Redland
CITY COUNCIL

AGENDA

LATE ITEM

GENERAL MEETING

Wednesday, 19 January 2022
commencing at 9:30am

The Council Chambers
91 - 93 Bloomfield Street
CLEVELAND QLD

Due to the current COVID-19 situation in Queensland, Council will exercise the provisions under Chapter 8 - Part 2, Division 4 of the *Local Government Regulation 2012*, which allows for some or all Councillors to attend Statutory Meetings of Council by audio visual arrangements to minimise serious risks to the health and safety of persons caused by the public health emergency involving COVID-19.

Statutory Meetings of Council will be closed to the public and public participation will be suspended until further notice.

The audio/video of each Statutory Meeting of Council will be available on Council's website as soon as possible after the conclusion of each meeting.

Order Of Business

REPORTS FROM COMMUNITY & CUSTOMER SERVICES

RAL21/0137 RECONFIGURING A LOT AT 11-13 HAIG ROAD, BIRKDALE

Objective Reference: **A6399486**

Authorising Officer: **Louise Rusan, General Manager Community & Customer Services**

Responsible Officer: **David Jeanes, Group Manager, City Planning & Assessment**

Report Author: **Kellie Maine, Principal Planner**
Chris Vize, Service Manager Planning Assessment

Attachments:
1. **Subdivision Plan for RAL21/0137** ⇩
2. **Operational Works Plans for RAL21/0137** ⇩
3. **Zoning and Aerial Views of Surrounding Area** ⇩
4. **Recommended Conditions for RAL21/0137** ⇩

PURPOSE

To refer this application to a General Meeting of Council for determination at the request of the divisional Councillor.

BACKGROUND

Council has received an application on land at 11-13 Haig Road, Birkdale, seeking a development permit for reconfiguring a lot for a one into four standard format lots and operational works associated with reconfiguring a lot.

The owner of the property is Manjinder Singh Sani & Naina Muhar As Trustees. The applicant is Manjinder Singh Saini and Maina Muhar as trustee for Saini Family Trust.

The application is due to be decided by 9 February 2022 in accordance with the *Planning Act 2016*. A decision must be made on the development application on or before this date otherwise the application will be at risk of being deemed approved.

The assessment of the application has occurred in line with the assessment framework outlined in the *Planning Act 2016*. The key issues identified in the assessment are:

- Lot size and density
- Servicing
- Earthworks
- Environmental impacts

ISSUES

Proposal

The development application seeks a development permit for reconfiguring a lot for one into four standard format lots and a development permit for operational works associated with the subdivision.

The proposed lots are located in the LDR1 precinct of the low density residential (LDR) zone, and have the following lot sizes and frontage widths:

- Lot 1 – 500m^2, with 13.6m frontage
- Lots 2, 3 and 4 – 501m^2, with 13.6m frontages

The existing dwelling house and shed are proposed to be demolished. All lots will have direct street frontage to Haig Road. No driveways are proposed as part of this application.

The proposed lots will achieve a lawful point of discharge to the kerb and channel of Haig Street. There is an existing water main adjacent to the frontage of the site and a sewer main, along the northern and southern side boundary of the site. Connections to water and sewer infrastructure are able to be provided for each new lot.

The operational works application includes an upstream property connection for the neighbouring lot to the rear, and minor cut and fill across the site, which will require retaining walls along the side and rear boundaries of the proposed lots with a maximum height of 0.7m. The proposed earthworks will require removal of vegetation from the site.

A copy of the proposed subdivision plans can be found in Attachment 1 and a copy of the civil plans for the operational works application can be found in Attachment 2 of this report.

Site & Locality

The 2,003m^2 subject site includes one freehold lot formally described as lot 11 on RP230532 at 11-13 Haig Road, Birkdale and is currently improved by a single dwelling and a shed. Aerial and zoning maps of the subject site and surrounding area are included in Attachment 3 of this report.

The natural ground levels of the site indicate a fall of approximately 5.5% from the eastern rear boundary at 18.75m AHD to the eastern front boundary at 16.75m AHD, the difference being approximately 2m. The site consists of predominantly grassed areas, with some vegetation located throughout the site. There are no existing street trees located along the frontage of the site.

The site is located on the eastern side of Haig Road and adjoins land in the LDR1 precinct to the north, east and south, and land in the LDR zone to the west. The broader locality consists of land predominantly in the LDR zone, with community facilities and conservation zoned land also to the south, east and west of the site.

The site is located 675m south east of Birkdale station and 900m south east of Birkdale fair. The immediate surrounding neighbourhood consists of single dwelling houses, dual occupancies and community facilities such as parkland, schools and churches.

Assessment framework

The application has been made in accordance with the Planning Act Development Assessment Rules and constitutes a code assessable application for reconfiguring a lot for one into four standard format lots and operational works associated with the subdivision under City Plan.

In accordance with section 45 of the *Planning Act 2016*:

*'(3) A **code assessment** is an assessment that must be carried out only—*

(a) against the assessment benchmarks in a categorising instrument for the development; and

(b) having regard to any matters prescribed by regulation for this paragraph.

(6) Subsections (7) and (8) apply if an assessment manager is, under subsection (3) or (5), assessing a development application against or having regard to—

(a) a statutory instrument; or

(b) another document applied, adopted or incorporated (with or without changes) in a statutory instrument.

(7) The assessment manager must assess the development application against or having regard to the statutory instrument, or other document, as in effect when the development application was properly made.

(8) However, the assessment manager may give the weight the assessment manager considers is appropriate, in the circumstances, to—

(a) if the statutory instrument or other document is amended or replaced after the development application is properly made but before it is decided by the assessment manager—the amended or replacement instrument or document; or

(b) another statutory instrument—

(i) that comes into effect after the development application is properly made but before it is decided by the assessment manager; and

(ii) that the assessment manager would have been required to assess, or could have assessed, the development application against, or having regard to, if the instrument had been in effect when the application was properly made.

Section 27 of the *Planning Regulation 2017*, relevantly, identifies that:

'(1) For section 45(3)(b) of the Act, the code assessment must be carried out having regard to—

(a) the matters stated in schedules 9 and 10 for the development; and

(c) if the prescribed assessment manager is a person other than the chief executive or the local government—the planning scheme; and

(d) if the prescribed assessment manager is a person other than the chief executive—

(i) the regional plan for a region, to the extent the regional plan is not identified in the planning scheme as being appropriately integrated in the planning scheme; and

(ii) the State Planning Policy, to the extent the State Planning Policy is not identified in the planning scheme as being appropriately integrated in the planning scheme; and

(iii) for designated premises—the designation for the premises; and

(e) any temporary State planning policy applying to the premises; and

(f) any development approval for, and any lawful use of, the premises or adjacent premises; and

(g) the common material.

(2) However—

(a) an assessment manager may, in assessing development requiring code assessment, consider a matter mentioned in subsection (1) only to the extent the assessment manager considers the matter is relevant to the development; and

(b) if an assessment manager is required to carry out code assessment against assessment benchmarks in an instrument stated in subsection (1), this section does not require the assessment manager to also have regard to the assessment benchmarks.'

common material, for a development application, means—

(a) all the material about the application that the assessment manager receives before the application is decided, including—

(i) any material relating to a proposed development application that is substantially similar to the development application as made; and

(ii) any material attached to, or given with, the development application; and

(iii) any material relating to the application given to the assessment manager after the application is made; and

(iv) any referral agency's response, including any advice or comment given by a referral agency and any response given under section 57 of the Act; and

(v) any properly made submissions about the application, other than a submission that is withdrawn; and

(vi) any other submission about the application that the assessment manager has accepted; and

(vii) any other advice or comment about the application that a person gives to the assessment manager; and

(b) if a development approval for the development is in effect—the approval; and

(c) an infrastructure agreement applying to the premises.

Pursuant to section 45(3) of the *Planning Act 2016*, the application was assessed against the following applicable assessment benchmarks.

City Plan Version 5:

- Reconfiguring a lot code
- Low density residential zone code
- Healthy waters code
- Infrastructure works code
- Landscape code
- Transport, servicing, access and parking code
- *State Planning Policy 2017*, Part E
- *South East Queensland Regional Plan 2017*
- *Planning Regulation 2017*, Schedule 11
- Local Government Infrastructure Plan

Pursuant to section 45(3) of the *Planning Act 2016*, Council had regard to the following matters in its assessment of the application.

- Common material, including submissions accepted by the assessment manager

Comments received

External comments received

As the application is code assessable, the applicant was not required to undertake formal public notification, however there were nine informal submissions received in relation to the application during the information and referral and decision stages that were accepted by the assessment manager.

The following planning matters were raised in the written submissions:

- *The proposed lots are inconsistent with the purpose of the planning scheme and the anticipated level of urban and scenic amenity, general sense of openness and low density streetscape intended for the low density residential zones.*
- *The proposed development will erode the intent of the LDR1 precinct which is bounded by the southern side of Haig Road, western side of Birdwood Road, Collingwood Road and Hardy Road where all blocks exceed 2000m^2 metres.*
- *Whilst the other side of Haig Road has higher density housing, the eastern side of Haig Road is predominantly lower density and should remain in keeping with the zoning of the site.*
- *The proposed development does not maintain the low density lifestyle and is not in keeping with the possible development outcomes anticipated by surrounding, and neighbouring residents for the site.*
- *The proposed development will have adverse impacts on amenity and privacy of adjoining properties, through increased noise generation and the opportunity for future dwellings to be constructed on the proposed lots, resulting in the potential for overlooking of neighbouring properties.*
- *The proposed subdivision will increase traffic impacts.*
- *The proposal development will have a detrimental impact to the environment, local bushland and wildlife in the area, with particular reference made to the Tarradarrapin wetland, through increased disturbance, traffic, domestic animals and loss of koala habitat.*
- *The proposal will result in changes to natural water courses.*
- *Development does not have regard for capacity of existing infrastructure.*
- *Increase number of lots is inconsistent with nature and size of neighbouring properties.*
- *The proposed subdivision is an over development of the site.*

The assessment manager has had regard to the submissions about these planning matters in the assessment of the development against the assessment benchmarks.

Internal comments received

The application was referred to the divisional Councillor in accordance with standard procedure.

The assessment manager has received assessment advice from the following Council teams/ officers:

- Engineering assessment
- Environmental assessment
- Arborist

- Survey services unit
- Infrastructure planning and charging

The assessment advice received has been considered by the assessment manager in assessing the development application.

Decision Making Rules

Section 60 of the *Planning Act 2016* states that:

'(2) To the extent the application involves development that requires code assessment, and subject to section 62, the assessment manager, after carrying out the assessment—

(a) must decide to approve the application to the extent the development complies with all of the assessment benchmarks for the development; and

(b) may decide to approve the application even if the development does not comply with some of the assessment benchmarks; and

Examples—

1 An assessment manager may approve an application for development that does not comply with some of the benchmarks if the decision resolves a conflict between the benchmarks.

2 An assessment manager may approve an application for development that does not comply with some of the benchmarks if the decision resolves a conflict between the benchmarks and a referral agency's response.

(c) may impose development conditions on an approval; and

(d) may, to the extent the development does not comply with some or all the assessment benchmarks, decide to refuse the application only if compliance cannot be achieved by imposing development conditions.

Example of a development condition—

A development condition that affects the way the development is carried out, or the management of uses or works that are the natural and ordinary consequence of the development, but does not have the effect of changing the type of development applied for.'

(5) The assessment manager may give a preliminary approval for all or part of the development application, even though the development application sought a development permit.

(6) If an assessment manager approves only part of a development application, the rest is taken to be refused.

Application Assessment

Lot size and density

Low density residential zone code

The LDR zone code is relevant to the assessment of the application. The purpose of the LDR zone code is:

> *To provide for residential areas with a high level of amenity and characterised by dwelling houses on a range of lot sizes which achieve a general sense of openness and low density streetscapes.*

The proposed lots are sufficient in size and dimension to accommodate a future dwelling and associated private open space areas and landscaping to maintain a high level of amenity. The proposed lots add to the range of lot sizes available in the neighbourhood. As the frontages of the proposed lots are similar to other 450m^2 properties located in the LDR zone within Haig Street, the proposed lots are considered to maintain a general sense of openness and low density streetscape reasonably anticipated for the LDR zone.

The purpose of the LDR zone code is achieved through nine overall outcomes and four overall outcomes specifically for the LDR1 precinct. The following overall outcome for the LDR zone is relevant to the assessment of the proposed lot sizes:

(b) development maintains a low density streetscape character;

The low density character within the broader neighbourhood consists of a broad range of lot sizes, ranging from 978m2 to 2,248m2 in the LDR precinct, and 450m2 to 3,397m2 in the LDR zone. In both the LDR zone and LDR1 precinct, there are also lots with direct street frontage, and rear allotments which are generally the larger lots within the area that have minimal frontage to the street.

The average lot size within Haig Road is approximately 774m2, which includes land on the western side of Haig Road in the LDR zone, and on the eastern side of Haig Road which includes land in the LDR zone and LDR1 precinct. The northern end of Haig Road includes a mix of lot sizes and streetscape outcomes, including detached dwellings on 540m2 – 1,180m2 lots on the western side of the street, and detached dwellings and dual occupancies on 559m2-1,117m2 lots on the eastern side of the street.

The streetscape character within the southern end of Haig Road is more consistent on the western side, which includes detached dwellings on 450m2-600m2 lots. The eastern side of Haig Road consists of detached dwellings on 978m2 – 2062m2 lots. The orientation, configuration, depth and frontage length of these lots is varied along Haig Road.

The proposed lots sizes are considered to be consistent with the broader streetscape of Haig Road which has a mixed low density character. In addition, the lot sizes generally exceed the predominant size of lots directly opposite the site on the western side of Haig, which provide the most consistent streetscape character within Haig Road. The size and frontage of the proposed lots will provide the opportunity for a future dwelling to be constructed on the lots which will present to the street in a manner that is generally consistent with the low density character of Haig Road.

The following overall outcomes for the LDR1 precinct are relevant to the assessment of the proposed lot sizes:

'(3)(a)…Precinct LDR1: large lot residential:

i. the precinct retains a very low density residential character;
ii. retention of habitat within the precinct is maximised;
iii. housing forms are limited to dwelling houses; and
iv. lot sizes are not reduced below 2,000m2, unless the resultant lots are consistent with the density and character of the surrounding established neighbourhood.'

The established neighbourhood relevant to the subject site is considered to include all lots with frontage to Haig Street (from Bryce Place to Pandanus Street), and all residential lots with frontage to Birdwood Road and Bryce Place, as this street is a contained catchment which feeds onto Haig Road. The established neighbourhood includes residential lots in the LDR zone, and LDR1 precinct. The majority of the lots along Haig Road and Bryce Place are standard residential lots with direct street frontage within the LDR zone, with the exception of the LDR1 zoned properties located north and south of the subject site. Birdwood Road contains a mix of LDR zoned properties on the northern side of the street, and LDR1 zoned properties on the southern side, and includes a mix of standard residential lots and rear allotments.

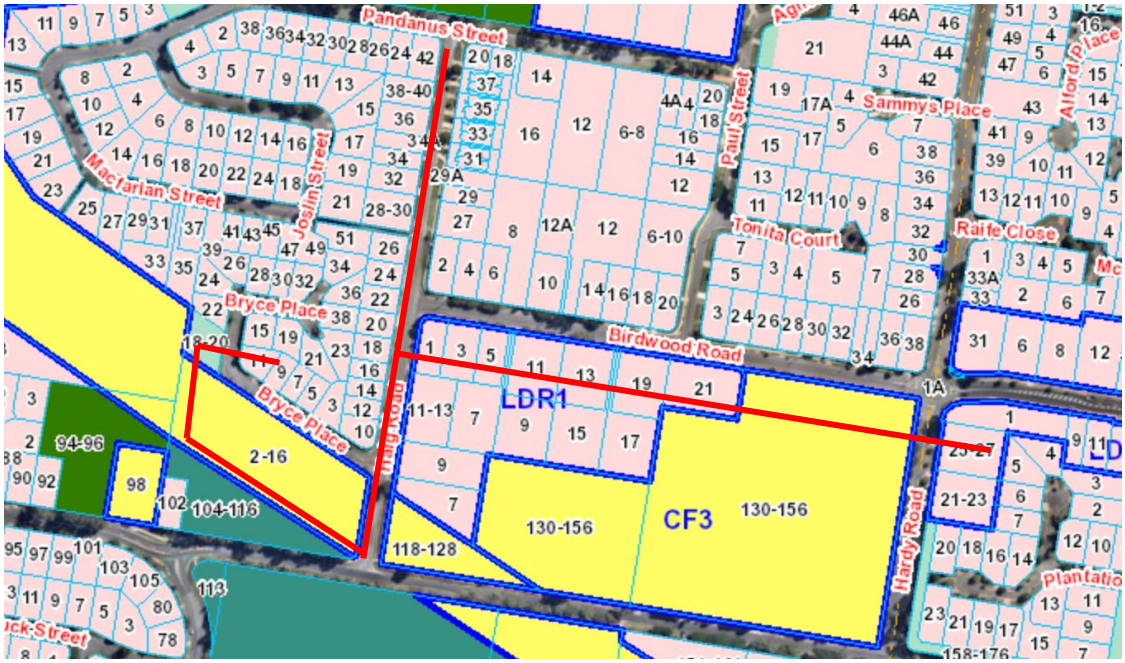


Figure 1 – streets within established neighbourhood

Whilst the surrounding area consists of a range of lot size and configurations, there are examples of lots with similar character to the proposal, lots located on the eastern side of Haig Road where located south of Birdwood Road, and along both sides of Bryce Place where lot sizes range from approximately 450m^2 to 600m^2.

Properties within close proximity to the site are considered to be more relevant to the assessment of whether the proposed lots are consistent with the surrounding character, and are considered to be directly east and west of Haig Road as depicted below (figure 2). Land on the eastern side of Haig Road, located south of Birdwood Road, is within the LDR1 precinct, and land located on the western side of Haig Road is within the low density residential zone. For the purposes of the assessment, properties considered to be in close proximity to the site are located on both sides of the road.

Figure 2: properties located in proximity to the subject site

Within the established neighbourhood, the characteristics of properties on the western side of Haig Road vary with respect to lot size, lot configuration and frontage width. As shown in figure 3 below, the lots on the western side of the site are not all regular in shape, and have frontage lengths ranging from 978m^2 to 2,062m^2.

Figure 3 – Lot characteristics of established neighbourhood

The overall outcomes for the LDR1 precinct relevant to the assessment of the application have been addressed below:

(i) the precinct retains a very low density residential character;

As discussed earlier in the report, the proposed lots will present to the street in a manner that is generally consistent with the low density character of the Haig Road. The planning scheme does not provide a definition for what constitutes 'very low density', however it is acknowledged that by comparison to other properties typically in the LDR1 precinct, the proposed lot sizes do not present as 'very low density'. Regard has been given to the purpose of the LDR zone which has been addressed earlier in the report, and the comparable density of other lots within the streetscape for the purposes of assessing this overall outcome.

