Development Services Attachments
ORDINARY COUNCIL MEETING
Wednesday, 16 August 2017

REPORT NUMBER	REPORT TITLE AND ATTACHMENT DESCRIPTION	PAGE NUMBER(S)
9.1.1	**Proposed Additional Use of Storage / Warehouse and Construction of Storage / Industry–Rural Building: Lots 3 & 7 (RN 3907) Great Northern Highway, Muchea** 1. Applicant's report 2. Applicant's proposed development plans 3. Schedule of Submissions	1 – 105

DSY Engineering
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Chief Executive Officer
Shire of Chittering
PO Box 70
BINDOON WA 6502

Attention Mr Peter Stuart – Senior Planning Officer

Dear Peter

Proposed Rural Industries and Development Lot 7 Great Northern Highway & Proposed Warehouse Storage - Ancillary Development Lot 3 & 7 Great Northern Highway Muchea;

Introduction

DSY Engineering seeks Planning Approval for the following:

- Rural Industries / Hardstand and Shed Development for Lot 7 Gt Northern Highway
- An Additional Use for "Warehouse Storage" on Lot 3 & 7 Great Northern Highway Muchea.

Further information on the proposed use and compliance with the Shire's Town Planning Scheme is provided below. Signed application forms, Certificate of Titles and relevant plans are attached to this correspondence.

Business History

DSY Engineering is a multi-disciplined business that has been operating since 1999 and since 2007 in Chittering. We employ up to 12 local staff and foresee this number doubling with future Workshop. Predominantly an Agricultural based business that has ancillary requirements to the mining, earthmoving, structural and transport sectors.

Application History

The Original Staged 2013 application was advertised and approved subject to MRWA. MRWA subsequently delayed approval subject to PDNH Layout.

It has taken MRWA several years to design and approve the Northlink and PDNH layout surrounding the sites with part of Lot 7 resumed for Upgrades to Old Gingin Road.

Now that the resumed land and road layout has been completed DSY are resubmitting the modified original application. Planning WA also suggested leaving the application until changes to TPS6 were revised in relation to Warehouse/Storage definition. (See attached Letter)

DSY Engineering would like the Shire of Chittering to consider these points in the decision making process for this application in relation to current changes to the TPS6. DSY Engineering has patiently waited for all industry bodies to complete their planning processes prior to completing this application.

With respect to our neighbours DSY Engineering has and will continue to work as hard as possible to mitigate impact to them. Existing tree planting and positioning of quiet laydown areas have been carefully planned to reduce impact as much as possible.

The Lot 3 site currently has approvals for Rural Industry / Transport Depot and Hardstand.

The Lot 7 site currently has approvals for Transport Depot and Stage 1 Hardstand.

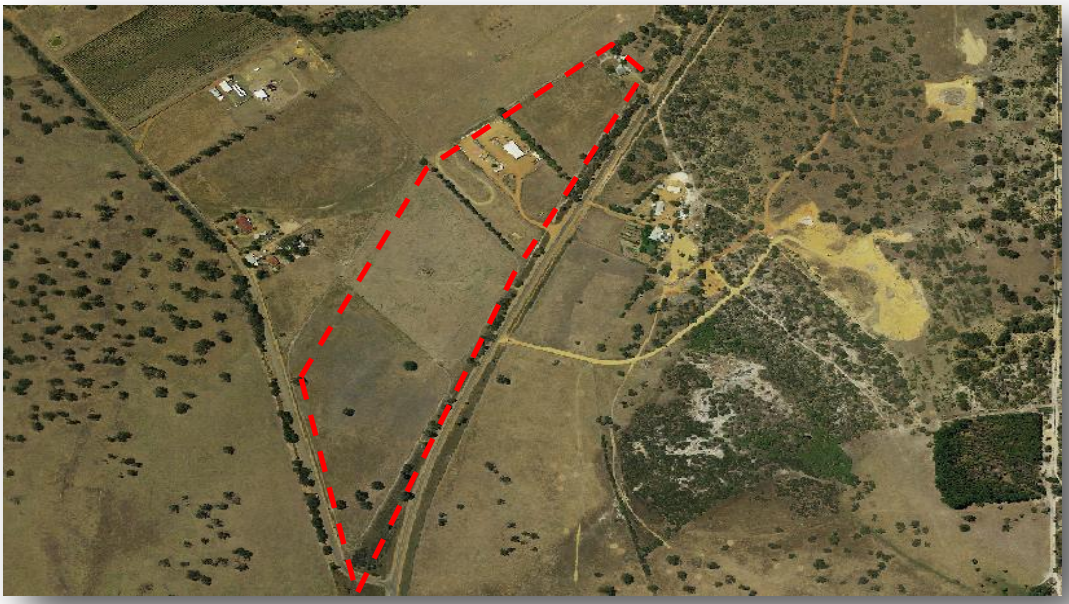
The site

The application applies to Lot 3 & 7 Great Northern Highway, Muchea (the sites). The total site area is 17.311ha. The details on the Certificate of Title are as follows.

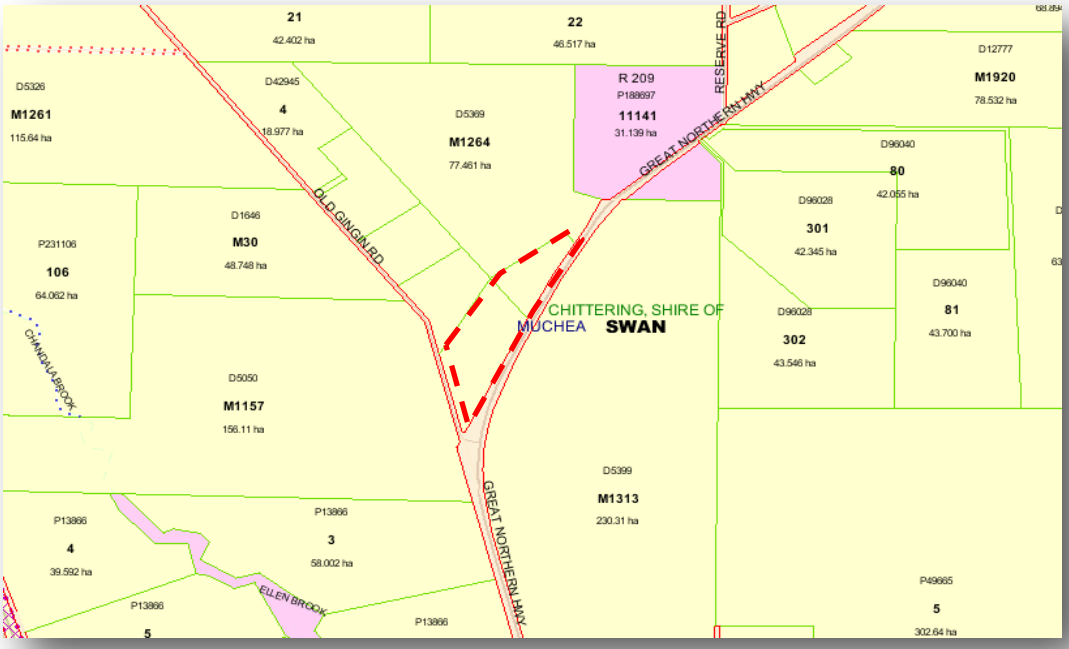
Lot number	Volume/Folio	Diagram	Owner
3	585/14A	25291	Shawn Douglas Graham and Sharon Michele Crawford
7	1345/256	42945	Shawn Douglas Graham and Sharon Michele Crawford

Existing development on Lot 3 includes existing offices and sheds associated with the DSY Engineering business (Rural Industry) and Transport Depot. Existing development on Lot 7 is Transport Depot and Stage 1 Hardstand.

Surrounding land uses comprise Future Light Industrial, Future Triple Road Train area, Agriculture, Rural Industry, Extraction and Transport Depot. The sites are located approximately 2.5-3km north-east of the Muchea town site, and are currently zoned *Agricultural Resource*.



Lot 3 & 7 Great Northern Highway, Muchea – Site Location



The Proposal

The proposal seeks 'Rural Industry' and 'Warehouse Storage' as an additional use to support the current Transport Depot for lot 7 and 'Warehouse Storage' additional use for Lot 3.

Lot 3 has existing approval as a Rural Industry and Transport Depot and Lot 7 has existing approvals as Transport Depot and Stage 1 Hardstand.

The improvements to be made on the site are shown on the plans at Attachment 2 and include:

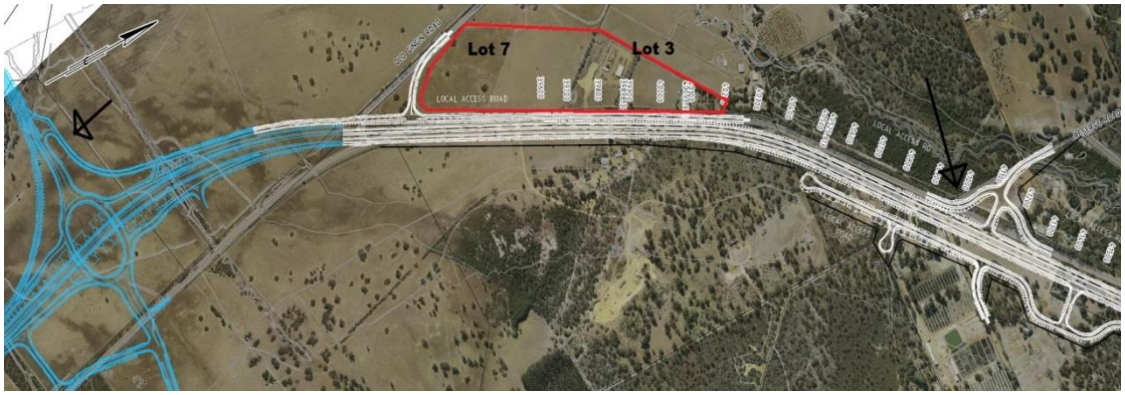
- Site Layout
- Proposed Staged Development

Access

Approved Double Road Train Access currently exists for Lot 3 and 7 off the Great Northern Highway. The future access onto PDNH / North Link for both properties will be via Reserve Road and the Muchea Interchange utilising existing GNH as a local access road. Turning Pockets and Deceleration lanes for 36.5m double road trains have been approved and will be built at Reserve road and Muchea Interchange to accommodate the Existing Transport Depot.

Both lots currently have approval for 10 Heavy Vehicle Movements per day. This application proposes to increase movements to 20 Heavy Vehicle Movements per property with movements staged with development. As the Existing Great Northern Highway will become a localised access road with all North/Sound bound traffic transferred to the PDNH local traffic will be minimal. The original 2013 TIS has been included for reference.

This application is not expected to have a significant impact on access or movements.



Lot 3 & 7 Great Northern Highway, Muchea – North Link Heavy Vehicle Access

Operation Times

The proposed operation of the Lot 7 Manufacture / Storage Shed will be in line with the existing times of the Lot 3 shed which is 6am – 6pm Mon-Sat.

Existing approval of operating times for the Transport Depots is 24hrs / 7days per week with the current application not being part of or affecting this. Although these times are unlimited DSY have and will actively mitigate impact to neighbours as much as possible.

The speed limit on all sites is set at 20km/hr.

Operational Areas

The staged hardstand laydown areas for the warehouse storage application have been carefully planned to reduce visual impact to the Highway as much as possible. The storage areas to West have been planned to mitigate visual and noise impact to neighbouring property. Existing and Future tree planting as per plans is provided to minimise any impact.

The proposed Workshop will reflect that of any new development in the metro area with grass verge and entrance with gardens. Security fencing will be powder coated black and be behind all tree lines. Solar powered lamp posts will not radiate light towards highway or neighbouring properties. The hardstand is constructed from a local pit consisting of a shale / gravel mix that compacts with minimal dust erosion. An existing water cart is onsite for watering trees and hardstand.

Parking and Storage

The proposed hardstand areas as per Property Development Plan will predominantly have agricultural related products with the addition of a general storage area that supports and is ancillary to the Transport Depot, Repair and Fabrication operations.

Parking bays for staff and clients for proposed workshop are detailed in shed plans.

All environmental requirements for storage and parking have been provided in attached Catchment Management Plans.

Typical Agricultural, Transport, Mining and General Products – Lot 3 and Lot 7

Policy and Statutory Framework

Shire of Chittering Town Planning Scheme No. 6 (TPS)

Industry – Rural means

(a) An industry handling, treating, processing or packing rural products; or

(b) A workshop servicing plant or equipment used for rural purposes.

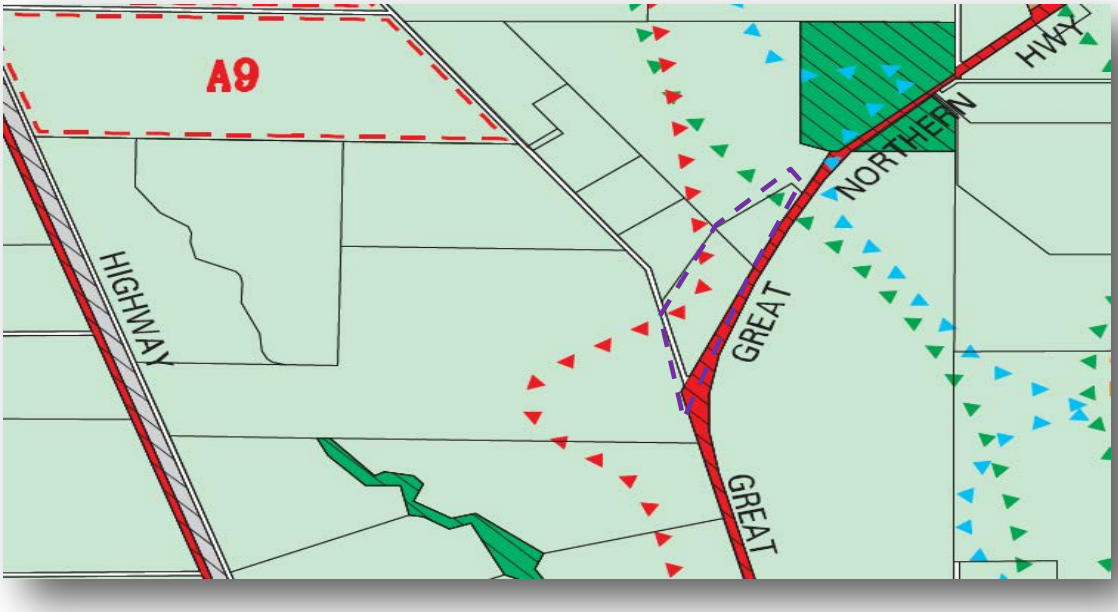
Warehouse means premises used to store or display goods and may include sale by wholesale.

The site is zoned *Agricultural Resource* in the Shire of Chittering Town Planning Scheme No. 6 (TPS).

- *The use being applied for is Rural Industries which is a 'D' use in this zone.*
- The use being applied for is Warehouse Storage which is a 'D' use in this zone.

This means that the use requires Council discretion.

The Scheme also indicates that the site is located within the *Military Considerations* Special Control Area (SCA). The purpose of this SCA is largely to protect residential development from noise impacts and to protect the integrity of the RAAF Air Base Pearce operations. It is not considered that the land use of a "Rural Industry or Warehouse Storage" will be adversely impacted by noise from the air base operations or that it will affect the operations of the air base. The site is shown on the Scheme map below.



Lot 3 & 7 Great Northern Highway, Muchea – Scheme Map

The Scheme contains general provisions relating the *Agricultural Protection* zone. These are addressed in the following table.

Objective	Comment
To preserve productive land suitable for grazing, cropping and intensive horticulture and other compatible productive rural uses in a sustainable manner.	Lot 3 and 7 are already used for Transport Depot and the proposed development will be an extension to the development already on both sites. Lot 3 and 7 are ideally located at an ideal junction for industry type use.
To protect the landform and landscape values of the district against despoliation and land degradation.	Lot 3 and 7 are already used for Transport Depot and the proposed development will be an extension to the development already on both sites. Neither property are being used for horticulture, therefore the proposal will not result in a reduction in this land use. The site is almost completely flat and doesn't have any significant landscape features. It has also been mostly cleared. The proposed "Rural Industry and Warehouse Storage" is not expected to have a significant impact on landform and landscape values. New Vegetation screening is already in place along the western boundary of Lot 3 & 7 to reduce views into the site. This screening is in line with Landcare recommendations.
To encourage intensive agriculture and associated tourist facilities, where appropriate.	Lot 3 and 7 are already used for Transport Depot and the proposed development will be an extension to the development already on both sites. The property is not being used for horticulture; therefore the proposal will not result in a reduction in this land use.
To allow for the extraction of basic raw materials where it is environmentally and socially acceptable.	The proposal doesn't propose the extraction of basic raw materials.

Environment and Drainage

Lot 3 & 7 is largely cleared of vegetation apart from a few scattered trees and a row of trees along the road and on the northern and western boundary of the site. The proposed development will not result in the removal of any trees and will have minimal environmental impact in terms of protection of vegetation, habitat and biodiversity. An existing 10m Strip of revegetation as per Existing Environmental Catchment Management Plan has been planted along the western boundary already. The Southern end along Old Gingin Road will be revegetated as per plans. The Eastern side along Great Northern Highway will be revegetated as per plans. New Swale Dam and drainage channels will be built as per plans on Lot 7 to accommodate all Stormwater. See attached Environmental Catchment Management Plan.
The original approved Catchment Management Plan for Lot 3 has been attached for reference.

The plans at Attachment 2 show that an existing Retention Basin on Lot 3 will be used and all drainage from Lot 3 is currently directed into there. This is to ensure that water does not drain onto surrounding properties and enter nearby wetlands and watercourses. The land slopes gently from north/east to south/west by approximately 10mAHD across the site.

There are no natural water features on the site such as wetlands or watercourses, although the Department of Environment Regulation Geomorphic Wetlands Swan Coastal Plain dataset shows a *Multiple Use* wetland across the site. This classification is the lowest management category and is defined as *wetlands with few remaining important attributes and functions.* The degraded nature of this wetland means that development will generally not have a significant impact on the function of the wetland. EPA Guidance Statement 33 recommends that for Multiple Use wetlands that *all reasonable measures are taken to retain the wetland's hydrological functions (including on site water infiltration and flood detention)*.
Lot 3 & 7 have already been cleared and used for agriculture and therefore the wetland's hydrological functions have already been significantly modified. The application includes measures to retain water onsite and to drain into a detention basin to protect surrounding waterways and wetlands in accordance with the Guidance Statement.

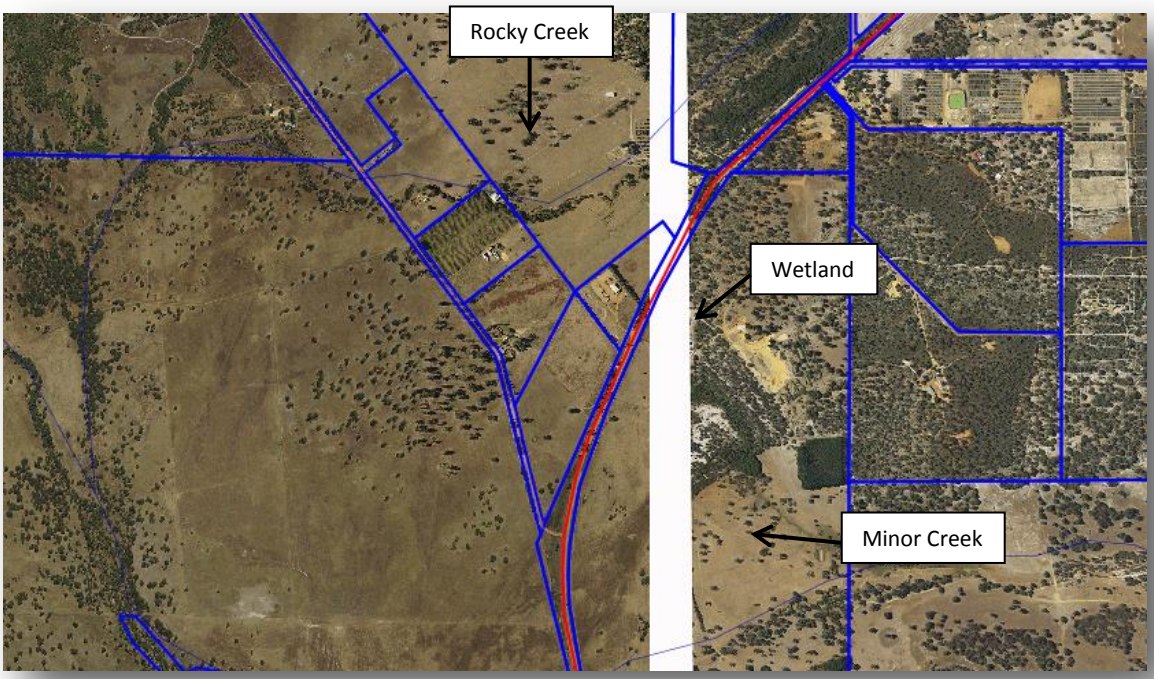
Two watercourses exist on either side of the site. The watercourse to the north is named Rocky Creek. It does not pass through the site and therefore will not be directly affected by the proposed development. Another minor watercourse runs to the south of the site which is across the Great Northern Highway.

A wetland is located on the property to the south of the Great Northern Highway. This wetland is listed in the Geomorphic Wetlands Swan Coastal Plain dataset as a *Sumpland* and will be part of the future employment node. The management category is *Resource Enhancement* which are *wetlands which may have been partially modified but still support substantial ecological attributes and functions*. The wetland and watercourse to the south of the site will not be directly impacted from the development and all water will be directed into the drainage basins so that water runoff does not leave the site. 4 existing ground water monitoring bores have been built and are managed in conjunction with the Chittering Landcare Group.

Existing Western Tree Line – Planted 2014 / 2015

Existing Lot 3 Retention Basin

The surrounding water features are shown in the plan below.



Lot 3 & 7 Great Northern Highway, Muchea – Surrounding Water Features

Conclusion

It is respectfully requested that the Shire of Chittering consider this request for Rural Industry for Lot 7 and an Additional Use of Warehouse on Lots 3 & 7 Great Northern Highway, Muchea.

Should you have any queries regarding the application, please don't hesitate to contact the undersigned.

Yours sincerely,

Shawn Graham
DSY Engineering
Managing Director

26 April 2017

Enc:

1. Application Forms
2. Plans
3. Certificate of Titles
4. Bushfire Management Plan
5. Catchment Management Plan (Original & New CMP)
6. Traffic Impact Statement (Original)
7. Planning WA Letter

Allerding & Associates
Town Planners, Advocates and Subdivision Designers
ABN 24 044 036 646

31 July 2017

Our Ref: DSY GNH GE

Chief Executive Officer
Shire of Chittering
6177 Great Northern Highway
BINDOON WA 6502

Attention: Peter Stuart – Senior Planning Officer

Dear Peter,

RE: PROPOSED INDUSTRY – RURAL AND WAREHOUSE/STORAGE
LOTS 3 & 7 GREAT NORTHERN HIGHWAY, MUCHEA

We refer to our recent meeting of 24 July 2017 at Lots 3 and 7 Great Northern Highway, Muchea (**subject site**) in relation to the proposal to expand the existing approved Industry – Rural and Transport Depot operations into Lot 7 and establish a Warehouse/Storage land use and associated hardstand/lay down area. On behalf of the proponents, DSY Engineering, the following information has been prepared to assist the Shire of Chittering (**the Shire**) in its consideration of the application following recent discussions with Council staff.

Background and Current Proposal

The proponents have been operating from the subject site since 2007 when approval was first granted buildings for a rural industry (manufacturer of stockyard components and equipment) on Lot 3 involving the manufacture of metal agricultural products, including stock fencing, gates, livestock handling facilities, cattle yards, sale yards, stock ramps and other handling facilities. Since 2007, those operations have been conducted from the shed/workshop on Lot 3, which was also approved as part of the 2007 approval. The location of the existing shed/workshop on Lot 3 is identified as "Existing DSY Engineering" on the attached Site Plan.

