

Casey Fields South Employment & Devon Meadows PSP, DSS & Amendment C295case

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BW
Beveridge Williams

Executive Summary

The landowners of 1934 and 1884 South Gippsland Highway, Devon Meadows, Kardinia Developments Pty Ltd, make this submission to the Casey Fields South Employment and Devon Meadows Precinct Structure Plan (CFS&DM PSP), the Casey Fields South Employment and Devon Meadows Development Services Scheme (CFS&DM DSS) and Planning Scheme Amendment C295case.

The landowner has significant concerns regarding the future proposed land uses designated on their property, which, if approved, could threaten the viability of development on the site. As the primary facilitator for delivering critical infrastructure before any development can occur within both Casey Fields South and Devon Meadows, the proposed PSP and DSS must support the site's development to its fullest potential.

The Devon Meadows portion of the PSP is designated as a residential precinct, expected to accommodate just over 11,000 residents. The subject land is one of the largest holdings within the precinct, covering approximately 37.24 hectares. However, despite its size, only 15.57 hectares (42%) is allocated for residential development, with the remaining 21.67 hectares (58%) primarily designated for drainage purposes.

As outlined in this submission, we submit that the site is overly burdened with drainage assets, which undermines the potential for developing a viable residential estate. This strategically located site is well-suited for higher-density housing, which would maximise access to green space, amenities, key road networks, community infrastructure, and the local convenience center. However, this is only feasible if the proposed drainage infrastructure is refined to reduce the land take on the subject property or is more equitably distributed across the entire PSP.

The submission makes the following key points:

- The landowner strongly supports the residential land use designation for the site but is seeking further efficiencies in the location of and need for specific infrastructure that is currently designated across their property.
- The PSP identifies significant encumbrance on the site, particularly the allocation of around 56% of the land to serve the drainage function for the entire Devon Meadows PSP. Technical advice demonstrates that the implementation of an alternative drainage design can provide a more equitable distribution of critical infrastructure, which could help mitigate issues related to development delays, increased costs due to temporary interim drainage solutions, and significantly, unaffordability for the end user.
- The alternate drainage solutions also provide the opportunity for the retention and protection of biodiversity values including high valued trees which will otherwise be lost through the construction of critical infrastructure.
- The PSP Place-Based Plan should be revised to remove oddly dimensioned land parcels located between infrastructure assets that are inaccessible. Retaining these parcels would contribute to the net developable area (NDA) but burden the property owner with undevelopable land that continues to be charged at urban rates and accumulate state levies.
- The lack of transparency associated with the 12 identified places of Aboriginal Cultural Heritage and the unknown impacts of potential areas of cultural values instils significant uncertainty around the development potential of every property within the PSP. For the sake of fair, transparent, and holistic land use planning and implementation, the location of these Aboriginal cultural heritage places must be identified within the PSP. The PSP must also detail the future ownership and management requirements associated with future heritage parks and reserves.
- The significant encumbrances on the land support designating higher density development across a larger portion of the property, especially in proximity to the western boundary. Increasing the lot yield within the Devon Meadows PSP is essential for creating a viable community yet this is challenged due to the unresolved drainage issues at detailed level, unknown cultural heritage impacts, and the potential for land contamination over a large number of properties. These land use considerations could threaten the establishment of a well-functioning and fully serviced community if a critical mass cannot be established within this PSP.

Introduction

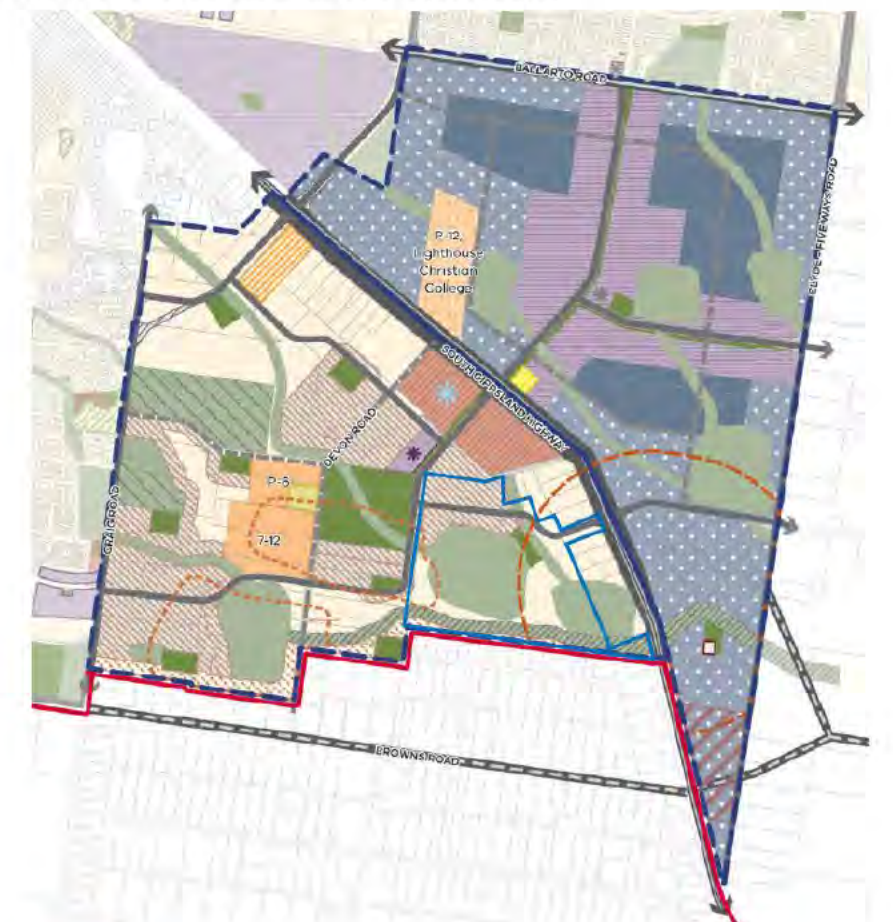
Beveridge Williams makes this submission to the CFS&DM PSP, the CFS&DM DSS and Planning Scheme Amendment C295case on behalf of the landowner of 1934 and 1884 South Gippsland Highway, Devon Meadows. The submission relates to the land identified as Property IDs DM49, DM56, DM58, and DM65, with a total site area of approximately 37.24 hectares. The property is located in the southeast corner of the Devon Meadows PSP and has two access points onto the South Gippsland Highway.

The draft PSP, as it relates to the Kardinia Developments Pty Ltd land, proposes that the site is primarily used to support drainage infrastructure to facilitate the development of the entire Devon Meadows PSP. A 25m wide connector street is proposed to run east-west across the land and the balance is nominated for residential use.

The planning scheme amendment known as C295case principally seeks to implement the draft Casey Fields South (Employment) and Devon Meadows PSP. Amendment C295case seeks to apply several planning controls to 1934 South Gippsland Highway to facilitate future use and development in accordance with the PSP Plan 2: Place Based Plan. The proposed controls include applying the:

- Inserts UGZ15 and rezones the precinct from Farming Zone 3 (FZ3), Urban Floodway Zone (UFZ) and UGZ to UGZ15.
- Amends the planning scheme map 15PAO, 16PAO and 18PAO to apply the PAO4 to land required for drainage purposes at the request of Melbourne Water.
- Amends the Schedule to Clause 52.17 Native Vegetation to include native vegetation removal exemptions for the Casey Fields South (Employment) and Devon Meadows PSP.
- Amends the Schedule to Clause 66.04 Referral of permit applications under local provisions to include referral to DEECA for subdivisions which may impact on species habitat.
- Amends the Schedule to Clause 72.03 to include the revised list of maps in the Casey Planning Scheme.
- Amends the Schedule to Clause 72.04 Schedule to the Documents Incorporated in this Planning Scheme to incorporate one new document: *Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan, February 2025*

Figure 1: Extract from PSP Plan 2: Place Based Plan (VPA 2025)



1934 & 1884 South Gippsland Highway, Devon Meadows

Subject Site and Surrounds

1934 and 1884 South Gippsland Highway, Devon Meadows is an irregularly shaped site comprised of three land parcels. The majority of the site is situated behind a row of large residential lots that front the South Gippsland Highway. Access to the site is available from 1884 South Gippsland Highway and from the southeasternmost corner of the site via the same road. The total site area is approximately 37.24 hectares

The property is currently leased and is used for productive farming purposes. A number of buildings and structures are located on the land which are set amongst a vegetated landscape

The subject land is generally surrounded by large residential properties along the eastern boundary of the site. Adjoining these properties is the South Gippsland Highway which separates the Devon Meadows precinct from the Casey Fields South precinct. The Casey Fields South precinct wraps around Devon Meadows to the east, with Clyde-Five Ways Road forming the eastern boundary of the CFS&DM PSP.

The Casey Fields South precinct is primarily used for productive farming, although a variety of commercial and industrial uses have already been established along Ballarto Road. Lighthouse Christian College, an existing privately owned secondary school, is also located in Casey Fields South, immediately adjoining the South Gippsland Highway and adjacent to Devon Road.

East of Clyde-Five Ways Road lies the future Clyde South residential precinct, covering approximately 1,099 hectares. It represents the last residential precinct within the City of Casey. The Clyde South PSP is currently identified as a Horizon 2 project, with preparation potentially commencing as early as July 2025, depending on the outcomes of the VPA's 2025/26 Business Plan.

To majority of the Devon Meadows Precinct is located to the west and north-west of the site. Devon Meadows currently comprises rural properties that are generally used for a range of agricultural and industry uses. Botanic Ridge adjoins the western boundary of the Devon Meadows precinct and supports a range of residential densities, with standard densities dominating the urban fabric, averaging around 450m² per lot.

The CFS&DM PSP adjoins Melbourne's Urban Growth Boundary (UGB). Immediately south of the Devon Meadows precinct and the subject land is an established rural residential community. These properties are located within the Green Wedge Zone and are generally larger in size than conventional residential lots.

Figure 2: Site Context Aerial (NearMap 2024)



Property Details	
Address	1934 and 1884 South Gippsland Highway, Devon Meadows
Formal Description	Lot 41 on LP34215, Lot 1 on TP865405 and Lot 32 on LP34215
Municipality	City of Casey
Site Area	37.24Ha (Approximately)
Zone	Farming Zone – Schedule 3
Overlay	Land Subject to Inundation Overlay (LSIO)
Area of Aboriginal Cultural Heritage Sensitivity	Yes
Bushfire Prone Area	Yes
Melbourne Strategic Assessment Area	Yes

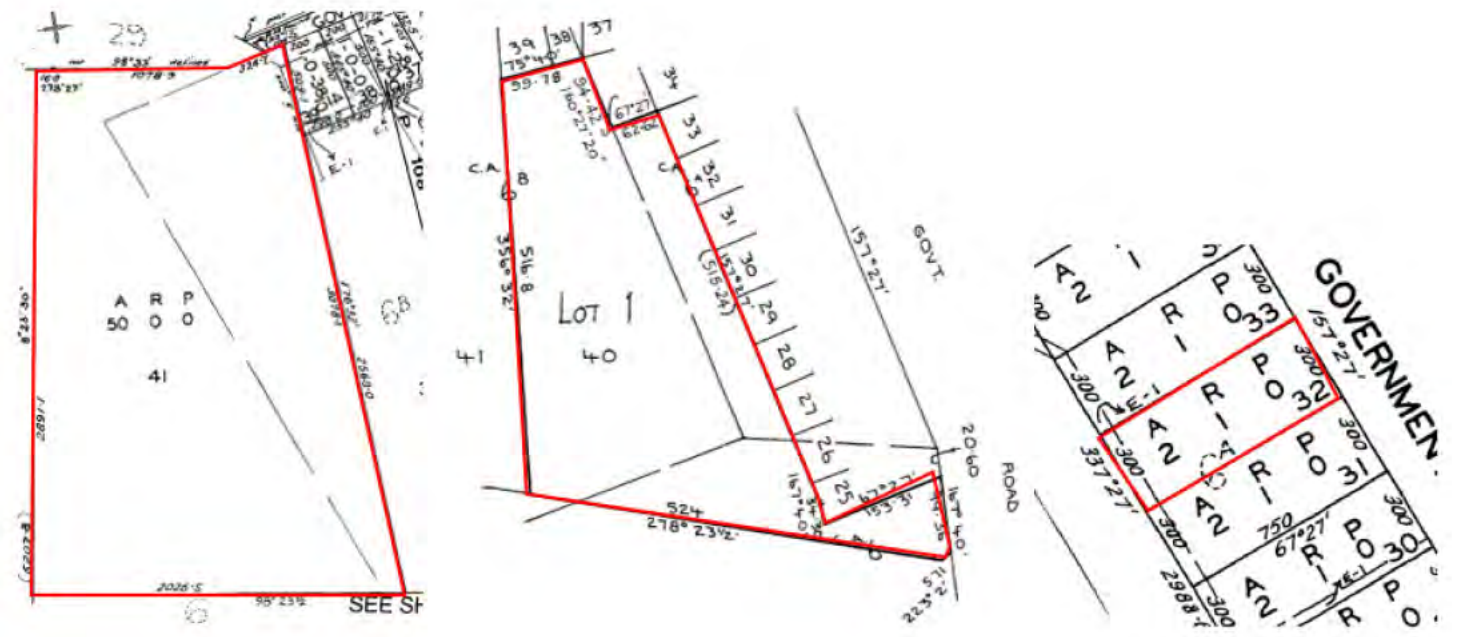
Title Details

1394 South Gippsland Highway, comprises 2 parcels as is formally known as Lot 41 on LP34215 and Lot 1 on TP865405. There are no easements or restrictions relating to these two properties.