Within the context of the streetscape, there is no established pattern of large lots over 2,000m^2 with extensive frontages, and the configuration and narrowness of lots delivers a different outcome for the streetscape that would normally be expected in the LDR1 precinct of the LDR zone. The configuration of the LDR1 precinct within the neighbourhood also locates majority of properties in this precinct along Birdwood Road. When viewed from a broader perspective, the wider streetscape along Haig Road is predominantly LDR zoned. Whilst the lot may not be regarded as 'very low density' when compared to typical LDR1 properties in isolation, within the context of the established streetscape, the proposed lots provide a lower density than what is typical of LDR zoned properties on the opposite side of Haig Road, and provide a low density outcome that is considered to achieve the purpose of the LDR zone code.

(ii) retention of habitat within the precinct is maximised;

The site predominantly consists of grassed areas, with some vegetation located throughout the site. The vegetation within the site is scattered and does not provide a meaningful linkage to additional areas of vegetation or bushland in the surrounding area. The site is not mapped as containing any matters of State or local environmental significance.

It is noted that there is vegetation located on the adjoining property to the rear, which is in close proximity to the subject site. Whilst this vegetation is also not protected by the planning scheme, it is recommended a condition of approval be included to ensure any works undertaken on site undertake the necessary tree protection measures.

(iii) housing forms are limited to dwelling houses;

The proposed lots have sufficient size and dimension to accommodate a compatible housing form, as intended in the form of a dwelling house.

(iv) lot sizes are not reduced below 2,000m2, unless the resultant lots are consistent with the density and character of the surrounding established neighbourhood.

As the proposed lots sizes are less than 2000m², the assessment of this application has considered the level of consistency with the density and character of the surrounding established neighbourhood. Both aspects are considered below in the context of what the precinct seeks to protect being a very low density character, retaining habitat and limiting development to dwelling houses.

Character

As detailed in the above sections the established neighbourhood does not consistently have a lot size greater than 2000m².

In particular, the prevalent character and density in the neighbourhood immediate to the site is predominantly lots with a frontage of approximately 15m and sizes between 450-600m². Accordingly, the proposal adopts a minimum lot size of 500m² with frontages of 13.6m, which exceed the predominant lot size of 450m^2 opposite the site, and are considered to be compatible with the predominant character of the established neighbourhood. It is noted that a similar conclusion was found for a recent reconfiguring a lot application at 21 Birdwood Road, Birkdale for one into three lots (RAL21/0040), also located in the LDR1 precinct. This development approval was for 800-819m^2 lots with approximately 20m frontages and it was found that the lots would be consistent with the lot size and character on the opposite side of the street as part of the assessment.

Overall, the proposed development is generally consistent with the character of the established neighbourhood.

Density

The average density of the broader established neighbourhood, including all lots with frontages to the roads identified in Figure 1, is approximately one dwelling unit per 950m^2. This includes dual occupancies and the development approvals for reconfiguring a lot over land at 21 Birdwood Road (RAL21/0400). The density within the broader neighbourhood reflects the mix of LDR zoned and LDR1 zoned in the area, and the spread of lot sizes included in this average density calculation range from 416m^2 to 3,397m^2. As the lot sizes in the broader area are not uniform, and includes substantial variation in lot sizes, it is relevant to look at more localised areas within the established neighbourhood that are relevant to the subject site.

The average density within the immediate area along Haig Road is approximately one dwelling per 1,000m^2, and the average density along the entire length of Haig Road is approximately one dwelling per 750m^2.

The density within the Haig Road reflects the difference in zoning along the eastern and western side of Haig Road. The proposed 500m² lots are generally consistent with the average density along Haig Road, which is generally more consistent with lots in the LDR zone. This is reflected through the zoning of properties along the street, with majority of properties located within the LDR zone. Notably, the lots opposite the site along Haig Road range from 450-600m² in lot size. Therefore, the development is considered to have a density that is consistent with the established neighbourhood where adopting one dwelling per 500m².

Overall, the proposed development is consider to comply with the overall outcomes (i)-(iv) of the LDR1 precinct and zone code.

Reconfiguring a lot code

The proposal has also been assessed against PO1 of the reconfiguring a lot code, as the proposed lot sizes are less than the deemed to comply solution identified in AO1.1, which identifies a minimum frontage of 20m and a minimum lot area of 2,000m^2 for lots in the LDR1 precinct. PO1 of the reconfiguring a lot code states the following:

PO1
Reconfiguration results in the creation of lots that:

1. *are of a size and dimensions which facilitate the uses, character and other outcomes intended for the zone or precinct;*
2. *have practical, generally regular shapes; and*

3. *have a width and depth that can easily accommodate the intended end use, associated infrastructure, on-site open space and vehicular access.*

The proposed lots will have a minimum dimension of 13.6m x 36m and are sufficient to accommodate a future dwelling, which is the intended use for land in the LDR1 precinct. As discussed previously in this report, the proposed lot sizes are consistent with the prevailing lot sizes within the established neighbourhood along Haig Road, and are considered to maintain the low density character of the streetscape.

The proposed lots are also rectangular in shape, and include a layout that is practical and ensures each lot has direct street frontage to Haig Road. The size of the lots will also allow for the necessary infrastructure, private open space and vehicle access to be provided to any future dwelling, which is considered to be the intended end use for the lots.

AO1.2 of the reconfiguring a lot code also states that new lots are rectangular in shape, and the proposed lots adopt this deemed to comply solution.

Servicing

Sewer connections

The assessment of this application has had regard to PO11 of the infrastructure works code, which states:

PO11
Wastewater is treated and disposed of in a manner that is sufficient for the volume of wastewater generated on the site and to a level that ensures risks to public health, water quality and the environment are minimised.

There is an existing 150mm diameter sewer along both side boundaries of the site, which can provide house connections to proposed lots 1 and lot 4, and an existing 150mm diameter sewer within the adjoining lot to the rear that can provide property connections for proposed lots 2 and 3. Standard conditions are recommended to ensure property connections are provided for each lot, which will ensure that future dwellings on the proposed lots are able to dispose of waste appropriately to satisfy PO11.

Water Supply

PO9 of the infrastructure works code is applicable to the assessment of the application, which states:

PO9
A reliable water supply is provided that is sufficient to meet the anticipated use of the premises, including potable and non-potable requirements.

There is a 100mm diameter asbestos cement water main located within the road verge adjacent to the subject site, which is able to provide a water supply to the proposed lots. It is recommended conditions of approval be included to ensure the new lots are provided with new water meters. Refer to the operational works plans in Attachment 2, which include recommended mark ups to the water reticulation plan to ensure water meters for each lot are provided on a standard alignment.

The assessment of the application has also considered PO10 of the infrastructure works code, which states the following:

PO10
Developments accessed by common private title have appropriate fire hydrant infrastructure and unimpeded access to emergency services vehicles.

The existing fire hydrant is to be relocated to a standard boundary alignment to ensure all lots have adequate fire hydrant coverage and that any future dwellings on the proposed lots are able to satisfy PO10.

Stormwater Management

The proposal has been assessed against the healthy waters code. The assessment of this application has considered PO6, which states:

PO3
The stormwater drainage system maintains pre-development velocity and volume of run-off external to the site and does not otherwise worsen or cause nuisance to adjacent, upstream and downstream land.

PO6
Roof and surface run-off is managed to prevent stormwater flows from entering buildings and be directed to a lawful point of discharge.

The site falls toward Haig Road and each lot can discharge to the kerb and channel. The development is considered to be able to satisfy PO3 and PO6. It is recommended standard conditions of approval be included to discharge stormwater to a lawful point of discharge in Haig Road, and to manage stormwater to prevent actionable nuisance to adjoining properties.

The proposal has also been assessed against PO11, PO13 and PO15 of the healthy waters code, which state:

PO11
Development does not increase either:

1. *sediment concentration in waters or stormwater outside the development's sediment treatment train; or*
2. *run-off which causes erosion either on-site or off-site.*

PO13
All soil surfaces are effectively stabilised against erosion.

PO15
Areas outside the development site are not adversely impacted by erosion or sedimentation.

The development is considered able to comply with PO11, PO13 and P15. It is recommended standard conditions of approval be included to design, implement and maintain measures to manage erosion and sediment control.

The assessment of the proposal has considered servicing requirements to satisfy PO5 of the reconfiguring a lot code, which states:

PO5
The reconfiguration integrates with the surrounding locality and creates an attractive, accessible and functional neighbourhood, having regard to:

1. *connecting to and extending movement, open space and recreational and other infrastructure networks;*
2. *maintaining the continuity of habitat areas and ecological corridors;*
3. *maintaining natural hydrological regimes;*
4. *creating a compatible landscape and streetscape character;*
5. *managing the interface between potentially incompatible uses or sources of noise or other impacts; and*
6. *ensuring future development on adjacent and nearby land can occur in an orderly, efficient and cohesive manner.*

The adjoining property to the east slopes towards the subject site. To allow for future development on this property to achieve a lawful point of discharge to Haig Road, an upstream connection has been provided for the neighbouring lot to the rear. The proposed stormwater connection is considered sufficient. The proposed design includes installation of a 225mm diameter stormwater pipe which is capped at the boundary. The pipe will discharge into the back of the existing gully in the road reserve and is considered sufficient to satisfy PO5(6). A condition of approval is recommended requiring an easement over this stormwater pipe, which is discussed below in this report.

Capacity of infrastructure

The proposed has been assessed against PO5 of the infrastructure works code, which states:

PO5
All infrastructure is connected to existing networks in a safe, efficient and functional way, and does not impose loads on those networks that exceed their capacity.

The existing sewer, water and stormwater infrastructure in proximity to the site has been reviewed by Council's engineering team and are considered sufficient in size and capacity to support the proposed new lots and satisfy PO5 of the infrastructure works code.

Easements

The assessment has considered PO7 of the infrastructure works code, which states.

PO7
All infrastructure is designed and located to be easily and safely accessed for repair and maintenance purposes.

To ensure the development satisfies PO7 it is recommended a standard condition be included to ensure that easements are provided to and around maintenance structures for sewer infrastructure, as there is a sewer manhole located in the south western corner of the property.

It is also recommended a condition of approval be included to ensure an easement with a minimum width of 2.25m is provided for stormwater drainage purposes along the entire southern boundary of Lot 4. This easement would be in Gross in favour of Redland City Council, to service the upstream eastern property and ensure access to the stormwater pipe is maintained to satisfy PO7.

Earthworks

The assessment of the proposed earthworks has considered PO1 and PO3 of the infrastructure works code. PO1 states the following:

PO1

Excavation and filling is minimised and does not reduce the amenity of adjoining properties or of individual lots or dwellings within a development site.

The site contains approximately 1.75m fall. Excavation, minor filling and retaining walls are proposed to bench each lot and provide a suitable level for future building on each lot. The proposed earthworks will require retaining walls along the rear and side boundaries of the proposed lots, having heights of between 0.2m and 0.7m. As the proposed retaining walls are the result of excavation works, the walls will present inwards to the proposed lots, and will not impact on the amenity of adjoining neighbours.

PO3 of the infrastructure works code states the following:

PO3

Excavation and filling result in landforms and structures which are stable and designed to minimise the potential for failure over the long term.

As no details of the retaining wall were provided with a notation included on the drawing stating "walls by others", it is recommended that standard conditions of approval are included to ensure the retaining walls are certified to provide a minimum 60 year design to satisfy PO3 of the infrastructure works code.

Environmental impacts

The proposed earthworks will require the removal of vegetation from the site. A number of submissions received by the assessment manager identified concerns about the impact the proposed development would have on local wildlife and disturbance to the surrounding environment. The site is not mapped with the environmental significance overlay under City Plan and the vegetation is not protected by local or state legislation. The planning scheme does make reference to the retention of habitat in the LDR1 precinct in overall outcome (3(a)(ii) of LDR zone code, which states "*(ii) retention of habitat within the precinct is maximised",* however, this outcome is considered relevant where such habitat is mapped within the environmental significance overlay. That is not the case here.

Infrastructure Charges

The proposed development is subject to infrastructure charges in accordance with the Adopted Infrastructure Charges Resolution. The total charge applicable to this development is:

Total charge: $92,032.95

Residential Component	
(4.00 X Dwelling House - 3 or more bedroom(Area A) X $30,677.65)	$122,710.60
Residential Demand Credit	
(1.00 X Dwelling House - 3 or more bedroom(Area A) X $30,677.65)	$-30,677.65

Total Council Charge	**$92,032.95**

This charge has been calculated as follows in accordance with Council's Adopted Infrastructure Charges Resolution.

Offsets

There are no offsets that apply under Chapter 4 Part 2 of the *Planning Act 2016*.

Refunds

There are no refunds that apply under Chapter 4 Part 2 of the *Planning Act 2016.*

State Referrals

The application does not require referral to any concurrence or advice agencies.

CONCLUSION

The proposal is considered to satisfy overall outcome 2(b) and 3(a)(ii)(iii)(iv) of the low density residential zone code and is considered to be acceptable for the subject site. The proposal is also considered compliant with all other relevant benchmarks in City Plan, therefore the application is recommended for approval subject to conditions.

STRATEGIC IMPLICATIONS

Legislative Requirements

The Development Application has been assessed in accordance with the *Planning Act 2016*.

Risk Management

Standard development applications risks apply. In accordance with the *Planning Act 2016* the applicant may appeal a condition of approval or a decision to refuse the application.

Financial

Should an appeal be filed against the decision of Council, subsequent legal costs will apply.

People

There are no implications for staff associated with this report.

Environmental

Environmental impacts are discussed in the 'Issues' section of this report where relevant.

Social

Social impacts are discussed in the 'Issues' section of this report where relevant.

Human Rights

There are no known human rights implications associated with this report.

Alignment with Council's Policy and Plans

The assessment and officer's recommendation align with Council's policies and plans as described within the 'Issues' section of this report.

CONSULTATION

Consulted	Consultation Date	Comments/Actions
Councillor Division 10	30 November 2021	Councillor notified of application lodgement

OPTIONS

Option One

That Council resolves to issue a development permit for reconfiguring a lot for one lot into four standard format lots and operational works associated with reconfiguring a lot on land described as Lot 11 on RP230532 and situated at 11-13 Haig Road, Birkdale, subject to the conditions in Attachment 4.

Option Two

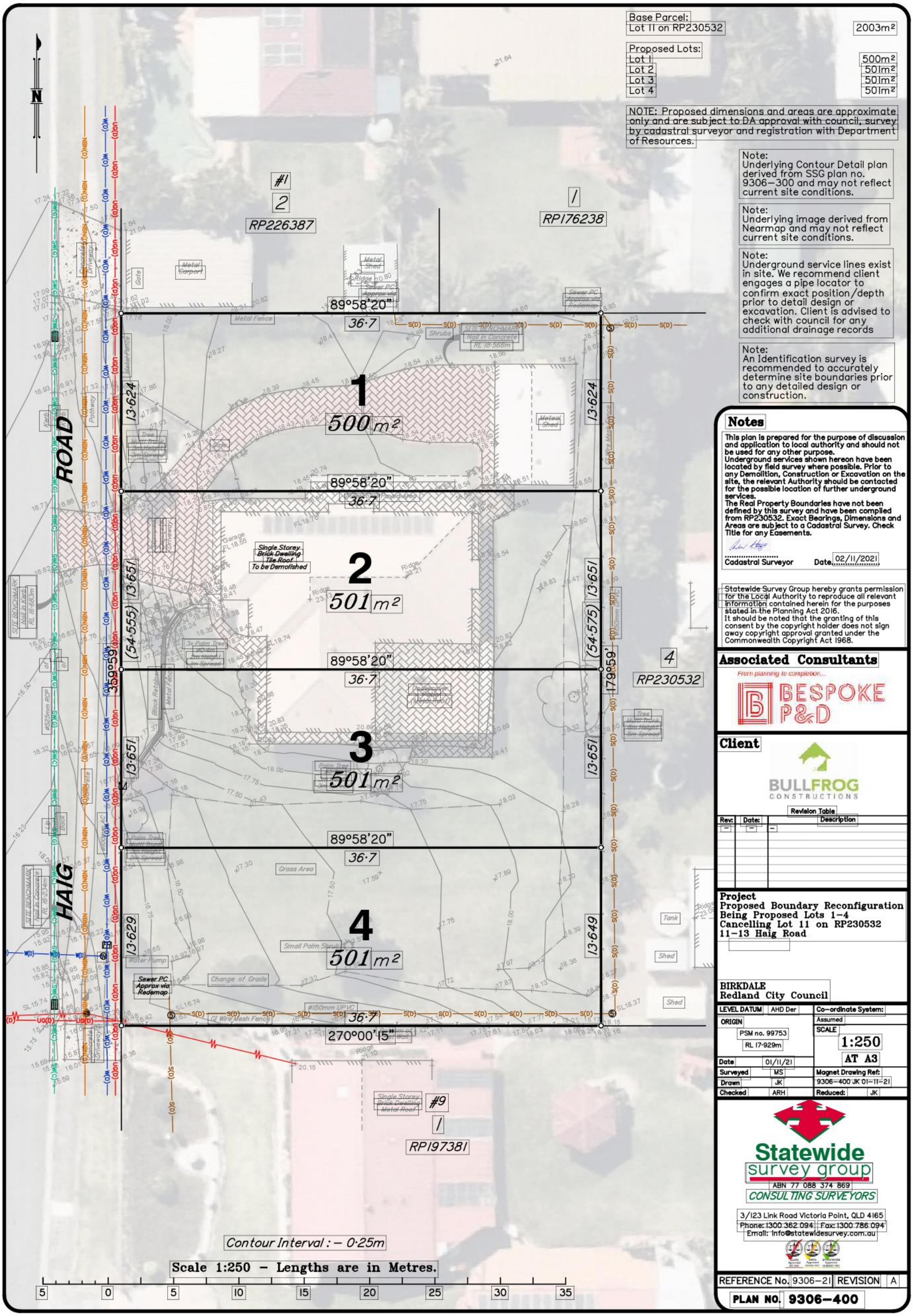
That Council resolves to issue a development permit for reconfiguring a lot for one lot into four standard format lots and operational works associated with reconfiguring a lot on land described as Lot 11 on RP230532 and situated at 11-13 Haig Road, Birkdale, without conditions or subject to amended conditions.

Option Three

That Council resolves to refuse the application for reconfiguring a lot for one lot into four standard format lots and operational works associated with reconfiguring a lot on land described as Lot 11 on RP230532 and situated at 11-13 Haig Road, Birkdale (grounds for refusal will need to be established).