In 2015, the proponents were granted planning approval from the Shire for a Transport Depot operation and associated hardstand area straddling the boundary of Lots 3 and 7. The approved Transport Depot is identified as "Stage 1 Hardstand Existing" on the attached Site Plan.

On 26 April 2017, the proponents lodged an Application for Planning Approval for an expansion of the existing operations for the balance of Lot 7 to facilitate:

- the introduction of an "Industry – Rural" land use to allow for the expansion of the existing approved Industry – Rural use from Lot 3 into Lot 7;
- the construction of an additional shed/workshop facility, to be utilised for Industry-Rural uses currently conducted within the existing shed/workshop on Lot 3;
- the construction lay down areas for the storage of constructed stock and raw materials used in the manufacture of rural products; and,
- the introduction of a "Warehouse/Storage" land use to enable the storage of goods and/or display of goods produced on-site for potential clients to view those items, including those goods manufactured on site.

The proponent intends to undertake the development in stages, primarily to allow time for a landscaped buffer to establish around the perimeter of the subject site prior to conducting the further building and lay down areas. The proponent has already undertaken screening landscaping plantings along the western boundary of Lots 3 and 7 in consultation with the local Chittering Landcare Association and conducts regular maintenance of the landscaped buffer to ensure the screen establishes in a consistent form. It is intended that the same method of planting will continue around the entire perimeter to ensure the presentation of the subject site, as viewed from the south and east, comprises a landscaped screen from the adjacent roads and public areas as well adjoining rural properties. The staged proposal will be undertaken in the following sequence:

Stage 1: Immediately upon approval – Establish perimeter landscaping and construct on-site drainage works in accordance with the Catchment Management Plan;

Stage 2: Following establishment of landscaping – Construction of lay down area ("Stage 2 Hardstand") with shed/workshop to follow once the lay down is completed; and,

Stage 3: Future stage – Construction of lay down area to the south of the site ("Stage 3 Hardstand).

On the basis of the intended timing for construction by the Applicant and to allow the proposed screening landscaping sufficient time to establish, an extended substantial commencement approval period is sought. Clause 71(a)(ii) of Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015* (**the Regulations**) enables the local government to approve a development with an extended period and we seek the Shire's agreement for a substantial commencement period of 4 years to allow for the proposed works to be substantially undertaken.

Response to Submissions

The proposal has been advertised to landowners in the vicinity of the subject site and also to the relevant external referral authorities. In that respect, we note that one objecting submission has been received from a landowner who does not adjoin the subject site.

There have been no objecting submissions received from any other landowners. Comments are provided in respect to one referral submission and provisional comments, including:

1. A submission received from a representative of the Muchea Employment Node Structure Plan (**MENSP**) area to the south of the subject site; and
2. Provisional and verbal comments received from Main Roads Western Australia (**MRWA**).

A response to each is set out as follows:

Submission from Representative of the MENSP Area

Consideration of the proposal under the Shire of Chittering Town Planning Scheme No. 6

Consideration of Proposed Land Uses

The land uses proposed to be introduced into Lot 7 include "Industry – Rural" and "Warehouse/Storage". It is noted that Lot 7 already has a pre-existing approval for a "Transport Depot" use.

Pursuant to Schedule 2 – Zoning Table of the Shire's Town Planning Scheme No. 6 (**TPS6**), "Industry – Rural" is an 'A' use and "Warehouse/Storage" is a 'D' use in the Agricultural Resource zone, meaning:

> *'A' means that the use is not permitted unless the local government has exercised its discretion by granting Development approval after giving special notice in accordance with clause 64 of the deemed provisions.*
>
> *'D' means the use is not permitted unless the local government has exercised its discretion by granting Development approval.*

It is also noted that a "Transport Depot" use is an 'A' use in the Agricultural Resource zone.

The proposed uses are therefore capable of approval in the Agricultural Resource zone.

Pursuant to Schedule 1 of TPS6, an "Industry – Rural" use is defined as:

> *(a) an industry handling, treating, processing or packing rural products; or*
>
> *(b) a workshop servicing plant or equipment used for rural purposes;*

The Macquarie Concise Dictionary Fourth Edition defines "processing" as:

> *"9. To treat or prepare by some particular process, as in manufacturing."*

The existing approved operations on Lot 3 involve the manufacture of metal agricultural products, such as stock fencing and handling facilities. The existing operations also involve the repair, servicing and maintenance of plant and equipment used for rural purposes. The introduction of these activities into a new shed/workshop facility on Lot 7 is considered to be entirely consistent with the definition of "Industry – Rural" under TPS6.

Pursuant to Schedule 1 of TPS6, a "Warehouse/Storage" use is defined as:

> *premises including indoor or outdoor facilities used for –*
>
> *(a) the storage of goods, equipment, plant or materials; or*
>
> *(b) the display or sale by wholesale of goods;*

As noted above, the proponent is already involved in the manufacture of goods including stock fencing, gates, livestock handling facilities, cattle yards, sale yards, stock ramps and other handling facilities. The facilities will require storage on site and the proposed "Warehouse/Storage" use on Lot 7 will enable that to occur along with opportunities for storage of other products that may arise in the future, whether or not these are manufactured on site. The use will also enable the display of products (goods) produced on-site for potential wholesale clients to view those items. It is therefore noted that the proposed "Warehouse/Storage" use will complement the expansion and continuation of the existing "Industry – Rural" use and is therefore consistent with the intent of the Agricultural Resource zone.

Consideration of Objectives of the Agricultural Resource Zone

Having regard to the objectives of the Agricultural Resource zone, the proposal is consistent with those objectives for the following reasons:

> *a) preserve productive land suitable for grazing, cropping and intensive horticulture and other compatible productive rural uses in a sustainable manner;*
>
> The proposal involves the continuation and expansion of an Industry – Rural land use which has been conducted from portion of the subject land (Lot 3) servicing the local community since 2007. The proposal will continue to provide this service in a manner which does not require the use of substantial infrastructure or servicing and can accommodate all drainage on-site within the purpose designed drainage network.
>
> The agricultural products manufactured on site are supplied directly to cattle farmers and graziers in the region and therefore provides for the provision of products in close proximity to the primary users. This represents a sustainable and efficient process of product delivery compared with the supply of products to

the region from the Perth Metropolitan Region (**PMR**) or other areas further afield.

b) protect the landform and landscape values of the district against despoliation and land degradation;

The proposed shed/workshop will introduce a rural style building into the landscape which is similar in design and of a comparative scale to other rural buildings in the locality. It is only two metres taller than the existing approved shed on Lot 3 and is of a height that is necessary to undertake the manufacture of the stock crates. Further, the shed will have the appearance of a rural structure and has been orientated in accordance with the preference of Council Officers. The proponent has already established screening landscaping along the western boundary of Lots 3 and 7 to screen the operations from dwellings to the west. As part of the proposal, the proponent intends to continue the landscaping screening treatments around the southern and eastern boundaries to screen the use from Great Northern Highway and the future Perth to Darwin National Highway.

Furthermore, none of the land subject of development under this Application is identified within the Landscape Protection Area of TPS6 which functions to conserve and enhance the character of landscape areas associated with the Chittering Valley and to ensure land uses and development is compatible with those landscape values. Only the northern corner of Lot 3 is identified but that land is excluded for the purposes of this Application. Regardless of the location of the proposal outside the Landscape Protection Area, the land as part of the 2015 approval has already provided a landscape buffer along the entire western edge of Lot 3 and Lot 7 subject of the previous approved development. The additional landscaping proposed under this Application to the south and east will further contribute to the landscape amenity of the locality from public roads surrounding the subject site, and will therefore achieve the intent of this objective.

c) encourage intensive agriculture and associated tourist facilities, where appropriate;

The Shire's TPS6 allows for a range of agricultural Industry-Rural and other land uses within the Agricultural Resource zone, not limited to intensive agriculture. The proposal does not involve the provision of intensive agriculture and associated tourist facilities, however this should not prevent the Shire's consideration of other appropriate uses that are permissible within the zone which support the continued and ongoing rural activities in the region.

d) allow for the extraction of basic raw materials where it is environmentally and socially acceptable.

The subject site is not located within the mapped Priority Resource Location and Key Extraction areas under State Planning Policy 2.4 – Basic Raw Materials (**SPP2.4**). Regardless, any application for an "Industry – Extraction" land use on

the subject site would be subject to a separate assessment and approvals process under the Shire's relevant planning framework.

Consideration of Amendment No. 63 to the Shire of Chittering TPS6

The submission gives significant weight to Scheme Amendment No. 63 to TPS6. Amendment No. 63 was initiated for advertising as a "Standard" amendment at the Ordinary Meeting of Council of 17 May 2017. We understand that the Shire has not commenced advertising of the amendment. Pursuant to Section 47(4) of the Regulations, the minimum advertising period for a Standard amendment is 42 days, after which time the Shire has a further 60 days to consider any submissions received (refer Section 50(1)(a) of the Regulations). It is therefore inappropriate for any weight to be given to Amendment No. 63 given that it is not a seriously entertained proposal. Further, the submitter incorrectly refers to Clause 67(b) of Schedule 2 of the Regulations as justification for the weight that ought to be afforded to Amendment No. 63. Clause 67(b) notes:

> *(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;*
> (Underline emphasis added)

Amendment No. 63 has not been advertised and cannot reasonably be considered as a document that is seriously entertained at this time. On that basis, the current Planning Framework is the applicable framework which ought to apply.

Strategic Considerations

The Western Australian Planning Commission (**WAPC**) released its Muchea Employment Node Structure Plan (**MENSP**) in August 2011. The MENSP was prepared to inform further detailed planning for the area and provide certainty about future development in the area. From a statutory perspective, the intent of the MENSP is to insert provisions relating to structure planning into the Shire's TPS6 to allow adoption of the final MENSP under TPS6 and to rezone the land in accordance with the MENSP. Since 2011, Amendment No. 52 to the Shire's TPS6 has been gazetted and has introduced provisions for the Muchea Employment Node Special Control Area (at Schedule 11 of TPS6) and has also introduced provisions for the 'Industrial Development' zone into TPS6. Currently only Precinct 1 North A of the MENSP is reflected in TPS6 in Schedule 11 and reflects the land parcel identified as Industrial Development zone in the Scheme maps.

It is important to note that the MENSP, as the guiding statutory document for the development of land within the Industrial Development zone, outlines permitted uses at Section 6.4 of the MENSP document. The objective of the MENSP is to designate land for future industrial development and employment creation purposes. There a number of permitted ('P') and discretionary ('A') uses in the MENSP that are also discretionary uses

within the Agricultural Resource zone of TPS6. Those uses are listed in the following table:

Use	Agricultural Resource zone	MENSP
Animal Establishment	A use	P use
Animal Husbandry/Intensive	A use	A use
Aquaculture	D use	P use
Farm Supply Centre	A use	P use
Industry – Rural	D use	P use
Landscape Supplies	A use	P use
Stock Yards	A use	A use

However, the list of permitted uses in Section 6.4 of the MENSP also includes intensive industrial uses such as General, Service Industry, Factory Unit Building, Fuel Depot, Salvage Yard, and Recycling Centre. These uses appear to align more closely with the intent of the MENSP area.

The Scheme, as it currently stands, provides for Industry - Rural and Warehouse/Storage uses to occur in the Agricultural Resource zone and in this instance, it allows the continuation of the existing Industry – Rural and Transport Depot services provided by the proponents at the subject site. It is not considered to be orderly and proper planning or reasonable to seek to curb the expansion of an existing approved activity in the locality where in this instance the use has already and significantly been operating on land under the same ownership for 10 years.

Built Form Considerations

The proposed shed/workshop on Lot 7 has a wall height of 9m and a roof pitch of 12m, representing a structure that is approximately only 2m higher than the existing shed/workshop on Lot 3. The scale of the proposed shed/workshop is therefore representative of other rural and agricultural sheds in the locality and has been designed specifically to enable the manufacture of new metal agricultural products, such as stock fencing and handling facilities. The proponent has orientated the proposed shed/workshop away from Great Northern Highway so that activities associated with the building are screened from the public roads. The proponent also agrees to construct the building with colours and materials in consultation with the Council.

The proposed shed/workshop and associated lay down areas will facilitate the extension of the agricultural based product display, manufacture and repair uses that are presently undertaken from Lot 3.

Submission from MRWA

MRWA has been consulted as part of the consultation undertaken by the Shire. Provisional verbal advice we have received from MRWA is that Officers are unlikely to

object to the proposal. Although, at the time of discussion, internal feedback was still being sought.

The following comments are made in response to the outcome of those discussions with MRWA Officers to assure no conflict will occur with respect to access onto Great Northern Highway.

At present the site has direct access onto Great Northern Highway. Currently, this is approved for both Lots 3 and 7 via the crossover on Lot 3 for 10 movements per day. The proposed extension via Lot 7 will increase to 40 movements per day, with the addition of a proposed crossover from Lot 7 utilising the existing front gate. As the Shire is aware, planning and construction of the Perth to Darwin National Highway is advanced and will generally reflect the alignment of the existing Great Northern Highway carriageway. The Perth to Darwin National Highway proposes the removal of direct access onto the Perth to Darwin National Highway and its replacement with a dedicated local service road. The plan showing that arrangement is attached. From our enquiries, construction of the white portion of the Perth to Darwin National Highway, as shown on the plan, is likely to occur prior to 2020.

As noted in the Applicant's proposal, the staging of construction for works involving the hardstand and southern shed is likely to be later into the four year approval request, by which stage is probable that the local service road will have already been constructed. However, to the extent that there is any overlap between construction on Lot 7 and the Perth to Darwin National Highway, the Applicant is willing to implement a temporary access management arrangement in consultation with MRWA to ensure there is no conflict with access movement onto Great Northern Highway/Perth to Darwin National Highway if such is considered necessary.

We look forward to the Shire's positive consideration of this proposal, however in the meantime please do not hesitate to contact our office should you require any further information.

Yours sincerely
ALLERDING AND ASSOCIATES

[redacted]

STEVE ALLERDING
DIRECTOR

cc. Client

Encl. Site Plan
Perth to Darwin National Highway Plan

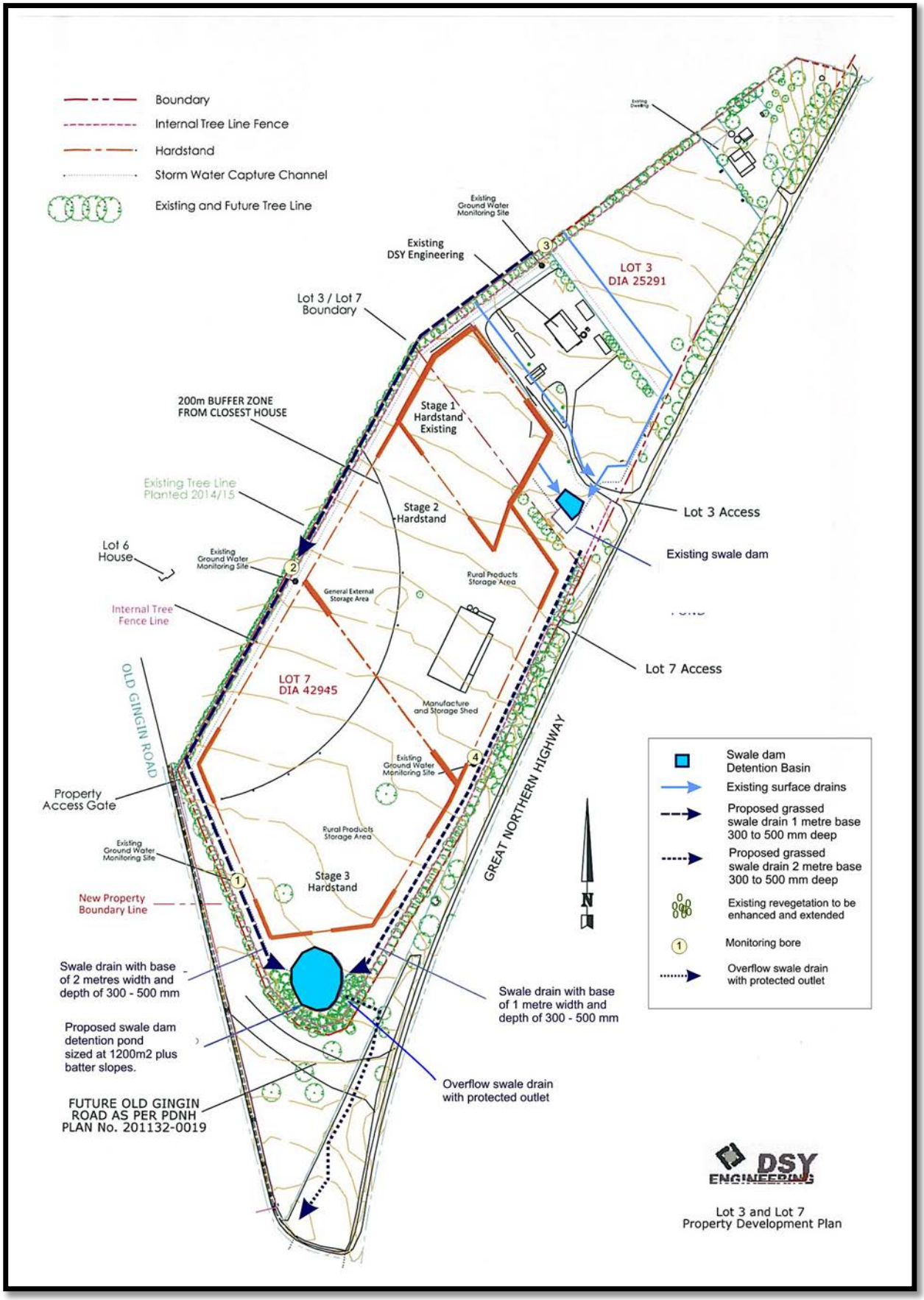
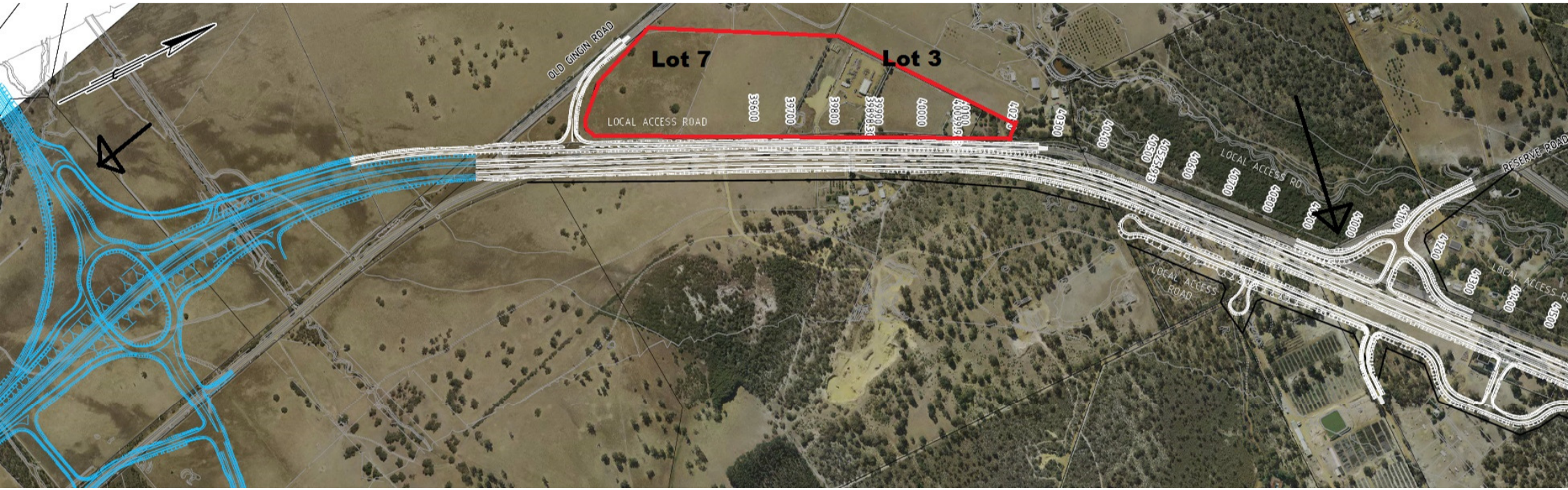


Figure 14 Proposed drainage


Lot 7
Lot 3
OLD GINGIN ROAD
LOCAL ACCESS ROAD
LOCAL ACCESS RD
LOCAL ACCESS ROAD
RESERVE ROAD

BUSHFIRE PROTECTION AUSTRALIA

BUSHFIRE CONSULTANCY | RISK MANAGEMENT

BUSHFIRE MANAGEMENT PLAN

DSY Engineering – Lot 3 & 7 Great Northern Hwy, Muchea

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DISCLAIMER AND LIMITATION

This Bushfire Management Plan is prepared for DSY Engineering. It was requested for the proposed addition of a new workshop and laydown area. It is not for the benefit of any other person and may not be relied upon by any other person.

The mitigation strategies contained in this Bushfire Management Plan are considered to be the minimum standards only, based on the standards prescribed by relevant authorities and Bushfire Protection Australia's (BPA) experience. It is expressly stated that BPA and the writer do not guarantee that if these standards are complied with or if a property owner exercises prudence, that property will not be damaged or that lives will not be lost in a bushfire event.

Bushfires are an inherent part of the Australian environment. In many parts of Western Australia, bushfire threat is increasing due to hotter, drier weather conditions and development expansion where urban, rural and natural areas interface. The devastation that can be caused by bushfires requires close attention to the consistent application of policies that prevent or manage such effects.

On completion of this report other factors are likely to impose greater or lesser risk to the site. Factors such as the growth, planting or removal of vegetation, poor maintenance of fire prevention measures, the addition of structures not included in this report or other activities can and will change the bushfire threat to all structures detailed in the report. Furthermore, the level of implementation of fire precautions described in this Bushfire Management Plan will depend on the actions of the landowner and/or occupiers of the land, over which BPA has no control.

To the maximum extent permitted by the law, Bushfire Protection Australia, its employees, officers, agents and the writer excludes all liability whatsoever for:

1.1 Claims, damage, loss or injury to any property or any person caused by fire or as a result of fire or indeed howsoever caused;

1.2 Errors or omissions in this report except where grossly negligent; and
the proponent expressly acknowledges that they have been made aware of this exclusion and that such exclusion of liability is reasonable in all circumstances.

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insurance following the making of a successful claim against such insurer.

BPA accepts no liability or responsibility whatsoever for or in respect of any use or reliance upon this report and its supporting material by any Third Party.

DOCUMENT DETAILS

Project Name:	DSY Engineering
Project Consultant:	Ben den Boer
Project Number	BMP11016-17
Written By:	Ben den Boer
Review By:	Michelle McPhee
Approved by:	Ben den Boer
Version: `	1.0
Date of Issue:	4 May 2017

Final Approval

Date: 4/05/17

In signing the above, I declare the report is true and accurate to the best of my knowledge at the time of the issue

Bushfire Protection Australia
is a trading name of TWS
Northwest Pty Ltd

ABN: 58 157 693 715

DSY
Water Management Plan

Lot 7 Great Northern Highway, Muchea

DSY Engineering

May 2017

Landform Research
Land Systems - Quarries - Environment
ABN 29 641 445 694

SUMMARY AND RISK IDENTIFICATION

DSY Engineering commenced manufacturing in 1999 and has operated on Lot 3 since 2007, manufacturing metal agricultural equipment such as stock fencing, gates, livestock handling facilities, cattle yards, sale yards, stock ramps and other handling facilities.

The land use also includes trailer and construction eqipment, repairs ancillary to Transport Depot Use.