1884 South Gippsland Highway is formally identified as Lot 32 on Plan of Subdivision LP34215. A 3m wide drainage easement runs along the rear boundary of the property.

Section 45 notices are registered on each Certificate of Title, which relates to the application of the Melbourne Strategic Assessment Area. No other restrictions or caveats apply.

Figure 3: Extracts from Titles –



Existing Planning Controls

The land is located within the City of Casey and is subject to the provisions of the Casey Planning Scheme.

The site is zoned Farming Zone Schedule 3 (FZ3). The Land Subject to Inundation Overlay (LSIO) applies to the land.

Clause 35.07 Farming Zone

The site is subject to the Farming Zone – Schedule 3 (FZ3). The purpose of the Farming Zone is:

- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.
- To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

Clause 44.04 Land Subject to Inundation Overlay

The site is subject to the Land Subject to Inundation Overlay (LSIO). The purpose of the LSIO is:

- To identify flood prone land in a riverine or coastal area affected by the 1 in 100 (1 per cent Annual Exceedance Probability) year flood or any other area determined by the floodplain management authority.
- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, responds to the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
- To minimise the potential flood risk to life, health and safety associated with development.
- To reflect a declaration under Division 4 of Part 10 of the Water Act, 1989.
- To protect water quality and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.
- To ensure that development maintains or improves river, marine, coastal and wetland health, waterway protection and floodplain health.

In accordance with Clause 44.04, a permit is required to construct a building or to carry out works (exemptions may apply). A permit is also required to subdivide land.

Figure 4: Existing FZ (Source: VicPlan)

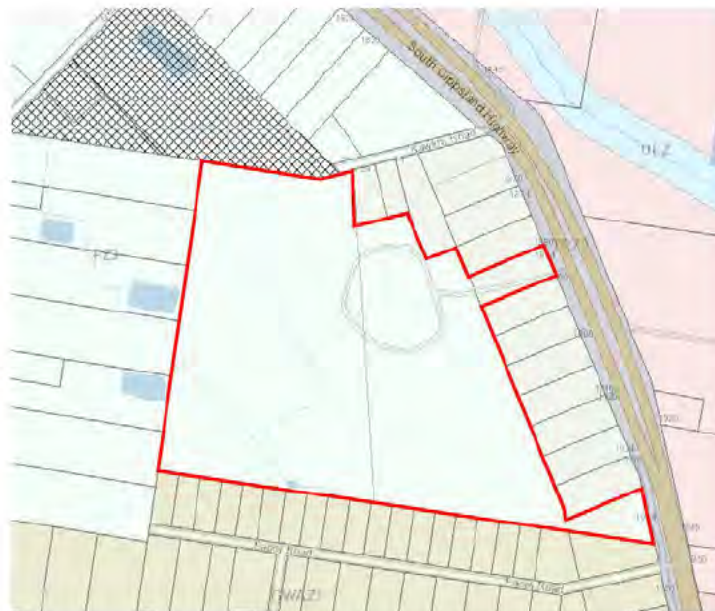
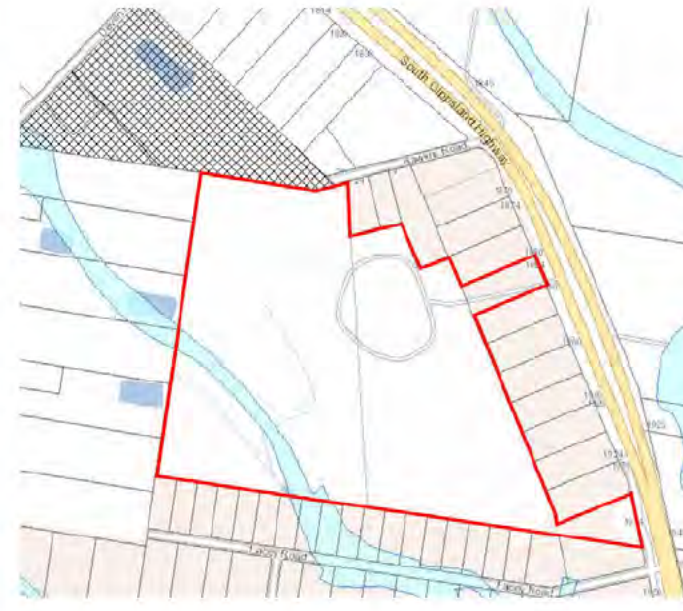


Figure 5: Existing LSIO (Source: VicPlan)



Draft Casey Fields South (Employment) and Devon Meadows PSP & Proposed Planning Controls

Devon Meadows PSP

The draft Casey Fields South (Employment) and Devon Meadows PSP combines a residential precinct and an employment precinct into a single PSP. Both precincts are distinct in character and physically separated by the established road network.

The draft PSP Vision applicable to Devon Meadows notes that *'Devon Meadows will be an immersive and walkable residential community that is home to just over 11,000 residents in a seamless blend of modern urban living and natural landscape character'*.

The subject site is located in the south-east corner of the Devon Meadows precinct and is identified as property ID# DM49, DM56, DM58 and DM65. The draft PSP indicates that the subject site will support residential development amongst a network of drainage assets. A 25m wide connector street is proposed on the site to facilitate movement through the PSP. Vegetation in the form of trees and southern bandicoot habitat is also noted on the site. As previously stated, the landowner strongly supports the residential land use designation for the site but is seeking further efficiencies in the location of and need for specific infrastructure that is currently designated across their property.

The PSP is informed by the Casey Fields South and Devon Meadows Drainage Scheme, which is under review by Melbourne Water. Commentary on the draft DSS is provided within this submission and separately provided to Melbourne Water. It is noted that the proposed drainage scheme significantly reduces the residential potential of the land in its current form, and we submit that alternate drainage designs could provide efficiencies in the overall drainage scheme and improve the land use outcomes on the site, including the potential of additional tree identified in Plan 13 of the PSP.

Figure 6: Place Based Plan[Source: CFS&DM PSP – Plan 2]



Draft Casey Fields South (Employment) and Devon Meadows PSP & Proposed Planning Controls

Proposed Planning Controls

The draft planning scheme amendment proposes to apply the Urban Growth Zone Schedule 15 (UGZ15). Under the proposed UGZ15, the applied zones designated across the subject land include the Residential Growth Zone (RGZ) to facilitate increased residential development, the General Residential Zone (GRZ) to facilitate conventional residential development and the Neighbourhood Residential Zone (NRZ) to facilitate a transitional density that can respond to amenity issues.

The landowner supports the application of the RGZ and the GRZ across the site. The NRZ is not supported as the areas to which it applies cannot feasibly be developed.

It is our submission that the areas designated as NRZ be removed from the NDA or the assets proposed on the subject land be better aligned to remove unusable NDA from the site.

The proposed location of the 40m wide PAO across the southern boundary of the site is an example of where unusable NDA has been created on the subject land. If the application of the PAO continues to be required over the subject land, then it is submitted that its alignment must not further burden the landowner with inefficiencies in land use.

The waterway located on the eastern half of the site is not supported. Flows coming through the pipe fall within Melbourne Water's criteria to support the construction of a pipe in this location. Further, the pipe facilitates flows from a catchment that is less than 60ha in area, meaning the maintenance responsibility will fall on Council.

The PSP identifies trees to be retained on site and the retention of these trees is proposed to be enforced through an updated Casey Planning Scheme Clause 52.17 Schedule. PSP Plan 13 identifies a significant number of trees to be retained on the subject land within the alignment of the proposed PAO and the retarding basins. It is submitted that the PSP must be updated to accurately reflect the more realistic retention opportunity of the trees as they relate to critical drainage infrastructure to avoid the unnecessary need for a planning permit to remove them post PSP gazettal.

The PSP identifies Southern Brown Bandicoot (SBB) habitat in the location of proposed retarding basin DM-RB-02. UGZ15 provides requirements relating to the creation of habitat corridors as well as subdivision design. Discussions at the engagement sessions with Melbourne Water and the VPA suggest that there is potential for further refinement in the size and location of the drainage assets across the PSP following detailed design. As the SBB Sub-regional Strategy for the SBB as it relates to Devon Meadows mandates the restriction of habitat corridors to encumbered land only, and primarily drainage reserves, it is submitted that the wording and imagery within the PSP and the UGZ15 is revised to ensure flexibility to respond to potential variations in drainage size and locations so that the unintended loss of developable land is avoided.

The unknown nature of Aboriginal Cultural Heritage is a significant concern to the viability of the entire Devon Meadows PSP. The publicly circulated Aboriginal Cultural Heritage Assessment for the CFS&DM PSP has been heavily redacted so as not to reveal the location of the (12) identified areas of aboriginal cultural heritage. The PSP provides requirements and guidelines relating to the protection and promotion of cultural heritage values in the use and design of land. It is submitted that until the location of heritage values are known across the Precinct, the PSP cannot in good conscience be finalised as the extent of critical assets to facilitate the development of this PSP may be significantly impacted by cultural heritage. This concern is further validated based on Ecology and Heritage Partner's Aboriginal Cultural Heritage Impact Assessment (ACHIA) summary which recommends that *'Wherever possible, and through early identification, allowances in the developments should be made to include provisions for heritage parks, conservation areas and passive open spaces which will avoid specific harm to the Places and slow the cumulative harmful impacts of development on Bunurong Country.'*

It is submitted that if heritage parks, conservation areas and passive open spaces to support and protect aboriginal values, these must be identified and incorporated into the land use plan for the precinct.

The PSP proposes a staging plan that delays development until significant drainage infrastructure is delivered for both the Casey Fields South and Devon Meadows PSP areas. The upfront requirement for this infrastructure is seen as highly burdensome. The staging requirements would result in accumulating landholding costs, with many landowners waiting for the infrastructure delivery or the start of later development stages. Modifications to the staging plan should be considered to allow a larger development area in the early stages of PSP implementation. Additionally, the removal of unnecessary staging requirements for land not directly tied to a specific development need should be considered.

Residential land use and density of development

Kardina Developments Pty Ltd strongly support the residential land use designation for the site but is seeking refinements in the further efficiencies in the location of critical infrastructure to improve efficiencies land use and specifically NDA across the site.

The PSP identifies areas of increase housing and 'balance area which our client generally supports. The PSP also identifies pockets of transitional density which is strongly opposed as this land cannot feasibly be developed due to the shape and dimensions of these areas. The burden of applying areas of NDA on land that cannot be developed are unreasonable and significantly impact the delivery of this critical site. Table 11 of the PSP titled Property specific land use budget identifies a total NDA of 15.57ha which equates to approximately 42% of the total site area. An analysis of the land identified as NDA confirms that it is over inflated as approximately **4.86Ha of land cannot be developed** due to the proposed location and or alignment of future assets, including the PAO, retarding basins and waterway corridors.

PSP Place Based Plan Review

Figure 7 is based on the proposed Place Based Plan. The plan conceptually illustrates how the key land use elements nominated for the site have created an inefficient subdivision layout and challenge the efficient use of land to support a residential estate.

Significantly, much of the land designated as NDA is in fact unusable and cannot support residential development due to irregular lot dimensions, access limitations, bushfire setback requirements or lack of land area to support a dwelling. This area is highlighted in pink and comprises approximately 2.95Ha of land.

The area highlighted in orange is earmarked in the PSP as an increased area of amenity, however development of this land is restricted due to the alignment of the east-west connector street.

The PSP Review Plan identifies the trees nominated for retention but highlights in red the trees that will need to be removed to accommodate the proposed drainage assets on the site.

The plan also identifies the location of trees to be retained, with the NDA (located in adjacent to the north-west corner of DM-RB-02). It is likely that a substantial number of these trees will need to be removed to facilitate residential development, in which case they should be removed from PSP Plan 13 or, they will be retained which removes additional land from the overall lot yield.

The PSP Land Use Budget identifies a total NDA of 15.57HA, this PSP Review Plan demonstrates that the real NDA is actually 12.62Ha, or 34% of the total site area.