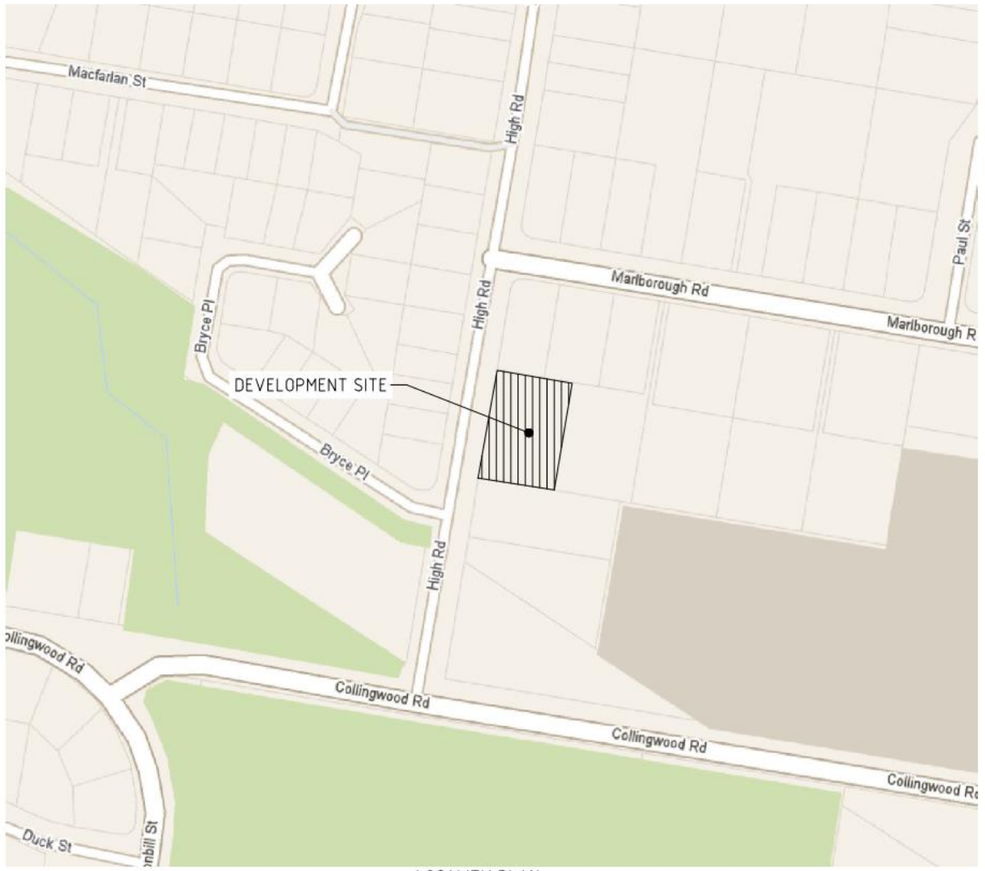
OFFICER'S RECOMMENDATION

That Council resolves to issue development permits for reconfiguring a lot for one lot into four standard format lots and operational works associated with reconfiguring a lot on land described as Lot 11 on RP230532 and situated at 11-13 Haig Road, Birkdale, subject to the conditions in Attachment 4.


Base Parcel:
Lot 11 on RP230532
2003m²
Proposed Lots:
Lot 1 500m²
Lot 2 501m²
Lot 3 501m²
Lot 4 501m²
NOTE: Proposed dimensions and areas are approximate only and are subject to DA approval with council, survey by cadastral surveyor and registration with Department of Resources.
Note: Underlying Contour Detail plan derived from SSG plan no. 9306–300 and may not reflect current site conditions.
Note: Underlying image derived from Nearmap and may not reflect current site conditions.
Note: Underground service lines exist in site. We recommend client engages a pipe locator to confirm exact position/depth prior to detail design or excavation. Client is advised to check with council for any additional drainage records
Note: An Identification survey is recommended to accurately determine site boundaries prior to any detailed design or construction.
#1
2
RP226387
1
RP176238
4
RP230532
#9
1
RP197381
HAIG ROAD
1
500 m²
2
501 m²
3
501 m²
4
501 m²
89°58'20"
36·7
13·624
13·651
(54·555)
(54·575)
359°59'
179°59'
270°00'15"
Single Storey Brick Dwelling Tile Roof To be Demolished
Single Storey Brick Dwelling Metal Roof
Contour Interval :– 0·25m
Scale 1:250 – Lengths are in Metres.
5 0 5 10 15 20 25 30 35
Notes
This plan is prepared for the purpose of discussion and application to local authority and should not be used for any other purpose.
Underground services shown hereon have been located by field survey where possible. Prior to any Demolition, Construction or Excavation on the site, the relevant Authority should be contacted for the possible location of further underground services.
The Real Property Boundaries have not been defined by this survey and have been compiled from RP230532. Exact Bearings, Dimensions and Areas are subject to a Cadastral Survey. Check Title for any Easements.
Cadastral Surveyor Date 02/11/2021
Statewide Survey Group hereby grants permission for the Local Authority to reproduce all relevant information contained herein for the purposes stated in the Planning Act 2016.
It should be noted that the granting of this consent by the copyright holder does not sign away copyright approval granted under the Commonwealth Copyright Act 1968.
Associated Consultants
From planning to completion...
BESPOKE P&D
Client
BULLFROG CONSTRUCTIONS
Revision Table
Rev: Date: Description
Project
Proposed Boundary Reconfiguration
Being Proposed Lots 1–4
Cancelling Lot 11 on RP230532
11–13 Haig Road
BIRKDALE
Redland City Council
LEVEL DATUM AHD Der
Co–ordinate System: Assumed
ORIGIN PSM no. 99753 RL 17·929m
SCALE 1:250 AT A3
Date 01/11/21
Surveyed MS
Drawn JK
Checked ARH
Magnet Drawing Ref: 9306–400 JK 01–11–21
Reduced: JK
Statewide survey group
ABN 77 088 374 869
CONSULTING SURVEYORS
3/123 Link Road Victoria Point, QLD 4165
Phone: 1300 362 094 Fax: 1300 786 094
Email: info@statewidesurvey.com.au
REFERENCE No. 9306–21 REVISION A
PLAN NO. 9306–400

BULLFROG CONSTRUCTIONS

11-13 HAIG ROAD, BIRKDALE QLD 4159



LOCALITY PLAN
SCALE NTS

DRAWING INDEX	
Drawing Number	Drawing Title
GENERAL ARRANGEMENT	
B00444-CG001	TITLEPAGE & DRAWING INDEX
EARTHWORKS MANAGEMENT	
B00444-CE001	EARTHWORKS MANAGEMENT NOTES
B00444-CE002	EARTHWORKS MANAGEMENT LAYOUT PLAN
B00444-CE003	EARTHWORKS MANAGEMENT SECTIONS
STORMWATER DRAINAGE	
B00444-CD001	STORMWATER DRAINAGE LAYOUT PLAN
EROSION AND SEDIMENT CONTROL	
B00444-CV001	EROSION AND SEDIMENT CONTROL GENERAL NOTES
B00444-CV002	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
B00444-CV003	EROSION AND SEDIMENT CONTROL LAYOUT PLAN
WATER RETICULATION	
B00444-CW001	WATER RETICULATION NOTES AND DETAILS
B00444-CW002	WATER RETICULATION LAYOUT PLAN

DEVELOPMENT SUMMARY

LOCATION: 11-13 HAIG ROAD, BIRKDALE QLD 4159
TOTAL AREA: 0.2003 Ha
No. OF LOTS: 4

PROPERTY DESCRIPTION

LOT 11 on RP 230532
PARISH OF BIRKDALE
COUNTY OF STANLEY

SURVEY ORIGIN

OPM 99753 RL 17.929M
DATUM AHD
SURVEYOR STATEWIDE SURVEYS

REVISION: A DATE: 17/11/21

BULLFROG CONSTRUCTIONS

Empower ENGINEERS & PROJECT MANAGERS

Datum AHD PSM 99753 RL 17.929M (LOCAL)COORD

FOR APPROVAL

Project No.	Drawing No.	Rev
B00444	CG001	A

STANDARD NOTES

GENERAL

1. THE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS. ANY POINT OF CONFLICT WILL BE RESOLVED BY THE SUPERINTENDENT.
2. THE ACCURACY AND COMPLETENESS OF EXISTING SERVICE INFORMATION SHOWN ON THE DRAWINGS IS NOT GUARANTEED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL SERVICES PRIOR TO CONSTRUCTION AND ADVISE THE SUPERINTENDENT OF ANY DIFFERENCES FROM THE DRAWINGS.
3. CONTRACTOR TO DEMOLISH OR RELOCATE/ REMOVE OR OBTAIN THE RELEVANT APPROVALS FOR ALL EXISTING STRUCTURES ON SITE, INCLUDING ALL SLABS AND FOOTINGS, IN ACCORDANCE WITH THE APPROVED PLAN(S) AND CAP ALL SERVICES PRIOR TO DEMOLITION COMMENCING.

TESTING

THE FREQUENCY OF TESTING IS TO BE SET OUT BELOW. THE SUPERINTENDENT MAY ORDER ADDITIONAL TESTS. REFER TO THE LOCAL AUTHORITIES SPECIFICATION FOR STANDARDS OF COMPACTION AND MATERIAL STANDARDS.

EARTHWORKS TESTING

1. COMPACTION TESTS

LOCATION	AREA PER TEST
FINISHED LEVEL OR ROAD SUBGRADE (IN CUT OR FILL)	REFER TO THE LOCAL AUTHORITY SPECIFICATION
LOWEST TWO LEVELS OF EMBANKMENT (PER LAYER)	
OTHER LAYERS OF EMBANKMENT (PER LAYER)	
PREPARED NATURAL GROUND UNDER EMBANKMENT	

2. QUALITY TESTS OF IMPORTED MATERIAL ARE REQUIRED AS SET OUT BY LOCAL AUTHORITY.
3. THE NUMBER AND LOCATION OF PAVEMENT SUBGRADE TESTS SHALL BE DETERMINED BY THE SUPERINTENDENT WHO SHALL RECOMMEND CBR VALUES TO BE USED IN ROAD PAVEMENT DESIGN. THE NUMBER AND TYPES OF CBR TESTS SHALL BE DETERMINED BY THE SOILS TESTING CONSULTANT TO BEST REPRESENT THE CONDITION OF THE SUBGRADE EXPECTED IN SERVICE.

STORMWATER DRAINAGE

1. ALL TRENCH EXCAVATION AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE WORKPLACE HEALTH AND SAFETY ACT 2011.
2. TEST CERTIFICATES OR EVIDENCE IS REQUIRED FOR ALL PIPES, BOX CULVERTS AND OTHER PRECAST CONCRETE PRODUCTS.
3. BACKFILL MATERIAL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 300mm (LOOSE) AND TO THE DENSITIES STATED BELOW:-

LOCATION	DENSITY & FREQUENCY
UNDER ROADS (A) > 300mm BELOW SUBGRADE (B) < 300mm BELOW SUBGRADE (C) PAVEMENT	REFER TO THE LOCAL AUTHORITY SPECIFICATION
ELSEWHERE	

FILL MANAGEMENT

1. EARTHWORKS LIMITS OF CUTTING AND FILLING AS SHOWN ON THE DRAWING TO BE VERIFIED ON SITE. THE ACTUAL LIMITS TO BE DETERMINED ON SITE BY THE SUPERINTENDENT DURING CONSTRUCTION.
2. ALL FILL MATERIAL WILL BE PLACED IN ACCORDANCE WITH NORTHERN REGION, SOUTH EAST QUEENSLAND JOINT REGIONAL SPECIFICATION.
3. THE FILL MATERIAL WILL COMPRISE ONLY OF NATURAL EARTH AND ROCK AND SHALL BE FREE OF ALL CONTAMINATES, NOXIOUS, HAZARDOUS, DELETERIOUS AND ORGANIC MATERIAL. THE FILL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 300MM TO A MAXIMUM DRY DENSITY SPECIFIED BY THE LOCAL AUTHORITY OR THE RELEVANT AUSTRALIAN STANDARD IN ACCORDANCE WITH AS1289 LEVEL 1 CERTIFICATION.
4. THE PLACEMENT OF FILL TO BE EXECUTED SUCH THAT TO BE FREE DRAINING AT ALL TIMES, WON'T CAUSE PONDING AND TO NOT CAUSE NUISANCE TO ADJOINING PROPERTY OR ROADS.
5. NO DEMOLITION MATERIAL TO BE USED AS FILL MATERIAL.
6. WHERE UNSUITABLE MATERIAL IS ENCOUNTER WITHIN THE FILL, IT WILL BE REMOVED AND REPLACED WITH SUITABLE FILL.
7. ALL VEHICLES EXITING FROM THE SITE TO BE CLEAN - TO PREVENT MATERIAL BEING TRACKED OR DEPOSITED ON THE ADJOINING PUBLIC ROADS. REFER ENVIRONMENTAL MANAGEMENT NOTES. ACCESS TRACKS THROUGH THE SITE WILL BE LIMITED TO THOSE APPROVED BY THE SUPERINTENDENT AND THE CONTRACTOR PRIOR TO ANY WORK COMMENCING.

ENVIRONMENTAL MANAGEMENT

1. THE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ENVIRONMENTAL MANAGEMENT PROGRAM AND ARE TO STRICTLY ADHERED TO:
2. NOISE COMPLIANCE:
   - 2.1. ALL PLANT AND EQUIPMENT SHALL BE CONTROLLED TO MINIMISE NOISE EMISSION IN ACCORDANCE WITH AS2436 (GUIDE TO NOISE CONTROL ON CONSTRUCTION, MAINTENANCE AND DEMOLITION). THE SITE WORKING HOURS TO BE:

MONDAY - FRIDAY	7.00am TO 6.00pm
SATURDAY	7.00am TO 12 noon
SUNDAY OR PUBLIC HOLIDAY	NO WORK PERMITTED

3. DUST COMPLIANCE:
   - 3.1. NO VISIBLE DUST EMISSIONS SHALL OCCUR AT THE BOUNDARIES OF THE SITE DURING EARTHWORKS AND CONSTRUCTION PHASES.
   - 3.2. THE CONTRACTOR TO PROVIDE A WATER TRUCK AS REQUIRED TO ELIMINATE THE DUST PROBLEM CAUSED BY SITE TRAFFIC.

VEGETATION MANAGEMENT

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE DUE CARE OF THE NATURAL VEGETATION. NO CLEARING IS TO BE UNDERTAKEN WITHOUT THE PRIOR APPROVAL FROM THE SUPERINTENDENT.
2. TO AVOID DISTURBANCE TO EXISTING TREES MARKED TO BE KEPT, EARTHWORKS WILL BE MODIFIED AS DIRECTED BY THE SUPERINTENDENT.
3. THE CONTRACTOR'S PLANT AND VEHICLES ARE NOT TO OPERATE OUTSIDE THE LIMITS OF THE CONSTRUCTION AREA AND ARE RESTRICTED FROM CROSSING OR DISTURBING AREAS NOT SUBJECT TO CONSTRUCTION.
4. ALL VEGETATION IS TO BE CHIPPED. THE CHIPPED VEGETATION WILL BE SPREAD OVER THE REHABILITATION WORKS AREA SUBJECT TO LANDSCAPE ARCHITECT APPROVAL.
5. ON EACH MORNING OF EVERY DAY ON WHICH VEGETATION IS TO BE UNDERTAKEN AND PRIOR TO ANY CLEARING COMMENCING, THE CONTRACTOR MUST ARRANGE FOR THE SITE TO BE INSPECTED BY A SUITABLE QUALIFIED BIOLOGIST OR SUITABLY EXPERIENCED NATURALIST (HENCE REFERRED TO AS A "WILDLIFE SPOTTER") AND SHALL REMAIN ON SITE DURING ALL CLEARING ACTIVITY IN ACCORDANCE WITH THEIR PRE CLEARING REPORT

DIAL BEFORE YOU DIG www.1100.com.au

NOTE: LOCATION & LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF WORKS. ANY POTENTIAL CONFLICT OF EXISTING SERVICES OR STORMWATER OUTLETS SHALL BE REPORTED TO THE SUPERINTENDENT.

NOTE:
FOR EROSION AND SEDIMENT CONTROL DETAILS REFER TO DWG Nos. B00444-CV001 TO B00444-CV003.

NOTE:
NOTE - THE CUT AND FILL DEPTHS SHOWN ON THESE PLANS REFLECT THE CUT/FILL REQUIRED TO ACHIEVE THE DESIGN SURFACE LEVELS, RELATIVE TO THE SURFACE LEVELS IN PLACE PRIOR TO THIS PACKAGE OF CONSTRUCTION WORKS. THESE CUT/FILL DEPTHS DO NOT NECESSARILY RELATE TO THE NATURAL SURFACE LEVELS, AS OTHER WORKS MAY HAVE BEEN DONE ON THIS LAND PRIOR TO THIS PACKAGE OF CONSTRUCTION WORKS.

User: ADRIAN RODGERS File Name: C:\USERS\ADRIAN\ONEDRIVE\B00444_M2014 civil-dgns\1.2 current\B00444-CWKS
Plot Date: 19/11/2021 12:23:26 PM

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	AR	AR	CH	CH	17/11/21

Registered Engineer 19/11/2021 (Date) 12732 (Register)
ENGINEERING CERTIFICATION

BULLFROG CONSTRUCTIONS

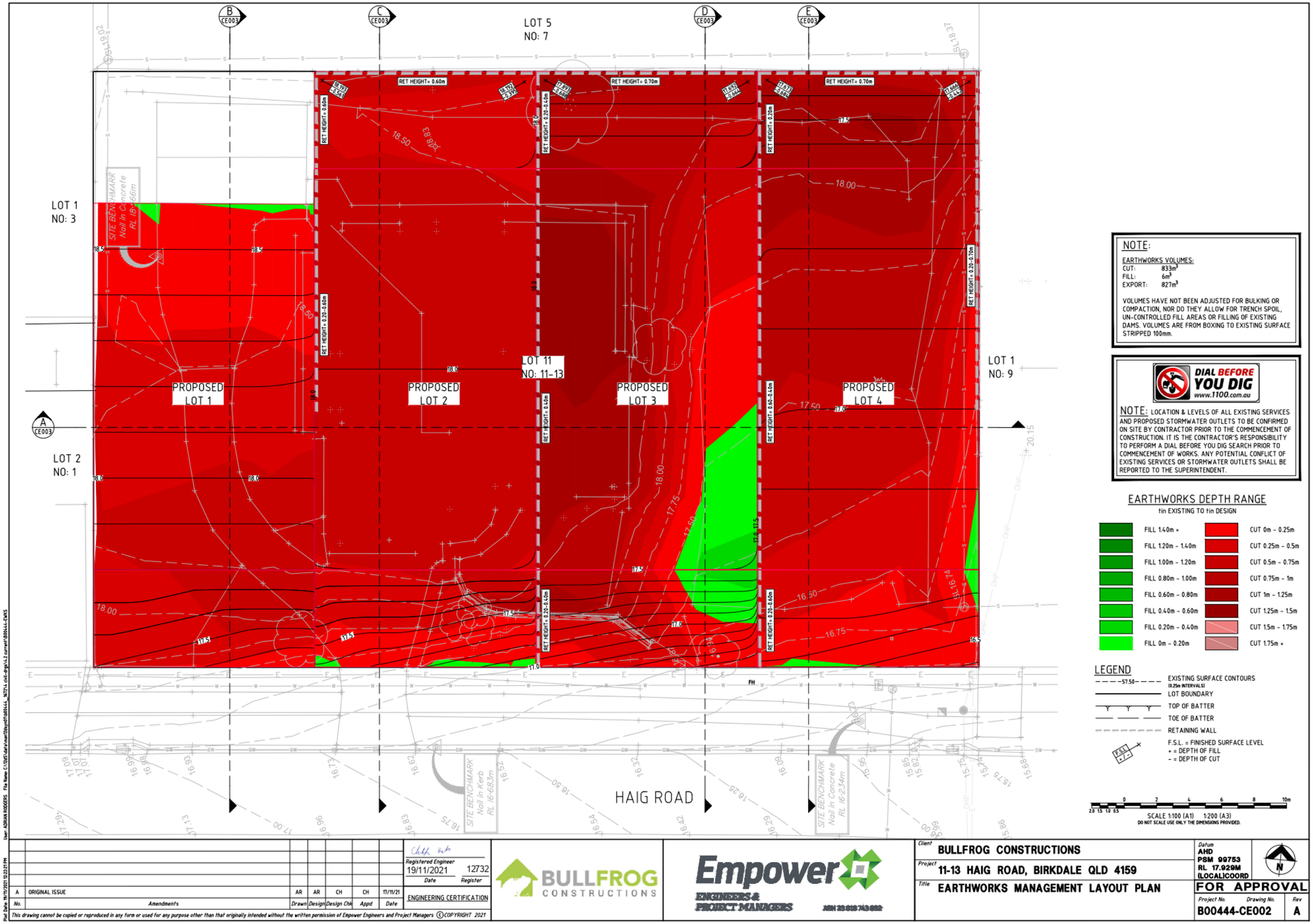
Empower ENGINEERS & PROJECT MANAGERS ABN 28 618 743 882