During that time the manufacturing of rural products has increased and the company is now outgrowing Lot 3.

Water management for Lot 3 was designed by the Chittering Landcare Group and has proven to provide effective stormwater management.

DSY Engineering proposes to expand their operations onto Lot 7 with the construction of an additional manufacturing shed facility, laydown areas for rural products for the storage of constructed stock and raw materials, and as “showroom” facilities for potential clients to view the constructed items.

As the stormwater from the site eventually ends up in Ellen Brook it is important to provide management of the stormwater on site.

The main Guidelines relating to stormwater management for the proposed facility are

- Department of Water, 2009, Water Quality Protection Note, Light industry near sensitive waters

- Department of Water, 2010, Water Quality Protection Note, stormwater management at industrial sites.

Other general stormwater management guidelines also provide direction to the management of stormwater such as

- *Engineers Australia 2006, Australian Runoff Quality, National Committee on Water Engineering.*
- *Stormwater Management Manual for Western Australia, Department of Environment WA, 2004.*
- *Guidelines for Groundwater Protection in Australia, ARMCANZ, ANZECC, September 1995.*
- *Western Australian Water Quality Guidelines for Fresh and Marine Waters, EPA Bulletin 711, 1993.*
- *ANZECC, 2000, Australian Water Quality Guidelines for Fresh and Marine Waters.*
- Department of Environment, 2004, *Stormwater Management Manual for Western Australia*
- Department of Environment Heritage, (various dates), *Managing Urban Stormwater Soils and Construction.*

All documents have similar directions and management and have been considered in the design and management of the proposed expansion to operations.

The stormwater management developed by the Chittering Landcare Group has been used and expanded and added to in order to manage stormwater for the proposed development on Lot 7.

Below is a list of the main risks identified, a summary of the management and the references in the document.

The key risks to water management associated with the proposed development are;

Identified Risk	Discussion	Proposed Management
Excess stormwater will be generated from the creation of runoff.	• Calculations have been made with respect to the rainfall, storm runoff, and this data has been used to calculate the runoff volumes and basin sizes.	• There is an existing drainage system for Lot 3 that demonstrates that stormwater management can be effective using a similar drainage and detention basin system. • A similar system with wider swale drains and a larger detention basin sized for the stormwater runoff from Lot 7 is proposed.
Nutrients will be added and will add to the load on Ellen Brook.	• There is no risk from nutrients from the existing and proposed operations. • All mobile and fixed plant brought to site must be cleaned prior to entry. • The steel fabrication does not use nutrients or similar substances.	• Detention basins and grassed swale drains are proposed to slow and retain the stormwater, allowing maximum time for infiltration. • Limited stock will be retained on site to manage fire risk, but overall nutrient inputs will reduce. • The four monitoring bores provide data on water quality. • Though it is envisaged that there will be no risk from nutrient impacts, the system is designed to deal with the impacts if they did eventuate.
Fuel, hydrocarbons and other substances may impact on the water ways.	• No fuel is stored on site. • Steel fabrication does not require significant input of hydrocarbons apart from minor oil, grease and lubrication to plant.	• No fuel will be stored on site. • All mobile and fixed plant that may be stored will have minimal fuel. • There will be no major servicing on site of any mobile or other plant. • A large service station and fuel facility is currently being constructed across Great Northern Highway just to the south which will be used for refueling. • The four monitoring bores provide data on water quality. • The four monitoring bores provide data on water quality. • Even there is envisaged that there will be no risk from hydrocarbon impacts, the system is designed to deal with the impacts if they did eventuate.
The site may be subject to flood risk from Rocky Creek.	• There is some suggestion from the long term residents and from an assessment of the geomorphology that excess flood flows from Rocky Creek may flow across portion of the hardstand area.	• The hardstand sits 300 mm above natural ground level. • A 2 metre wide grassed swale drain is proposed for the north western side of the hardstand, directing any water around the facility to rejoin the natural flows at the southern end of the facility.
The detention basins may fail or erode.	• The existing detention basin for Lot 3 has proven effective.	• The detention basins are shallow and sunk into the natural sols. • They are protected with grassed perimeters. • Gradients are very shallow and flows are therefore slow. • Swale drains are used to slow stormwater flows.
Water tables are elevated and the drainage may not operate efficiently.	• Winter water table rise slightly but there remains sufficient capability in the upper soils for stormwater management.	• A deep water supply bore provides detailed geological information. • Four monitoring bores to 4 plus metres are in place to provide information on the soils, groundwater elevations and water quality monitoring.
Salinity	• The water used on site is obtained from a bore. • Water from the bore is fresh.	• No particular management is required.

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1.0 BACKGROUND

1.1 Overview

DSY Engineering commenced manufacturing in 1999 and has operated on Lot 3 since 2007, manufacturing metal agricultural equipment such as stock fencing, gates, livestock handling facilities, cattle yards, sale yards, stock ramps and other handling facilities.

The land use also includes trailer and construction eqipment, repairs ancillary to Transport Depot Use.

During that time the manufacturing of rural products has increased and the company is now outgrowing Lot 3.

DSY Engineering proposes to expand their operations onto Lot 7 with the construction of an additional manufactiurng shed facility, laydown areas for rural products for the storage of constructed stock and raw materials, and as “showroom” facilities for potential clients to view the constructed items.

As ancillary to that use there may be potential for the additional storage and laydown of rural machinery and fixed plant, and areas are applied for to cover that potential future need should it arise.

As much of the rural machinery has to be transported widely throughout the State there is also provision in the applcation for a limited amount of mining or general equipment as a means of making the business more efficient for backloading. For example rural products might be sent to the Goldfields and Pilbara with backloading of mining equipment or equipment from pastoral stations on which mining and other activites are occurring.

This will make the facility more efficient.

A Development Application has been lodged with the Shire of Chittering and this Water Management Plan is lodged in suport for that plan.

DSY Engineering seeks Planning Approval for the following:

- Rural Industries / Hardstand and Shed Development for Lot 7 Great Northern Highway
- An Additional Use for “Warehouse Storage” on Lot 3 & 7 Great Northern Highway Muchea.

A Water Management Plan was prepared for the operations on Lot 3 by the Chittering Landcare Group.

As the facility will be part of the same operation across both Lot 3 and Lot 7, the Water Management Plan prepared by the Chittering Landcare Group will be referred to and built on. As such information from the approved Water Management Plan will be used in this report for consistency.

The water management features recommended in the previous Water management Plan have been constructed and have been proven to be successful. Where appropriate the same recommendations and features are used in this extended plan.

Figure 1 Examples of steel fabrication

Typical Agricultural, Transport and Mining Products – Lot 3 and Lot 7

6

Lot 3 & 7 Great Northern Highway MUCHEA WA 6051

Figure 2 Examples of mobile plant that might temporarily be parked on site.

1.2 Location and Planning Environment

The storage and laydown area lies on Lot 3 & 7 Great Northern Highway, Muchea located approximately 2.5-3km north-east of the Muchea town site,

The total site area is 17.311ha.

The existing development on Lot 3 includes offices and sheds associated with the DSY Engineering business (Rural Industry).

The site is approximately one kilometre north of the Brand Highway/Great Northern Highway intersection bounded by the Great Northern Highway on the east side and partially by Old Gingin Road on the west side the property.

The surrounding land uses comprises future Light Industrial, current agriculture, rural industry, extraction of basic raw materials and transport depot.

The property is currently zoned Agricultural Resource in the Shire of Chittering Town Planning Scheme 6 and is within the Special Control Water Prone Area - Ellen Brook Palusplain.

The purpose of the special control area is to manage development where there is a high risk of inundation so as to protect people and property from undue damage and where there is a potential risk to human health. It is also to preclude development which may increase nutrients entering the surface and sub service water systems and to ensure that wetland environmental values and ecological integrity are preserved and maintained.

1.3 Water Protection Areas

The property lies within the Special Control Water Prone Area - Ellen Brook Palusplain.

The purpose of the special control area is to manage development where there is a high risk of inundation so as to protect people and property from undue damage and where there is a potential risk to human health.

It is also to preclude development which may increase nutrients entering the surface and sub service water systems and to ensure that wetland environmental values and ecological integrity are preserved and maintained.

The area is listed in the Shire of Chittering Land Capability and Management Study as Precinct SC2 Ellen Brook Central Plain - Chandala and Muchea Drainage Areas.

The lots are within the Rocky Creek Catchment of the Ellen Brook.

1.4 Water Requirements

Water requirements on site are met from a Licensed bore.

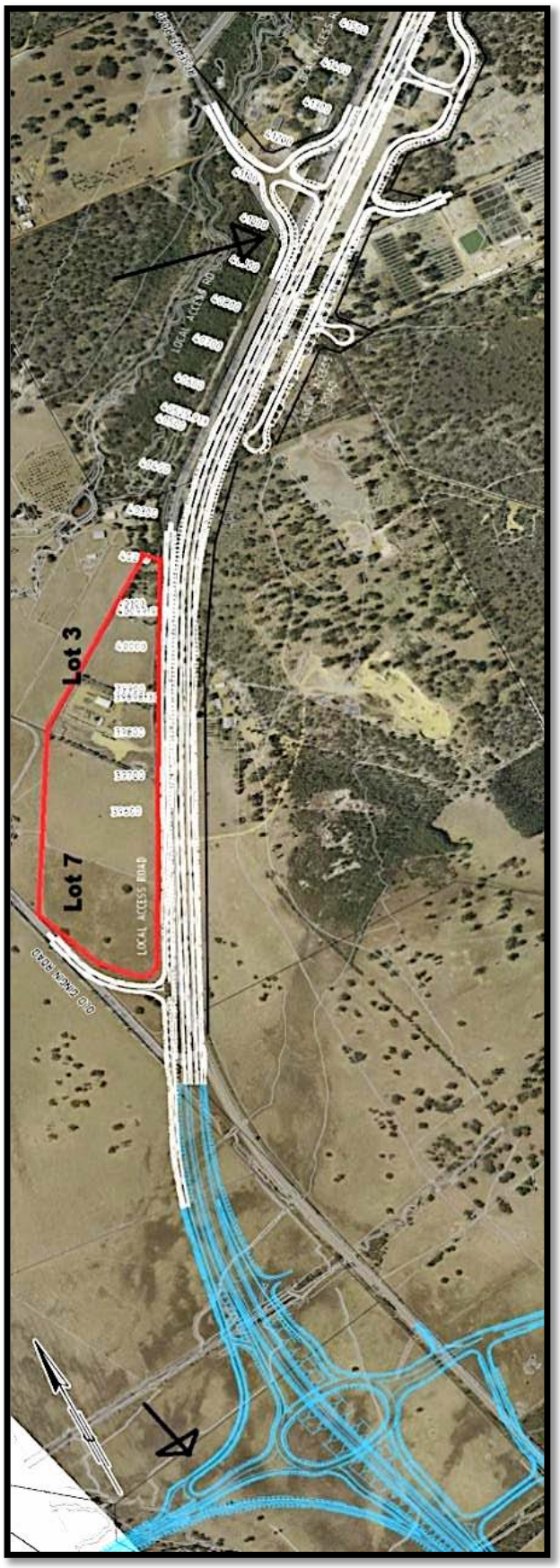


Figure 3 Road layout and proposed alteration to Great Northern Highway

2.0 PHYSICAL ATTRIBUTES

2.1 Geology and Geomorphology

The subject land is located on the eastern edge of the Perth Basin, at the foot of the Gingin Scarp which forms the eastern edge of the Swan Coastal Plain at this location.

The land drops from 69 metres AHD in the north down to 52 metres in the south, although the actual development only extends as far as the 62.5 contour in the north.

The geology is shown in the Perth Environmental Geology 1 : 50 000 Series, Yanchep and Perth maps, (Geological Survey, 1982 and 1986) as Sand Silt formed from deposition of alluvial materials by Rocky Creek which runs south west just north of the current site.

The geology and soils are determined by a series of piezometers around the site and a deeper water bore.

The drilling shows a sheet of sand overlying sand clay or clay sand at about 1.5 to 2.0 metres below the surface. The surface sand is grey to white or yellow sand at depth of aeolian origin.

The interface of the sandy clay is normally marked by a laterite gravel layer. At Piezometer Number 4 to the north of the existing shed the sandy clay outcrops with no overlying sheeted sand.

The water hole bore is drilled just south of the office to a depth of 42 metres AHD. The bore shows gravelly and sandy clays to a depth of 21 metres where it overlies grey clay and shale most likely of the Leederville Formation. It is unclear whether the materials above the Leederville Formation are Recent deposits or Mesozoic beds overlying the Leederville Formation as they do in some locations along the Gingin Scarp, or a combination of the two.

The drill logs are attached.

2.2 Regolith and Soils

The soils are leached white sands of 1.5 – 2.0 metres depth overlying yellow and brown sandy clay subsoils. The basal sandy clays contain gravel at the interface with the sheeted leached sand.

In some locations the overlying leached sand is absent.

The soil types belong to the Yanga and Yal Yal (Ya4-c and Yy1) series and are susceptible to phosphorous export.

Figure 4 Overview of Lot 7 prior to development activities on site.

Figure 5 Portion of Lot 3 showing the type and construction of the proposed hardstand

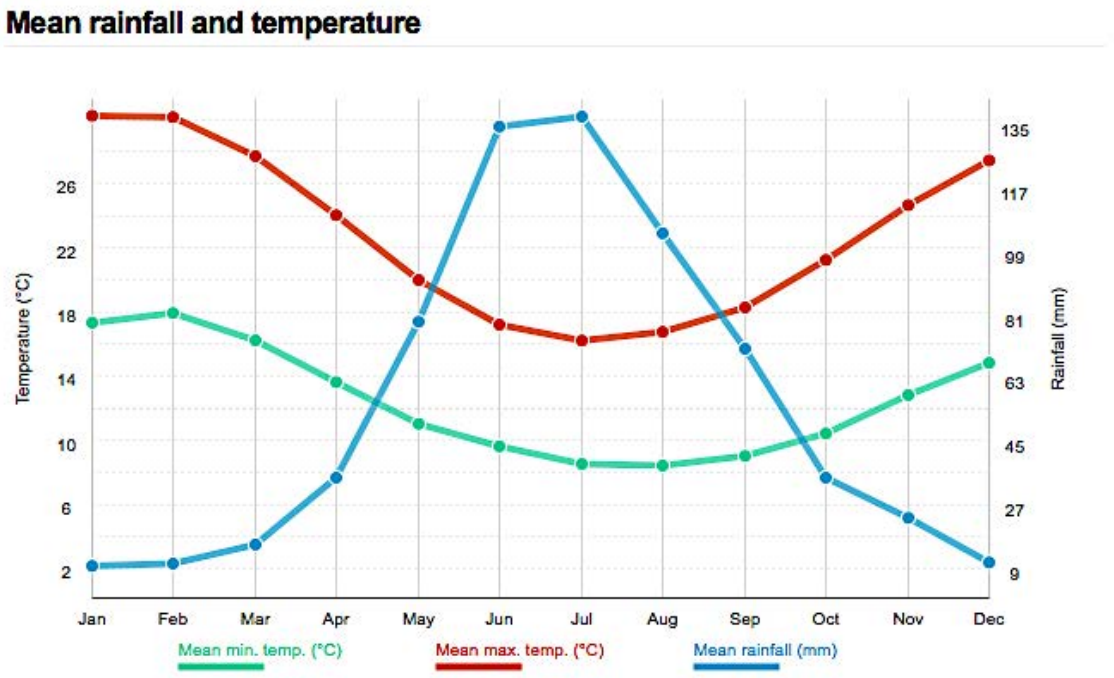
2.3 Climate

The climate of the area is classified as Mediterranean, with dry hot summers and cool wet winters.

Climate data is recorded at Bullsbrook, (Pearce RAAF). Precipitation is 688 mm per annum, of which 89% falls in the months April to October inclusive. At Swan Research Station evaporation exceeds rainfall in all but the four wettest months, and the situation at Bullsbrook can be expected to be similar.

Average maximum temperatures at Bullsbrook reach 33.3 degrees Celsius for the hottest months, January and February, but fall to 17.6 degrees Celsius in July. Average minima for the coldest month August, is 8.2 degrees Celsius.

The climate data for Bullsbrook shows that the predominant summer winds are from the east at 9.00 am and from the south west at 3.00 pm.



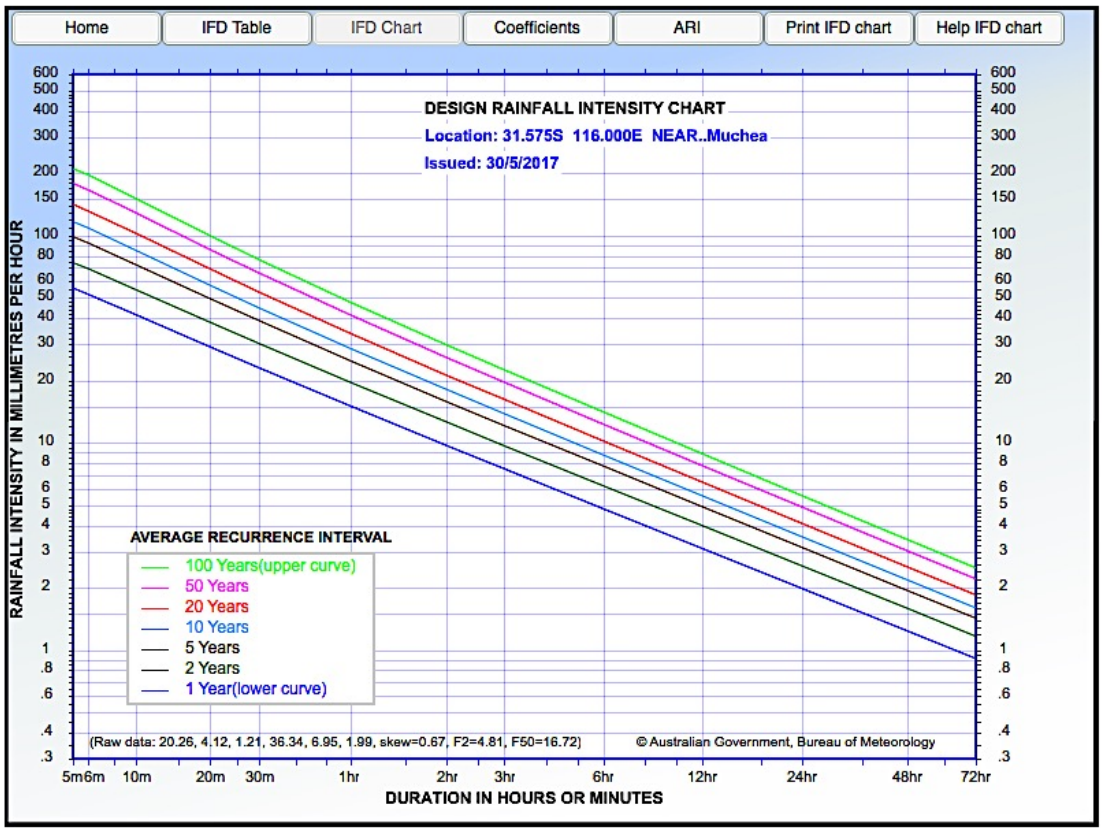


Figure 6 Climate and rainfall intensity chart

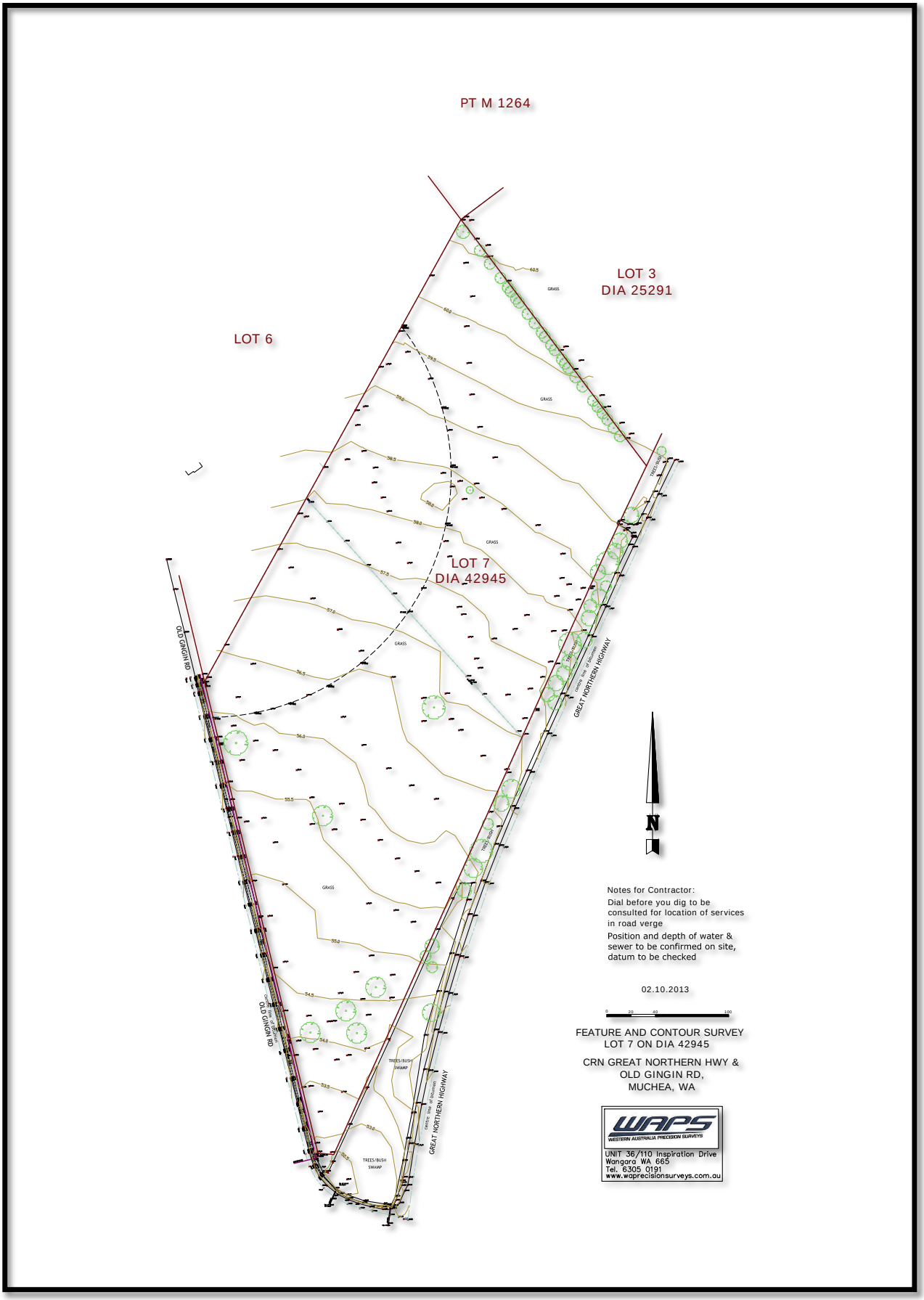


Figure 7 Contour plan

3.0 Hydrogeology

3.1 Surface Water

The subject land location lies within the catchment of Ellen Brook, which lies to the west.

The land drops from 62.5 metres AHD in the north down to 52 metres in the south across the development area. The contour plans show a very gentle ridge and swale system across the site related to the alluvial origin of the subsoils and flood flow path.

The local area lies within the SC2-Chandala EMU which is located on both the Swan Coastal Plain fluviatile deposits of Rocky Creek that drain the Dandaragan Plateau scarp.

SC2-Chandala EMU is situated within the Bampanup, Chandala and Muchea- Upper Swan drainage areas where surface water flows to Ellen Brook.

The local drainage area on which Lots 3 and 7 covers mostly poorly drained plains, where in some places there has been a requirement for artificial drains to relieve waterlogging.

