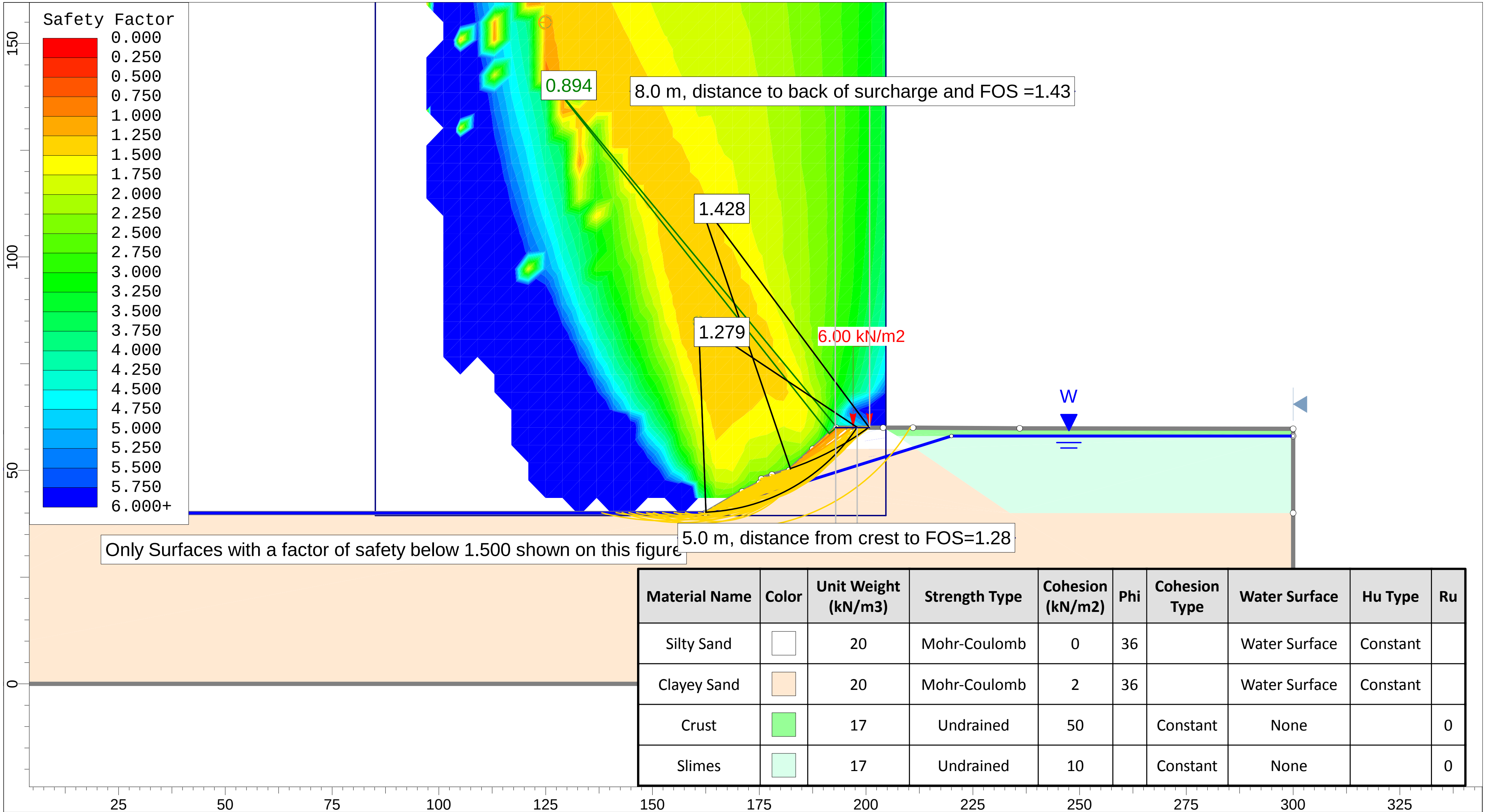


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading 4m set back
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	EAST Figure **B3**.slim

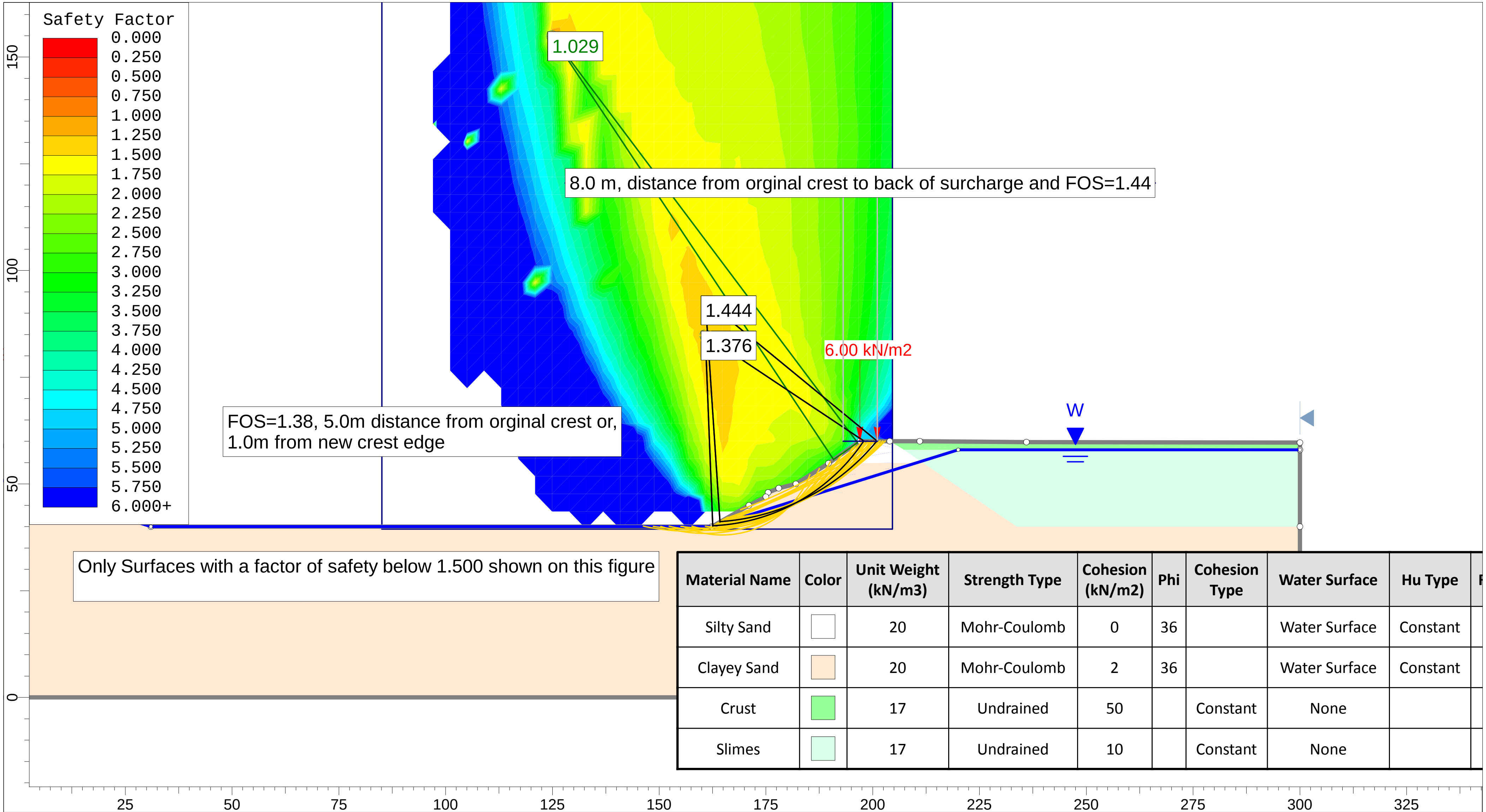


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading 4m set back		
Drawn By CB	*Scale* 1:1250	*Company*	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM	*File Name*	EAST Figure **B4**.slim

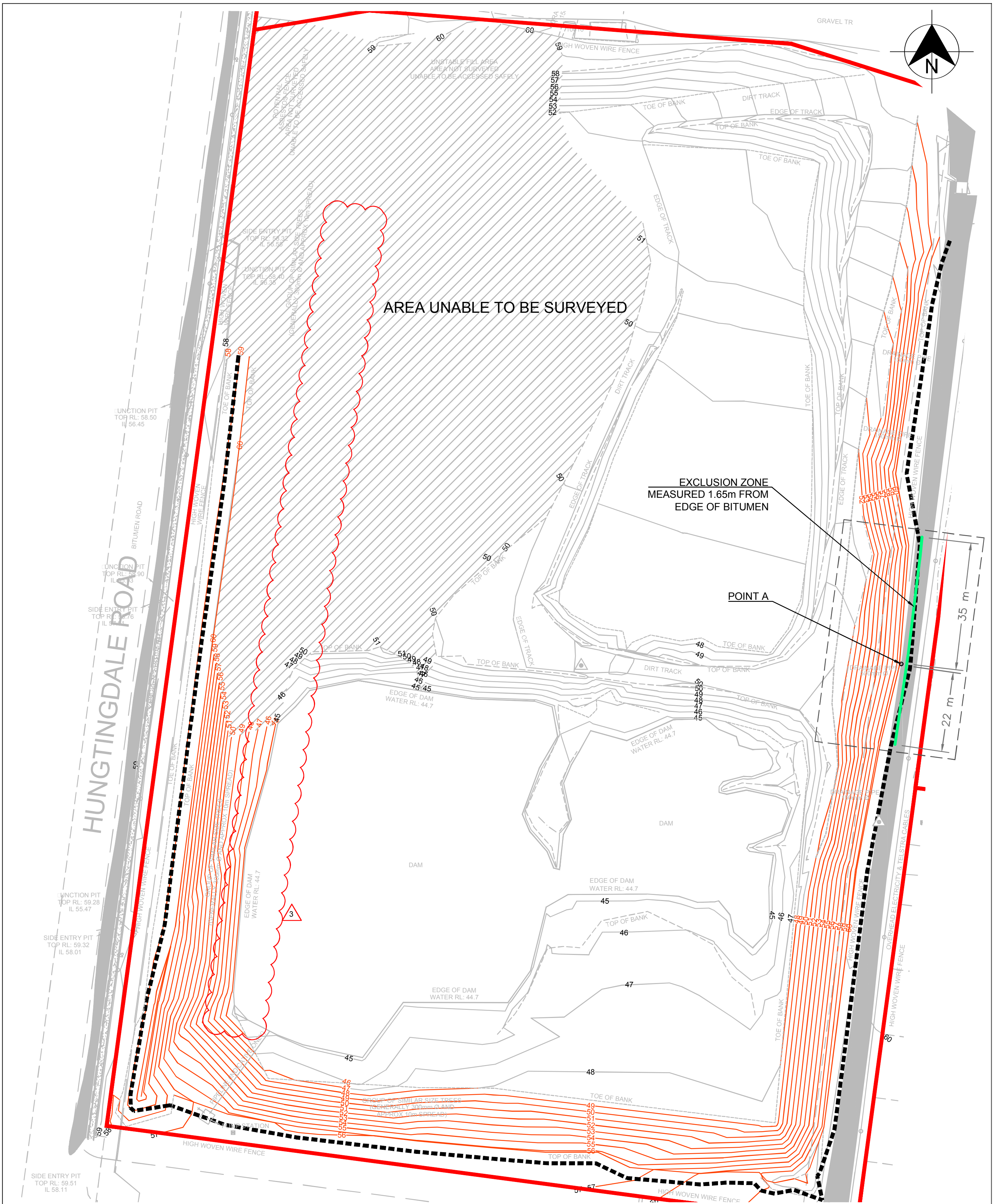


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	F
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		
Slimes		17	Undrained	10		Constant	None		

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading and collapse of upper slope wedge		
Drawn By	CB	*Scale*	1:1250
Company	Talbot Road Finance Pty Ltd		
Date	14/01/2015, 2:17:49 PM	*File Name*	EAST Figure **B5**.slim



NOTE:
CONTOURS FROM TAYLORS DEVELOPMENT STRATEGISTS DRAWING 0180D-D1-REV_A (12/06/2013)

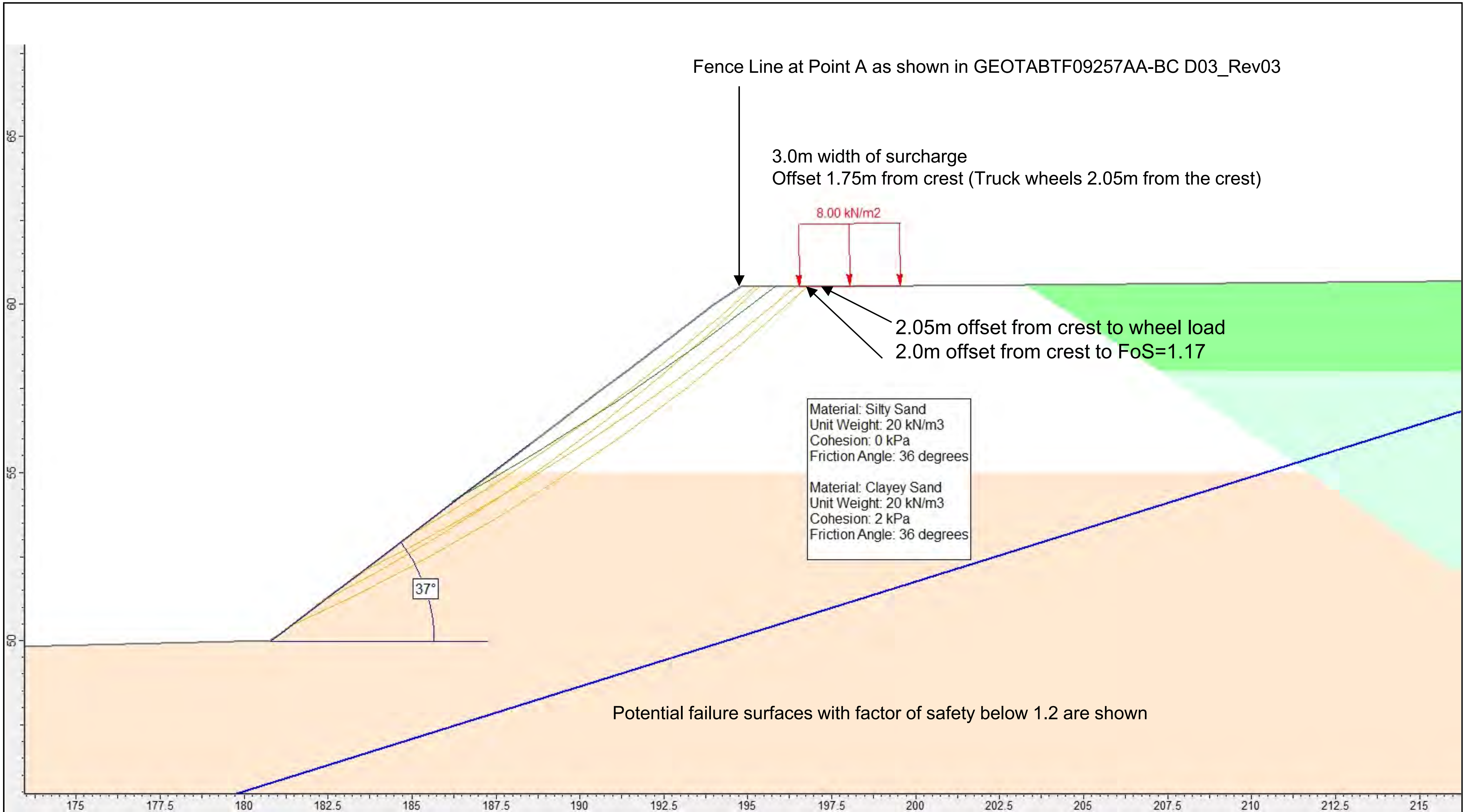
LEGEND

- Critical Batter Slope (Contour)
- E□isting Surface Level Contour
- 3m E□clusion Zone

0 10 20 30 40 50
SCALE 1:1000 (A3) METRES

drawn	□O	client:	TALBOT ROAD FINANCE PTY LTD
approved	MF	project:	Domain 4 Batter Stability HUNTINGDALE ESTATE, OAKLEIGH SOUTH
date	01/05/17	title:	EXCLUSION ZONE AT EASTERN BATTER
scale	1:1000	project no:	GEOTABTF09257AA
original size	A3	figure no:	B6

coffey
A TETRA TECH COMPANY

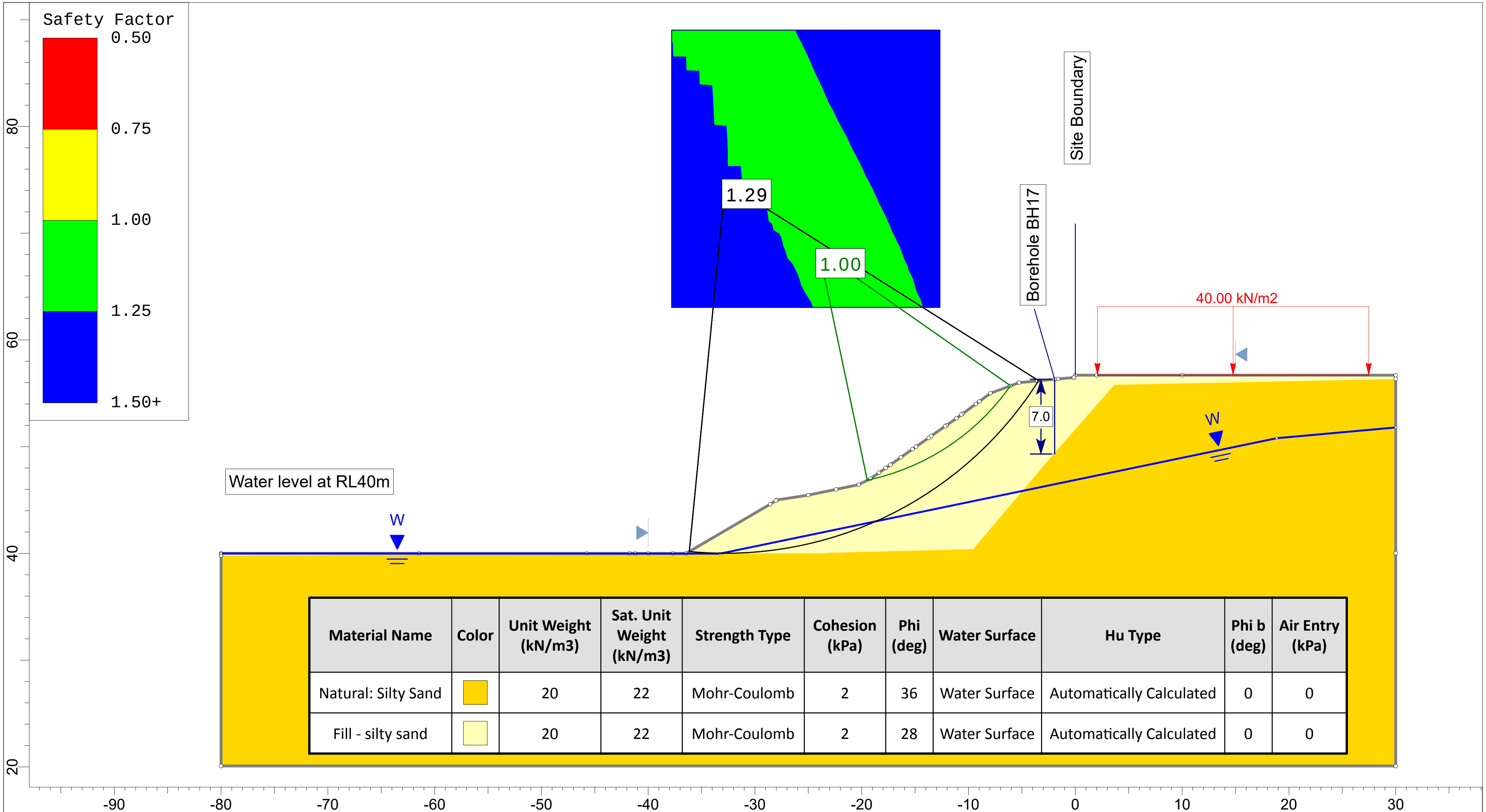


drawn	MF	client:	TALBOT ROAD FINANCE
approved	IVP	project:	HUNTINGDALE ESTATE DOMAIN 4 QUARRY EXCLUSION ZONE
date	1/5/2017		
scale	NTS	title:	Stability analysis results
original size	A4	project no: GEOTABTF09257AA-EG	Figure B7

Exclusion Zone with 1.65m offset measured from the edge of the bitumen to be applied over a 57m length as shown in D03_Rev03.
The barriers are to be located so that the truck wheel tracks are to be at least 1.65m from the edge of the bitumen.

drawn	MF	coffey A TETRA TECH COMPANY	client:	TALBOT ROAD FINANCE	
approved	IVP		project:	HUNTINGDALE ESTATE	
date	1/5/2017				
scale	NTS		title:	1.5m Exclusion Zone measured from edge of bitumen	
original size	A4		project no:	GEOTABTF09257AA-EG	Figure B8

APPENDIX C: SLOPE STABILITY FOR SOUTHERN BATTERS



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
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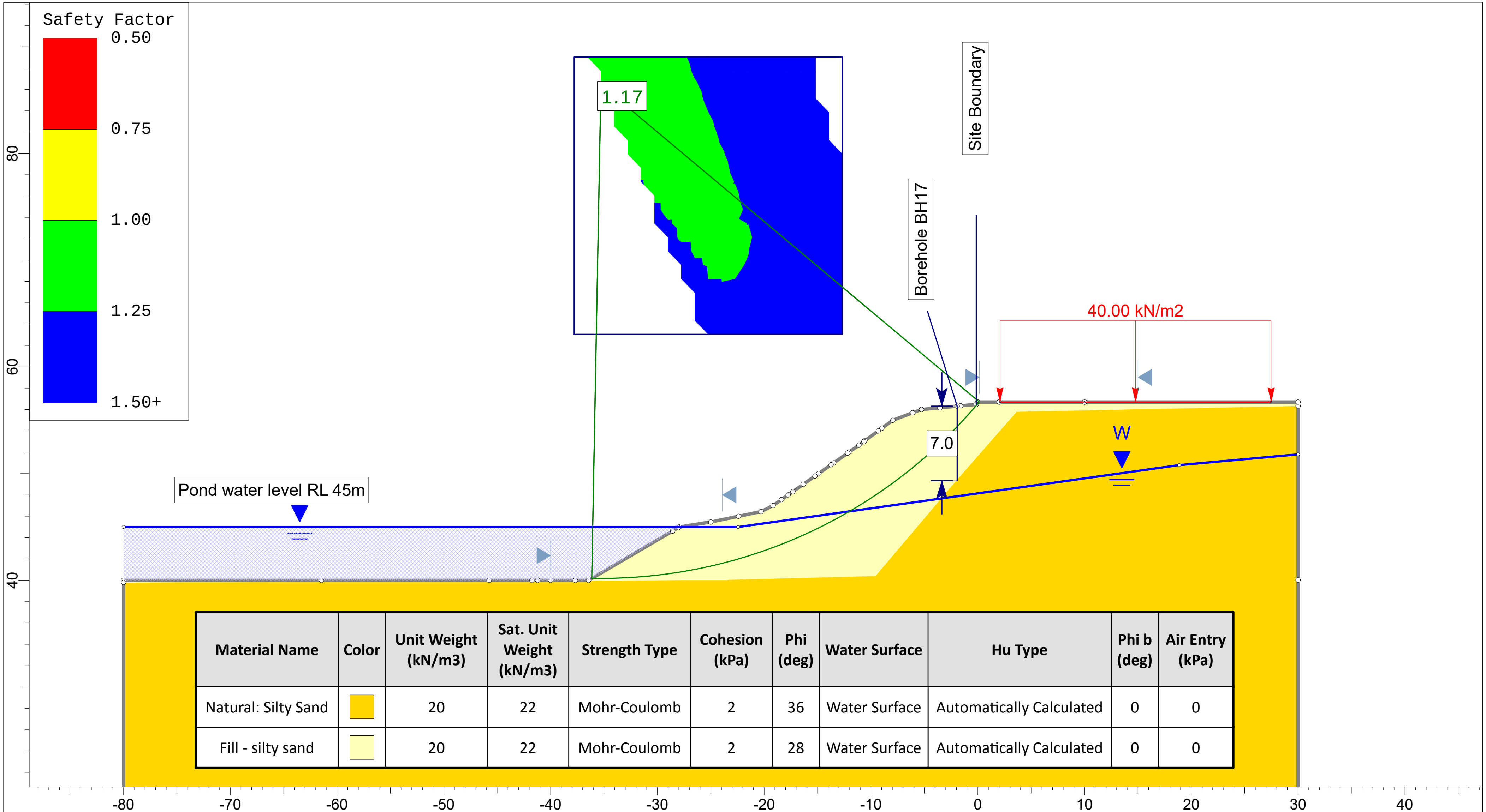
SLIDEINTERPRET 7.023

Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - back analysis
Drawn By MF	*Scale* 1:500
Company	Talbot Road Finanace Pty Ltd
Date	11/09/2017
File Name	SOUTH Figure C1.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
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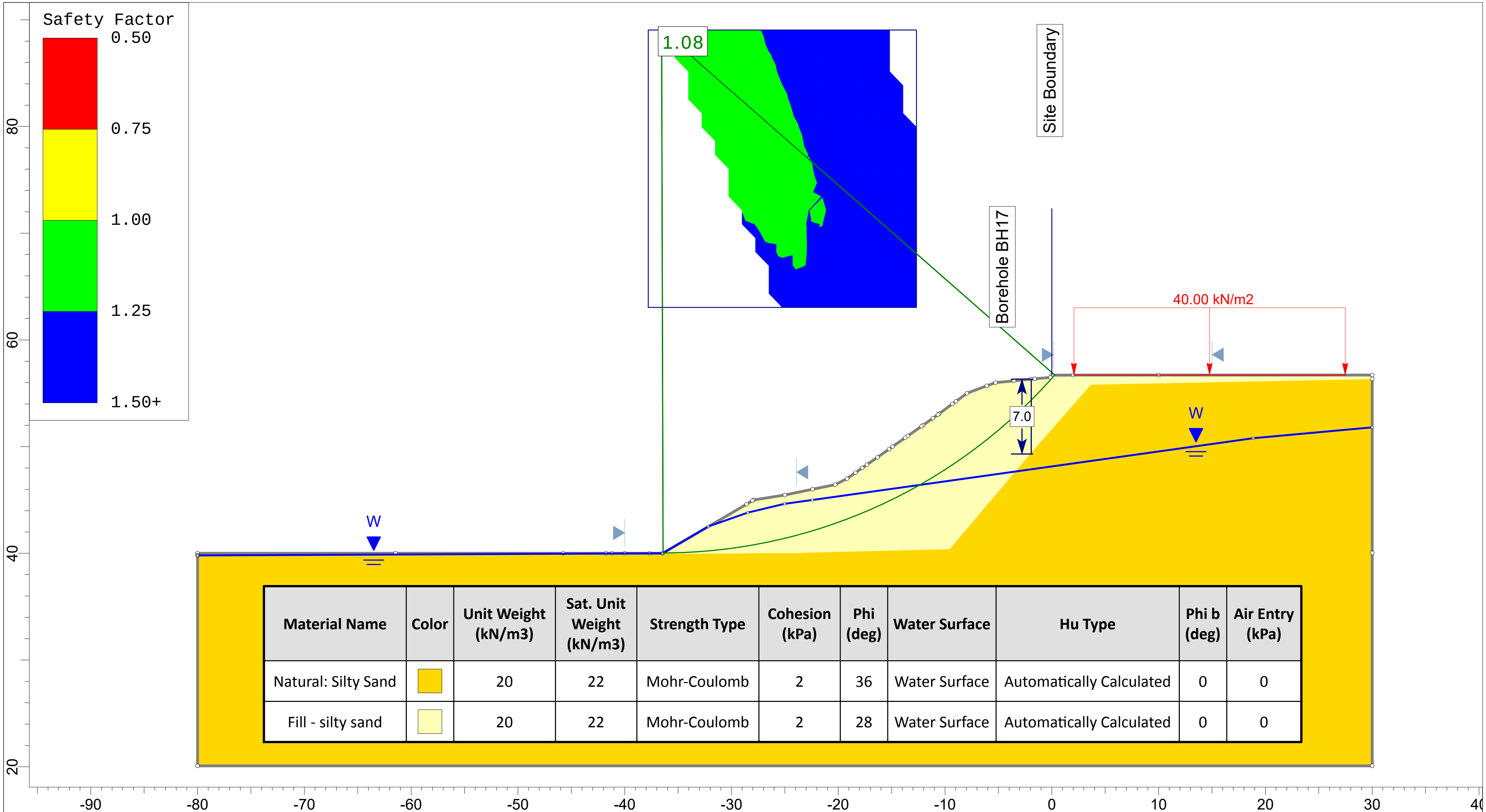
SLIDEINTERPRET 7.023

Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4↓ - Stability of south batter - estimated existing pond water level
Drawn By	MF
Scale	1:500
Company	Talbot Road Finanace Pty Ltd
Date	11/09/2017
File Name	SOUTH Figure C2.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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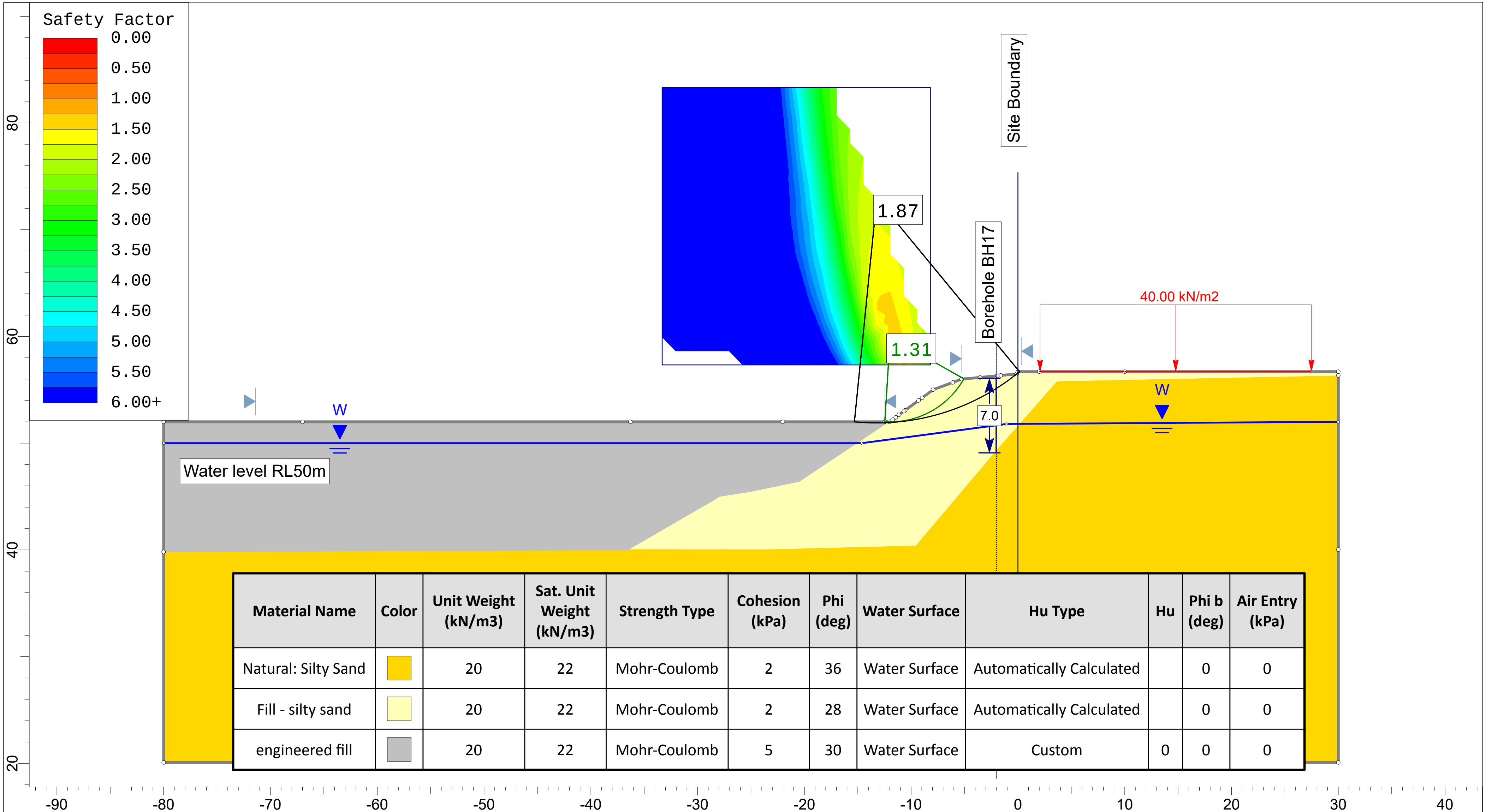
SLIDEINTERPRET 7.023

Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter after rapid draining of pond		
Drawn By HHK	*Scale* 1:500	*Company*	Talbot Road Finanace Pty Ltd
Date	11/09/2017	*File Name*	SOUTH Figure C3.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated		0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated		0	0
engineered fill		20	22	Mohr-Coulomb	5	30	Water Surface	Custom	0	0	0

coffey
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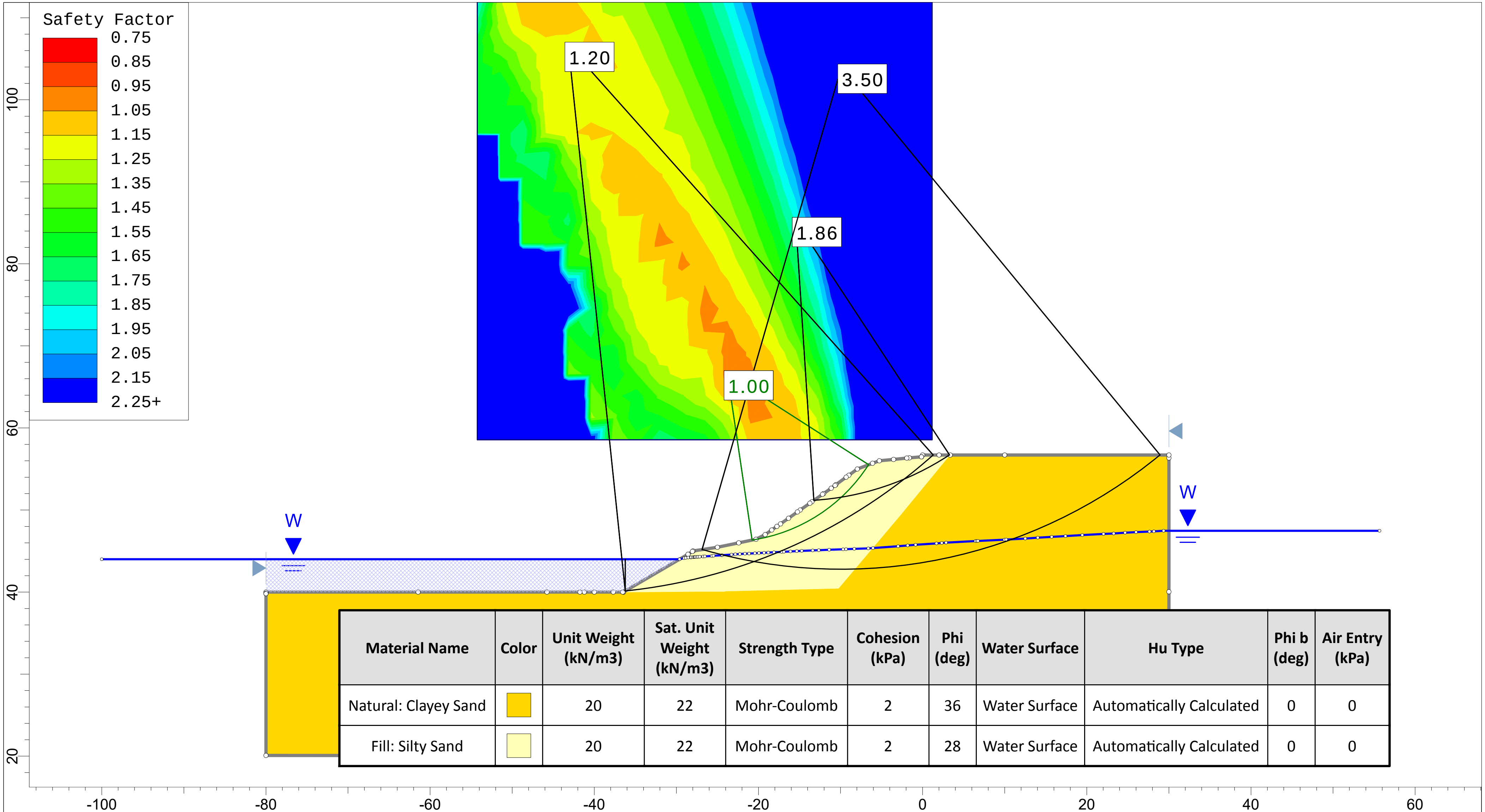
SLIDEINTERPRET 7.023

Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter with fill platform at 52 mRL
Drawn By	MF
Scale	1:500
Company	Talbot Road Finanace Pty Ltd
Date	11/09/2017
File Name	SOUTH Figure C4.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
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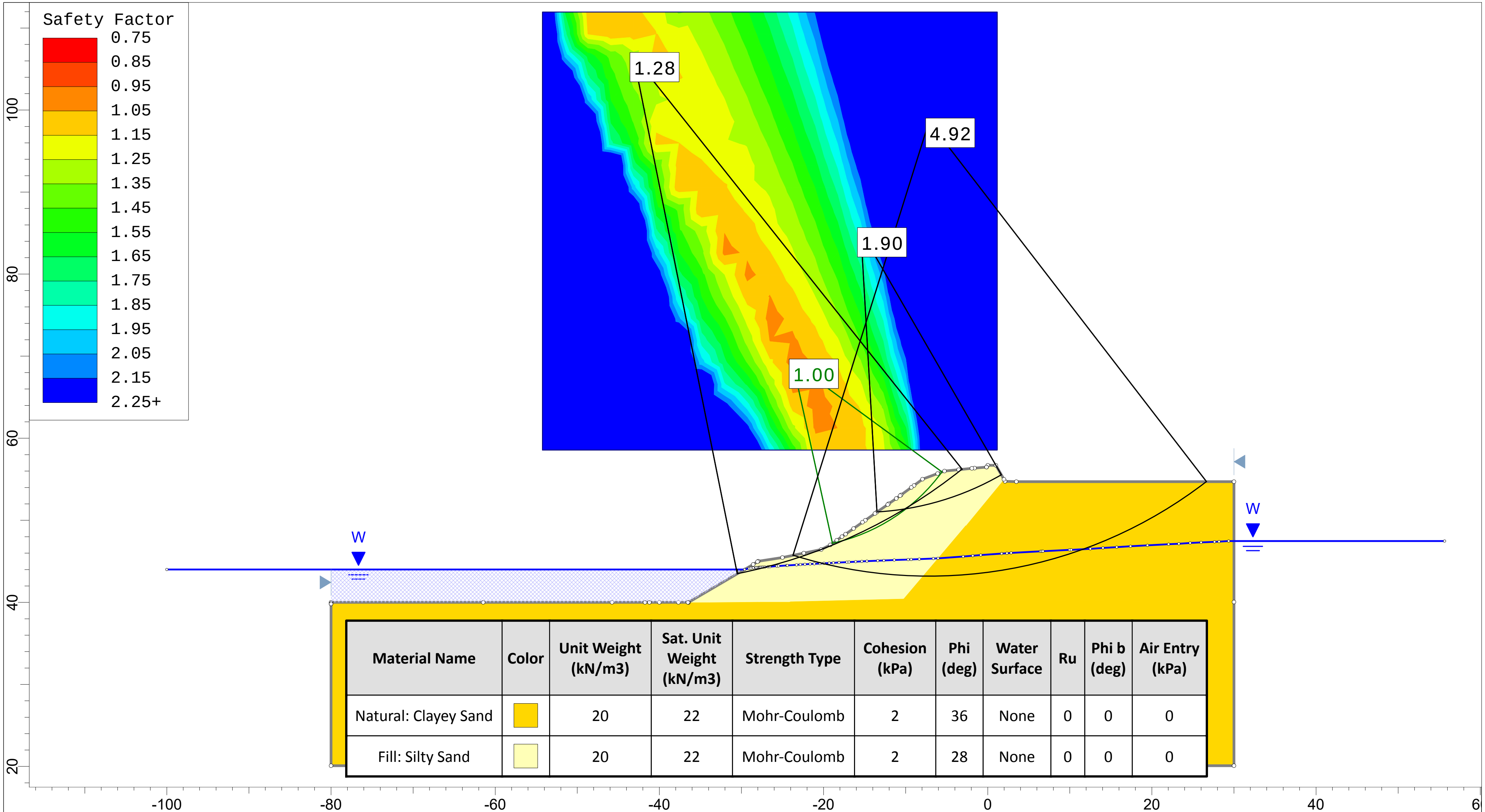
SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level - prior to construction of appartments
Drawn By MF	*Scale* 1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C5.slim

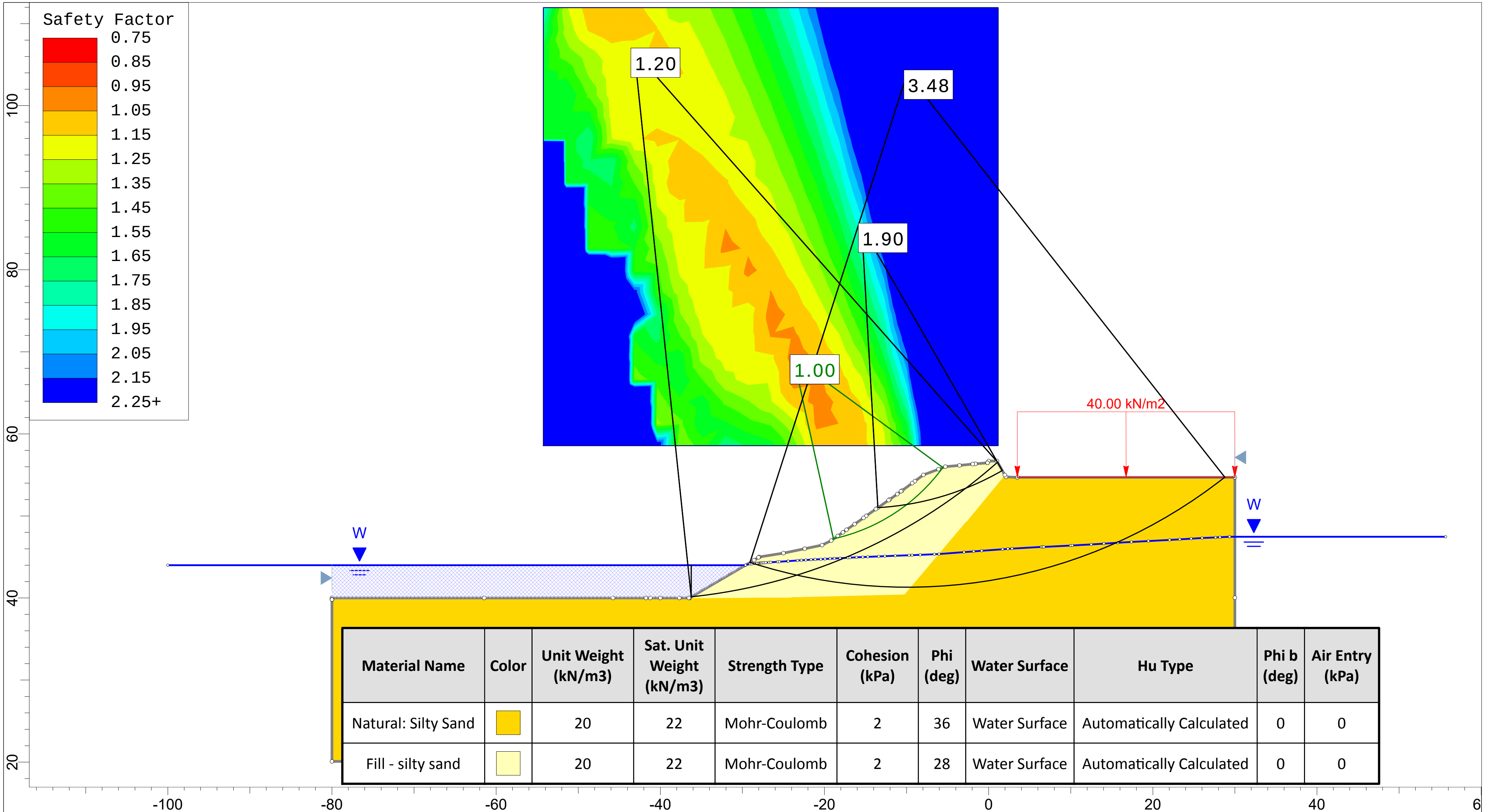


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	None	0	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	None	0	0	0

coffey
A TETRA TECH COMPANY

SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level - after basement excavation
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C5a.slim