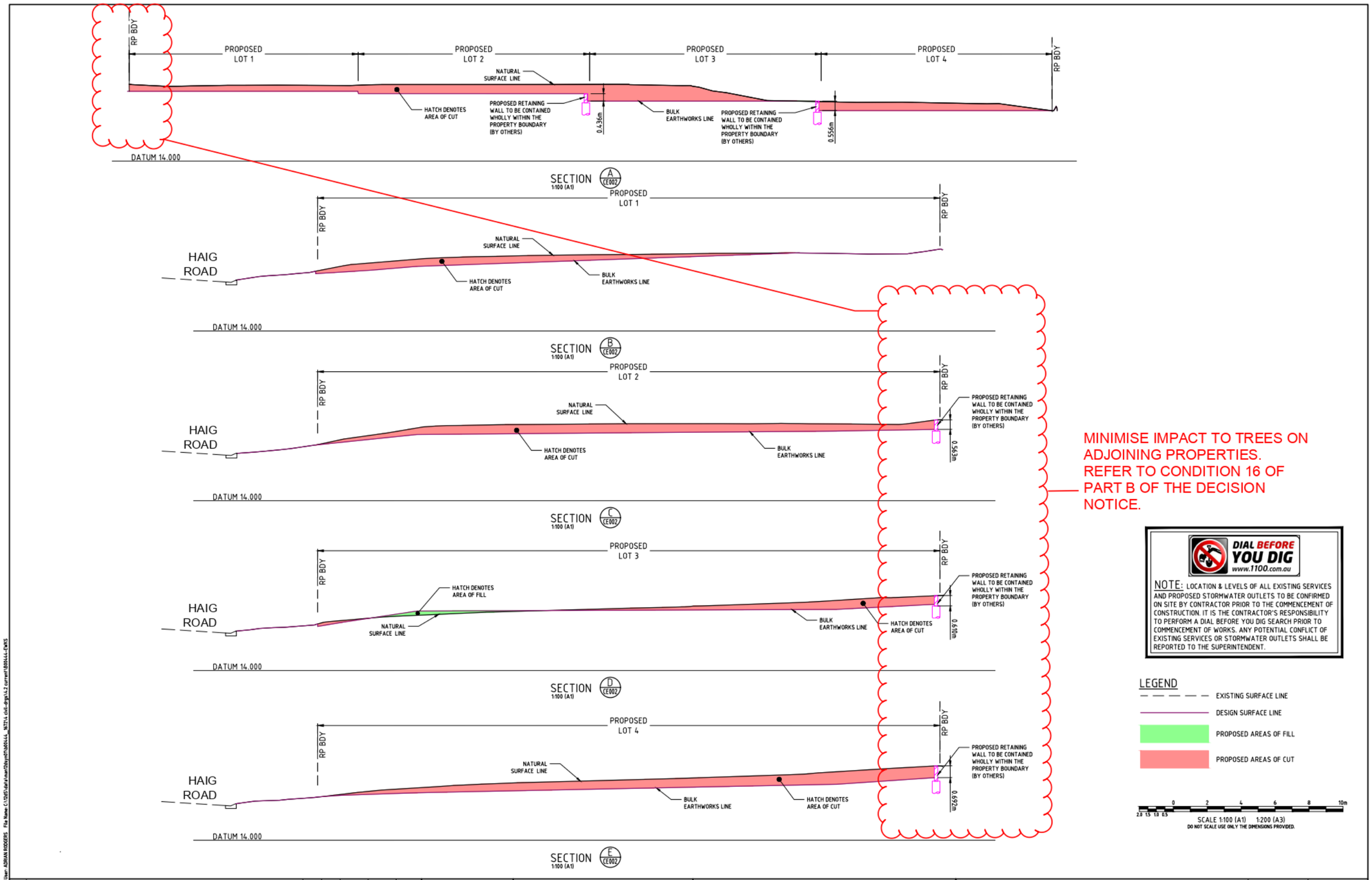
Client: BULLFROG CONSTRUCTIONS
Project: 11-13 HAIG ROAD, BIRKDALE QLD 4159
Title: EARTHWORKS MANAGEMENT NOTES

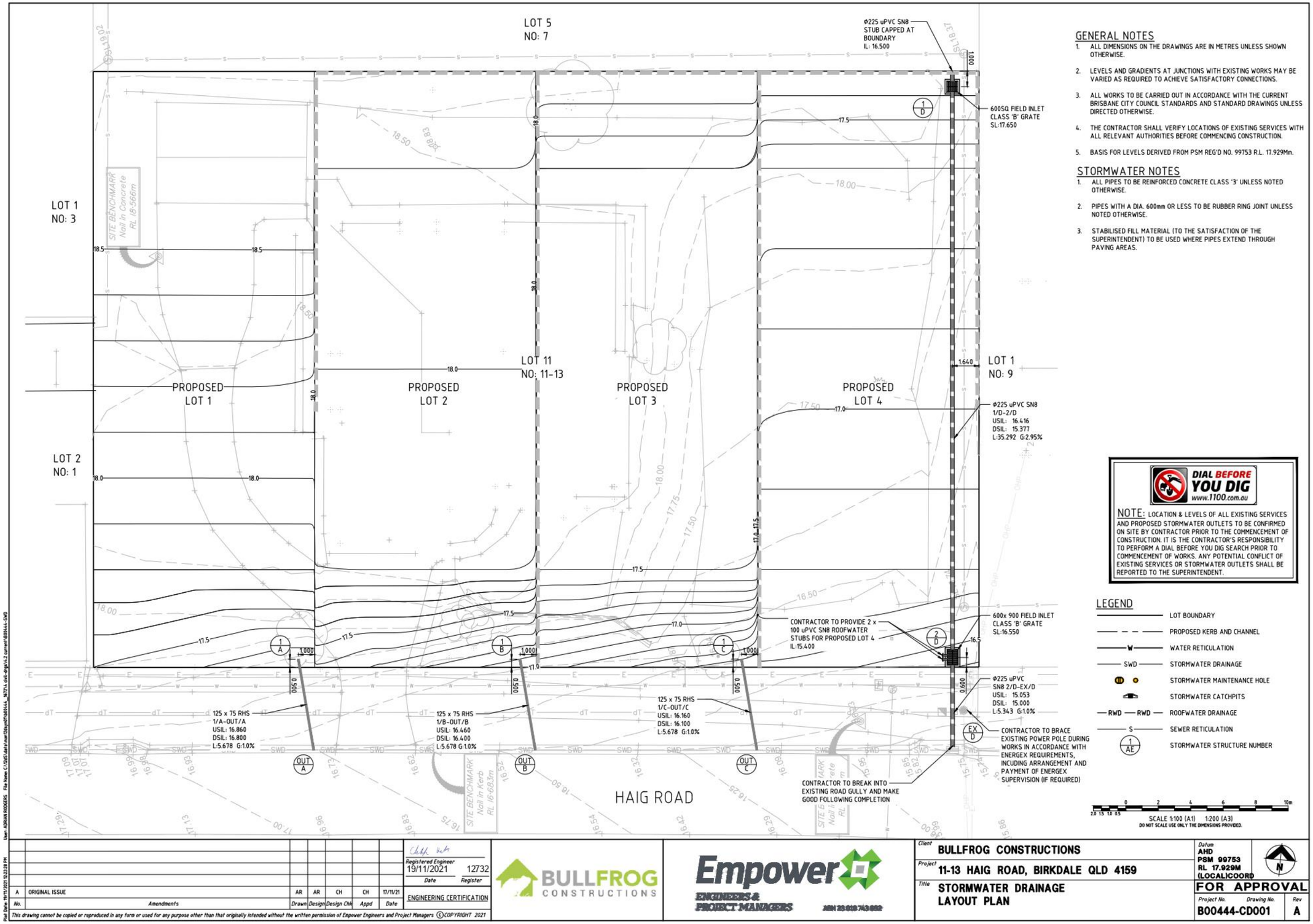
Datum: AHD
PSM 99753
RL 17.929M
(LOCAL)COORD

FOR APPROVAL

Project No.	Drawing No.	Rev
B00444	CE001	A







GENERAL NOTES

1. ALL DIMENSIONS ON THE DRAWINGS ARE IN METRES UNLESS SHOWN OTHERWISE.
2. LEVELS AND GRADIENTS AT JUNCTIONS WITH EXISTING WORKS MAY BE VARIED AS REQUIRED TO ACHIEVE SATISFACTORY CONNECTIONS.
3. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT BRISBANE CITY COUNCIL STANDARDS AND STANDARD DRAWINGS UNLESS DIRECTED OTHERWISE.
4. THE CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING SERVICES WITH ALL RELEVANT AUTHORITIES BEFORE COMMENCING CONSTRUCTION.
5. BASIS FOR LEVELS DERIVED FROM PSM REG'D NO. 99753 R.L. 17.929Mm.

STORMWATER NOTES

1. ALL PIPES TO BE REINFORCED CONCRETE CLASS '3' UNLESS NOTED OTHERWISE.
2. PIPES WITH A DIA. 600mm OR LESS TO BE RUBBER RING JOINT UNLESS NOTED OTHERWISE.
3. STABILISED FILL MATERIAL (TO THE SATISFACTION OF THE SUPERINTENDENT) TO BE USED WHERE PIPES EXTEND THROUGH PAVING AREAS.

DIAL BEFORE YOU DIG www.1100.com.au

NOTE: LOCATION & LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF WORKS. ANY POTENTIAL CONFLICT OF EXISTING SERVICES OR STORMWATER OUTLETS SHALL BE REPORTED TO THE SUPERINTENDENT.

LEGEND

- LOT BOUNDARY
- PROPOSED KERB AND CHANNEL
- W — WATER RETICULATION
- SWD — STORMWATER DRAINAGE
- STORMWATER MAINTENANCE HOLE
- STORMWATER CATCHPITS
- RWD — RWD — ROOFWATER DRAINAGE
- S — SEWER RETICULATION
- 1/AE STORMWATER STRUCTURE NUMBER

SCALE 1:100 (A1) 1:200 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	AR	AR	CH	CH	17/11/21

Registered Engineer 19/11/2021 Date 12732 Register
ENGINEERING CERTIFICATION

BULLFROG CONSTRUCTIONS

Empower ENGINEERS & PROJECT MANAGERS ABN 25 010 743 882

Client: BULLFROG CONSTRUCTIONS
Project: 11-13 HAIG ROAD, BIRKDALE QLD 4159
Title: STORMWATER DRAINAGE LAYOUT PLAN

Datum: AHD
PSM 99753
RL 17.929M
(LOCAL)COORD

FOR APPROVAL

Project No.	Drawing No.	Rev
B00444	CD001	A

ALL INFORMATION WITHIN THESE EROSION AND SEDIMENT CONTROL NOTES HAVE BEEN SOURCED FROM THE INTERNAL EROSION CONTROL ASSOCIATION (AUSTRALIA) (IECA) BEST PRACTICE EROSION AND SEDIMENT CONTROL – 2008. THIS DOCUMENT IS ALSO REFERRED TO AS THE IECA GUIDELINES WITHIN THIS DOCUMENT.

EROSION AND SEDIMENT CONTROL – GENERAL NOTES

WORK AREA

THE DEFINED 'WORK AREA' IS LIMITED TO THE AREAS SHOWN WITHIN THE DESIGN DRAWINGS, WITH THE WIDTHS AND ALIGNMENTS BEEN DEFINED THROUGH THE INFORMATION PROVIDED BY THE CLIENT. ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CONSTRUCTED, OPERATED AND MAINTAINED WITHIN THE WORK AREA. "NO GO ZONES" HAVE BEEN ESTABLISHED TO DETAIL AREAS WHICH ARE RESTRICTED DURING CERTAIN STAGES OF CONSTRUCTION. WORKS WITHIN NO GO ZONES ARE NOT TO BE UNDERTAKEN UNTIL STABILISATION OF PREVIOUS SUB-STAGES.

KEY MANAGEMENT PRACTICES

PRINCIPLES OF EROSION AND SEDIMENT CONTROL (IECA BOOK 1, SECTION 2.1)

AVOIDING EROSION AND MINIMISING THE POTENTIAL FOR EROSION IN THE FIRST INSTANCE IS CONSIDERED THE MOST EFFECTIVE WAY OF ENSURING ENVIRONMENTAL OBJECTIVES ARE ACHIEVED. CONTROLLING SEDIMENT AS AN END OF LINE TREATMENT IN THE FIRST INSTANCE SHOULD BE AVOIDED. REDUCING OR AVOIDING EROSION CAN BE ACHIEVED THROUGH THE APPLICATION OF MULTIPLE TECHNIQUES, OFTEN WITH ONE TECHNIQUE SUPPLEMENTING ANOTHER. EXAMPLE TECHNIQUES INCLUDE:

- UNDERSTANDING THE REASONS BEHIND SOIL EROSION (I.E. SOIL PROPERTIES, RUNOFF VOLUME, RUNOFF VELOCITY) AND DEVELOPING A TREATMENT STRATEGY ACCORDINGLY;
- SCHEDULING AND STAGING OF CLEARING, EARTHWORKS, ENGINEERING SERVICES, STABILISATION AND REHABILITATION;
- MINIMISING DISTURBANCE AND THE OVERALL CONSTRUCTION FOOTPRINT; AND
- INCREASE AND OR MAINTAIN TEMPORARY OR PERMANENT GROUND COVER IN HIGH EROSION RISK AREAS.

THE FOLLOWING PRINCIPLES ARE RECOMMENDED WITHIN THE IECA GUIDELINES FOR EROSION AND SEDIMENT CONTROL AS THE PRINCIPLES OF ESC AND SHOULD BE CONSIDERED WHEN DEVELOPING AND IMPLEMENTING AND EROSION AND SEDIMENT CONTROL PLAN:

1. APPROPRIATELY INTEGRATE THE DEVELOPMENT INTO THE SITE;
2. INTEGRATE EROSION AND SEDIMENT CONTROL ISSUES INTO SITE AND CONSTRUCTION PLANNING;
3. DEVELOP EFFECTIVE AND FLEXIBLE EROSION AND SEDIMENT CONTROL PLANS BASED ON ANTICIPATED SOIL, WEATHER AND CONSTRUCTION CONDITIONS;
4. MINIMISE THE EXTENT AND DURATION OF SOIL DISTURBANCE;
5. CONTROL WATER MOVEMENT THROUGHOUT THE SITE;
6. MINIMISE SOIL EROSION;
7. PROMPTLY STABILISE DISTURBED AREAS
8. MAXIMISE SEDIMENT RETENTION ON THE SITE;
9. MAINTAIN ALL ESC MEASURES IN PROPER WORKING ORDER AT ALL TIMES;
10. MONITOR THE SITE AND ADJUST ESC PRACTICES TO MAINTAIN THE REQUIRED PERFORMANCE STANDARD.

RECOMMENDED MANAGEMENT ACTIONS

- WHEREVER POSSIBLE SCHEDULE WORK IN HIGH EROSION RISK AREAS IN LOW EROSION RISK PERIODS OF THE YEAR (REFER TO TABLE 1);
- RESTRICT THE DISTURBANCE CREATED BY THE CONSTRUCTION WORKS TO THE MINIMUM PRACTICAL AREA ALLOWING FOR SUB-STAGING IF REQUIRED;
- EXPOSURE OF SUBSURFACE OR HIGHLY ERODIBLE LAYERS SHOULD BE AVOIDED WHEREVER POSSIBLE; AND
- PROVIDE TEMPORARY GROUND COVER DURING CONSTRUCTION BY APPLYING AN APPROPRIATE STABILISATION MECHANISM TO ACHIEVE AT LEAST 60% GROUND COVER. THIS IS CRITICAL IN WORK AREAS WHERE SEDIMENT CONTROLS CANNOT BE INCORPORATED INTO THE WORKS AND THERE IS A HEAVY RELIANCE ON EROSION CONTROL IN THE FIRST INSTANCE.

DRAINAGE CONTROL (IECA BOOK 1, SECTION 2)

WHERE PRACTICAL, UP-SLOPE 'CLEAN' WATER MUST BE DIVERTED AROUND THE DISTURBED OR ACTIVE WORK AREAS. CLEAN WATER FLOW CATCH DRAINS AND DIVERSION BANKS (GENERALLY CONSTRUCTED OF TOPSOIL STRIPPED FROM THE WORK AREA, AND WHERE REQUIRED ARE PROVIDED WITH EFFECTIVE EROSION PROTECTION) ARE TO BE CONSTRUCTED ON THE UP-SLOPE SIDE OF THE WORKS AREA AS NOMINATED ON THE ESC DRAWINGS. WHERE SEPARATION OF CLEAN AND DIRTY WATER IN NOT POSSIBLE, BOTH SOURCES MUST BE COMBINED AND TREATED AS DIRTY WATER. DIRTY WATER DRAINAGE, AS NOMINATED ON THE ESC DRAWINGS IS TO BE CONSTRUCTED TO ENSURE THAT SEDIMENT-LADEN RUNOFF FROM DISTURBED OR ACTIVE WORK AREAS IS APPROPRIATELY DIRECTED INTO THE NOMINATED SEDIMENT CONTROL MECHANISM OR SEDIMENT TRAP.

SOIL MANAGEMENT (IECA BOOK 2, APPENDIX C)

DURING THE CONSTRUCTION PHASE, EARTHWORKS SHOULD ONLY BE UNDERTAKEN WHEN THE SOIL MOISTURE CONTENT CAN MAINTAIN THE SOIL PROPERTIES. EARTHWORK ON DRY SOIL CAN CAUSE EXCESSIVE DUST AND SOIL STRUCTURE DECLINE. SATURATED SOILS ARE MORE LIKELY TO SLUMP AND OR DISPERSE POTENTIALLY CAUSING EXCESSIVE SEDIMENT LOADS AND SOIL STRUCTURE DECLINE. WHERE TOPSOIL IS REQUIRED TO BE STRIPPED AND STOCKPILED PRIOR TO CONSTRUCTION, THE TOPSOIL SHOULD BE MANAGED TO MAINTAIN ITS EXISTING PROPERTIES. EROSION CONTROL AROUND TOPSOIL STOCKPILES MUST ALSO BE MAINTAINED THROUGHOUT THE CONSTRUCTION PHASE.