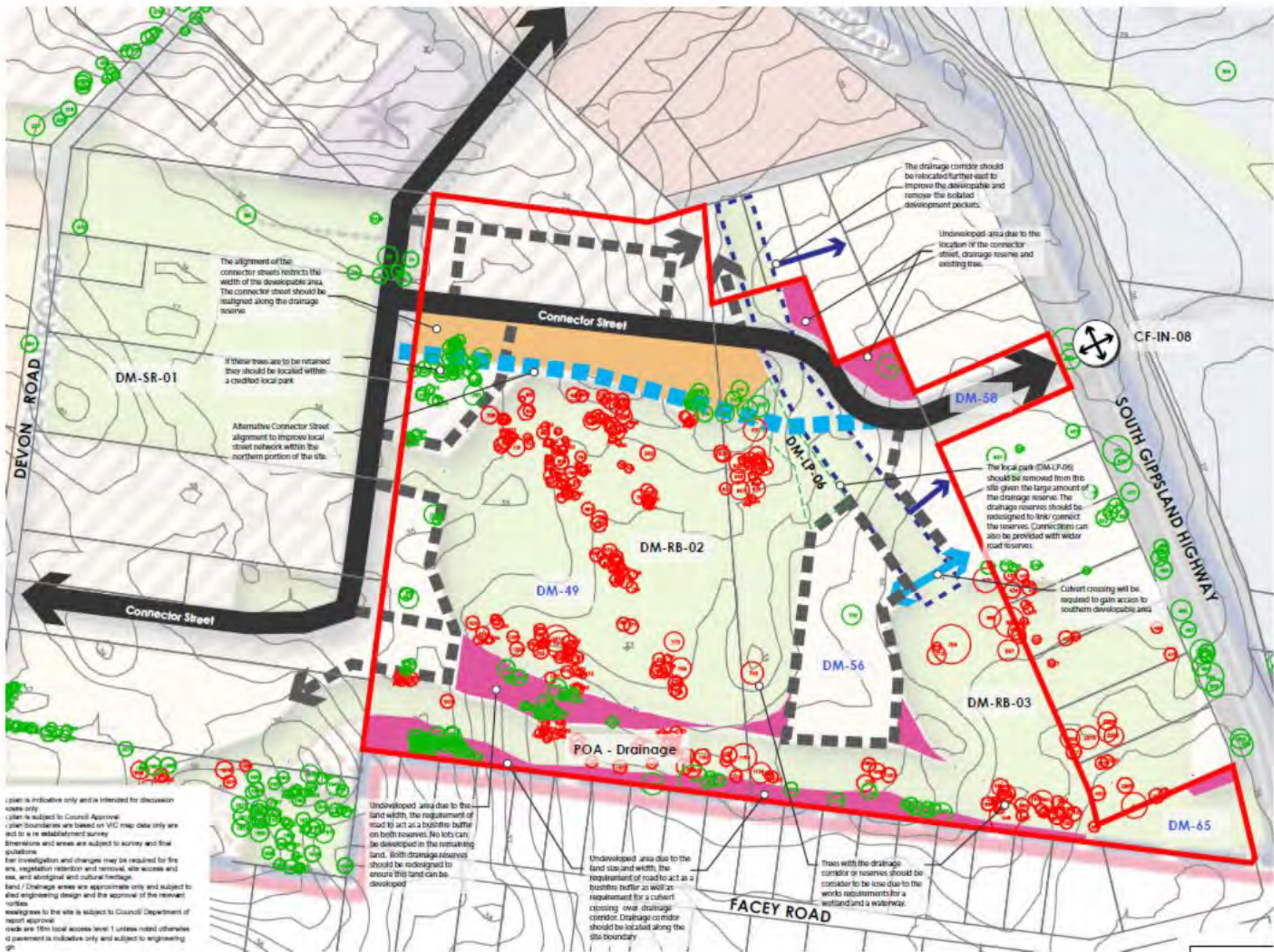
The Plan review demonstrates that additional culverts will be required to facilitate access to an island land parcel that is located betweenDM-RB-02 and DM-RB-03. This outcome adds further expense the CFS&DM DSS.

While these subdivision layout comments may be considered detailed design, they are of significant concern. Experience shows that the 'generally in accordance' consideration applied by a statutory planner can be interpreted differently, especially when they are unaware of the strategic context behind decisions made in the PSP. Therefore, it is submitted that this plan should be refined to remove any potential discrepancies in interpretation to address known challenges including tree removal, road and drainage asset alignments, and identify opportunities for better efficiencies in subdivision design.

A copy of the PSP Review Plan is contained at Appendix A.

To demonstrate how this can be achieved, Beveridge Williams has prepared an indicative concept layout that realigns the proposed land uses on site to limit the unusable pockets of NDA and reduce unnecessary infrastructure costs. (Refer to Figure 8). The indicative concept plan demonstrates that the realignment of the assets on site could increase the NDA to approximately 19.41Ha. It is submitted that this outcome benefits the developer whilst further contributes to the achievement the Victorian government's housing targets.

Figure 7: Place Based Plan Review (Source: Beveridge Williams)



Refined PSP Place Based Plan

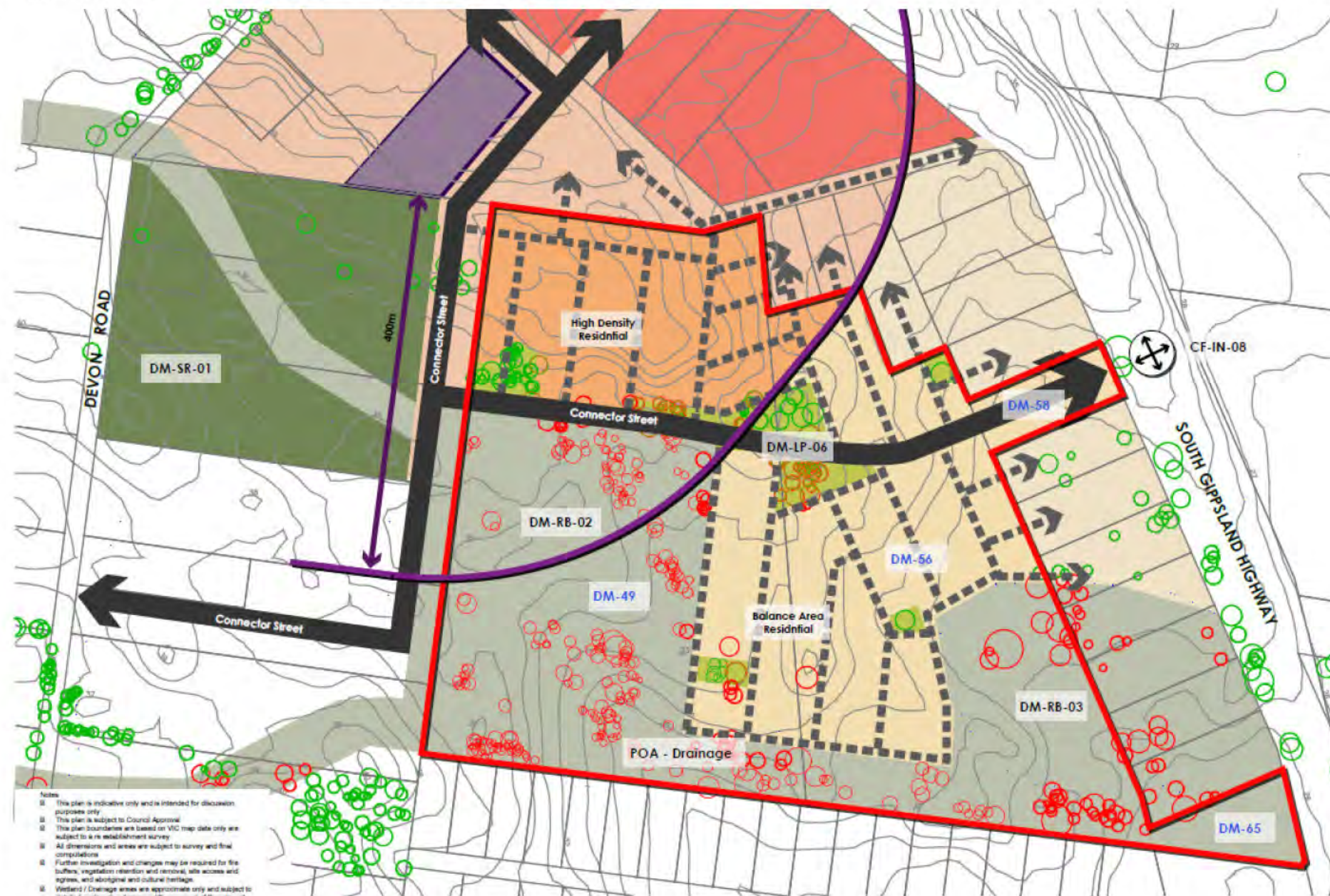
Beveridge Williams has prepared an indicative concept plan that realigns the land uses as proposed in the PSP to limit the unusable pockets of NDA and reduce the unnecessary provision of infrastructure. A full version of the Plan is contained at Appendix B.

The revised Concept Plan demonstrates that the realignment of the assets on site could increase the NDA to approximately 19.41Ha. It is submitted that this outcome benefits the developer and also more substantially contributes to the achievement the Victorian government's housing targets.

The key features of the revised plan are as follows:

- The re-alignment and location of infrastructure assets (both road and drainage) remove removal of unusable NDA from the site.
- High density (increase amenity area) can be appropriately delivered in proximity to within the 400m walkable catchment of the local convenience centre and the proposed schools.
- The balance area can be efficiently designed to facilitate appropriately orientated and dimensioned lots.
- The PAO is relocated to adjoin the Urban Growth Boundary and provides a secondary function as a green amenity break to the existing residents located on the north side of Facey Road.
- In addition, the removal of the unusable NDA located between the PAO and the UGB will ensure that the land will not be left unmanaged. Instead, it will become the responsibility of Melbourne Water, addressing potential management issues.
- Public open space reserves can be well located to facilitate key precinct planning elements, including community use, tree retention and neighbourhood character amenity.
- To support this, the connector street has been realigned along the northern boundary of DM-RB-02. This realignment creates a larger uninterrupted parcel of increased amenity land.
- The realignment of the road also promotes the retention of trees that can more effectively integrated into a future subdivision design.
- The north-south aligned waterway has been removed as drainage investigations demonstrate that it is not required (detailed further in this submission). Further the area falls short of the Melbourne Waters 60Ha land size which puts the maintenance responsibility on Council.
- The removal of the north-south aligned waterway balance residential area supports a more efficient and functional subdivision layout. The alignment removes the need for a culvert crossing that would otherwise be required to access the 'island' which is located between DM-RB-02, DM-RB-03 and the PAO.
- If the removal of the north-south aligned waterway cannot be agreed upon, it is submitted that the waterway should be located to adjoin the eastern boundary of the site to support efficient land use and to maximise the development potential.

Figure 8: Refined PSP Place Based Plan (Source: Beveridge Williams)



Preferred PSP Land Use Plan

Rain Consulting was engaged by the client to consider whether further efficiencies could be made to the proposed drainage scheme and the PSP. The preferred land use outcome for the subject site is presented in Appendix C with an extract shown in Figure C.

Technical expertise to support the Preferred PSP Land Use Plan is provided in Appendix D and focuses on two alternate drainage options. The report provides technical justification relating to how the proposed alternate designs can be appropriately applied to achieve similar outflow conditions under the South Gippsland Highway and best practice water quality treatment as modelled by Melbourne Water.

Similar to the Refined Place Based Plan proposal this Preferred Land Use Plan consolidates and realigns assets to reduce construction costs to the DSS and ongoing maintenance costs to Casey City Council. The plan limits unusable pockets of NDA and reduces the unnecessary provision of infrastructure, including additional road infrastructure and culvert crossings.

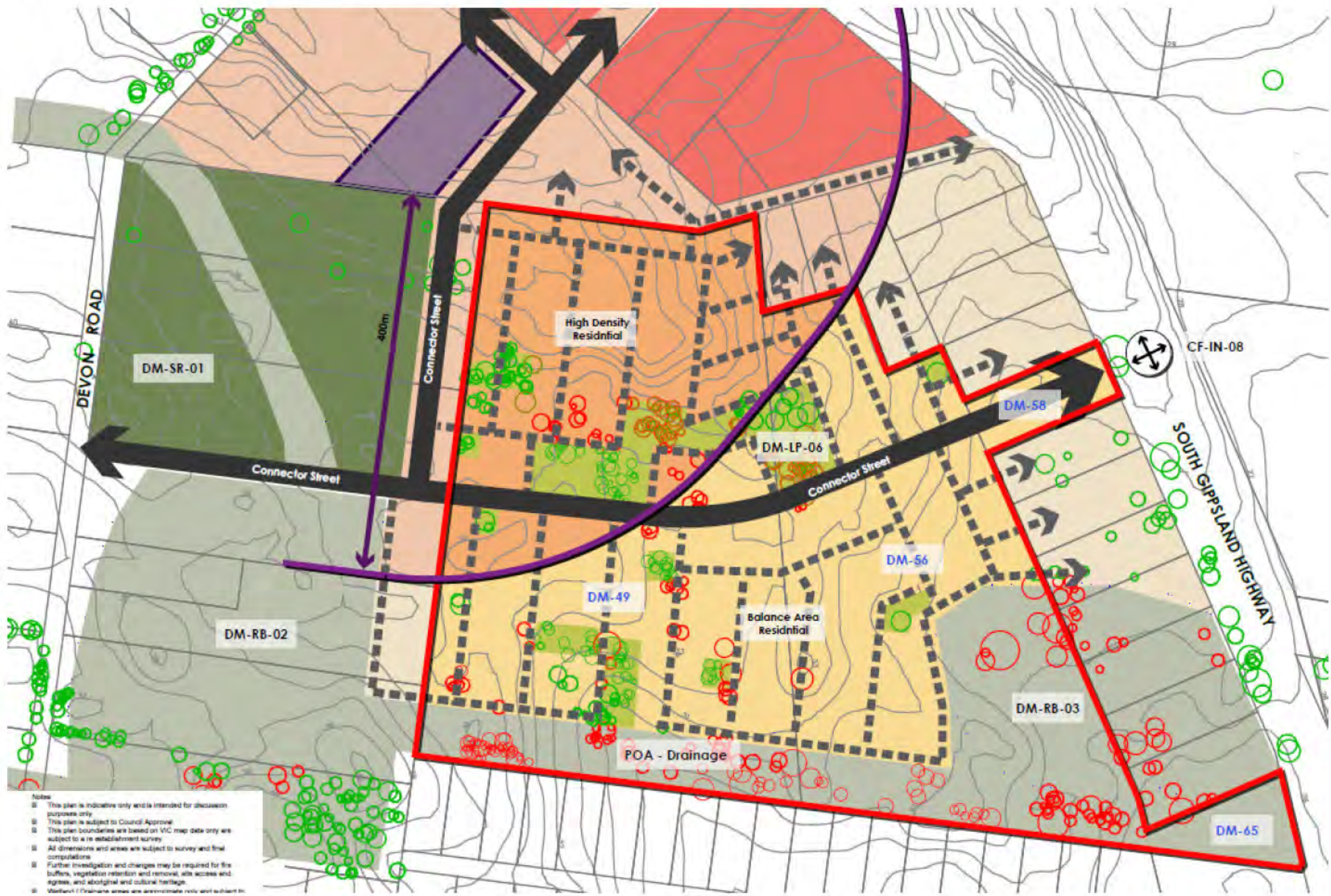
The summary of the key features of the Preferred PSP Land Use Plan are detailed below:

- DM-RB-02 has been removed from the subject land, which now opens up the southern portion of the site for development.
- The east-west connector street has been realigned avoid trees for retention. Increased density can be located on either side of the connector road within the 400m walkable catchment.
- The relocation / removal of DM-RB-02 from the site will facilitate a logical and efficient road network which in turn will support appropriate lot orientation. Lot size and dimensions and movement permeability.
- A network of local parks can be established to within the residential areas. These parks can be designed to retain trees of value without compromise from drainage assets or key road alignments.
- The PAO and DM-RB-03 continues to be shown on the site to support drainage for the broader Devon Meadows Precinct. These features will provide a physical separation to the rural residences located immediately south of the UGB.
- The north-south aligned waterway has been removed as it is not required. Piping is considered a more appropriate option.

The Preferred PSP Land Use Plan supports an NDA of 25.98 hectares. It is submitted that this outcome benefits the developer and also makes a more substantial contribution to achieving the Victorian government’s housing targets, beyond what the current Place Based Plan allows.

It is submitted that the proposed alternative drainage designs that seek the relocation or complete removal of DM-RB-02 from the subject land offer a more equitable distribution of critical infrastructure. The balanced distribution of essential infrastructure across the precinct could help mitigate issues related to development delays, increased costs due to temporary interim drainage solutions, and significantly, unaffordability for the end user.

Figure 9: Preferred PSP Land Use Plan (Source: Beveridge Williams)



Drainage

Public Acquisition Overlay

The PSP and DSS proposes a 40m wide Public Acquisition Overlay in proximity to the southern boundary of the site to facilitate drainage of the entire Devon Meadows Precinct and to improve what Melbourne Water has described as 'legacy issues' associated with the Devon Meadows rural residencies located beyond the Urban Growth Boundary. The total land take associated with the PAO at 1934 South Gippsland Highway is 4.50Ha.

Preliminary investigations identify parts of the PAO located on a rise which would require significant earthwork to construct the waterway as proposed. At its widest extent, this waterway could be as wide as 100m to facilitate appropriate batters. Further, a more detailed analysis GHD's groundwater observations indicate that significant sections of the channel appear to be below the groundwater level which will likely contribute to further increases in flows from Devon Meadows into Clyde South. Considering the size and scale of the works required, the groundwater interaction will complicate the construction methodology and add further costs.

The drainage analysis demonstrates a significant increase in land take to what the current PAO allows for. It is therefore submitted that further investigations are required to be undertaken before a PAO to facilitate the diversion waterway can be fairly applied to the subject land. Until this is undertaken, our client strongly objects to the application of this diversion waterway across their site.

The drainage analysis identifies a substantial increase in the land take necessary for the diversion waterway, exceeding the current parameters of the proposed PAO. In light of this, it is submitted that further investigations are essential to assess the full implications before a PAO can justifiably be applied to the subject land. Accordingly, until such investigations are completed, our client strongly objects to the proposed PAO being applied to their site as their development potential appears to be significantly compromised.

Figure 10: Proposed PAO4 (Source: Exhibited Amendment C295case)



Cultural Heritage Management Plan (CHMP)

A CHMP will be required to carry out works to facilitate the construction of the waterway within the diversion waterway.

It is submitted that the completion of a CHMP for all land nominated for inclusion within the diversion waterway should be funded through the CFS&DM DSS.

Trees

PSP Plan 13 identifies many trees to be retained on the subject land. However, the proposed road and drainage infrastructure, including the PAO waterway and retarding basins, will likely compromise the ability to retain these trees. It is submitted that Plan 13 be updated to more realistically reflect the potential for tree retention, considering the critical infrastructure, to prevent the need for a planning permit to remove them after the PSP is finalised.

Melbourne Strategic Assessment (MSA)

MSA levy contributions are applicable to the subject land.

MSA payments are normally tied to a stage of subdivision and under Section 35 of the Subdivision Act 1988, payable by the acquiring authority. It is submitted that the MSA levy as it applies to all land nominated for inclusion within the diversion waterway should be funded through the CFS&DM DSS and not by our client who has been burdened with the drainage infrastructure to support development of the Devon Meadows Precinct whilst also resolving legacy drainage issues for land located beyond the urban growth boundary.

Growth Area Infrastructure Levy (GAIC)

While the GAIC currently does not apply to the subject land, it is expected to apply once the site is rezoned from Farm Zone to the Urban Growth Zone (UGZ). It is noted that the person whose land is being acquired by the acquiring authority will generally be liable to pay the GAIC levy.

It is submitted the proposed PAO is required to achieve a drainage solution that supports the development of Devon Meadows whilst resolving known existing drainage issues that occur downstream, beyond the Urban Growth Boundary. It is therefore submitted that the GAIC payment associated with all land required to support the diversion waterway should be funded through the CFS&DM DSS.

Staging

PSP Plan 9 – Infrastructure and Development Staging aims to prevent development from proceeding until significant drainage infrastructure is delivered for both the Casey Fields South and Devon Meadows PSP areas. It is submitted that requiring the delivery of this infrastructure upfront is highly burdensome, particularly since no lots have been sold at this point. Typically, the sale of lots helps fund large-scale infrastructure projects, making this approach challenging for developers.

Another concern is the significant land holding costs that will continue to accumulate while landowners wait for the delivery of the proposed drainage infrastructure or the start of later development stages. The same landowners affected by these delays are also the ones who will fund the drainage scheme. It is suggested that, within reason, most developers would be willing to fund a more expensive drainage scheme if it meant avoiding years of holding land after the approval of the PSP and drainage scheme.

It is therefore requested that the staging plan be revised to allow for more development across the precinct in the early stages. Additionally, it is proposed that the staging plan remove unnecessary staging requirements for land that is not tied to a specific development need. It is submitted that the proposed staging plan does nothing to support housing affordability, as it creates unnecessary delays and financial burdens on developers and landowners, which can ultimately increase costs and limit the availability of housing in the area.

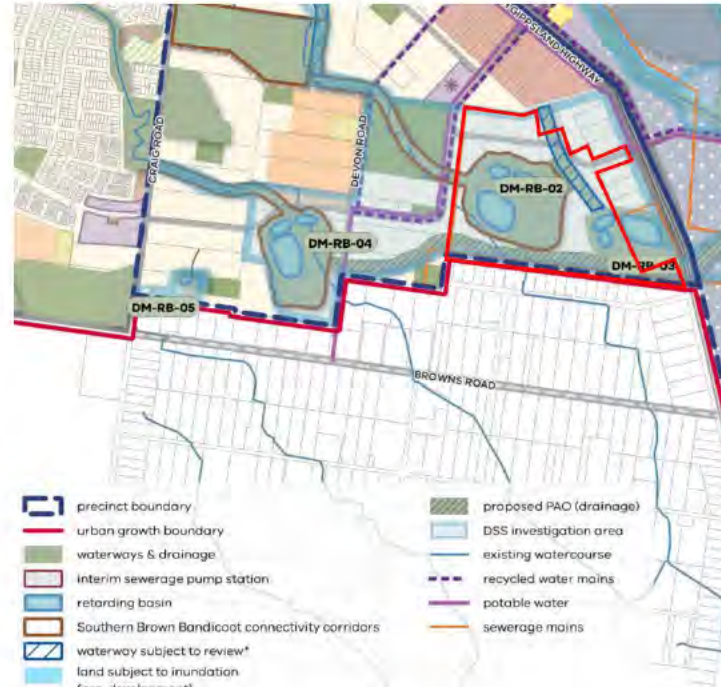
Southern Brown Bandicoot

PSP Plan 5 – Public Realm and Plan 6 – Water nominates Southern Brown Bandicoot (SBB) connectivity corridor on the subject land.

Figure 11: Public Realm Plan (Extract from Draft CFS&DM PSP Plan 5)



Figure 12: Water Plan (Extract from Draft CFS&DM PSP Plan 6)



The Sub-regional Species Strategy for the Southern Brown Bandicoot - Supplement: Habitat Connectivity (2014) was prepared to provide clarity and guidance on habitat connectivity for the bandicoot within the Devon Meadows Precinct. Specifically, the Supplement Strategy report notes:

'The provision of habitat connectivity for the Southern Brown Bandicoot will occur on land unsuitable for urban development and will not result in any loss of developable land in the Devon Meadows precinct'.

In addition, the Implementation Plan for the Southern Brown Bandicoot Sub-Regional Species Strategy (2016) identifies conservation actions specific to the Devon Meadows Precinct including:

- Create Bandicoot friendly suburbs in Botanic Ridge and Devon Meadows precincts
 - Ensure the development of the Devon Meadows Precinct Structure Plan provides for the creation and enhancement of the drainage corridors and where possible, the design of open space reserves and other areas considers habitat requirements for the Southern Brown Bandicoot.

It is submitted that due to the ongoing analysis relating to the location and size of drainage assets within the CFS&DM PSP and DSS, the location of SBB connections should be removed from the plan.

By identifying the location of SBB habitat on the PSP Plans, there is potential for the erroneous application of SBB habitat requirements as part of a future planning permit application, beyond what the final drainage requirements require. This is a distinct possibility for the subject land as multiple drainage consultants are looking to refine the draft DSS which in turn could have an impact on the drainage size, location or need for drainage assets on the property.

Acknowledging the requires for SBB connectivity through the precinct, it is submitted that PSP remove the SBB connectivity corridor from plans 5 and 6.

It is further submitted that modifications to PSP requirement R13 could facilitate the intent of Plans 5 and 6 as it relates to the SBB movement corridors:

Subdivision and development must provide for the delivery of Southern Brown Bandicoot corridors, including, safe passage culverts. DM-RB-02 and DM-RB-04, inclusive of their upstream waterways and safe passage culverts are to be established in accordance with Habitat Connectivity Design Standards for Southern Brown Bandicoot (DEECA 2023) to the satisfaction of the responsible authority.

It is submitted that the revised wording will continue to facilitate the establishment of SBB corridors within the Precinct whilst providing the necessary flexibility to ensure that the drainage assets and SBB corridors align following detailed design which will occur post PSP gazettal.

Aboriginal Cultural Heritage Values

Aboriginal Cultural Heritage Impact Assessment

The Aboriginal Cultural Heritage Impact Assessment (ACHIA), prepared by Ecology and Heritage Partners and circulated by the VPA as part of the C295 case amendment package, has been significantly redacted to protect the location of the 12 identified Aboriginal cultural heritage areas. In contrast, past VPA-sponsored Cultural Heritage Assessments that informed a PSP typically included both desktop and standard assessments. These previous assessments were circulated in full, clearly defining and articulating areas of potential cultural heritage significance within the PSP to better inform the proposed land use outcomes across the precinct.

It is submitted that, in preparing a PSP, the VPA is responsible for the full disclosure of all information being relied upon to inform the potential constraints and development of the precinct. In fact, the very definition of a PSP as per the PSP guidelines is:

'A PSP is a high-level strategic plan that sets out the preferred spatial location of key land uses and infrastructure to guide decisions on staging of development, subdivision permits, building permits and infrastructure delivery. PSPs are deliberately flexible – they cannot anticipate and control every challenge that may be encountered at detailed design and delivery phases.'

As a tool to guide subdivision and delivery of essential infrastructure, they provide certainty of intended outcomes and the flexibility for detailed design to respond to site-specific requirements and solutions, and innovations'.