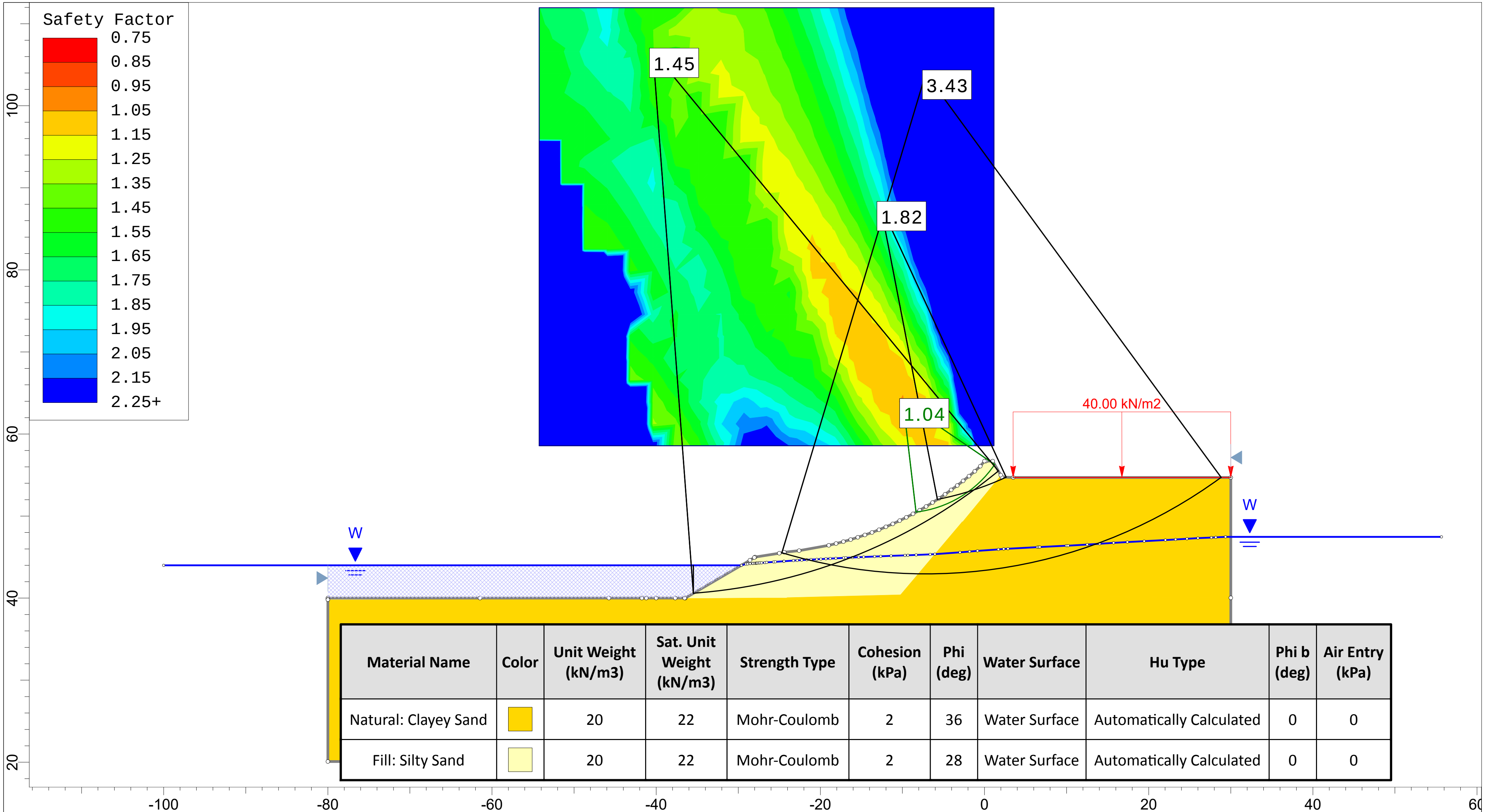


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	After construction of apartments
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C6.slim



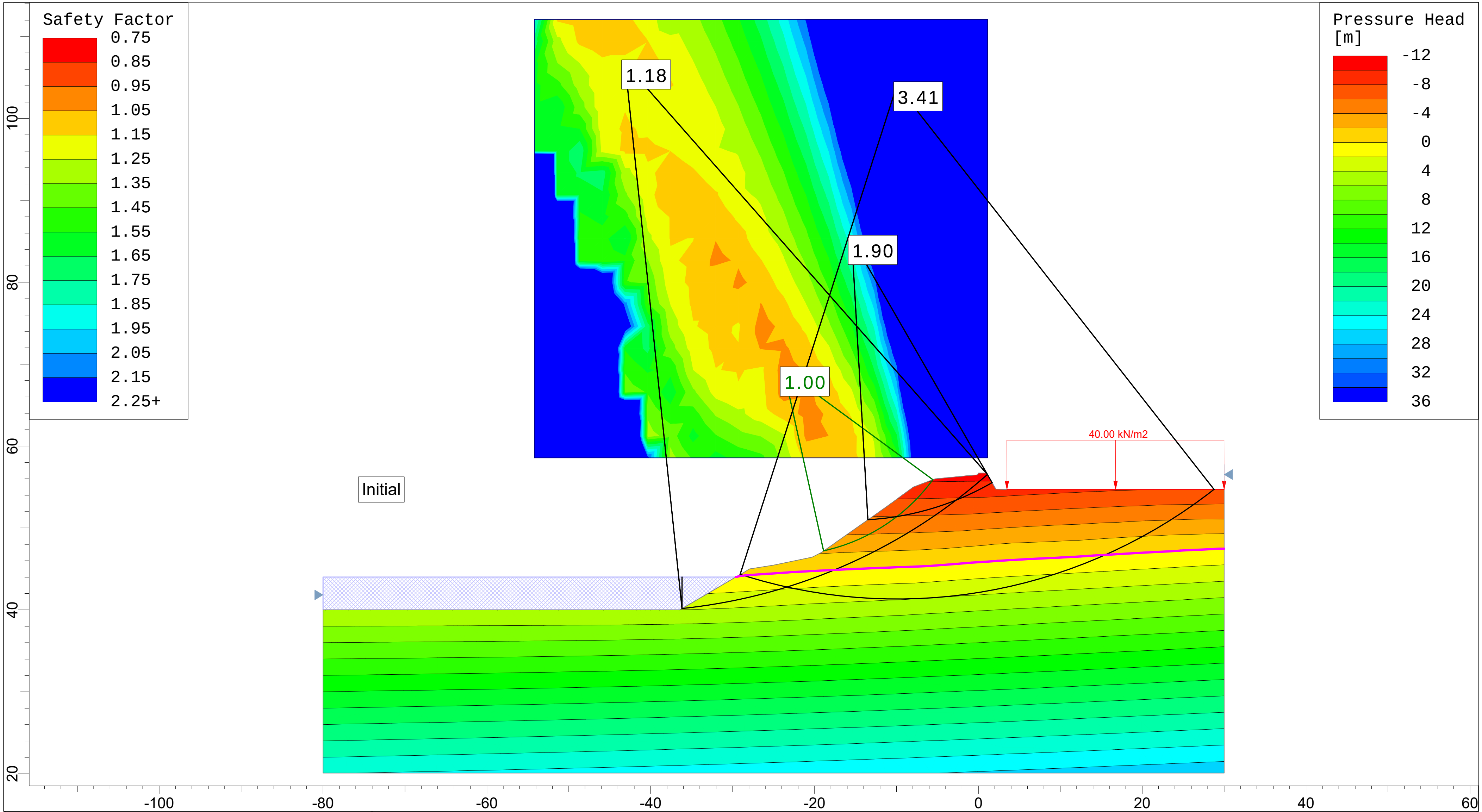
Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

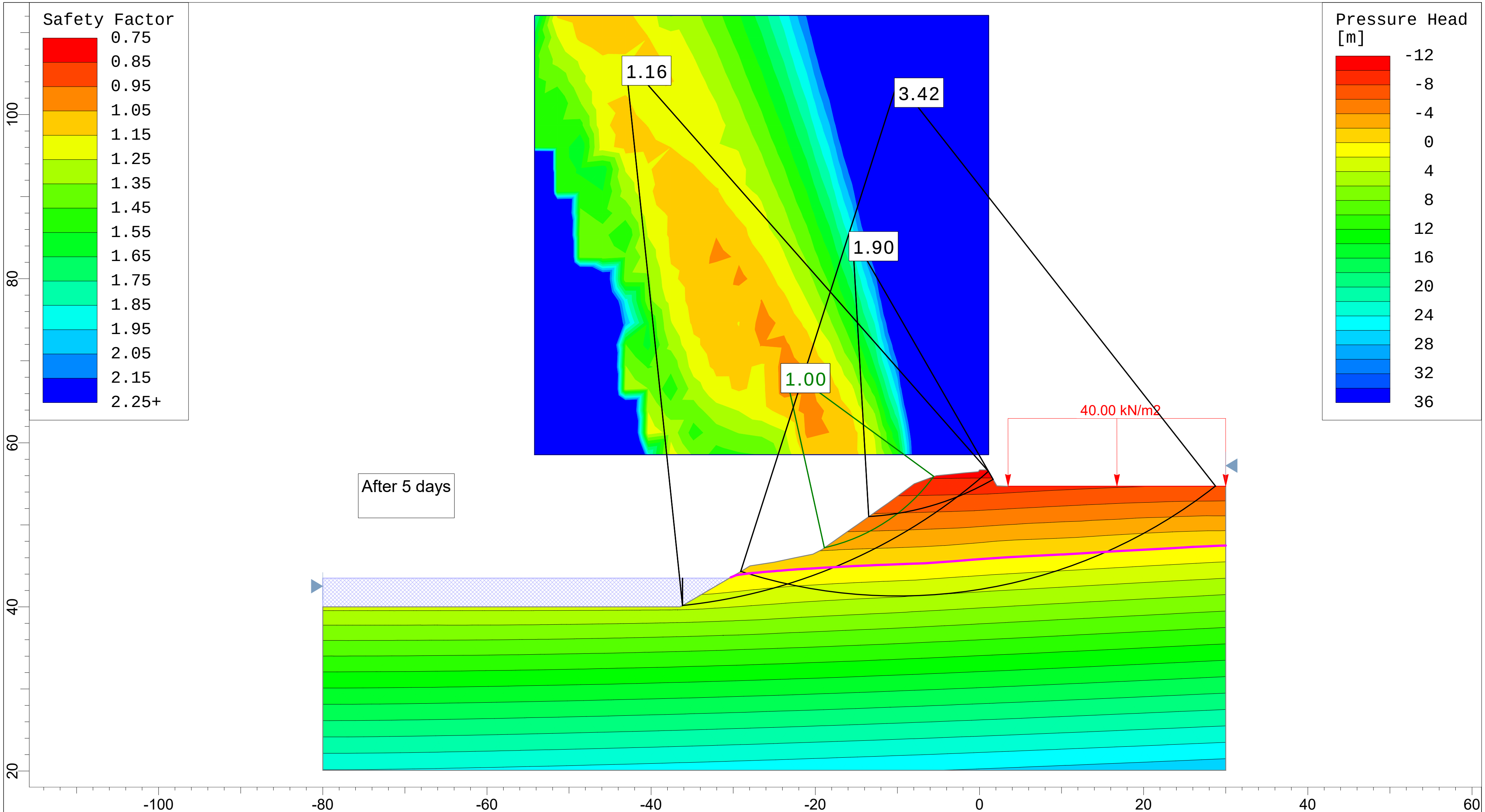
SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level -After construction of apartments - after min FoS failure surface material removed

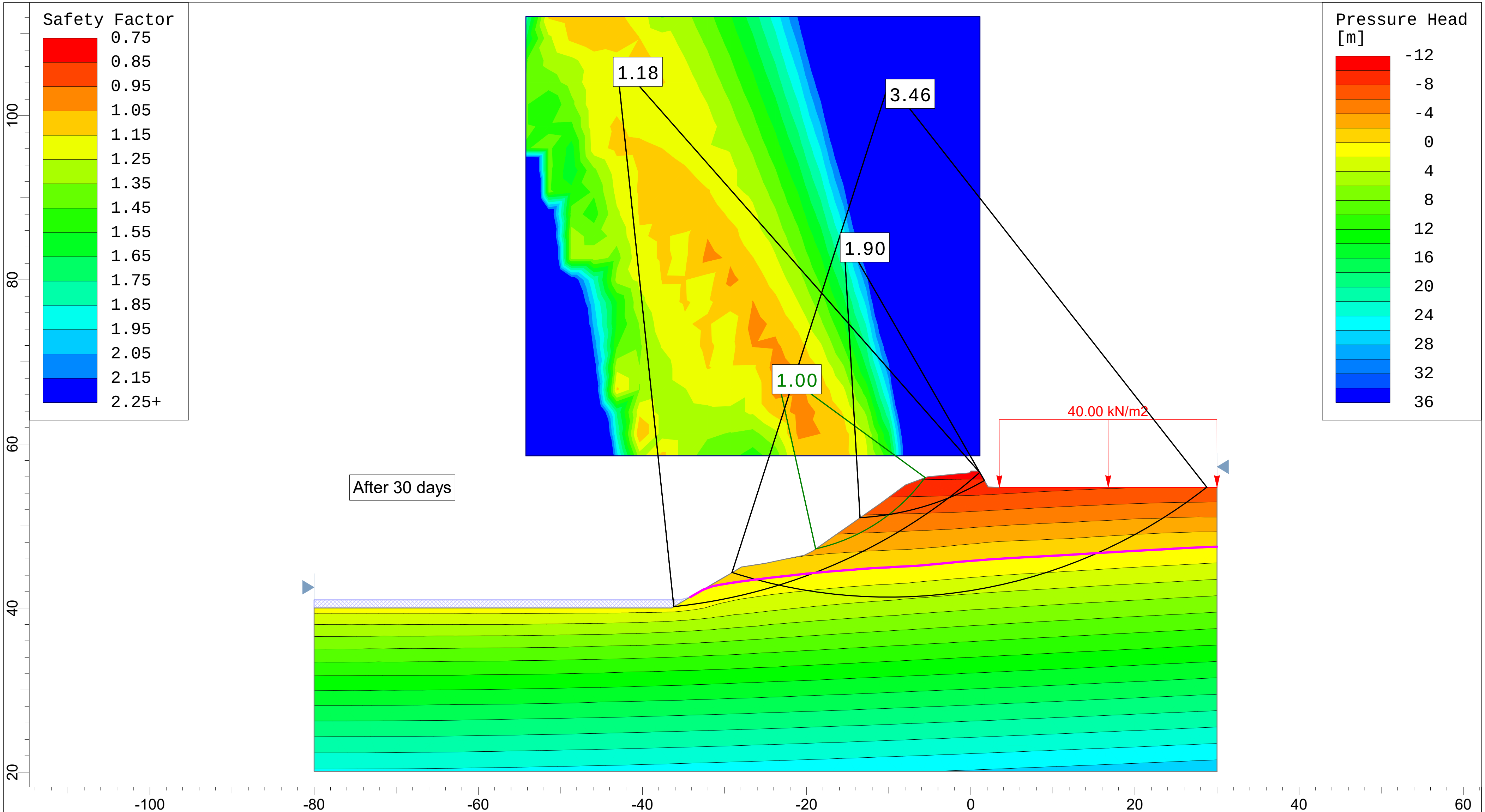
Drawn By	MF	*Scale*	1:650	*Job Number*	754-GEOTABTF09257AA-BD
Date	26 February 2019			*File Name*	Figure C7.slim



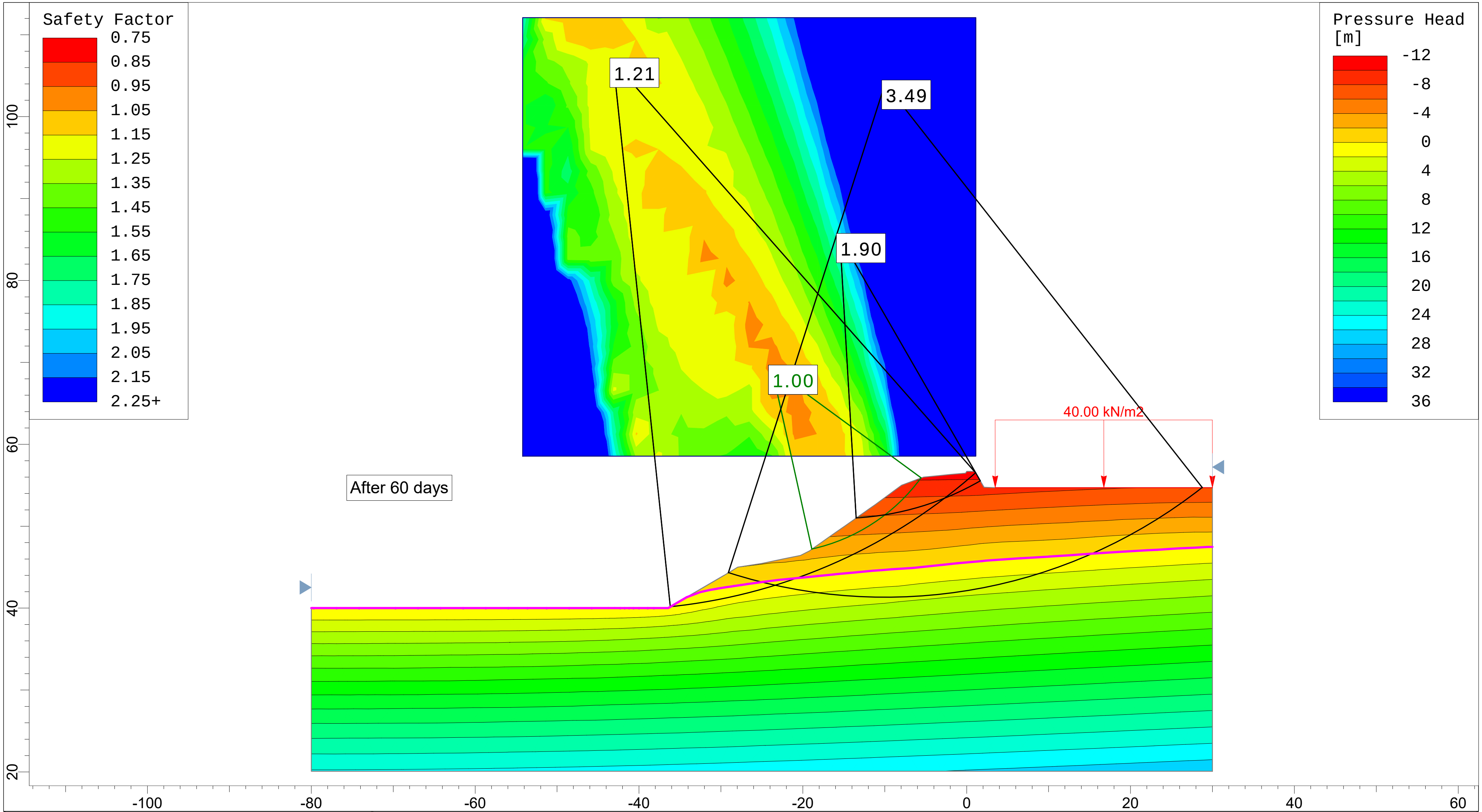
coffey A TETRA TECH COMPANY	*Project*	Talbot Quarry Domain 4 south batter stability assessment	
	Analysis Description	Transient groundwater 0.1m/day drawdown - Initial	
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8a



coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description Transient groundwater 0.1m/day drawdown - After 5 days		
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8b



coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description Transient groundwater 0.1m/day drawdown - After 30 days		
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8c



coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description Transient groundwater 0.1m/day drawdown - After 60 days		
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8d

APPENDIX D: SLOPE STABILITY FOR NORTHERN BATTERS

Figure D1 – Domain 1 proposed preload extending to the crest of the Domain 4 north batter

Table D1 - Subsurface materials encountered in boreholes near the north wall of the Domain 4 pit

Borehole ID	Depth from and to (m) below surface level	Material Description
BH8	0 – 11.5	Fill: Silty SAND, loose to medium dense, fine to medium grained, black, moist, metal, large sandstone gravel, cloth material
BH30	0 – 11 11-12	Fill: Gravelly SAND; fine to medium grained, black, with plastic and concrete fragments, some metal and cobbles of siltstone Sandy Silty CLAY (Brighton Group); low to medium plasticity, mottled brown/grey/green/orange, wet
BH31	0 – 6 6 – 12	Fill: Gravelly SAND; fine to coarse grained sand, brown-orange, fine to coarse grained gravel, some cobbles, dry to moist, loose, with plastic/PVC/concrete fragments Clayey SAND; fine to medium grained, light brown with grey mottling, moist, medium dense
BH43	1 – 9 9 – 20.5 20.5 – 25.9	SAND; black, fine to coarse grained, trace fine to course gravel (Foundry sand waste) Clayey SAND, Sandy CLAY, CLAY, with plastic, glass, brick, and timber pieces (Refuse landfill) Silty SAND, fine to medium grained, dark grey (Brighton Group)
GB20	0 – 6.5	Clayey SAND and Sandy CLAY
GB21A	0 – 1.5 1.5 – 6	SAND; Black, medium grained, moist, soft, minor gravel fragments. FILL; Silty SAND fine grained sand, black, some foundry waste with sand castings, loose.
GB54B	0 – 6 6 – 8.5	Gravelly SAND; fine to medium grained, light brown to black, medium to coarse grained gravel, some cobbles, dry, medium dense. Sandy CLAY; medium plasticity, green/brown, dry to moist, firm.
GB56	0 – 5 5 – 7	Fill: Gravelly SAND; fine to medium grained, dark brown/black, some cobbles, with some plastic and metal pieces Silty SAND; fine to medium grained, black, dry to moist

drawn	FK	coffey	client:	TALBOT ROAD FINANCE PTY LTD	
approved			project:	DOMAIN 4 BACKFILL DESIGN	
date	16 / 9 / 21			HUNTINGDALE ESTATE, OAKLEIGH SOUTH	
scale	1:1500		title:	Borehole information at northern batters	
original size	A3		project no:	GEOTABTF09257AA-EG	figure no: D1

Soil Description Explanation Sheet (1 of 2)

DEFINITION:
In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μm to 2.36 mm
	medium	200 μm to 600 μm
	fine	75 μm to 200 μm

MOISTURE CONDITION

Dry	Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.
Moist	Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.
Wet	As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 – 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 – 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 – 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 – 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 – 35
Medium Dense	35 – 65
Dense	65 – 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN WEATHERED IN PLACE SOILS

Extremely weathered material	Structure and fabric of parent rock visible.
Residual soil	Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil	Deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Deposited on slopes (transported downslope by gravity).
Fill	Man-made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited by lakes.
Marine soil	Deposited in ocean basins, bays, beaches and estuaries.