SOIL TESTING (IECA BOOK 2, APPENDIX C9)

TESTING OF SOILS PROVIDES ADDITIONAL INFORMATION ON THE CHARACTERISTICS WITHIN THE SOILS OF THE WORK AREA. TESTING RELATED TO EROSION CHARACTERISTICS INCLUDE; SOIL TEXTURE, CATION EXCHANGE CAPACITY (CEC), EXCHANGEABLE SODIUM PERCENTAGE (ESP), EXCHANGEABLE CATIONS, PH AND ELECTRICAL CONDUCTIVITY (EC), AND EMERSON DISPERSION. SOIL TESTING IS RECOMMENDED TO OBTAIN ADDITIONAL INFORMATION ON THE CHARACTERISTICS OF THE SOILS WITHIN THE WORK AREA TO BE USED IN DETERMINING THE EROSION CONTROL STRATEGY. LIMITED SPECIFIC SOIL INFORMATION AND TESTING REQUIRES CONSERVATIVE ESTIMATES FOR SOIL ERODIBILITY TO BE USED. USING CONSERVATIVE VALUES TO ESTIMATE SOIL ERODIBILITY POTENTIALLY INCREASES THE LEVEL OF EROSION AND SEDIMENT CONTROL REQUIRED. TESTING AND ANALYSIS OF TOPSOIL TO DEFINE AND OPTIMISE THE PARAMETERS FOR REHABILITATION (I.E. NUTRIENT STATUS) SHOULD BE UNDERTAKEN PRIOR TO REHABILITATION. EMPOWER ENGINEERS AND PROJECT MANAGERS NOTE THAT THE SCOPE OF WORKS FOR REHABILITATION OF DISTURBED AREAS IS NOMINATED BY OTHERS.

DESIGN ASSUMPTIONS

SEASONAL EROSION RISK RATING AND REHABILITATION REQUIREMENTS (IECA BOOK 1, SECTION 4.4)

SECTION 4.4 OF THE IECA GUIDELINES OUTLINES MONTHLY EROSION RISKS BASED ON A VARIETY OF FACTORS. TABLE 4.4.2 OF THE IECA GUIDELINES HAS BEEN RE-CREATED BELOW.

TABLE 1: MONTHLY EROSION RISK RATING.

EROSION RISK RATING	AVERAGE MONTHLY RAINFALL DEPTH (MM)
VERY LOW	0-30
LOW	30-45
MODERATE	45-100
HIGH	100-225
EXTREME	>225

RECOMMENDED TIMEFRAMES FOR LAND CLEARING, PRIOR TO CONSTRUCTION WORKS COMMENCING ARE PRESENTED IN TABLE 1. THE SPECIFICATION FOR REHABILITATION ARE NOMINATED WITHIN THE REHABILITATION PLAN OR ENGINEERING SPECIFICATIONS. MONITORING AND MAINTENANCE OF GROUND COVER SHOULD BE CONSIDERED AS PART OF THE REHABILITATION PROGRAM. TABLE 1 HAS BEEN REPRODUCED BASED ON RESULTS FROM, THE IECA GUIDELINES TABLES 4.4.2 AND 4.4.7.

TABLE 2: EROSION RISK, TIMING OF WORKS AND REHABILITATION

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AVERAGE MONTHLY RAINFALL	126.2	153.1	149.8	110.7	115.5	79.5	41	42	33.2	80	93.2	125.7
EROSION RISK	H	H	H	H	H	M	L	L	L	M	M	H
MAXIMUM LAND CLEARING AHEAD OF WORKS (WEEKS)	2	2	4	6	8	8	8	8	8	8	6	4

KEY: E = EXTREME, H = HIGH, M = MODERATE, L = LOW, VL = VERY LOW

EROSION HAZARD ASSESSMENT (IECA BOOK 2 APPENDIX E)

SOIL LOSS ESTIMATION WAS CONDUCTED USING THE REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE). THE RUSLE EQUATION IS DEFINED AS:

A = R.K.L.S.C.P

WHERE:
A = ANNUAL SOIL LOSS DUE TO EROSION (TONNES/HECTARE/YEAR)
R = CONSTANT CALCULATED RAINFALL EROSIVITY FACTOR SITE FOUND IN IECA SECTION E3.2
LS = VARIABLE CALCULATED VALUE BASED ON LENGTH AND SLOPE FOUND IN IECA SECTION E3.3
K = VARIABLE BASED ON SOIL TYPE FOUND IN IECA SECTION E3.4
C = A CONSTANT CALCULATED FOR THE SOIL COVER FOUND IN IECA SECTION E3.5
P = 1.3; DEFAULT FOR CONSTRUCTION PHASE FOUND IN IECA SECTION E3.6

RECOMMENDED MANAGEMENT ACTIONS

- DEVELOP THE CLEARING SCHEDULE BASED ON RECOMMENDATIONS AS PRESENTED IN TABLE 1.

DRAINAGE DESIGN STANDARD (IECA BOOK 1, SECTION 4.3)

TABLE 4.3.1 OF THE IECA GUIDELINES DETAILS THE ANTICIPATED DESIGN LIFE OF TEMPORARY DRAINAGE FOR THE GIVEN CONSTRUCTION PERIOD.

SEDIMENT CONTROL STANDARD (IECA BOOK 1, SECTION 4.5)

THE SEDIMENT CONTROL STANDARD ADOPTED IS PRESENTED IN TABLE 2. AREAS WHICH HAVE A MINIMUM REQUIREMENT OF A TYPE 3 DEVICE (BASED ON THE SIZE OF THE AREA), WHERE POTENTIALLY HIGH EROSION RATE ARE LIKELY TO BE EXPERIENCED WILL REQUIRE ADDITIONAL GROUND COVER TO PREVENT EROSION OR ALTERNATELY A TYPE 2 SEDIMENT CONTROL DEVICE TO BE INSTALLED AND MAINTAINED. TABLE 2 HAS BEEN PREPARED BASED ON THE INFORMATION PROVIDED IN TABLE 4.5.1 OF THE IECA GUIDELINES. FOR MORE DETAIL ON TYPE 1, 2 & 3 DEVICES, REFER IECA GUIDELINES TABLE 4.5.3

TABLE 3: SEDIMENT CONTROL STANDARD

SEDIMENT CONTROL STANDARD FOR SOIL LOSS RATE LIMIT (T/HA/YR)			
AREA LIMIT (M2)	TYPE 1	TYPE 2	TYPE 3
250	N/A	N/A	ALL CASES
1000	N/A	N/A	ALL CASES
2500	N/A	>75	75
>2500	>150	150	75

THE FOLLOWING NOTES RELATE TO POTENTIAL REDUCTIONS IN THE SEDIMENT CONTROL STANDARD. FOR EXAMPLE: SEDIMENT CONTROLS THAT MAY BE CONSIDERED IF THE WORKS PROCEED DURING LOW RISK PERIODS OF THE YEAR (AS NOTED IN TABLE 1), AND OR IF GROUND COVER IS MAINTAINED E.G. MULCH, ROCK MULCH OR SOIL BINDER. WHEN THIS IS THE CASE, GROUND COVER MUST BE REGULARLY ASSESSED.

1. IF WORKS COMMENCE AND ARE COMPLETED IN ACCORDANCE WITH TABLE 1 WITHIN A LOW OR VERY LOW EROSION RISK PERIOD OF THE YEAR, OR AT LEAST 60% GROUND COVER CAN BE MAINTAINED THROUGHOUT WORKS DURING OTHER PARTS OF THE YEAR, THERE MAY BE AN OPPORTUNITY TO DOWNGRADE SOME TYPE 2 DEVICES TO TYPE 3 DEVICES.
2. EXCAVATED SEDIMENT TRAPS CANNOT BE USED IN UNSTABLE SOILS DUE TO THE HIGH PROBABILITY OF TUNNEL EROSION AND SEDIMENT TRAP FAILURE.
3. EMERSON DISPERSION TESTING (A SIMPLE IN-FIELD DISPERSION TEST) MUST BE COMPLETED ON THE SUBSOIL (0.30-1.0M) IN A LOCATION WHERE AN EXCAVATED SEDIMENT TRAP IS PROPOSED. IF THE EMERSON CLASS IS 4 OR LESS, THE SOIL IS LIKELY TO BE TOO UNSTABLE AND AN ALTERNATIVE, ABOVE GROUND DEVICE MUST BE USED.

CONSTRUCTION ASSUMPTIONS

A SERIES OF ASSUMPTIONS HAVE BEEN MADE REGARDING THE CONSTRUCTION PHASE WITHIN THE PREPARATION OF THESE NOTES. DURING CONSTRUCTION WORKS, IF THE ASSUMPTIONS ARE IDENTIFIED OR ENVISAGED TO BE INCONSISTENT WITH THE ACTUAL CONSTRUCTION PROCESSES OR SITE CONDITIONS, THE ESC CONTROLS MAY REQUIRE UPDATING TO REFLECT THE ADDITIONAL OR ACTUAL CONDITIONS EXPERIENCED ON SITE. FURTHERMORE THE CORRESPONDING EROSION AND SEDIMENT CONTROL PLAN MAY REQUIRE IMMEDIATE REVISION.

- EARTHWORKS E.G. CUT OR FILL BATTER SLOPES WILL BE CONSTRUCTED TO ALLOW ALL ESC DEVICES TO REMAIN WITHIN THE DEFINED WORK AREA;
- WORKS WILL BE STAGED TO MINIMISE THE TIME OF EXPOSURE OF SOILS, PARTICULARLY WORKS ASSOCIATED WITH DRAINAGE PATHS AND OR WATERWAYS;
- WORKS WILL NOT COMMENCE IN HIGH RISK AREAS IF A FORECAST RAINFALL EVENT THAT IS LIKELY TO PRODUCE MORE THAN APPROXIMATELY 25 MM IS FORECAST, UNLESS EROSION AND SEDIMENT CONTROLS CAN BE EFFECTIVELY ESTABLISHED PRIOR TO THE EVENT; AND
- SOIL WITHIN THE WORK AREA WILL BE ASSESSED FOR DISPERSION POTENTIAL AND TREATED WITH GYPSUM (IF REQUIRED).

METHODOLOGY AND INSTALLATION SEQUENCE FOR CONSTRUCTION WORKS

1. TIMING OF WORKS MUST BE ASSESSED WITH RESPECT TO TABLE 1.
2. REFER TO THE APPROVED ESC DRAWING FOR THE INDICATIVE LOCATION OF DRAINAGE, EROSION AND SEDIMENT CONTROLS.
3. REFER TO TYPICAL DETAILS AND TECHNICAL NOTES FOR NOMINATED DRAINAGE, EROSION AND SEDIMENT CONTROLS.
4. VEGETATION WHICH HAS BEEN CLEARED IS TO BE MULCHED AND USED AS PART THE EROSION AND SEDIMENT CONTROL PLANS. .
5. STRIP AND RELOCATE THE TOPSOIL TO CONSTRUCT A 'CLEAN WATER' FLOW DIVERSION BANK ON THE UP-SLOPE WHERE POSSIBLE AS DETAILED ON THE APPROVED ESC DRAWINGS OR STOCKPILE AND PROVIDE ADEQUATE CONTROLS SUCH AS MULCH BUNDS OR SEDIMENT FENCE.
6. EXPOSED SECTIONS OF THE 'CLEAN WATER' FLOW DIVERSION BANK THAT WILL EXPERIENCE MEDIUM TO HIGH CONCENTRATIONS AND VELOCITIES OF CLEAN WATER MAY REQUIRE SCOUR PROTECTION. SCOUR PROTECTION MAY INCLUDE:
   a. MEDIUM PROTECTION, PLACE A LAYER OF COARSE MULCH (APPROXIMATELY 150MM MM IN THICKNESS) ON THE UPSLOPE SIDE OF THE 'CLEAN WATER' FLOW DIVERSION BANK. THE LAYER OF MULCH IS TO EXTEND APPROXIMATELY 300MM UP THE NEWLY CONSTRUCTED FACE OF THE BANK AND 300MM ON THE UP-SLOPE EXISTING GROUND SURFACE;
   b. MEDIUM TO HIGH PROTECTION, INSTALL EROSION CONTROL BLANKET (ECB) OR GEOTEXTILE FABRIC (APPROXIMATE ROLL WIDTH 1.2M) TO THE UP-SLOPE SURFACE OF THE 'CLEAN WATER' FLOW DIVERSION BANK. THE LINING IS TO EXTEND APPROXIMATELY 500MM UP THE NEWLY CONSTRUCTED FACE OF THE BANK AND REMAINDER OF ROLL TO COVER THE UP-SLOPE EXISTING GROUND SURFACE. THE LINING IS TO BE PINNED AS PER THE MANUFACTURES RECOMMENDATIONS TO MAINTAIN CONTACT WITH THE SOIL.
7. CONSTRUCT CATCH DRAINS OR TOPSOIL DIVERSION BANKS ON THE DOWN-GRADIENT SIDE OF THE WORKS TO RETAIN WATER WITHIN THE DISTURBED LIMITS.
8. INSTALL CROSS BANKS AND SEDIMENT TRAPS AS SOON AS PRACTICABLE OR IF RAIN IS FORECAST WITHIN 24 HOURS DURING GROUND SURFACE TREATMENT OPERATIONS.
9. WHERE SIGNIFICANT QUANTITIES OF SUBSOIL ARE CUT FROM THE WORK AREA, THE MATERIAL IS TO BE STOCKPILED IN A DEDICATED AREA WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS.
10. INSTALL ALL EROSION CONTROL MEASURES (E.G. SOIL BINDER, MULCH, GRAVEL, OR ROCK MULCH) WITHIN THE DISTURBED AREAS AS SOON AS PRACTICABLE, OR IF RAIN IS FORECAST WITHIN 24 HOURS.
11. CONTROL TRAFFIC ON ALL AREAS WHERE SOIL BINDER HAS BEEN USED FOR EROSION CONTROL TO PREVENT DAMAGE TO THE SURFACE.
12. WATERWAY CROSSINGS (BED LEVEL CROSSINGS AND OR PIPE CULVERTS) IF ANY ARE TO BE INSTALLED AS REQUIRED FOR ACCESS.
13. CLEARING, GRUBBING AND EARTHWORKS ASSOCIATED WITH DRAINAGE PATHS E.G. GULLY CROSSINGS AREA ARE TO BE DELAYED AS LONG AS IS PRACTICABLE AND BE MINIMISED WHERE POSSIBLE.
14. REHABILITATION IS RECOMMENDED TO COMMENCE AS SOON AS PRACTICAL WITH DRAINAGE PATHS E.G. GULLY CROSSINGS AREAS REHABILITATED AS A PRIORITY.

ONGOING OPERATION, MONITORING AND MAINTENANCE

1. MONITORING OF EROSION AND SEDIMENT CONTROLS SHOULD BE CONDUCTED AT INTERVALS NO GREATER THAN SEVEN (7) DAYS APART.
2. ADDITIONAL MONITORING AND MAINTENANCE SHOULD BE CONDUCTED WITHIN 12 HOURS OF A FORECAST RAINFALL EVENT THAT WOULD PRODUCE RUNOFF.
3. INSPECTIONS AFTER RAINFALL EVENTS PRODUCING RUNOFF ARE REQUIRED TO ASSESS THE ONGOING INTEGRITY AND FUNCTIONALITY OF EROSION AND SEDIMENT CONTROLS AND ADJOINING DRAINAGE. GENERAL INSPECTION CONSIDERATIONS INCLUDE:
   a. INLET AND DISCHARGE AREAS FOR DAMAGE OR EXCESSIVE SCOUR;
   b. CHANNEL BANKS DIRECTING RUNOFF TO THE SEDIMENT TRAP FOR DAMAGE FROM OVERTOPPING FLOWS;
   c. EXCESSIVE SEDIMENTATION E.G.. MORE THAN 30% OF ORIGINAL SEDIMENT TRAP VOLUME; AND
   d. INTEGRITY OF TEMPORARY GROUND COVER.
   e. DE-SILTING OF SEDIMENTATION BASINS AND OTHER SEDIMENT CONTROL DEVICES.
4. CORRECTIVE OR RESTORATIVE MAINTENANCE IS TO BE SCHEDULED AND COMPLETED AS NECESSARY I.E. PRIOR TO RAINFALL EVENTS.
5. REMOVAL AND DISPOSAL OF WATER, SEDIMENT AND OR CORRECTIVE WORK IS TO BE UNDERTAKEN IN A MANNER THAT WILL NOT CREATE AN EROSION OR POLLUTION HAZARD.

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A CPESC TO DEVELOP EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND IMPLEMENTATION OF SUCH ESCP. THESE ESCP STRATEGY DRAWINGS ARE PROVIDED FOR GUIDANCE ONLY.

User: ADRIAN RIDGERS File Name: C:\DATA\data\Data\Projects\B00444_11-13 Haig Rd, Birkdale\2 current\B00444-ESC
Plot Date: 19/11/2021 12:23:35 PM

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	AR	AR	CH	CH	17/11/21

Registered Engineer 19/11/2021 Date 12732 Register
ENGINEERING CERTIFICATION

BULLFROG CONSTRUCTIONS

Empower ENGINEERS & PROJECT MANAGERS ABN 28 618 743 882

Client: BULLFROG CONSTRUCTIONS
Project: 11-13 HAIG ROAD, BIRKDALE QLD 4159
Title: EROSION AND SEDIMENT CONTROL GENERAL NOTES

Datum: AHD
PSM 99753
RL 17.929M (LOCAL)COORD

FOR APPROVAL

Project No.	Drawing No.	Rev
B00444	CV001	A

SEQUENCE OF ACTIONS TO BE UNDERTAKEN BY CONTRACTOR

1. SITE POSSESSION	– INSTALLATION OF CONSTRUCTION EXIT. – CONSTRUCT TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCING AND DIVERSION BANKS. – INSTALL DIVERSION BANKS TO DIRECT WATER FROM DISTURBED AREAS TO THE BASIN.
2. CONSTRUCTION	– TOPSOIL TO BE STRIPPED AND STOCKPILED IN LOCATIONS AGREED WITH THE SUPERINTENDENT. A SEDIMENT FENCE IS TO BE CONSTRUCTED AROUND THE BOTTOM OF THE STOCKPILE TO TRAP SEDIMENT. A DIVERSION DRAIN IS TO BE INSTALLED UPSTREAM OF THE STOCKPILE. – SEDIMENT CONTROL DEVICES REQUIRED TO BE REMOVED TO ALLOW CONSTRUCTION ACCESS ARE TO BE REINSTATED AT THE COMPLETION OF EACH WORKDAY. – MOVEMENT OF CONSTRUCTION EQUIPMENT SHALL BE LIMITED TO THE AREA OF WORK AND EXISTING ROADS. – DISTURBED AREAS ARE TO BE GRASSED FOLLOWING FINAL TRIMMING. AREAS ARE TO BE DISTURBED AND RESTORED PROGRESSIVELY. – TURF STRIPS (900mm WIDE) SHALL BE LAID TO THE BASE OF ALL DOWNSTREAM EARTHWORKS BATTERS STEEPER THAN 1 IN 4. BATTERS SHALL BE TOPSOILED AND GRASS SEEDED IMMEDIATELY UPON COMPLETION OF EARTHWORKS. – MULCH PILES ARE TO BE RESPREAD ONTO LANDSCAPED AREAS. – KERB SEDIMENT TRAPS ARE TO BE PROVIDED AT EACH DRAINAGE PIT ADJACENT DISTURBED AREAS.
3. MAINTENANCE	– REGULARLY CHECK CAPACITY OF EROSION CONTROL DEVICES. – DISTURBED AREAS ARE TO HAVE 80% COVERAGE WITHIN 30 DAYS OF FINAL ALLOTMENT TRIMMING. – FULL WIDTH TURFING OF THE FOOTPATHS.
GENERAL	– PLANS TO BE READ IN CONJUNCTION WITH STORMWATER MANAGEMENT PLAN FOR THE SITE. – THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES FROM THE POSSESSION OF THE SITE UNTIL THE SITE IS CLEARED BY THE LOCAL AUTHORITY "OFF MAINTENANCE" OR UNTIL STABILISATION HAS OCCURRED TO THE SATISFACTION OF THE SUPERINTENDENT. – ADDITIONAL CONTROL DEVICES MAY BE REQUIRED BY THE SUPERINTENDENT. – ALTERNATIVE DESIGNS ARE TO BE APPROVED BY THE SUPERINTENDENT PRIOR TO CONSTRUCTION. – ROADS AFFECTED BY WORKS ARE TO BE KEPT CLEAN. MATERIAL IS TO BE SWEPT FROM ROAD SURFACE BUT NOT WASHED.