Large areas of this EMU are susceptible to salinity, waterlogging, phosphorus export, wind erosion, and to a lesser degree water erosion. Very little natural vegetation remains which exposes the landscape to these degradational processes, and the risk of land degradation will increase with clearing, overstocking and development without consideration for land capability constraints.

The southern region on which Lots 3 and 7 are located is more adequately drained than the northern section and this is evident by a number of streams that flow in an east-west direction and join the Ellen Brook.

Ellen Brook discharges on average 37 million m^3 of runoff annually, representing 6% of the total water input to the Swan River estuary.

To the north is Rocky Creek which flows in response to heavy rainfall events and sustained winter rains. Normally Rocky Creek is retained in its slightly incised bed but during historical flood events the Creek can exceed its banks and flow south down through the land to the north and potentially impinging on Lots 3 and 7 as the water flows to join Ellen Brook.

This pattern of flood flows is consistent with the site geology and published geological maps which show the site as being underlain by alluvium.

Any winter flows also flow south along the same path, with all water exiting lot 7 at the southern end adjacent to Old Gingin Road.

With the Highway realignment there is assumed to be a culvert at the out position of Lot 7 although this has not been confirmed. In any case the culvert is required.

There is little surface drainage across the site except during times of heavy rainfall or when the surface sands are saturated.

In winter or following excessive rainfall events the surface sands partially fill with water and that water drains south running along the top of the more clayey subsoils.

The clayey subsoils are less permeable to downwards infiltration, and the overlying sand sheet will fill when rainfall exceeds the infiltration through the subsoils.

As rain reduces the slower infiltration of through the subsoils enables the surface sand sheets to dry out, so that in summer there is no water in the overlying sands.

In locations where the overlying sand sheet is thin or non existent it is possible to get water laying on the surface for varying times in winter, and if sufficient this water can develop into a surface flow to the south.

The flood paths through the subject land can be seen by the slight swales in the surface contours and extend along the eastern boundary and south through the central portion of the land.

The sheeting of the site with gravel hardstand will disrupt these paths and increase runoff.

3.2 Groundwater

The sheeted surface sand is highly porous and contains superficial water in winter and following heavy rainfall events.

As noted above vertical infiltration through the sandy clay subsoils is slower but that will still drain the sand sheet during summer.

The water bore has an aquifer between 35 and 37 metres, which appears to be a confined aquifer in the Leedervile Formation. The aquifer was tested when drilled at 380 ppm salt with a flow rate of up to 3 500 litres per hour.

The water bore draws water from the base of the bore below an aquiclude. Drawing from that bore will not impact on the superficial water temporarily perched above the sandy clays as that occurs generally below 1.5 metres depth.

At the time of the site inspection on 17 May 2017, the groundwater was measured in the piezometers. It should be noted that there had been heavy summer rainfall.

Four perimeter piezometers have been installed by DSY Engineering with an additional several by Main Roads in the south. All piezometers are between 4.1 and 4.8 metres deep

The superficial water levels were measured at

P South	1.8 metres deep
P south east	1.8 metres deep
P north west	1.8 metres deep
P north	dry, > 4.1 metres

The planting of deep rooted trees assists in reducing the superficial water table, particularly by lowering it more quickly in summer and after rainfall events. That means there is more capacity for the soils to take up water during wetter times.

Figure 8 Typical part of Lot 7 showing the DSY water monitoring bore (white) and Main Roads water monitoring bore (yellow)

3.3 Water Changes related to the construction of hardstand.

Runoff and interception are functions of rainfall intensity and the infiltration capacity of surface soils, which in turn are determined by soil type, compaction and vegetation cover.

Department of Water generally prefers water treatment of a 1 in 10 year 2 hour storm event which is a reasonable best practice event.

Rainfall intensity is 37 mm for a 2 hour 10 year runoff event for Muchea from the rainfall intensity chart.

The land area is around 17 hectares of which around 2 hectares are likely to be sheds and other facilities with a surface water runoff of around 90%.

On the other hand the laterite gravel hard stand is partly porous and is anticipated to have a coefficient of runoff of about 40% for peak rainfall events of 30 mm per hour, based on tables produced by Engineers Australia.

For smaller events the water runoff will be reduced, For example a 15 mm per hour event, which is anticipated to occur once per year, will have runoff of about 25%.

The anticipated water volumes can therefore be calculated.

Assuming a catchment of 15 hectares of hard stand and 2 hectares of buildings in the first 30 years and a rainfall event of 30 mm the water fed from site will be;

0.037 metres precipitation x 150 000 m^2 x 40% runoff = 2 220 kL water

plus

0.037 metres precipitation x 20 000 m^2 x 90% runoff = 666 kL water

The volume of water generated from a 1 in 10 year two hour storm event is

666 kL + 2 220 kL = 2 886 kL.

3.4 Drainage

It is proposed to use swale drains lined with pasture to slow and provide infiltration prior to water entering the detention basin. The length of the swale drain will be approximately 1200 metres.

The main drainage will be excess precipitation that exceeds the vertical infiltration of the hardstand and soils.

Water will flow from the hardstand and flow to the edges. The contour plan shows that there is a gentle slope from the centre of the hardstand to the edges.

At the edges the runoff will be directed to shallow swale drains approximately 300 mm to 500 mm deep. The perimeter drains, are recommended to have a base of around 1 metre across on the south eastern side and 2 metres wide on the north western side extending along the side of the hard stand.

The drains are to empty to the detention basin.

The drains are to be pasture and grasses to slow the flows and assist with infiltration through the base of the drain.

To gain an idea of the potential infiltration of the swale drains in a storm event, it is assumed that the water table is 500 mm deep below the drain, the infiltration area is 2 metres and that the drain length is 1 200 metres. To fill all the pore spaces in the sand will take the equivalent of approximately 25 mm water per m^2 based on Landform Research data for Bassendean sand that is at field capacity. That provides a storm infiltration capacity of

0.5 m x 0.025 mm x 2 x 1 200 m = 30 kL

Therefore the storm volumes for a 10 year 2 hour storm event are not likely to be significantly absorbed by the drains but will be directed to the detention basin.

Figure 9 Concept drainage showing storm runoff from roads to an adjoining grassed swale drain, in the same manner that is proposed for Lot 7. Notice the potential for infiltration within the drain.

Figure 10 Concept grassed swale drain during storm event, that allows for infiltration, slowing of the flows and is adjacent to tree belts as proposed for the hardstand on Lot 7.

3.5 Size of Detention Basins

This water will run off from the hard stand to the edges of the hard stand and then along pasture. It is proposed to provide perimeter drains which drain to a new detention basin in the south.

The existing detention basin on Lot 3 already deals with around 4 hectares of hard stand.

That means that the detention basin on Lot 7 should be around 2 353 kL.

If the detention basin on Lot 7 is effectively 2 metres deep then the area should be around 1 200 m^2 or 30 x 40 metres. An allowance for batter slopes may be required.

An outlet is to be provided at the southern end of Lot 7 draining to the natural drainage line to maintain environmental flows.

The existing detention basin/sump is cut into the surface and slightly bunded on the downslope side. This enables the water to build up and slowly infiltrate laterally through the down side bund to the natural land surface and to the natural flows of the land.

The same design is proposed for the new detention basin. This alleviates the impacts from elevated water levels in winter and provides for greater detention capacity.

Figure 11 Existing water detention basin on Lot 3. Infiltration is through the bund wall towards the trees. Note the pasture that is providing filtration and slowing of the surface water flows.

3.6 Flood Flows

Flood flows are possible from Rocky Creek in excessive storm events. Some local people recall Rocky Creek breaking its banks and a portion of the flow moving across Lot 3 and Lot 7 draining south. Whilst that has occurred in living memory is only happens every few decades.

With the placement of the hard stand any flood flow will be diverted along the north western side of the fill towards Old Gingin Road.

To assist the movement of this water to bypass the hardstand the swale drain is recommended to be two metres wide on its floor. Whilst this drain is proposed it may not be required for many years if at all.

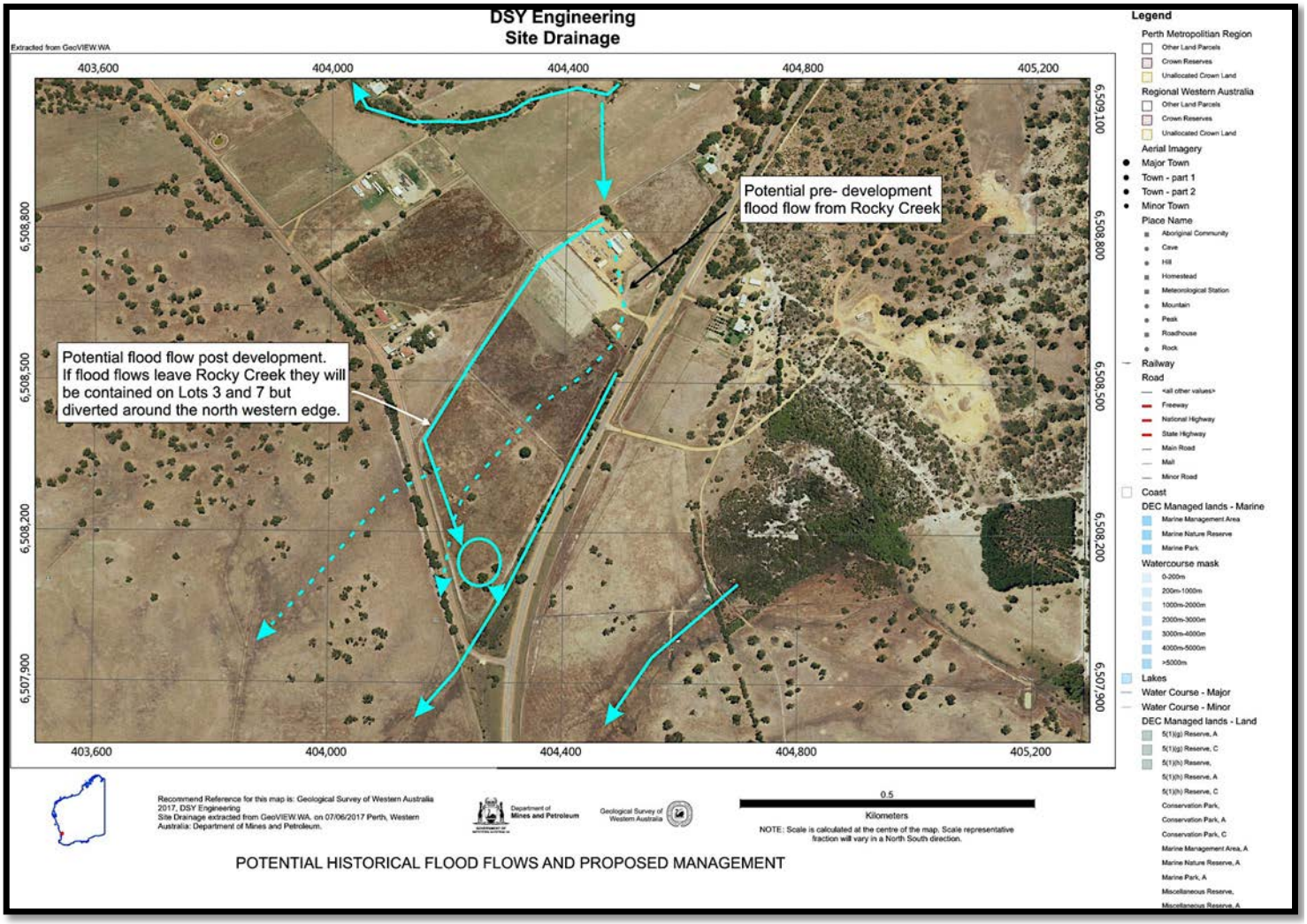


Figure 12 Potential flood flows

Figure 13 Existing drainage and detention basins for Lot 3

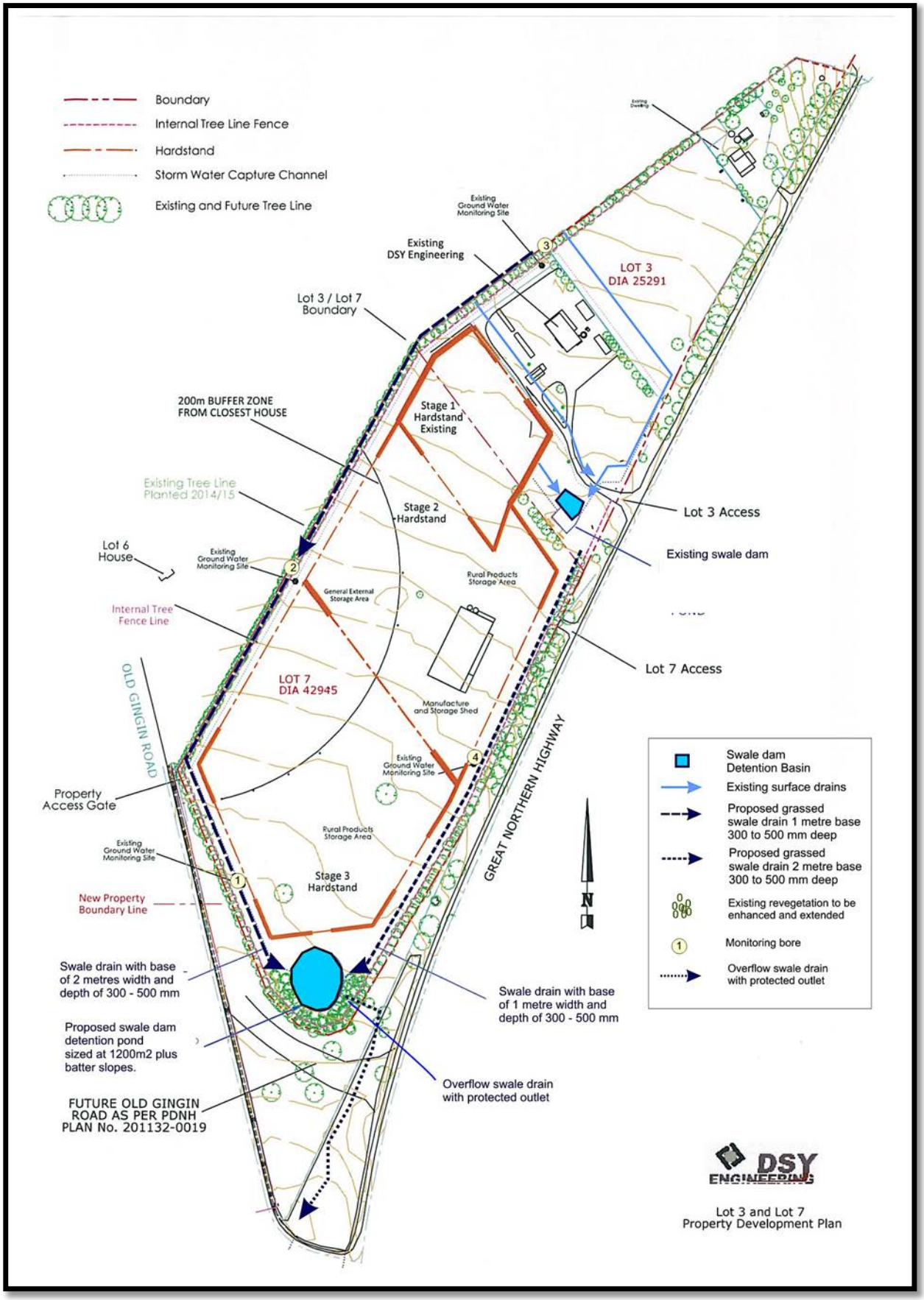


Figure 14 Proposed drainage

4.0 PROTECTION OF WATER QUALITY

4.1 Water Quality

Despite its relatively small contribution of runoff, Ellen Brook contributes on average 26 tonnes of total phosphorus annually, which represents 36% of total inputs of phosphorus to the estuary (Swan River Trust, 1995).

The other main potential risk is from hydrocarbons.

As discussed below neither nutrients nor hydrocarbons constitute a significant risk from stormwater.

However the stormwater management has been designed assuming that there could potentially be some nutrient or hydrocarbon impacts and is designed to deal with the impacts if they did eventuate.

4.2 Nutrients

The main nutrient risk for the Ellen Brook Catchment is phosphorus and nitrogen, predominantly from stock. Limited stock are to be retained on the property and as most of the pasture area will be converted to hardstand there is little or no risk of nutrients from stock or fertiliser originating from site. Nutrient input from the pasture will therefore reduce.

There is potential for a stock transporter to access or be parked on site and it could be a source of nutrients from stock. There is also the potential for mobile plant and other machinery originating from afar to carry fertiliser residue.

There is a septic toilet system on site which has functioned for ten years without incident or failure. Provided that system is maintained there will be very low be risk from nutrients from the waste water disposal.

Phosphorus export is mainly in soluble forms and transported via leaching to shallow groundwater.

Phosphate retention capability is determined by measuring the rate and amount of phosphorus in a laboratory situation. Soils are classified according to the amount of phosphorous that is retained by clay and sesquioxides (iron and aluminum oxides) in the soils. Based on Chemistry Centre and data held by Landform Research the soils can be assessed for their ability to adsorb phosphorus.

Phosphorus retention capacity is low in the leached overlying sand sheet and moderate to high in the gravelly and yellow sands. On Lots 3 and 7 the leached surface sand has low phosphate retention but the underlying yellow and gravely sands have a much higher capability. The laterite clay sand of the hardstand has very high phosphate retention.

Soils have little capability to retain nitrogen, although denitrifying bacteria readily remove the oxygen from nitrates in soil under anoxic conditions and release nitrogen back to the atmosphere leading to reductions in soil nitrogen.

The storage of vehicles and transporters has the potential to bring nutrients on site if the vehicles are not clean prior to arriving on site. DSY Engineering has a policy of not accepting dirty vehicles and farm or other equipment on site which mitigates the risks of nutrient introduction.

With a policy of excluding dirty or contaminated vehicles overall there is little or no increased risk of nutrients from the proposed developments. Even so the design of the perimeter drains and dams are designed with nutrient management in mind.

4.3 Fuels and Hydrocarbons

No chemicals apart from normal lubricants, are proposed to be used or are required.

Fuel will not be stored on site. Refuelling will be completed at the service station being build across Great Northern Highway just south of the facility.

There is no fuel or hydrocarbon requirement for the steel fabrication.

There is potential for fuel to be present in fixed or mobile plant that may be stored on site, which will be managed in the following manner.

Fuel and maintenance will be carried out in accordance with the DOW – DMP Water Quality Protection Guidelines for *Mechanical servicing and workshop facilities* and *Above-ground fuel and chemical storage*.

- Soils and hardstand such as those on this site are adsorptive. The main risk of contamination is the minor drips that occur during the removal of hoses etc. Minor spills are quickly degraded by soil microbial matter.
- Refuelling and lubricating activities will occur offsite wherever possible
- If refuelling is to occur on site, fuel will be supplied from a dedicated mobile taker equipped with all required cleanup materials.
- Any refuelling will only occur on the hard stand.
- A spill kit containing absorbent granules is to be available on site if refuelling is undertaken.
- In the event of a spill or adverse incident, activities will be stopped in that area until the incident is resolved.
- All significant adverse incidents (such as a fuel spill of >5 litres) in one dump, are recorded, investigated and remediated. A record is to be kept of incidents and the Shire of Chittering and Department of Water notified within 24 hours. No such incidences have been recorded in past operations of DSY Engineering.

4.4 Servicing and Maintenance

The main risk of contamination comes from tank or hose rupture on mobile or fixed plant such as the slippage or breaking of a hydraulic hose.

There is no servicing associated with the steel fabrication.

It is not anticipated that there will be servicing of mobile or fixed plant that may be on site. There will be no major servicing, which will be conducted offsite.

There may be a requirement for minor servicing on site such as the replacement of a hydraulic hose, and the topping up of fluids prior to moving any mobile plant.

To minimise any potential impacts from minor servicing, if it was required, the following are proposed.

If required, fuel and maintenance will be carried out in accordance with the DOW – DMP Water Quality Protection Guidelines for *Mechanical servicing and workshop facilities* and *Above-ground fuel and chemical storage*.

A spill kit containing absorbent granules is located on site for emergency use. A commitment is made to notify Department of Water and DMP of any spill greater than 5 litres. DER Guidelines suggest 100 litres but this is felt to be too high.

- All major servicing of vehicles will be conducted off site.
- Any lubrication or maintenance activities are to occur on hardstand.
- A spill kit containing absorbent granules is to be available on site if refuelling is undertaken.
- Waste oil and other fluids derived from the routine maintenance of mobile machinery, will be transported off site and disposed off at an approved landfill site.
- All servicing will be conducted with support from a dedicated service vehicle that is able to provide collection of excess fluids and other maintenance items for removal offsite.
- Vehicle washdown is not proposed.
- Mobile and fixed plant will be required to be inspected prior to being parked on site for competency and wear of fuel, oil and hydraulic fluids, storages and lines.
- An accidental spill containment and cleanup protocol will be implemented.
- Rubbish generated is to be recycled wherever possible and periodically disposed of at an approved landfill site.
- The site will be maintained in a tidy manner by removing all rubbish regularly offsite.

4.5 Solid Domestic and Light Industrial Wastes

Non essential or old plant and materials will be removed from the site. Locked gates and the existing fences will be maintained to prevent illegal dumping and contamination of water.

All solid domestic and light industrial wastes will be stored in commercial waste storage containers and/or removed to an approved landfill facility. There will be no waste disposal on site. Waste storage containers will be sealed so that rainfall cannot enter, therefore preventing the formation of leachates.

Wastes generated will be recycled wherever possible and periodically disposed of at an approved landfill site. Any illegally dumped materials are to be removed promptly to an approved landfill or other suitable site, depending on the nature of the material.

Regular inspections (at least weekly) are conducted to ensure no wastes, litter and the like are present in or around the excavation and processing area.

4.6 Wastewater Disposal

An approved septic toilet system is in place on Lot 3.

4.7 Acid Sulfate Risk

There has been an increased interest in acid sulfate soils since the release of WAPC Planning Bulletin 64.

However the interest has been over-reactive, with assessments sought and risk applied in many areas where there is no geological risk or evidence of acid sulfate potential or actual conditions.

The most definitive survey procedure was produced by the Acid Sulfate Soil Management Advisory Committee NSW, 1998, in their *Acid Sulfate Manual.* This Manual forms the basis for much of the assessment procedures in Australia, including those adopted by the Western Australian Planning Commission and the Department of Environment Regulation. The *Acid Sulfate Manual* adopts the procedure of reviewing the published data followed up by field assessment, which has been completed for this site. If a geological risk is determined, then a Preliminary Acid Sulfate Assessment is conducted.

Acid sulfate only becomes a potential risk when a number of circumstances are present.

- There is rock, soil or regolith present that is carrying sulfides.
- Sulfide carrying materials from below the water table are to be exposed to the atmosphere.
- Excavation below the water table is to be carried out exposing the sulfide carrying materials to oxygen in the atmosphere.
- Dewatering of the sulfide carrying materials is proposed, exposing them to oxygen.
- Regolith conditions are already highly acidic, below pH4, under which oxidation can occur through electron exchange without the need for the presence of oxygen.

The site lies outside the mapping contained in WAPC Planning Bulletin 64.

The soil logs from the monitoring bores to 4 metres show no evidence of peat, at risk materials or reducing soils on the resource site with which soil acidity was identified.

The water bore geological log shows grey to black shales below 21 metres depth. Shales of that type are known to contain pyrite in other locations on the Gingin Scarp, but only carry a risk if the shales are exposed to oxidation through excavation or lowered water tables, neither of which is to occur on site.

The only excavation will be the swale drains which will be about 500 mm deep and the detention basins which will be less than 4 metres deep. The closest monitoring bore to the detention basin on Lot 7 is Hole 1 which was drilled to 4 metres and shows no evidence of acid sulfate conditions.