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Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

<table>
<tr><th colspan="6">FIELD IDENTIFICATION PROCEDURES USC
(Excluding particles larger than 60 mm and basing fractions on estimated mass)</th><th>USC</th><th>PRIMARY NAME</th></tr>
<tr><td rowspan="8">COARSE GRAIINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm</td><td rowspan="16">(A 0.075 mm particle is about the smallest particle visible to the naked eye)</td><td rowspan="4">GRAVELS More than half of coarse fraction is larger than 2.36 mm</td><td rowspan="2">CLEAN GRAVELS (Little or no fines)</td><td colspan="2">Wide range in grain size and substantial amounts of all intermediate particle sizes</td><td>GW</td><td>GRAVEL</td></tr>
<tr><td colspan="2">Predominantly one size or a range of sizes with more intermediate sizes missing.</td><td>GP</td><td>GRAVEL</td></tr>
<tr><td rowspan="2">GRAVELS WITH FINES Appreciable amount of fines)</td><td colspan="2">Non-plastic fines (for identification procedures see ML below)</td><td>GM</td><td>SILTY GRAVEL</td></tr>
<tr><td colspan="2">Plastic fines (for identification procedures see CL below)</td><td>GC</td><td>CLAYEY GRAVEL</td></tr>
<tr><td rowspan="4">SANDS More than half of coarse fraction is smaller than 2.36 mm</td><td rowspan="2">CLEAN SANDS (Little or no fines)</td><td colspan="2">Wide range in grain sizes and substantial amounts of all intermediate sizes</td><td>SW</td><td>SAND</td></tr>
<tr><td colspan="2">Predominantly one size or a range of sizes with some intermediate sizes missing.</td><td>SP</td><td>SAND</td></tr>
<tr><td rowspan="2">SANDS WITH FINES (Appreciabl e amount of fines)</td><td colspan="2">Non-plastic fines (for identification procedures see ML below).</td><td>SM</td><td>SILTY SAND</td></tr>
<tr><td colspan="2">Plastic fines (for identification procedures see CL below).</td><td>SC</td><td>CLAYEY SAND</td></tr>
<tr><td rowspan="8">FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm</td><td rowspan="2"></td><td colspan="3">IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm</td><td></td><td></td></tr>
<tr><td>DRY STRENGTH</td><td>DILATANCY</td><td>TOUGHNESS</td><td></td><td></td></tr>
<tr><td rowspan="3">SILTS & CLAYS Liquid limit less than 50</td><td>None to Low</td><td>Quick to slow</td><td>None</td><td>ML</td><td>SILT</td></tr>
<tr><td>Medium to High</td><td>None</td><td>Medium</td><td>CL</td><td>CLAY</td></tr>
<tr><td>Low to medium</td><td>Slow to very slow</td><td>Low</td><td>CL</td><td>ORGANIC SILT</td></tr>
<tr><td rowspan="3">SILTS & CLAYS Liquid limit greater than 50</td><td>Low to medium</td><td>Slow to very slow</td><td>Low to medium</td><td>MH</td><td>SILT</td></tr>
<tr><td>High</td><td>None</td><td>High</td><td>CH</td><td>CLAY</td></tr>
<tr><td>Medium to High</td><td>None</td><td>Low to medium</td><td>OH</td><td>ORGANIC CLAY</td></tr>
<tr><td colspan="3">HIGHLY ORGANIC SOILS</td><td colspan="3">Readily identified by colour, odour, spongy feel and frequently by fibrous texture.</td><td>PT</td><td>PEAT</td></tr>
<tr><td colspan="8">● Low plasticity – Liquid Limit w_L less than 35%. ● Medium plasticity – w_L between 35% and 50%. ● High plasticity – w_L greater than 50%.</td></tr>
</table>

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter.	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.		TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

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Engineering Log - Borehole

Borehole ID.	**BH43**
sheet:	1 of 4
project no.	**754-GEOTABTF09257A**
date started:	**21 Jan 2019**
date completed:	**22 Jan 2019**
logged by:	**EY**
checked by:	**MF**

client: **Huntingdale Estate Nominees**

principal:

project: **Talbot Quarry Regen - Zone 4 Northwall Assessment**

location: **Huntingdale Road, Oakleigh South**

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
SD / C		Not Observable					GC	**FILL: CLAYEY GRAVEL**: fine to coarse grained, angular to sub-angular, brown, with fine to coarse grained sand.	M - D	VD		**FILL**
								becoming grey, low plasticity clay				
							SC	**FILL: CLAYEY SAND**: fine to coarse grained, orange-brown, low to medium plasticity clay, trace fine to coarse grained gravel.	M			
			SPT 3, 20, 14 N*=34		1.0		SP	**FILL: SAND**: fine to coarse grained, dark grey, black, trace fine to coarse grained gravel.				
								becoming dark grey-black		MD		
			SPT 5, 5, 4 N*=9		2.0							
					3.0							
					4.0							
			SPT 3, 4, 4 N*=8									
					5.0							
			SPT 6, 9, 4 N*=13		6.0							
					7.0							
			SPT 3, 6, 8 N*=14									

CDF_0_9_06_LIBRARY.GLB rev:AR Log COF BOREHOLE: NON CORED 754-GEOTABTF09257AA 23RD JAN 2019.GPJ <<DrawingFile>> 24-01-2019 09:05

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Borehole

client:	*Huntingdale Estate Nominees*	Borehole ID.	***BH43***
principal:		sheet:	2 of 4
project:	*Talbot Quarry Regen - Zone 4 Northwall Assessment*	project no.	***754-GEOTABTF09257AA***
location:	*Huntingdale Road, Oakleigh South*	date started:	***21 Jan 2019***
		date completed:	***22 Jan 2019***
		logged by:	***EY***
		checked by:	***MF***

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information — method & support: SD, C; penetration: 1 2 3; water: Not Observable

material substance

depth (m)	samples & field tests	RL (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
				SP	**FILL: SAND**: fine to coarse grained, dark grey, black, trace fine to coarse grained gravel. *(continued)*	M	MD		**FILL**
9.0	SPT 2, 3, 5 N*=8								
				CH	**FILL: CLAY**: high plasticity, grey, orange, red, with fine to coarse grained sand, trace plastic pieces up to 30 mm.		St		
				SC	**FILL: CLAYEY SAND**: fine to coarse grained, dark grey, brown, high plasticity clay.		MD		
10.0				SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm.		L		
	SPT 3, 2, 4 N*=6								
11.0				CI	**FILL: CLAY**: medium plasticity, grey-orange.		St	✕	HP 180 - 200 kPa
				SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm.		L - MD		
					FILL: CLAYEY SAND: fine to coarse grained, grey-orange, high plasticity clay, trace fine to coarse grained gravel, with timber and plastic pieces up to 50 mm.				
12.0	SPT 4, 4, 5 N*=9			SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm. with plastic, glass, brick and timber pieces				
13.0				CH	**FILL: Sandy CLAY**: high plasticity, brown, grey, orange, with brick and glass fragments. with medium to coarse grained gravel		St - VSt	✕✕	HP 180 - 250 kPa
	SPT 10/50mm HB N*=R			SP	**FILL: SAND**: fine to coarse grained, grey-orange, with plastic sheets and pieces up to 50 mm.		MD		
14.0				CH	**FILL: Sandy CLAY**: high plasticity, brown, grey, orange, with brick and glass fragments.		St		
15.0	SPT 9, 12, 14 N*=26			SC	**FILL: CLAYEY SAND**: fine to coarse grained, black, grey, green, brown, low plasticity clay, with metal, glass and plastic pieces up to 30 mm. becoming grey, trace rootlets up to 10 mm		MD		

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling
* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 — no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Borehole

Borehole ID.	**BH43**
sheet:	3 of 4
project no.	**754-GEOTABTF09257AA**
date started:	**21 Jan 2019**
date completed:	**22 Jan 2019**
logged by:	**EY**
checked by:	**MF**

client: **Huntingdale Estate Nominees**

principal:

project: **Talbot Quarry Regen - Zone 4 Northwall Assessment**

location: **Huntingdale Road, Oakleigh South**

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

method & support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa)	structure and additional observations
SD, C		Not Observable					SC	**FILL: CLAYEY SAND**: fine to coarse grained, black, grey, green, brown, low plasticity clay, with metal, glass and plastic pieces up to 30 mm. *(continued)*	M	MD		**FILL**
			SPT 4, 8, 4 N*=12									
					17.0			wood and timber pieces (16.9-18.1 m)				
			SPT 3, 4, 3 N*=7		18.0		CI	**FILL: CLAY**: medium plasticity, brown, grey, trace brick fragments <5 mm.		F - St		
					19.0			becoming wood in a clay matrix (40%)				
							SP	**FILL: SAND**: fine to coarse grained, pale grey.		L		
					20.0							
							SM	**SILTY SAND**: fine to medium grained, dark grey, low plasticity silt.	W			**BLACK ROCK FORMATION**
			SPT 1, 1, 1 N*=2		21.0							
					22.0			becoming dark grey, dark green		MD		
			SPT 4, 5, 5 N*=10		23.0							
								becoming grey, mottled pale grey, nodules of weakly cemented sand present <5 mm		L		

CDF_0_9_06_LIBRARY.GLB rev:AR Log COF BOREHOLE: NON CORED 754-GEOTABTF09257AA 23RD JAN 2019.GPJ <<DrawingFile>> 24-01-2019 09:05

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling
* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3
no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Borehole

client:	*Huntingdale Estate Nominees*	Borehole ID.	***BH43***
principal:		sheet:	4 of 4
project:	*Talbot Quarry Regen - Zone 4 Northwall Assessment*	project no.	***754-GEOTABTF09257AA***
location:	*Huntingdale Road, Oakleigh South*	date started:	***21 Jan 2019***
		date completed:	***22 Jan 2019***
		logged by:	***EY***
		checked by:	***MF***

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description — SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
SD C		Not Observable	SPT 2, 3, 3 N*=6				SM	**SILTY SAND**: fine to medium grained, dark grey, low plasticity silt. *(continued)*	W	L		**BLACK ROCK FORMATION**
								becoming grey, mottled pale grey, mottled green				
					25.0		SP	**SAND**: fine to medium grained, grey.		MD		
			SPT 2, 6, 13 N*=19									
					26.0			Borehole BH43 terminated at 25.95 m Target depth				
					27.0							
					28.0							
					29.0							
					30.0							
					31.0							

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

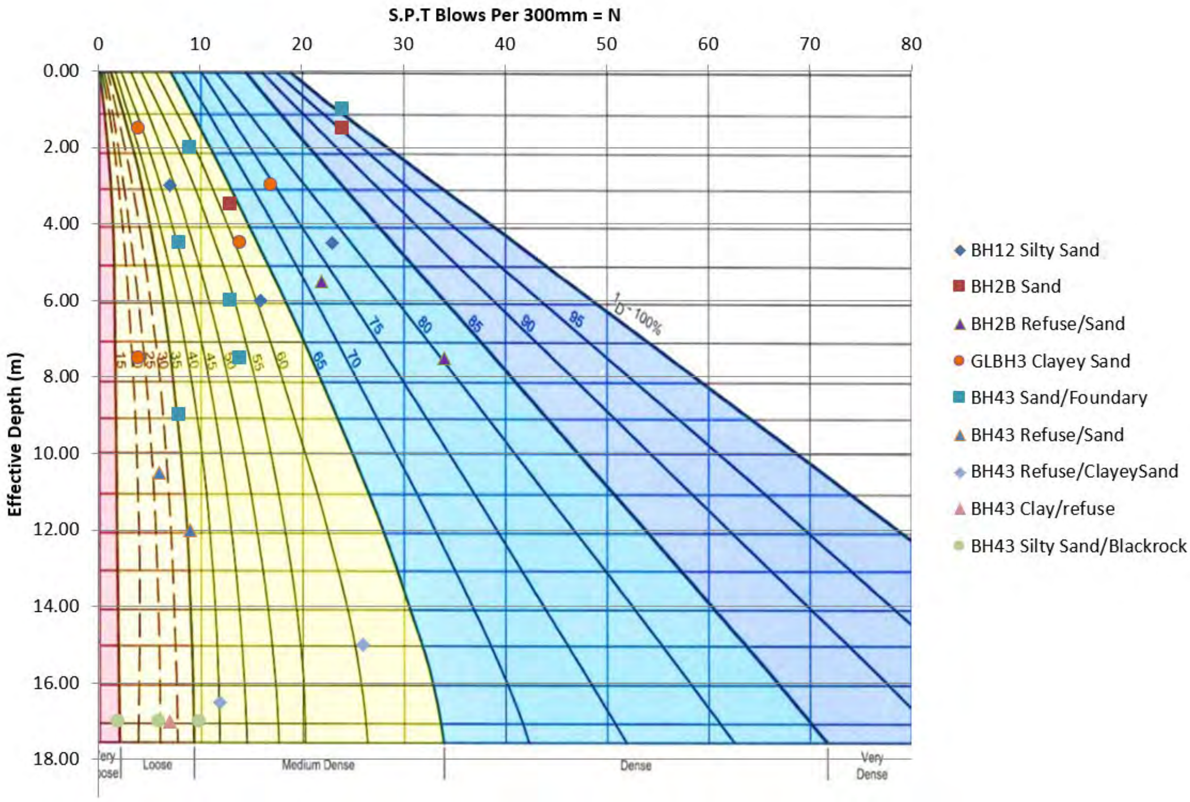
water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

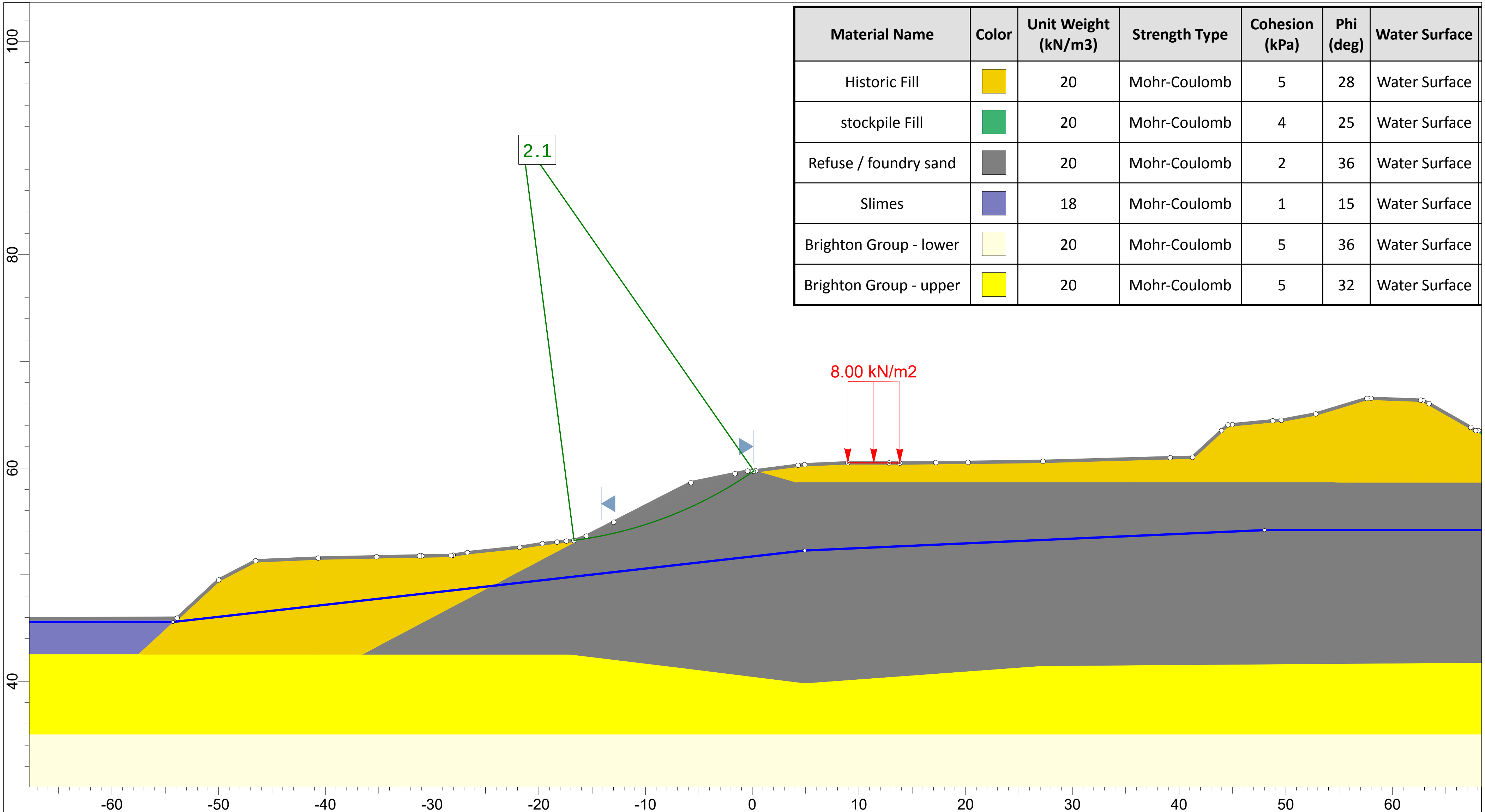
classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense



drawn	FK	coffey	client:	TALBOT ROAD FINANCE PTY LTD
approved			project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
date	16 / 9 / 21		title:	SPT N values from boreholes at northern batters
scale	1:1500			
original size	A3		project no: GEOTABTF09257AA-EG	figure no: D2



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface
stockpile Fill		20	Mohr-Coulomb	4	25	Water Surface
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface
Slimes		18	Mohr-Coulomb	1	15	Water Surface
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface

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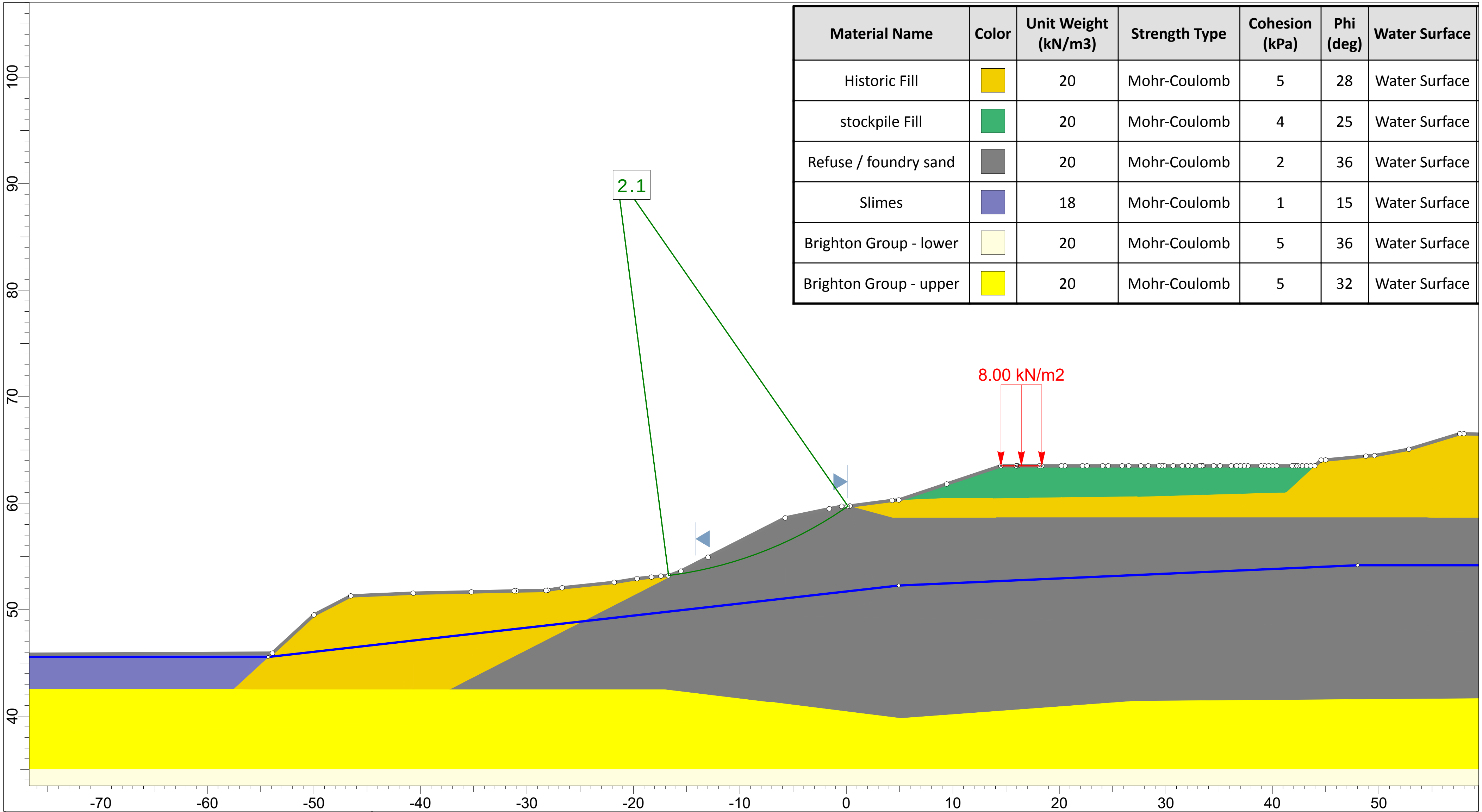
Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - current geometry
Drawn By	M. Farrington
Scale	1:500
Job Number	GEOTABTF09257AA-CX
Date	26 March 2019
File Name	Figure D3

SLIDEINTERPRET 8.016



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface
stockpile Fill		20	Mohr-Coulomb	4	25	Water Surface
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface
Slimes		18	Mohr-Coulomb	1	15	Water Surface
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface

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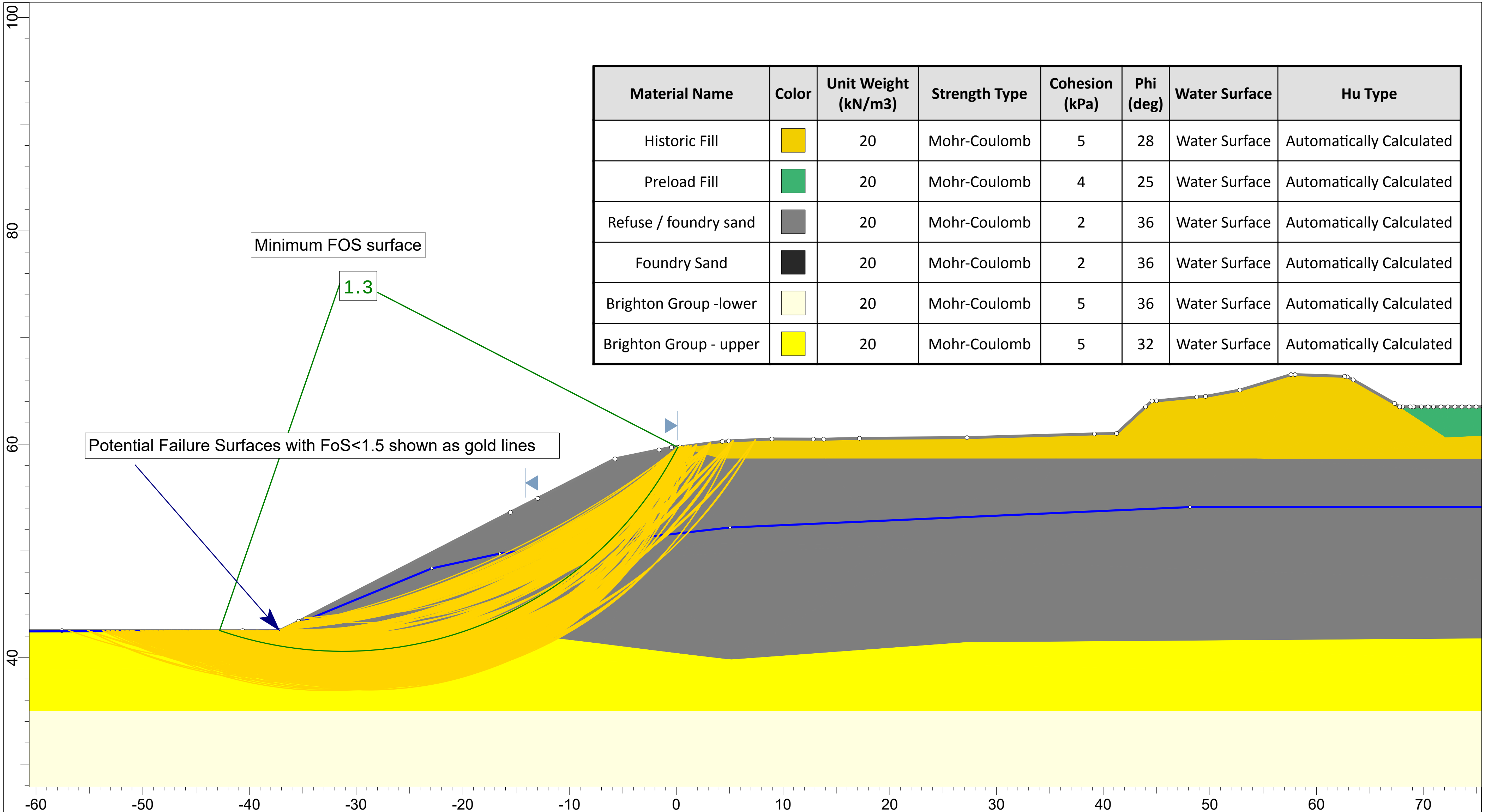
Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - with stockpile
Drawn By	M. Farrington
Scale	1:500
Job Number	GEOTABTF09257AA-CX
Date	26 March 2019
File Name	Figure D4