Notably, Part 1 of the Guidelines (page 3) asserts that the revised guidelines for preparing PSPs require or encourage higher standards of design and development by:

- *'encouraging an open, collaborative and integrated approach to planning by involving stakeholders early, including:
 - a commitment to improving our practices to ensure that Aboriginal cultural values and heritage are better protected and acknowledged in our plans, PSPs, and strategic documents'.*

Further, Page 13 states that *'The Guidelines should be used to create an integrated response to the preparation of PSPs. PSPs within metropolitan greenfield areas should take into consideration the existing state and local policies, and the principles and targets contained within Part 3 of this document. These should be balanced against local features including cultural heritage, natural features and topography to create a PSP that will support the development of unique and vibrant places into the future'.*

Our client is highly concerned that Aboriginal cultural heritage sites within the PSP boundaries, which have not yet been disclosed, may overlap with areas designated for drainage purposes and residential development. This potential overlap raises significant issues, and we question how a long-term land use plan for the precinct can be finalized without properly addressing and incorporating this crucial information. The absence of these sites in the planning process could lead to conflicts and delays, undermining the overall feasibility and effectiveness of the proposed land uses.

Of greatest concern is the recommendation in the ACHIA that *'Wherever possible, and through early identification, allowances in the developments should be made to include provisions for heritage parks, conservation areas and passive open spaces which will avoid specific harm to the Places and slow the cumulative harmful impacts of development on Bunurong Country'.*

The implications for landowners and the overall viability of the precinct are substantial. Devon Meadows is already a highly constrained area, facing challenges such as significant drainage requirements, high groundwater levels, and potential environmental contamination. If critical infrastructure such as schools, active open spaces, and drainage reserves are situated on land with identified Aboriginal cultural heritage sensitivity, relocating these facilities could become both difficult and costly. To avoid such challenges, it is submitted that the 12 Aboriginal cultural heritage sites must be explicitly identified within the PSP and incorporated into the land use planning process. This approach would not only prevent potential future complications but would also align with the PSP Preparation guidelines as detailed above and the objectives, requirements, and guidelines detailed within the CFS&DM PSP including:

014: To contribute to the protection and integration of areas of cultural heritage and living cultural values throughout the precinct.

G20: Subdivision and development should respond to significant landscape features, existing vegetation, and places of Aboriginal cultural heritage in a way that:

- a) supports the legibility of the urban structure.*
- b) retains and protects landscape features and existing vegetation that make a significant positive contribution to place character, amenity, cultural and/or ecological values.*
- c) retains and protects Aboriginal cultural values and culturally significant places that are identified through the Cultural Heritage Management Plan (CHMP) process in consultation with the Bunurong Land Council Aboriginal Corporation (BLCAC).*
- d) incorporates the sense and experience of the natural environment into the planned urban character.*

G24: Subdivision and development should provide opportunities for integrated Water Management where practical, including mechanisms to:

- e) recognise and respond to Aboriginal cultural values.*

G26: Subdivision and development involving the delivery of the open space network should:

- d) provide for the retention and protection Aboriginal cultural values and culturally significant places identified through the Cultural Heritage Management Plan (CHMP) process in consultation with the Bunurong Land Council Aboriginal Corporation (BLCAC).*

Alternative locations and configurations for local parks shown on Plan 5 Public Realm may be considered subject to:

- d) not adversely affecting the overall diversity of the precinct's open space network*
- e) facilitating the protection and harm minimisation of Aboriginal cultural heritage.*

It is submitted that while the PSP aims to protect and promote cultural heritage, the necessary information to facilitate this goal is currently unavailable. Without access to key details about Aboriginal cultural heritage sites and the required management actions, it becomes difficult to effectively integrate cultural heritage protection into the planning process. This lack of clarity also creates the potential for an unfair process, where landowners may be disadvantaged based on management actions determined by the Registered Aboriginal Party (RAP) in a future CHMP.

It is submitted that, for the sake of fair, transparent, and holistic land use planning and implementation, the location of the 12 Aboriginal cultural heritage places that have the potential to cause disruption to the land uses proposed across the PSP must be identified within the PSP.

The PSP must also detail the future ownership and management requirements associated with future heritage parks and reserves.

We request the right to make a further submission in relation to Aboriginal cultural heritage should additional information be provided throughout the PSP planning scheme amendment process.

Conclusion

Kardinia Developments raises significant concerns regarding the future proposed land uses designated on their property, which, if approved, could threaten the viability of development on the site. As the primary facilitator for delivering critical infrastructure before any development can occur within both Casey Fields South and Devon Meadows, the proposed PSP and DSS must support the site's development to its fullest potential. Therefore, Kardinia Developments Pty Ltd submits the points outlined in this document.

Kardinina Developments strongly supports the residential land use designation for the site but is seeking further efficiencies in the location of and need for specific infrastructure that is currently designated across their property. The PSP identifies significant encumbrance on the site, particularly the allocation of around 56% of the land to serve the drainage function for the entire Devon Meadows PSP. Technical advice demonstrates that the implementation of an alternative drainage design can provide a more equitable distribution of critical infrastructure, which could help mitigate issues related to development delays, increased costs due to temporary interim drainage solutions, and significantly, unaffordability for the end user.

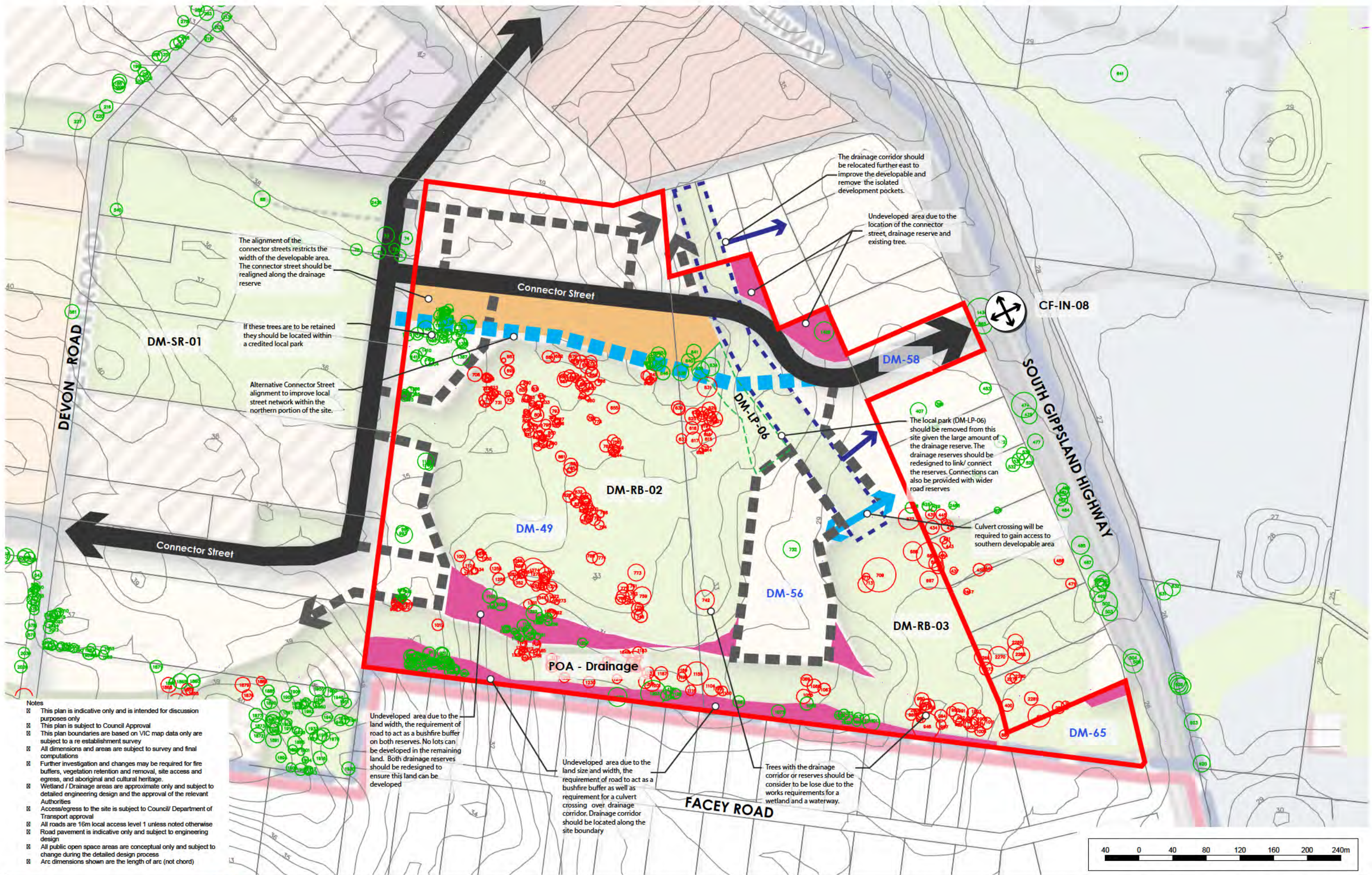
The alternate drainage solutions also provide the opportunity for the retention and protection of biodiversity values including high valued trees which will otherwise be lost through the construction of critical infrastructure. .

There are significant concerns regarding the financial burden that the drainage assets will place on our client, particularly the additional costs associated with multiple levies and the technical investigations required to support the delivery of precinct-wide infrastructure. It is submitted that these expenses need to be incorporated into the CFS&DM DSS to ensure natural justice is upheld.

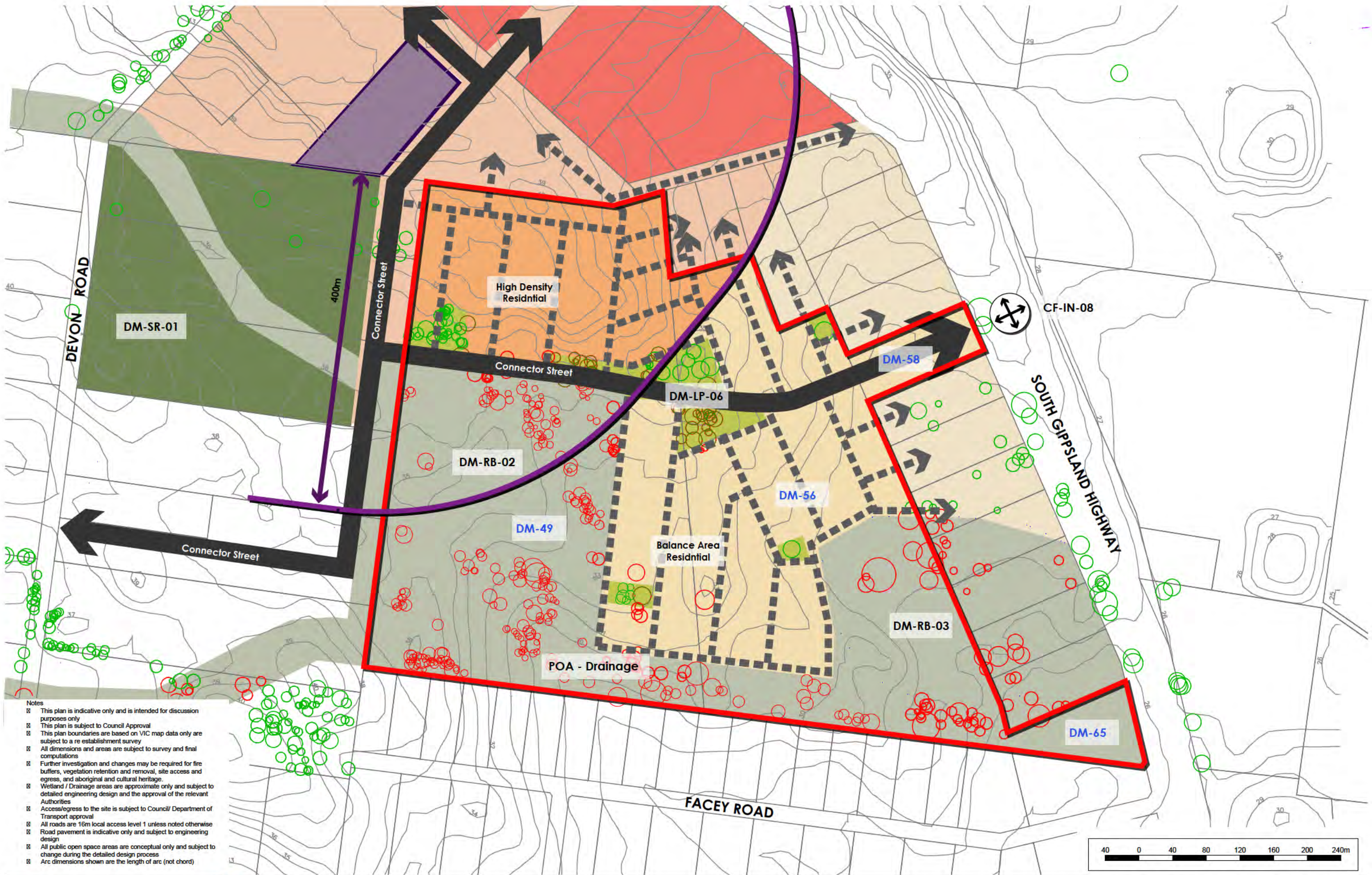
There is also significant concern regarding the lack of transparency around the 12 identified Aboriginal cultural heritage places and the management actions recommended in the Aboriginal Cultural Heritage Impact Assessment. The potential overlap of these cultural heritage sites with areas designated for drainage purposes and residential development is a major issue. This overlap could lead to conflicts and delays, potentially undermining the feasibility and effectiveness of the proposed land uses.

