

COUNCIL ASSESSMENT PANEL MEETING

14 April 2021

AGENDA – 8.4

Applicant: Kermel Pty Ltd	Landowner: Kermel Pty Ltd
Agent: Greg Burgess - Access SDM	Originating Officer: Ashleigh Gade
Development Application:	20/1058/473 (20/C047/473)
Application Description: Community title division (1 into 11), removal of 1 regulated tree (<i>Corymbia citriodora</i> – Lemon-scented gum) & 2 significant trees (<i>Corymbia citriodora</i> – Lemon-scented gum & <i>Eucalyptus globulus</i> – Tasmanian blue gum) & construction of internal roadway	
Subject Land: Lot Lot:45 Sec: P5126 DP:125856 CT:6249/801 (formerly Lot:54 Sec: P5126 FP:155869 CT:5491/250)	General Location: 29 Kumnick Street, Lobethal SA 5241 Attachment – Locality Plan
Development Plan Consolidated: 8 August 2019. Map AdHi/12	Zone/Policy Area: Township Zone - Township (Lobethal) Policy Area
Form of Development: Merit	Site Area: 1.066 hectares
Public Notice Category: Category 1 Merit -	Representations Received: N/A Representations to be Heard: N/A

1. EXECUTIVE SUMMARY

The purpose of this application is to create eleven (11) community titled allotments. The proposal includes the removal of one (1) regulated tree (*Corymbia citriodora* – Lemon-scented gum) and two (2) significant trees (*Corymbia citriodora* – Lemon-scented gum & *Eucalyptus globulus* – Tasmanian blue gum), as well as the construction of an internal driveway with Country Fire Service (CFS) and waste truck turnaround and a common utilities area. The proposed allotments are between 800m² and 873m² in size.

The subject land is located within the Township Zone and Township (Lobethal) Policy Area. The proposal is a merit form of development as the allotments meet the criteria contained within Table AdHi/5 and are not less than 500m² in area. The proposal is a Category 1 form of development pursuant to Schedule 9 Part 1 (5) and did not require public notification.

As per the CAP delegations, the CAP is the relevant authority for land divisions which seek the creation of ten (10) or more additional allotments.

In consideration of all the information presented, and following an assessment against the relevant zone and Council Wide provisions within the Development Plan, staff are recommending that the proposal be **GRANTED** Development Plan Consent and Land Division Consent, subject to conditions.

2. DESCRIPTION OF THE PROPOSAL

The proposal is for the creation of 11 community title allotments and construction of associated internal driveway. It also involves the removal of three controlled trees, one regulated tree

(*Corymbia citriodora* – Lemon-scented gum) and two significant trees (*Corymbia citriodora* – Lemon-scented gum & *Eucalyptus globulus* – Tasmanian blue gum).

The existing buildings on the subject site will also be required to be removed prior to Section 138 Clearance (refer Council Land Division Requirement 5). It is noted that this does not form part of the description of development and will not require an associated approval, as under the *Planning, Development and Infrastructure Act 2016*, demolition does not require an application.

The proposal will create allotments between 800m² and 873m² in area, all of which will gain access via the internal driveway.

Existing Allotment

Allotment	Area (ha)	Currently containing
45	1.066 ha	1 Regulated (<i>Corymbia citriodora</i> – Lemon-scented gum) and 2 Significant Trees (<i>Corymbia citriodora</i> – Lemon-scented gum & <i>Eucalyptus globulus</i> – Tasmanian blue gum). Various Outbuildings.

Proposed Allotments

Allotment	Area (m ²)	Containing
46	801m ²	Vacant Land
47	801m ²	Vacant Land
48	800m ²	Vacant Land
49	800m ²	Vacant Land
50	873m ²	Vacant Land
51	873m ²	Vacant Land
52	800m ²	Vacant Land
53	800m ²	Vacant Land
54	800m ²	Vacant Land
55	800m ²	Vacant Land
56	831m ²	Vacant Land

The plan of division includes:

- An aerial image of the subject land, overlayed with the proposed boundaries, existing trees including those to be retained and those to be removed, land contours, letterbox and services area, and easements.

The proposed plans are included as ***Attachment – Proposal Plans*** with other information included as ***Attachment – Application Information*** and ***Attachment – Applicant’s Professional Reports***.

3. BACKGROUND AND HISTORY

APPROVAL DATE	APPLICATION NUMBER	DESCRIPTION OF PROPOSAL
5 November 2020	20/D036/473 20/831/473	Land Division (2 into 3)

It is noted that application 20/831/473 for land division (2 into 3) separated the subject land from the existing dwelling at 14 Frick Street. The approval of 20/831/473 also realigned the boundary between 31 Kumnick Street and the subject land, rectifying previous boundary inconsistencies and providing an area for common services such as meters and letterboxes adjacent the entrance to the subject land. The plan for this division was deposited on 21 January 2021.

During the course of assessment, the retention of the significant tree between proposed allotments 50 and 51 was revised. The originally submitted plan of division sought to retain this tree with associated building envelopes on allotments 50 and 51 outside of the Tree Protection Zone (TPZ). Considering the historic branch failure, as noted in the applicant's arborist report, and the size limitations of the building envelopes, it was recommended by staff that the applicant further review either the allotment configuration or the retention of the significant tree. As a result of this, the application now includes the removal of this tree.

The subject land has historically been part of the residential allotment known as 14 Frick Street and since the construction of that dwelling has predominantly been utilised for residential purposes. There has been intermittent grazing of animals across the site, mostly for the purpose of grass management. The land is otherwise undeveloped and not actively utilised for any other purpose.

4. REFERRAL RESPONSES

- **SA WATER**
SA Water have recommended a group of standard conditions (refer SPC Land Division Requirement 1).
- **AHC ENGINEERING DEPARTMENT**
Council's Engineering Department are supportive of the proposal subject to detailed design documentation for access and stormwater management being provided as a condition of this consent (refer Council Land Division Requirements 1 through 4).

In addition, informal advice was sought from the CFS regarding access and manoeuvring in the internal driveway. The access as shown on the amended plan has been accepted by the CFS, provided that the common driveway maintains a vertical clearance height of 4 metres at all times along all parts of the driveway. It is noted that they are satisfied that the turning bay provided allows for appropriate manoeuvring of firefighting vehicles.

The CFS further advised that a fire plug or hydrant should be installed along the common driveway given the length of the driveway and the distance to the next fire plug on Kumnick Street. The ideal position for the fire plug or hydrant will be close to the turning area.

The advice received from the CFS is reflected in the conditions of consent (refer Planning Condition 3 and Council Land Division Requirement 5).

The above responses are included as ***Attachment – Referral Responses***.

5. CONSULTATION

The application was categorised as a Category 1 form of development not requiring formal public notification.

6. PLANNING & TECHNICAL CONSIDERATIONS

This application has been evaluated in accordance with the following matters:

i. The Site's Physical Characteristics

The subject land is 1.066 hectares in area and has an elongated battle-axe shape, with a 'handle' of approximately 43 metres long and 7 metres wide. The land currently contains a number of old outbuildings, some of which are in disrepair and most of which have long been disused. The outbuildings have historically been used for domestic storage and the storage of farming implements. The land also contains a number of trees including three regulated and/or significant trees, with a further four regulated and/or significant trees in close proximity on adjoining land.

The topography of the land is slightly undulating, though it is noted that the overall slope of the site is relatively gentle. The highest point on the land is to the north-west and it thereafter falls away to the south and east. The land further south and closer to Kumnick Street rises towards the street frontage in a south-easterly direction.

ii. The Surrounding Area

The surrounding area is predominantly residential in nature with allotments of varying sizes, ranging from approximately 600m² to over 1 hectare in area along Frick, Kumnick and Kleinschmidt Streets. Allotments fronting Kumnick Street in particular typically contain single storey detached dwellings directly fronting the street, with allotments sized typically between 800m² and 900m².

There are a small number of battle-axe style allotments in the locality, including the land immediately west of the subject site, at 27 Kumnick Street. The immediate surrounds do not include any community title development, however there are examples of community title divisions along Mount Torrens Road to the north and north-east of the immediate locality.

The subject land is located to the north of the Lobethal Abattoir Policy Area. The driveway handle is the nearest point of the allotment to the Policy Area, at a distance of approximately 170 metres.

iii. Development Plan Policy considerations

a) *Policy Area/Zone Provisions*

The subject land lies within the Township Zone and the Township (Lobethal) Policy Area and these provisions seek:

Policy Area

- *Development for generally low density residential use.*
- *Development that accommodates residential uses and service facilities to serve the needs of the community.*
- *Development that contributes to the desired character of the Policy Area.*

The following are considered to be the relevant Policy Area provisions:

Objectives: 1, 2 and 3

PDC: 1

Objectives 1 and 3 seek that development predominantly be for the purposes of accommodating residential land uses, and continuing a low density residential form. Objective 2 and PDC 1 seek that development contribute to the desired character for the Policy Area.

The following is considered to be relevant to the proposal from the Desired Character Statement:

Residential development will generally be at a low density on large allotments. Medium density residential development will be compatible in scale and design with surrounding development, and located on smaller allotments in areas that are not visible from Main Street, Lobethal Road, Woodside Road, Mount Torrens Road or Kenton Valley Road.

The outer northern residential area (Frick, Kumnick, and Kleinschmidt Streets and a portion of Ridge and Mount Torrens Roads) will comprise dwellings on large allotments constructed of brick with tiled roofs. Set-backs will vary, depending on the size of the allotment, and allow for the establishment of substantial landscaped gardens. Front fencing will either be absent or post and wire which will contribute to the openness of the area. The areas to the west of the central portion of Ridge Road, and along Kumnick and Frick Streets, form an interface with the Lobethal Abattoir Policy Area which will be developed for low intensity activities such as low density residential development rather than for commercial or community activities likely to be adversely affected by the impacts of the abattoir, the heavy vehicles that service it or the traffic of employees.

The proposed development facilitates allotments for future low-density residential development that is comparative in scale to that of the existing allotments in the locality. The allotment sizes proposed allow for future residential development that accommodates dwellings on large allotments, with setbacks in keeping with surrounding development and which can accommodate the establishment of landscaped gardens.

The existing allotment shape and the access driveway provides an additional buffer between the proposal and the interface with the Lobethal Abattoir, which is separated from the subject site by Kumnick Street and the existing allotments to the south of Kumnick Street.

Zone

- *A zone primarily accommodating residential development and local ancillary services to serve the needs of the community.*
- *Development that contributes to the desired character of the Zone.*

The following are considered to be the relevant Zone provisions:

Objectives: 1 and 5

PDCs: 1, 3, 5, 6, 8, 9 and 13

Accordance with Zone

The Township Zone envisages development which is primarily residential in nature or which will retain or provide land for residential purposes. The existing allotment is vacant but has the potential to be developed for low density residential purposes. Notwithstanding this, the subject land is surrounded by residential allotments with site areas most commonly between 600m² and 900m² providing an opportunity for low-density residential development.

The proposal would create ten (11) residential allotments between 800m² and 873m² which is consistent with allotments fronting Kumnick Street and typically larger allotments than allotments existing along Frick Street. The development of the site for low-density residential purposes is consistent with Objectives 1 and 5, and PDCs 1 and 3. Though not considered to constitute medium density development, it is considered the proposal achieves the intent of PDC 9 in that it proposes residential allotments on a site not visible from main thoroughfares, with connection to mains sewer and that are compatible and consistent both with the desired character for the Policy Area and with existing adjacent development. The existing SA Water sewer easement is to be retained, satisfying PDC 13.

The proposed allotments will exceed the 500m² minimum allotment size envisaged for group dwellings connected to mains sewer as per PDC 8. As the existing frontage to Kumnick Street is 8.42 metres in width, the proposal does not meet the 12 metres minimum frontage sought by PDC 8 however, access is considered satisfactory and is discussed further in the report below. The resulting allotments will have the capacity to accommodate future detached dwellings that can comply with the quantitative parameters of PDC 5 and will maintain the existing scale of dwellings in the locality in accordance with PDC 6.

b) Council Wide provisions

The following are considered to be the relevant Council Wide provisions:

Hazards

Objectives: 1, 2 and 5

PDCs: 1, 13 and 14

The subject land is located within an area identified as having a Medium Bushfire Risk pursuant to AdHi (BPA)/6. The subject land is sited within the township of Lobethal, and will be connected to an SA Water main for water and sewer. The development avoids being sited in an area susceptible to high bushfire risk in accordance with

Objectives 1 and 2 and PDC 1. The subject land is not within or adjacent to a highly vegetated area which would unreasonably increase bushfire risk and the proposal therefore meets PDC 13.

The proposed internal driveway is to be an all-weather, paved surface with a maximum width of 6 metres and a minimum width of 3 metres. To the front of proposed allotments 53 and 54 the proposal incorporates a turning area suitable for large vehicles. The CFS were contacted for informal comment during the assessment of the proposal and have advised that they have no objection to the proposal. The internal driveway is appropriate for access and manoeuvring of firefighting vehicles subject to the maintenance of a minimum 4 metres vertical clearance along the driveway and the installation of a fire plug or hydrant in proximity to the turning area (refer Recommended Land Condition 5) . The proposal is therefore considered to be consistent with Objective 5 and PDC 14.

Interface Between Land Uses

Objective: 1

PDC: 2

Kumnick Street runs parallel to the Lobethal Abattoir which has an access point from the termination of adjacent Frick Street, and which continues on south from its intersection with Kumnick Street south-east of the development site. The subject land is separated from the abattoir land by Kumnick Street itself and by the allotments to the south of Kumnick Street of which many are used for residential purposes.

The land directly south of the subject site, across Kumnick Street, is a builder's yard. This land is visually separated from Kumnick Street and surrounding residential land uses by mature vegetation and Colorbond-style fencing and is not immediately apparent from the road. Notwithstanding this, the area predominantly residential in nature and the subject land is considered appropriate for residential development. The proposed allotments will not directly front this interface due to the configuration of the existing allotment and the length of the access 'handle'. The proposal is therefore considered to be consistent with Objective 1 and PDC 2.

Land Division

Objectives: 1, 2, 3 and 4

PDCs: 1, 2, 5, 7 and 11

The allotments are able to be connected to SA Water mains sewer and water, the street stormwater network and are able to gain appropriate access via the proposed internal driveway from Kumnick Street, all in accordance with Objective 1 and PDC 1. As sought in Objective 2 and PDCs 2 and 7 the proposal will create allotments suitable for residential use, which is the predominant land use within the locality.

The applicant has provided an arborist report which indicates that the majority of trees on the subject land itself are believed to have been planted on the site, rather than being a stand of in-tact native trees. Most of the vegetation on the subject land is native to eastern or western Australia and is not naturally-occurring within the Adelaide Hills. The regulated (*Corymbia citriodora* – Lemon-scented gum) and significant (*Corymbia*

citriodora – Lemon-scented gum & *Eucalyptus globulus* – Tasmanian blue gum) trees to be removed are not endemic to the region and are believed to have been planted by previous owners. It is therefore considered that the proposal does not conflict with PDC 5. Further assessment of the proposed tree removal is contained later in the report.

Due to the configuration of the subject land, the resulting allotments will not face Kumnick Street. They will instead face the abutting internal driveway, still providing a consistent presentation within the context of the subject land. Existing development will largely obscure views to the bulk of the proposed development and therefore it is considered unlikely that it will overshadow or dominate the existing built form. The slope of the land is gentle which will reduce the need for excessive earthworks or retaining on the resulting allotments. It is considered the proposal therefore appropriately addresses PDC 11.

Orderly and Sustainable Development

Objectives: 1, 3, 4 and 13

PDCs: 1, 7 and 9

The proposed land division is considered to constitute orderly and sustainable development. It proposes residential allotments within defined township boundaries and within a predominantly residential locality. It is not considered at risk of prejudicing existing authorised land uses nor the achievement of relevant development policies within the Zone.

Regulated Trees

Objective: 1 & 2

PDC: 1 & 2

The subject land contains one regulated tree and there are a further three regulated trees in proximity to the subject site on adjacent land. In the arborist report provided by the applicant, the regulated tree on the subject land is identified as Tree 24. It is a *Corymbia citrodora* or Lemon-Scented Gum with a circumference of 2.15 metres, measured 1 metre above natural ground level.

It In consideration of Objective 2(a) it is considered that while the tree does provide a minor contribution to the visual amenity of the locality, it is not particularly visible beyond the subject land, perhaps only excluding immediately adjacent private land. Due to its average height in comparison to surrounding vegetation, the tree is largely screened from view from surrounding streets including Kumnick Street. Therefore, the tree is considered to provide a level of visual amenity but not that it provides significant visual amenity.

As per the arborist report provided, the tree is not indigenous to the local area. The tree is indigenous to Eastern Australia, meaning it was likely planted by previous owners of the land. The tree is also not considered to be rare or endangered and the arborist report considers the tree very common throughout South Australia. The removal of this tree is therefore not considered to be in conflict with Objectives 2(b) and 2(c).

There were no native fauna observed in the tree at the time of inspection by the applicant's arboricultural consultant. Furthermore, the report provided stated that no habitats were identified within the tree. It is therefore considered the proposed removal does not offend Objective 2(d).

The arborist report provided considers that the tree demonstrates major structural defects and that any action taken to resolve the structural defects would undermine the structural soundness of the tree into the future. The anticipated life expectancy, as per the report, is unknown given that the major leaders remain attached. It is noted that at worst the tree could have a very short life expectancy, all dependent on potential leader failure. It is therefore not considered the tree is diseased nor that there is overwhelming evidence that life expectancy is short, though the caution in the report is noted in consideration of PDC 2(a).

In consideration of PDC 2(b) the arborist report considers that the major structural defect identified within the tree has the potential to pose material risk to safety especially during particularly windy conditions. The failure of branches in storm conditions could potentially pose risk to public or private safety in accordance with PDC 2(b), given the likelihood of branch failure.

The arborist report also considers that the Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) for the tree would be severely impacted by the proposed internal driveway. Considering the existing risk of branch failure and uncertainty over the life expectancy of the tree, the reasonable development of access to the site would likely exacerbate existing health concerns. It is suggested in the arborist report that retention of the tree would restrict the reasonable development of the site based on these factors. It is therefore considered that the proposal to remove the tree is consistent with the considerations of PDC 2(d).

The removal of a regulated tree prompts the replacement planting of two (2) trees or payment into the Urban Tree Fund. Due to the limited reasonable space for replacements trees to thrive on the subject land, particularly when considering potential removal by future owners of the resulting allotments, the applicant has elected to pay into the Urban Tree Fund. The payment into the Fund will be required prior to Development Approval being issued (refer Recommended Development Plan Consent Condition 4).

Residential Development

Objective: 1

PDC: 1, 2 and 3

The proposed allotments provide adequate space for the construction of dwellings that maximise solar orientation, can provide adequate private open space and achieve safe and convenient access. The allotment sizes are consistent with those within the locality but provide adequate diversity to the immediate area, where there are already a range of allotment sizes. Furthermore, it is considered the development is appropriate and proportionate to the existing capacity of roads, utilities and nearby facilities. The proposal is therefore considered to appropriately address Objective 1 and PDCs 1, 2 and 3.

Significant Trees

Objective: 1 & 2

PDC: 1, 2, 3, 4 & 5

The subject land contains two significant trees and there is one further significant tree in proximity to the subject site on adjacent land. In the arborist report provided by the applicant, the significant trees are identified as Tree 14 and Tree 15. The trees are *Corymbia citrodora* or Lemon-Scented Gum and *Eucalyptus globulus* or Tasmanian Blue Gum respectively, with trunk circumferences of 3.3 metres and 3.87 metres measured at 1 metre above natural ground level.

The arborist report provided identifies Tree 14 as making a minor contribution to the character and amenity of the locality. It is considered that the tree, given its height and location, does contribute to the pleasant amenity of the area. Only the top of the tree is visible beyond the subject land but is readily visible from the surrounding streets. There is some impact to the amenity value of the tree's trunk due to a section of wire wrapped around the trunk, which had impacted on natural trunk growth. The tree does demonstrate a certain degree of visual merit consistent with PDC 1(a), however is not considered to be a notable visual element in the local landscape as per PDC 1(f).

The tree is not indigenous to the local area. It is indigenous to Eastern Australia. The arborist report suggests that it would have been planted on the site, likely by previous owners, meaning it does not form part of a remnant area of native vegetation. Notwithstanding that it is not indigenous to the area, trees of this species are common throughout South Australia and it is not considered to be rare or endangered. It is considered the proposed removal of the tree is consistent with the intent of PDC 1(b) and 1(d).

It is not considered that the tree provides important habitat for native fauna and as per the arborist report provided, there was no indication of native fauna in the tree at the time of inspection. Considering that the tree does not form part of remnant native vegetation and is not indigenous to the locality, it is not considered the tree is integral to the maintenance of biodiversity in the area. The proposal to remove the tree is therefore considered consistent with PDC 1(c) and 1(e).

In consideration of PDC 3(a) the arborist report notes that the tree shows no sign of disease. It is also not currently within proximity to any existing dwelling. The tree does have a demonstrated history of branch failure and is likely to have them into the future, as per the arboricultural review. Though this poses no immediate risk in the current site context, given the setback to site boundaries, this is a potential future risk should the land be divided for residential purposes.

The tree does not currently threaten damage to a substantial building or structure of value, as per PDC 3(b).

There have not yet been any remedial efforts undertaken on the tree and the arborist report notes the tree has historically had little to no maintenance. Notwithstanding this the arborist report notes that remedial measures such as branch pruning would be required regularly on the tree into the future, but that such measures would provide

only short-term solutions. It is therefore considered that the proposal to remove the tree demonstrates reasonable difficulty in achieving reasonable remedial measures in accordance with PDC 3(c).