Similarly the existing detention basin – sump on Lot 3 shows no evidence of acid sulfate conditions

The project has been designed to minimise or mitigate any potential impacts on groundwater elevations, by not excavating to depth and by considering the water balance and impacts on the water table which will not be altered or drawn down.

The water bore draws water from the base of the bore below an aquiclude. Drawing from that bore will not impact on the superficial water temporarily perched above the sandy clays at they occur generally below 1.5 metres depth.

4.8 Salinity Protection

The temporary perched shallow groundwater that occurs in winter, and gradually filters away in spring and summer, is fresh. That indicates that the soils are not saline, which is what is observed in the field.

The water in the bore aquifer was tested when drilled and contained at 380 ppm salt which is fresh.

There is no evidence of salinity impact with the only additional water being precipitation and runoff from constructed hard stand which will be fresh.

5.0 Vegetation Planting

5.1 Revegetation Strategy

The Chittering Landcare Group notes that the area is listed in the Shire of Chittering Land Capability and Management Study as Precinct SC2 Ellen Brook Central Plain - Chandala and Muchea Drainage Areas.

The lots are within the Rocky Creek Catchment of the Ellen Brook. Some revegetation has been undertaken on site and has been effective.

They also describe that approximately 10% of the total area of the SC2-Chandala EMU is covered by vegetation which is an extremely poor coverage considering the susceptibility of the area to salinity, waterlogging, phosphorus export, wind erosion and water erosion.

The extensive clearing is related to the land being capable of retaining pasture well into summer because of the sallow near surface groundwater.

This vegetation exists as small isolated remnants, which does not seem to be well linked with ecological corridors.

Revegetation in this area is a local priority management action to mitigate and prevent further degradation. There are significant areas that have been parkland cleared and there will need to be a strategy to replace older trees left standing in grazing paddocks if this level of coverage is to be retained.

Lots 3 and 7 have been extensively cleared. Revegetation as proposed in this plan will seek to establish the large trees which previously existed on the site.

Currently the main trees on site are minor remnant Marri with the larger trees in the south being introduced Non local Eucaypts.

The number of local Eucalypts are limited and Flooded Gum is susceptible to insect predation. The main Eucalypts that would have originally been present were Marri, *Eucalyptus (Corymbia) calophylla*, Flooded Gum *Eucalyptus rudis*; on more clayey areas *Eucalyptus wandoo*, and drier areas Jarrah *Eucalyptus marginata*. However with land clearing the soils have become wetter due to reduced transpiration, and Jarrah and possibly Wandoo are no longer suitable for planting.

Vegetation tree belts have been planted and will be extended to reduce the superficial water table and provide a visual screen from the road and from adjoining or nearby properties.

To lower the water table going into winter will provide additional capacity for the soils to absorb and retain winter precipitation and assist in lowering the water table and the level of base water in the detention basin.

Tree belts have been planted along the north western side of Lots 3 and 7 and these can be added to and extended around the southern and south eastern sides as well. The green belts will also reduce visual impacts from adjoining land and Great Northern Highway. See Figure 14.

Figure 15 Existing tree belt on the north western side of Lots 3 and 7 which will be extended

Revegetation recommended for Lot 3 and the existing facility on Lot 3 was of a ten metre strip along the eastern boundary of the property (adjacent to Great Northern Highway at a rate of 10,000 stems per hectare. This was to be planted at a rate of 20% tree (over three metres) 60% mid storey (shrubs) and 20% understorey. This assisted with reductions in waterlogging on the site. See Figure 14.

The planting has however been approximately 6 metres wide in five rows and the planting rate is less than 10 000 per hectare. All vegetation was fenced.

There has also been some deaths of plants in the southern areas where the ground is wetter. That has meant that the vegetation belts have in part been replanted.

5.2 Species list

Local Trees (40%)

Acacia saligna
Casuarina obesa
Eualyptus decipiens
Eucalyptus rudis
Corymbia callophylla
Eucalyptus loxophleba
Eucalyptus wandoo
Melaleuca preissiana

Non Local Native Trees suitable for tree belts and screening

Eucalyptus conferruminata
Eucalyptus lehmannii

Eucalyptus platypus

Local Native Shrubs (60%)

Actinostrobus pyramidalis
Banksia littoralis
Calistris preissii
Callistemon phoenecious
Callothamnus quadrifidis
Grevillea diversifolia
Hakea lissocarpha
Viminea juncea
Kunzea glabrescens
Leptospermum erubsecens
Melaleuca latteritia
Melaleuca teretifolia
Melaleuca vininea
Taxandria linearifolia

5.3 Revegetation strips

The methods recommended by the Chittering Landcare Group are good and should be continued. See Figure 14.

That is;

- Existing drains which flow to the sump will be vegetated to prevent erosion. The current drains are covered with couch grass or other pasture grass. Some mowing will be required when over grown to ensure that the drains work effectively.

It is recommended that the following be used for the tree belts;

- Planting rate of around 5 000 trees and shrubs per hectare
- Vegetation belts to be approximately 5 metres wide with 3 – 5 rows of trees and shrubs.
- Change species list (see below) to cope with providing better planting success in wetter soils and better screening.
- The vegetation belts are to be fenced.
- In May spray area to be planted to kill competing grass and weeds.
- Rip lines 1 metre apart across the contour of the land to a depth 300-400 mm.
- After first substantial rains, plant tube stock. Tube stock is available from nurseries such as Muchea Tree Farm and Chatfields Nursery in Tammin.
- Plants should be spaced 1 metre apart ensuring a mix of species taking note that larger tree species should be planted no closer than 2 – 3 metres with smaller shrubs or spreading trees between.
- An amended species list is attached, and includes some additional Western Australian but non local trees because of the species of tree that are limited in this area.

5.4 Revegation of the detention basin - sump

The existing pasture around the sump on Lot 3 is providing good vegetation screening. There is potential to naturalise the sumps – detention basins by the planting of fringing reeds and rushes at around 3 plants per m^2, at the edge where water rises and falls through summer and winter.

Baumea articulata
Baumea juncea
Baumea rubiginosa
Bolboschoenus caldwellii
Juncus articulata
Juncus microcephanus
Juncus palidus
Lepidosperma longitudinale
Leptocarpus diffusus

6.0 MONITORING

6.1 Rationale

A monitoring program was recommended by the Chittering Landcare Group and is repeated below with minor modifcations to the samping to include hydrocarbons and to concentrate on the surface water into which any pollutants will enter first and be most readily detected.

Ellen Brook and the Rocky Creek Catchments are moderately disturbed ecosystems. The purpose of this testing is to monitor any changes over time, either improving or deteriorating. If any aberrations are noticed then action will need to be taken depending on the change.

The monitoring of these samples should be a condition of all businesses operating on the Ellen Brook Palusplain. The owners of Lot 3 are to be commended for undertaking this comprehensive plan.

The Australian and New Zealand Water Quality Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000) provides trigger values for both ecosystems and human health protection, as well as the following environmental values: aquatic ecosystems; primary industries; recreation and aesthetics; and drinking water.

The Guidelines recognise three levels of protection for aquatic ecosystems: areas which have high conservation value, slightly to moderately disturbed ecosystems; and highly disturbed ecosystems. To assess the level of toxicant contamination in aquatic ecosystems, trigger values were developed from data using toxicity testing on a range of test species (ANZECC & ARMCANZ, 2000).

An exceedance of the trigger value indicates that there is the *potential* for an impact to occur and should thus trigger a management response such as further investigation and possible remediation or adaptation of the guidelines according to local conditions (ANZECC & ARMCANZ, 2000).

6.2 Actions

Monitoring of peizometres and sump will be annually in October. When obtaining the samples depth to the water table should be established.

Water will be sampled for pH, salinity, total dissolved solids and total suspended solids and hydrocarbons.

6.3 Sampling Plan

Samples will be collected in October annually.

As all water will be surface water runoff then the best sampling points will be in the detention basins – sumps which will accept all water. If any drips nutrients or other materials are present on the hard stand then sampling the sumps will be most sensitive and direct.

Any infiltration into the soil will be much slower and less sensitive to inputs from site activities. The water monitoring bores will then be a contingency if adverse levels are detected in the sumps where direct runoff is retained.

The following sample sites will be used.

- Sump on Lot 3
- Sump on Lot 7

- If any of the samples in the sumps shows elevated levels of the parameters being tested, or spills and adverse outcomes are suspected, all four the monitoring bores are to be tested as soon as practicable after the receival of an adverse concentration.

	Parameters	Bottle type	Sites	Sampling events	Samples /site
Water	Total nutrients (N and P) TDS (Salinity) Inorganic pH Hydrocarbon	500 ml Approved glass container	Sump Lot 3 Sump Lot 7 If any sample from the sumps shows elevated levels then the four water monitoring bores are to be sampled for the same parameters.	October annually	1 sample sufficient for all parameters.

- It is important to collect quality control samples as firm conclusions cannot be drawn from sampling data unless the quality of the data is known.
- Ensure that labelling on the bottle to be filled is correct and that the sample number matches the number on the paperwork.
- Correct sampling is essential, especially for hydrocarbons. Even hand cream can contaminate hydrocarbon samples, which must be collected to the specifications of the analyzing laboratory.
- Check that the grab pole sampler or dipper is clean and oil or other contaminant free.
- Extend the pole sampler or dipper so that it will reach the point that you wish to sample. Rinse the sample dipper in the water to be sampled prior to sampling. If the hole or sump is dry note this on the sheet.
- Rinse the sample containers with the water being sampled.
- Remove the cap from the sample container only at the time of sampling and replace the cap immediately after collection of the sample.
- Fill the bottle to the shoulder. Bottles can be obtained from the chosen laboratory. Collected samples should be stored in an esky chilled to 4 oC with ice bricks out in the field and overnight in a refrigerator – deliver to the laboratory as soon as possible.

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EXECUTIVE SUMMARY

This Bushfire Management Plan is prepared for the DSY Engineering site which is in a Bushfire Prone Area as assessed by the Department of Fire and Emergency Services (DFES).

The proposed workshop is to be located on Lot 7 as per the supplied plans.

The Western and Southern sides of the new Workshop has an area of Class G Grassland within the lot boundary.

- The existing office has a BAL rating of BAL-LOW
- The existing main workshop has a BAL rating of BAL-12.5.
- The secondary workshop (Northern Side) has a BAL rating of BAL-29
- The existing home on the Northern part of Lot 3 has a BAL rating of BAL-12.5.
- The proposed workshop/admin area will have a BAL rating of BAL-LOW upon completion

This Bushfire Management Plan will address the new development application and the remainder of the workshop areas to ensure any risks are identified and a specific course of action is established for the long-term benefit of the whole site.

STATE PLANNING POLICY 3.7 (SPP 3.7) – Planning in Bushfire Prone Areas

This section addresses specific areas of SPP 3.7.

Section 6.6.1 requires planning applications to be accompanied by a Bushfire Management Plan in areas where BAL-12.5 to BAL-29 apply.

Section 6.6.2 requires further policy measures to be addressed in areas of BAL-40 or BAL-FZ. Section 6.6.2 does not apply in this case.

Section 6.7.2 addresses unavoidable developments in areas with an extreme Bushfire Hazard Level (BHL) and /or areas where BAL-40 or BAL-FZ applies. Section 6.7.2 does not apply in this case.

This Bushfire Management Plan has been composed after a comprehensive site visit to document all the issues relevant to the site with the aim of reducing the risk to the staff, buildings and neighbouring properties.

The Department of Fire and Emergency Services and the Shire of Chittering have been consulted during the composition of this Bushfire Management Plan and as such it will clearly lay out any required steps to address for the

installation of the proposed building and/or any further mitigation works to ensure the reduction of risk for the whole site.

1.0 INTRODUCTION

Bushfire Protection Australia specialises in Bushfire Planning and Design by way of consultation and assessment in accordance with the relevant Western Australian guidelines.

2.0 SCOPE OF PROJECT

2.1 Scope

BPA was engaged by the DSY Engineering to prepare a site-specific Bushfire Management Plan in support of the proposed addition of a new workshop at Lot 3 & 7 Great Northern Highway, Muchea (the site) located in the Shire of Chittering.

The proposal is recognised as being in a Bushfire Prone area as defined by DFES and the map of Bushfire Prone Areas.

This Bushfire Management Plan has been completed in accordance with:

- Guidelines for Planning in Bushfire Prone Areas WAPC v 1.1
- State Planning Policy 3.7 Planning in Bushfire Prone Areas - December 2015
- AS 3959-2009 Construction of Buildings in Bushfire Prone Areas

2.1.1 Existing Bushfire Management Plans

On the advice of DSY Engineering and the Shire of Chittering we understand no previous Bushfire Management Plan has been prepared for the site.

2.2 State Planning Policy 3.7

SPP 3.7 defines Bushfire Prone Areas as an area that has been designated by the Fire and Emergency Services Commissioner under S.18P of the Fire and Emergency Services Act 1998 (as amended) as an area that is subject, or likely to be subject, to bushfires. Such areas are identified on the Map of Bushfire Prone Areas and can be found on the Department of Fire and Emergency Services website.

2.3 Vulnerable Land Use

Development of commercial properties including offices and workshops do not generally fall into the category of vulnerable land use.

2.4 Construction Standards

The proposed additional building is categorised as a Class 9 building and as such is not required to meet the criteria of AS 3959-2009 Construction of Buildings in Bushfire Prone Areas. The proponent has the discretion to utilise any or all the elements of AS 3959 in the construction of the proposed buildings. (Guidelines for Planning in Bushfire Prone Areas WAPC v 1.1 section 5.8.3)

3.0 OBJECTIVES

The objectives of this Bushfire Management Plan are to:

i. Achieve consistency with the objectives and policy measures of the current Bushfire Planning policies.
ii. Understand and document the extent of bushfire risk.
iii. Prepare bushfire risk management measures for the DSY Engineering site.
iv. To ensure that the bushfire risks that have been identified at the site are managed in accordance with legislation and that the treatment of these risks are completed by the individuals and organisations legally responsible for fire management of the site, including any adjacent properties that pose a bushfire risk to the site.
v. Propose fire management strategies that reduce the occurrence of, and/or minimise the impact of bushfires thereby reducing the threat to life, property and the environment.

3.1 Achievement of Objectives

The outlined objectives will be achieved by:

- Assessing the Bushfire risks to the site
- Assessing the Bushfire Attack Level
- Setting out the Bushfire Management requirements that correspond with meeting all the elements of the bushfire protection criteria with reference to firebreaks, fire fighting access, fire fighting water supplies and protection zones

- Identifying ongoing shared management responsibilities between DSY Engineering, the Shire of Chittering and the Department of Fire and Emergency Services

4.0 DOCUMENT REVIEW

This Bushfire Management Plan is valid for 5 years from the issue date, if during that time the proponent becomes concerned about changes that have occurred, a revision or new Bushfire Management Plan should be completed. The relevant jurisdiction having authority is responsible for the evaluation and effectiveness of all mitigation strategies detailed in this Bushfire Management Plan.

5.0 DESCRIPTION OF THE AREA

5.1 General Description

DSY Engineering is located on Lot 3 & 7 Great Northern Highway, Muchea - a suburb within the Chittering Shire area.

The DSY Engineering site is bordered on all sides by natural vegetation which is mainly made up of class G Grassland areas.

5.2 Description of the land

The current site is well developed with a large workshop, a transportable office, laydown areas and undercover car parking areas. The topography of the site is quite flat. The adjoining grassland areas surrounding the property is also quite flat. The vegetation on the site, specifically around the workshop, office and laydown areas has been extensively managed although sections of grassland exist within 100 metres of the buildings. The proposed workshops location will also have extensive areas of non-vegetated areas around it in the form of a laydown area.

5.3 Climate

The behaviour of bushfires is significantly affected by weather conditions, burning more aggressively when temperature extremes combine with low humidity and strong winds. The increased threat at these times is heightened during lightning events accompanied with little to no rain. Research indicates that virtually all house losses occur during severe, extreme or catastrophic fire conditions (Blanchi et al. 2010).

The climate in Muchea is a Mediterranean type and is similar to most of the inland areas of WA. The fire risk is greatest from November through to March when moisture content in the vegetation is at its lowest level. The area features warm and dry summer months with temperatures regularly exceeding 30 degrees.

The average mean 3pm humidity levels for the dry month's range around 30 % with the average mean 3pm wind speed at around 20km/h. The wind direction in the summer months is predominantly south south-westerly and occurs approximately 60 % of the time.

*See 5.3.1 BOM Averages Chart - ***DSY Engineering Map Appendix***

5.4 Assets

The DSY Engineering site is comprised of several main buildings constructed mainly from metal. A brick and tin home is located on the most northern boundary of Lot 3.

*See 5.4.1 DSY Engineering map - ***DSY Engineering Map Appendix 1***

5.5 Access

Access to the site is via separate entry points for Lot 3 & 7 and the existing home. Entry is currently directly of the Great Northern Highway.

The proposed Great Northern Highway works will see entry to all areas from the Great Northern Highway Access Road.

A secondary (emergency) access point will be established to provide access and egress onto Old Gingin Road.

5.6 Water

A reticulated water supply is not provided at the site.

Currently there are a number of water tanks with an estimated capacity of around 90,000 litres. The tanks are filled using an existing bore on Lot 3.
The planned development will see the inclusion of 2 x 120,000 litre tanks at the rear of the proposed workshop. One of these tanks will be exclusively utilized for firefighting purposes.

5.6.2 1 of 2 Water tanks at the residence

6.0 BUSHFIRE PROTENTIAL

6.1 Bushfire History

Bushfires are an inherent part of the Australian environment. In many parts of Western Australia, the bushfire threat is increasing due to hotter, drier weather conditions associated with long term climate changes and the fact that we are consistently expanding into bushfire prone areas. Bushfires have been a common event dating back thousands of years with historical evidence suggesting the local Aboriginal tribes conducted burns in the area every two to three years.

DFES reports a total of 42 Significant Landscape Fire Incidents in the Shire of Chittering area from 12/01/2005 to 30/01/2016.

A Landscape fire is described as any fire involving bush, grass, scrub, crops or forest (or combinations of such), of any size.
For this report a significant landscape fire is defined as any recorded as a level 2 or 3, 4th alarms GSB, 5 hectares or larger, or with more than 25 appliances in attendance.

Landscape Fire Incidents reported in the Chittering area in this period were caused by a variety of reasons including lightning strikes, hot works and car accidents/fires.

Given that bushfires are common in the Shire of Chittering, this Bushfire Management Plan plays a critical role in ensuring the proposed development is appropriately mitigated from bushfire risk and threat.

*See 6.1.2 DFES Map of Bushfire Prone Areas - ***DSY Engineering Map Appendix 1***

6.2 Bushfire Risk

Risk is not the occurrence of an event but instead risk is best expressed as the likelihood of a consequence, either positive or negative, occurring.

In the context of planning in Bushfire Prone Areas, bushfire is considered the risk which can impact on the objective of preventing injury or loss of live, damage or destruction of property and the environment (prioritised in that sequence).

Management of bushfire related risk is a shared responsibility (Keelty Report, 2011).

Residual bushfire related risk to the DSY Engineering site following implementation of the risk mitigation strategies is summarised in Table 6.2.*1 Risk Assessment*.

6.2.1 Risk Assessment

Risk Number	Risk Statement	Category	Pre-assessment application	Mitigation Controls	Post-assessment application
1.	The potential exists for a bushfire to impact the DSY Engineering site which in turn will cause injury or death to people, cause damage or destroy property and cause damage or destruction to the environment	People Property Environment	Medium	1. New building location as per the plans supplied 2. Vegetation around the site is maintained 3. Ensuring adequate firefighting equipment is available 4. Implementation of this Bushfire Management Plan 5. Yearly fuel reduction works	Low

6.3 Bushfire Attack Levels Explained

Bushfire Attack Levels (BALs) have been assessed using Method 1, as per AS 3959-2009. Presently areas of the site range from BAL-LOW to BAL–19. The proposed development site will achieve a BAL-LOW.

AS3959-2009 provides two assessment methods for calculating Bushfire Attack Levels (BALs):

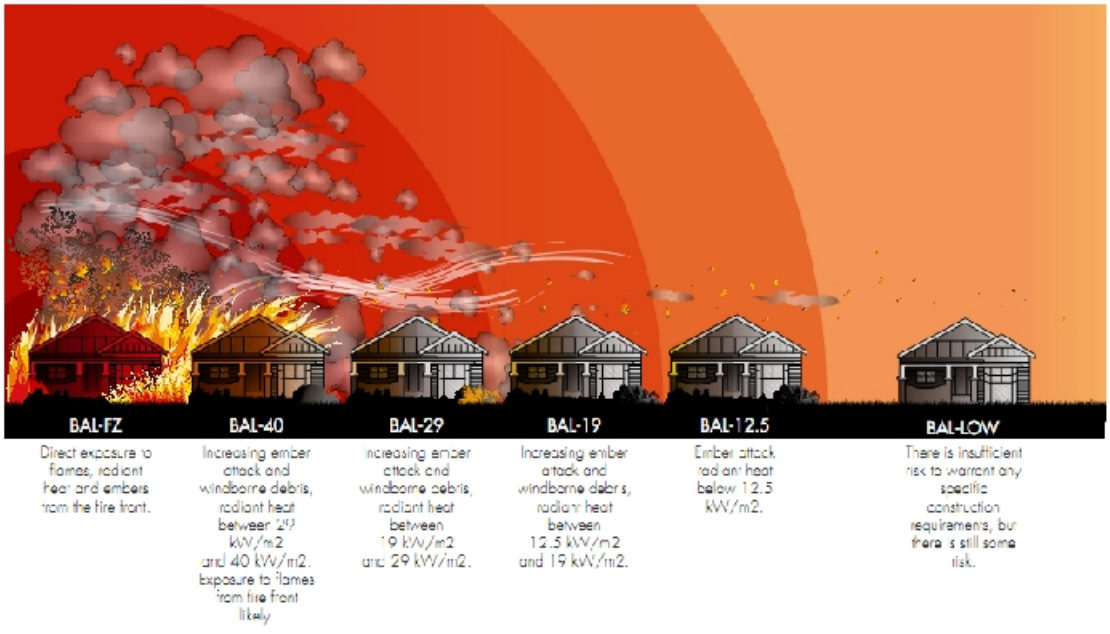
1. Method 1 – A simplified procedure that involves 5 specific steps to determine the BAL rating. It is subject to some limitations of the circumstances in which it can be used.
2. Method 2 – A detailed procedure using calculations to determine BALs where a more specific result is sought or site conditions are outside the scope of Method 1.

Summary of Method 1 BAL Assessment:

- Determine the relevant FDI
- Determine the classified vegetation types (Table 2.3 and Figure 2.3 AS 3959-2009)
- Determine the distance of the site from the classified vegetation type(s)
- Determine the effective slope(s) under the classified vegetation type(s)
- Determine the BAL

Forrest Fire Index of 80 is used for Western Australia.

6.3.1 BAL level illustration Guidelines for Planning in Bushfire Prone Areas WAPC v 1.1



6.4 Bushfire Attack Level (BAL)

The BAL Assessment conducted for the proposed new building was conducted using Method 1 as described in section 2.1.1 in Australian Standard 3959-2009 Construction of Buildings in Bushfire Prone Areas.

The Bushfire Attack Level assessments provide a detailed overview of what is currently in place.

A BAL Contour Map was also prepared for the site showing the varying BAL levels for both the proposed building and existing buildings.