WATER QUALITY MANAGEMENT

1. WATER QUALITY MANAGEMENT MEASURES AND OBJECTIVES SHALL COMPLY WITH THE ENVIRONMENTAL PROTECTION ACT, ENVIRONMENTAL PROTECTION POLICY – WATER AND STORMWATER MANAGEMENT PLAN BY BMD CONSULTING PTY LTD.
2. THE CONTRACTOR SHALL MAINTAIN A WATER QUALITY LOG ON SITE AT ALL TIMES FOR WATER QUALITY MONITORING AS PER THE WATER QUALITY MONITORING TABLES. THIS LOG SHALL NOMINATE (BY LOCATION), THE RELEVANT TEST, THE DATE THEY WERE INSPECTED AND ANY RELEVANT NOTES. THE SITE FOREMAN SHALL SIGN EACH LOG ENTRY AS CONFIRMATION THAT ALL CONTROL MEASURES ARE FUNCTIONAL AND ADEQUATELY MAINTAINED. THE LOG SHALL ALSO INCLUDE ALL RELEVANT INFORMATION RELATING TO CHEMICAL FLOCCULATION RATES, RESIDENCE TIME ETC., IF USED ON THE SITE.
3. MONTHLY REPORT GIVING THE RESULTS OF THE WATER QUALITY LOGS INCLUDING SUMMARY OF RESULTS AGAINST OBJECTIVES SHALL BE FORWARDED TO THE SUPERINTENDENT (FOR RELEASE TO LOCAL AUTHORITY AND CLIENT).
4. WHERE WATER QUALITY RESULTS FAIL TO MEET THE APPROVED CRITERIA, CORRECTIVE ACTION OR ALTERNATIVE PROCEDURES WILL BE REQUIRED TO BE IMPLEMENTED IMMEDIATELY TO ACHIEVE COMPLIANCE WITH THESE WATER QUALITY OBJECTIVES.

DUST

1. NO VISIBLE DUST EMISSIONS, AND OTHER AIR EMISSIONS INCLUDING ODOURS MUST OCCUR AT THE BOUNDARIES OF THE SITE DURING EARTHWORKS AND CONSTRUCTION ACTIVITIES ON THE SITE.
2. THE CONTRACTOR TO PROVIDE A WATER TRUCK AS REQUIRED TO ELIMINATE THE DUST PROBLEM CAUSED BY SITE TRAFFIC.

WATER QUALITY OBJECTIVES TABLE

OIL AND GREASE	NO VISIBLE FILMS OR ODOUR.
LITTER/GROSS POLLUTANTS	NO ANTHROPOGENIC (MAN-MADE) MATERIAL GREATER THAN 5mm IN ANY DIMENSION.

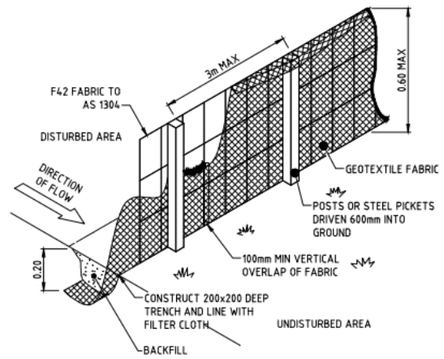
NOTE

1. IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE DUE CARE OF NATURAL VEGETATION.
2. NO CLEARING IS TO BE UNDERTAKEN WITHOUT PRIOR APPROVAL FROM THE SUPERINTENDENT. TO AVOID DISTURBANCE TO EXISTING TREES, EARTHWORKS WILL BE MODIFIED AS DIRECTED ON-SITE BY THE SUPERINTENDENT.
3. THE LOCATION OF SILTATION AND EROSION CONTROL DEVICES WILL BE DETERMINED ON SITE BY THE SUPERINTENDENT OR AT THE CONTRACTOR'S DISCRETION.
4. ACCESS TRACKS THROUGH THE SITE WILL BE LIMITED TO THOSE DETERMINED BY THE SUPERINTENDENT AND THE CONTRACTOR PRIOR TO ANY WORK COMMENCING.

SEDIMENT FENCE NOTES

- WOVEN WIRE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
- FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 600mm AT TOP OF MID SECTION.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 150mm AND FOLDED.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

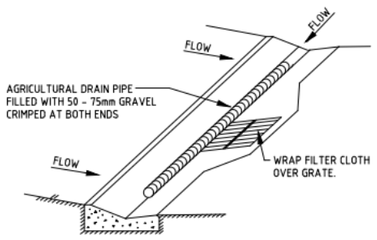
STEEL	EITHER T OR U TYPE OF 50mm HARDWOOD
FENCE:	WOVEN WIRE 14 ga 150mm MAX. MESH OPENING
FILTER CLOTH:	FILTER AS SPECIFIED (TERRAM 1000, POLYFELT TS 500 BIDUM U24 OR EQUIVALENT)
PREFABRICATED UNIT:	GEOFAB ENVIROFENCE O APPROVED EQUIVALENT



TYPICAL SEDIMENT FENCE DETAIL

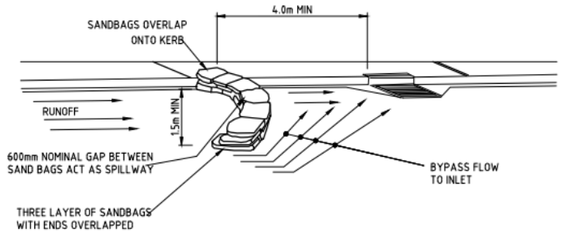
NOT TO SCALE

NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR ENGAGING A CPESC TO DEVELOP EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND IMPLEMENTATION OF SUCH ESCP. THESE ESCP STRATEGY DRAWINGS ARE PROVIDED FOR GUIDANCE ONLY.



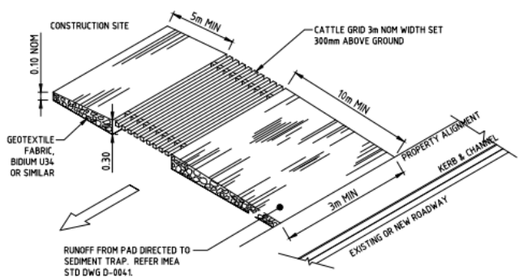
SAG GULLY INLET PROTECTION DETAIL

NOT TO SCALE



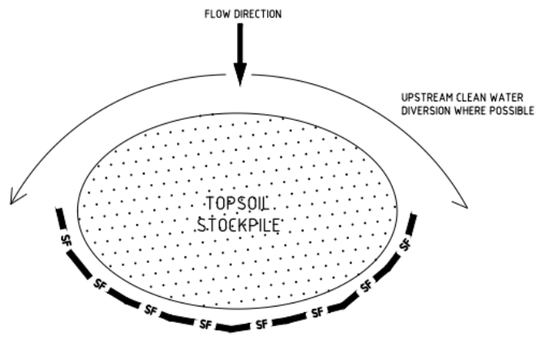
ON GRADE INLET PROTECTION DETAIL

NOT TO SCALE



CONSTRUCTION EXIT
DRY SYSTEM

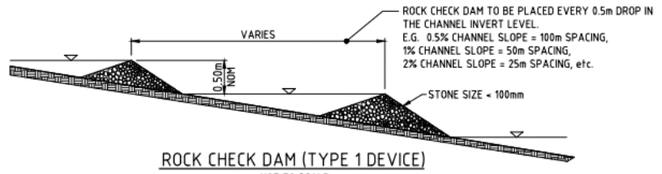
REFER IPWEA STANDARD DRAWING D-0040
NOT TO SCALE



STOCKPILE TO BE LOCATED ON GRADE AWAY FROM OVERLAND FLOW PATHS.

STOCKPILE DETAIL

NOT TO SCALE

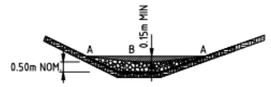


ROCK CHECK DAM (TYPE 1 DEVICE)

NOT TO SCALE

SECTION – TABLE DRAIN

NOT TO SCALE



SECTION – TABLE DRAIN AT CHECK DAM

NOT TO SCALE

No.	Amendments	Drawn	Design	Design Che	Appd	Date
A	ORIGINAL ISSUE	AR	AR	CH	CH	17/11/21

Registered Engineer 19/11/2021 (Date) 12732 (Register)

ENGINEERING CERTIFICATION

BULLFROG CONSTRUCTIONS

Empower ENGINEERS & PROJECT MANAGERS ABN 25 010 743 082

Client: BULLFROG CONSTRUCTIONS

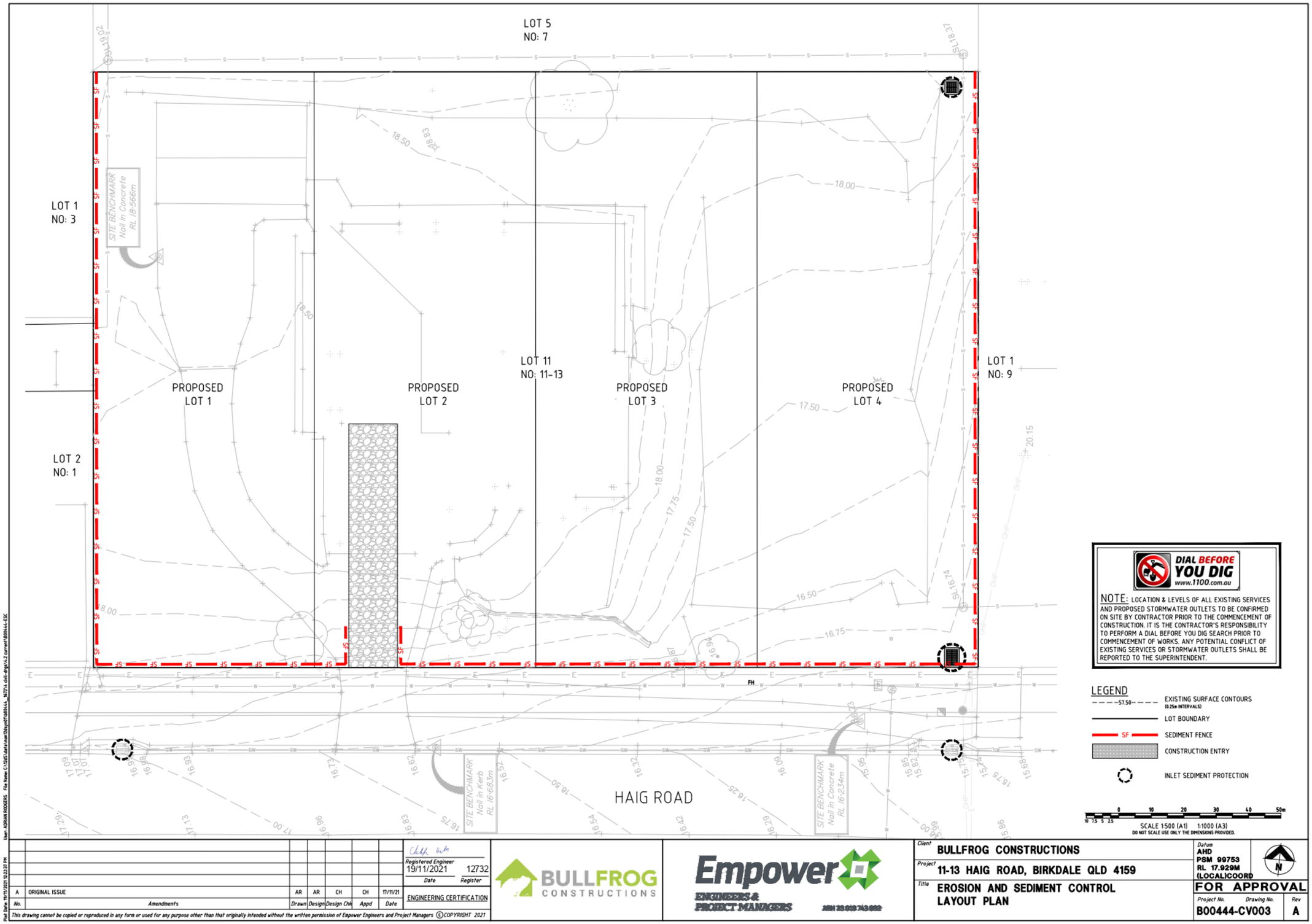
Project: 11-13 HAIG ROAD, BIRKDALE QLD 4159

Title: EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

Datum: AHD; PSM 99753; RL 17.929M (LOCAL)COORD

FOR APPROVAL

Project No. B00444 | Drawing No. CV002 | Rev A



DocuSign Envelope ID: 63A10D9F-E472-4F53-9A43-9981444EFB8F

WATER RETICULATION NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SOUTH EAST QUEENSLAND WATER SUPPLY CODE SPECIFICATIONS & STANDARDS.
2. UNLESS SPECIFIED OTHERWISE ALL MATERIALS AND WORK SHALL COMPLY WITH THE RELEVANT AUSTRALIAN STANDARDS.
3. ADOPT LIP OF KERB OR SHOULDER OF ROAD AS THE PERMANENT LEVEL.
4. COVER WATER MAINS FROM PERMANENT LEVEL IN VERGES, PARKS AND ROADWAYS TO BE AS SHOWN IN SEQ-SP STD DWG SEQ-WAT-1200-2 (600mm FOR MAINS UP TO DN200, 1000mm FOR MAINS DN200 OR GREATER) UNLESS NOTED OTHERWISE.
5. CONDUITS AND PRE-TAPPED FITTINGS TO BE INSTALLED IN ACCORDANCE WITH SEQ-SP STD DWGS SEQ-WAT-1108-1 AND 1108-2.
6. A WATER METER SUPPLIED AT THE DEVELOPER'S COST, IS TO BE INSTALLED AT THE SERVICE POINT OF EACH LOT IN ACCORDANCE WITH SEQ-SP STD DWG SEQ-WAT-1108-3.
7. ALL MATERIALS USED IN THE WORKS SHALL COMPLY WITH THE SEQ-SP's ACCEPTED PRODUCTS AND MATERIALS LIST OR BE APPROPRIATELY SHOWN, LISTED AND DEFINED IN THE ENGINEERING SUBMISSION SO THAT THE ALTERNATIVE PRODUCT OR MATERIAL CAN BE ASSESSED AND IF APPROPRIATE, APPROVED BY THE SEQ-SP.
8. ALL CONCRETE FOOTPATHS TO BE CLEAR OF WATER MAINS WHERE POSSIBLE.
9. TEST/CHLORINATION POINTS TO BE INSTALLED IN ACCORDANCE WITH SEQ-SP STD DWG SEQ-WAT-1410-1.
10. THE CONSTRUCTION OF THE WATER RETICULATION WORK SHOWN ON THESE DRAWINGS MUST BE SUPERVISED BY AN ENGINEER WHO HAS RPEQ REGISTRATION. WORKS NOT COMPLYING WITH THIS REQUIREMENT WILL NOT BE PERMITTED TO CONNECT TO THE RETICULATION SYSTEM.
11. ALL WATER MAINS TO BE PVC-O SERIES PN16 WITH SPIGOT AND SOCKET RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
12. ALL ROAD CROSSINGS SHALL BE CONSTRUCTED FROM PVC-O SERIES PN20 PIPE WITH SPIGOT AND SOCKET RUBBER RING JOINTS UNLESS NOTED OTHERWISE.
13. ALL PVC-O PIPES MUST BE COMPATIBLE WITH DUCTILE IRON FITTINGS.
14. ALL BOLTS, NUTS AND WASHERS MUST BE GRADE 316 STAINLESS STEEL.
15. WATER MAIN ALIGNMENT IS 1.5m FROM PROPERTY BOUNDARY.
16. TRENCHING SHALL BE IN ACCORDANCE WITH SEQ WATER STD DWG SEQ-WAT-1201-1.
17. MARKERS ARE REQUIRED TO BE LOCATED ON ALL HYDRANTS AND VALVES, AND SHALL BE INSTALLED IN ACCORDANCE WITH SEQ WATER STD DWG SEQ-WAT-1300-1.
18. THRUST BLOCKS SHALL BE INSTALLED IN ACCORDANCE WITH SEQ WATER STD DWG SEQ-WAT-1205-1 & 1206-1.

VEGETATION PROTECTION

A. TREES LOCATED ALONG THE FOOTPATH SHALL BE, TRANSPLANTED PRIOR TO CONSTRUCTION, OR REPLACED IF DESTROYED.

B. WHEN WORKING WITHIN 4M OF TREES, RUBBER OR HARDWOOD GIRDLES SHALL BE CONSTRUCTED WITH 1.8M BATTENS CLOSELY SPACED AND ARRANGED VERTICALLY FROM GROUND LEVEL. GIRDLES SHALL BE STRAPPED TO TREES PRIOR TO CONSTRUCTION AND REMAIN UNTIL COMPLETION.

C. TREE ROOTS SHALL BE TUNNELED UNDER, RATHER THAN SEVERED. IF ROOTS ARE SEVERED THE DAMAGED AREA SHALL BE TREATED WITH A SUITABLE FUNGICIDE. CONTACT RELEVANT COUNCIL ARBORIST FOR FURTHER ADVICE.

D. ANY TREE LOPPING REQUIRED SHOULD BE UNDERTAKEN BY AN APPROVED ARBORIST.

SOIL

A. TOPSOIL AND SUBSOIL SHALL BE STOCKPILED SEPARATELY.

B. CARE SHALL BE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE STORMWATER SYSTEM. THIS MAY INVOLVE PLACING APPROPRIATE SEDIMENT CONTROLS AROUND STOCKPILES.

SAFETY

A. THE DESIGN AND CONSTRUCTION OF THE WORKS SHALL COMPLY WITH ALL QUEENSLAND LEGISLATION.

DIAL BEFORE YOU DIG www.1100.com.au

NOTE: LOCATION & LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A DIAL BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF WORKS. ANY POTENTIAL CONFLICT OF EXISTING SERVICES OR STORMWATER OUTLETS SHALL BE REPORTED TO THE SUPERINTENDENT.