It is noted that on original receipt of the application, the applicant intended to retain the subject tree and protect the Tree Protection Zone (TPZ) through the use of building envelopes. After consideration of the proposal, Council Staff requested reconsideration of this proposal given the limitations on reasonable building area. Following further advice from their arboricultural consultant, the applicant revised the application to include the removal of the tree. As demonstrated within the arborist report, the likelihood of survival of the tree even utilising defined building envelopes is considered limited. The report suggests that any intrusion from development could exacerbate stress to the tree, causing further branch failure and a decline in health within 5 to 10 years. It is therefore considered that reasonable development of the allotment would be prevented by the retention of the tree and that these considerations satisfy the purpose of PDC 3(d).

The arborist report considers Tree 15 as a tree of a large size which makes a minor contribution to the character and amenity of the locality. Given its size and visibility within the locality it is considered the tree contributes to amenity within its surrounds. The top portion of the tree is visible from all surrounding streets, though its trunk and lower branches are not visible beyond the subject land. The tree does demonstrate a level of visual amenity consistent with PDC 1(a), however is not considered to be a notable visual element in the local landscape as per PDC 1(f).

The tree is indigenous to South Eastern Australia and not to the local area. The arborist report suggests that it would have been planted on the site, likely by previous owners, meaning it does not form part of a remnant area of native vegetation. Notwithstanding that it is not indigenous to the area, trees of this species are common throughout South Australia and it is not considered to be rare or endangered. The proposed removal of the tree is therefore considered consistent with the intent of PDC 1(b) and 1(d).

At the time of inspection by the applicant's arboricultural consultant there were no native fauna identified in the tree. The tree is not considered to provide an important habitat. Considering that the tree does not form part of remnant native vegetation and is not indigenous to the locality, it is not considered the tree is integral to the maintenance of biodiversity in the area. The proposal to remove the tree is therefore considered consistent with PDC 1(c) and 1(e).

The arborist report identifies a major problem with borer activity within the tree. The structural integrity of the tree is considered to be weakened by the borer activity. Furthermore, the report notes that this is not uncommon with the species given that it is indigenous to an area of significantly higher rainfall than South Australia and within the Adelaide Hills the species typically has a shortened lifespan. The report estimates that the tree will die within 5 years. The health of the tree is also considered a safety risk due to its weakened structure. It is therefore considered the proposed removal of the tree satisfies PDC 3(a).

The tree does not currently threaten damage to a substantial building or structure of value, as per PDC 3(b).

In consideration of PDC 3(c) the arborist report suggests that reasonable treatments or remediation methods would ultimately be ineffective. It is anticipated that removal of all borer activity would leave the tree unbalanced, either causing its death or causing potentially dangerous epicormic shoots to develop. It is considered this appropriately demonstrates the inability for the tree to be saved through remedial work.

As previously discussed, the retention of trees on site with the use of building envelopes to accommodate Tree Protection Zones (TPZs) was considered. In this instance, the subject tree is not considered safe or appropriate to retain on the site. Given that remedial measures are likely to be ineffective and that the tree is already considered to pose a material safety risk, it is not considered that pursuant to PDC 3(d) there are any appropriate development design considerations that would justify retention.

The removal of a significant tree prompts the replacement planting of three (3) trees per significant tree removed, in this case six (6) trees, or payment into the Urban Tree Fund. Due to the limited reasonable space for replacements trees to thrive on the subject land, particularly when considering potential removal by future owners of the resulting allotments, the applicant has elected to pay into the Urban Tree Fund. The payment into the Fund will be required prior to Development Approval being issued (refer Recommended Development Plan Consent Condition 4).

Transportation and Access

Objective: 2

PDCs: 33

All allotments will be accessed via the proposed internal driveway which will be the sole point of access to and from Kumnick Street. The internal driveway provides a manoeuvring area for large vehicles and can accommodate a firefighting vehicle and a refuse collection vehicle. The CFS have reviewed the proposal and have no objections, subject to previously noted conditions. East Waste have also reviewed the proposal and the applicant has provided a signed contract demonstrating their capacity to enter and collect from the driveway.

The driveway has the capacity for two-way vehicle movement in certain parts but narrows to single vehicle movement in four areas, designed as such to protect vegetation along the side boundary including the TPZs of trees on neighbouring allotments. The proposal is considered to appropriately address PDC 33 and is in accordance with Objective 2.

Other Matters

As previously above, East Waste have reviewed the proposal and confirmed that their trucks can access each allotment via the internal driveway. This will avoid the need for rubbish bins to be placed on Kumnick Street where the verge cannot handle the additional bins resulting from the number of proposed allotments. An agreement to

this effect between East Waste and the applicant has been signed and is provided as part of the assessment documentation.

7. SUMMARY & CONCLUSION

The proposal is for a community title land division comprising ten (11) residential allotments between 800m² and 873m² in site area, the removal of one (1) regulated tree (*Corymbia citriodora* – Lemon-scented gum) & 2 significant trees (*Corymbia citriodora* – Lemon-scented gum & *Eucalyptus globulus* – Tasmanian blue, and the construction of an associated internal driveway. The land is within the Township Zone and the proposal is a Merit form of development, as it meets the requirements for land divisions within the Procedural Matters section of the Township Zone.

The proposal is consistent with the residential character of the locality and is an envisaged form of development within the Township Zone. It is considered that the resulting development will be largely unobtrusive as viewed from Kumnick Street, given that the eventual built form will be obscured by existing dwellings. The size of the proposed allotments are considered to be appropriate for a low-density residential neighbourhood, as sought within the Township (Lobethal) Policy Area.

The resulting allotments will all have access to mains sewer and water. Each allotment can be reached by emergency services such as CFS firefighting vehicles and will be serviced by East Waste for rubbish collection. The loss of three regulated and significant trees to facilitate the development is unfortunate but considered reasonable given the relative health of the subject trees and that most trees on the subject site are not endemic to the region and were likely planted by previous owners.

The proposal is sufficiently consistent with the relevant provisions of the Development Plan, and it is considered the proposal is not seriously at variance with the Development Plan. In the view of staff, the proposal has sufficient merit to warrant consent. Staff therefore recommend that Development Plan Consent be **GRANTED**, subject to conditions.

8. RECOMMENDATION

That the Council Assessment Panel considers that the proposal is not seriously at variance with the relevant provisions of the Adelaide Hills Council Development Plan, and GRANTS Development Plan Consent and Land Division Consent to Development Application 20/1058/473 (20/C047/473) by Kermel Pty Ltd for Community title division (1 into 11), removal of 1 regulated tree (*Corymbia citriodora* – Lemon-scented gum) & 2 significant trees (*Corymbia citriodora* – Lemon-scented gum & *Eucalyptus globulus* – Tasmanian blue gum) & construction of internal roadway at 29 Kumnick Street, Lobethal SA 5241 subject to the following conditions:

Planning Conditions

(1) Development in Accordance with the Plans

The development herein approved shall be undertaken in accordance with the following plans, details and written submissions accompanying the application, unless varied by a separate condition:

- **Community Division Plan Sheet 1 of 2, prepared by Access SDM, Revision A dated 21 August 2020.**
- **Community Division Plan Sheet 2 of 2 Version 3, prepared by Access SDM, Revision 01 dated 21 August 2020.**

(2) Maintenance of Sealed Common Driveway

The surface treatment detail within the common driveway shall be maintained in good condition at all times. The common driveway shall be kept clear of obstructions at all times.

(3) Maintenance of Horizontal Driveway Clearance

A vertical clearance height of 4 metres shall be maintained at all times along the length of the common driveway, to allow for the safe access of CFS firefighting vehicles.

(4) Payment into Urban Tree Fund

Prior to Development Approval being issued, the applicant shall pay \$768.00 (8 x \$96.00) into the Urban Tree Fund, in lieu of the planting of 8 replacement trees.

Planning Notes

(1) Land Division Consent

This development approval is valid for a period of three (3) years from the date of the decision notification. This time period may be further extended beyond the 3 year period by written request to, and approval by, Council prior to the approval lapsing. Application for an extension is subject to payment of the relevant fee. Please note that in all circumstances a fresh development application will be required if the above conditions cannot be met within the respective time frames.

Council Land Division Statement of Requirements

(1) Prior to Section 138 Clearance – Design of Common Driveway

Prior to Section 138 Clearance the applicant shall submit to Council and have approved a driveway and crossover design including detailed civil designs to Council standards.

(2) Prior to Section 138 Clearance – Construction of Common Driveway

Prior to Section 138 Clearance the common driveway and crossover to Kumnick Street approved in Land Division Condition 1 shall be constructed. The driveway and crossover shall be constructed and maintained to the satisfaction of Council at all times.

(3) Prior to Section 138 Clearance – Design of Stormwater Management Solution

Prior to Section 138 Clearance the applicant shall submit to Council and have approved a Stormwater Management Plan which includes detailed civil designs to Council standards.

(4) Prior to Section 138 Clearance – Construction of Stormwater Infrastructure

Prior to Section 138 Clearance the stormwater infrastructure approved in Land Division Condition 3 shall be constructed. The installation of stormwater management infrastructure on the development site and within the verge shall be constructed and maintained to the satisfaction of Council at all times.

- (5) **Prior to Section 138 Clearance – Installation of Fire Plug or Hydrant**
Prior to Section 138 Clearance a fire plug or hydrant shall be installed close to the vehicle turning area along the common driveway and connected to SA Water Mains.

NOTE: It is suggested that the applicant liaise with CFS and SA Water regarding the final location and type of fire plug or hydrant installed, to ensure it meets their requirements.

- (6) **Prior to Section 138 Clearance – Removal of Outbuildings**
Prior to Section 138 Clearance the existing buildings on the land shall be removed.

Council Land Division Notes

- (1) **No Tree Removal Until Development Approval Issued**
No tree included in this consent may be removed nor may any site works commence until Development Approval has been received.

- (2) **Property Identifiers**
The property identifiers for this property are now:

Allotment 46 – 1/29 Kumnick Street
Allotment 47 – 2/29 Kumnick Street
Allotment 48 – 3/29 Kumnick Street
Allotment 49 – 4/29 Kumnick Street
Allotment 50 – 5/29 Kumnick Street
Allotment 51 – 6/29 Kumnick Street
Allotment 52 – 7/29 Kumnick Street
Allotment 53 – 8/29 Kumnick Street
Allotment 54 – 9/29 Kumnick Street
Allotment 55 – 10/29 Kumnick Street
Allotment 56 – 11/29 Kumnick Street

SCAP Land Division Statement of Requirements

- (1) **SA Water Requirements**
The financial requirements of the SA Water Corporation shall be met for the provision of water supply and sewerage services. (SA Water H0103986)

SA Water advises on receipt of the developer details and site specifications an investigation will be carried out to determine if the connections to your development will be standard or non-standard fees.

The developer must inform potential purchasers of the community lots in regards to the servicing arrangements and seek written agreement prior to settlement, as future alterations would be at full cost to the owner/applicant.

- (2) **Payment into the Planning and Development Fund**
Payment of \$77,610.00 into the Planning and Development Fund (10 allotment/s @ \$7,761.00/allotment). Payment may be made by credit card via the internet at

www.edala.sa.gov.au or by phone (7109 7018), by cheque payable to the Department of Infrastructure and Transport marked “Not Negotiable” and sent to GPO Box 1815, Adelaide 5001 or in person, by cheque or credit card, at Level 5, 50 Flinders Street, Adelaide.

(3) Final Plan

A final plan complying with the requirements for plans as set out in the Manual of Survey Practice Volume 1 (Plan Presentation and Guidelines) issued by the Registrar General to be lodged with the State Commission Assessment Panel for Land Division Certificate purposes.

SCAP Land Division Notes

Nil

9. ATTACHMENTS

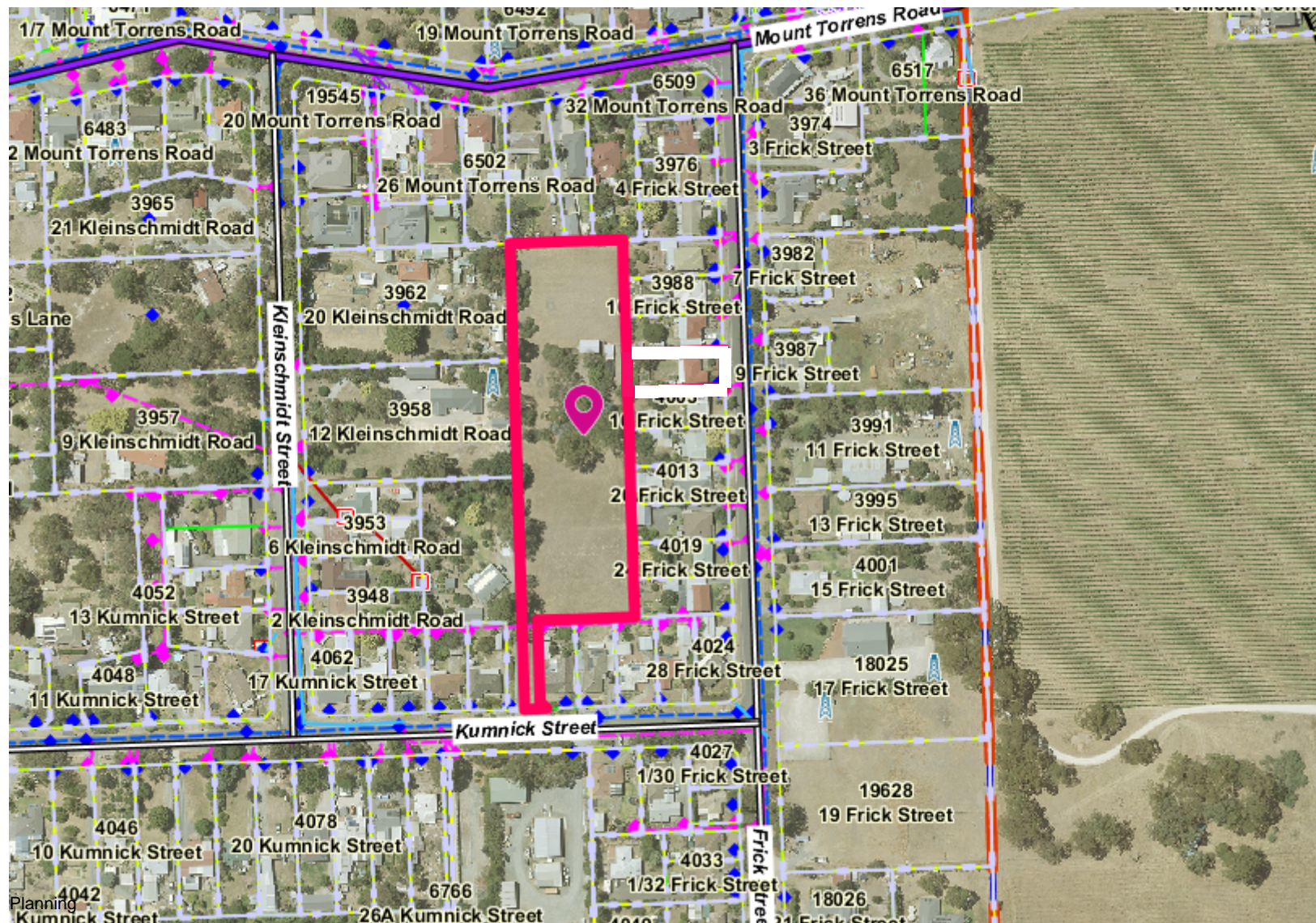
Locality Plan
Proposal Plans
Application Information
Applicant’s Professional Reports
Referral Responses

Respectfully submitted

Concurrence

Ashleigh Gade
Statutory Planner

Deryn Atkinson
Assessment Manager



Annotations

- Subject Land

Planners Summary

- PlanningSummary

AHC Core

- Parks

- Townships

RoadsStreetView

- ADJOINING LGA RD

- AHC & PRIVATE

- AHC RD

- DPTI RD

- PRIVATE RD

- SHARED RD

- PropertyOwner

- Parcels

- Roads

- Suburbs

Rivers

- River

- Creeks

- Streams

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Scale = 1:3016.440

100 m

Burnt Area Cudlee Creek

- CudleeCreekBurntArea

Flood Study Data

- TorrensFloodZones_20Yr

- TorrensFloodZones_100Yr

- OnkaFloodPlain10Yr

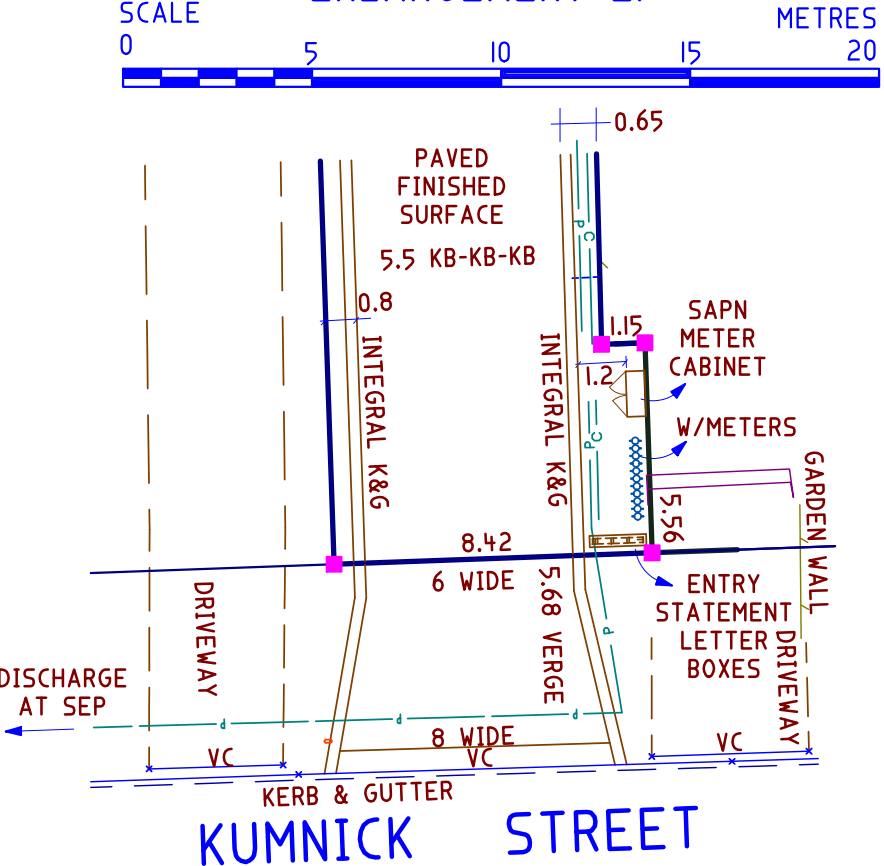
- FloodPlain100Year

SIGNIFICANT AND REGULATED
TREE SUMMARY

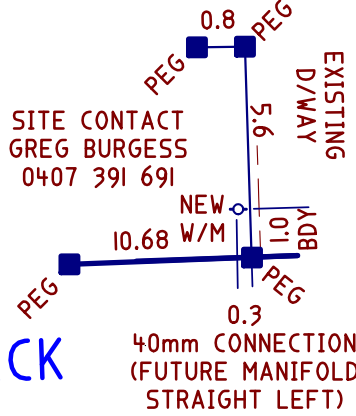
- 1A eucalyptus saligna TPZ 11.6
- 10 eucalyptus camaldulensis TPZ 10.44
- 11 eucalyptus nicholii TPZ 10.86
- 12A quercus robur TPZ 7.92
- 14 corymbia citrodora TPZ 12.36
- 15 eucalptus globlus TPZ 14.76
- 24 corymbia citrodora TPZ 7.8

- TREE 14 TO BE REMOVED
- TREE 15 HAS BORER INFESTATION AND IS TO BE REMOVED
- TREE 24 HAS DIVIDED TRUNK AND IS TO BE REMOVED

ENLARGEMENT E1



KUMNICK STREET



KUMNICK STREET

VIDE SHEET 2



KUMNICK STREET

General Notes / Legend

PORTION OF COMMON PROPERTY MARKED A IS SUBJECT TO AN EASEMENT FOR SEWERAGE PURPOSES

LOT 48 AND CP MARKED B IS TO BE SUBJECT TO A DRAINAGE EASEMENT TO THE COUNCIL FOR THE AREA

- w- STORMWATER
- s- SEWER
- c- PRESSURE LINE
- p- CST
- p- STORMWATER PRESSURE LINE
- NBN
- WATER METER

01	da issue	21/8/20	JD
No.	Revision / Issue	Date	By

HUNDRED AREA COUNCIL	ONKAPARINGA LOBETHAL ADELAIDE HILLS COUNCIL
MAP REF	6628-37-N EDALA 69398
TITLE REFERENCE	PART CT'S 5491/250, 5466/319
DEVELOPMENT NUMBER	473/C047/20

DEVELOPMENT SUMMARY	
TOTAL AREA	1.066 ha
RESERVE AREA	NA
NO. OF EXISTING ALLOTS	1
NO. OF ADDITIONAL ALLOTS	10
LENGTH OF NEW ROAD	NA
CONTOUR INTERVAL	1 METRE AHD

Access SDM

Surveying - Civil Design
Development - Management
18A Cameron Street, Mount Barker SA 5251
Ph:(08) 83913000

Plan
COMMUNITY DIVISION 1:11
Location
KUMNICK STREET
LOBETHAL
PART LOTS 54/FI55869 & 15/D5556

Project 5932	Drawing number 5932LD01
Date 21-08-20	
Drawn Drawn by JD	Scale As Noted @ A3
	Revision Rev A

IMPORTANT NOTICE
This plan was prepared for KERMELE PTY LTD as a proposed division to accompany a Development Application to the Adelaide Hills Council and should not be used for any other purpose. The dimensions, area and total number of allotments shown hereon may be subject to field survey and the requirements of Council as well as any other authority which may have requirements under any relevant legislation. In particular no reliance should be placed on this plan for any financial dealings involving the land. Where shown the contours are suitable for the purpose of the plan.
This note is an integral part of the plan.