*See 6.4.1, 6.4.2 and 6.4.3 BAL Assessment Maps - ***DSY Engineering Map Appendix 1***

Table 6.4.2 BAL Description

BAL	DESCRIPTION (Source: AS 3959-2009, Appendix G)
BAL-LOW	The risk is considered to be VERY LOW. There is insufficient risk to warrant any specific construction requirements but there is still some risk
BAL-12.5	The risk is considered to be LOW. There is a risk of ember attack. The construction elements are expected to be exposed to a heat flux not greater than 12.5kW/m2.
BAL-19	The risk is considered to be MODERATE. There is a risk of ember attack and burning debris ignited by wind-borne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 19kW/m2.
BAL-29	The risk is considered to be HIGH. There is an increased risk of ember attack and burning debris ignited by wind-borne embers and a likelihood of exposure to an increased level of radiant heat. The construction elements are expected to be exposed to a heat flux not greater than 29kW/m2.
BAL-40	The risk is considered to be VERY HIGH. There is a definite increased risk of ember attack and burning debris ignited by wind-borne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux not greater than 40kW/m2
BAL-Flame Zone (FZ)	The risk is considered to be EXTREME. There is an extremely high risk of ember attack and burning debris ignited by wind-borne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40kW/m2

6.5 Bushfire Hazard Assessment

The DSY Engineering site is in a Bushfire Prone Area as defined by DFES and the Bushfire Hazard Level ranges from low to moderate throughout the site. The hazard levels for the adjoining properties are rated as a combination of Low, Moderate and Extreme.
Upon completion of the proposed works the site will have a Bushfire Hazard Level of Low to Moderate.

6.5.3 Bushfire Hazard Level Table

HAZARD LEVEL	CHARACTERISTICS
Low	- devoid of standing vegetation (less than 0.25ha cumulative area) - areas which, due to climatic conditions or vegetation (e.g. rainforest), do not experience bushfires - inner urban or suburban areas with maintained gardens and very limited standing vegetation (less than 0.25 ha cumulative area) - low threat vegetation, including grassland managed in a minimum fuel condition (i.e. to a nominal height of 100mm), maintained lawns, vineyard and orchards; and - pasture or cropping areas with very limited standing vegetation that is shrubland, woodland or forest with an effective slope*, on flat land or an effective slope* of less than 10 degrees, for a distance greater than 100 metres.
Moderate	- areas containing pasture or cropping with an effective down slope* in excess of 10 degrees for a distance greater than 100 metres - unmanaged grasslands; - open woodlands; - open shrublands; - low shrubs on areas with an effective up slope*, on flat land or an effective down slope* of less than 10 degrees, for a distance greater than 100 metres or flat land; - suburban areas with some tree cover; and - forest and woodlands with a permanent grass understorey or at most, a scrub understorey structure consisting of multiple areas of <0.25ha and not within 20 metres of each other or single areas of <1ha and not within 100 metres of other scrub areas
Extreme	- forests with a scrub understorey which is multi-tiered; - woodlands with a scrub understorey which is multi-tiered; - tall shrubs; and - any area of vegetation not otherwise categorised as low or moderate

***NOTE -** Effective slope refers to the slope under the classified vegetation in relation to the subject site.

Distances less than 100 metres will be deemed to be undulating land, rather than a nominated slope.

6.6 Summary of Bushfire Potential Issues

With an amount of Class G Grassland vegetation within 100 metres of the proposed and existing buildings on the site a bushfire event has the potential to travel rapidly towards these buildings and cause injury and fatalities to exposed persons without protection.

The existing and proposed buildings are identified as having a mixture of BAL-LOW up to a BAL-29 rating. Buildings located in the BAL-LOW area are possible to use during a bushfire event as a shelter.

Currently the main office is rated a BAL-LOW and would suffice as a shelter.

6.6.1 Class A vegetation

There is a definite chance that the buildings located closest to the Class G vegetation could sustain some radiant heat and ember attack in a bushfire event. Additional mitigation measures and maintenance will help to reduce the risk to these buildings.

7.0 BUSHFIRE HAZARD MANAGEMENT

This section provides specific requirements and recommendations to further the development of the existing site and for the planning and design of future buildings, to be applied to reduce the impact of bushfires.

7.1 Minimising the Potential Impact of Bushfire

The key element to minimising the level of bushfire impact on any development is the sitting of future buildings in positions where the risk is manageable including placement at a suitable distance from vegetation that pose a bushfire hazard.

For example, as per Australian Standard 3959-2009 (Table 2.4.3) an acceptable solution would be to ensure all buildings are a minimum of 100 metres from classified vegetation (Classification A, B, C, D, E & F) or 50 metres from vegetation classified as G Grassland.

In the case of the existing and proposed development the option of maintaining all of the class G vegetation within 50 metres as per AS 3959 is a feasible option to reduce the BAL rating to BAL-LOW for all existing and proposed buildings.

The environmental study for the proposed development includes the planting of trees and shrubs on the site. These will not negatively impact the BAL ratings of the existing and proposed buildings if the proposed planting guide is followed.

DSY engineering holds a current exemption for hot works during Total Fire Ban days (TFB days). This exemption is awarded on the basis DSY engineering follows strict guidelines during any hot works during TFB days. Ensuring this Bushfire Management Plan is adhered to and ensuring these activities are performed in areas where the risk of starting a fire is nominal will ensure continued compliance with the exemption.

*7.1.1 Current separation distances to assessable vegetation (proposed development) ***- DSY Engineering Map Appendix 1***

7.2 Required Vegetation Management

The vegetation has been cleared throughout a large portion of the existing Office & Workshop areas. Most of these areas are gravelled to accommodate vehicles and as a laydown area. A large gravel pad has been laid in anticipation of the proposed works on Lot 7.

A small section of natural bushland has been retained in the most Northern side of Lot 3.

Class G vegetation is present in both Lot 3 & 7.

Well established fire breaks have been maintained as per the Shire of Chittering's Fire Break Order.

(http://www.chittering.wa.gov.au/sites/chitteringwagovau/assets/public/File/Fire%20Services/Firebreak_Notice_2016-2017.pdf)

In their current state the non-vegetated landscaped areas throughout the office and workshop areas are exempt from classification as per AS 3959-2009 section 2.2.3.2 (d, e & f).

It is imperative these areas continue to be maintained in a minimum fuel condition specifically in the areas closest to the Forest vegetation near the Great Northern Highway. (see photo 7.2.1 & 7.2.2 below).

Photo 7.2.1 East side (Near Great Northern Highway) Roadside Verge

This also includes the Grassland areas in the Southern and Northern sides of the proposed and existing buildings. (see photo 7.2.2 below)

Photo 7.2.2 Class G areas

(Minimum fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack [recognised as short cropped grass for example, to a nominal height of 100mm])
AS 3959-2009 section 2.2.3.2(f).

7.3 Fire Fighting Services

The Shire of Chittering's five local Bush Fire Brigades have both light and heavy appliances manned by volunteer fire fighters.

The closest BFB brigade (Muchea VBFB) located at 7 Chittering Street, Muchea would have an average turn-out time of 15 to 20 minutes.

DSY engineering has a dedicated firefighting trailer, grader and extinguishers on site. Ensuring employees are trained in the operation of firefighting equipment will help to positively influence the outcome of a Bushfire event.

Evacuation plans should be revised to ensure all personnel understand the procedures and triggers for evacuation.

7.4 Likelihood of Suppression

The below table shows the predicted head fire behaviour in the vegetation types found in the proximity of the DSY Engineering site. The fire behaviour rate of spread and fire line intensity is calculated for the Decile 9 weather conditions in relation to the site.

Head Fire Behaviour Classes for the Site (Source: Muller, 2008*)
5 Indirect attack likely to fail Intensity >4000 kW/m and/or ROS > 800 m/hr in forest/woodland Intensity> 8000 kw/m and/or ROS > 2000m/hr in shrubland Intensity >8000 kW/m and/or ROS > 10,000 m/hr in grassland
4 Direct attack not possible/ unlikely to succeed Intensity >2000 kW/m and/or ROS > 400 m/hr in forest/woodland Intensity >2000 kW/m and/or ROS > 1000 m/hr in shrubland Intensity >2000 kW/m and/or ROS > 6500 m/hr in grassland
3 Direct machine and tanker attack possible Intensity <2000 kW/m and/or ROS < 400 m/hr in forest/woodland Intensity <2000 kW/m and/or ROS < 1000 m/hr in shrubland Intensity <5000 kW/m and/or ROS < 6500 m/hr in grassland
2 Hand tool attack possible Intensity <800 kW/m and/or ROS < 140 m/hr in forest/woodland & shrubland Intensity <800 kW/m and/or ROS < 300 m/hr in grassland
1 Readily suppressed Intensity <800 kW/m and/or ROS < 60 m/hr in all fuels

kW/m Kilowatts per metre
m/hr Metres per hour
ROS Rate of spread
(C. Muller, 2008, Report on a Bushfire Treat Analysis for Western Australia, a report for FESA and CALM)*

8.0 BUSHFIRE PROTECTION CRITERIA

8.1 Criteria Elements

In planning for subdivision, development or land use the WAPC and DFES have adopted a performance based system of control for each Bushfire Hazard Management issue *(see Guidelines for Planning in Bushfire Prone areas, WAPC v 1.1)*

The criteria is designed to assist in the assessment of proposed Bushfire Risk Management measures required for the proposal.

These elements are summarised as:

- Location
- Siting and design of development
- Vehicular access
- Water

The compliance of the planned development against each element of the Guidelines for Planning in Bushfire Prone Areas WAPC v 1.1 is summarised in Table 8.1.1. The table shows compliance on completion of the recommended measures.

8.1.1 Bushfire Protection Criteria Guidelines for Planning in Bushfire Prone Areas WAPC v1.1

Element	Acceptable Solution	Compliance	Yes / No
1. Location	A1.1 Development location	Does the proposal comply by applying AS A1.1	Yes
2. Siting	A 2.1 Asset Protection Zone APZ	Does the proposal comply by applying AS A3.1	Yes
3. Vehicular Access	A 3.1 Two access routes	Does the proposal comply by applying AS A2.1	Yes
	A 3.2 Public Roads	Does the proposal comply by applying AS A2.2	Yes
	A 3.3 Cul-de-sac	Does the proposal comply by applying AS A2.3	N/A
	A 3.4 Battle Axes	Does the proposal comply by applying AS A2.4	N/A
	A 3.5 Private driveways	Does the proposal comply by applying AS A2.5	Yes
	A 3.6 Emergency access ways	Does the proposal comply by applying AS A2.6	N/A
	A 3.7 Fire Services access routes	Does the proposal comply by applying AS A2.7	N/A
	A 3.8 Fire Break widths	Does the proposal comply by applying AS A2.8	Yes
4. Water	A 4.1 Reticulated water	Does the proposal comply by applying AS A4.1	N/A
	A 4.2 Non reticulated area – Water tanks	Does the proposal comply by applying AS A4.2	Yes
	A 4.3 Individual lots – non reticulated	Does the proposal comply by applying AS A4.3	Yes

PC - Performance criteria
AS - Acceptable Solution

9. 0 IMPLEMENTATION AND ENFORCEMENT

The application of the following points would ensure the proposal meets the performance criteria as stated in the Guidelines for Planning in Bushfire Prone Areas, WAPC v 1.1

9.1 Performance Criteria Requirements

Initial items to complete prior to the development meeting the required performance criteria:

- The workshop/office building is to be located as per proposed plans and gravel areas to be completed as per the proposed plans - This ensures the BAL rating for the site is relevant.

*See 9.1.5-1 Proposed site layout - ***DSY Engineering Map Appendix 1***

9.2 Secondary items to address

- Maintain compliance with section 7.2 *Required Vegetation Management* throughout the site. Maintain all grassland vegetation within a 50 metre radius of all buildings in minimum fuel condition during the bushfire risk season. Responsible party is DSY Engineering.

- Ensure branches from trees do not overhang existing or new buildings. Specific areas are on the Northern side of the existing shed and undercover carpark areas. Responsible party is DSY Engineering.

- Ensure firefighting equipment is tested prior to each bushfire season and maintained in good order. Responsible party is DSY Engineering.

- Ensure water tanks used for emergency water are adequately filled and that all hoses and fittings are serviceable. Responsible party is DSY Engineering.

- Ensure areas around water tanks and filing points are cleared of vegetation – This ensures these assets are protected during a Bushfire event and provides safe access to fire fighters. Responsible party is DSY Engineering.

- Continue to service and maintain fire extinguishers as required. Responsible party is DSY Engineering.

- Ensure stored flammables are kept in areas of buildings designated as BAL-LOW for additional safety. Responsible party is DSY Engineering.

Photo 9.2.1 Undercover Parking Area

Photo 9.2.2 Vegetation around water tank

Photo 9.2.3 Existing fire break – Western Boundary

10.0 FINAL SUMMARY

In summary, DSY engineering's property is in a Bushfire Prone Area as defined by DFES with class G Grassland vegetation posing a possible threat to the safety of DSY's staff and its property.

On completion of the proposed works and the mitigation strategies within this Bushfire Management Plan all of the site's buildings can have a BAL-LOW rating.

There are several items that require annual addressing to reduce the overall risk to the site. Yearly mitigation works prior to the start of summer which include removing all long grasses, ensuring overhanging branches are removed, cleaning out of gutters etc. will all play a definite part in ensuring the bushfire risk is minimised.

The proposed works will in effect help to reduce the overall bushfire risk to the site.

BUSHFIRE PROTECTION AUSTRALIA

BUSHFIRE CONSULTANCY | RISK MANAGEMENT

BUSHFIRE MANAGEMENT PLAN
Appendix 1 - Maps

DSY Engineering – Lot 3 & 7 Great Northern Hwy, Muchea

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- Reports & summaries
- Weather & climate data
- Data services
- Maps – recent conditions
- Maps – average conditions
- Climate change
- Extremes of climate
- About Australian climate

Site information

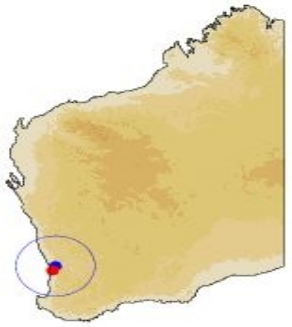
Site name: PEARCE RAAF
Site number: 009053
Latitude: 31.67 °S **Longitude:** 116.02 °E
Elevation: 40 m
Commenced: 1937 **Status:** Open
Latest available data: 26 Apr 2017

Additional information

Additional site information

Nearest alternative sites

1. 009087 UPPER SWAN RESEARCH STATION (9.9km)
2. 009022 GUILDFORD POST OFFICE (26.0km)
3. 009178 GINGIN AERO (26.9km)



View: Main statistics / All available | Period: Use all years of data | Text size: Normal / Large

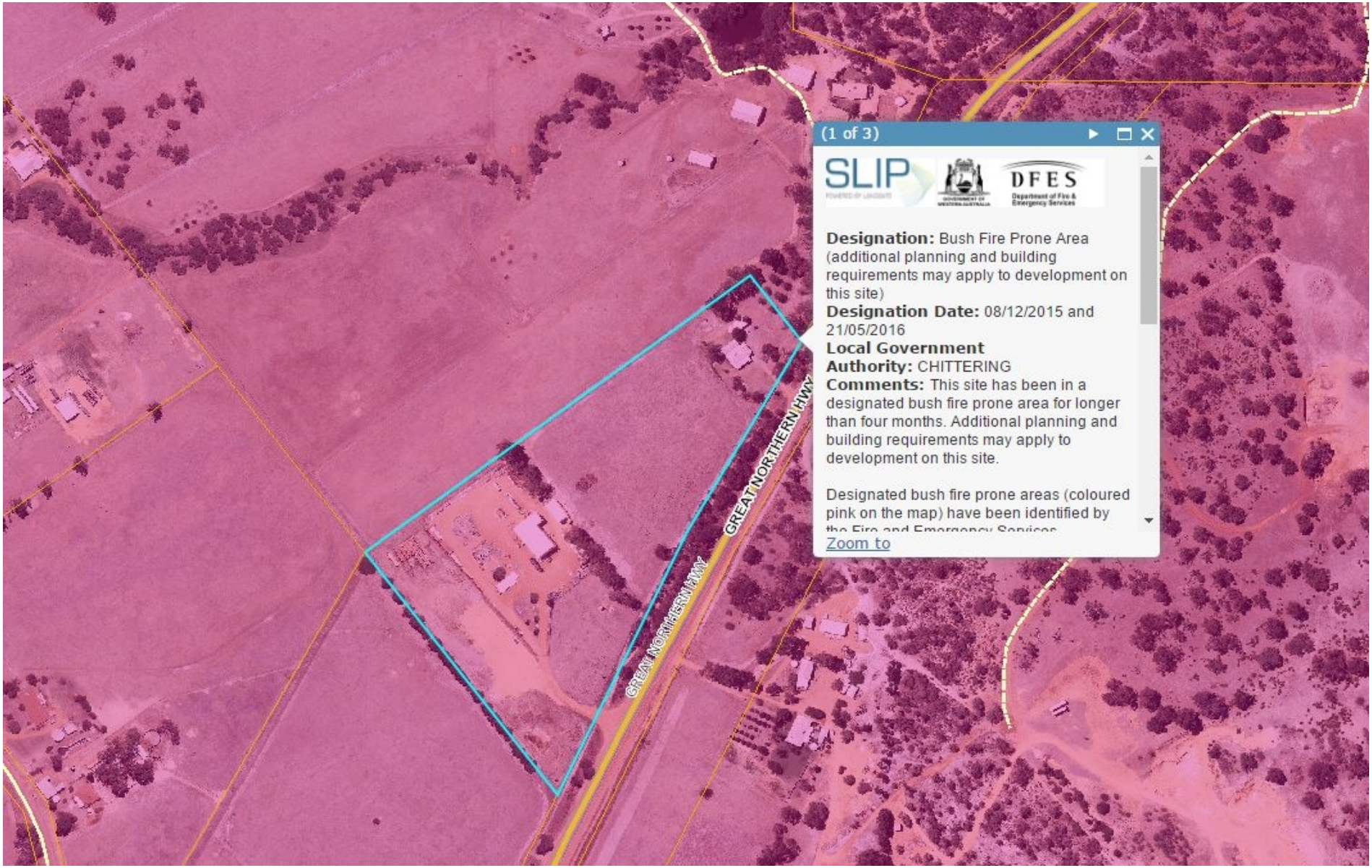
Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years		Plot	Map
Temperature																	
Mean maximum temperature (°C)	33.5	33.3	30.5	26.4	21.9	18.9	17.8	18.4	20.1	23.5	27.3	30.3	25.2	56	1940 2017		
Mean minimum temperature (°C)	17.0	17.6	16.0	13.4	10.7	9.4	8.3	8.2	8.8	10.1	12.5	14.5	12.2	56	1940 2017		
Rainfall																	
Mean rainfall (mm)	9.7	13.4	16.9	35.3	85.0	131.7	133.5	104.5	69.2	36.0	23.2	10.8	653.1	48	1937 2017		
Decile 5 (median) rainfall (mm)	1.2	4.4	10.3	32.8	80.6	124.9	133.2	105.5	65.4	33.9	18.5	5.9	646.4	62	1937 2017		
Mean number of days of rain ≥ 1 mm	0.8	1.1	1.7	3.6	6.5	8.9	9.9	9.1	6.9	4.5	2.9	1.3	57.2	61	1937 2017		
Other daily elements																	
Mean daily sunshine (hours)																	
Mean number of clear days	8.4	10.4	9.4	6.2	6.2	4.2	4.6	5.4	5.8	6.7	8.0	5.9	81.2	50	1940 2011		
Mean number of cloudy days	1.7	2.9	3.8	6.0	7.5	7.9	8.1	8.1	7.4	5.6	5.4	1.9	66.3	50	1940 2011		
9 am conditions																	
Mean 9am temperature (°C)	24.1	24.0	21.8	18.9	15.6	13.2	12.1	12.7	14.6	17.3	20.5	22.6	18.1	52	1940 2011		
Mean 9am relative humidity (%)	48	50	56	64	72	78	79	76	71	61	53	48	63	47	1944 2011		
Mean 9am wind speed (km/h)	17.9	17.8	16.3	13.3	11.0	11.2	10.5	11.3	13.0	14.9	16.7	16.7	14.2	44	1940 2011		
9am wind speed vs direction plot	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF				
3 pm conditions																	
Mean 3pm temperature (°C)	31.4	31.5	28.7	24.8	20.9	17.7	16.6	17.2	18.9	22.1	25.5	28.4	23.6	50	1940 2011		
Mean 3pm relative humidity (%)	30	31	35	43	50	60	61	57	54	46	39	33	45	45	1944 2011		
Mean 3pm wind speed (km/h)	20.4	19.0	17.8	15.8	13.9	15.3	15.5	16.6	17.7	18.5	20.5	21.1	17.7	41	1940 2011		
3pm wind speed vs direction plot	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF	PDF				

red = highest value blue = lowest value

5.4.1 DSY Engineering Site Map

TWS Northwest Pty Ltd t/a Bushfire Protection Australia
admin@bushfireprotectionaustralia.com.au
PO Box 494, Toodyay. WA. 6566

6.1.2 DFES Map of Bushfire Prone Areas – Lot 3



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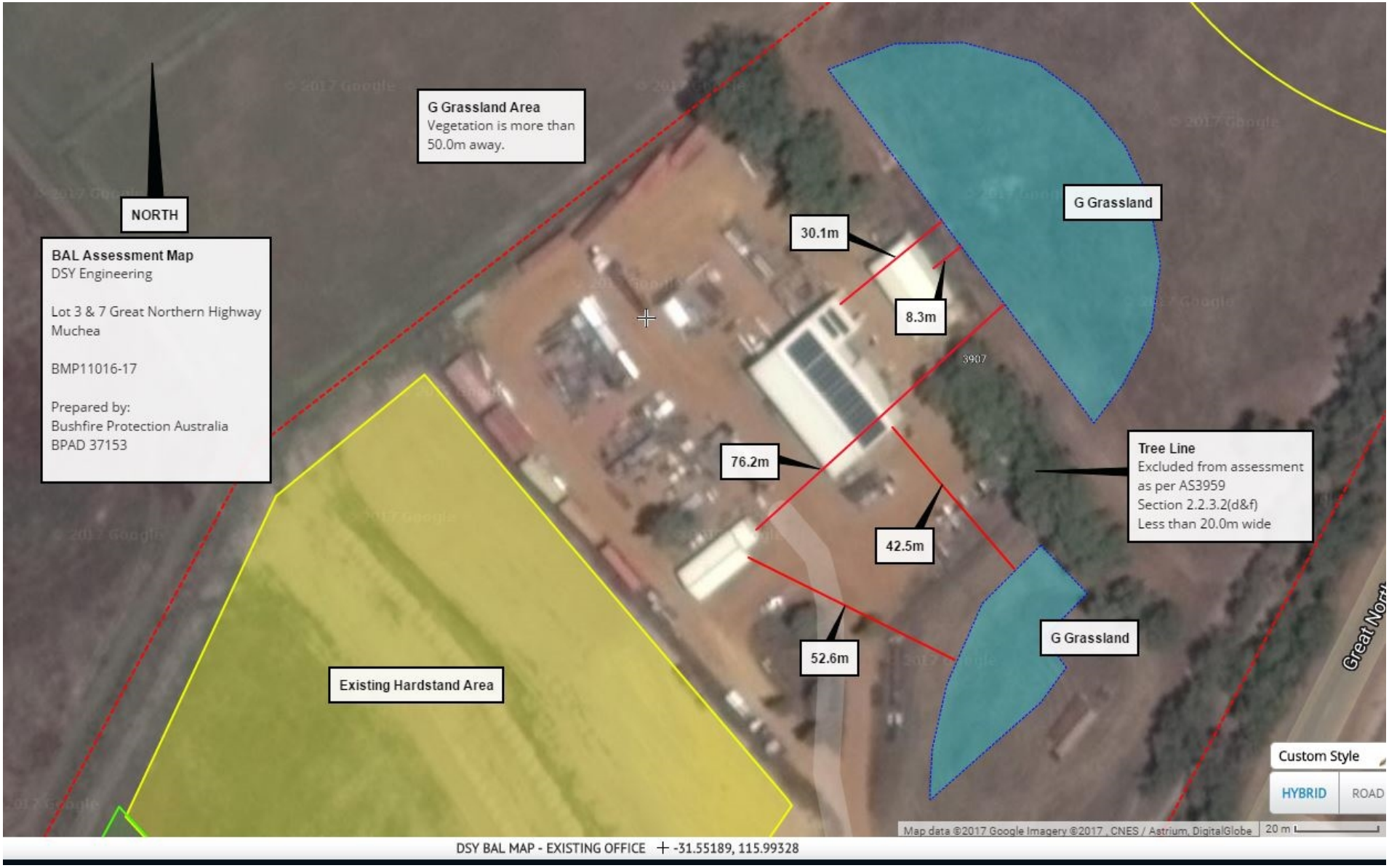
6.4.1 BAL Assessment Map – Existing Office/Workshop