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface	Automatically Calculated
Preload Fill		20	Mohr-Coulomb	4	25	Water Surface	Automatically Calculated
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Foundry Sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Brighton Group -lower		20	Mohr-Coulomb	5	36	Water Surface	Automatically Calculated
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface	Automatically Calculated

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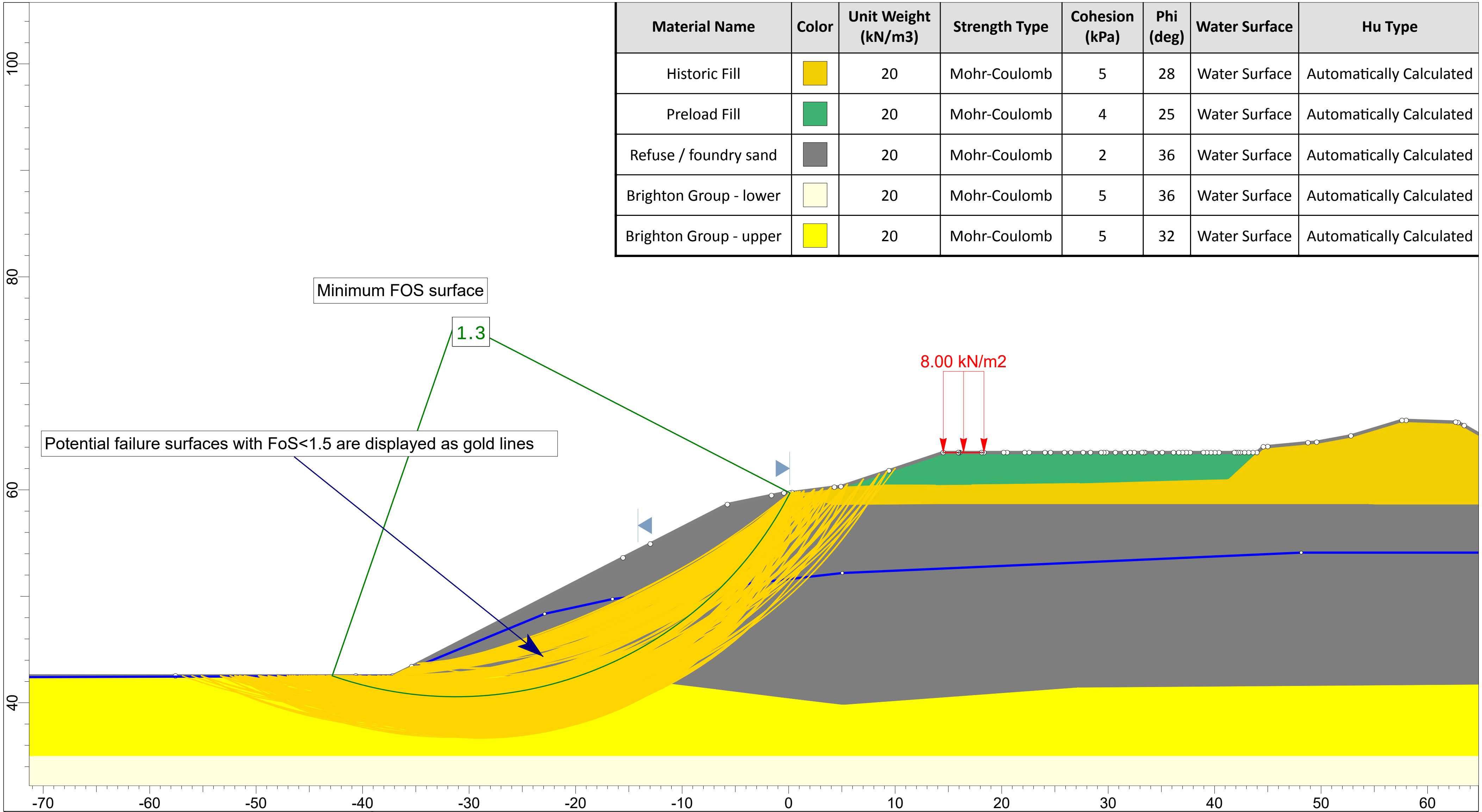
Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated		
Drawn By M. Farrington	*Scale* 1:500	*Job Number*	GETOABTF09257AA-CX
Date	26 March 2019	*File Name*	Figure D5



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface	Automatically Calculated
Preload Fill		20	Mohr-Coulomb	4	25	Water Surface	Automatically Calculated
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface	Automatically Calculated
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface	Automatically Calculated

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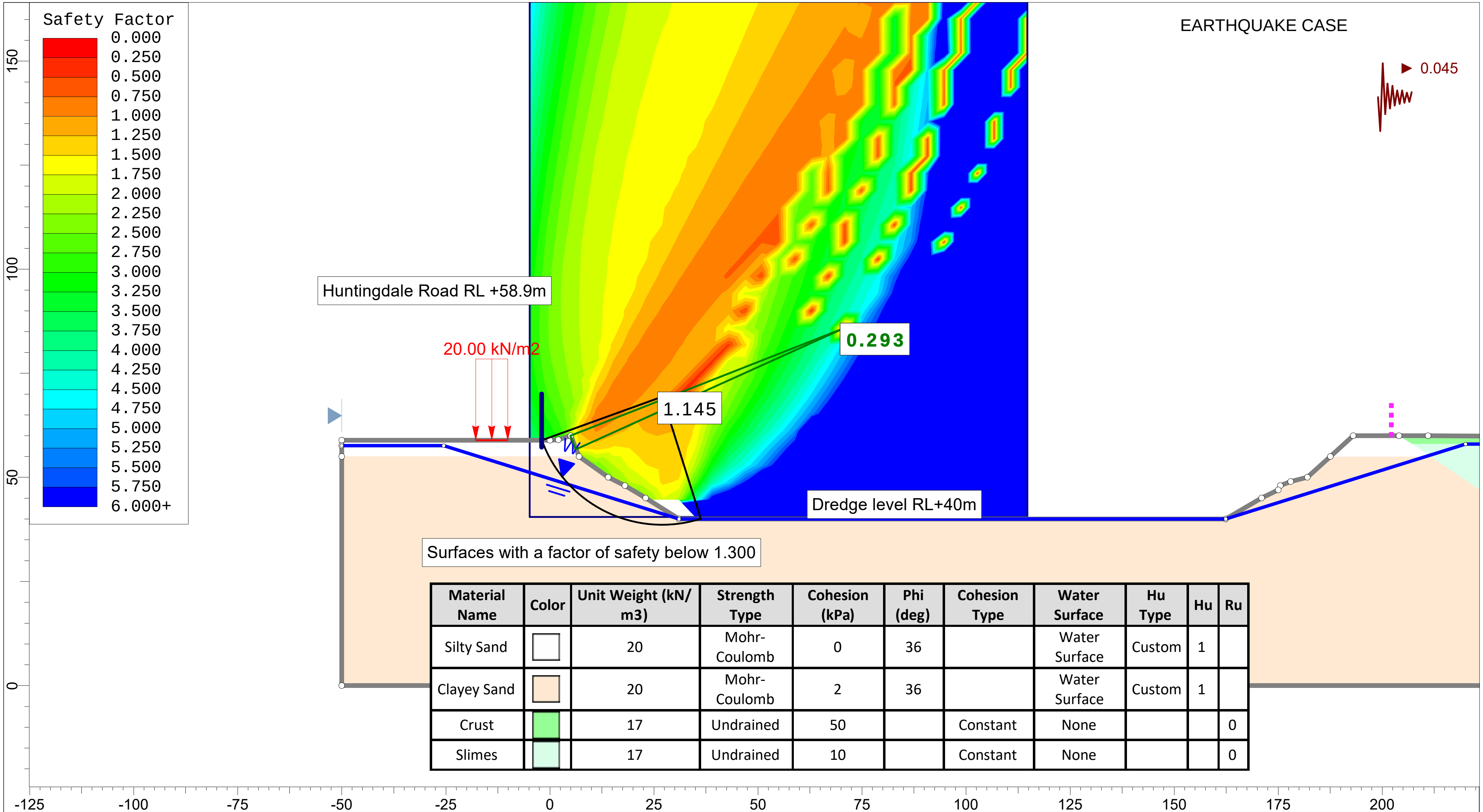
Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated
Drawn By	M. Farrington
Scale	1:500
Job Number	GEOTABTF09257AA-CX
Date	26 March 2019
File Name	Figure D6

APPENDIX E: CURRENT SLOPE STABILITY FOR WESTERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface	Hu Type	Hu	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Custom	1	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Custom	1	
Crust		17	Undrained	50		Constant	None			0
Slimes		17	Undrained	10		Constant	None			0

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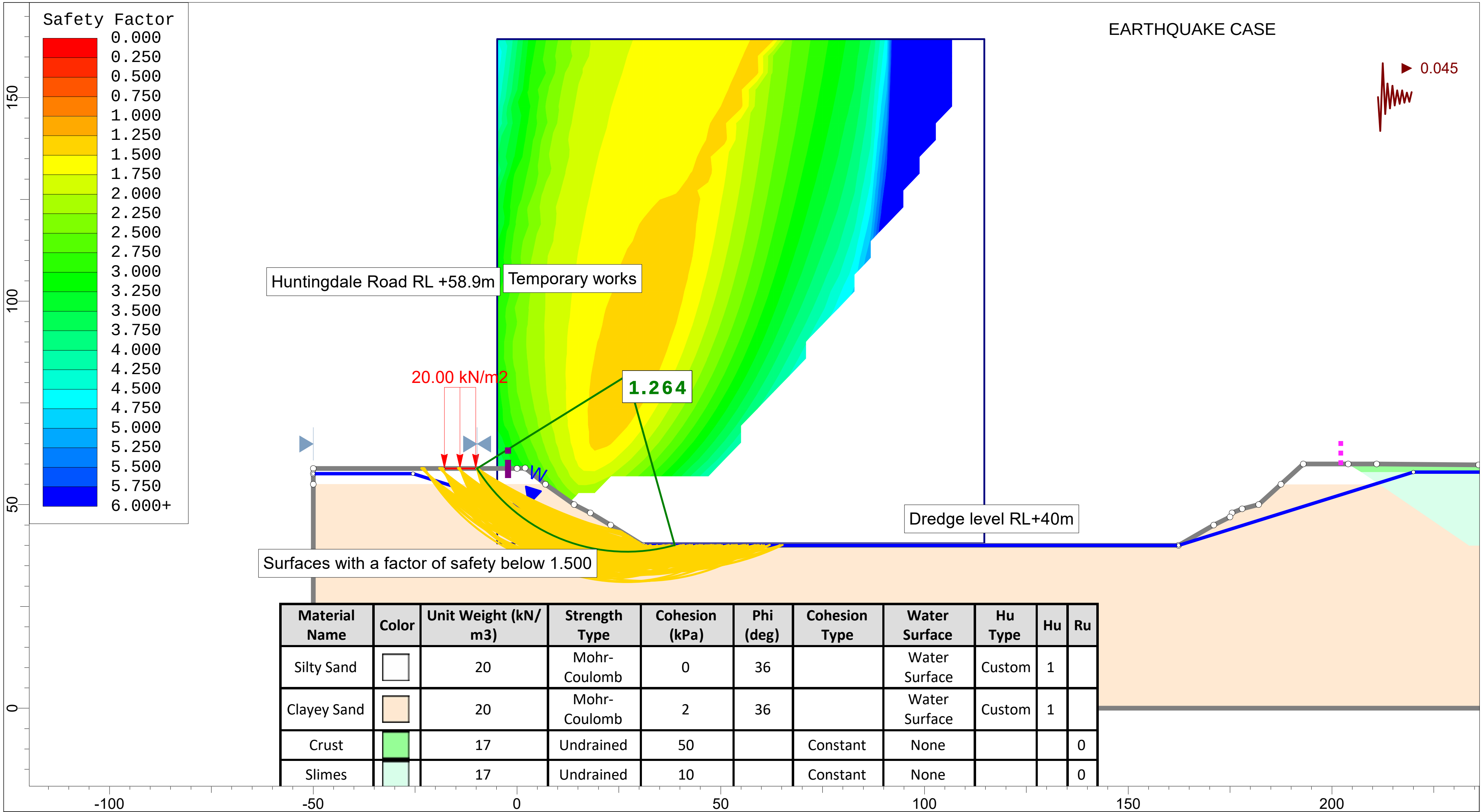
Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis - Global
Drawn By	CB/hhk
Scale	1:1281
Company	Talbot Road Finance Pty Ltd
Date	SEPT 2021
File Name	WEST Figure E1.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface	Hu Type	Hu	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Custom	1	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Custom	1	
Crust		17	Undrained	50		Constant	None			0
Slimes		17	Undrained	10		Constant	None			0

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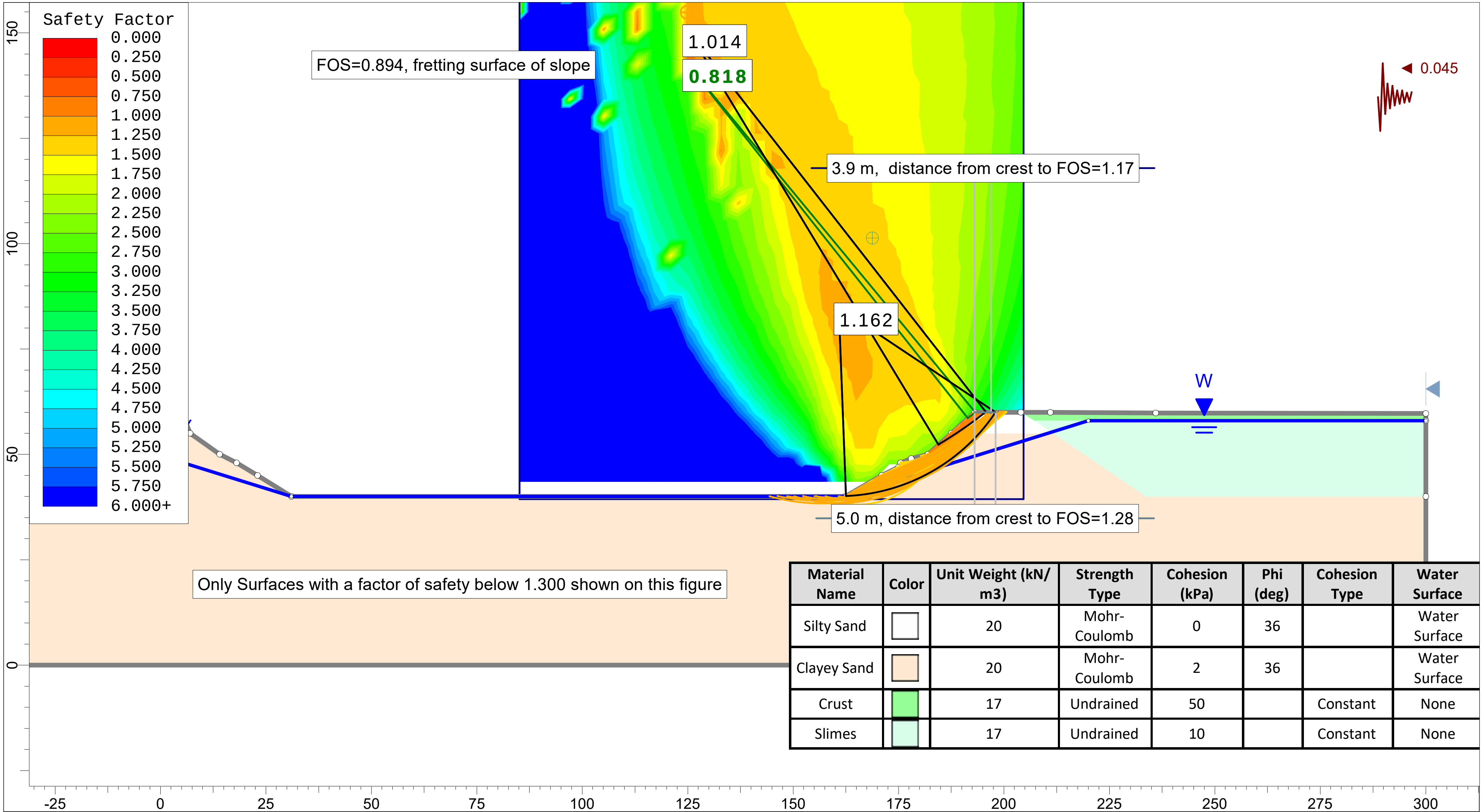
Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis (Earthquake)- Huntingdale Road
Drawn By	CB/HHK
Scale	1:1308
Company	Talbot Road Finance Pty Ltd
Date	sept 2021
File Name	WEST Figure E2.slim

APPENDIX F: CURRENT SLOPE STABILITY FOR EASTERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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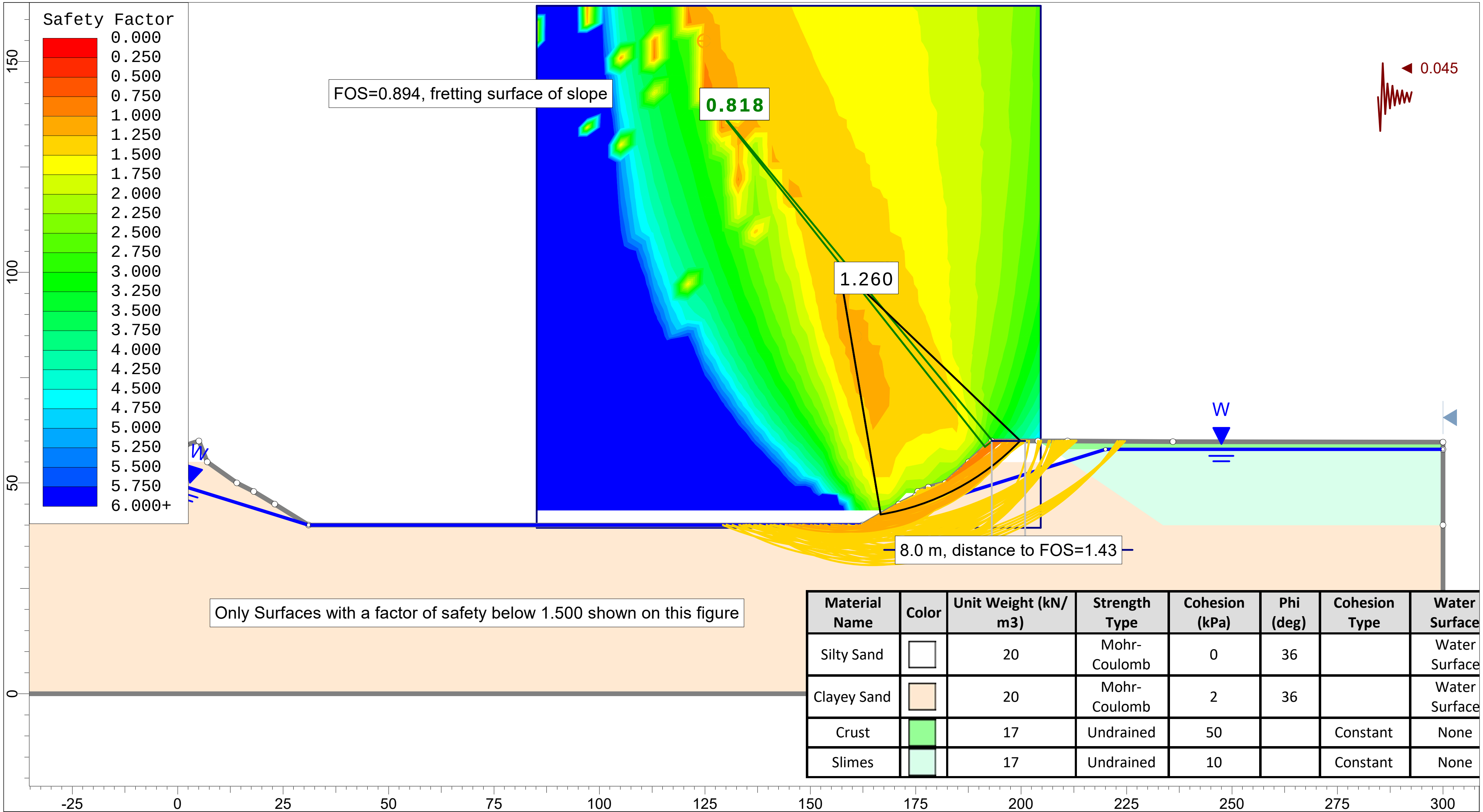
Project	Huntingdale Estate, Oakleigh South, Victoria		
Analysis Description	East batter - Earthquake loading		
Drawn By CB/HHK	*Scale* 1:1264	*Company*	Talbot Road Finance Pty Ltd
Date	Sept 2021	*File Name*	EAST Figure F1.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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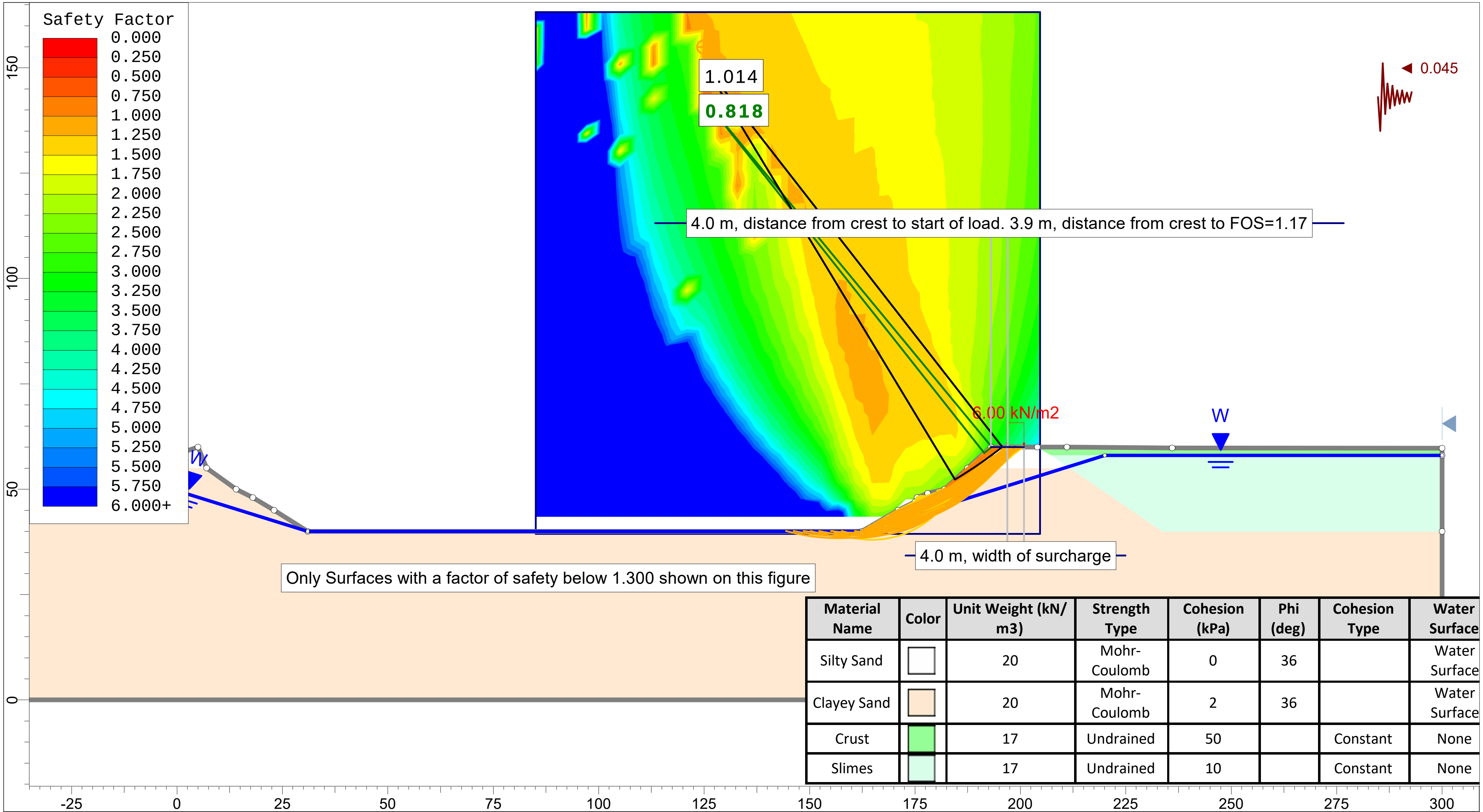
Project	Huntingdale Estate, Oakleigh South, Victoria		
Analysis Description	East batter - Earthquake loading		
Drawn By	CB/hhk	*Scale*	1:1264
Company	Talbot Road Finance Pty Ltd		
Date	Sept 2021	*File Name*	EAST Figure F2.slim