Further, with little opportunity to inform recommended management actions within a future CHMP, the potential requirement for heritage parks, conservation areas and open space reserves within the PSP creates a high level of uncertainty, particularly around landownership and management responsibilities.

The PSP proposes a staging of the precinct presents challenges to the affordable delivery of housing. In addition to the substantial upfront costs to deliver the large-scale infrastructure assets, land holding costs, potentially for years jeopardise the financial viability of a development. It is therefore submitted that the staging plan should be revised to allow for more development across the precinct in the early stages, and remove unnecessary staging requirements for land that is not tied to a specific development need.



- Notes
- ❑ This plan is indicative only and is intended for discussion purposes only
 - ❑ This plan is subject to Council Approval
 - ❑ This plan boundaries are based on VIC map data only are subject to a re establishment survey
 - ❑ All dimensions and areas are subject to survey and final computations
 - ❑ Further investigation and changes may be required for fire buffers, vegetation retention and removal, site access and egress, and aboriginal and cultural heritage
 - ❑ Wetland / Drainage areas are approximate only and subject to detailed engineering design and the approval of the relevant Authorities
 - ❑ Access/egress to the site is subject to Council/ Department of Transport approval
 - ❑ All roads are 16m local access level 1 unless noted otherwise
 - ❑ Road pavement is indicative only and subject to engineering design
 - ❑ All public open space areas are conceptual only and subject to change during the detailed design process
 - ❑ Arc dimensions shown are the length of arc (not chord)



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14/3/2025

██████████
Melbourne Water
PO Box 4342
MELBOURNE VIC 3001

Dear ██████████

Re: Devon Meadows PSP Drainage Options Submission - Memorandum

Rain Reference: [517_03_M01V01_c_DSS_Submission.docx](#)

1 Introduction

Rain Consulting have been engaged by Kardinia Developments Pty Ltd to undertake an investigation of two alternative options for the locations of the proposed drainage assets within the Devon Meadows PSP in order to present a more equitable split of assets across various land-holdings in the PSP area.

The two proposed options are to relocate DM3 west to SIG landholdings (Option 1), or to remove it completely (Option 2). Both of these options can achieve similar outflow conditions under the South Gippsland Highway and best practice water quality treatment can be achieved. Both options avoid significant trees within the Kardinia landholding and result in a better environmental outcome. Option 2 consolidates assets to minimise construction and ongoing costs.

The proposed drainage layout provided by Melbourne Water in the *Interim Report – Casey Fields South (Employment) and Devon Meadows Precinct Structure Plan Preliminary Concept Drainage Strategy* from the 21st February 2025 is shown in **Figure 1-1**. This represents a change from the original scenario, with the outfall now proposed to be directed to the east from DM4 to the Casey Fields PSP. Waterways have been realigned and an additional waterway through from Rawlins Road to DM4 has been included.

Rain Consulting understands that there are some remaining issues to be resolved, with relevant ones to the Kardinia Developments land holdings as follows:

- ▶ The impact of increased flows on the receiving waterway, and downstream properties, needs to be tested at Manks Road. This could impact the size of the retarding basins DM2, DM3 and DM4.
- ▶ New climate change guidelines need to be used in the design of the basins, which will likely impact the size of the basins and other drainage assets. This could represent an increase in rainfall from 18.5% under ARR V4.1 to 70% in ARR V4.2, depending on which pathway is selected.
- ▶ The DSS design is contingent on the Department of Transport approval to install a crossing under the highway.
- ▶ Approximately 26 significant trees are in the path of proposed waterways and retarding basins.

1.1 Land take considerations

The presentation by Melbourne Water on the 5th March 2025 (Melbourne Water, 2025) denotes the following land take within the Devon Meadows PSP.

Table 1-1 Land take comparisons (Melbourne Water, 2025)

Iteration	PSP Area (ha)	RBWL (ha)	RBWL (%)	Waterways (ha)	Waterways (%)	Total Area (%)
February 2023	262	26	10%	16	6%	16%*
February 2025	262	27	10%	28	11%	21%

* This figure did not include the land take outside the UGB, which is approximately 35ha, making a total area of 77ha, and a total percentage of land take of 26%.

1.2 Submission Constraints, Criteria and Solution Space

The following is a summary of the fixed parameters and design approaches:

- ▶ Flood and drainage impacts on downstream land no worse than existing situation.
- ▶ Wetlands upstream of waterway.
- ▶ Hydrological (RORB) catchments and parameters fixed.
- ▶ Current waterway locations cost optimal. Any changes will be at developer's cost.
- ▶ Asset depth – assets to be no deeper than current design (until further advice from Southern Rural Water) (Melbourne Water, 2025).

The key criteria to consider are as follows:

- ▶ Land take.
- ▶ Cost to the DSS.
- ▶ Remnant vegetation (minimise critical trees impact) and key environmental considerations.
- ▶ Cultural heritage values.
- ▶ Implementability (e.g. assets to be within single property or fewer properties where possible). For example, DM2 will likely be consolidated into fewer properties.
- ▶ Post-developed flows at Manks Road.
- ▶ Limit filling across catchment to manage flood risk.
- ▶ Compliance with Koo Wee Rup Water Supply Protection Area Groundwater Management Plan (limit interception of groundwater table). (Melbourne Water, 2025)

The solution space outlined is as follows:

- ▶ Retarding basins and wetlands can be shifted within the investigation areas (shaded green), shown in **Figure 1-2**, noting any proposed change will be assessed against the above key criteria.
- ▶ Trade-offs, for example:
 - Culvert size underneath South Gippsland Highway versus land take of retarding basins in Devon Meadows.
 - Basin footprint versus downstream flooding and drainage benefits south of Manks Road.

We note the commentary in the briefing session indicated that waterway alignments are seen as the most cost effective approach, and moving them would be difficult as they have been designed

to follow the natural topography and reduce land take. Pipes are unlikely to be accepted in lieu of waterways, due to the difficulty in collecting large flows.

Additionally, retarding basins have been designed to limit the impacts to groundwater, fill, embankment failure and associated operational cost.

We note that in the proposed options in this letter, there is no direct correlation between the location of the basin to the culvert size or downstream flooding, as the goal was to maintain the outflows under the South Gippsland Highway proposed in the current draft DSS. The proposed options outlined in this letter also reduces the need for the removal of significant trees..

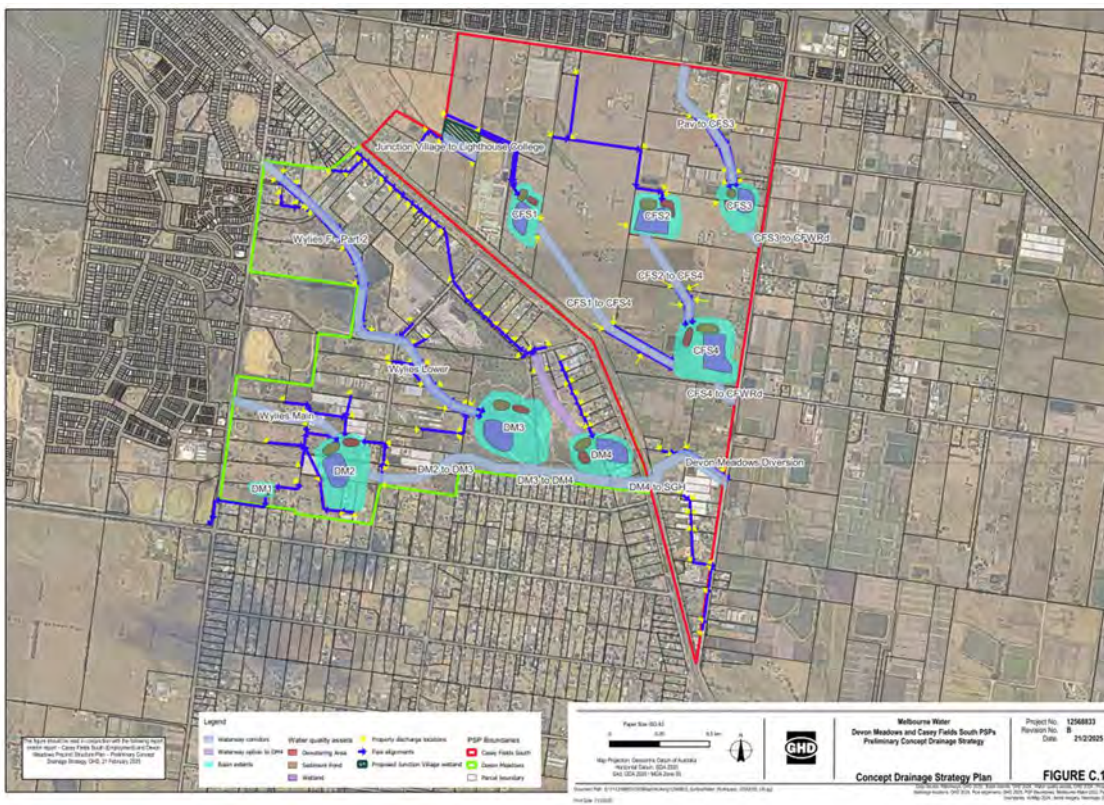


Figure 1-1 Current Proposed Scenario (GHD, 2025)

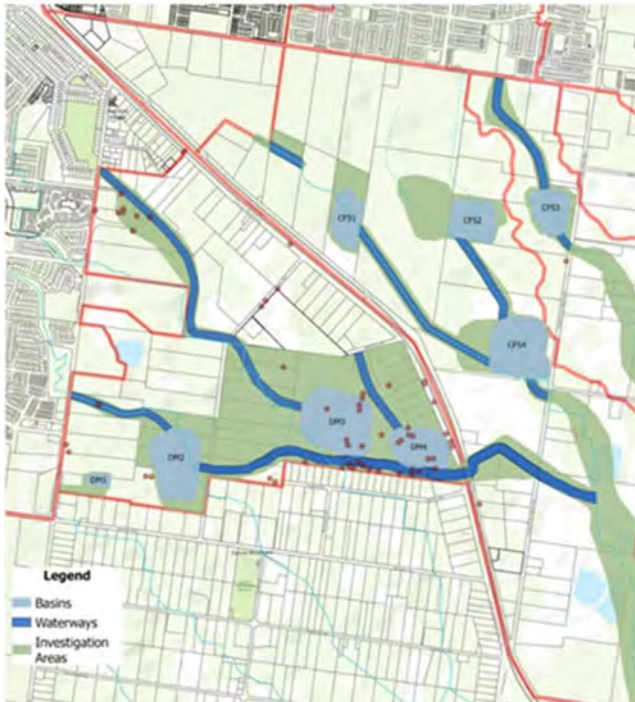


Figure 1-2 Solution Space (Melbourne Water, 2025)

2 Proposed Combination of Assets

The two proposed options are as follows:

- ▶ Option 1 – relocate DM3 to the west to avoid significant trees. These trees are currently the subject of an environmental investigation to determine their significance. Refer to **Figure 2-1** for the proposed locations.
- ▶ Option 2 – combine DM2 and DM3 into one asset at the original location of DM2. Refer to **Figure 2-2** for the proposed locations.