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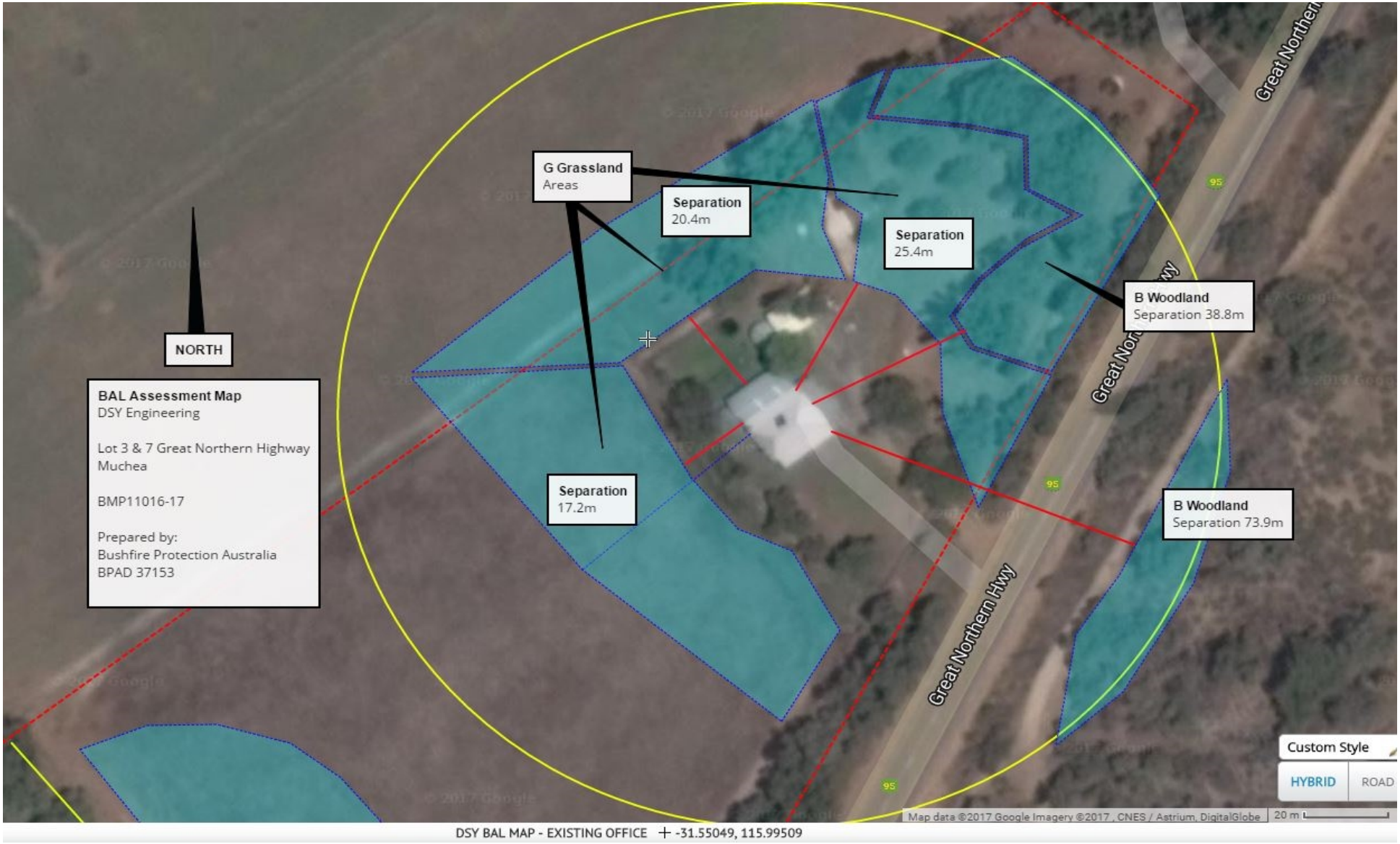
6.4.2 BAL Assessment Map – Existing Residence



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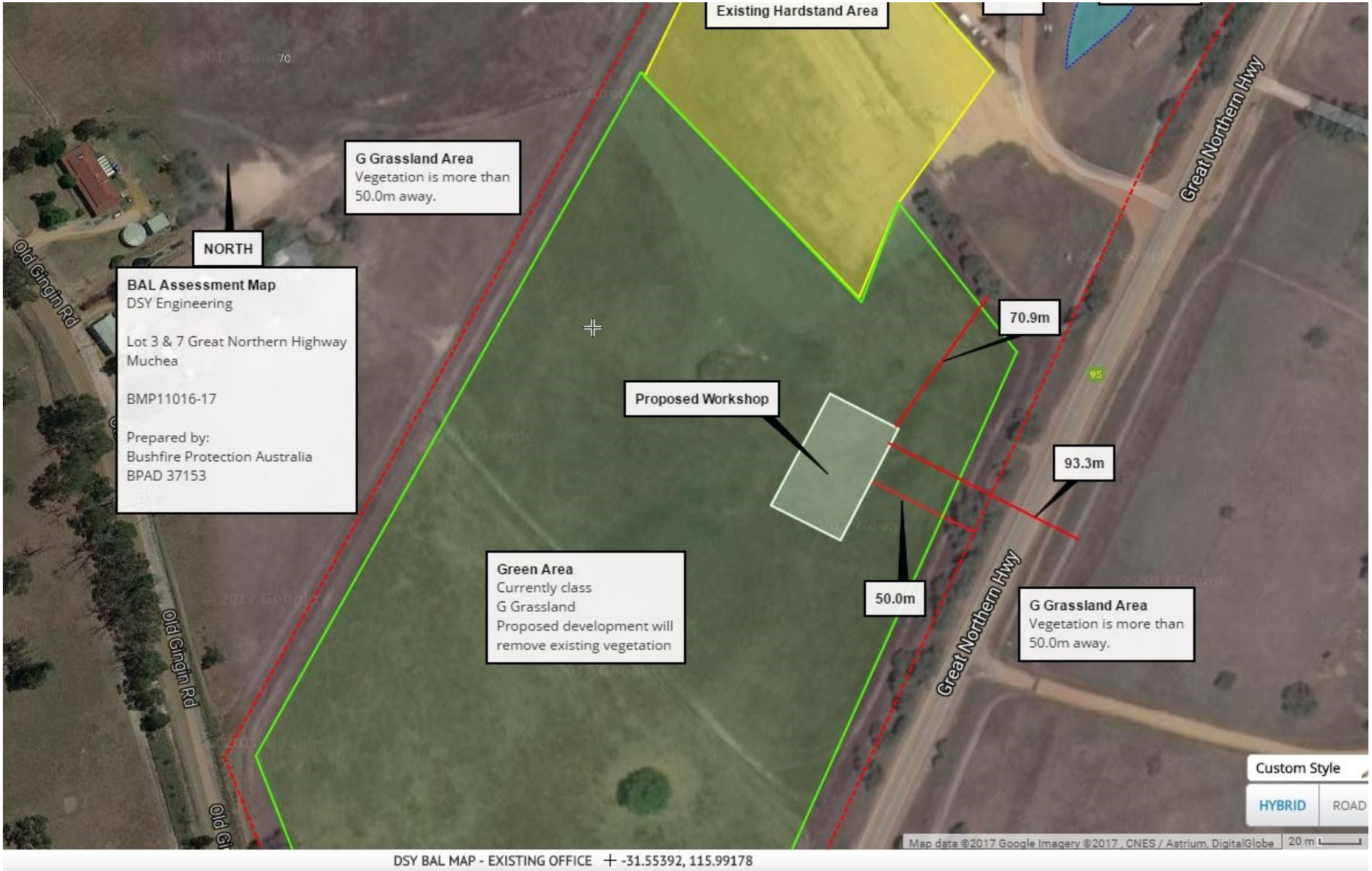
6.4.3 BAL Assessment Map – Proposed Workshop



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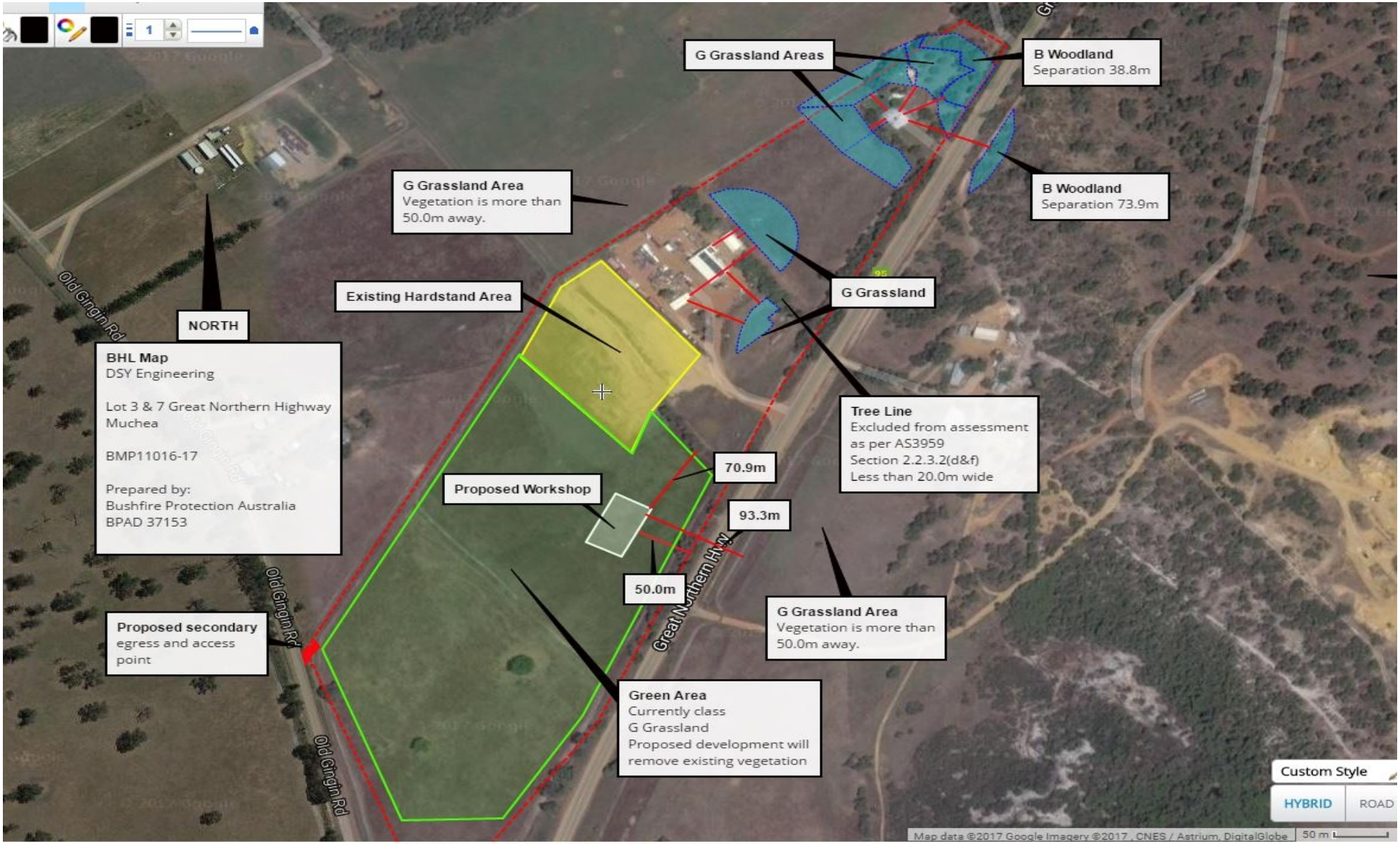
admin@bushfireprotectionaustralia.com.au
PO Box 494, Toodyay. WA. 6566

7.1.1 Separation Distances to Assessable Vegetation (Proposed Development)



DSY BAL MAP - EXISTING OFFICE -31.55323, 115.99275

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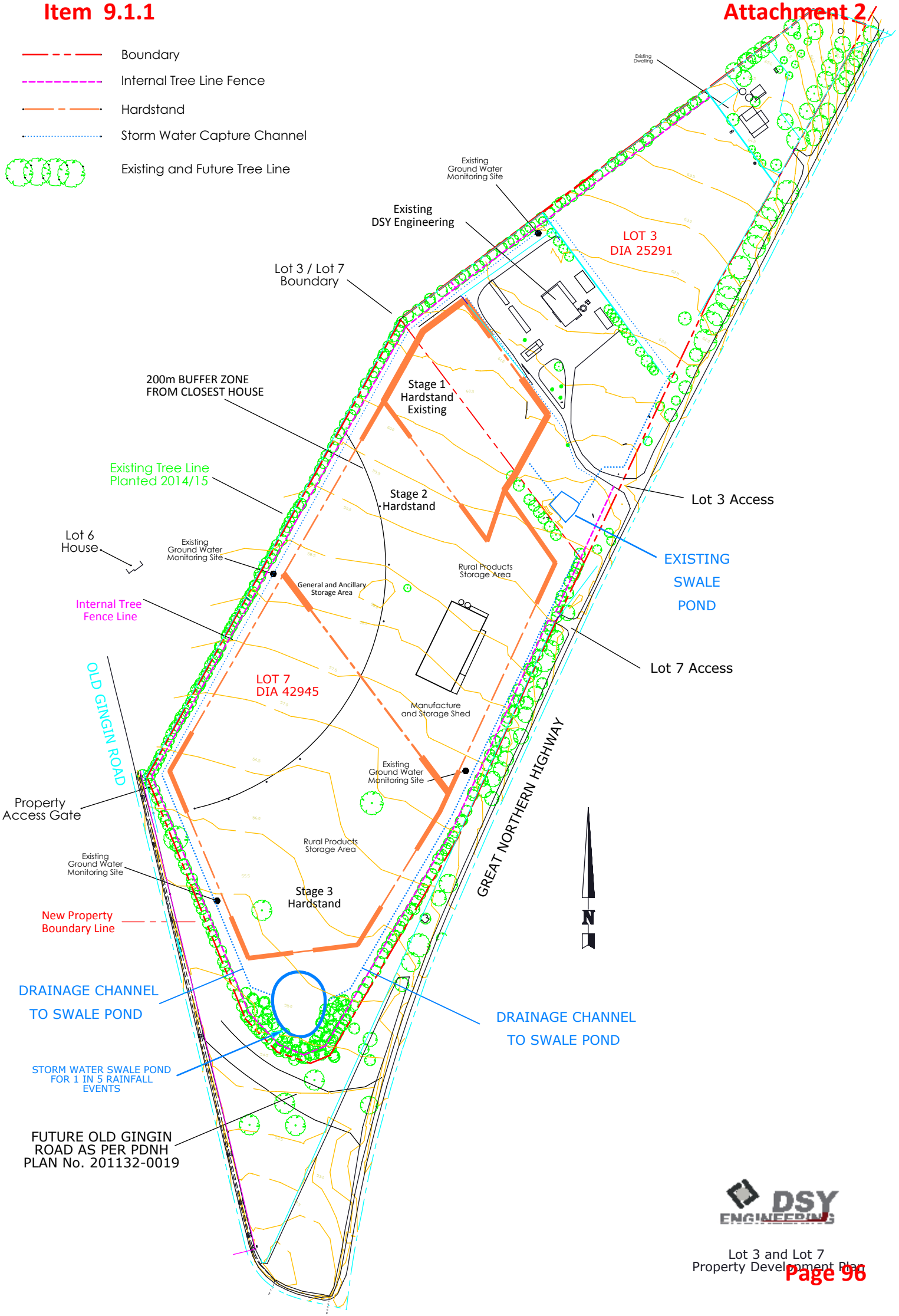
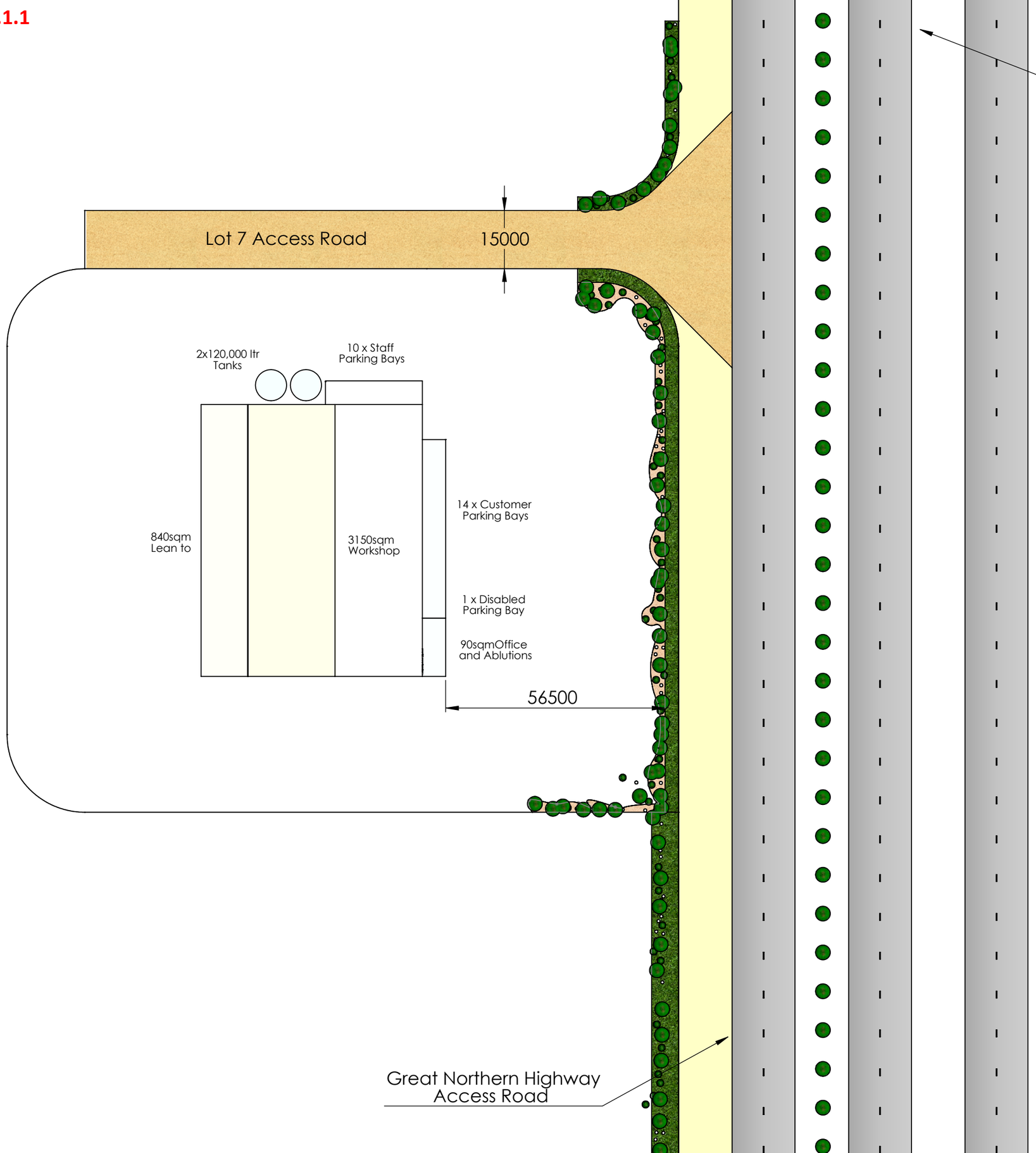
admin@bushfireprotectionaustralia.com.au
PO Box 494, Toodyay. WA. 6566



DSY ENGINEERING

Lot 3 and Lot 7
Property Development Plan



DSY ENGINEERING
LOT 3 GREAT NORTHERN HIGHWAY
CHITTERING WESTERN AUSTRALIA 6084
P 08 9571 4026
F 08 9571 4027
M 0409 773 486
W dsyengineering.com.au
E info@dsyengineering.com.au

JOB NAME
Proposed Workshop / Warehouse

CLIENT
Lot 7

DESIGNED	S.G.	
DRAWN	S.G.	
MFG APPR.	S.G.	

REVISIONS

REV 0		

TITLE
Proposed Workshop / Warehouse

SHEET 2 OF 4

SCALE
1:5000

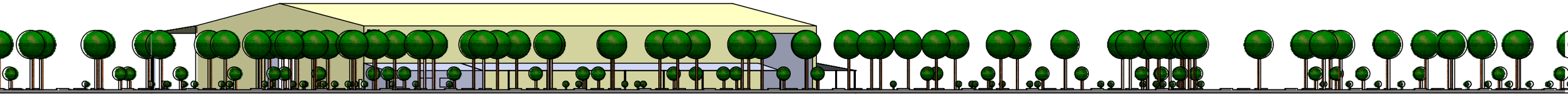
DRAWING NO.
Lot 7 Rural Industries
Workshop Layout

REV

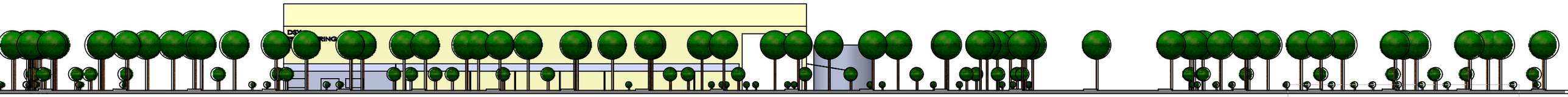
SIZE
A3

WORKING

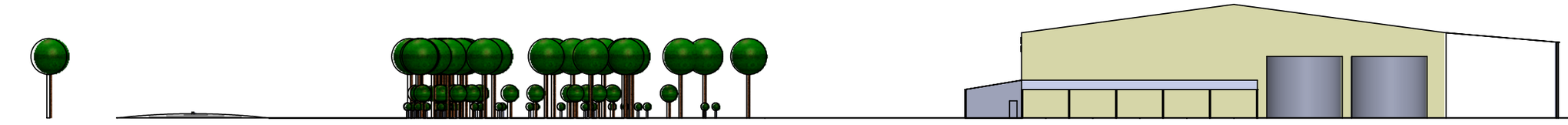
E:\My Documents\DSY Engineering\Documents\Shown Private\Shown\Lot 7 and Highfield Apps\2017 Application\
Monday, 24 April 2017 11:32:09 AM



View from Highway



East Elevation



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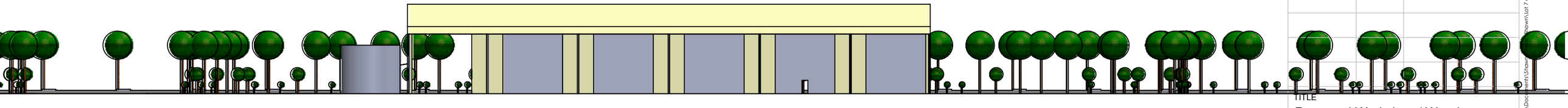
South Elevation



West Elevation

DSY ENGINEERING

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E info@dsyengineering.com.au

JOB NAME
Proposed Workshop / Warehouse

CLIENT
Lot 7

DESIGNED	S.G.	
DRAWN	S.G.	
MFG APPR.	S.G.	