SLIDEINTERPRET 9.016



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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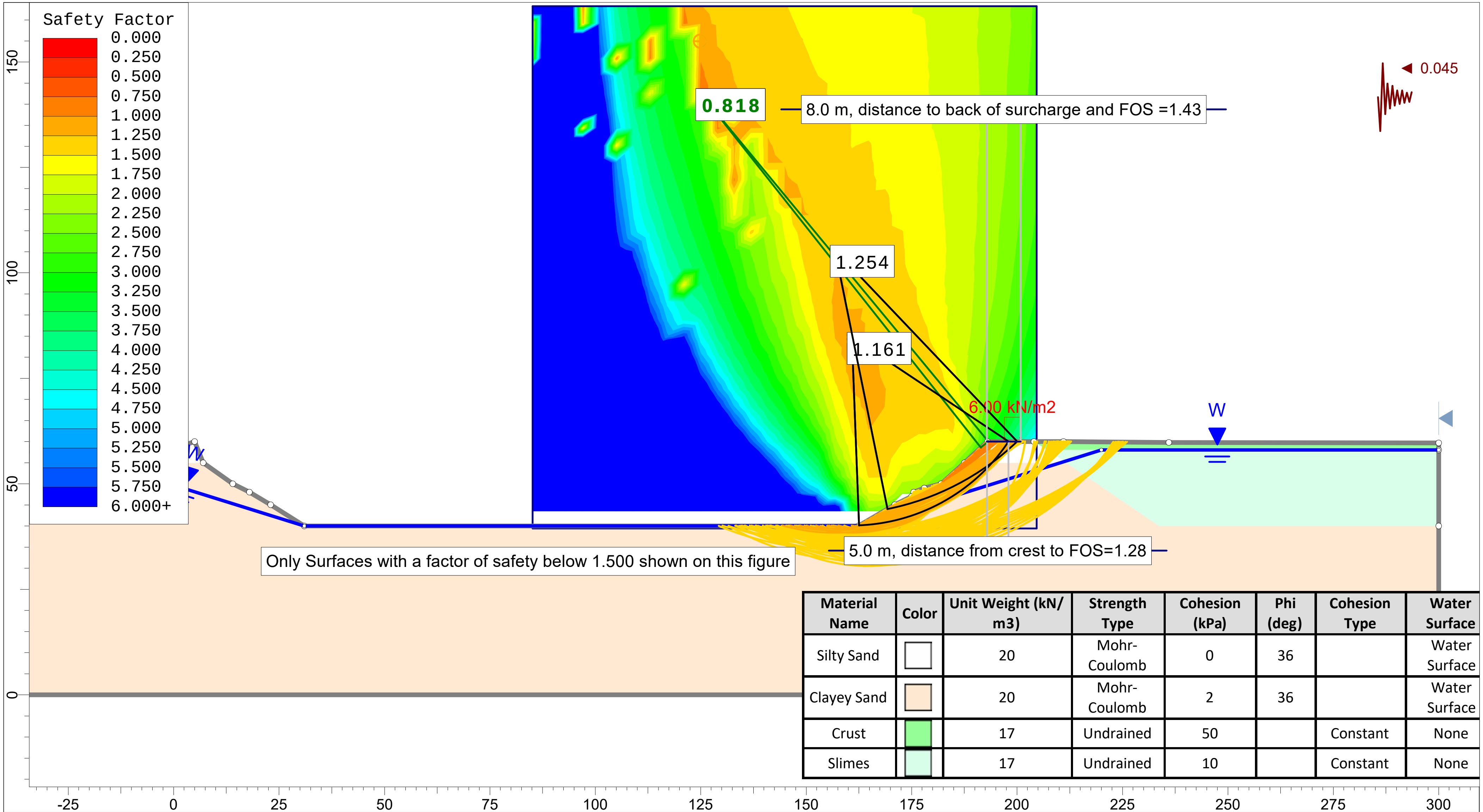
Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading 4m set back Earthquake loading
Drawn By	CB/HHK
Scale	1:1264
Company	Talbot Road Finance Pty Ltd
Date	Sept 2021
File Name	EAST Figure F3.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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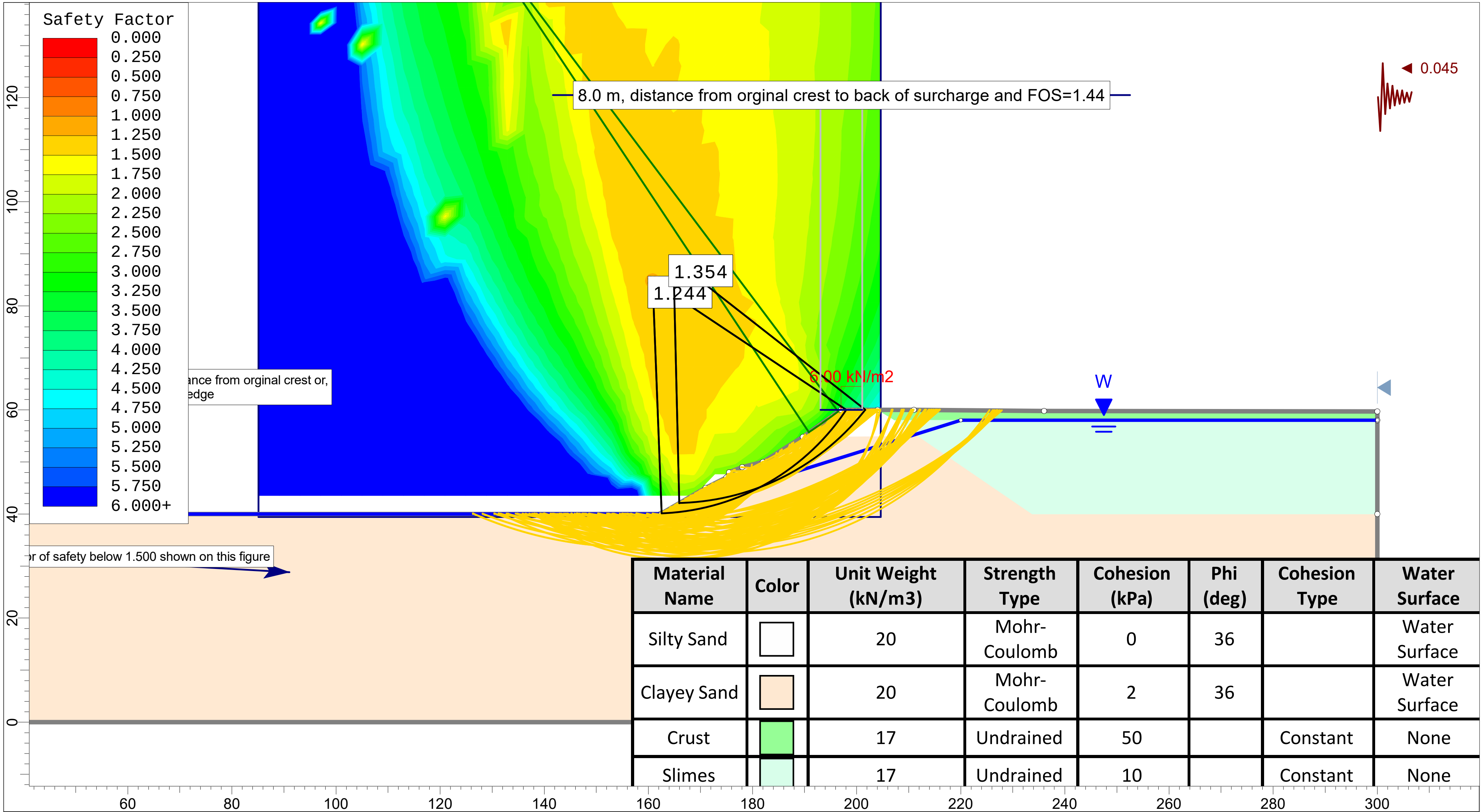
Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading 4m set back Earthquake loading
Drawn By	CB/HHK
Scale	1:1264
Company	Talbot Road Finance Pty Ltd
Date	Sept 2021
File Name	EAST Figure F4.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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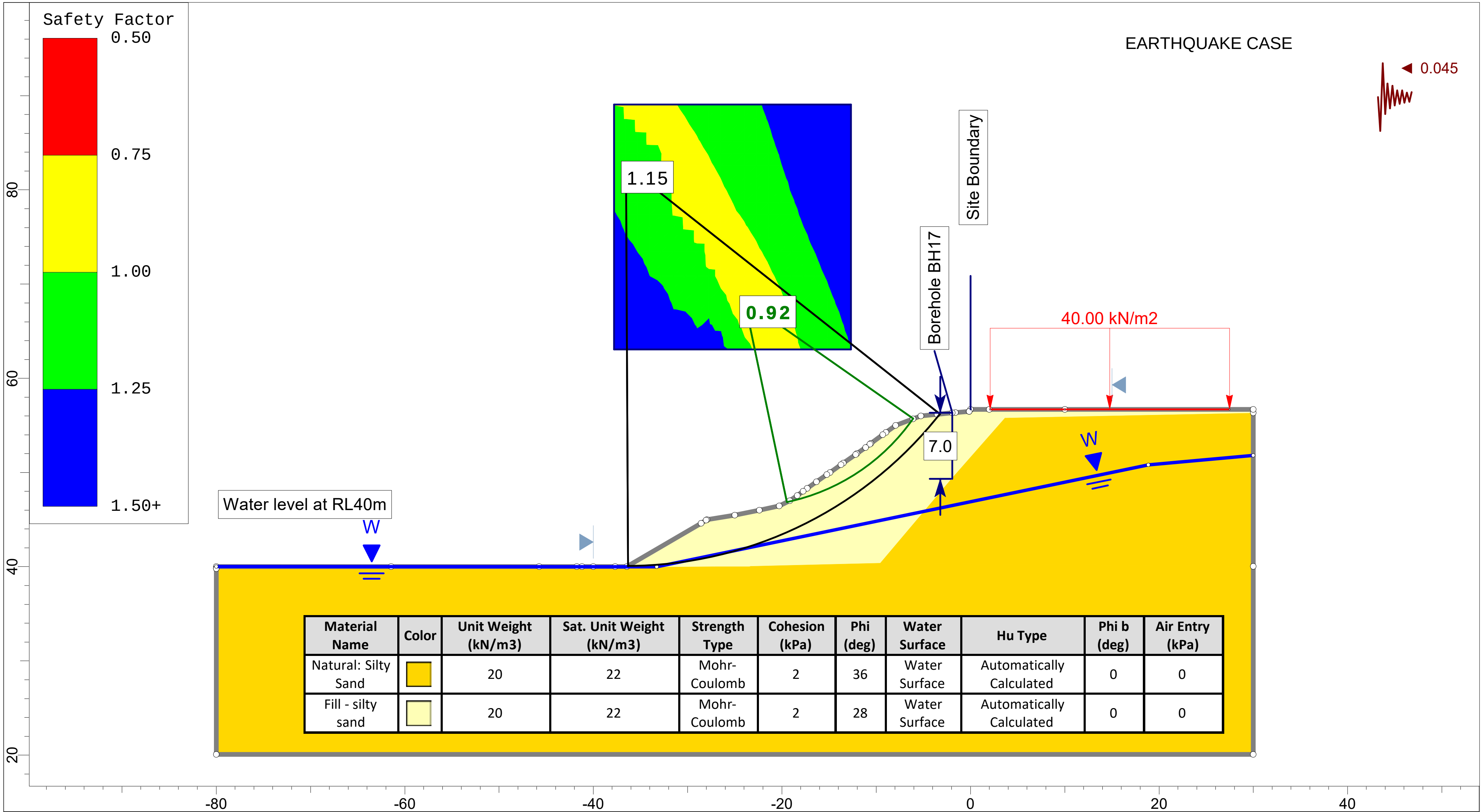
Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading and collapse of upper slope wedge Earthquake		
Drawn By CB/HHK	*Scale* 1:1024	*Company*	Talbot Road Finance Pty Ltd
Date Sept 2021		*File Name*	EAST Figure F5.slim

APPENDIX G: CURRENT SLOPE STABILITY FOR SOUTHERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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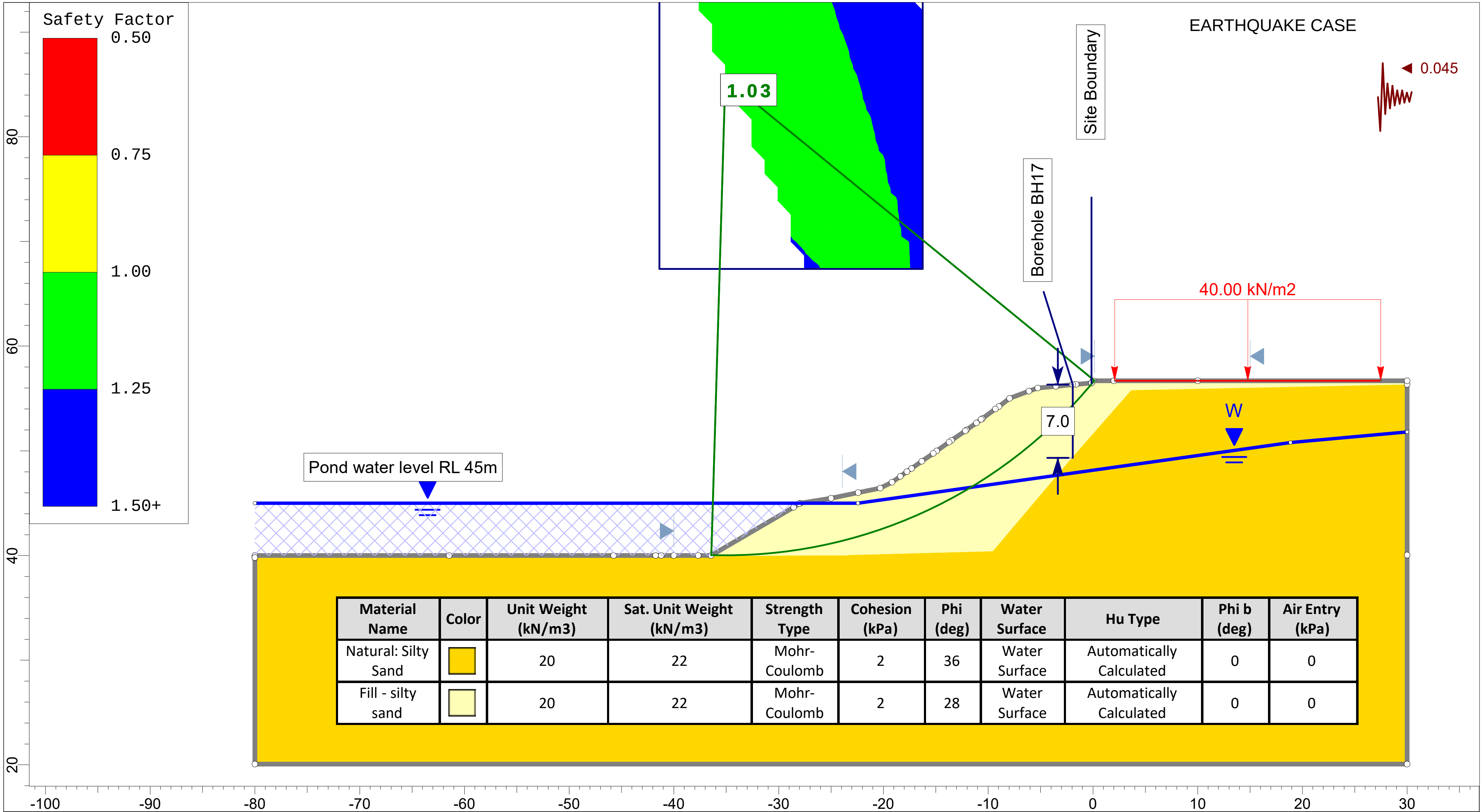
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - back analysis (EQ)		
Drawn By MF/HHK	*Scale* 1:565	*Company*	Talbot Road Finanace Pty Ltd
Date SEPT 2021		*File Name*	SOUTH Figure G1.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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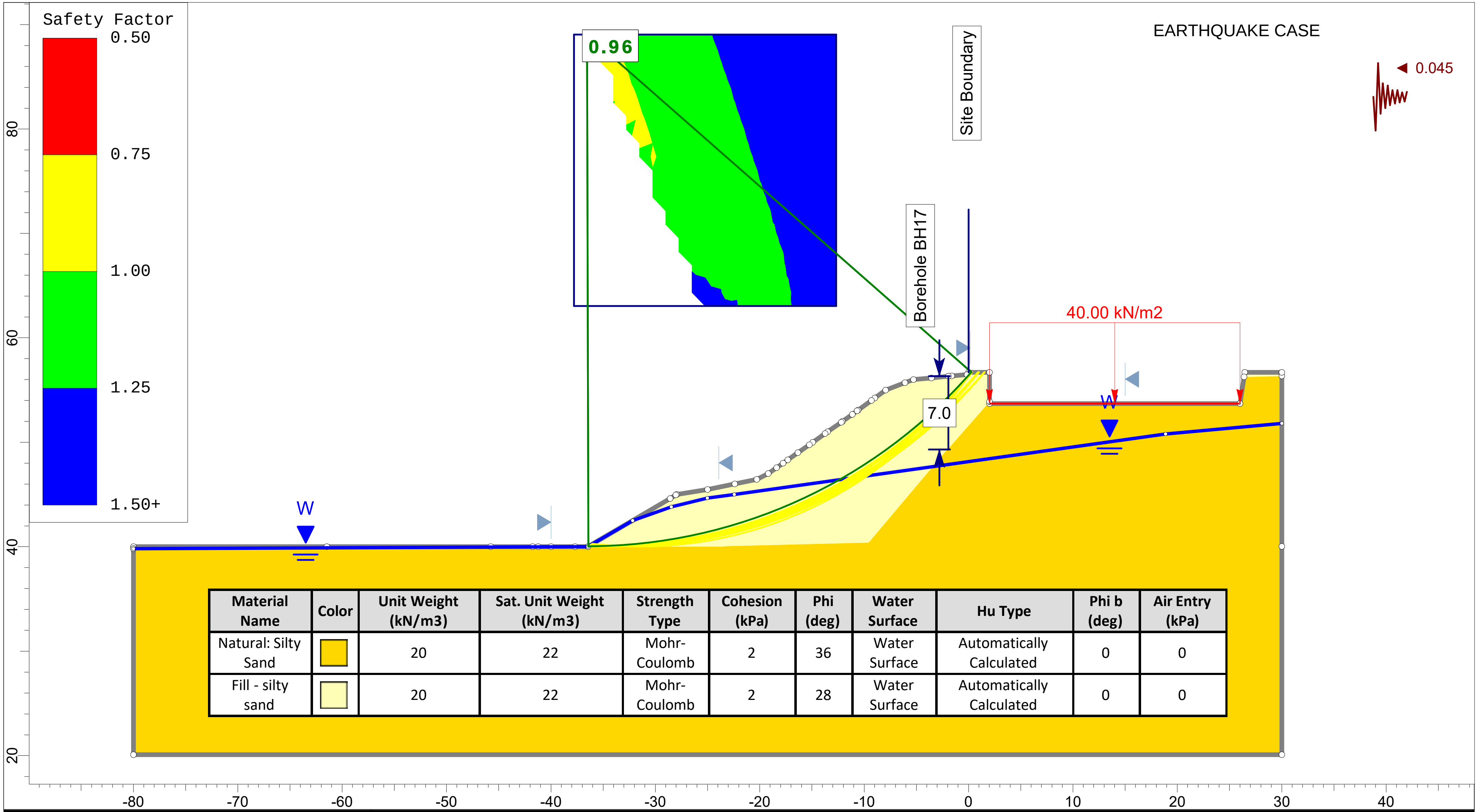
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - estimated existing pond water level (EQ)
Drawn By	MF/HHK
Scale	1:509
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G2.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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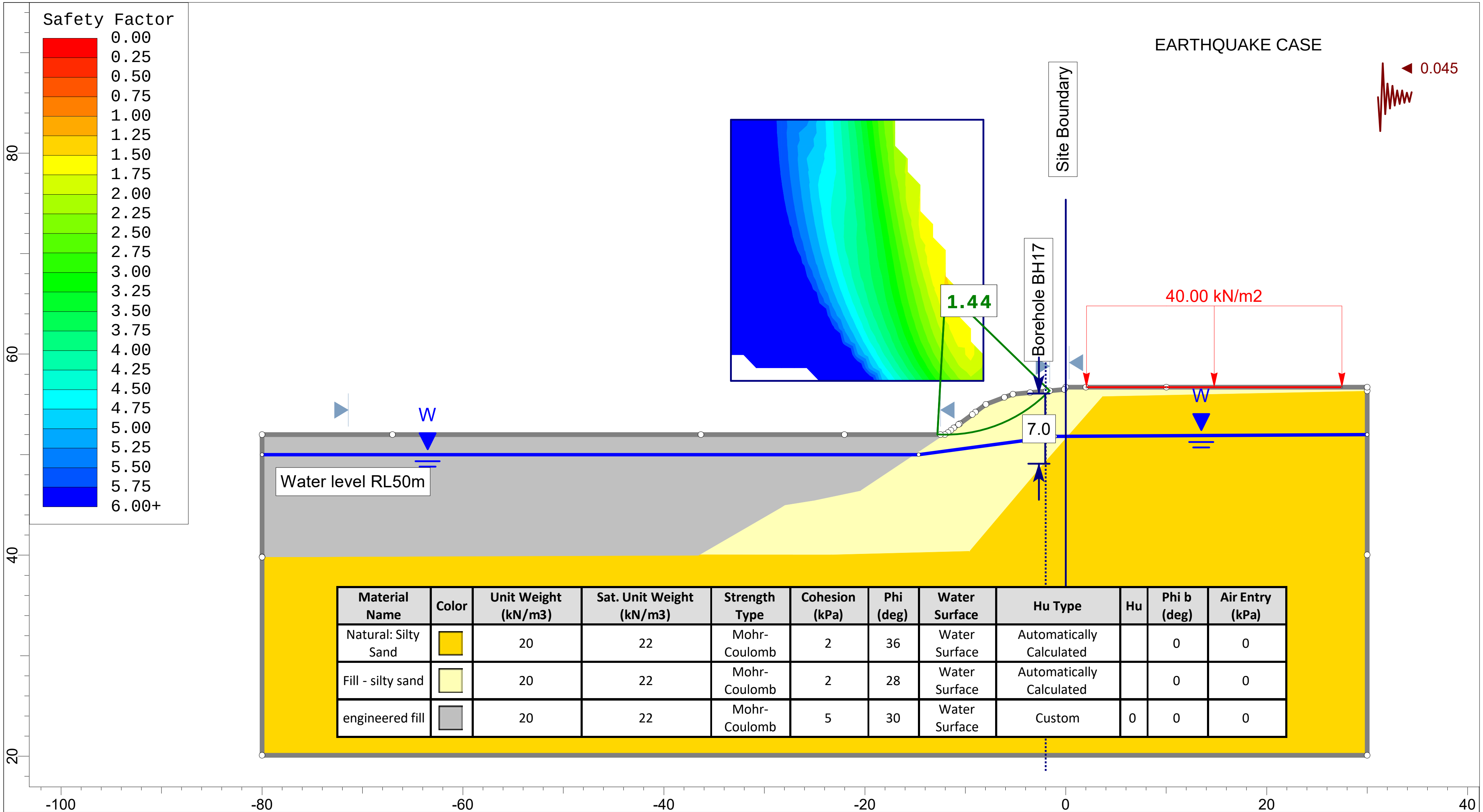
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter after rapid draining of pond (EQ)		
Drawn By HHK	*Scale* 1:509	*Company*	Talbot Road Finanace Pty Ltd
Date sept 2021		*File Name*	SOUTH Figure G3.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated		0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated		0	0
engineered fill		20	22	Mohr-Coulomb	5	30	Water Surface	Custom	0	0	0