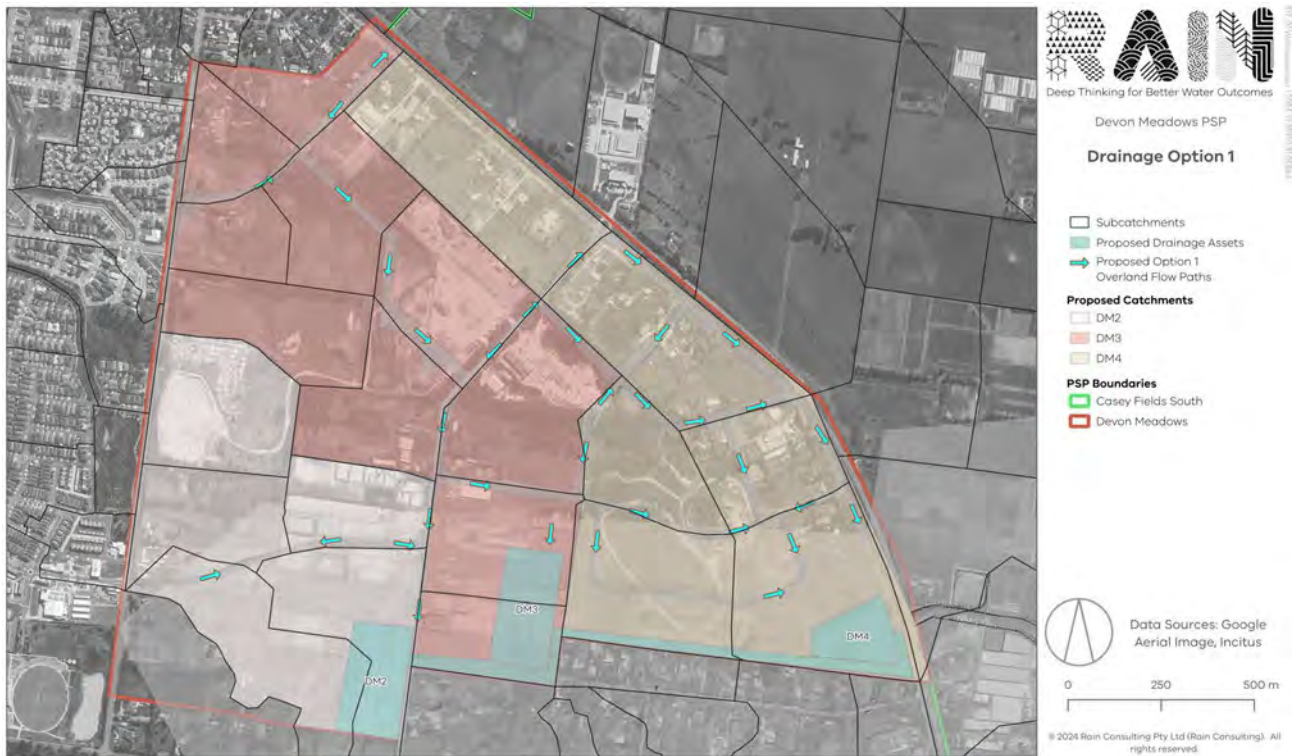


Figure 2-1 Drainage Option 1

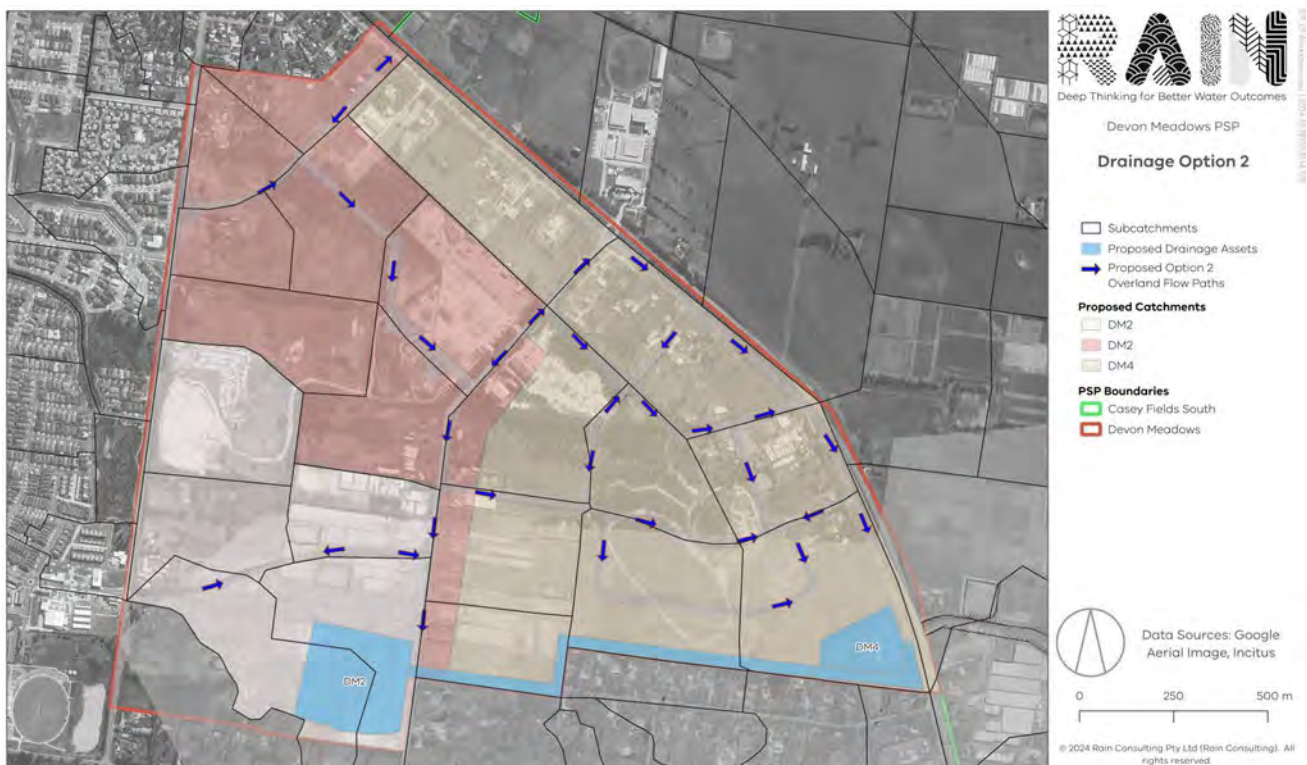


Figure 2-2 Drainage Option 2

2.1 Rationale

There are key principles applied to the establishment of a DSS, including:

- ▶ Schemes should propose infrastructure to service development that is optimal in terms of cost and performance.
- ▶ Melbourne Water will reward innovation by developers that financially benefit the scheme. Based on saving to scheme, overall financial benefit of the innovation and benefit derived by the developer (Melbourne Water, 2007)

The two options proposed provide an environmental benefit through the retention of significant trees.

Option 2, in particular seeks to provide cost savings to the entire scheme by removal of an asset, thereby reducing construction costs and ongoing maintenance costs.

2.2 Feasibility

A high level review of preliminary road levels and gradings from Verve was undertaken to determine what if any changes would be required to likely earthworks in both options (refer the previous stormwater strategy report prepared by Afflux, Incitus, Rain Consulting and Verve (Verve, 2024).

It was concluded in this assessment that maintaining the proposed grading was the most efficient solution because changing grading directions resulted in up to 6m of additional fill in some areas. As a result, it was proposed that the catchments of each drainage asset were amended to allow them to grade out to the proposed asset location. These revised catchments are shown in **Figure 2-1** and **Figure 2-2**.

Outflow grades and levels to the east were reviewed and confirmed to be acceptable.

Based on this high-level review, both options were considered feasible.

2.3 Modification of RORB modelling

The Melbourne Water developed RORB model was modified as follows to represent amended flow paths in each option.

Overall catchment changes were made as per **Figure 2-4**, **Figure 2-5** and **Table 2-1**. It is noted that a consistent Fraction Impervious value was used in the Melbourne Water developed RORB model of 0.75, including the locations of proposed drainage assets. This is seen as a conservative approach, but for this stage of the project, and for consistency in comparing options, these fraction impervious values were retained. Reaches and centroids were adjusted accordingly.

Table 2-1 Proposed Catchment Changes

Scenario/Area (ha)	DM2	DM3	DM4
Proposed DSS Drainage Concept Strategy	58.5	85.4	76.4
Option 1	58.5	73.1	88.7
Option 2	101.4	0	118.9

A number of scenarios were run to consider climate change on the SSP5 (RCP 8.5), 2100 pathway in both existing and developed conditions. Pre-burst values, datahub results, IFD CSV files and temporal patterns were used as provided by Melbourne Water on the 6th March 2025.

Table 2-2 RORB Parameters

Prepared by	Scenario	Initial Loss (mm)	Continuing Loss (mm/hr)	kc	dav	Kc/dav
GHD	Existing	25	2.5	2.94	2.75	1.07
GHD	Existing with Climate Change SSP5 (RCP8.5) 2100	29.2	3.5			
GHD	Developed	25	2.5	3.93	3.66	1.07
GHD	Developed with Climate Change SSP5 (RCP8.5) 2100	29.2	3.5			
Rain Consulting	Developed Option 1	25	2.5	3.96	3.69	1.07
Rain Consulting	Developed Option 1 with Climate Change SSP5 (RCP8.5) 2100	29.2	3.5			
Rain Consulting	Developed Option 2	25	2.5	4.18	3.89	1.07
Rain Consulting	Developed Option 2 with Climate Change SSP5 (RCP8.5) 2100	29.2	3.5			