- TREE TO BE RETAINED
- TREE TO BE REMOVED
- W - STORMWATER
- S - SEWER
- C - PRESSURE LINE
- CST
- P - STORMWATER PRESSURE LINE
- NBN
- WATER METER
- 600 SGIP

01	da issue	21/8/20	JD
No.	Revision / Issue	Date	By

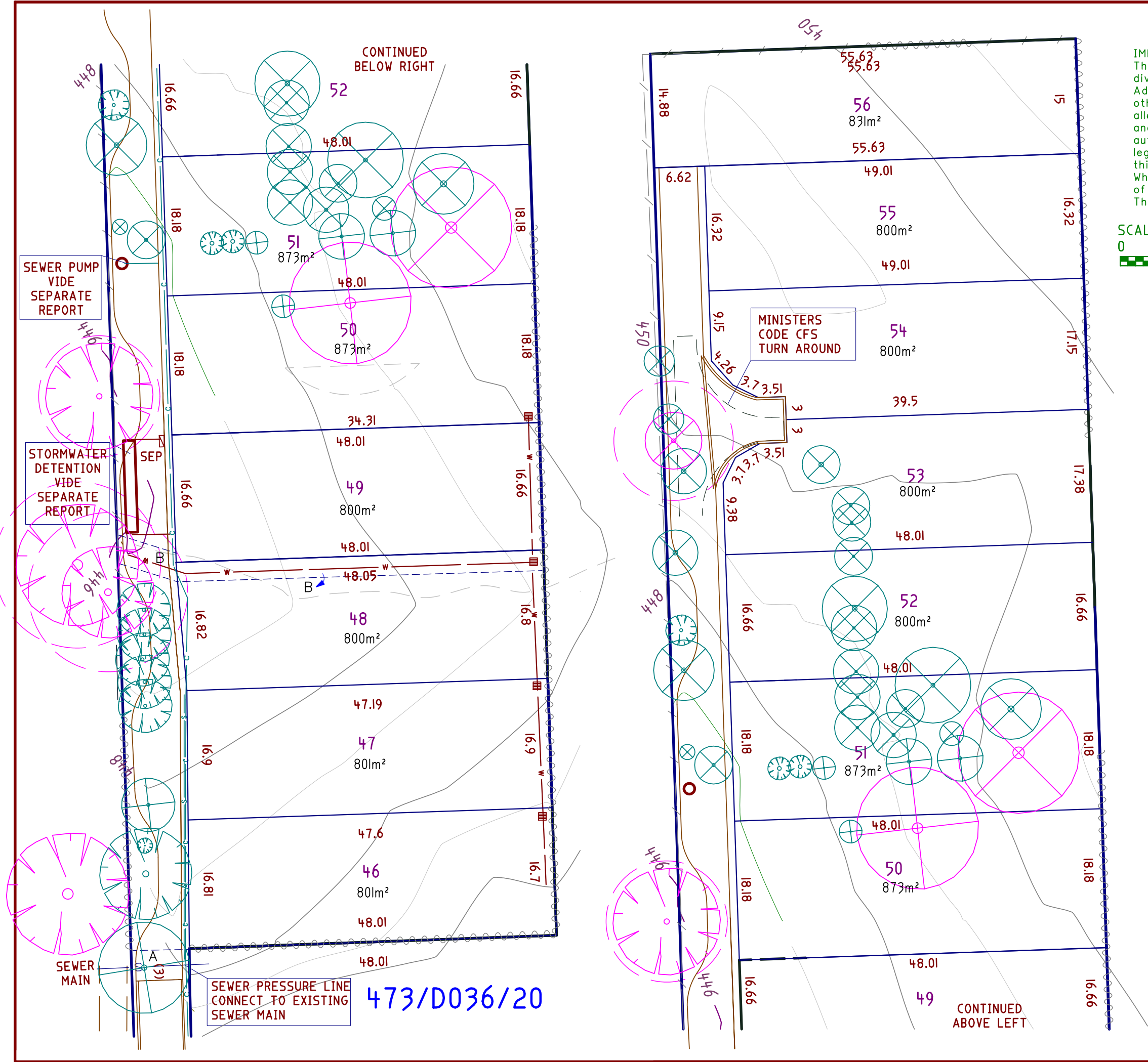
Access SDM

Surveying - Civil Design
Development - Management
18A Cameron Street, Mount Barker SA 5251
Ph:(08) 83913000

Plan
COMMUNITY DIVISION 1:11
Location
KUMNICK STREET
LOBETHAL
PART LOTS 54/FI55869 & 15/D5556

Project 5932	Drawing number 5932LD01
Date 21-08-20	
Drawn Drawn by JD	Scale As Noted @ A3
	Revision Rev A

EDALA 69398



SCHEME DESCRIPTION FOR

COMMUNITY PLAN NO.

DEVELOPMENT APPLICATION NO:473/C00/20

**ALLOTMENT D54 F155869 AND 15 D5556
29 KUMNICK STREET LOBETHAL**

INDEX

1. Identification of the scheme
 2. Purposes for which the lots and Common Property may be used
 3. Improvements
 4. Standards
 5. Stages
 6. Obligations to Develop
 7. Other important Features of the Scheme
 8. Specific Building Setback Criteria
 9. Refuse Management
 10. Council Requirements
 11. Maintenance of Common Property
 12. Insurance
- Annexure A Decision Notice
- Annexure B Tree retention and Removal Plan

1. Identification of the Scheme

- 1.1 The Community Parcel is the property situated at 29 Kumnick Street Lobethal being the whole of the land comprised in Certificate of Title Register Book VOLUME 5491 FOLIO 250 and VOLUME 5466 FOLIO 319
- 1.2 The Community Plan is a primary plan being the division of an allotment into 11 Community Lots and Common Property

2. Purposes for which the lots and Common Property may be used

- 2.1 The Community Plan is a residential development comprising 11 residential Community Lots landscaping and related facilities on the Common Property.
- 2.2 Not more than one dwelling may be erected on a Community Lot.
- 2.3 Dwellings on Community Lots 46 to 55 inclusive shall have a minimum building setback to Common driveway of 8.0 metres.
- 2.4 The Common Property is to be used in conjunction with and in support of the Community Lots for their use, amenity and enjoyment in accordance with the By-Laws of the Community Scheme.
- 2.5 The use to which any Lot or the Common Property may be used and is at all times subject to relevant legislative controls and the determinations of the relevant planning authorities.
- 2.6 The Community Lots may only be used for residential purposes and carparking unless the council for the area approves otherwise.
- 2.7 The Common Property shall be used as a
 - vehicle driveway but no visitor carparking
 - stormwater management and detention
 - refuse bin stand areas as designated for collection on site
 - landscaping and pedestrian access
 - services transmission and accommodation of service infrastructure
 - tree planting
 - street bollard lighting
 - signage to the Community Lots and Community Lot occupiers.
 - other general usage as the Scheme may determine from time to time

2.8 A Proprietor or occupier of a Lot or a person upon the Common Property by their authority must not park or repair any motor vehicle or other vehicles upon the Common Property except in the case of an emergency and then only to the extent necessary to remove the vehicle from the Common Property.

3. Improvements

No building or other improvement or alteration to existing building or improvements may be erected or made on a community lot or the common property unless all approvals required by law have been first obtained.

4. Standards

The standard of any new building or other improvement or of any alteration to existing buildings or improvements must conform with and not be less than the standard of the other buildings or improvements on the community parcel.

5. Stages

There will be no further stages of division of the community parcel.

6. Obligations to Develop

- 6.1 The developer must cause to be developed on the common property an all weather roadway and all services in accordance with the development approval.
- 6.2 The developer will construct within the Common Property the following improvements:
 - Incorporated stormwater management as designed by the Project Engineer.
- 6.3 There are no obligations on the owners of any community lot to develop a community lot.

.

7. Other important Features of the Scheme

- 7.1 The division of the community parcel may be subject to conditions imposed by the relevant authority and, if so, any such condition shall be deemed to form part of this scheme description.
- 7.2 “Single lane” vehicle links forms part of the Scheme driveway
- 7.3 Tree management as identified in the Tree Removal and Retention Plan is an integral part of this Scheme.
Tree Retention requires that no tree be removed or wilfully damaged other than for tree maintenance purposes or if such identified tree is

determined to be a safety risk to people. For this purpose Councils Arborist shall be the determining arbiter and shall take into consideration any provided Arborist Reports assessing the nature and safety of the tree.

In such a case that a Tree is determined to be a safety risk the Body Corporate and Council shall oversee the assessment and not an individual Lot owner.

Tree maintenance shall be undertaken under the control and direction of qualified Arborists

8. Specific Building Setback Criteria

Tree setbacks are to be managed in accordance with the Tree Retention and Removal Plan included in Annexure B

8.1 Road Setback

A minimum 5.0 setback from the driveway boundary applies to Lots 46-55 inclusive

8.2 Tree setback

Retained Trees have specified Building setback distances and a permitted encroachment into the Tree protection Zone upto 10%

Tree 14 has determined building envelopes on lot 50 and 51 as shown on the approved plan

9. Refuse Management

The Management Corporation of the Scheme shall ensure the Council Refuse management company or equivalent to manage and empty wheeled bins for recycled material and garbage and that all refuse collection occurs internally to the Scheme and in accordance with the designated refuse bin hardstand locations at the front of each Lot. Refuse bins are not to be stored on the Common Driveway or landscape area.

Refuse removal specifically relates to: -

- General house waste bins
- Recycled material bins
- Recycled green waste bins

10. Council Requirements

The division of the Community Parcel and the construction of buildings on each existing Community Lot is or is subject to conditions imposed by the Adelaide Hills Council

11. Maintenance of Common Property

10.1 The maintenance of Common Property is the responsibility of all lot owners in proportion to their lot entitlements.

12 Insurance

The insurance of Common Property is to be paid by all lot owners, and in proportion of the entitlement.

Dated the day of 2020

Signed by the said:

.....
REGISTERED PROPRIETOR

.....
REGISTERED PROPRIETOR

.....
Witness

.....
Full name of Witness

Address:

.....




.....
Business hours telephone no.

ANNEXURE A

Decision Notice

ANNEXURE B

Tree Retention and Removal Plan

[Search](#) | [Configure Notification Email](#) | [Log Out](#) |

Application Detail

[Hide All](#)

General

Unique Id : 69398
 Development No : 473/C047/20
 Application Type : Community Division
 Application Extent : Provisional Development Plan Consent with Land Division Consent
 Land Use/Building Consent : No
 Council Name : Adelaide Hills Council
 Agents Reference : 5932cda
 Short Reference : 29 KumnLobetha
 Submitting Agents Name : Access SDM Pty Ltd
 Submitted By : Greg Burgess, Access SDM Pty Ltd
 Application Status : Lodged & Distributed (No Decision)

Application Type Details : Community Division

[Hide](#)

Total Area of Land to be Divided : 1 hectares
 Reserve Area : 0 hectares
 Number of existing allotments : 1
 Number of proposed lots (excluding road and reserve) : 11
 Number of additional lots : 10
 Is the development for Residential purposes? : Yes
 Is a development lot being created? : No

Applicant Details

[Hide](#)

Salutation	Name	Organisation Name	Address
		Kermel Pty Ltd	C/- Access SDM Pty Ltd PO Box 1700 Mount Barker South Australia Australia

Owner Details

[Hide](#)

Salutation	Name	Organisation Name	Address
		Kermel Pty Ltd	C/- ACCESS SDM PTY LTD PO Box 1700 Mount Barker South Australia Australia

Contact Details

[Hide](#)

Salutation	Name	Address	Telephone	Fax	Email
Mr	Greg Burgess	18A Cameron Road Mount Barker SA 5251 South Australia AUSTRALIA	<i>Telephone 1 :</i> 0407 391 691 <i>Telephone 2 :</i> 83913000 <i>Mobile :</i>	<i>Fax 1 :</i> <i>Fax 2 :</i>	surdev@bigpond.net.au

Subject/Property Details

[Hide](#)

House No. : 29
 Lot No. : 54
 Street : Kumnick
 Suburb/Town Lobethal
 Hundred: Onkaparinga
 Reference Section:

Title Reference and Plan Parcel

Title Code	Title Description	Volume	Folio	Plan Code	Plan Description	Plan No.	Parcel No.
CT	Certificate of Title	5491	250	F	Filed Plan	155869	A54
CT	Certificate of Title	5466	319	D	Deposited Plan	5556	A15

Other Details

[Hide](#)

Existing Use : vacant residential
 Description of Proposed Development : Community Division 1 into 11 and driveway
 Does either schedule 21 or 22 of the No Development Regulations 1993
 Or schedule 9, item 16 of the PDI Regs 2019
 apply? :
 Notes :
 Additional Information Requests :

Additional Fees and Payments :

Lodgement Date : 28 Sep 2020

Months for Development Approval Request : 12

Categorisation Details

[Hide](#)

Decision Authority : Council
 Application Classification : Technical
 Kind of Development : Merit
 Notification Category : Not Applicable
 Zone : Township\Policy Area 40
 Development Plan Map No : AdHi/12, 55
 Allocated Planner : Biljana Prokic
 Categorisation Comments :

Categorised By : Biljana Prokic
 Categorisation Date : 06 Oct 2020

Distribution Details

[Hide](#)

Referral Agency	Referred to Agent	First Accessed	Referral State	Due Date	Response
Development Assessment Commission	06 Oct 2020	06 Oct 2020	Current	01 Dec 2020	Show
SA Water Corporation	06 Oct 2020	06 Oct 2020	Current	03 Nov 2020	Show
DECD - Education and Child Development	06 Oct 2020		Current	03 Nov 2020	Show
DPTI - Public Transport Division	06 Oct 2020		Current	03 Nov 2020	Show
Decision Authority	Distributed for Decision	First Accessed	Decision State	Decision Issued	Response
Adelaide Hills Council	06 Oct 2020	07 Oct 2020	Current		Show

Decision Details

[Hide](#)**There has not yet been a decision submitted for this application**

Overturned Decision Details

[Hide](#)**There are no overturned decision details currently available for this application**

Clock Stops (State Commission Assessment Panel only)

[Hide](#)**No clock stops have been set**

Lodgement Fees

[Hide](#)

Fee Invoice No.	Fee Invoice Date	Invoice Description	Fee Status
65080	28 Sep 2020	New Application Invoice	Fees Paid
Fee Line Type Description			Total Fee (\$)
Lodgement Fee (additional allotment)			229.50
Land Division Fee (additional allotment)			172.00
Land Division Fee (per Additional Allotment)			163.00
Statement of Requirements Fee (additional allotment)			455.00
Certificate of Approval Fee (additional allotments)			380.00
DAC Consultation Report Fee (additional allotments)			228.00
Invoice Total Fee(\$):			1627.50

Certificate of Approval (CoA) Details

[Hide](#)**There are no Certificate of Approval (CoA) details currently associated with this application**

Certificate of Approval (CoA) Clearance Requirements Details

[Hide](#)**There are no clearance requests submitted for this application**

Additional DA Fees

[Hide](#)**There are currently no Development Application (DA) fees generated for this application**

Additional CoA Fees

[Hide](#)**There are currently no Certificate of Approval (CoA) fees generated for this application**

Application Documents

[Hide](#)

Document Title	Document Type	Version #	State	File Size (Kb)	Date Uploaded	Notes
Community Division 1	Proposed Plan of Division	1	Uploaded	405.3400000	28 Sep 2020	Show
Community 2	Proposed Plan of Division	1	Uploaded	378.3200000	28 Sep 2020	Show
Scheme Description	Scheme Description	1	Uploaded	123.6300000	28 Sep 2020	Show
CT Lot 54	Certificate of Title/Lease	1	Uploaded	68.1300000	28 Sep 2020	Show

CT Lot 15	Certificate of Title/Lease	1	Uploaded	57.5200000	28 Sep 2020	Show ^{AWP}
Lodgement Fee Receipt	Miscellaneous	1	Uploaded	29.3400000	28 Sep 2020	Show
Location Plan Enlarged New	Miscellaneous	1	Uploaded	242.0900000	29 Sep 2020	Show
Location Plan New	Miscellaneous	1	Uploaded	263.7900000	29 Sep 2020	Show
Lots Admin Interests New	Miscellaneous	1	Uploaded	30.5000000	29 Sep 2020	Show
SCAP Regulation 29 Letter New	Miscellaneous	1	Uploaded	871.8900000	07 Oct 2020	Show
Final Plan Documents for Certificate of Approval (CoA)						Hide
There are no Final Plans for Certificate of Approval (CoA) currently associated with this application						
Certified Certificate of Approval (CoA) Plan Documents						Hide
There are no Certified Certificate of Approval (CoA) Plans currently associated with this application						
Mode: ApplicationDisplay/Revision: 14						
DisclaimerTerms and Conditions	Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders St, ADELAIDE South Australia 5000 - P 1800 752 664					Copyright

REAL PROPERTY ACT, 1886



The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.



Certificate of Title - Volume 6249 Folio 801

Parent Title(s) CT 5466/319, CT 5491/250

Creating Dealing(s) RTC 13448628

Title Issued 21/01/2021 **Edition** 1 **Edition Issued** 21/01/2021

Estate Type

FEE SIMPLE

Registered Proprietor

KERMEL PTY. LTD. (ACN: 072 300 246)
OF 21 FRANKLIN STREET ADELAIDE SA 5000

Description of Land

ALLOTMENT 45 DEPOSITED PLAN 125856
IN THE AREA NAMED LOBETHAL
HUNDRED OF ONKAPARINGA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A ON D125856 TO THE MINISTER FOR INFRASTRUCTURE (T 3636820)

Schedule of Dealings

Dealing Number	Description
13358568	MORTGAGE TO NATIONAL AUSTRALIA BANK LTD. (ACN: 004 044 937)

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

Certificate of Title

Title Reference: CT 6249/801

Status: CURRENT

Parent Title(s): CT 5466/319, CT 5491/250


Dealing(s) Creating Title: RTC 13448628

Title Issued: 21/01/2021

Edition: 1

Dealings

Lodgement Date	Completion Date	Dealing Number	Dealing Type	Dealing Status	Details
26/08/2020	01/09/2020	13358568	MORTGAGE	REGISTERED	NATIONAL AUSTRALIA BANK LTD. (ACN: 004 044 937)

PURPOSE:		DIVISION		AREA NAME:		LOBETHAL		APPROVED:		<div><div>D125856</div><div>SHEET 1 OF 2</div><div>105685_text_01_v03_Version_3</div></div>	
MAP REF:		6628/37/N		COUNCIL:		ADELAIDE HILLS COUNCIL		16/12/2020			
LAST PLAN:				DEVELOPMENT NO:		473/D036/20/001/60933		DEPOSITED:			
AGENT DETAILS:		ACCESS SDM PTY LTD 18A CAMERON ROAD MT BARKER SA 5251 PH: 83913000 FAX: 83912330		SURVEYORS CERTIFICATION:		I Gregory Stephen Burgess , a licensed surveyor do hereby certify - 1) That this plan has been made from surveys carried out by me and correctly prepared in accordance with the Survey Act 1992. 2) That the field work was completed on the 20th day of October 2020 16th day of December 2020 Greg Burgess Licensed Surveyor					
AGENT CODE:		ACSDP									
REFERENCE:		5932									
SUBJECT TITLE DETAILS:											
PREFIX	VOLUME	FOLIO	OTHER	PARCEL	NUMBER	PLAN	NUMBER	HUNDRED / IA / DIVISION	TOWN	REFERENCE NUMBER	
CT	5491	250		ALLOTMENT(S)	54	F	155869	ONKAPARINGA			
CT	5466	319		ALLOTMENT(S)	15	D	5556	ONKAPARINGA			
OTHER TITLES AFFECTED:											
EASEMENT DETAILS:											
STATUS	LAND BURDENED	FORM	CATEGORY	IDENTIFIER	PURPOSE	IN FAVOUR OF				CREATION	
EXISTING	43.45	LONG	EASEMENT(S)	A		THE MINISTER FOR INFRASTRUCTURE				T 3636820	
EXISTING	43	LONG	EASEMENT(S)	B		THE MINISTER FOR INFRASTRUCTURE				T 3636821	
ANNOTATIONS: UNLESS SHOWN OTHERWISE THE BOUNDARIES OF THE SUBJECT LAND ARE UNOCCUPIED											