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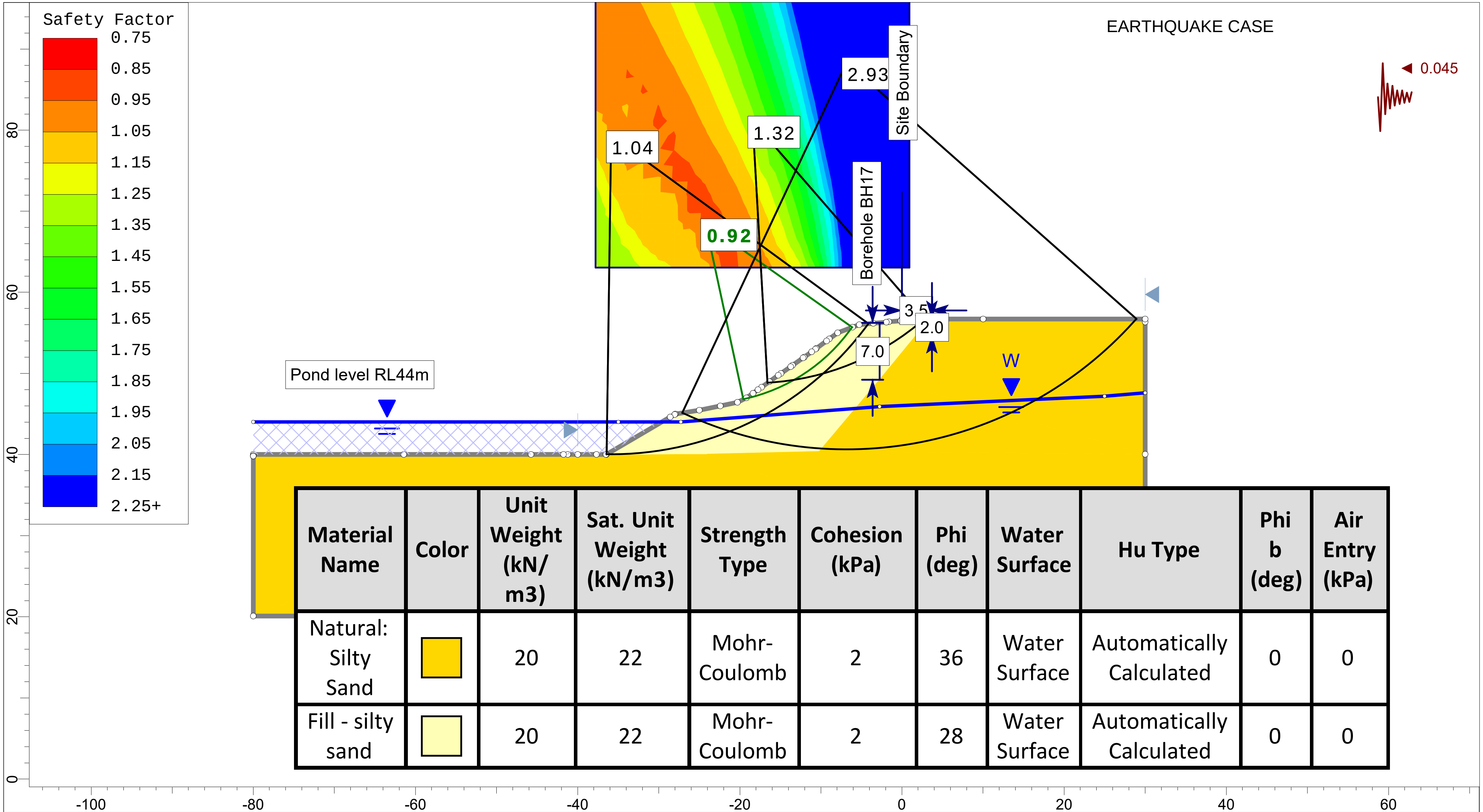
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter with fill platform at 52 mRL (EQ)
Drawn By	MF/HHK
Scale	1:530
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G4.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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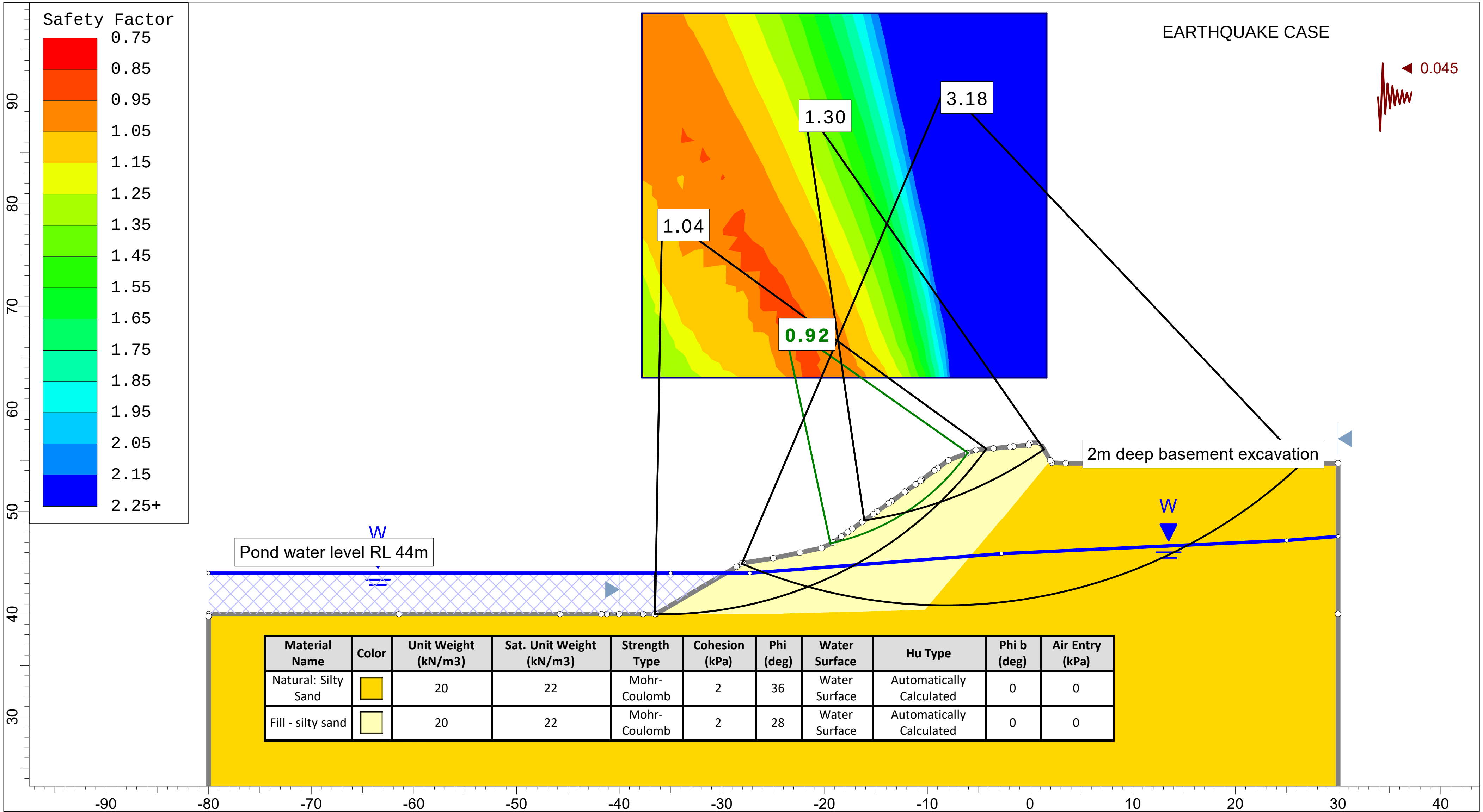
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - current water level - prior to construction of appartments		
Drawn By	MF/HHK	Scale	1:657
Company	Talbot Road Finanace Pty Ltd		
Date	Sept 2021	File Name	SOUTH Figure G5.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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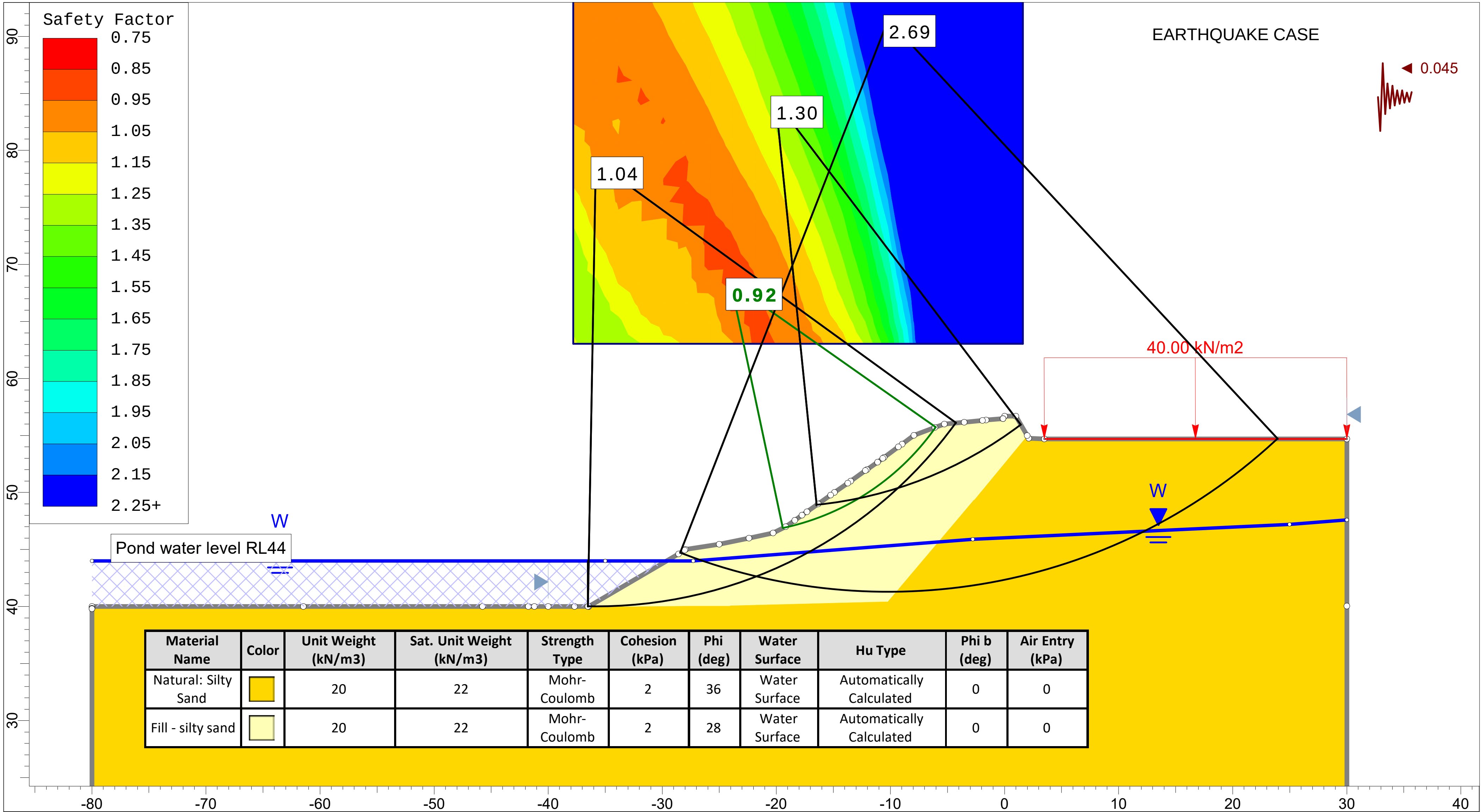
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - current water level -After construction of apartments
Drawn By	MF/HHK
Scale	1:519
Company	Talbot Road Finanace Pty Ltd
Date	Sept 2021
File Name	SOUTH Figure G5a.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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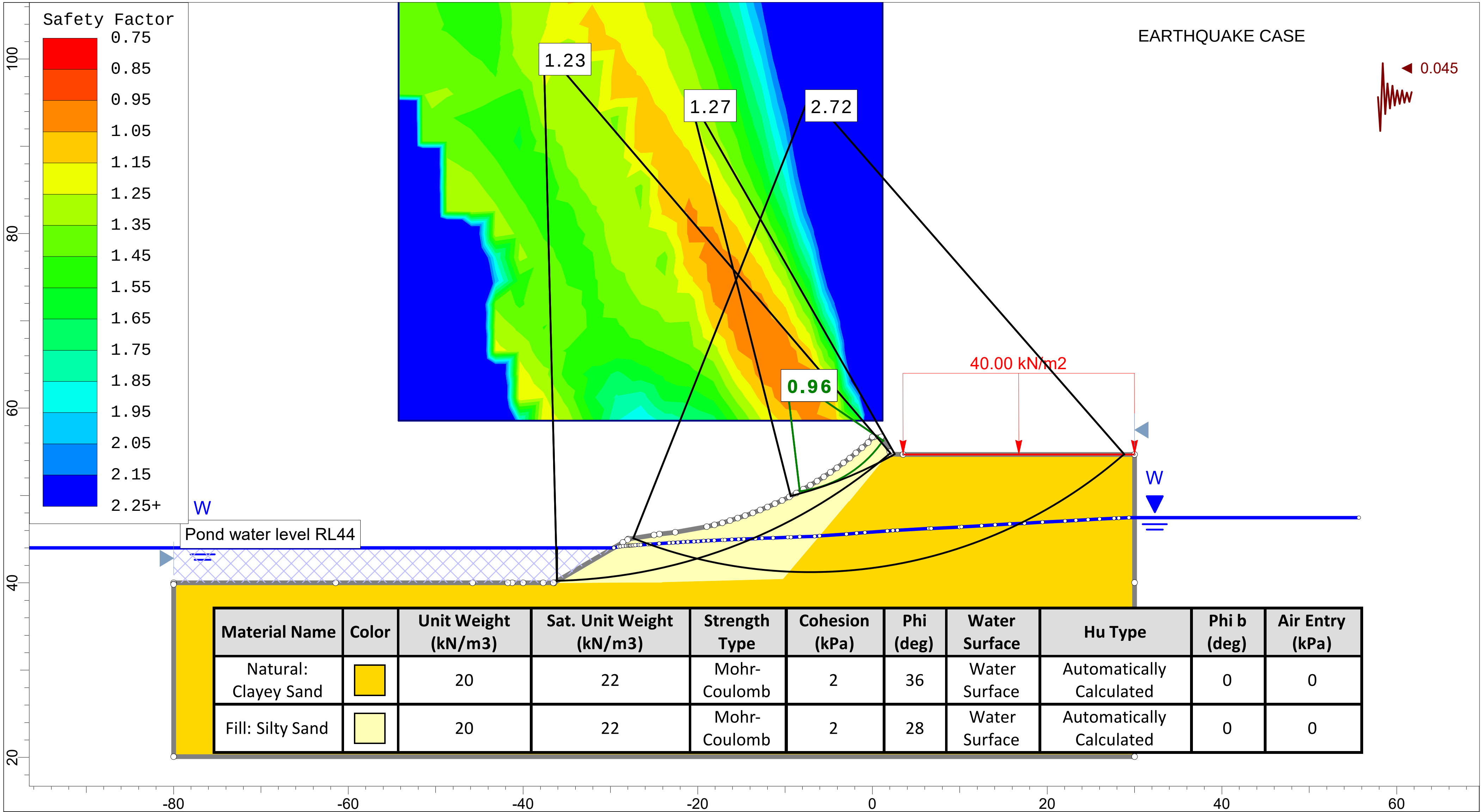
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - current water level -After construction of apartments		
Drawn By	MF/HHK	*Scale*	1:467
Company	Talbot Road Finanace Pty Ltd		
Date	SEPT 2021	*File Name*	SOUTH Figure G6.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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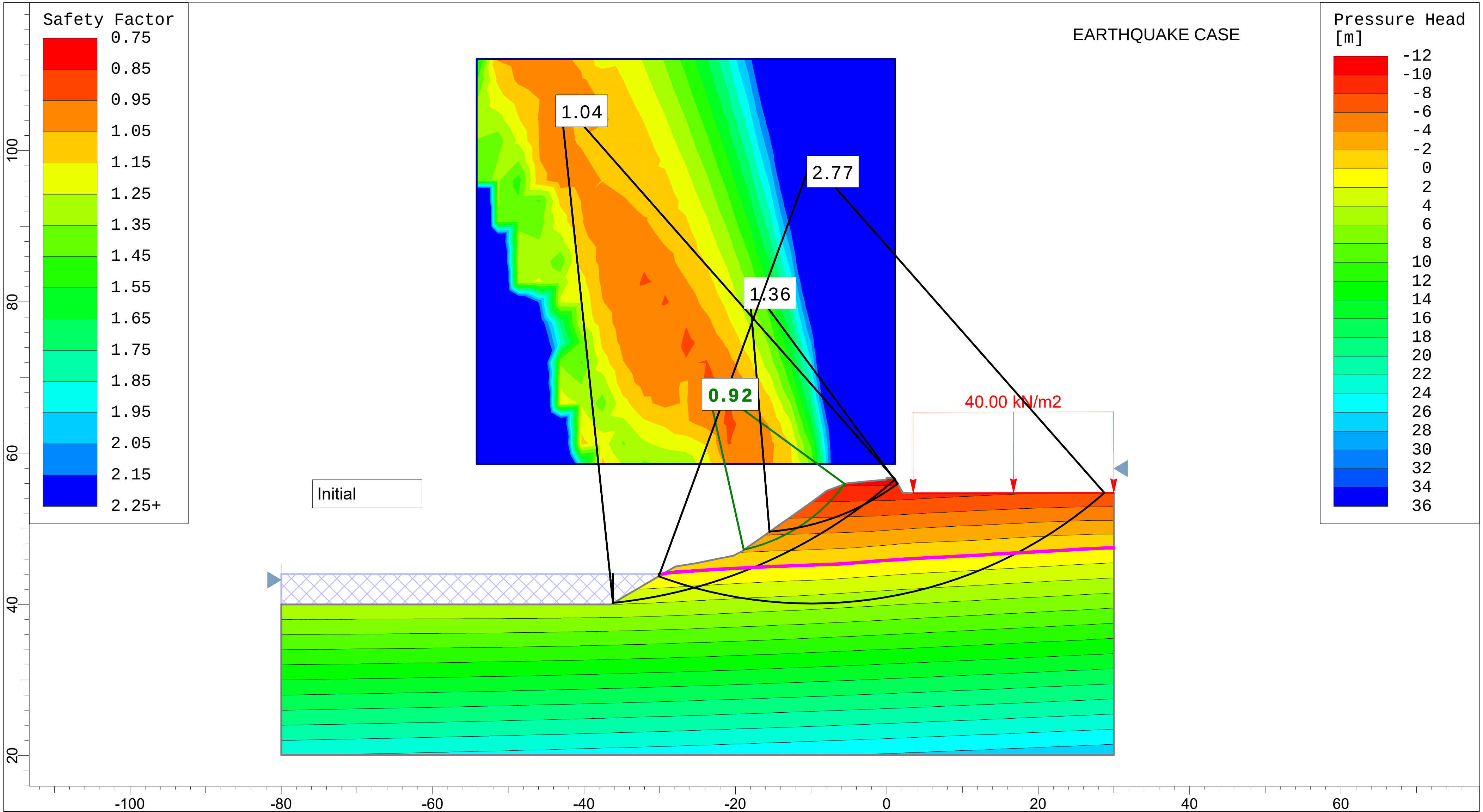
Project	Talbot Quarry, Domain 4 south batter stability assessment		
Analysis Description	Current water level -After construction of apartments - after min FoS failure surface material removed		
Drawn By MF/HHK	*Scale* 1:610	*Company*	754-GEOTABTF09257AA-AQ
Date	SEPT 2021	*File Name*	SOUTH Figure G7.slim



Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown		
Drawn By: MF/HHK	Scale: 1:704	Company	Talbot Road Finanace Pty Ltd
Date: SEPT 2021			Figure G8a

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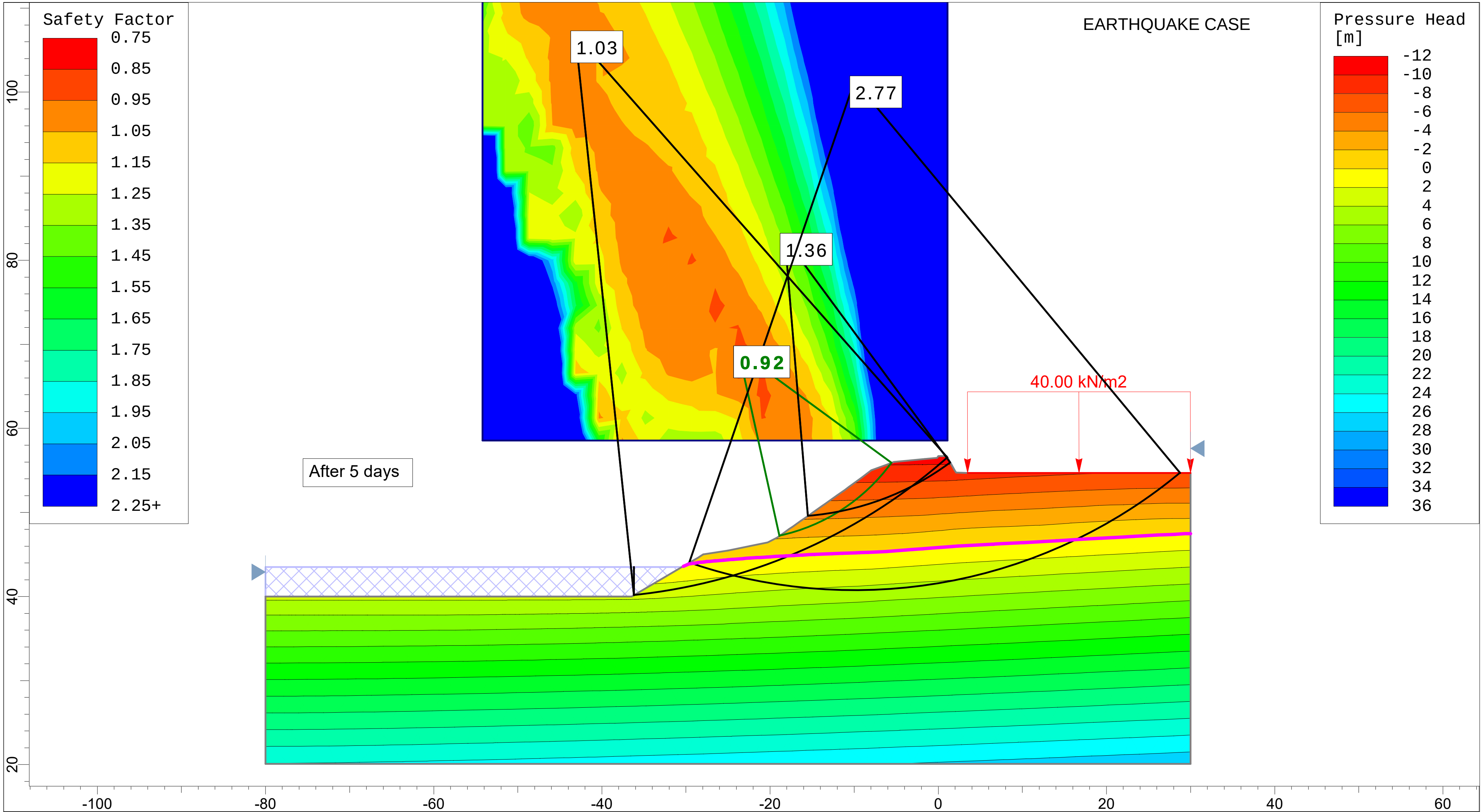

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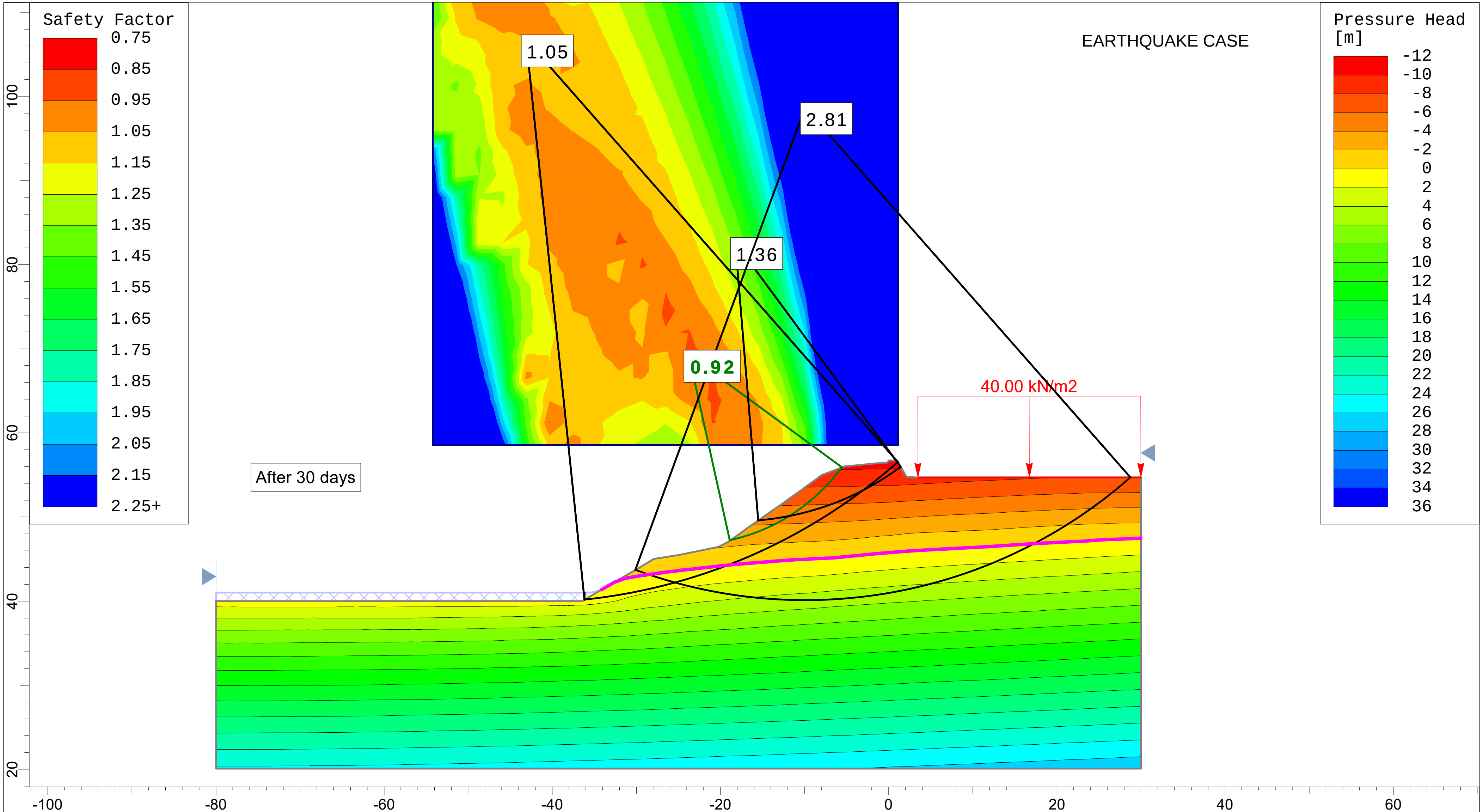
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown		
Drawn By MF/HHK	*Scale* 1:634	*Company* Talbot Road Finanace Pty Ltd	
Date SEPT 2021		Figure G8b	



Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown
Drawn By: MF/HHK	Scale: 1:634
Company	Talbot Road Finanace Pty Ltd
Date: SEPT 2021	Figure G8c

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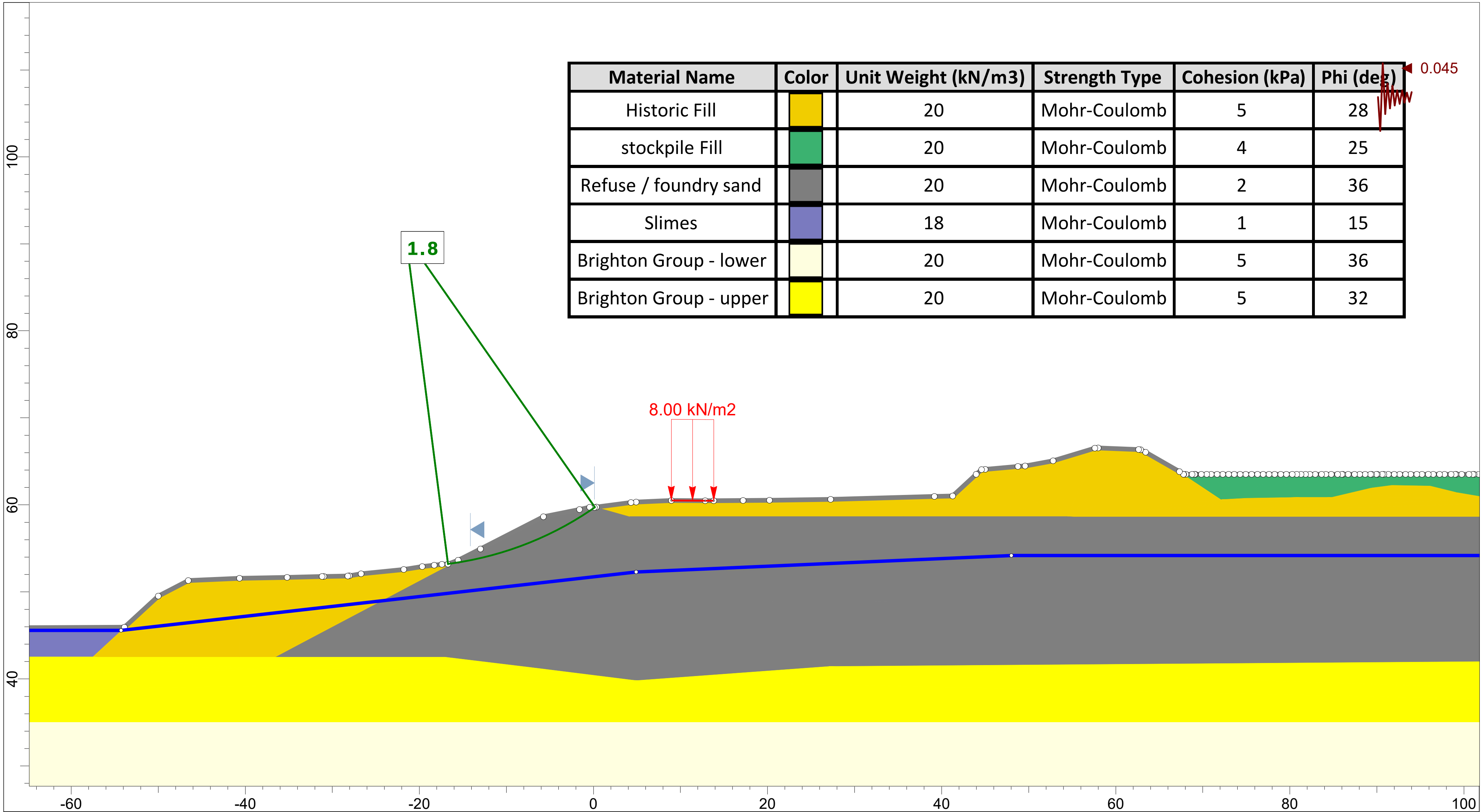
APPENDIX H: CURRENT SLOPE STABILITY FOR NORTHERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
stockpile Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Slimes		18	Mohr-Coulomb	1	15
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32

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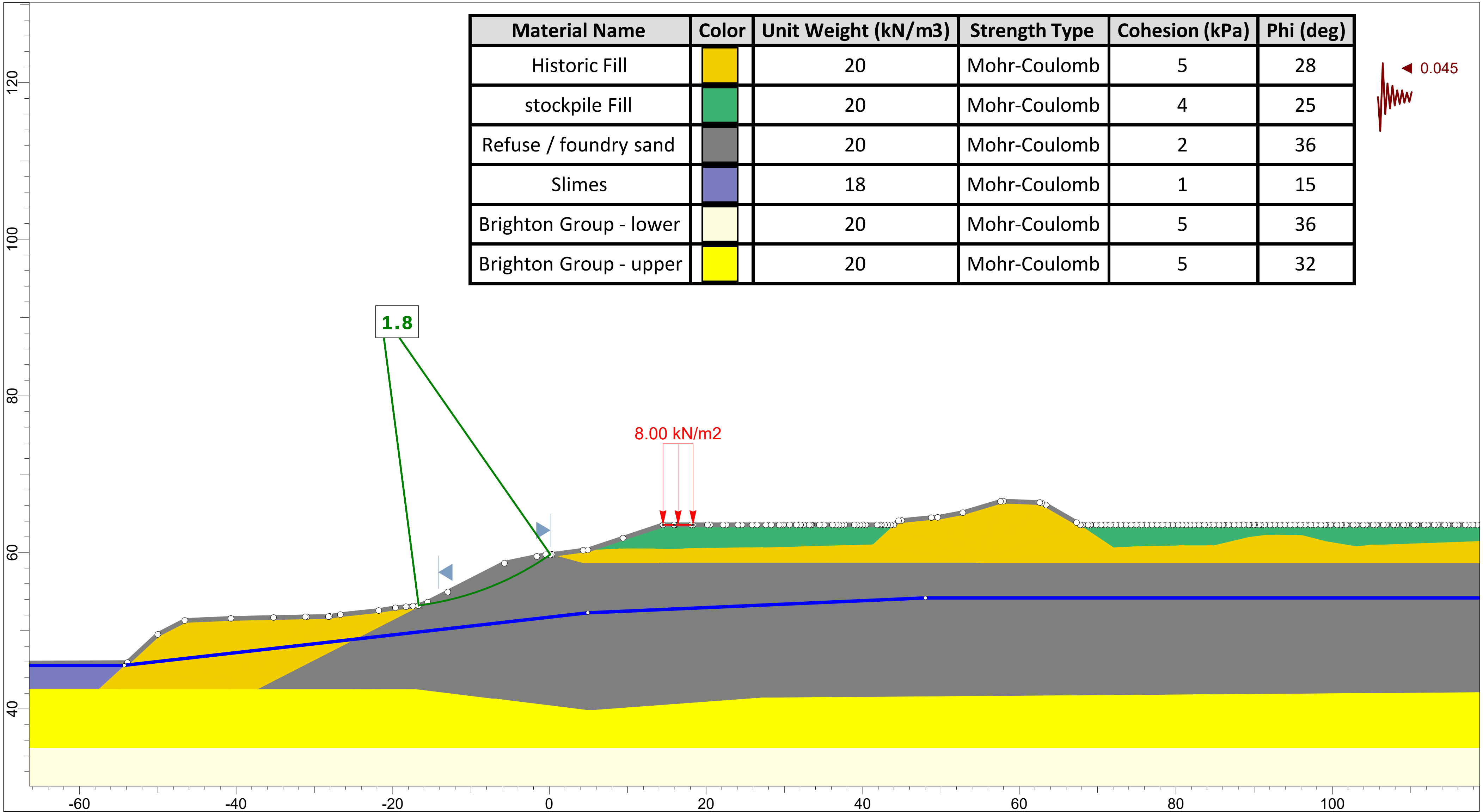
Project	Talbot Quarry Regen - Zone 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - current geometry with Earthquake Case
Drawn By	M. Farrington/HHK
Scale	1:612
Company	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM
File Name	GEOTABTF09257AA-EG Figure H1.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
stockpile Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Slimes		18	Mohr-Coulomb	1	15
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32

Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - with stockpile under earthquake loading
Drawn By	M. Farrington/HHK
Scale	1:681
Company	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM
File Name	GEOTABTF09257AA-EG Figure H2.slmd

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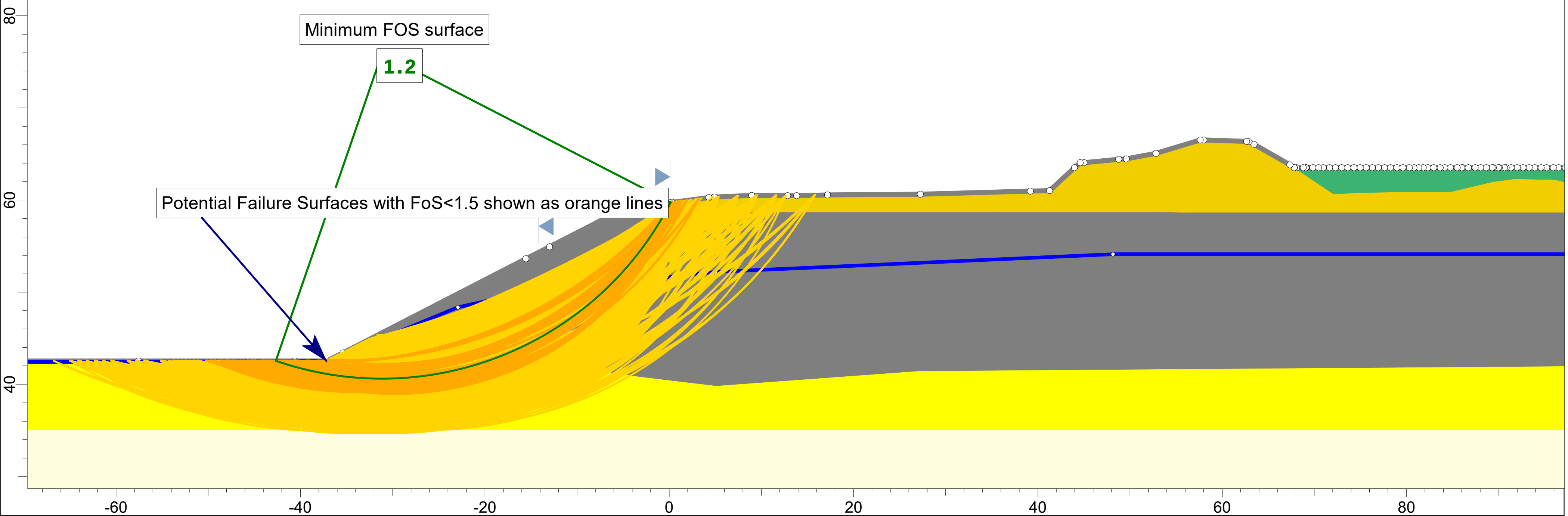
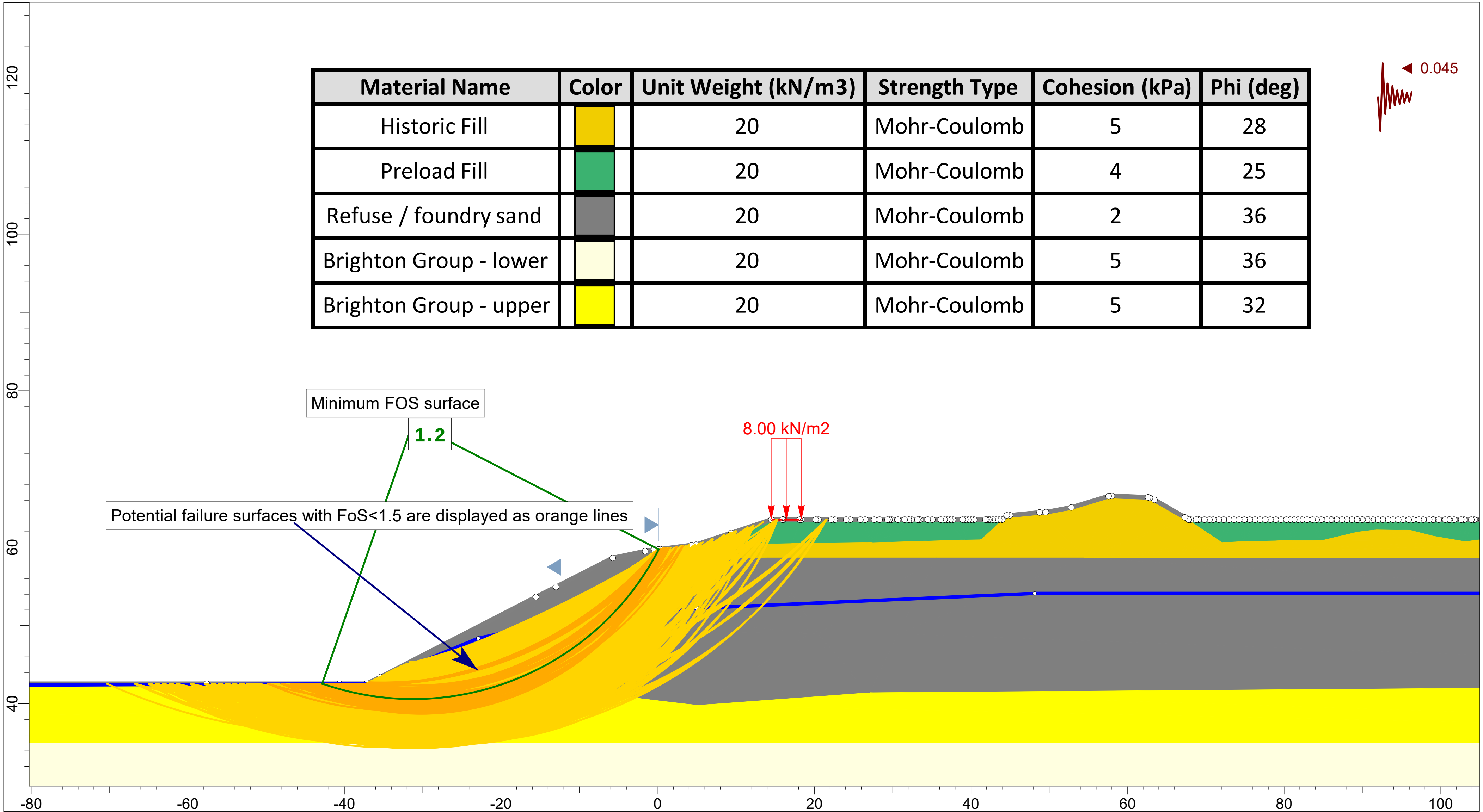
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
Preload Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Brighton Group -lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32



coffey A TETRA TECH COMPANY	*Project*	Talbot Quarry Regen - Domain 1 Stockpile	
	Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated under earthquake loading	
	Drawn By M. Farrington/HHK	*Scale* 1:613	*Company* Coffey Geotechnics
SLIDEINTERPRET 9.016	*Date* 19/09/2018, 5:56:02 PM		*File Name* GEOTABTF09257AA-EG Figure H3.slmd

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
Preload Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32



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Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated under earthquake		
Drawn By M. Farrington/HHK	*Scale* 1:681	*Company*	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM	*File Name*	GEOTABTF09257AA-EG Figure H4.slmd