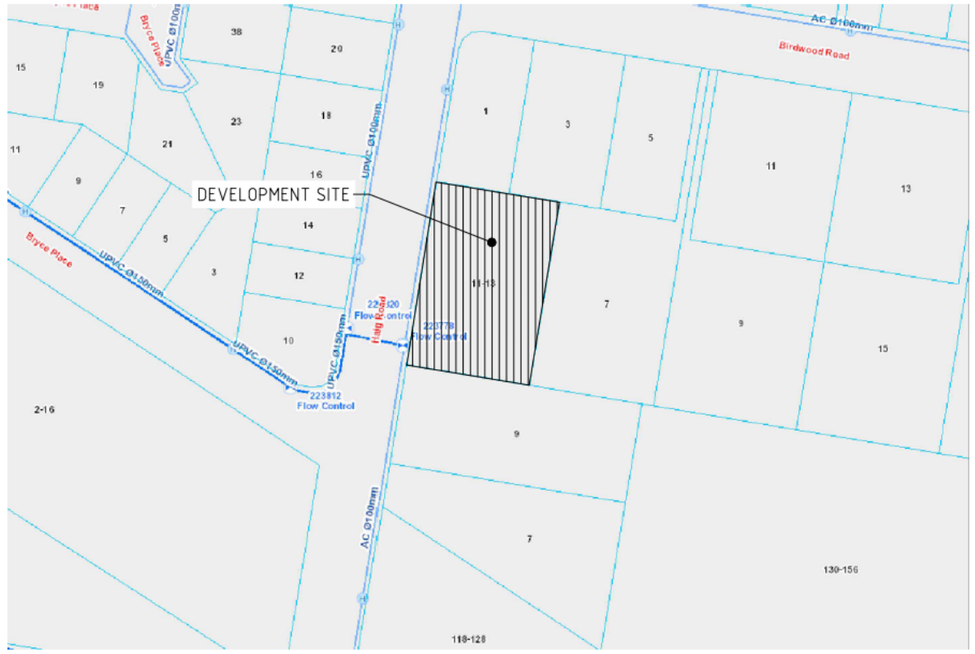
WATER RETICULATION LIVE WORKS TABLE

BY REDLAND CITY WATER/ CONTRACTOR AT DEVELOPERS EXPENSE

No.	DESCRIPTION	WATER MAIN DIA (m)	WATER MAIN LENGTH (m)	FITTING TYPE	No. OF FITTINGS
1	REDLAND CITY WATER CONNECTION REDLAND CITY WATER TO EXCAVATE TO EXISTING HYDRANT (ASSET ID 71733) AND RELOCATE TO PROPERTY BOUNDARY INCLUDING INSTALLATION OF ADDITIONAL REQUIRED FITTINGS. REDLAND WATER TO BACKFILL WATER MAIN INCLUDING SURFACE RESTORATION.	Φ100 (AC)	-	2 x Φ100 GIBAULT	2

ASSET REGISTER - WATER RETICULATION

NAME OF ESTATE		-	
SITE ADDRESS		11-13 HAIG ROAD, BIRKDALE	
D.A. NO.		-	
COUNCIL DELEGATES APPROVAL DATE		-	
CLIENT		BULLFROG CONSTRUCTIONS	
JOB REFERENCE NO.		B00444	
MAINS	DIAMETER	MAINS	
		MATERIAL	LENGTH
	100mm (PRIVATE)	-	-
	DN180	-	-
SERVICES	DIAMETER	MAINS	
		MATERIAL	LENGTH
	100Φ	-	-
	DN25	PE100	3 x 1.554m
METERS	DIAMETER	NUMBER	
	100mm	-	
	20mm	3	

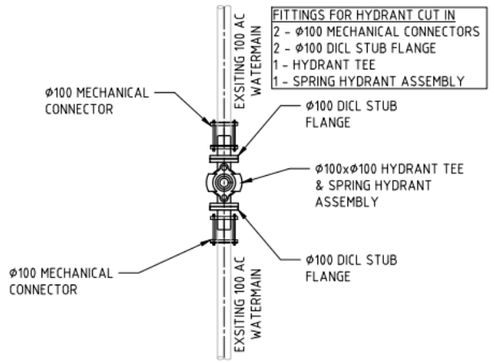


LOCALITY PLAN
SCALE 1:2000 (A1)

SCALE 1:2000 (A1) 1:4000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

NOTE:
ALL WATER AND SEWER CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE QUEENSLAND WORK HEALTH AND SAFETY ACT 2011. CONTACT THE DIVISION OF WORKPLACE HEALTH AND SAFETY FOR INFORMATION.

TELEPHONE - 1300 369915



FIRE HYDRANT CUT IN DETAIL
Scale 1:25

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	AR	AR	CH	CH	17/11/21

Registered Engineer 19/11/2021 Date — 12732 Register
ENGINEERING CERTIFICATION

BULLFROG CONSTRUCTIONS

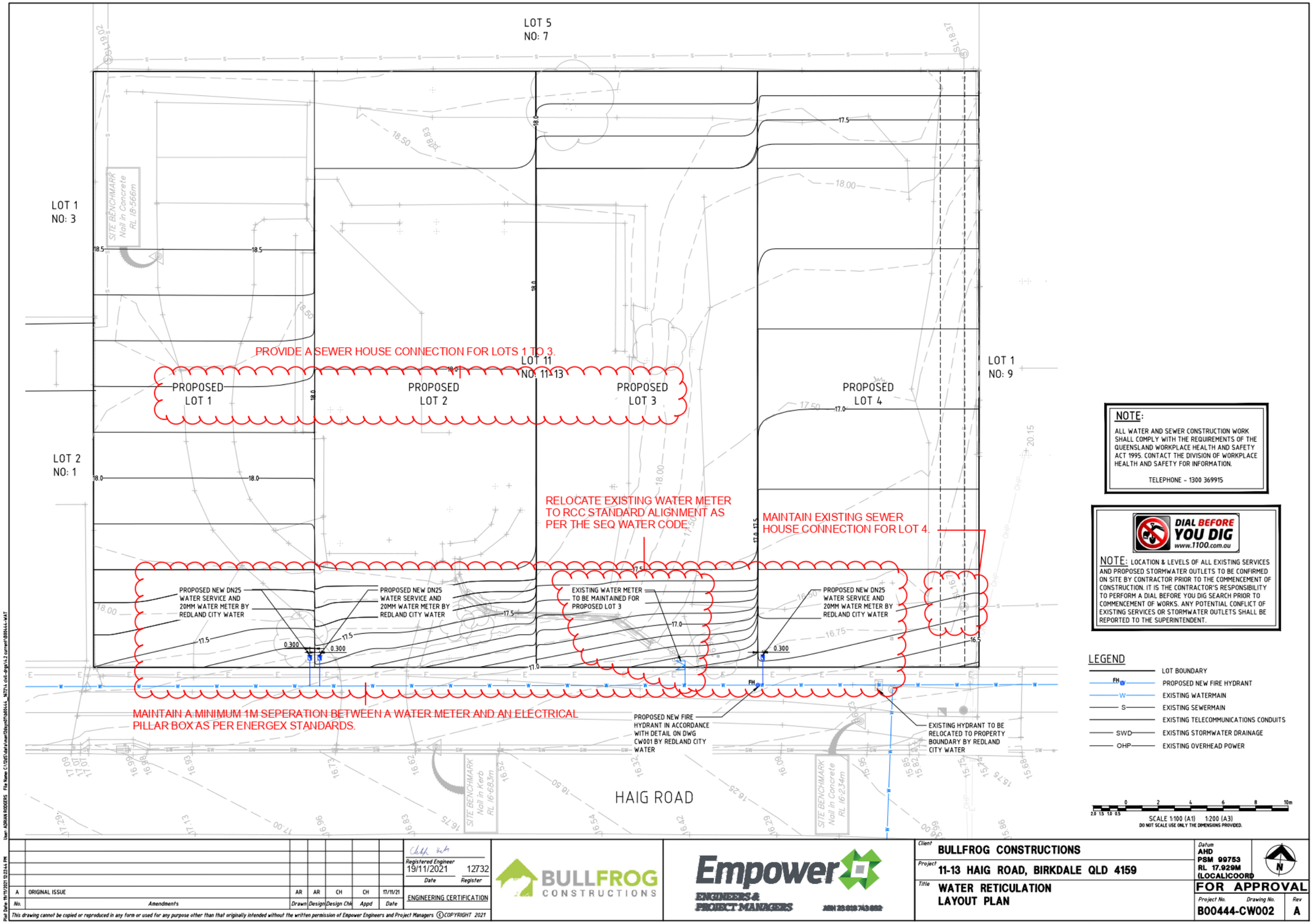
Empower ENGINEERS & PROJECT MANAGERS ABN 29 618 743 882

Client: BULLFROG CONSTRUCTIONS
Project: 11-13 HAIG ROAD, BIRKDALE QLD 4159
Title: WATER RETICULATION NOTES AND DETAILS

Datum: AHD PSM 99753 RL 17.929M (LOCAL)COORD

FOR APPROVAL

Project No. B00444-CW001 | Drawing No. | Rev A



Attachment 3 – zoning map and aerial photo for 11-13 Haig Road, Birkdale

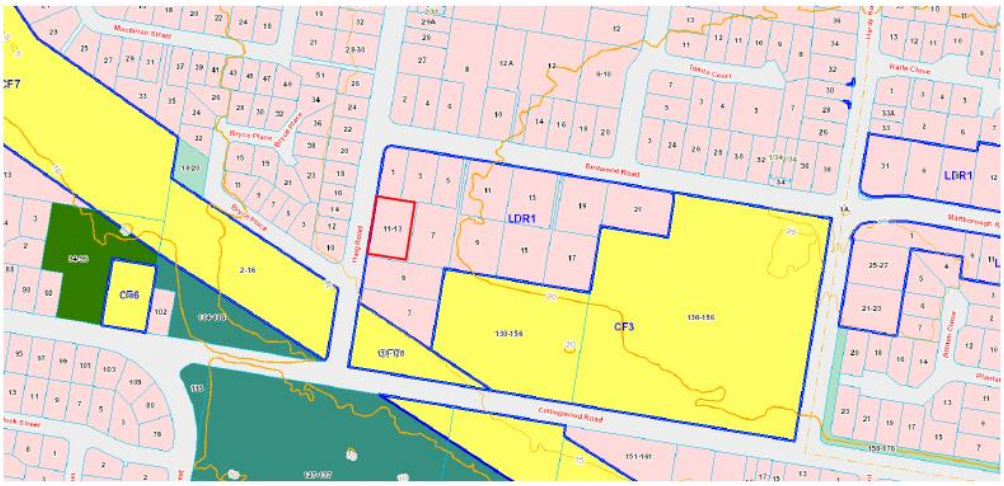


Figure 1 – zoning map of surrounding area (subject site outlined in red)

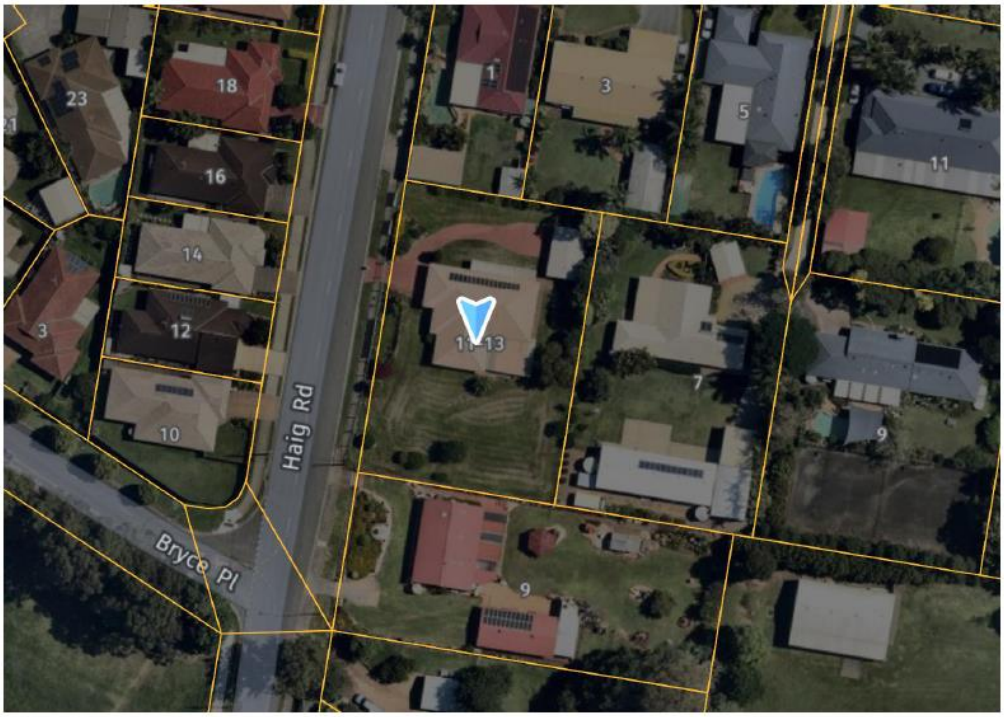


Figure 2 – aerial view of subject site

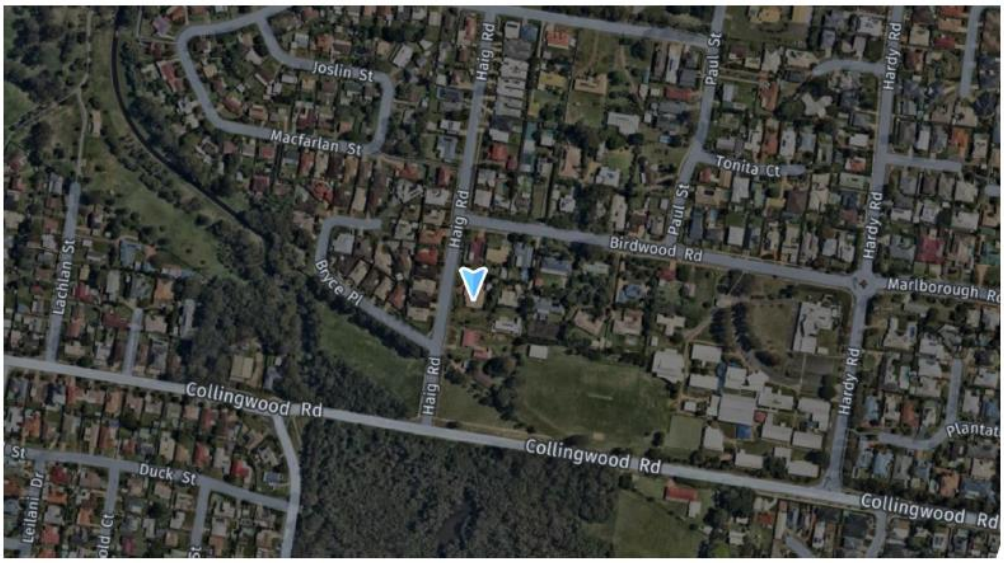


Figure 3 – aerial view of subject site and surrounding area

Attachment 4 - Recommended conditions for RAL21/0137

Part A - recommended conditions for development permit for reconfiguring a lot

	ASSESSMENT MANAGER CONDITIONS PART A – RECONFIGURING A LOT	TIMING
1	Comply with all conditions of this approval, at no cost to Council, at the timing periods specified in the right-hand column. Where the column indicates that the condition is an ongoing condition, that condition must be complied with for the life of the development.	At the timing periods specified
Approved plans and documents		
2	Undertake the development in accordance with the approved plans and documents referred to in Table 1, subject to the conditions of this approval and any notations by Council on the plans.	Prior to Council approval of the survey plan.

Plan/document title	Reference number	Prepared by	Plan/doc. date
Proposed boundary realignment	9306-400/A	Statewide survey group	01/11/21

Table 1: Approved plans and documents

3	Submit to Council a survey plan for approval, in accordance with the approved plans, following compliance with all relevant conditions and requirements of this approval.	Prior to expiry of the currency period for the development.
Existing structures		
4	Remove any existing buildings, structures, fences and/or incidental works that straddle the new boundaries, or alter to realign with the new property boundaries or to be wholly contained within one of the new properties.	Prior to Council approval of the survey plan.
Split valuation		
5	Pay to Council the split valuation fee prescribed by the State Government. The current value of the fee is $40.00 (excluding GST) per allotment (2021/2022 financial year). The fee must be paid: • for each allotment contained on the survey plan, including balance lots, and • at the rate applicable at the time of payment.	Prior to Council approval of the survey plan.

Landscaping works		
6	Pay to Council a monetary contribution for street tree planting for four street trees. The contribution must be paid at the rate current at the time of payment under Council's Register of Fees. The current rate is $370 per tree (2021/2022 Financial Year).	Prior to Council approval of the survey plan.
7	Remove all weed species, as identified in Part B of Redlands Coast Biosecurity Plan 2018-2023.	Prior to Council approval of the survey plan.
8	Turf all areas of disturbance within the road verge with turf cut from a weed free source containing no viable weed seed.	Prior to Council approval of the survey plan.
Utility services		
9	Relocate any services (for example water, sewer, electricity, telecommunications and roofwater) that are not wholly located within the lots that are being serviced.	Prior to Council approval of the survey plan.
10	Pay the cost of any alterations to existing public utility mains, services or installations due to building and works in relation to the proposed development, or any works required by conditions of this approval. Any cost incurred by Council must be paid in accordance with the terms of any cost estimate provided to perform the works.	At the time the works occur, or prior to Council approval of the survey plan, whichever is the sooner.
11	Design and install underground electricity and telecommunication conduits to service proposed Lots 1 to 4 in accordance with the requirements of the relevant service providers and the City Plan Infrastructure Works Code and Infrastructure Works Policy. Provide Council with written confirmation from the service provider for the supply of electricity and telecommunication services. *Note: you need to engage the services of a telecommunications carrier to install and operate a telecommunications network. It is recommended you do this immediately after receiving this development approval to ensure a connection will be available to future residents. To find out if NBN is currently available for this development, visit the NBN website:* https://www2.nbnco.com.au/develop-or-plan-with-the-nbn/new-developments.html	Prior to Council approval of the survey plan.

Land dedication and design		
12	Grant easements for the following and submit the relevant easement documentation to Council for approval. Once approved by Council, register the easements on the property title. a) Easement in gross in favour of Redland City Council for stormwater drainage purposes along the entire southern boundary of Lot 4, with a minimum width of 2.25 metres, to service the upstream eastern property. b) Access purposes 1m wide to and around any sewer maintenance holes or structures in favour of Redland City Council and its agents.	As part of the request for assessment of the survey plan.
Access and roadworks		
13	Remove all redundant vehicle crossovers and reinstate kerb and channel, road pavement, service and footpaths as specified in accordance with the standards in the City Plan Transport, Servicing, Access and Parking Code and Policy.	Prior to Council approval of the survey plan.
Stormwater management		
14	Convey roof water and surface water to a lawful point of discharge being the kerb and channel in Haig Road in accordance with the City Plan Planning Scheme Policy 2 – Infrastructure Works.	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner. Ongoing condition.
15	Manage stormwater discharge from the site in accordance with the City Plan Planning Scheme Policy 2 – Infrastructure Works, so as to not cause an actionable nuisance to adjoining properties.	Once the works commence and prior to on maintenance or Council approval of the survey plan, whichever is the sooner. Ongoing condition.
Water and wastewater		
16	Connect all lots to the existing reticulated sewerage and reticulated water systems in accordance with the SEQ Water Supply and	Prior to Council approval of the survey plan.