D125856

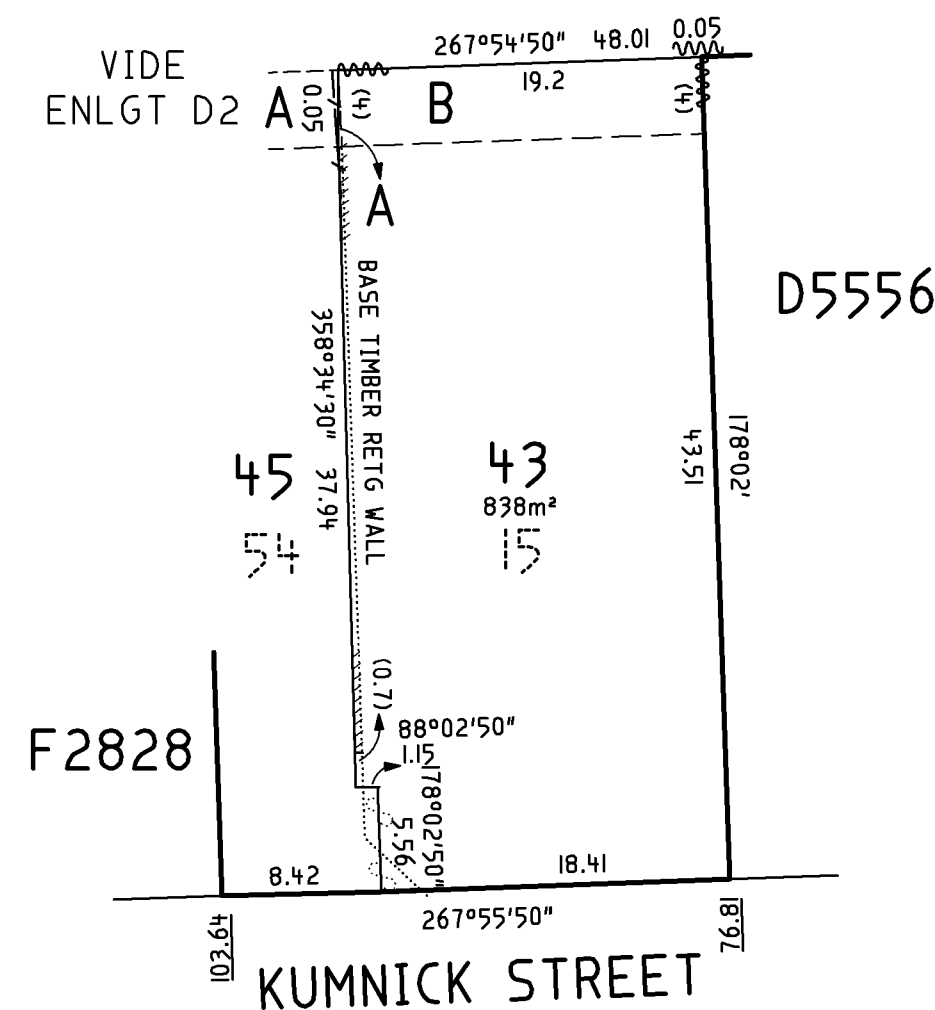
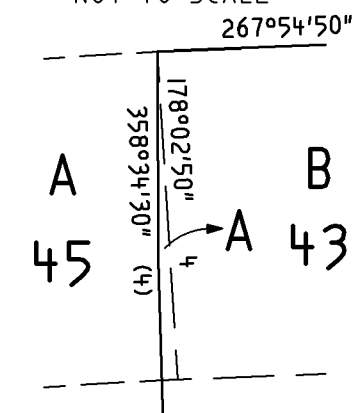
SHEET 2 OF 2

105685_pland_1_V01_Version_3

BEARING DATUM: MGA 2020 ZONE 54
DERIVATION: PSM 6628/54783 TO 6628/36419

TOTAL AREA:

ENLARGEMENT D2
NOT TO SCALE

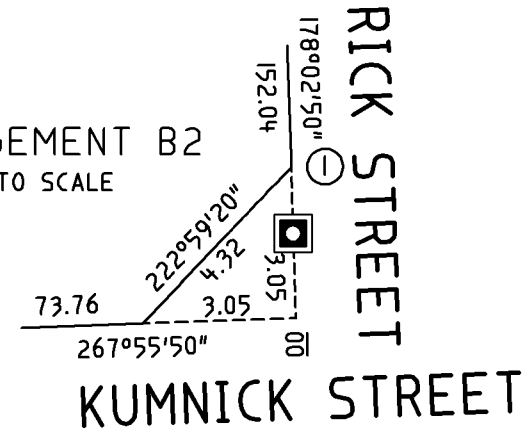


REFERENCE MARKS

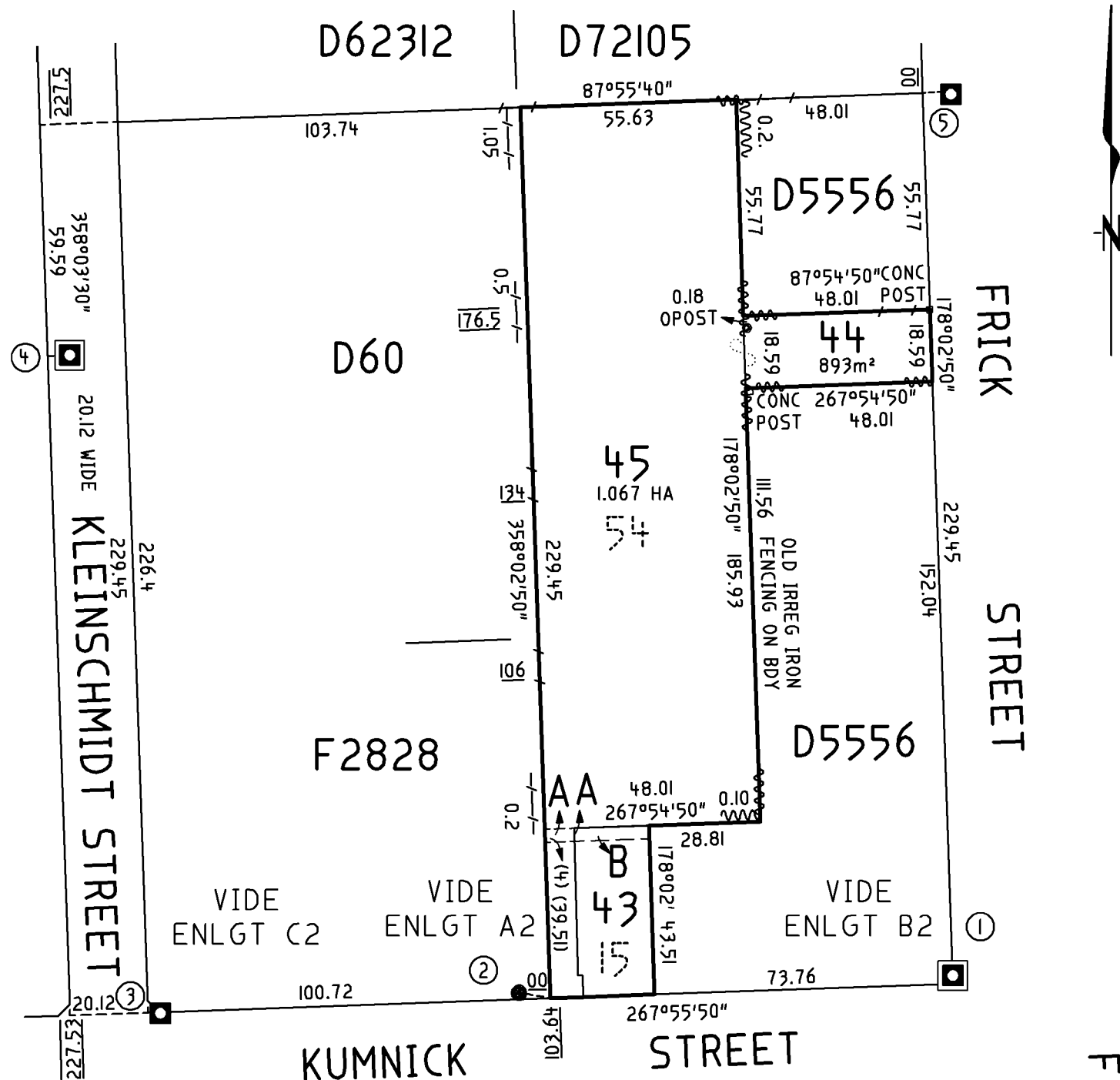
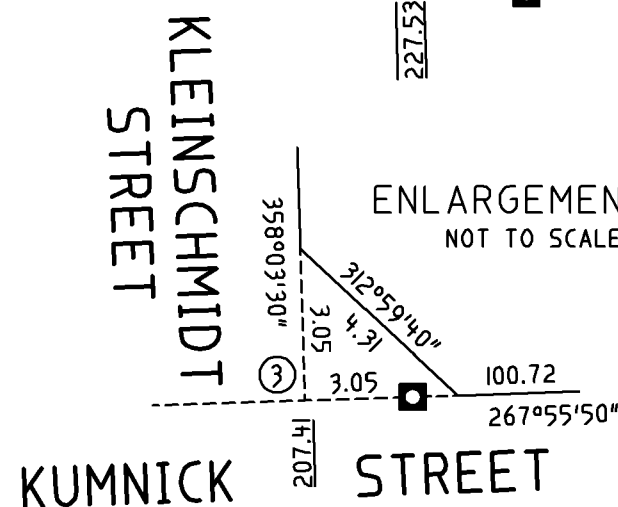
CNR	BEARING	FROM	DIST	PSM NO
1	358°03'	PM FD	0.91	6628/36419
2	89°52"	MP FD	7.70	
3	267°56"	PM FD	2.13	6628/36420
4	268°03'	PM FD	2.00	6628/54783
5	267°55"	PM FD	0.91	6628/39853

NEW FIX

ENLARGEMENT B2
NOT TO SCALE



ENLARGEMENT C2
NOT TO SCALE





AGREEMENT – WASTE COLLECTION FROM PRIVATE PREMISES

SCHEDULE	
East Waste	Eastern Waste Management Authority of PO Box 26 Mansfield Park SA 5012, and includes all employees, agents and contractors of East Waste
Property Owner	KERMEL PTY LTD ABN 78 072 300 246 and includes all employees, agents and contractors of the Property Owner
Property	29 KUMNICK STREET, LOBETHAL LOT 45/D125856 LOT 6249/801

AGREED TERMS

BACKGROUND Pursuant to an agreement between the Adelaide Hills Council (**Council**) and East Waste, East Waste provides waste collection services for the Council's area in which the Property is situated.

The Property Owner is the registered proprietor of 29 Kumnick Street, Lobethal, Lots 45/D125856, Lots 6249/801 and has requested East Waste enter onto the Property to perform its waste collection services at the Property (**Services**) in accordance with, its agreement with the Council.

East Waste requires access to private roads and vehicle access ways within the Property in order to provide the Services.

In consideration for East Waste entering onto the Property to perform the Services, the Property Owner agrees to the provisions set out in this agreement.

DEFINITIONS Words that are in **bold** in this agreement have the meaning given to them in the Schedule or the relevant clause in which they are defined.

LICENCE FOR ACCESS The Property Owner grants East Waste and all persons authorised by East Waste the right to enter the 29 Kumnick Street, Lobethal, Lots 45/D125856, Lots 6249/801, including all private roads and other vehicle access ways within the Property (**Roads**), to pass and re-pass over the Roads within or without vehicles and equipment of any kind for the purpose of the Services.

WARRANTY

The Property Owner:

acknowledges that East Waste will use heavy and wide vehicles in the provision of the Services;

acknowledges that vehicles utilised by East Waste in the provision of the Services, together with loads those vehicles may carry, may weigh up to and in excess of 23 tonnes;

warrants that the Roads are and will be, while this agreement remains in effect, structurally suitable for access by those vehicles (together with any loads they may carry); and

warrants that at all times when the Services are provided by Eastwaste, the Roads will be free of any obstruction (including parked cars and overhanging vegetation) such that Eastwaste vehicles will have safe and clear access along the Roads.

The Property Owner acknowledges that East Waste relies on the warranty in clause 3 in agreeing to provide the Services.

RELEASE

The Property Owner releases East Waste and its employees, agents and contractors to the full extent permitted by law, from all liability that East Waste and its employees, agents and contractors may otherwise have to the Property Owner for any loss or damage suffered by the Property Owner that is caused or contributed to by any act or omission, of East Waste or its employees, agents or contractors in the provision of the Services, except to the extent that any loss or damage was directly caused by a negligent act or omission of East Waste.

INDEMNITY

The Property Owner must indemnify and forever hold harmless East Waste and its employees, agents and contractors from and against all and any actions, claims, demands, losses, damages, costs and expenses for which East Waste and its employees, agents or contractors shall or may be or become liable in respect of or arising from any personal injury or damage to or destruction of any property that is caused or contributed to by any act or omission, of East Waste or any employee, agent or contractor of East Waste in the provision of the Services, except to the extent that any actions, claims, demands, losses, damages, costs and expenses were directly caused by a negligent act or omission of East Waste.

The indemnity in clause 6 continues during the term of this agreement and after this agreement ends.

NOTIFICATION

The Property Owner must notify East Waste immediately upon it ceasing to be the owner of the 29 Kumnick Street, Lobethal, Lots 45/D125856, Lots 6249/801

East Waste's obligation to provide the Services to the Property ceases immediately upon receipt of a notice from the Property Owner pursuant to clause 8.

TERMINATION OF THE SERVICES

The Property Owner acknowledges that East Waste may, on the provision of written notice to the Property Owner given at any time and for any reason, cease providing the Services to the Property.

GOOD FAITH The Property Owner must act in good faith and a cooperative manner towards East Waste at all times.

URGENT RELIEF East Waste may seek urgent injunctive relief for any actual or anticipated breach of this agreement.

CONSIDERATION In consideration for East Waste entering onto the Property, the Council agrees to pay to the Property Owner one dollar, if demanded.

LAW This agreement is governed by the laws of South Australia.

EXECUTED as an agreement

Date: 11/03/2021

Executed by **KERMEL PTY LTD**
pursuant to section 127 of the
Corporations Act 2001

Signature of Director

Name of Director (print)

Signature of Director/Company Secretary
(Please delete as applicable)

Name of Director/Company Secretary (print)

**Signed for East Waste Management
Authority** by its authorised delegate in
the presence of:

Signature of witness

Name of witness (print)

Signature of authorised delegate

Name of authorised delegate (print)

Position of authorised delegate

Kumnick Street, Lobethal Tree Inspection 2020

By

Bob Amezdroz
Dip Arb, Dip Hort
Consulting Arborist



- Most trees have been numbered using a metal tag attached to the tree approximately 2m above ground level on their south sides.
- 7 trees out of the 53 trees tagged were regulated or significant under the Development Act and Regulations. Tagging helps identify the trees and their location.
- 2 Significant Trees and 2 Regulated trees are situated on neighbouring properties.
- The purpose of this report is to identify potential impacts these trees may have on proposed development and persons living or working in the vicinity.
- The opinions and recommendations are based on a visual inspection from the ground with no increment boring to identify if internal decay was present.
- Tree indicated in the matrix, in RED, are either 'Regulated or Significant' trees under the Development Act and Regulations.



Proposed subdivision area

The main block indicated had many species of trees, *Euc globulus*, *Euc. saligna*, *Casuarina* sp. *Acacia* sp, *Euc camaldulensis*, *Euc. leucoxydon*, *Quercus* sp. and *Melaleuca* sp. Approximately 53 trees. Their condition was very poor to very healthy. Some trees were affected by borers and die-back possibly from South Australia's drier weather conditions. Ages of the trees varied from under 10 years to over 30 years old.

TREE NUMBER	SPECIES	CIRCUM	HEIGHT	TPZ	NOTES
1	Eucalyptus leucoxylon	1.7m	7.5m	6.48	Recommend to be removed as a part of the future driveway entrance
1A	Eucalyptus saligna	3.05m	26m	11.6m	6.6m from centre of trunk to boundary fence. Neighbouring property.
2	Eucalyptus saligna	1.5m	19.5m	5.64m	S/W corner of property
3	Eucalyptus saligna	0.3m	7.5m	1.08m	
4	Casuarina sp.	1.05m	9.6m	3.84m	Twin leader
5	Casuarina sp.	0.9m	7.3m	3.24m	Lean to N/E
6	Casuarina sp.	1m	9.5m	3.6m	Twin leader
7	Casuarina sp.	0.7m	9.5m	2.52m	
8	Casuarina sp.	0.85m	12.2m	3.24m	
9	Casuarina sp.	1m	9.3m	3.72m	Twin leader
10	Eucalyptus camaldulensis	2.7m	24.5m	10.44m	2m from centre of trunk to boundary fence. Neighbouring property.
11	Eucalyptus nicholii	2.05m/ 1.95m	19.7m	10.86m	4.6m from centre of trunk to boundary fence. Neighbouring property.
12	Eucalyptus leucoxylon	1.4m	10.3m	5.28m	1.5m from centre of trunk to boundary fence. Neighbouring property.
12A	Quercus robur	2.1m	15m	7.92m	2.3m from centre of trunk to boundary fence. Neighbouring property.
13	Corymbia ficifolia	0.9m	7.5m	3.12m	Middle of property
14	Corymbia citrodora	3.3m	18.2m	12.36m	Wire on trunk
15	Eucalyptus globulus	3.87m	22m	14.76m	Borers in various locations
16	Eucalyptus leucoxylon	1.4m	13m	4.92m	
17	Melaleuca armillaris	Multi	8.1m		Remove; Decay in centre, included bark unions.
18	Eucalyptus cinerea	1.2m	8.5m	4.44m	
19	Eucalyptus lehmannii	0.75m/ 0.85m	8m	4.41m	
20	Corymbia citrodora	1.6m	16m	6.24m	Twin leader
21	Eucalyptus cinerea	1.8m	16.5m	6.48m	
22	Casuarina sp.	1.18m/ 0.8m	10m	5.49m	
23	Melaleuca armillaris x 10	Multi	>9m		Remove; Decay in centre, included bark unions, fallen over. N/W corner.

TREE NUMBER	SPECIES	CIRCUM	HEIGHT	TPZ	NOTES
24	<i>Corymbia citrodora</i>	2.15m	20.2m	7.8m	Western boundary
25	<i>Melaleuca armillaris</i> x 5	Multi	>7m		Remove; Decay in centre, included bark unions, fallen over.
26	<i>Acacia melanoxylon</i>	1.45m	8.2m	5.52m	80% dead
27	<i>Eucalyptus sideroxylon</i>	1.9m	14.6m	7.2m	Twin leader
28	<i>Eucalyptus</i> sp.	1.05m	12.8m	3.84m	
29	<i>Schinus molle</i>	0.75m	6.8m	2.88m	
30	<i>Eucalyptus</i> sp.	0.6m	4.5m	2.04m	Heavy lean to S/E
31	<i>Eucalyptus cinerea</i>	1.15m	11.4m	4.32m	Remove – poor condition
32	<i>Eucalyptus leucoxylon</i>	1m	14.3m	3.72m	
33	<i>Casuarina</i> sp.	1m	10.6m	4.2m	
34	<i>Casuarina</i> sp.	1.05m	9.8m	3.96m	
35	<i>Corymbia citrodora</i>	1.98m	16.7m	7.8m	Included bark union 1.8m above ground level.
36	<i>Eucalyptus</i> sp.	1.25m	12.2m	4.56m	
37	<i>Corymbia citrodora</i>	1.98m	16.7m	7.8m	
38	<i>Casuarina</i> sp.	1.1m	9.8m	3.96m	

- The Development Act and the Development Regulations 1993 (DA 1993). This Act controls ‘tree damaging activity’ in relation to ‘significant’ trees by declaring it to be ‘Development.’ Trees 3m or greater in circumference measured 1m above natural ground level within the local council area are deemed as ‘significant trees’ Where trees have multiple stems they must have an average >625mm. ‘Tree damaging activity’ includes tree removal, damage to the root system, or pruning that will adversely affect the tree health. Council approval is required prior to any of these activities occurring. Breaches of the act are subject to fines of up to \$120,000.
- The Development Act and the Development Regulations 1993 (DA 1993). This Act controls ‘tree damaging activity’ in relation to ‘regulated’ trees by declaring it to be ‘Development.’ Trees 2m to less than 3m in circumference measured 1m above natural ground level within the local council area are deemed as ‘significant trees’ Where trees have multiple stems they must have a total circumference of 2m or more and an average >625mm, measured at a point 1m above natural ground level. ‘Tree damaging activity’ includes tree removal, damage to the root system, or pruning that will adversely affect the tree health. Council approval is required prior to any of these activities occurring. Breaches of the act are subject to fines of up to \$120,000.

Trees # 23, 24, 25, 27, 28, 38, 30, 21 (These are the approximate location of trees)



Trees # 1, 1A, 2, 10, 11, 12A, 13, 14, 15

Recommendations:

- Remove all Melaleuca's as they have decay, splitting or have fallen over.
- Trees numbering 1 to 4, except number 1A, should possible be removed to allow access to development.
- Tree number 15 should have a full report to be removed, if developer requires, as it is significant but has borer activity throughout various areas within the trunk and branches.
- Other trees that are poor in quality that should be removed are numbers 13, 19, 26, 30, 31, 33 and 37.
- There are many smaller trees and shrubs that are under size that should be assessed once boundaries are planned, to see if they remain or removed. The majority of these plants are not tagged.
- Remaining trees should have arborist work on them to maintain their health and safety.
- Significant and regulated trees should have Australian Standard AS4970-2009 applied to maintain their health from the proposed development.

Below are some of the conditions of the trees:



Tree # 1 located before entrance gate off Kumnick Street



Tree # 1A, neighbouring property and possibility of TPZ intrusion with development. Development 1m inside property at number 29 is approximately 10% intrusion.



Tree # 13, could be trimmed to allow access for trucks and still retain tree, permission required.



Tree # 15, Borer activity areas (there was a Koala in the top)



Condition of various Melaleuca's



Tree # 37 Diseased

Consultants Liability and Limitations:

All tree assessments are visual inspections and comment on the tree species, that can be seen, touched or inferred from the ground and covers what could reasonably be assessed and available to the assessor at the time of inspection.

The Tree Audit Register (TAR) and recommendations made in this report associated with the project are made in good faith on the basis of the information available to the consultant at the time of the inspection therefore the author accepts no liability for any recommendations made.

The inspection period to which the report applies is two months from the date of the report.

Achievement of objectives set out in such reports will depend among other things on the actions of the client, contractor(s), council, environment and the tree(s), over which the consultant has no control before, during and after the audit has been conducted.

Information contained in this report covers only the tree(s) that were examined and reflects the condition of the tree(s) at the time of inspection. There is no warranty or guarantee, expressed or implied; that problems or deficiencies of the subject tree(s) may not arise in the future.

The author remains the sole beneficiary of this report until due payment is made to the author.

If you require any further clarification or information, please contact me on the number provided.

Comphort Technical Services

Bob Amezdroz Diploma of Horticulture and Arboriculture

Wk. 0427012755

Tree assessment at, 29 Kumnick Street, Lobethal on 2020-08-27

The purpose of this report is to identify potential impacts this tree may have on adjacent properties, development and persons living or working in the vicinity.