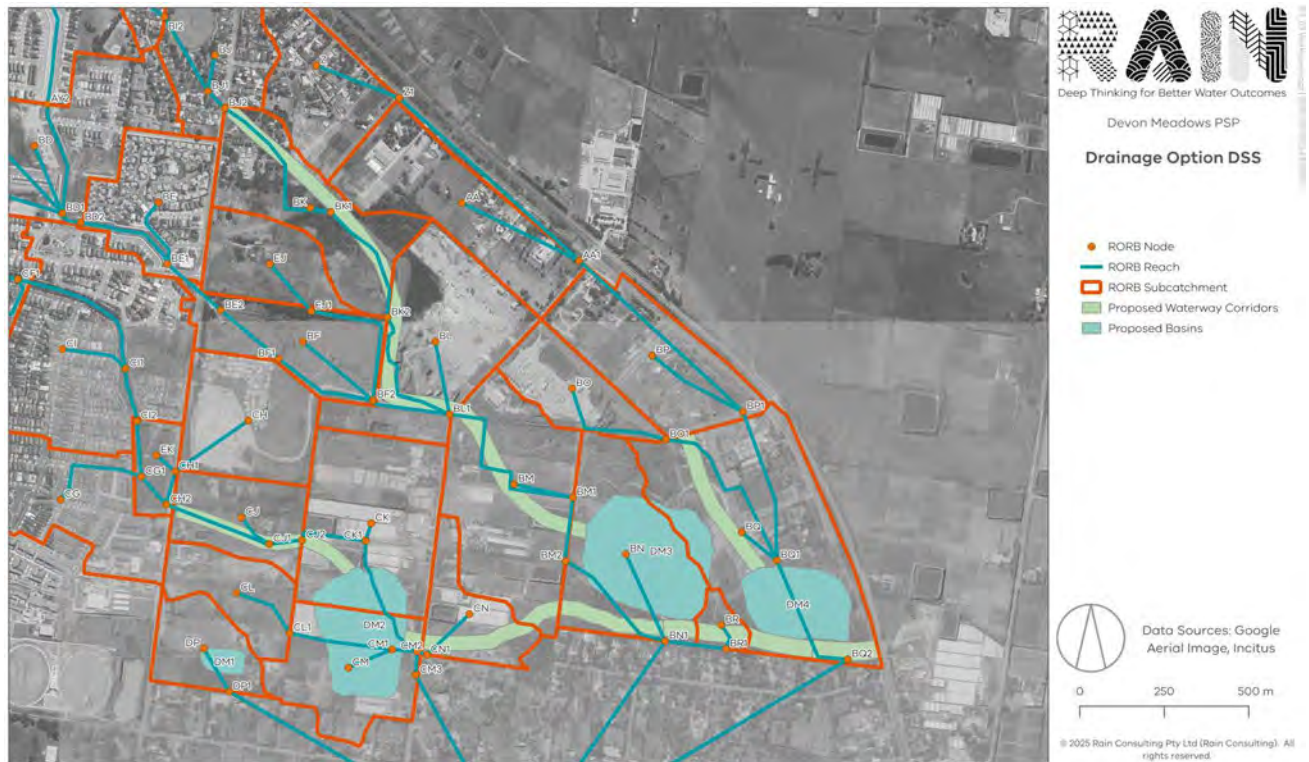


Figure 2-3 RORB Layout DSS

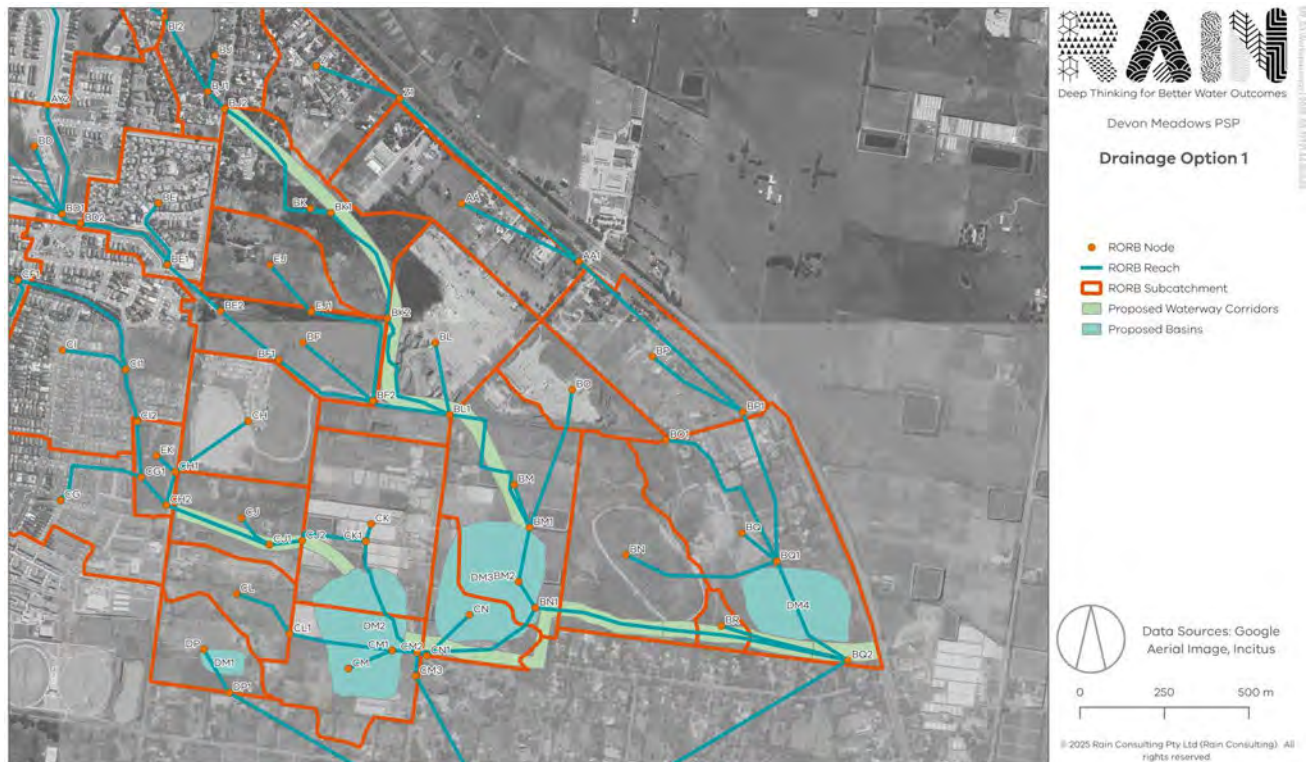


Figure 2-4 Option 1 RORB Setup

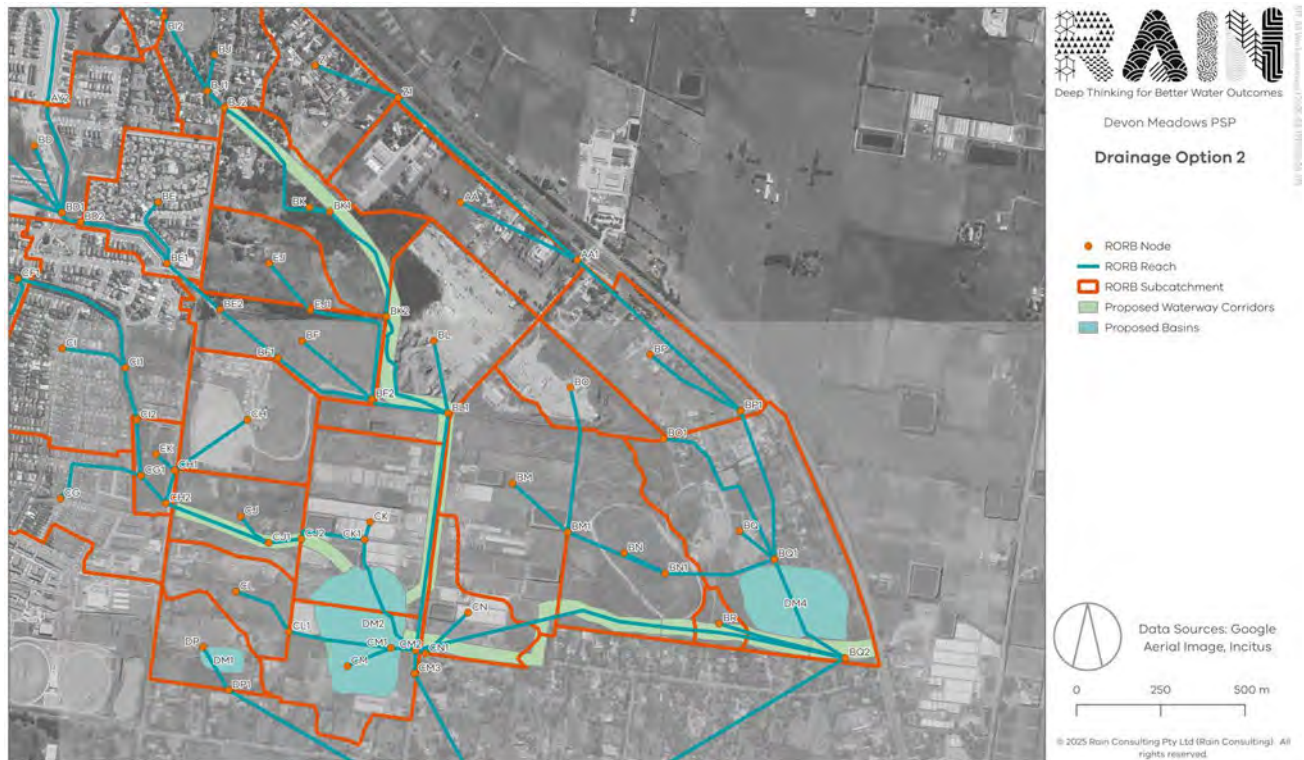


Figure 2-5 Option 2 RORB Setup

2.3.1 RORB Results

The key results are shown in **Table 2-3**.

Table 2-3 RORB Results

Scenario	DM2		DM3		DM4		DM4-HWY Upstream
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Print point at eastern outflow
Developed	13.52	5.66	13.27	6.04	11.63	3.19	12.69
Developed Option 1	13.52	5.66	13.02	5.6	15.21	3.85	12.71
Developed Option 2	18.23	11.14	N/A	N/A	19.65	5.7	14.12
Developed with Climate Change SSP5 (RCP8.5) 2100	26.08	8.01	27.85	11.9	23.64	7.17	24.01
Developed Option 1 with Climate Change SSP5 (RCP8.5) 2100	26.20	8.07	27.52	4.60	31.07	8.47	24.68
Developed Option 2 with Climate Change SSP5 (RCP8.5) 2100*	38.08	23.8	N/A	N/A	39.95	11.11	29.58

The proposed outflows in both options are within the orders of magnitude presented in the DSS for both base case and climate change SSP5 (RCP8.5), 2100 scenarios.

It is noted that the stage storage discharge relationship was modified for Option 2 to optimise basin storage and sizing.

2.4 Drainage Asset Information

Table 2-4 shows the proposed retarding volumes required for each scenario, and a comparison of those compared to the current proposed scenario. It is demonstrated that the proposed Option 1 has an overall increase of 1,800m³ of storage compared to the DSS option, and Option 2 has a reduction in total volume of 49,900 m³. In Option 1, the volumes across individual retarding basins are largely similar, however in Option 2, with the removal of DM3 and splitting of these flows to DM2 and DM4, there is an increase in the storage volumes required for both basins. Whilst the stage-storage-discharge-area relationship developed for the DSS is unknown at this stage, it is inferred that there will be a proportional increase in the proposed retarding basin areas. This is an area for further investigation.

Table 2-4 Retention Basin Details for Proposed Scenarios Base Case

Scenario/Volume (m³)	DM2			DM3			DM4			All Retarding Basins	
	Peak Elevation (m AHD)	Volume (m³)	Change in Volume (m³)	Peak Elevation (m AHD)	Volume (m³)	Change in Volume (m³)	Peak Elevation (m AHD)	Volume (m³)	Change in Volume (m³)	Total Volume (m³)	Change in Total Volume (m³)
Proposed DSS Drainage Concept Strategy	33.39	64,000	0	29.83	61,500	0	26.03	28,300	0	153,800	0
Option 1	33.39	64,000	0	29.81	60,500	-1,000	26.09	31,100	2,800	155,600	1,800
Option 2	34.02	65,400	1,400	N/A	N/A	-61,500	26.24	38,500	10,200	103,900	-49,900

2.5 Water Quality Treatment Train

The MUSIC model supplied by Melbourne Water on the 6th March 2025 was unable to be opened at this stage. A MUSIC model was prepared by Incitus using the Melbourne Water MUSIC Guidelines 2024 as part of the previous works and this has been amended for both proposed options (Verve, 2024). For the purpose of consistency, the Fraction Impervious values were adjusted to be 0.75, although it is noted that this is very conservative compared to the proposed land use layout.

The MUSIC model layouts can be seen below in **Figure 2-6** and **Figure 2-7**.

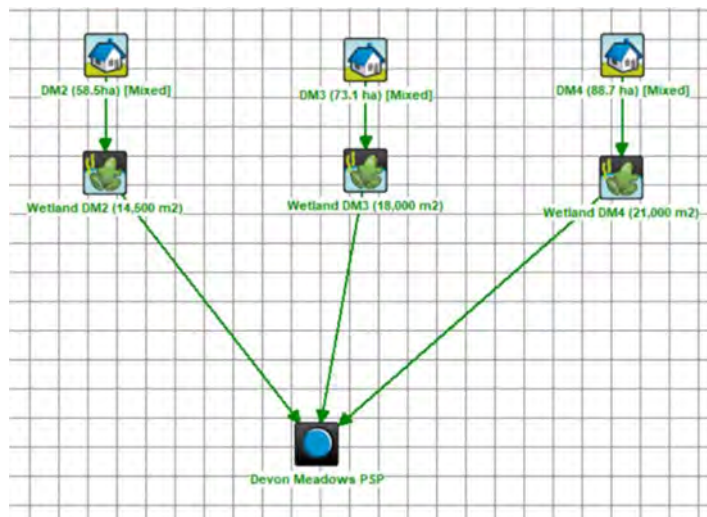


Figure 2-6 MUSIC Model Option 1

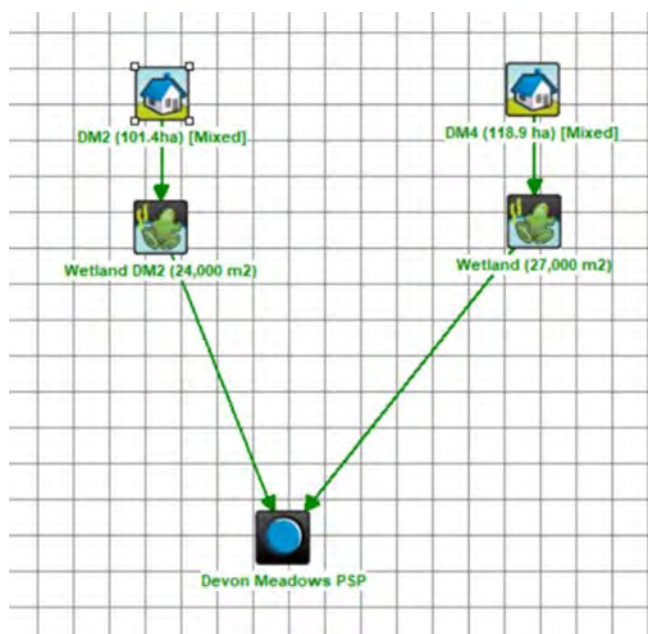


Figure 2-7 MUSIC Model Option 2

2.5.1 Sediment Basin

Initial sizing of the sediment basin was completed using a Fair and Geyer equation (Equation 10.3 WSUD Stormwater Technical Manual 2005). Details can be provided upon request.

2.5.2 Proposed treatment train

The proposed treatment train comprises of a sediment basin upstream of each of the proposed wetlands within the proposed retarding basins. Additional details can be provided upon request.

The proposed asset sizing compared to that proposed in the DSS is shown in **Table 2-5** and the treatment train results shown in **Table 2-6**. Across the board, it can be seen that sediment basin sizes appear to be conservative in the DSS option. In Option 1, wetland sizes are comparable for DM2 and DM3, with a slightly larger increase in DM4. In Option 2, the wetland sizes in DM2 and DM4 have increased as a result of the catchments increasing. These wetlands can fit within the allocated area for retarding basins.

As touched on in Section 2.4, it is envisaged that with the change in wetland area proposed, the stage storage discharge area relationship can be optimised.

Table 2-5 Proposed Water Quality Asset Sizing

Scenario	DM2		DM3		DM4	
	Sediment Basin	Wetland	Sediment Basin	Wetland	Sediment Basin	Wetland
Developed DSS	2,800	16,000	2,500	17,500	2,800	14,000
Developed Option 1	1,150	14,500	1,300	18,000	1,500	21,000
Developed Option 2	1,750	24,000	N/A	N/A	1,950	27,000

Table 2-6 Treatment Train Results

Pollutant	Reduction Target	Option 1 DM2	Option 1 DM3	Option 1 DM4	Option 2 DM2	Option 2 DM4
Total Suspended Solids	80%	80.6	80.3	80.7	80.4	80.5
Total Phosphorus	45%	69.0	69.1	68.6	69.3	68.6
Total Nitrogen	45%	48.2	48.1	47.6	47.7	46.8
Litter/Gross Pollutants	70%	100	100	100	100	100

3 Constructed Waterway from Rawlins Road to DM4

It is noted in the DSS that this waterway is proposed to convey gap flows of about 8-9 m³/s through the development, in lieu of conveying it within road reserves and open space. We understand that this is a conservative approach adopted due to the uncertainty of the development layout and feasibility of conveying via overland flow at this stage of the design process. We also note the following from the DSS:

If it can be demonstrated that overland flows can be safely conveyed through a future urban layout, then Melbourne Water will consider modifying the DSS to remove this waterway (GHD, 2025).

Due to the time constraints associated with this submission, we intend to investigate this at a later stage.

We do note that the alignment of this waterway could be improved to optimise the net developable area.


4 Recommendations

This investigation has compared the DSS design to two proposed alternative options. In summary, both new options are feasible. When compared to the DSS results, Option 1 has comparable outflows to the Casey Fields PSP and wetland sizing can fit within the proposed retarding basin areas. Option 2 has increased outflows to the Casey Fields PSP, however these are within the range of the DSS values. This can be achieved by modifying the storage discharge to DM2 to increase outflows and maintain the stage storage relationship. Wetland sizes can fit within the proposed retarding basin areas.

It is noted that both DM3 and DM4 are located within the subject site in the current DSS proposal. Options 1 and 2 provided in this report provide a more equitable share of land take across land owners in the scheme.

Kind Regards,




Principal Engineer
Rain Consulting Pty Ltd


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