Sewerage Design and Construction Code and the City Plan Planning Scheme Policy 2 – Infrastructure Works.	

Part B - recommended conditions for development permit for operational works

ASSESSMENT MANAGER CONDITIONS PART B – OPERATIONAL WORKS	TIMING
1. Comply with all conditions of this approval, at no cost to Council, at the timing periods specified in the right-hand column. Where the column indicates that the condition is an ongoing condition, that condition must be complied with for the life of the development.	
Approved plans and documents	
2. Undertake the development in accordance with the approved plans and documents referred to in Table 1, subject to the conditions of this approval and any notations by Council on the plans.	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner. Ongoing condition.

Plan/document title	Reference number	Prepared by	Plan/doc. date
Title Page and Drawing Index	B00444-CG001/A	Empower	17/11/21
Earthworks Management Notes	B00444-CE001/A	Empower	17/11/21
Earthworks Management Layout Plan	B00444-CE002/A	Empower	17/11/21
Earthworks Management Sections Amended in Red	B00444-CE003/A	Empower	17/11/21
Stormwater Drainage Layout Plan	B00444-CD001/A	Empower	17/11/21
Water reticulation Layout Notes and Details	B00444-CW001/A	Empower	17/11/21
Water reticulation Layout Amended in Red	B00444-CW002/A	Empower	17/11/21

Table 1: Approved plans and documents

Plan/document title	Reference number	Prepared by	Plan/doc. date
Erosion and Sediment Control General Notes	B00444-CV001/A	Empower	17/11/21
Erosion and Sediment Control Notes and Details	B00444-CV002/A	Empower	17/11/21
Erosion and Sediment Control Layout Plan	B00444-CV003/A	Empower	17/11/21

Table 2: Endorsed plans – not stamped

Pre-start meeting	
3. Submit to Council for approval revised engineering plans that incorporate the amendments identified on the approved plans.	Prior to requesting a pre-start or works commencing, whichever is the sooner.
4. Provide details to Council of the nominated Principal Contractor, including copies of the Principal Contractor's Workcover and public liability currency certificates. The public liability insurance policy must be a minimum of ten million dollars and must indemnify Redland City Council.	Prior to requesting a pre-start or works commencing, whichever is the sooner.
5. Lodge with Council the bonds listed in Table 3:	Prior to requesting a pre-start or works commencing, whichever is the sooner.

Bond item	Amount	Returned
Road cleaning bond	$2,000	When works accepted on maintenance by Council.
Road opening approval bond	$2,500	When works accepted on maintenance by Council.
TOTAL	**$2,500**	

Table 3: Bonds

6. Submit and have approved by Council a road opening approval for any works being undertaken within the road reserve. Provide the following to Council as part of the application: a) A completed application form and associated fee, at the rate applicable at the time of payment. The current rate for the 2021/2022 Financial Year is: • $2,951.00 – this incorporates a refundable bond of $2,500 and a non-refundable administration fee of $451.00 b) A copy of the contractor's Workcover insurance currency certificate. c) A copy of the contractor's Public Liability insurance currency certificate. The public liability insurance policy must be a minimum of ten million dollars and must indemnify Redland City Council. d) Submission of a Traffic Management Plan (TMP) and/or a Traffic Guidance Scheme (TGS) that is prepared and authorised by a person who holds a current Queensland Government Department of	Prior to requesting a pre-start or works commencing, whichever is the sooner.

	Transport and Main Roads (TMR) 'Open Level' Traffic Management Design Certification. Proposed haul routes for construction vehicles associated with the works must be included.	
General		
7.	Lodge a defects liability bond to the greater value of either: a) 10% of the contributed asset(s); or b) $2,500. The bond will be returned after formal acceptance by Council of the contributed asset(s) off maintenance and the transfer of the applicable works to Council.	Prior to contributed asset being accepted on maintenance by Council.
8.	Consult with Council and have approval in writing from Council for any amendments to the approved civil details. This approval is required prior to undertaking any works in relation to those amendments. Where amendments are made and approved by Council, provide as-constructed information for the amended works.	During construction phase prior to any amended works being undertaken.
9.	Undertake the development works so that there is no risk to public safety at any time on the site, adjacent public land, road reserve or private property. Should the site be unattended or abandoned, public safety must still be maintained.	During construction phase and prior to on maintenance or Council approval of the survey plan, whichever is the sooner.
10.	Notify Council within 24 hours and rectify, in consultation with Council, any damage to Council infrastructure as a result of construction activities.	As soon as practical following identification of the damage.
11.	Pay to Council any and all costs incurred by Council for any alterations to existing public utility mains, services or installations due to building and works in relation to the proposed development, or any works required by conditions of this approval.	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner.
12.	Provide written certification from a Registered Professional Engineer Queensland (RPEQ) certifying that all civil works have been completed in accordance with the approved drawings and specifications and to the applicable Australian Standards.	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner.
13.	Maintain all contributed assets for a minimum period of 12 months from the date the works are accepted on maintenance by Council. The	During on maintenance period.

	works will be accepted off maintenance only when the works have been suitably maintained to any manufacturer's specifications and Council standards and are deemed fit for purpose.	
Inspections		
14.	Arrange with Council for the following inspections to be carried out:	At the stages listed.

Inspection	Timing
Pre-start	Prior to any works commencing.
Erosion and sediment control	Immediately after installation of erosion and sediment control measures.
Stormwater bedding	After the stormwater pipelines are bedded and prior to backfilling.
On maintenance	On completion of all civil and landscaping works to be transferred into public ownership as required by this approval and its conditions and prior to the commencement of the 12 months maintenance period.
Compliance inspection	On completion of the development in accordance with the approval and its conditions.
Off maintenance	At the end of the minimum 12 months maintenance period.

Table 4: Inspections

For the pre-start, on maintenance/compliance and off maintenance inspections, at least **five business days** notice must be given to Council. For all other inspections, a minimum of **48 hours** notice must be given to Council.

The contributed assets must be accepted on maintenance and the development must pass a Compliance Inspection prior to plan sealing, unless Council agrees to apply an uncompleted works bond for the outstanding works in accordance with the City Plan Planning Scheme Policy 2 – Infrastructure Works.

Advice Note: The civil consulting engineer should inspect the works and satisfy themselves that the works are satisfactory prior to booking the respective inspections. In instances where Council's representative(s) fails an inspection, Council will charge a re-inspection fee prior to re-visiting the site. The cost of this re-inspection is identified in Council's Register of Fees and is reviewed each financial year.

Roadworks		
15.	Identify accurately the location of all services including water mains, sewerage, telecommunications and gas (where applicable) prior to undertaking any drilling or excavation works. *Note: Council's approval of the operational works does not grant indemnity to the contractor and/or the relevant electrical authority against damage caused to any other services. The responsibility for confirming the location of these other services remains with the contractor and/or the electrical authority. Indicative information is*	During construction phase and prior to any drilling or excavation works.

	available through the Queensland 'Dial Before You Dig' service on telephone 1100. For details on Council owned assets please call 07 3829 8999.	
Earthworks, erosion and sediment control		
16.	Confirm the location of trees on adjoining properties where located within 2m of retaining walls to be constructed, and protect trees on the adjoining properties' in accordance with Australian Standard AS4970-2009 – *Protection of Trees on Development Sites*.	Prior to works commencing and during construction phase.
17.	Design, implement and maintain measures and practices in accordance with Best Practice Erosion and Sediment Control published by the International Erosion Control Association Australasian Chapter 2008 (IECA) and that: a) Minimise erosion in all areas of the site, the access point(s) and external work areas. b) Maintain effective stabilisation of all disturbed surface areas related to the development. The method used must continue to achieve effective stabilisation in the medium to long-term.	Prior to works commencing and during construction phase until disturbed areas are stabilised.
18.	Provide a stabilised construction exit at each exit point for the site. Maintain this area so that no loose debris is deposited on to adjoining roadways. Remove any material brought onto the road as soon as possible.	During construction phase.
19.	Implement dust control measures at each phase of site development and operation in accordance with IECA Best Practice Erosion and Sediment Control.	During construction phase.
20.	Undertake all filling, including compaction of fill, in accordance with the Australian Standard for earthworks for commercial and residential developments (AS3798-2007).	During construction phase.
21.	Submit to Council test certificates for all filling greater than 400mm in depth, confirming that the necessary levels of compaction have been achieved, including a Level 1 inspection and testing report in accordance with the Australian Standard for earthworks for commercial and residential development (AS3798-2007).	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner.
22.	Provide certification from a Registered Professional Engineer Queensland (RPEQ) for the design and construction of any retaining structures in accordance with the Australian Standard for Earth-	Prior to on maintenance or Council approval of

	retaining structures (AS4678-2002), in particular the minimum 60 year design life requirements as per the Redland Planning Scheme.	the survey plan, whichever is the sooner.
23.	Connect all drainage pipes associated with a retaining wall to a lawful point of discharge in accordance with the Queensland Urban Drainage Manual (QUDM).	Prior to on maintenance or Council approval of the survey plan, whichever is the sooner.
24.	Dispose of waste (other than vegetation waste) existing on site and/or generated as a result of the works to an approved disposal facility via an approved waste receptacle and/or collection service. *Note: Council supports the opportunity to recycle as much waste as possible.*	During construction phase.
25.	Dispose of any vegetation approved for removal by the following methods: • milling; or • chipped and/or mulched; or • an approved waste disposal facility. No incineration on site is permitted.	During construction phase.
Electrical and street lighting works		
26.	Provide Council with a complete set of the approved and **signed for construction** electrical plans. The plans must be dated and approved for construction in the title block.	Prior to works commencing.
27.	Obtain approval from the recognised electrical authority for the electrical reticulation and street lighting design. Provide Council with proof of this approval. Where the electrical authority requires alteration to the design, submit to Council one (1) additional copy of the authority's approved electrical reticulation and street lighting design drawings, certified (original signature) by a Registered Professional (Electrical) Engineer Queensland.	Prior to works commencing.
28.	Use an under road bore method to install any conduits required beneath existing roadworks. Obtain agreement from Council's designated representative for the method of under road bore prior to undertaking the works.	During construction phase.
29.	Provide 1m minimum separation between street lighting poles and water mains and/or water service conduits and water meters.	During construction phase.

30.	Undertake adequate compaction of electrical reticulation trenches to prevent slumping of trenches during the maintenance period. Reinstate all turfing and/or landscaping disturbed as a result of the electrical works.	During construction phase.
Survey and as-constructed information		
31.	Survey and present all asset infrastructure in accordance with the City Plan Planning Scheme Policy 2 – Infrastructure Works. The horizontal datum for all work must be Redland City Council Coordinates (RCC) and the vertical datum must be Australian Height Datum (AHD). Supply a Permanent Survey Mark (PSM) Sketch with the Survey Plan for any new PSMs placed. Ensure the PSM Sketch includes: • the mark's AHD Reduced Level; • the datum origin mark number; and • the datum RL adopted. Comply with the requirements of the *Survey and Mapping Infrastructure Act 2003*. *Note: Upon request, the following information can be supplied by Council to assist survey and engineering consultants to meet the survey conditions of the development approval:* *a) A map detailing coordinated and/or levelled PSMs adjacent to the site.* *b) A listing of Council (RCC) coordinates for some adjacent coordinated PSMs.* *c) An extract from Department of Natural Resources and Mines SCDM database for each PSM.* *d) Permanent Survey Mark sketch plan copies.* *This information can be supplied without charge once Council received a signed declaration from the consultant agreeing to Council's terms and conditions in relation to the use of the supplied information.* *Where specific areas within a lot are being set aside for a special purpose, such as building sites or environmental areas, these areas should be defined by covenants. Covenants are registered against the title as per Division 4A of the* Land Title Act 1994.	Prior to Council approval of the survey plan.

32.	Submit as constructed drawings and documentation for all works prepared in accordance with the City Plan Planning Scheme Policy 2 – Infrastructure Works. Include surveyed as constructed data showing works completed (digital and hard copies) and amended design plan data showing construction deviation from design plans (digital and hard copies). Ensure the digital data and the design data is endorsed by a RPEQ and a registered surveyor using the certification clauses contained in City Plan Planning Scheme Policy 2 – Infrastructure Works.	As soon as all works are completed and prior to the request for on maintenance or Council approval of the survey plan, whichever is the sooner.

ADDITIONAL APPROVALS

The following further **development permits** are necessary to allow the development to be carried out.

- Building works – demolition:
  - Provide evidence to Council that a demolition permit has been issued for structures that are required to be removed and/or demolished from the site in association with this development.

Further approvals, other than a development permit, are also required for your development. This includes, but is not limited to, the following:

- Capping of sewer – for demolition of existing buildings on site.
- Road opening permit – for any works proposed within an existing road reserve

ASSESSMENT MANAGER ADVICE

- **Infrastructure charges**
  Infrastructure charges apply to the development in accordance with the Adopted Infrastructure Charges Resolution (No. 2.3) 2016 levied by way of an Infrastructure Charges Notice. The infrastructure charges are contained in the attached Redland City Council Infrastructure Charges Notice.

- **Plan sealing information**
  To expedite the processing of survey plans, a survey plan checklist is available on Council's website at:
  https://www.redland.qld.gov.au/info/20016/planning_and_development/348/forms_for_planning_and_development
  You should complete this checklist and submit it to Council with your survey plan(s). Please be aware that Council may choose not to process the lodgement of a subdivision plan where outstanding rates and/or charges are applicable to the relevant property.

- **Live connections**
  Redland City Council is responsible for all live water and wastewater connections. Contact **must** be made with Council to arrange live works associated with the development.

  Further information can be obtained from Council on 07 3829 8999.

- **Services installation**
  It is recommended that where the installation of services and infrastructure will impact on the location of existing vegetation identified for retention, an experienced and qualified arborist that is a member of the Australian Arborist Association or equivalent association, be commissioned to provide impact reports and on site supervision for these works.

- **Hours of construction**
  Please be aware that you are required to comply with the *Environmental Protection Act* in regards to noise standards and hours of construction.

- **Workplace health and safety**
  Please be aware that you are required to comply with the *Work Health and Safety Act 2011* in regards to all works associated with this development approval.

- **Coastal processes and sea level rise**
  Please be aware that development approvals issued by Redland City Council are based upon current lawful planning provisions which do not necessarily respond immediately to new and developing information on coastal processes and sea level rise. Independent advice about this issue should be sought.

- **Maintenance bond**
  Security Bonds may be required in accordance with the City Plan Planning Scheme Policy 2 - Infrastructure Works. Bond amounts are determined by officers and are paid prior to the development works being accepted On Maintenance.

- **Fauna protection**
  It is recommended an accurate inspection of all potential wildlife habitats be undertaken prior to removal of any vegetation on site. Wildlife habitat includes trees (canopies and lower trunk) whether living or dead, other living vegetation, piles of discarded vegetation, boulders, disturbed ground surfaces, etc. It is recommended that you seek advice from the Queensland Parks and Wildlife Service if evidence of wildlife is found.

- **Survey and as-constructed information**
  Redland City Council will be transitioning to ADAC XML submissions for all asset infrastructure. While current Redland Planning Scheme Policies do not mandate its use, RCC encourages the utilisation of this methodology for submissions.

- **Fire ants**
  Areas within Redland City have been identified as having an infestation of the Red Imported Fire Ant (RIFA). Biosecurity Queensland should be notified on 13 25 23 of proposed development(s) occurring in the Fire Ant Restricted Area before earthworks commence. It should be noted that works involving movements of soil associated with earthworks may be subject to movement controls and failure to obtain necessary approvals from Biosecurity Queensland is an offence. It is a legal obligation to report any sighting or suspicion of fire ants within 24 hours to Biosecurity Queensland on 13 25 23. The Fire Ant Restricted Area as well as general information can be viewed on the Department of Agriculture and Fisheries (DAF) website www.daf.qld.gov.au/fireants

- **Cultural heritage**
  The *Aboriginal Cultural Heritage Act 2003* requires anyone who carries out a land use activity to exercise a duty of care. Further information on cultural heritage duty of care is available on the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) website:

  https://www.qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-duty-of-care

  https://www.dsdsatsip.qld.gov.au/our-work/aboriginal-torres-strait-islander-partnerships/culture/aboriginal-torres-strait-islander-cultural-heritage

  The DSDSATSIP has established a register and database of recorded cultural heritage matters, which is also available on the Department's website:

  https://culturalheritage.datsip.qld.gov.au/achris/public/home

  Quandamooka Yoolooburrabee Aboriginal Corporation (QYAC) is the registered cultural heritage body in the Redland City local government area. It is recommended you consult with QYAC in relation to aboriginal and cultural heritage matters prior to the commencement of works on site. QYAC can be contacted on 07 3415 2816 or admin@QYAC.net.au

  If activities have not followed the duty of care and cause harm to Aboriginal cultural heritage, significant fines and penalties apply and works may be subject to a stop work order. If duty of care has been followed, and should any aboriginal, archaeological or historic sites, items or places be identified, located or exposed during construction or operation of the development, the *Aboriginal and Cultural Heritage Act 2003* requires all activities to cease. Please contact DSDSATSIP for further information.

- **Environment *Protection and Biodiversity Conservation Act***
  Under the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act* (the EPBC Act), a person must not take an action that is likely to have a significant impact on a matter of national environmental significance without Commonwealth approval. Please be aware that the listing of the Koala as **vulnerable** under this Act may affect your proposal. Penalties for taking such an action without approval are significant. If you think your proposal may have a significant impact on a matter of national environmental significance, or if you are unsure, please contact Environment Australia on 1800 803 772. Further information is available from Environment Australia's website at www.ea.gov.au/epbc

Please note that Commonwealth approval under the EPBC Act is independent of, and will not affect, your application to Council.
• ***Environmental Protection Act*** Please be aware this approval does not remove obligations to comply with any of the requirements of the *Environmental Protection Act 1994*, including complying with the General Environmental Duty, section 440ZG and the Duty to Notify.

STATEMENT OF REASONS

Assessment Benchmarks:	The proposed development was assessed against the following assessment benchmarks:
	• City Plan Version 5:
	  ○ Reconfiguring a lot code
	  ○ Low medium density residential zone code
	  ○ Healthy waters code
	  ○ Infrastructure works code
	  ○ Landscape code
	  ○ Transport, servicing, access and parking code
	• State Planning Policy 2017, Part E
	• South East Queensland Regional Plan 2017
	• *Planning Regulation 2017*, Schedule 11
	• Local Government Infrastructure Plan.

Matters prescribed by Regulation	Council had regard to the following matters in the assessment of the application: • Common material • Submissions accepted by the assessment manager.

The key issues identified in the assessment were:

- Lot size and density
- Servicing
- Earthworks

The application complies or can be made to comply with the assessment benchmarks.

Issue	Assessment outcome
Lot size and density	The lots are considered to be consistent with the density and character of the surrounding area within the established neighbourhood, and are an appropriate size and density to accommodate low density residential development anticipated in the low density residential zone.
Servicing	The proposed lots can be connected to infrastructure for sewer, water supply, stormwater, telecommunications and electricity, and an upstream property connection has been provided to enable orderly development should it occur on adjoining lots.
Earthworks	The proposed earthworks will result in retaining walls which have a height and orientation which is not considered to impact on the visual amenity of adjoining properties.