The opinions and recommendations are based on a visual inspection from the ground and within the tree with no increment boring to identify if internal decay was present.

Tree species: *Corymbia citrodora* (Lemon-scented Gum) Number 14 tagged



ADELAIDE HILLS COUNCIL
RECEIVED 22/02/2021

Height of tree: Approximately 18.2m.

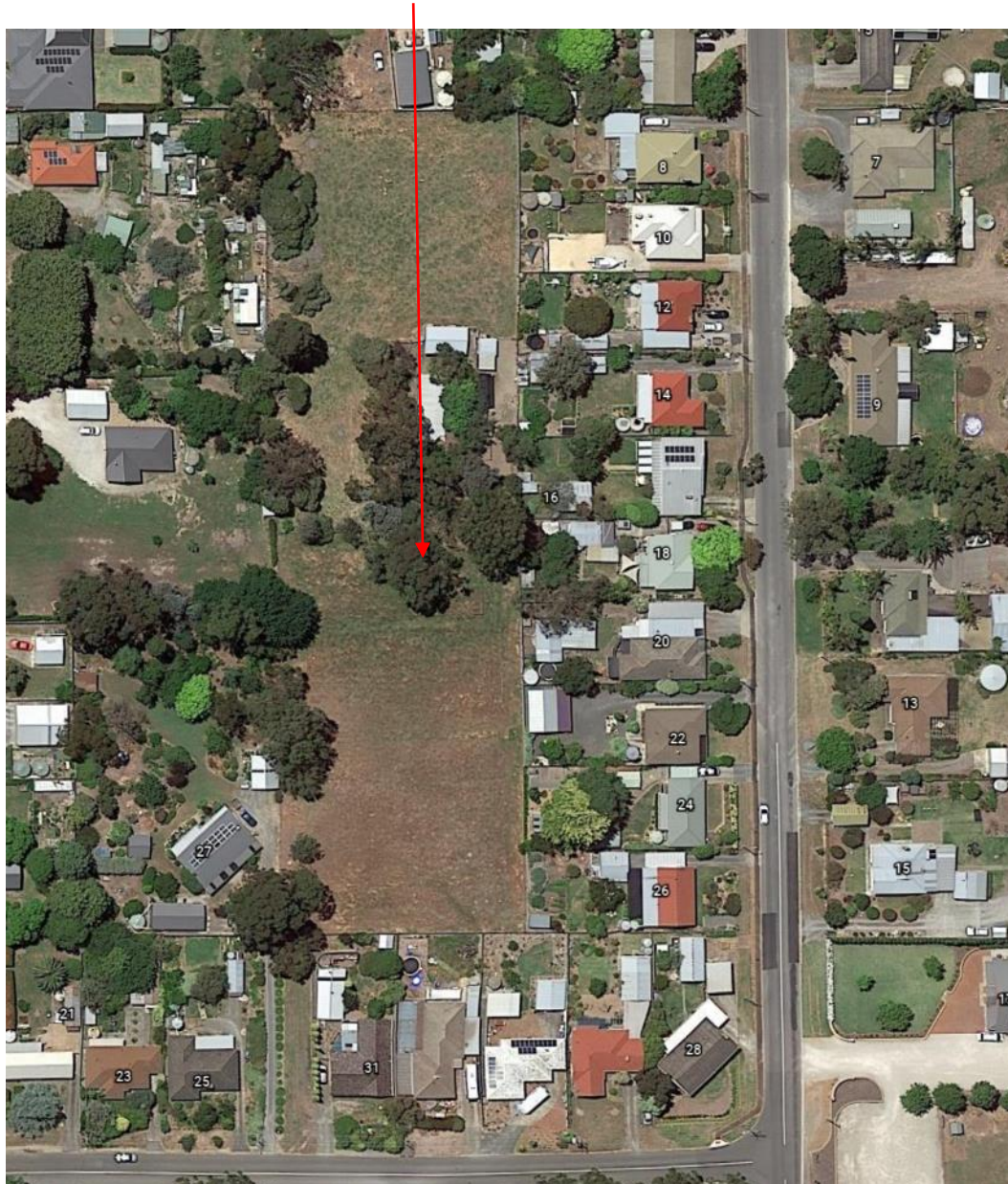
Circumference 1m above ground level: 3.3m (Significant tree).

DBH (Diameter at Breast Height): 103cm

TPZ (Tree Protection Zone): 12.36m (Total area 479.9m²)

SRZ (Structural Root Zone): 3.35m

Location of tree: Centre of allotment, west of number 18 Fricks Street



Current condition: The tree is in an average to healthy condition with little or no maintenance work carried out on this tree. There is major deadwood and broken branches throughout the canopy.

Trunk integrity: The main trunk is sound but has had wire wrapped around it.



Branch integrity: The majority of branches are in an average condition with broken branches and deadwood throughout the canopy. There has been signs of major branch failures. Integrity would be average.



Broken branches and deadwood



Presence of swollen areas: Included bark unions.

Presence of fungi: None.

Signs of girdling roots: None.

Presence of bark bleeding extent: None.

Any curious growth forms: None.

Spread of the canopy: Approximate 9m in all directions

Any visible disease symptoms: None.

Presence of cankers: None.

Signs of environmental damage: None.

Condition of leaf material: Healthy condition.

Overall trees appearance: Balanced structurally sound trunk and branches with health foliage.

Trunk characteristics – narrow or open cracks, cavities present: None.

Condition of bark at soil line: No signs of fungi or basal rot.

Presence of borer holes: None.

Presence of dead wood, describe: There was minor deadwood branches throughout canopy.

Native wildlife habitat: None could be seen and no hollows within the trees.

Within the 'Principles of the Development Control'

Part 3- Planning schemes, Division 2 – Development Plans (4a):

(a) makes an significant contribution to the character or amenity of the local area; or

As this tree is of a medium size within the property, it does make a minor contribution to the character and amenity of Lobethal. There are many other Eucalyptus of different species located near this tree.

(b) is indigenous to the local area etc.

This tree is indigenous to Eastern Australia. This tree would have been planted previously, by the owners, possibly as a feature tree.

(c) A rare or endangered species;

This tree species is very common throughout the South Australia.

(d) represents an important habitat for native fauna;

No native fauna could be seen or habitats within this tree.

Significant tree/s should not be removed or damaged other than where it can be demonstrated that one or more of the following apply:

(a) the tree is diseased and its life expectancy is short;

(b) the tree represents a material risk to public or private safety;

(c) the tree is causing damage to a building;

(d) development that is reasonable and expected would not otherwise be possible;

(e) the work is required for the removal of deadwood, treatment of disease, or is in the general interests of the health of the tree.

This tree has shown that it does have branch failures and will possibly have them into the future if maintenance work isn't carried out regularly.

With the proposed development and a TPZ (Tree Protection Zone) of 12.36m, this tree may limit a reasonable building envelope and may require removal but at present is sound.

Recommendations:

- Remove wire around trunk, remove all deadwood and retrim broken branches. (short term solution)
- As the tree is in an average condition and if development was intrusive to the TPZ this could possibly cause the tree to stress, causing more major branches to fail and for the decline in health within 5 to 10 years. This would escalate the potential consequence to a severe rating.

Descriptors referred to the Tree Risk Assessment Form

Target number—many trees have multiple targets within the target zone; the target number is provided to list individual targets and to facilitate inclusion of this number in the Risk Categorization chart so that the target description does not need to be rewritten.

Target description—brief description such as “people near tree” “house,” “play area,” or “high-traffic street.” Location of the target can be noted by checking one of the distance boxes to the right of the description.

Target zone—identify where the targets are in relation to the tree or tree part:

Target protection—note any significant factors that could protect the target

Within drip line—target is underneath the canopy of the tree.

Within $1 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails (1 times the height of the tree).

Within $1.5 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails and there are dead or brittle branches that could shatter and fly from the failed tree.

Occupancy rate—an estimated amount of time the target is within the target zone. Use corresponding numbered codes (1–4):

Crown and Branches

Vigor—an assessment of overall tree health; classify as low, normal, or high:

Chlorotic—yellowish-green to yellow.

Necrotic—dead foliage in part of or the entire crown

Codominant—branches of nearly equal diameter arising from a common junction and lacking a normal branch union.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure.

Weak attachments—branches that are codominant or that have included bark or splits at or below the junctions. **Reduced**—pruning to decrease tree height or spread by cutting to lateral branches.

Crown cleaned—pruning of dead, dying, diseased, and broken branches from the tree crown.

Cavity/Nest hole—openings from the outside into the heart-wood area of the tree; record the percentage of the branch circumference that has missing wood.

Canker—localized diseased areas on the branch; often sunken or discoloured.

Gall—abnormal swellings of tissue caused by pests; may or may not be a defect.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the branch, or decay of dead or dying branches

Load on defect—a consideration of how much loading is expected on the tree part of concern.

Likelihood of failure—the rating (*improbable, possible, probable, or imminent*) for the crown and branches of greatest concern.

Appendix 2 Risk Matrix and Descriptor

Consequence

The potential consequence in the event of the tree (or an identified tree part) failing.

Catastrophic (1)	The tree is located in an area that attracts a high frequency of people and/or may cause in excess of \$250,000 (AUD) damage to a fixed asset.
Major (2)	A potential failure may result in fatality or serious injury and/or may cause damage to fixed or mobile assets.
Moderate (3)	A potential failure may result in fatality or serious injury but is unlikely to and/or may cause damage to fixed or mobile assets but is unlikely to.
Minor (4)	The tree is located in an area that is unlikely to attract people or mobile assets with no fixed assets in the impact zone.
Inconsequential (5)	The tree is located in an area that is not typically accessed by people or mobile assets.

I would expect the potential consequence to be Minor (4).

Risk Rating

The risk rating of the tree as determined by the risk matrix and the recommended course of action.

Immediate	The tree must be isolated from people and action taken immediately to control the identified hazard. The arborist (or nominated person) shall not leave the area until the identified hazard has been controlled.
Severe	The tree must be isolated from people and action taken to control the identified hazard as soon as possible.
High	Action should be taken to mitigate the risk within one month.
Medium	Action should be taken to mitigate the risk within twelve months.
Low	Action should be taken to mitigate the risk at the custodian's discretion.

I would expect the Risk Rating to be Medium.

- The Development Act and the Development Regulations 1993 (DA 1993). This Act controls 'tree damaging activity' in relation to 'significant' trees by declaring it to be 'Development.' Trees 3m or greater in circumference measured 1m above natural ground level within the local council area are deemed as 'significant trees' Where trees have multiple stems they must have an average >625mm. 'Tree damaging activity' includes tree removal, damage to the root system, or pruning that will adversely affect the tree health. Council approval is required prior to any of these activities occurring. Breaches of the act are subject to fines of up to \$120,000.
- Included Bark Crotches are potential structural weaknesses that occur in trees between the main stem and a branch or between leaders of equal size (codominant stems). Bark between the stems turns downwards and prevents the interlocking of wood fibres rather than upwards to form a branch bark ridge as occurs in structurally sound crotches. This defect is under genetic control and may be repeated throughout the tree or occur in only one crotch. The position of an included bark crotch in a tree plays an important part in the tree structural stability. Low included bark crotches are more serious than those higher in the tree. Depending upon the severity of the defect, tree age and species involved, it may be possible to prune or cable trees with bark inclusions in order to reduce the risk of failure.

Bob Amezdroz
 Comphort Technical Services
 Consulting Arborist
 Dip of Hort, Dip of Arboriculture
 TRAQ qualified
 0427012755

Consultants Liability and Limitations:

All tree assessments are visual inspections and comment on the tree species, that can be seen, touched or inferred from the ground and covers what could reasonably be assessed and available to the assessor at the time of inspection.

The Tree Audit Register (TAR) and recommendations made in this report associated with the project are made in good faith on the basis of the information available to the consultant at the time of the inspection therefore the author accepts no liability for any recommendations made.

The inspection period to which the report applies is two months from the date of the report.

Achievement of objectives set out in such reports will depend among other things on the actions of the client, contractor(s), council, environment and the tree(s), over which the consultant has no control before, during and after the audit has been conducted.

Information contained in this report covers only the tree(s) that were examined and reflects the condition of the tree(s) at the time of inspection. There is no warranty or guarantee, expressed or implied; that problems or deficiencies of the subject tree(s) may not arise in the future.

Care has been taken to obtain all information from reliable sources. All data has been verified in so far as possible; however, the author can neither guarantee nor be responsible for the accuracy of information provided by others.

The author remains the sole beneficiary of this report until due payment is made to the author.

If you require any further clarification or information, please contact me on the number provided.

Comphort Technical Services

Bob Amezdroz Diploma of Horticulture and Arboriculture

Wk. 0427012755

Tree assessment at, 29 Kumnick Street, Lobethal on 2020-08-27

The purpose of this report is to identify potential impacts this tree may have on adjacent properties, development and persons living or working in the vicinity.

The opinions and recommendations are based on a visual inspection from the ground and within the tree with no increment boring to identify if internal decay was present.

Tree species: Eucalyptus globulus (Tasmanian Blue Gum) Number 15 tagged



Height of tree: Approximately 22m.

Circumference 1m above ground level: 3.87m (Significant tree).

DBH (Diameter at Breast Height): 123cm

TPZ (Tree Protection Zone): 14.76m (Total area 684.4m²)

SRZ (Structural Root Zone): 3.6m

Location of tree: Centre of allotment, west of number 18 Fricks Street



Current condition: The tree is in an average condition with little or no maintenance work carried out on this tree. There is major borer activity throughout the trees structure which is starting to affect the foliage with minor die-back and thinning canopy.

Trunk integrity: The main trunk has many long lateral branches and borer activity in many locations.



Borer activity



Branch integrity: The majority of branches are in an average condition with included bark unions, borer activity and deadwood throughout the canopy. There has been no signs of major branch failure as yet but could be expected. Integrity would be average.



Presence of swollen areas: Included bark unions.

Presence of fungi: None.

Signs of girdling roots: None.

Presence of bark bleeding extent: Minor to major on branches and trunk, sites of borer infestation.

Any curious growth forms: None.

Spread of the canopy: Approximate 10m in all directions

Any visible disease symptoms: None.

Presence of cankers: None.

Signs of environmental damage: None.

Condition of leaf material: Average condition with sparse foliage throughout canopy.

Overall trees appearance: Balanced structurally poor trunk and branches with average health foliage.

Trunk characteristics – narrow or open cracks, cavities present: None.

Condition of bark at soil line: No signs of fungi or basal rot.

Presence of borer holes: Multiple sites throughout the structure of the tree.

Presence of dead wood, describe: There was minor deadwood branches throughout canopy.

Native wildlife habitat: None could be seen and no hollows within the trees.

Within the 'Principles of the Development Control'

Part 3- Planning schemes, Division 2 – Development Plans (4a):

(a) makes an significant contribution to the character or amenity of the local area; or

As this tree is of a large size within the property, it does make a minor contribution to the character and amenity of Lobethal. There are many other Eucalyptus of different species located near this tree.

(b) is indigenous to the local area etc.

This tree is indigenous to South Eastern Australia. This tree would have been planted previously, by the owners, possibly as a feature tree.

(c) A rare or endangered species;

This tree species is very common throughout the South Australia.

(d) represents an important habitat for native fauna;

No native fauna could be seen or habitats within this tree.

Significant tree/s should not be removed or damaged other than where it can be demonstrated that one or more of the following apply:

(a) the tree is diseased and its life expectancy is short;

(b) the tree represents a material risk to public or private safety;

(c) the tree is causing damage to a building;

(d) development that is reasonable and expected would not otherwise be possible;

(e) the work is required for the removal of deadwood, treatment of disease, or is in the general interests of the health of the tree.

This tree has a major problem with borer activities and will shorten its life expectancy, possibly die within 5 years, this will weaken the structural integrity of the tree. This is a common problem with this species of Eucalyptus as it comes from an area of very high rainfall area and the rainfall in South Australia isn't enough to maintain their health and vigour. This species on the Adelaide plains lives about 25 to 30 years and in the Adelaide hills 30 to 40 years because of mainly borer activity within them, which is a sign of stress within the tree.

Recommendations:

- As this tree does have a shortened life span, possibly less than 5 years. If left undisturbed many branches would die-back and become a material risk for any person using the area beneath this tree and have a weakened structure.
- As this area is proposed for redevelopment, it would be wise to remove the tree before or during development to maintain a safe site for workers.
- It is very hard to control borers as of their life cycle and the unknown whether they are within the tree or have grown into the beetle stage and flown elsewhere.
- All other alternatives to save the tree would be futile e.g. removing all borer activity would leave the tree heavily topped and if it survived multiple epicormic shoots would grow and these can become hazardous as they get tall and fall down in windy conditions.

Descriptors referred to the Tree Risk Assessment Form

Target number—many trees have multiple targets within the target zone; the target number is provided to list individual targets and to facilitate inclusion of this number in the Risk Categorization chart so that the target description does not need to be rewritten.

Target description—brief description such as “people near tree” “house,” “play area,” or “high-traffic street.” Location of the target can be noted by checking one of the distance boxes to the right of the description.

Target zone—identify where the targets are in relation to the tree or tree part:

Target protection—note any significant factors that could protect the target

Within drip line—target is underneath the canopy of the tree.

Within $1 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails (1 times the height of the tree).

Within $1.5 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails and there are dead or brittle branches that could shatter and fly from the failed tree.

Occupancy rate—an estimated amount of time the target is within the target zone. Use corresponding numbered codes (1–4):

Crown and Branches

Vigor—an assessment of overall tree health; classify as low, normal, or high:

Chlorotic—yellowish-green to yellow.

Necrotic—dead foliage in part of or the entire crown

Codominant—branches of nearly equal diameter arising from a common junction and lacking a normal branch union.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure.

Weak attachments—branches that are codominant or that have included bark or splits at or below the junctions. **Reduced**—pruning to decrease tree height or spread by cutting to lateral branches.

Crown cleaned—pruning of dead, dying, diseased, and broken branches from the tree crown.

Cavity/Nest hole—openings from the outside into the heart-wood area of the tree; record the percentage of the branch circumference that has missing wood.

Canker—localized diseased areas on the branch; often sunken or discoloured.

Gall—abnormal swellings of tissue caused by pests; may or may not be a defect.

Sapwood damage/decay—check box if there is mechanical or fungal damage in the sapwood that may weaken the branch, or decay of dead or dying branches

Load on defect—a consideration of how much loading is expected on the tree part of concern.

Likelihood of failure—the rating (*improbable*, *possible*, *probable*, or *imminent*) for the crown and branches of greatest concern.

Appendix 2 Risk Matrix and Descriptor

Consequence

The potential consequence in the event of the tree (or an identified tree part) failing.

Catastrophic (1)	The tree is located in an area that attracts a high frequency of people and/or may cause in excess of \$250,000 (AUD) damage to a fixed asset.
Major (2)	A potential failure may result in fatality or serious injury and/or may cause damage to fixed or mobile assets.
Moderate (3)	A potential failure may result in fatality or serious injury but is unlikely to and/or may cause damage to fixed or mobile assets but is unlikely to.
Minor (4)	The tree is located in an area that is unlikely to attract people or mobile assets with no fixed assets in the impact zone.
Inconsequential (5)	The tree is located in an area that is not typically accessed by people or mobile assets.

I would expect the potential consequence to be Moderate (3) at present but could escalate in the future if left.

Risk Rating

The risk rating of the tree as determined by the risk matrix and the recommended course of action.

Immediate	The tree must be isolated from people and action taken immediately to control the identified hazard. The arborist (or nominated person) shall not leave the area until the identified hazard has been controlled.
Severe	The tree must be isolated from people and action taken to control the identified hazard as soon as possible.
High	Action should be taken to mitigate the risk within one month.
Medium	Action should be taken to mitigate the risk within twelve months.
Low	Action should be taken to mitigate the risk at the custodian's discretion.

I would expect the Risk Rating to be Medium.

- The Development Act and the Development Regulations 1993 (DA 1993). This Act controls 'tree damaging activity' in relation to 'significant' trees by declaring it to be 'Development.' Trees 3m or greater in circumference measured 1m above natural ground level within the local council area are deemed as 'significant trees' Where trees have multiple stems they must have an average >625mm. 'Tree damaging activity' includes tree removal, damage to the root system, or pruning that will adversely affect the tree health. Council approval is required prior to any of these activities occurring. Breaches of the act are subject to fines of up to \$120,000.
- Included Bark Crotches are potential structural weaknesses that occur in trees between the main stem and a branch or between leaders of equal size (codominant stems). Bark between the stems turns downwards and prevents the interlocking of wood fibres rather than upwards to form a branch bark ridge as occurs in structurally sound crotches. This defect is under genetic control and may be repeated throughout the tree or occur in only one crotch. The position of an included bark crotch in a tree plays an important part in the tree structural stability. Low included bark crotches are more serious than those higher in the tree. Depending upon the severity of the defect, tree age and species involved, it may be possible to prune or cable trees with bark inclusions in order to reduce the risk of failure.

Bob Amezdroz
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 0427012755

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Comphort Technical Services

Bob Amezdroz Diploma of Horticulture and Arboriculture
Wk. 0427012755

Tree assessment at, 29 Kumnick Street, Lobethal on 2020-08-27

The purpose of this report is to identify potential impacts this tree may have on adjacent properties, development and persons living or working in the vicinity.

The opinions and recommendations are based on a visual inspection from the ground and within the tree with no increment boring to identify if internal decay was present.

Tree species: *Corymbia citrodora* (Lemon-scented Gum) Number 24 tagged



**ADELAIDE HILLS COUNCIL
RECEIVED 22/02/2021**

Height of tree: Approximately 20.2m.

Circumference 1m above ground level: 2.15m (Regulated tree).

DBH (Diameter at Breast Height): 65cm

TPZ (Tree Protection Zone): 7.8m (Total area 191.1m²)

SRZ (Structural Root Zone): 2.9m

Location of tree: Western boundary of allotment, west of number 18 Fricks Street



Current condition: The tree is in an average to healthy condition with little or no maintenance work carried out on this tree. There is major structural defect within the canopy. (Included bark union with swelling and possible decay within the union).

Trunk integrity: The main trunk is sound at present but has a major structural defect, approximately 8m above ground level with an included bark union, swelling and possibly decay within this area.



Branch integrity: The majority of branches are in a healthy condition within the canopy. There has been no signs of major branch failures. Integrity would be good.

Presence of swollen areas: Included bark union.

Presence of fungi: None.

Signs of girdling roots: None.

Presence of bark bleeding extent: None.

Any curious growth forms: None.

Spread of the canopy: Approximate 10m in all directions

Any visible disease symptoms: None.

Presence of cankers: None.

Signs of environmental damage: None.

Condition of leaf material: Healthy condition.

Overall trees appearance: Balanced structurally unsound trunk and healthy foliage and branches.

Trunk characteristics – narrow or open cracks, cavities present: None.

Condition of bark at soil line: No signs of fungi or basal rot.

Presence of borer holes: None.

Presence of dead wood, describe: There was minor deadwood branches throughout canopy.

Native wildlife habitat: None could be seen and no hollows within the trees.

Within the 'Principles of the Development Control'

Part 3- Planning schemes, Division 2 – Development Plans (4a):

(a) makes an significant contribution to the character or amenity of the local area; or

As this tree is of an average size within the property, it does make a minor contribution to the character and amenity of Lobethal. There are many other Eucalyptus of different species located near this tree.

(b) is indigenous to the local area etc.

This tree is indigenous to Eastern Australia. This tree would have been planted previously, by the owners, possibly as a feature tree.

(c) A rare or endangered species;

This tree species is very common throughout the South Australia.

(d) represents an important habitat for native fauna;

No native fauna could be seen or habitats within this tree.

Significant tree/s should not be removed or damaged other than where it can be demonstrated that one or more of the following apply:

(a) the tree is diseased and its life expectancy is short;

(b) the tree represents a material risk to public or private safety;

(c) the tree is causing damage to a building;

(d) development that is reasonable and expected would not otherwise be possible;

(e) the work is required for the removal of deadwood, treatment of disease, or is in the general interests of the health of the tree.

This tree has shown that it does have a major structural defect (Included Bark Union) that has the potential and represents a material risk to persons beneath this tree especially in windy conditions.

As this tree is too large to remove one of the main leaders and maintain a structurally sound tree as the remaining leader would be left exposed to the elements and the possibility of the removed leader attachment point to not compartmentalize which would lead to decay within this area.

Included bark failure of branches is one of the major causes of damage to property and injuring to person/s, in storm conditions.

If one of these major leaders failed the life expectancy would be shortened because decay which would enter the main trunk of the tree and cause other major issues leading to its decline. As the tree has these leaders, still attached, it is an unknown how long this tree will live for, it could be very short or be decades.

The proposed driveway for the proposed development would severely impact the SRZ and TPZ and restrict development that is reasonable and expected, that would not otherwise be possible.

Recommendations:

- As the tree is in an average condition with the possibility of causing injury to person/s beneath its canopy and restricting development, I would recommend that the whole tree be removed as there is very limited options of saving this tree from major leader failure and damage with development. This will escalate the potential consequence if left.

Descriptors referred to the Tree Risk Assessment Form

Target number—many trees have multiple targets within the target zone; the target number is provided to list individual targets and to facilitate inclusion of this number in the Risk Categorization chart so that the target description does not need to be rewritten.

Target description—brief description such as “people near tree” “house,” “play area,” or “high-traffic street.” Location of the target can be noted by checking one of the distance boxes to the right of the description.

Target zone—identify where the targets are in relation to the tree or tree part:

Target protection—note any significant factors that could protect the target

Within drip line—target is underneath the canopy of the tree.

Within $1 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails (1 times the height of the tree).

Within $1.5 \times \text{Ht}$ —target is within striking distance if the trunk or root system of the tree fails and there are dead or brittle branches that could shatter and fly from the failed tree.

Occupancy rate—an estimated amount of time the target is within the target zone. Use corresponding numbered codes (1–4):

Crown and Branches

Vigor—an assessment of overall tree health; classify as low, normal, or high:

Chlorotic—yellowish-green to yellow.

Necrotic—dead foliage in part of or the entire crown

Codominant—branches of nearly equal diameter arising from a common junction and lacking a normal branch union.

Included bark—bark that becomes embedded in a union between branch and trunk, or between codominant stems, causing a weak structure.

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I would expect the Risk Rating to be Medium, at present but if development proceeded this would increase the risk.

- The Development Act and the Development Regulations 1993 (DA 1993). This Act controls 'tree damaging activity' in relation to 'regulated' trees by declaring it to be 'Development.' Trees 2m to less than 3m in circumference measured 1m above natural ground level within the local council area are deemed as 'significant trees' Where trees have multiple stems they must have a total circumference of 2m or more and an average >625mm, measured at a point 1m above natural ground level. 'Tree damaging activity' includes tree removal, damage to the root system, or pruning that will adversely affect the tree health. Council approval is required prior to any of these activities occurring. Breaches of the act are subject to fines of up to \$120,000.
- The response of trees to wounding and the behaviour of decay organisms within wounded regions are intricate and variable, involving physical and biological processes, and are not fully accounted for by any single model. The concept developed and publicised in the 1970's and subsequently extended by Alex Shigo, expresses a short hand version of the wound reaction process in terms of Compartmentalisation of Decay in Trees (abbreviated to CODIT) (Shigo and Marx, 1977;Shigo, 1979;Shigo, 1989). Shigo's model emphasises that trees are naturally compartmenting organisms; organised through the cellular level, to the tissues and organs of the tree, expressed in the anatomy of wood, and discernible in annual growth processes.
- Included Bark Crotches are potential structural weaknesses that occur in trees between the main stem and a branch or between leaders of equal size (codominant stems). Bark between the stems turns downwards and prevents the interlocking of wood fibres rather than upwards to form a branch bark ridge as occurs in structurally sound crotches. This defect is under genetic control and may be repeated throughout the tree or occur in only one crotch. The position of an included bark crotch in a tree plays an important part in the tree structural stability. Low included bark crotches are more serious than those higher in the tree. Depending upon the severity of the defect, tree age and species involved, it may be possible to prune or cable trees with bark inclusions in order to reduce the risk of failure.

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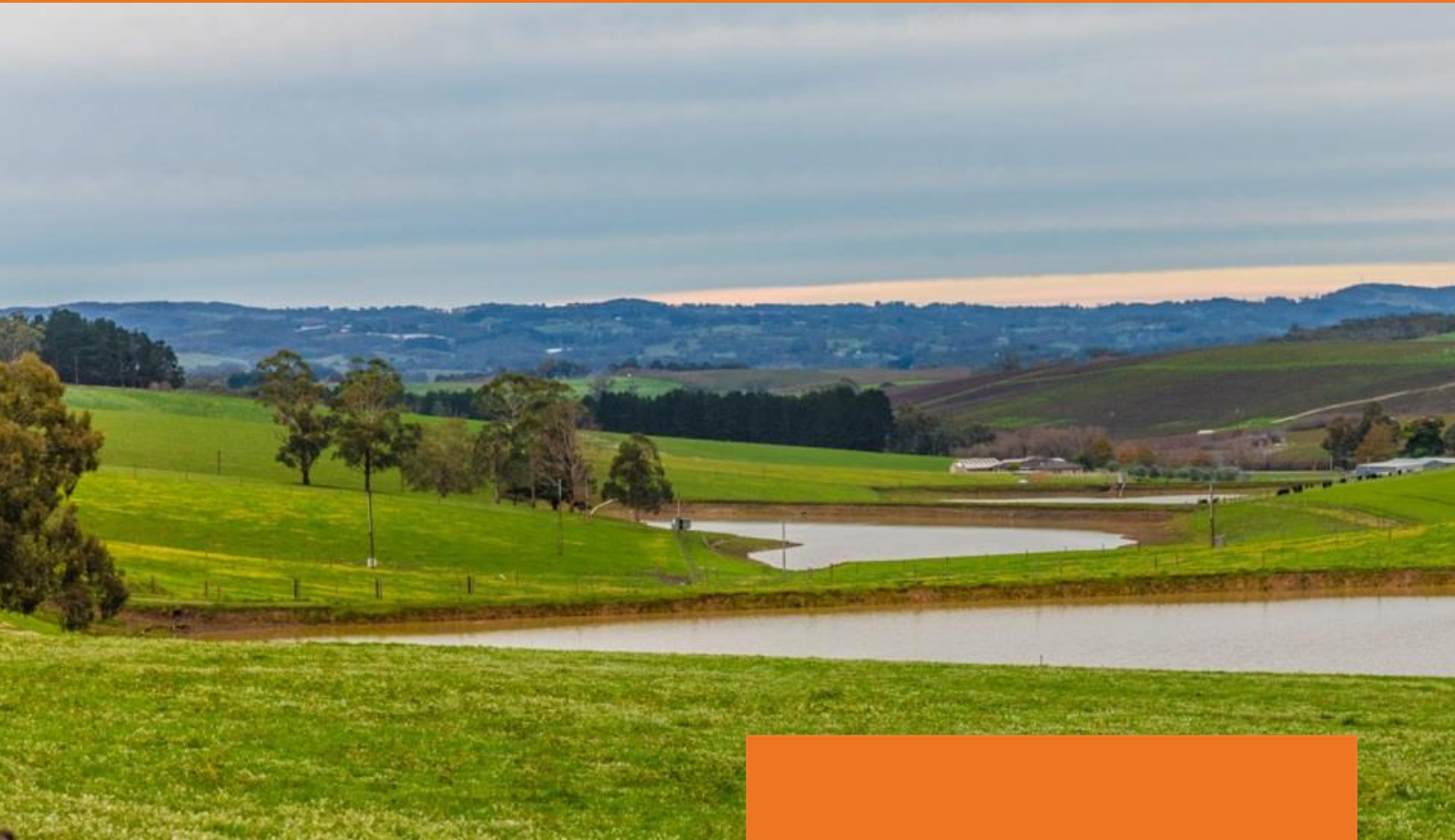
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BUILDINGS

LAND DIVISION

INFRASTRUCTURE

RESOURCES &
INDUSTRIAL

DEFENCE

STORMWATER Calculation Report

Kumnick Road, Lobethal
Reference A2020 - 10488

24 February 2021

Head Office 452 Pulteney Street
Adelaide, South Australia 5000
(08) 8231 2832
mlei@mlei.com.au

Project: Kumnick St, Lobethal

Designer: HP

Date:

24/02/2021

Reference: A2020-10488

Checked by: TN

Index: 1

SUMMARY	REF./COMMENT
<p><u>Council requirements:</u></p> <ul style="list-style-type: none"> - Post development 1% AEP to be restricted to pre development 1% AEP. - Post-development 5%, 10% and 18.13% AEP to be restricted to the 18.13% AEP - All pre-development flows can be discharged to the street using an overflow mechanism. <p><u>Summary:</u></p> <p>Detention volume required for each scenario:</p> <p>1% AEP = 45,117L</p> <p>5% AEP = 45,931L</p> <p>10% AEP = 29,601L</p> <p>18.13% AEP = 18,503L</p> <p>-Therefore adopt the peak detention volume of 46,000L</p> <p>- Upstream catchment contributing to development site assumed to have no detention systems, therefore peak flow entering site is 61.17L/s during the major 5% AEP.</p> <p>- Upstream flow to be redirected within an easement, final location of easement to be confirmed with Council & developer.</p> <p>Proposed solution:</p> <ul style="list-style-type: none"> - Detention tank system adopted to be 46,000L, volume provided will be able to detain the maximum volume required. - Detention tank outlet to be restricted to the 5 year storm event allowable flow rate. - During 100 year storm, runoff will discharge into the tank and given the outlet is only sized for the 5 year storm event, the balance will flow out of an overflow pit, flowing overland to the street. During the 100 year storm event, the combined flow rate of the overland flow and 5 year outlet will be equal to that of the 100 year storm event allowable flow rate. 	

Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 2

STORMWATER DETENTION CALCULATIONS

REF./COMMENT

Council Requirements

	Pre	Post
ARI (years)	100	100
tc (min)	5	5

Site BOM IFDs

I(10/1) (mm/h)	24.7
Pre-dev I(100/5) (mm/h)	160
Post-dev I(100/5) (mm/h)	160

BOM IFD
BOM IFD
BOM IFD

Council Specified Pre-Development Runoff Coefficient

No	n/a
----	-----

Pre-Development Flow

Site Surfaces	Area (m ²)	f
Development area	10678.68	0.2
-	0	0.1
-	0	0.1

Pre-Development
Catchment Plan

Total Area = 10678.68 m²
favg = 0.200

C(10/1) = 0.100

C10 = 0.260

C100 = 0.312

ARR Table 14.6	
ARI (years)	Frequency Factor, F _y
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

ARR Eq. 14.12
ARR Eq. 14.11
ARR Eq. 14.13

Pre Development Flow, Q_{pre} = 148.20 L/s

Q_{pre} = 148.20

5.3.2 Rational Method

(a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m³/s) of average recurrence interval (ARI) of Y years

C_Y = runoff coefficient (dimensionless) for ARI of Y years

A = area of catchment (km²)

$I_{t_c, Y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km², the conversion factor is 0.00278 (or 1/360).

$$C_{10}^{10} = 0.1 + (0.7 - 0.1) \times (10I_1 - 25)/(70 - 25) \\ = 0.1 + 0.0133 \times (10I_1 - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^{10} \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$

Project: Kumnick St, Lobethal
 Designer: HP Date: 22/07/2020

Reference: A2020-10488
 Checked by: TN
 Index: 3

STORMWATER DETENTION CALCULATIONS			REF./COMMENT																								
<p>Post-Development Flow</p> <p>Unrestricted Flow: <i>Runoff considered to be undetained</i></p> <table><tr><th>Site Surfaces</th><th>Area (m²)</th><th>f</th></tr><tr><td>Roof</td><td>0</td><td>1.0</td></tr><tr><td>Concrete/Paved/Bitumen</td><td>0</td><td>0.9</td></tr><tr><td>Landscaped</td><td>0</td><td>0.1</td></tr></table> <p>Total Area = <div>0</div> m² favg = <div>0.000</div></p> <p>C10 = <div>0.100</div> C100 = <div>0.120</div></p> <p>Unrestricted Post Development Flow, Qun-post = <div>0.00</div> L/s</p> <p>Allowable Flow, Qall = <div>148.20</div> L/s</p> <p>Restricted Flow: <i>Runoff considered to be detained</i></p> <table><tr><th>Site Surface</th><th>Area (m²)</th><th>f</th></tr><tr><td>Allotment</td><td>8903.91</td><td>0.494</td></tr><tr><td>Driveway</td><td>1774.77</td><td>0.9</td></tr><tr><td>-</td><td>0</td><td>0.1</td></tr></table> <p>Total Area = <div>10678.68</div> m² favg = <div>0.561</div></p> <p>C10 = <div>0.549</div> C100 = <div>0.659</div></p> <p><i>Refer to attached detention calculations</i></p>			Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	0	0.9	Landscaped	0	0.1	Site Surface	Area (m ²)	f	Allotment	8903.91	0.494	Driveway	1774.77	0.9	-	0	0.1	<p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13</p> <p>Qun-post = 0.00</p> <p>Qall = 148.20</p> <p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13 C100 = 0.659</p>
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Project: Kumnick St, Lobethal
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Reference: A2020-10488
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Index: 4

STORMWATER DETENTION CALCULATIONS

Detention Calculations

ARI = 100 years
Area = 10678.68 m²
tc = 5 min
C100 = 0.659

Detention Volume Required = 45117 L

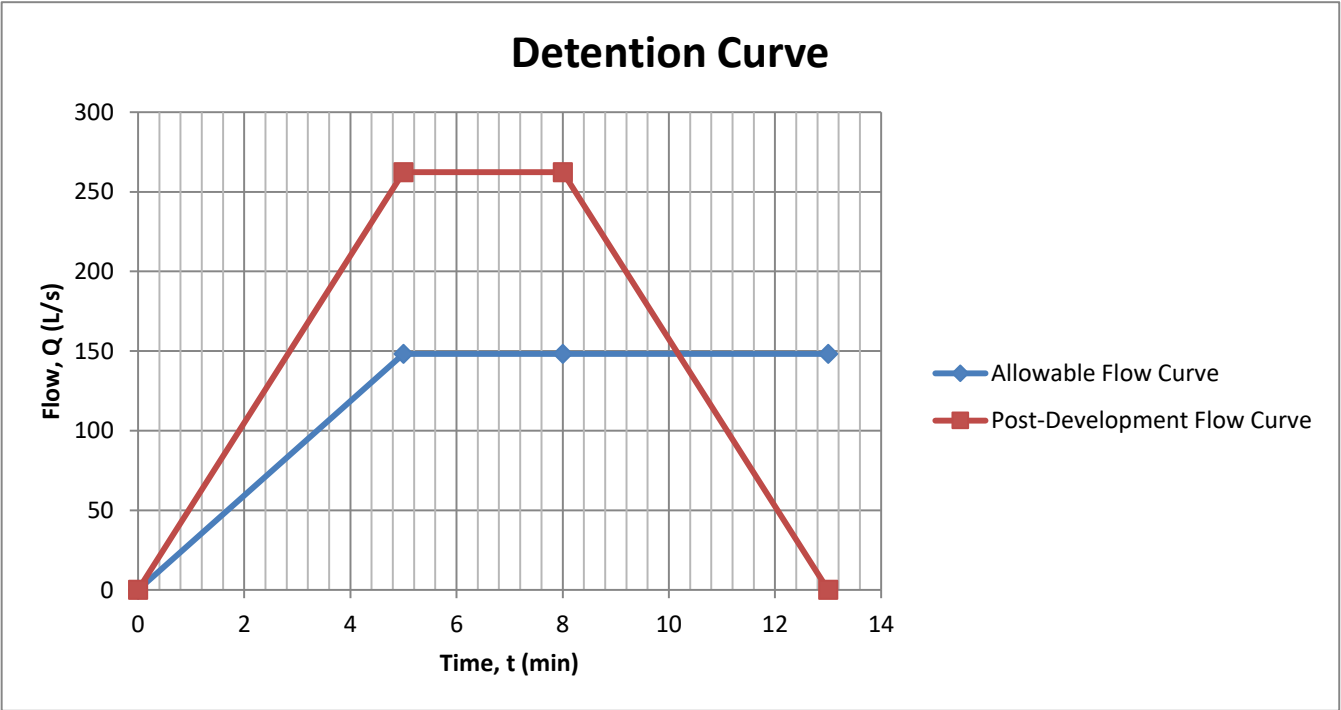
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	160.0	312.8	148.2	37677
6	151.4	296.0	148.2	42098
7	142.8	279.2	148.2	44573
8	134.2	262.3	148.2	45117
9	125.6	245.5	148.2	43747
10	117.0	228.7	148.2	40486
11	112.4	219.7	148.2	39949
12	107.8	210.7	148.2	38379
13	103.1	201.6	148.2	35782
14	98.5	192.6	148.2	32168
15	93.9	183.6	148.2	27545
16	91.0	178.0	148.2	24863
17	88.2	172.4	148.2	21547
18	85.3	166.8	148.2	17600
19	82.5	161.2	148.2	13027
20	79.6	155.6	148.2	7833
21	77.6	151.7	148.2	3897
22	75.6	147.8	148.2	0
23	73.6	143.9	148.2	0
24	71.6	140.0	148.2	0
25	69.6	136.1	148.2	0
26	68.1	133.2	148.2	0
27	66.6	130.3	148.2	0
28	65.2	127.4	148.2	0
29	63.7	124.5	148.2	0
30	62.2	121.6	148.2	0
31	61.3	119.8	148.2	0
32	60.3	117.9	148.2	0
33	59.4	116.1	148.2	0
34	58.5	114.3	148.2	0
35	57.5	112.5	148.2	0
36	56.6	110.6	148.2	0
37	55.7	108.8	148.2	0
38	54.7	107.0	148.2	0
39	53.8	105.2	148.2	0
40	52.9	103.3	148.2	0
41	51.9	101.5	148.2	0
42	51.0	99.7	148.2	0

43	50.1	97.9	148.2	0
44	49.1	96.0	148.2	0
45	48.2	94.2	148.2	0
46	47.7	93.2	148.2	0
47	47.1	92.1	148.2	0
48	46.6	91.1	148.2	0
49	46.0	90.0	148.2	0
50	45.5	88.9	148.2	0
51	45.0	87.9	148.2	0
52	44.4	86.8	148.2	0
53	43.9	85.8	148.2	0
54	43.3	84.7	148.2	0
55	42.8	83.7	148.2	0
56	42.3	82.6	148.2	0
57	41.7	81.6	148.2	0
58	41.2	80.5	148.2	0
59	40.6	79.4	148.2	0
60	40.1	78.4	148.2	0

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
45117	8	262.34

Detention Curve Data - Detention volume equal to area between curves

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	148.20	5	262.34
8	148.20	8	262.34
13	148.20	13	0



Project: Kumnick St, Lobethal
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Index: 5

STORMWATER DETENTION CALCULATIONS

REF./COMMENT

Council Requirements

	Pre	Post
ARI (years)	5	20
tc (min)	5	5

Site BOM IFDs

I(10/1) (mm/h)	24.7
Pre-dev I(5/5) (mm/h)	83.4
Post-dev I(20/5) (mm/h)	115

BOM IFD
BOM IFD
BOM IFD

Council Specified Pre-Development Runoff Coefficient

No	n/a
----	-----

Pre-Development Flow

Site Surfaces	Area (m ²)	f
Development area	10678.68	0.2
-	0	0.1
-	0	0.1

Pre-Development
Catchment Plan

Total Area = 10678.68 m²
favg = 0.200

C(10/1) = 0.100
C10 = 0.260

C5 = 0.247

ARR Table 14.6	
ARI (years)	Frequency Factor, F _y
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

ARR Eq. 14.12
ARR Eq. 14.11
ARR Eq. 14.13

Pre Development Flow, Q_{pre} = 61.15 L/s

Q_{pre} = 61.15

5.3.2 Rational Method

(a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m³/s) of average recurrence interval (ARI) of Y years

C_Y = runoff coefficient (dimensionless) for ARI of Y years

A = area of catchment (km²)

$I_{t_c, Y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km², the conversion factor is 0.00278 (or 1/360).

$$C_{10}^{10} = 0.1 + (0.7 - 0.1) \times (10I_1 - 25)/(70 - 25) \\ = 0.1 + 0.0133 \times (10I_1 - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^{10} \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$

Project: Kumnick St, Lobethal
 Designer: HP Date: 22/07/2020

Reference: A2020-10488
 Checked by: TN
 Index: 6

STORMWATER DETENTION CALCULATIONS		REF./COMMENT																								
<p>Post-Development Flow</p> <p>Unrestricted Flow: <i>Runoff considered to be undetained</i></p> <table border="1"> <thead> <tr> <th>Site Surfaces</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Roof</td><td>0</td><td>1.0</td></tr> <tr> <td>Concrete/Paved/Bitumen</td><td>0</td><td>0.9</td></tr> <tr> <td>Landscaped</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 0 m² favg = 0.000</p> <p>C10 = 0.100 C20 = 0.105</p> <p>Unrestricted Post Development Flow, Qun-post = 0.00 L/s</p> <p>Allowable Flow, Qall = 61.15 L/s</p> <p>Restricted Flow: <i>Runoff considered to be detained</i></p> <table border="1"> <thead> <tr> <th>Site Surface</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Allotment</td><td>8903.91</td><td>0.494</td></tr> <tr> <td>Driveway</td><td>1774.77</td><td>0.9</td></tr> <tr> <td>-</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 10678.68 m² favg = 0.561</p> <p>C10 = 0.549 C20 = 0.577</p> <p><i>Refer to attached detention calculations</i></p>		Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	0	0.9	Landscaped	0	0.1	Site Surface	Area (m ²)	f	Allotment	8903.91	0.494	Driveway	1774.77	0.9	-	0	0.1	<p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13</p> <p>Qun-post = 0.00</p> <p>Qall = 61.15</p> <p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13 C20 = 0.577</p>
Site Surfaces	Area (m ²)	f																								
Roof	0	1.0																								
Concrete/Paved/Bitumen	0	0.9																								
Landscaped	0	0.1																								
Site Surface	Area (m ²)	f																								
Allotment	8903.91	0.494																								
Driveway	1774.77	0.9																								
-	0	0.1																								

Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 7

STORMWATER DETENTION CALCULATIONS

Detention Calculations

ARI = 20 years
Area = 10678.68 m²
tc = 5 min
C20 = 0.577

Detention Volume Required = 45931 L

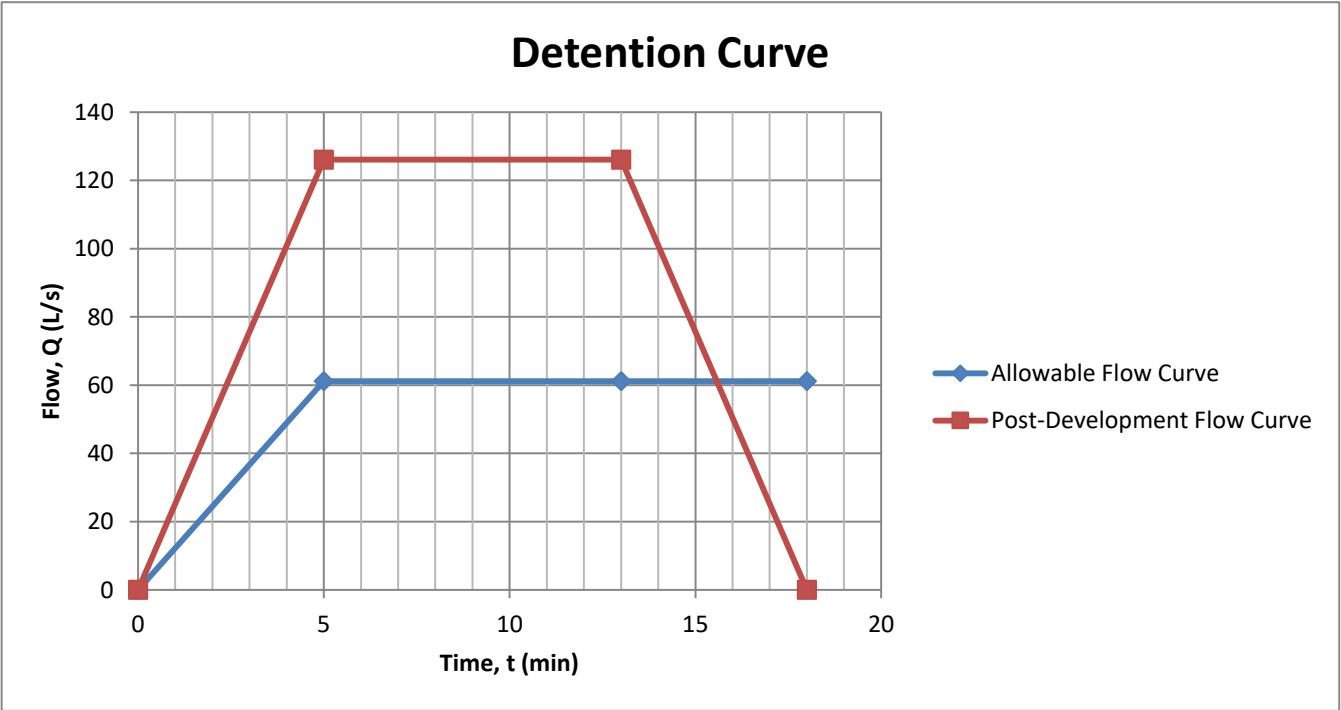
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	115.0	196.7	61.2	34344
6	108.7	185.9	61.2	38763
7	102.4	175.2	61.2	41910
8	96.1	164.4	61.2	43787
9	89.8	153.6	61.2	44401
10	83.5	142.8	61.2	43758
11	80.2	137.2	61.2	45137
12	77.0	131.7	61.2	45861
13	73.7	126.1	61.2	45931
14	70.5	120.5	61.2	45350
15	67.2	114.9	61.2	44119
16	65.1	111.4	61.2	44118
17	63.1	107.9	61.2	43704
18	61.0	104.4	61.2	42879
19	59.0	100.9	61.2	41643
20	56.9	97.3	61.2	39998
21	55.5	94.9	61.2	39296
22	54.1	92.5	61.2	38315
23	52.7	90.1	61.2	37054
24	51.3	87.7	61.2	35515
25	49.9	85.4	61.2	33698
26	48.8	83.5	61.2	32464
27	47.8	81.7	61.2	31019
28	46.7	79.9	61.2	29363
29	45.7	78.1	61.2	27497
30	44.6	76.3	61.2	25421
31	43.9	75.2	61.2	24340
32	43.3	74.0	61.2	23126
33	42.6	72.9	61.2	21781
34	42.0	71.8	61.2	20304
35	41.3	70.6	61.2	18695
36	40.6	69.5	61.2	16955
37	40.0	68.4	61.2	15083
38	39.3	67.3	61.2	13081
39	38.7	66.1	61.2	10948
40	38.0	65.0	61.2	8684
41	37.3	63.9	61.2	6290
42	36.7	62.7	61.2	3766

43	36.0	61.6	61.2	1113
44	35.4	60.5	61.2	0
45	34.7	59.4	61.2	0
46	34.3	58.7	61.2	0
47	33.9	58.0	61.2	0
48	33.5	57.4	61.2	0
49	33.2	56.7	61.2	0
50	32.8	56.0	61.2	0
51	32.4	55.4	61.2	0
52	32.0	54.7	61.2	0
53	31.6	54.1	61.2	0
54	31.2	53.4	61.2	0
55	30.8	52.7	61.2	0
56	30.4	52.1	61.2	0
57	30.1	51.4	61.2	0
58	29.7	50.8	61.2	0
59	29.3	50.1	61.2	0
60	28.9	49.4	61.2	0

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
45931	13	126.10

Detention Curve Data - Detention volume equal to area between curves

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	61.15	5	126.10
13	61.15	13	126.10
18	61.15	18	0



Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 8

STORMWATER DETENTION CALCULATIONS

REF./COMMENT

Council Requirements

	Pre	Post
ARI (years)	5	10
tc (min)	5	5

Site BOM IFDs

I(10/1) (mm/h)	24.7
Pre-dev I(5/5) (mm/h)	83.4
Post-dev I(10/5) (mm/h)	97.7

BOM IFD
BOM IFD
BOM IFD

Council Specified Pre-Development Runoff Coefficient

No	n/a
----	-----

Pre-Development Flow

Site Surfaces	Area (m ²)	f
Development area	10678.68	0.2
-	0	0.1
-	0	0.1

Pre-Development
Catchment Plan

Total Area = 10678.68 m²
favg = 0.200

C(10/1) = 0.100
C10 = 0.260

C5 = 0.247

ARR Table 14.6	
ARI (years)	Frequency Factor, F _y
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

ARR Eq. 14.12
ARR Eq. 14.11
ARR Eq. 14.13

Pre Development Flow, Q_{pre} = 61.15 L/s

Q_{pre} = 61.15

5.3.2 Rational Method

(a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m³/s) of average recurrence interval (ARI) of Y years

C_Y = runoff coefficient (dimensionless) for ARI of Y years

A = area of catchment (km²)

$I_{t_c, Y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km², the conversion factor is 0.00278 (or 1/360).

$$C_{10}^{10} = 0.1 + (0.7 - 0.1) \times (10I_1 - 25)/(70 - 25) \\ = 0.1 + 0.0133 \times (10I_1 - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^{10} \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$

Project: Kumnick St, Lobethal
 Designer: HP Date: 22/07/2020

Reference: A2020-10488
 Checked by: TN
 Index: 9

STORMWATER DETENTION CALCULATIONS		REF./COMMENT																								
<p>Post-Development Flow</p> <p>Unrestricted Flow: <i>Runoff considered to be undetained</i></p> <table border="1"> <thead> <tr> <th>Site Surfaces</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Roof</td><td>0</td><td>1.0</td></tr> <tr> <td>Concrete/Paved/Bitumen</td><td>0</td><td>0.9</td></tr> <tr> <td>Landscaped</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 0 m² favg = 0.000</p> <p>C10 = 0.100 C10 = 0.100</p> <p>Unrestricted Post Development Flow, Qun-post = 0.00 L/s</p> <p>Allowable Flow, Qall = 61.15 L/s</p> <p>Restricted Flow: <i>Runoff considered to be detained</i></p> <table border="1"> <thead> <tr> <th>Site Surface</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Allotment</td><td>8903.91</td><td>0.494</td></tr> <tr> <td>Driveway</td><td>1774.77</td><td>0.9</td></tr> <tr> <td>-</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 10678.68 m² favg = 0.561</p> <p>C10 = 0.549 C10 = 0.549</p> <p><i>Refer to attached detention calculations</i></p>		Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	0	0.9	Landscaped	0	0.1	Site Surface	Area (m ²)	f	Allotment	8903.91	0.494	Driveway	1774.77	0.9	-	0	0.1	<p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13</p> <p>Qun-post = 0.00</p> <p>Qall = 61.15</p> <p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13 C10 = 0.549</p>
Site Surfaces	Area (m ²)	f																								
Roof	0	1.0																								
Concrete/Paved/Bitumen	0	0.9																								
Landscaped	0	0.1																								
Site Surface	Area (m ²)	f																								
Allotment	8903.91	0.494																								
Driveway	1774.77	0.9																								
-	0	0.1																								

Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 10

STORMWATER DETENTION CALCULATIONS

Detention Calculations

ARI = 10 years
Area = 10678.68 m²
tc = 5 min
C10 = 0.549

Detention Volume Required = 29601 L

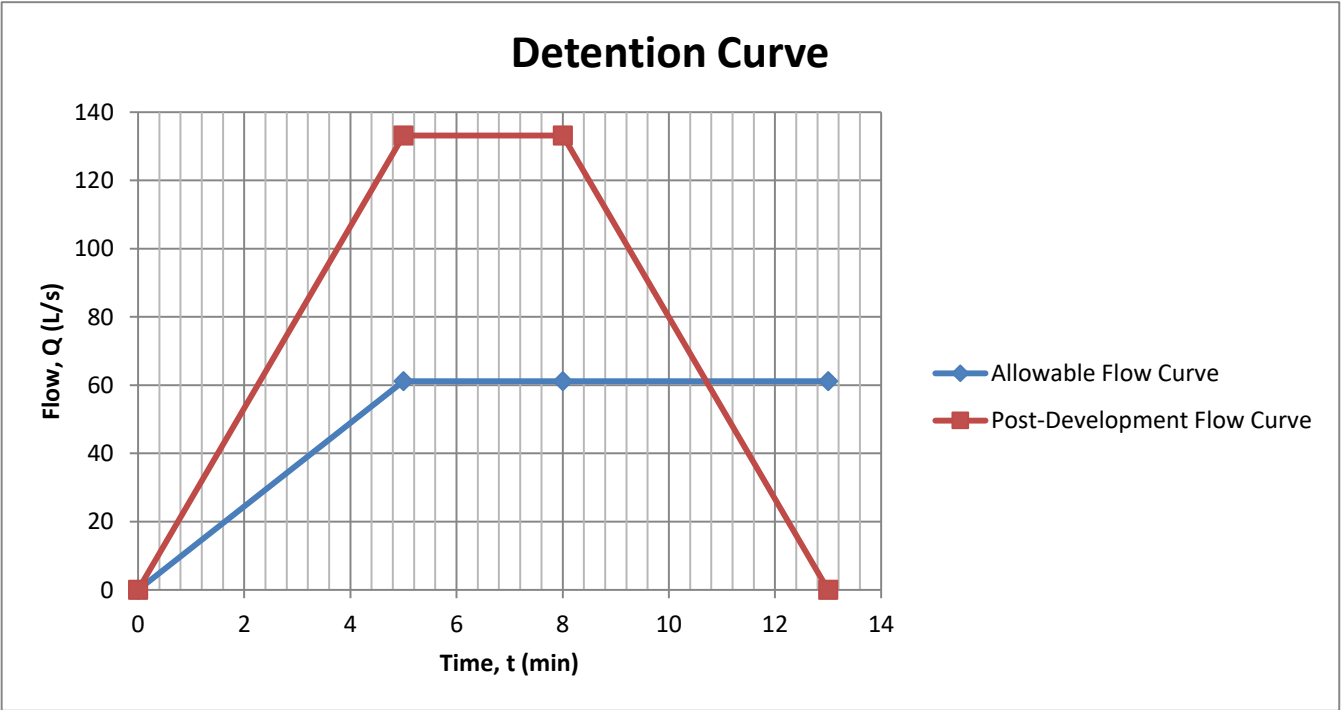
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	97.7	159.2	61.2	23752
6	92.4	150.5	61.2	26716
7	87.1	141.8	61.2	28664
8	81.7	133.2	61.2	29601
9	76.4	124.5	61.2	29535
10	71.1	115.8	61.2	28472
11	68.3	111.3	61.2	28961
12	65.5	106.8	61.2	28922
13	62.8	102.2	61.2	28359
14	60.0	97.7	61.2	27275
15	57.2	93.2	61.2	25671
16	55.5	90.3	61.2	25061
17	53.7	87.5	61.2	24122
18	52.0	84.7	61.2	22857
19	50.2	81.8	61.2	21266
20	48.5	79.0	61.2	19352
21	47.3	77.1	61.2	18140
22	46.1	75.1	61.2	16703
23	44.9	73.1	61.2	15042
24	43.7	71.2	61.2	13157
25	42.5	69.2	61.2	11049
26	41.6	67.8	61.2	9422
27	40.7	66.3	61.2	7627
28	39.8	64.8	61.2	5664
29	38.9	63.4	61.2	3534
30	38.0	61.9	61.2	1238
31	37.4	61.0	61.2	0
32	36.9	60.1	61.2	0
33	36.3	59.2	61.2	0
34	35.8	58.3	61.2	0
35	35.2	57.3	61.2	0
36	34.6	56.4	61.2	0
37	34.1	55.5	61.2	0
38	33.5	54.6	61.2	0
39	33.0	53.7	61.2	0
40	32.4	52.8	61.2	0
41	31.8	51.9	61.2	0
42	31.3	51.0	61.2	0

43	30.7	50.0	61.2	0
44	30.2	49.1	61.2	0
45	29.6	48.2	61.2	0
46	29.3	47.7	61.2	0
47	28.9	47.2	61.2	0
48	28.6	46.6	61.2	0
49	28.3	46.1	61.2	0
50	28.0	45.6	61.2	0
51	27.6	45.0	61.2	0
52	27.3	44.5	61.2	0
53	27.0	44.0	61.2	0
54	26.7	43.4	61.2	0
55	26.3	42.9	61.2	0
56	26.0	42.4	61.2	0
57	25.7	41.8	61.2	0
58	25.4	41.3	61.2	0
59	25.0	40.8	61.2	0
60	24.7	40.2	61.2	0

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
29601	8	133.16

Detention Curve Data - *Detention volume equal to area between curves*

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	61.15	5	133.16
8	61.15	8	133.16
13	61.15	13	0



Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 11

STORMWATER DETENTION CALCULATIONS

REF./COMMENT

Council Requirements

	Pre	Post
ARI (years)	5	5
tc (min)	5	5

Site BOM IFDs

I(10/1) (mm/h)	24.7
Pre-dev I(5/5) (mm/h)	83.4
Post-dev I(5/5) (mm/h)	83.4

BOM IFD
BOM IFD
BOM IFD

Council Specified Pre-Development Runoff Coefficient

No	n/a
----	-----

Pre-Development Flow

Site Surfaces	Area (m ²)	f
Development area	10678.68	0.2
-	0	0.1
-	0	0.1

Pre-Development
Catchment Plan

Total Area = 10678.68 m²
favg = 0.200

C(10/1) = 0.100
C10 = 0.260

C5 = 0.247

ARR Table 14.6	
ARI (years)	Frequency Factor, F _y
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

ARR Eq. 14.12
ARR Eq. 14.11
ARR Eq. 14.13

Pre Development Flow, Q_{pre} = 61.15 L/s

Q_{pre} = 61.15

5.3.2 Rational Method

(a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m³/s) of average recurrence interval (ARI) of Y years

C_Y = runoff coefficient (dimensionless) for ARI of Y years

A = area of catchment (km²)

$I_{t_c, Y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km², the conversion factor is 0.00278 (or 1/360).

$$C_{10} = 0.1 + (0.7 - 0.1) \times (10I_1 - 25)/(70 - 25) \\ = 0.1 + 0.0133 \times (10I_1 - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10} \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$

Project: Kumnick St, Lobethal
 Designer: HP Date: 22/07/2020

Reference: A2020-10488
 Checked by: TN
 Index: 12

STORMWATER DETENTION CALCULATIONS		REF./COMMENT																								
<p>Post-Development Flow</p> <p>Unrestricted Flow: <i>Runoff considered to be undetained</i></p> <table border="1"> <thead> <tr> <th>Site Surfaces</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Roof</td><td>0</td><td>1.0</td></tr> <tr> <td>Concrete/Paved/Bitumen</td><td>0</td><td>0.9</td></tr> <tr> <td>Landscaped</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 0 m² favg = 0.000</p> <p>C10 = 0.100 C5 = 0.095</p> <p>Unrestricted Post Development Flow, Qun-post = 0.00 L/s</p> <p>Allowable Flow, Qall = 61.15 L/s</p> <p>Restricted Flow: <i>Runoff considered to be detained</i></p> <table border="1"> <thead> <tr> <th>Site Surface</th><th>Area (m²)</th><th>f</th></tr> </thead> <tbody> <tr> <td>Allotment</td><td>8903.91</td><td>0.494</td></tr> <tr> <td>Driveway</td><td>1774.77</td><td>0.9</td></tr> <tr> <td>-</td><td>0</td><td>0.1</td></tr> </tbody> </table> <p>Total Area = 10678.68 m² favg = 0.561</p> <p>C10 = 0.549 C5 = 0.522</p> <p><i>Refer to attached detention calculations</i></p>		Site Surfaces	Area (m ²)	f	Roof	0	1.0	Concrete/Paved/Bitumen	0	0.9	Landscaped	0	0.1	Site Surface	Area (m ²)	f	Allotment	8903.91	0.494	Driveway	1774.77	0.9	-	0	0.1	<p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13</p> <p>Qun-post = 0.00</p> <p>Qall = 61.15</p> <p>Post-Development Catchment Plan</p> <p>ARR Eq. 14.11 ARR Eq. 14.13 C5 = 0.522</p>
Site Surfaces	Area (m ²)	f																								
Roof	0	1.0																								
Concrete/Paved/Bitumen	0	0.9																								
Landscaped	0	0.1																								
Site Surface	Area (m ²)	f																								
Allotment	8903.91	0.494																								
Driveway	1774.77	0.9																								
-	0	0.1																								

Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 13

STORMWATER DETENTION CALCULATIONS

Detention Calculations

ARI = 5 years
Area = 10678.68 m²
tc = 5 min
C5 = 0.522

Detention Volume Required = 18503 L

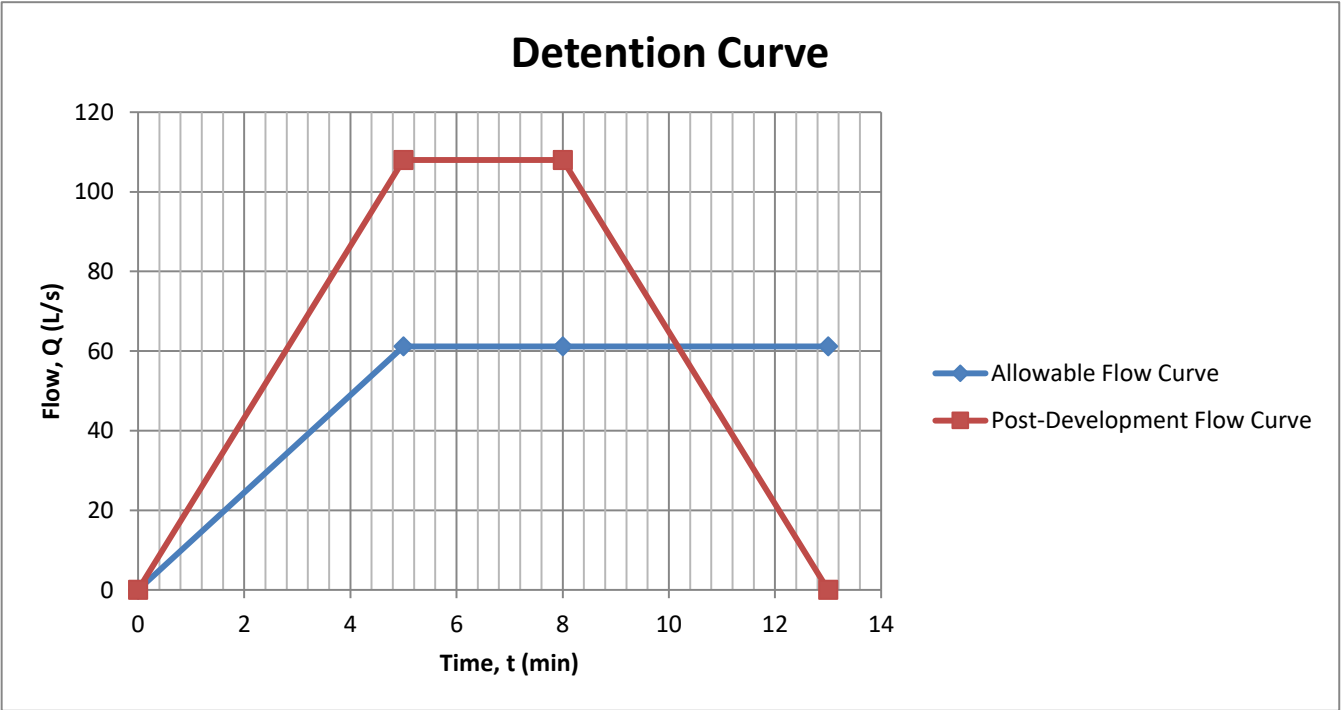
Storm Duration (min)	Intensity (mm/h)	In flow (L/s)	Target Outflow (L/s)	Detention Required (L)
5	83.4	129.1	61.2	15548
6	78.9	122.0	61.2	17343
7	74.3	115.0	61.2	18326
8	69.8	108.0	61.2	18503
9	65.2	101.0	61.2	17881
10	60.7	93.9	61.2	16469
11	58.3	90.3	61.2	16249
12	55.9	86.6	61.2	15608
13	53.6	82.9	61.2	14548
14	51.2	79.2	61.2	13072
15	48.8	75.5	61.2	11186
16	47.3	73.2	61.2	10082
17	45.8	70.9	61.2	8717
18	44.4	68.7	61.2	7095
19	42.9	66.4	61.2	5216
20	41.4	64.1	61.2	3082
21	40.4	62.5	61.2	1489
22	39.4	60.9	61.2	0
23	38.3	59.3	61.2	0
24	37.3	57.8	61.2	0
25	36.3	56.2	61.2	0
26	35.5	55.0	61.2	0
27	34.8	53.8	61.2	0
28	34.0	52.6	61.2	0
29	33.3	51.5	61.2	0
30	32.5	50.3	61.2	0
31	32.0	49.6	61.2	0
32	31.5	48.8	61.2	0
33	31.1	48.1	61.2	0
34	30.6	47.3	61.2	0
35	30.1	46.6	61.2	0
36	29.6	45.8	61.2	0
37	29.1	45.1	61.2	0
38	28.7	44.4	61.2	0
39	28.2	43.6	61.2	0
40	27.7	42.9	61.2	0
41	27.2	42.1	61.2	0
42	26.7	41.4	61.2	0

43	26.3	40.6	61.2	0
44	25.8	39.9	61.2	0
45	25.3	39.2	61.2	0
46	25.0	38.7	61.2	0
47	24.7	38.3	61.2	0
48	24.5	37.9	61.2	0
49	24.2	37.4	61.2	0
50	23.9	37.0	61.2	0
51	23.6	36.6	61.2	0
52	23.3	36.1	61.2	0
53	23.1	35.7	61.2	0
54	22.8	35.3	61.2	0
55	22.5	34.8	61.2	0
56	22.2	34.4	61.2	0
57	21.9	34.0	61.2	0
58	21.7	33.5	61.2	0
59	21.4	33.1	61.2	0
60	21.1	32.7	61.2	0

Maximum Detention Volume (L)	Critical Storm Duration (min)	Peak Inflow (L/s)
18503	8	107.99

Detention Curve Data - Detention volume equal to area between curves

Allowable Flow Curve		Post-Development Flow Curve	
Time (min)	Flow (L/s)	Time (min)	Flow (L/s)
0	0	0	0
5	61.15	5	107.99
8	61.15	8	107.99
13	61.15	13	0



Project: Kumnick St, Lobethal
Designer: HP Date: 22/07/2020

Reference: A2020-10488

Checked by: TN

Index: 14

CALCULATIONS

REF./COMMENT

Design Parameters

ARI (years)	100
tc (min)	5

Site BOM IFDs

I(10/1) (mm/h)	24.7
I(100/5) (mm/h)	160

BOM IFD
BOM IFD

Council Specified Runoff Coefficient

No	n/a
----	-----

Pre-Development Flow

Site Surfaces	Area (m2)	f
Upstream	3723.01	0.5
-	0	0.1
-	0	0.1

Catchment Plan

Total Area = 3723.01 m2
favg = 0.500

C(10/1) = 0.100
C10 = 0.500

C100 = 0.600

Peak Flow, Q100 = 99.36 L/s

ARR Table 14.6	
ARI (years)	Frequency Factor, Fy
1	0.8
2	0.85
5	0.95
10	1
20	1.05
50	1.15
100	1.2

ARR Eq. 14.12
ARR Eq. 14.11
ARR Eq. 14.13

Q100 = 99.36

5.3.2 Rational Method

(a) The Formula

As used in design, the formula of the Rational Method is:

$$Q_Y = 0.278 C_Y \cdot I_{t_c, Y} \cdot A \quad (5.1)$$

where Q_Y = peak flow rate (m^3/s) of average recurrence interval (ARI) of Y years

C_Y = runoff coefficient (dimensionless) for ARI of Y years

A = area of catchment (km^2)

$I_{t_c, Y}$ = average rainfall intensity (mm/h) for design duration of t_c hours and ARI of Y years.

The value of 0.278 (or 1/3.6) is merely a conversion factor to balance the units used. If area is in hectares instead of km^2 , the conversion factor is 0.00278 (or 1/360).

$$C_{10}^1 = 0.1 + (0.7 - 0.1) \times (10I_1 - 25)/(70 - 25) \\ = 0.1 + 0.0133 \times (10I_1 - 25) \quad (14.12)$$

$$C_{10} = 0.9 \times f + C_{10}^1 \times (1 - f) \quad (14.11)$$

$$C_Y = F_Y \cdot C_{10} \quad (14.13)$$

Kumnick St, Lobethal - Pipe Size					
Upstream only			Upstream + development		
Q (upstream)	99.36	L/s	Q(upstream)	99.36	L/s
			Q(development)	148.2	L/s
			Q(total)	247.56	L/s
Assume RCP pipe			Assume RCP pipe		
Grade	Pipe Size	Unit	Grade	Pipe Size	Unit
0.30%	375	mm	0.30%	525	mm
0.50%	375	mm	0.50%	525	mm
1%	300	mm	1%	450	mm

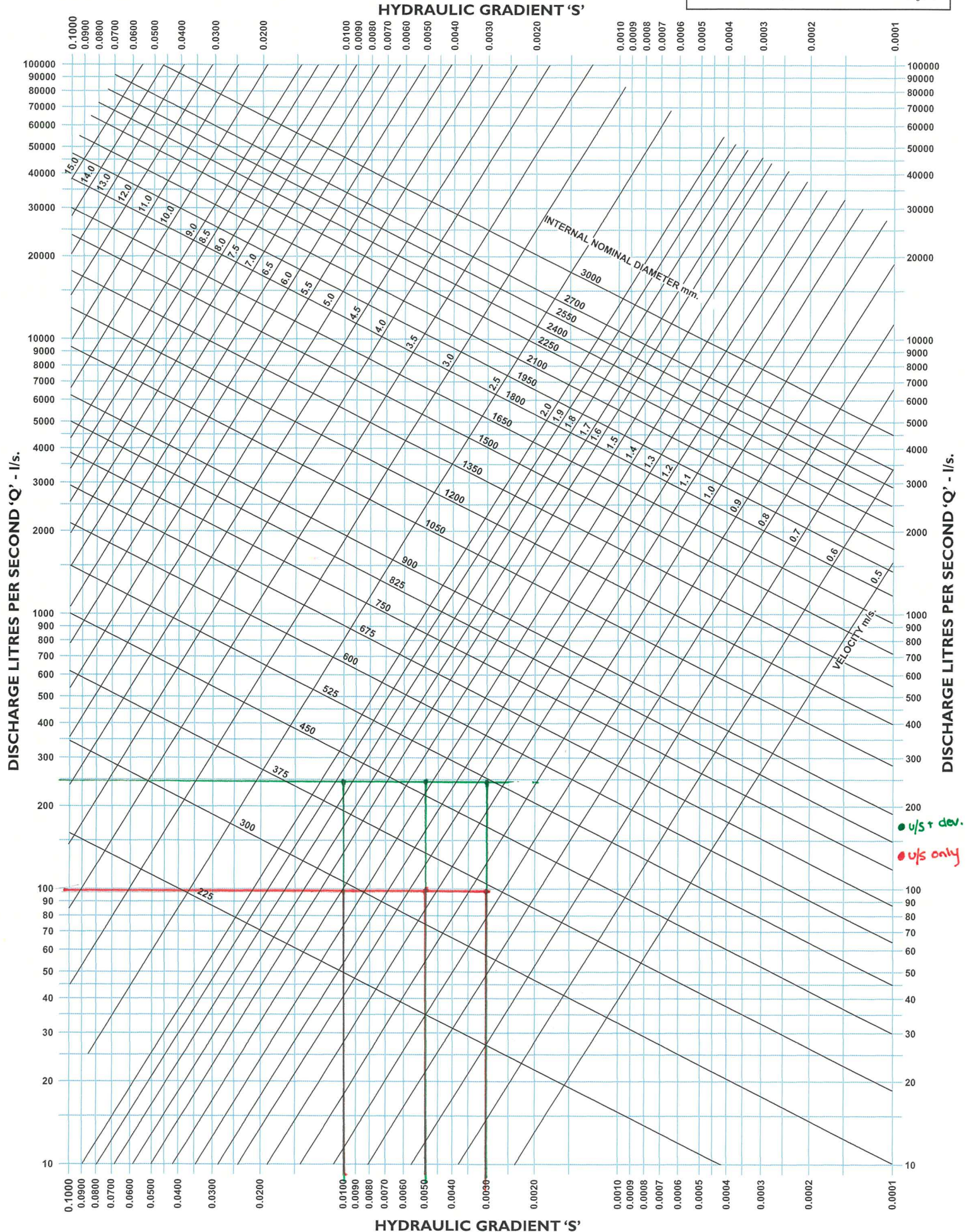


Discharge & Velocity Graph Steel Reinforced Concrete Pipe

Colebrook-White Formula ($k = 0.06\text{mm}$)

For circular pipes running full
but not under head.

$$\text{Computed by: } \frac{1}{\sqrt{f}} = -2\log_{10}\left(\frac{k}{3.7D} + \frac{2.51}{R_e\sqrt{f}}\right)$$



HYDRAULIC GRADIENT 'S'

Freecall 131 004

This graph is intended as a guide only for the selection of Rocla® stormwater pipe and is provided without liability on the part of the company. Contact Rocla for expert advice.

www.rocla.com.au

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Location

Label: Not provided

Latitude: -34.8982 [Nearest grid cell: 34.8875 (S)]

Longitude: 138.8836 [Nearest grid cell: 138.8875 (E)]

IFD Design Rainfall Intensity (mm/h)

Issued: 22 January 2021

Rainfall intensity for Durations, Exceedance per Year (EY), and Annual Exceedance Probabilities (AEP).
[FAQ for New ARR probability terminology.](#)

Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	83.7	93.2	126	150	176	214	246
2 min	74.2	82.2	110	131	154	186	212
3 min	66.1	73.3	98.2	117	138	166	190
4 min	59.7	66.4	89.1	106	125	151	173
5 min	54.7	60.8	81.8	97.7	115	139	160
10 min	39.5	44.0	59.5	71.1	83.5	102	117
15 min	31.8	35.4	47.9	57.2	67.2	81.7	93.9
20 min	27.0	30.1	40.6	48.5	56.9	69.2	79.6
25 min	23.7	26.4	35.6	42.5	49.9	60.6	69.6
30 min	21.2	23.6	31.8	38.0	44.6	54.2	62.2
45 min	16.6	18.5	24.8	29.6	34.7	42.0	48.2
1 hour	13.9	15.5	20.7	24.7	28.9	35.0	40.1
1.5 hour	10.9	12.1	16.1	19.1	22.4	27.1	31.0
2 hour	9.15	10.1	13.4	16.0	18.7	22.6	25.8
3 hour	7.17	7.92	10.5	12.4	14.5	17.5	20.0
4.5 hour	5.64	6.22	8.21	9.72	11.3	13.7	15.6
6 hour	4.76	5.25	6.92	8.18	9.51	11.5	13.1
9 hour	3.75	4.14	5.45	6.42	7.45	8.98	10.3
12 hour	3.16	3.49	4.60	5.41	6.26	7.55	8.63
18 hour	2.48	2.74	3.61	4.24	4.89	5.89	6.72

Note:

The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.

* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

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1 min	83.7	93.2	126	150	176	214	246
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3 min	66.1	73.3	98.2	117	138	166	190
4 min	59.7	66.4	89.1	106	125	151	173
5 min	54.7	60.8	81.8	97.7	115	139	160
10 min	39.5	44.0	59.5	71.1	83.5	102	117
15 min	31.8	35.4	47.9	57.2	67.2	81.7	93.9
20 min	27.0	30.1	40.6	48.5	56.9	69.2	79.6
25 min	23.7	26.4	35.6	42.5	49.9	60.6	69.6
30 min	21.2	23.6	31.8	38.0	44.6	54.2	62.2
45 min	16.6	18.5	24.8	29.6	34.7	42.0	48.2
1 hour	13.9	15.5	20.7	24.7	28.9	35.0	40.1
1.5 hour	10.9	12.1	16.1	19.1	22.4	27.1	31.0
2 hour	9.15	10.1	13.4	16.0	18.7	22.6	25.8
3 hour	7.17	7.92	10.5	12.4	14.5	17.5	20.0
4.5 hour	5.64	6.22	8.21	9.72	11.3	13.7	15.6
6 hour	4.76	5.25	6.92	8.18	9.51	11.5	13.1
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2020.07.22
Catchment plan



FRICK

AREAS

Development area: 10,678.68m²

Impervious driveway area: 1,774.77m²

Allotment area: 8,903.91m²

Upstream catchment area: 3,723.01m²

IMPERVIOUS FRACTIONS

Adopt f(pre) as 0.2

Adopt f(upstream) as 0.5

Each allotment to have approximately 400m² of impervious area, therefore:

$f(\text{allotment}) = (400 \times 11) / 8903.91 = 0.494$

Adopt f(driveway) as 0.9

CONCEPT SUBJECT TO COUNCIL AND
GOVERNMENT AGENCY CONSENT

extent of water shed
for stormwater calculation
matched triangle file and
contour extent

Access SDM



Surveying - Civil Design
Development - Management

18A Cameron Street, Mount Barker SA 5251
Ph:(08) 83913000



09 October 2020

Our Ref: H0103986

The Chairman
State Commission Assessment Panel
50 Flinders St
ADELAIDE SA 5000

Dear Sir/Madam

SA Water
Level 6, 250 Victoria Square
ADELAIDE SA 5000
Ph (08) 7424 1119
Inquiries Diana Baric
Telephone 74241119

PROPOSED LAND DIVISION APPLICATION NO: 473/C047/20 AT LOBETHAL

In response to the abovementioned proposal, I advise that pursuant to Section 33 of the Development Act it is necessary for the developer to satisfy this Corporation's requirements, which are listed below.

The financial requirements of SA Water shall be met for the provision of water supply and sewerage services.

On receipt of the developer details and site specifications an investigation will be carried out to determine if the connections to your development will be standard or non standard fees.

The developer must inform potential purchasers of the community lots of the servicing arrangements and seek written agreement prior to settlement, as future alterations would be at full cost to the owner/applicant.

Yours faithfully

Diana Baric

for MANAGER LAND DEVELOPMENT & CONNECTIONS



**STATE
COMMISSION
ASSESSMENT
PANEL**

A COMMITTEE OF THE STATE PLANNING COMMISSION

Contact
Telephone
Email

Planning Services
7109 7016
dldptipdclearanceletters@sa.gov.au

State Commission
Assessment Panel

21 October 2020

Chief Executive Officer
Adelaide Hills Council
PO Box 44
WOODSIDE SA 5244

Level 5
50 Flinders Street
Adelaide SA 5000

GPO Box 1815
Adelaide SA 5001

Dear Sir

08 7109 7061

**Re: Proposed Development Application No. 473/C047/20 (ID 69398)
for Land Division (*Community Title Plan*) by Kermel Pty Ltd**

Further to my letter dated 7 October 2020 and to assist the Council in reaching a decision on this application, copies of consultation agency reports received by the State Commission Assessment Panel (SCAP) are available for your consideration.

IT IS REQUESTED PURSUANT TO SECTION 33 (1) (c) OF THE *DEVELOPMENT ACT 1993* THAT THE COUNCIL INCLUDE IN ITS DEVELOPMENT APPROVAL THE FOLLOWING REQUIREMENTS OF THE SCAP.

1. The financial requirements of the S A Water Corporation shall be met for the provision of water supply and sewerage services. (S A Water H0103986)

SA Water advises on receipt of the developer details and site specifications an investigation will be carried out to determine if the connections to your development will be standard or non-standard fees.

The developer must inform potential purchasers of the community lots in regards to the servicing arrangements and seek written agreement prior to settlement, as future alterations would be at full cost to the owner/applicant.

2. Payment of \$77,610.00 into the Planning and Development Fund (10 allotment/s @ \$7,761.00 /allotment). Payment may be made by credit card via the internet at www.edala.sa.gov.au or by phone (7109 7018), by cheque payable to the Department of Infrastructure and Transport marked "Not Negotiable" and sent to GPO Box 1815, Adelaide 5001 or in person, by cheque or credit card, at Level 5, 50 Flinders Street, Adelaide.
3. A final plan complying with the requirements for plans as set out in the Manual of Survey Practice Volume 1 (Plan Presentation and Guidelines) issued by the Registrar General to be lodged with the State Commission Assessment Panel for Land Division Certificate purposes.

IT IS ALSO REQUIRED THAT COUNCIL PROVIDE THE SCAP WITH:

- a) the date on which any existing building(s) on the site were erected (if known);
- b) the postal address of the site; and
- c) a copy of its Decision Notification Form (via EDALA) pursuant to Regulations 60 (4) (b) ii and 44 respectively.

IT IS RECOMMENDED THAT THIS INFORMATION BE INCORPORATED INTO COUNCIL'S ADVICE WHEN REPORTING THAT THEIR REQUIREMENTS (IF ANY) HAVE BEEN FULLY SATISFIED.

Yours faithfully,

Biljana Prokic
LAND DIVISION COORDINATOR – PLANNING SERVICES
as delegate of the
STATE COMMISSION ASSESSMENT PANEL

Ashleigh Gade

From: Siegfriedt, Caren (CFS)
Sent: Wednesday, 6 January 2021 3:18 PM
To: Ashleigh Gade
Subject: RE: Informal Referral - Land Division (1 into 11) - Kumnick Street Lobethal

Hi Ashleigh

I have reviewed the plans for the land division and in particular the access driveway. My comments are as follows:

- The proposed turning option is in line with the Minister's Code 2009 "Undertaking development in Bushfire Protection Areas" (as amended October 2012).
- The narrowing of the driveway to 3m to avoid trees is permissible as long as a 4m vertical and horizontal clearance can be achieved along all parts of the driveway. This may mean pruning of lower limbs for some of the existing trees.
- In addition, given the length of the driveway and distance to the next fire plug along Kumnick Street, a fire plug or hydrant should be provided on the property. The best position would be close to the turning area.

Please feel free to contact me, should you have further questions.

Kind regards

Caren

Caren Siegfriedt
Bushfire Safety Officer
South Australian Country Fire Service
Level 5, 60 Waymouth Street
Adelaide SA 5000

cfs.sa.gov.au | [Find us on Facebook](#) | [Follow us on Twitter](#)



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