REVISIONS

REV 0		

WORKING

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Monday, 24 April 2017 11:32:00 AM

TITLE
Proposed Workshop / Warehouse

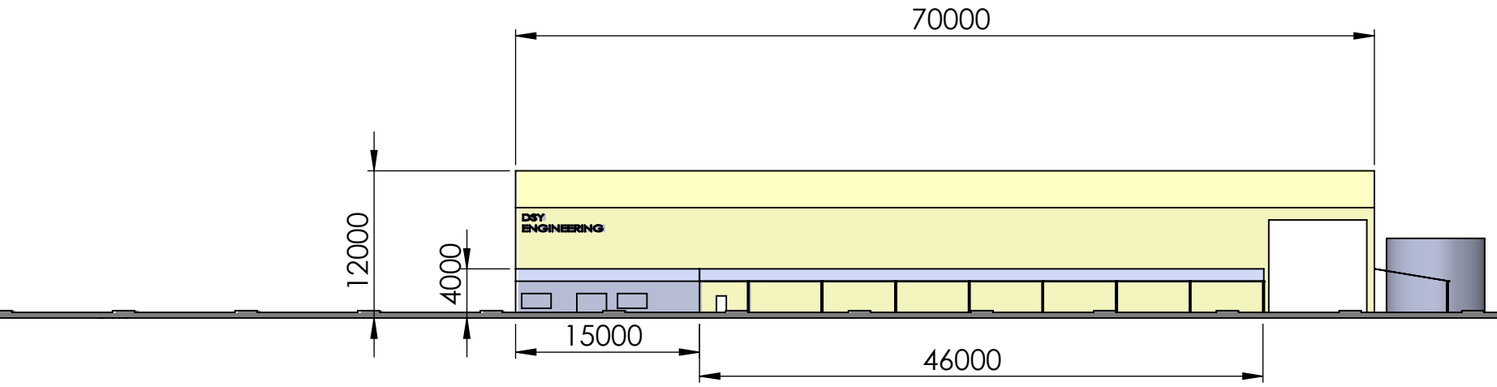
SHEET 3 OF 4

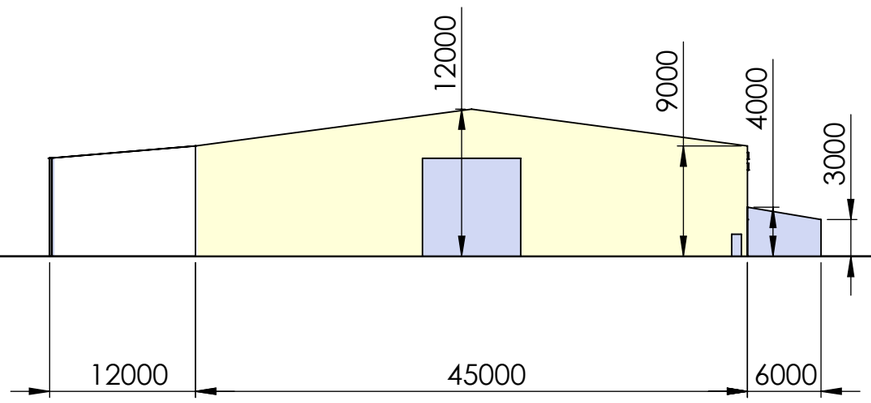
SCALE
1:5000

DRAWING NO.
Lot 7 Rural Industries Workshop Layout

REV

SIZE
A3





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JOB NAME
Proposed Workshop / Warehouse

CLIENT
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DESIGNED	S.G.	
DRAWN	S.G.	
MFG APPR.	S.G.	

REVISIONS

REV 0		

TITLE
Proposed Workshop / Warehouse

SHEET 4 OF 4

SCALE
1:5000

DRAWING NO.
Lot 7 Rural Industries Workshop Layout

REV

SIZE
A3

WORKING

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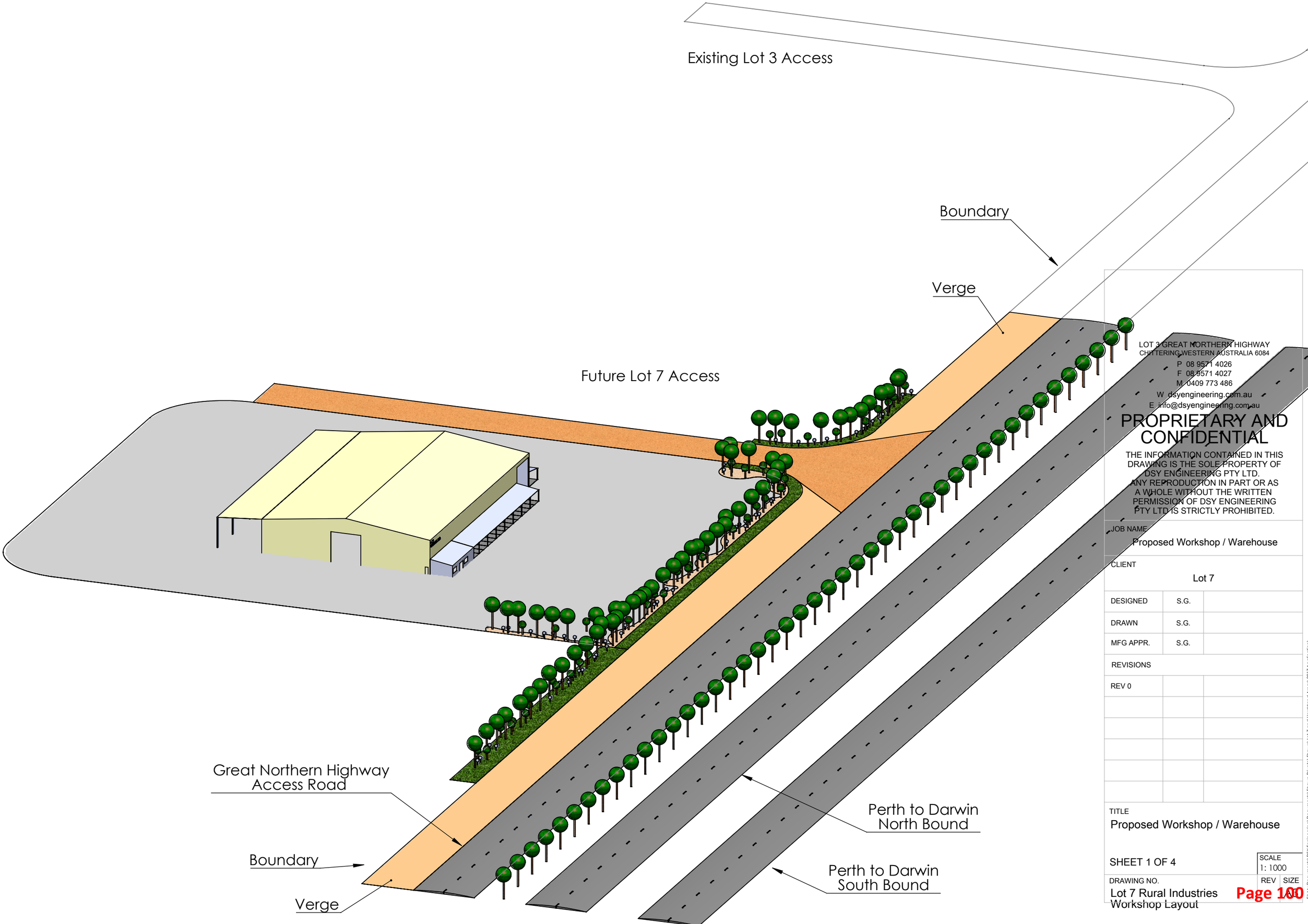

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JOB NAME
Proposed Workshop / Warehouse

CLIENT
Lot 7

DESIGNED	S.G.	
DRAWN	S.G.	
MFG APPR.	S.G.	
REVISIONS		
REV 0		

TITLE
Proposed Workshop / Warehouse

SHEET 1 OF 4

SCALE
1: 1000

DRAWING NO.
Lot 7 Rural Industries
Workshop Layout

REV 0

SIZE A3

WORKING

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Monday, 24 April 2017 11:02:00 AM

Agency Submissions			
Submitter	**Comment**	**Proponent Response**	**Shire Officer Response**
DWER	Since receiving the application DER has merged with the Department of Water and the Office of the Environmental Protection Authority to create the new agency Department of Water and Environmental Regulation (DWER). The former agencies are in the process of amalgamating their functions. Until this fully occurs, please note that this advice relates only to matters previously dealt with by the DER. The Department has no comment on this matter in reference to regulatory responsibilities under Part V of the *Environmental Protection Act* 1986 and the *Contaminated Sites Act 2003*.	Noted.	Noted.
Department of Lands	The Department of Lands has no comments on the attached proposal	Noted.	Noted.
Main Roads	Further to your correspondence of the 20 June 2017, with attached diagram, Main Roads WA (MRWA) provides the following comment. MRWA is prepared to support the proposal and offers the following comments. 1. The development is located on a section of Great Northern Highway where the existing highway will become a local road. The Muchea North Project is scheduled to commence in late spring 2017 and will take approximately 18 months to complete. 2. The Lot 7 proposed entrance is larger than the current paddock entrance. 3. The Lot 3 proposed entrance matches the current entrance size 4. The landowners are already aware that the current proposed access to the new Great Northern Highway is from Reserve Road.	Noted.	The built form is intended to be staged following completion of the new highway alignment. Conditions of approval are placed intending to ensure this facet.
Department of Health	Thank you for your letter of 21 June 2017. Requesting comment from the Department of Health (DoH) on the above proposal. The DOH has no objection to the proposal provided the development is required to connect to scheme water (or a sufficient supply of potable water that is of the quality specified under the *Australian Drinking Water Quality Guidelines 2004*) and be in accordance with the draft *Country Sewerage Policy*. Approval is required for any on-site waste water treatment process with such proposals being in accordance with DOH publications which may be referenced and downloaded from: http://ww2.health.wa.gov.au/Articles/N-R/Recycled-water http://ww2.health.wa.gov.au/Articles/U-Z/Water-legislations-and-guidelines	.	Discussions with the Shire's Principal Health Officer resulted in the following: 1. The comment from DoH is likely generic. 2. The proprietor will be required to install an ATU with the new building due to the high water table. Ultimately the DOH have stated no objection, and the applicant has been advised of all the above.
Department of Parks and Wildlife	The Parks and Wildlife Service of the Department of Biodiversity, Conservation and Attractions has no comments with regards to the above application.		Noted.

Submissions			
1	We note that the application also proposes a manufacturing use on lot 7 which is not acknowledged in the application description. We suggest that this use and the associated 3,150m² 'workshop' are reflected in the application description and in any future reference to the proposal in order to accurately portray the intent of the application. The proposed development is incapable of approval under the Shire of Chittering Town Planning Scheme No. 6 (TPS6) based on the land use definitions under Schedule 1 and the associated land use permissibility outlined under the Zoning Table at Schedule 2. Further, the proposal is inconsistent with the objectives of the 'Agricultural Resource' zone as well as the Shire's strategic intent to coordinate and consolidate transport and warehouse/storage uses in accordance with the Western Australian Planning Commission's (WAPC) Muchea Employment Node (MEN) Structure Plan. **Inconsistency with Strategic Intent for Muchea** As the Shire is aware, the MEN Structure Plan seeks to coordinate future industrial development within a 1,113 hectare area east of Great Northern Highway (GNH) with an area also identified west of GNH but south of Brand Highway. The MEN provides certainty to landowners and Shire of Chittering residents as to where future industrial, transport and warehouse/storage development will occur. The proposed development application on lots 3 and 7 involves manufacturing, fabricating, warehouse/storage and a transport depot however, the site is zoned 'Agricultural Resource' and is not within the MEN. Amendment No. 63 to TPS6 seeks to address this undesirable outcome of transport depots and warehouse/storage uses encroaching within the 'Agricultural Resource' zone by rendering the uses as not permitted (X) within the zone. Consistent with the strategic intent of the Shire, Amendment 63 would see these types of uses as only capable of occurring within a 'Light Industrial' or 'General Industry' zone, and we commend the Shire for preparing and initiating the Amendment. Approval of this application on the subject site would therefore be inconsistent with the Shire's intended location for such uses, as well as the WAPCs MEN Structure Plan. **Land Use Permissibility** *Transport Depot and Warehouse/Storage* Under the current TPS6 zoning table, the use of 'Transport Depot' and 'Warehouse/Storage' are only allowable on the site subject to Council exercising its discretion to approve the uses. However, the intent of Amendment 63 which is soon to be advertised, must be considered in this exercise of discretion. Clause 67, Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015* lists matters that a local government is to have due regard to in determining development applications. Most pertinent to this situation is sub-clause (b) which requires the consideration of *"any other*	The proposal has been advertised to landowners in the vicinity of the subject site and also to the relevant external referral authorities. In that respect, we note that one objecting submission has been received from a landowner who does not adjoin the subject site. There have been no objecting submissions received from any other landowners. Comments are provided in respect to one referral submission and provisional comments, including: 1. A submission received from a representative of the Muchea Employment Node Structure Plan (MENSP) area to the south of the subject site; and 2. Provisional and verbal comments received from Main Roads Western Australia (MRWA). *Consideration of Proposed Land Uses* The land uses proposed to be introduced into Lot 7 include "Industry – Rural" and "Warehouse/Storage". It is noted that Lot 7 already has a pre-existing approval for a "Transport Depot" use. Pursuant to Schedule 2 – Zoning Table of the Shire's Town Planning Scheme No. 6 (**TPS6**), "Industry – Rural" is an 'A' use and "Warehouse/Storage" is a 'D' use in the Agricultural Resource zone, meaning: *'A' means that the use is not permitted unless the local government has exercised its discretion by granting Development approval after giving special notice in accordance with clause 64 of the deemed provisions. 'D' means the use is not permitted unless the local government has exercised its discretion by granting Development approval.* It is also noted that a "Transport Depot" use is an 'A' use in the Agricultural Resource zone. The proposed uses are therefore capable of approval in the Agricultural Resource zone. Pursuant to Schedule 1 of TPS6, an "Industry – Rural" use is defined as: *(a) an industry handling, treating, processing or packing rural products; or (b) a workshop servicing plant or equipment used for rural purposes;* The Macquarie Concise Dictionary Fourth Edition defines "processing" as: *"9. To treat or prepare by some particular process, as in manufacturing."* The existing approved operations on Lot 3 involve the manufacture of metal agricultural products, such as stock fencing and handling facilities. The existing operations also involve the repair, servicing and maintenance of plant and equipment used for rural purposes. The introduction of these activities into a new shed/workshop facility on Lot 7 is considered to be entirely consistent with the definition of "Industry – Rural" under TPS6. Pursuant to Schedule 1 of TPS6, a "Warehouse/Storage" use is defined as: *premises including indoor or outdoor facilities used for – (a) the storage of goods, equipment, plant or materials; or (b) the display or sale by wholesale of goods;* As noted above, the proponent is already involved in the manufacture of goods including stock fencing, gates, livestock handling facilities, cattle yards, sale yards, stock ramps and other handling facilities. The facilities will require storage on site and the proposed "Warehouse/Storage" use on Lot 7 will enable that to occur along with opportunities for storage of other products that may arise in the future, whether or not these are	Noted, however an adjoining neighbour vehemently objected previously. Could be despondence which caused the adjoining neighbour to not respond on this occasion. The objector's comments are noted, however the letter addressed provided a full explanation of the works associated with this application. The Muchea Employment Node (MEN) is a priority development zone for the Shire. However the subject applicant is an existing business operator on this site. The expansion is not considered affect the Shire's desire to have the MEN fully operational. Scheme Amendment 63 has been drafted with this in mind. Regardless, 63 is not capable of being used as it is not a seriously entertained document at the time of determination of this application. Therefore it is not capable of being used to determine this application. The land uses associated with this application are discussed in the officer's report. In any event, the applicant's response is upheld.

proposed planning instrument that the local government is seriously considering adopting or approving". In exercising discretion, it would be a dereliction of duty for any decision maker to approve a discretionary use in an instance where it is progressing a scheme amendment to explicitly prohibit the use. In the context of the subject development application, approval of a 'Transport Depot' or 'Warehouse/Storage' use would contradict the adopted position of the Shire and would undermine the strategic intent of Amendment 63.

Based on the fact that Amendment 63 has been initiated by Council, no further 'Warehouse/Storage' or 'Transport Depot' uses are capable of being approved within the 'Agricultural Resource' zone, including the subject proposal on lots 3 and 7.

Industry – Rural

The proposed plan depicts a 'manufacturing' shed with the cover letter identifying 'repair and fabrication operations' as proposed to occur. The application explains that these uses are being proposed under the definition of 'Industry – Rural' however, neither manufacturing, repair nor fabrication are contemplated under the TPS6 definition of 'Industry – Rural'. These uses are therefore not permitted within the 'Agricultural Resource' zone.

A brief review of the proponent's website makes clear that a core element of their business involves manufacturing. The DSY Engineering website identifies the following services:

> *"At DSY Engineering, we offer a wide range of services to suit your needs. Some of these services include: 3D Design, Fabrication & Repairs, and CNC Plasma Cutting & Drilling. We also specialise in Rotary Pipe Cutting, and Pipe Bending & Fabrication Services.*
>
> *We can provide these services to the Agriculture, Earthmoving, Mining & Structural Industries."*

The definition of 'Industry – Rural' only allows for the handling, treating, processing or packing of rural products. It does not allow for manufacturing or fabricating and only allows for the servicing of equipment used for *"rural purposes"*. Manufacturing and fabricating fall under the definition of 'Industry' which is not permitted in the 'Agricultural Resource' zone.

It is clear that the proponents operations fall within an industrial use class and therefore should be located on appropriately zoned industrialland.

Objectives of Agricultural Resource Zone

Contrary to the proponent's submission, the proposed manufacturing use and extension of the transport depot and hardstand storage area across the majority of the site would directly contradict the objectives of the Agricultural Resource zone listed under TPS6. The table below demonstrates this fact:

manufactured on site. The use will also enable the display of products (goods) produced on-site for potential wholesale clients to view those items. It is therefore noted that the proposed "Warehouse/Storage" use will complement the expansion and continuation of the existing "Industry – Rural" use and is therefore consistent with the intent of the Agricultural Resource zone.
Consideration of Objectives of the Agricultural Resource Zone Having regard to the objectives of the Agricultural Resource zone, the proposal is consistent with those objectives for the following reasons: *a) preserve productive land suitable for grazing, cropping and intensive horticulture and other compatible productive rural uses in a sustainable manner;* The proposal involves the continuation and expansion of an Industry – Rural land use which has been conducted from portion of the subject land (Lot 3) servicing the local community since 2007. The proposal will continue to provide this service in a manner which does not require the use of substantial infrastructure or servicing and can accommodate all drainage on-site within the purpose designed drainage network.
The agricultural products manufactured on site are supplied directly to cattle farmers and graziers in the region and therefore provides for the provision of products in close proximity to the primary users. This represents a sustainable and efficient process of product delivery compared with the supply of products to afield. *b) protect the landform and landscape values of the district against despoliation and land degradation;* The proposed shed/workshop will introduce a rural style building into the landscape which is similar in design and of a comparative scale to other rural buildings in the locality. It is only two metres taller than the existing approved shed on Lot 3 and is of a height that is necessary to undertake the manufacture of the stock crates. Further, the shed will have the appearance of a rural structure and has been orientated in accordance with the preference of Council Officers. The proponent has already established screening landscaping along the western boundary of Lots 3 and 7 to screen the operations from dwellings to the west. As part of the proposal, the proponent intends to continue the landscaping screening treatments around the southern and eastern boundaries to screen the use from Great Northern Highway and the future Perth to Darwin National Highway. Furthermore, none of the land subject of development under this Application is identified within the Landscape Protection Area of TPS6 which functions to conserve and enhance the character of landscape areas associated with the Chittering Valley and to ensure land uses and development is compatible with those landscape values. Only the northern corner of Lot 3 is identified but that land is excluded for the purposes of this Application. Regardless of the location of the proposal outside the Landscape Protection Area, the land as part of the 2015 approval has already provided a landscape buffer along the entire western edge of Lot 3 and Lot 7 subject of the previous approved development. The additional landscaping proposed under this Application to the south and east will further contribute to the landscape amenity of the locality from public roads surrounding the subject site, and will therefore achieve the intent of this objective. *c) encourage intensive agriculture and associated tourist facilities, where appropriate;* The Shire's TPS6 allows for a range of agricultural Industry-

‘Agricultural Re	Comment
Preserve productive land cropping and intensive compatible productive sustainable manner.	Extending the hardstand storage area the majority of the site and constructing 3,150m² ‘workshop’ for purposes is not compatible in a rural
	and is not consistent with the existing rural character of the land. It would not ‘preserve’ the land for agricultural purposes. Conversely, it would substantially alter the character and physical attributes of the land as an industrial site.
Protect the landform and landscape values of the district against despoliation and land degradation.	Development of the site as hardstand for storage and use as a transport depot will not protect the landform and landscape values of the district. The use will irrevocably alter the landform and landscape values and result in an unintended change of character within a portion of the Agricultural Resource zone that is highly visible from GNH.
Encourage intensive agriculture and associated tourist facilities, where appropriate.	Developing the site as proposed does not encourage any of these uses. Hardstand, storage, manufacturing and transport depot are in stark contrast with the uses that are encouraged within the ‘Agricultural Resource’ zone.
Allow for the extraction of basic raw materials where it is environmentally and socially acceptable.	We are not aware of any basic raw materials on the site and understand that the Shire will ensure that this objective is not compromised, if relevant.

We are uncertain as to how the existing uses on site were approved when considered against the above objectives however, it is important that the ‘Agricultural Resource’ zone is not further eroded by undesirable industrial and transport uses where strategic planning is clear in its intent to consolidate such uses within the MEN.

Built Form Outcome

As mentioned above, development of the site as hardstand for storage and use as a transport depot will significantly and irrevocably alter the characteristics of the land. The application also proposes a manufacturing shed which has a wall height of 9m and a roof height of 12m. The height of the roof line, which will run parallel to GNH for a distance of 70m, will be the height of a typical 4 storey building. This type of built form outcome is not appropriate in the Agricultural Resource zone and is the type of development that should occur on industrial zoned land.

Summary

Rural and other land uses within the Agricultural Resource zone, not limited to intensive agriculture. The proposal does not involve the provision of intensive agriculture and associated tourist facilities, however this should not prevent the Shire's consideration of other appropriate uses that are permissible within the zone which support the continued and ongoing rural activities in the region. *d) allow for the extraction of basic raw materials where it is environmentally and socially acceptable.*

The subject site is not located within the mapped Priority Resource Location and Key Extraction areas under State Planning Policy 2.4 – Basic Raw Materials (**SPP2.4**). Regardless, any application for an "Industry – Extraction" land use on the subject site would be subject to a separate assessment and approvals process under the Shire's relevant planning framework. *Consideration of Amendment No. 63 to the Shire of Chittering TPS6* The submission gives significant weight to Scheme Amendment No. 63 to TPS6. Amendment No. 63 was initiated for advertising as a "Standard" amendment at the Ordinary Meeting of Council of 17 May 2017. We understand that the Shire has not commenced advertising of the amendment. Pursuant to Section 47(4) of the Regulations, the minimum advertising period for a Standard amendment is 42 days, after which time the Shire has a further 60 days to consider any submissions received (refer Section 50(1)(a) of the Regulations). It is therefore inappropriate for any weight to be given to Amendment No. 63 given that it is not a seriously entertained proposal. Further, the submitter incorrectly refers to Clause 67(b) of Schedule 2 of the Regulations as justification for the weight that ought to be afforded to Amendment No. 63. Clause 67(b) notes: *(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;* (Underline emphasis added) Amendment No. 63 has not been advertised and cannot reasonably be considered as a document that is seriously entertained at this time. On that basis, the current Planning Framework is the applicable framework which ought to apply.

The matters to be considered are discussed within the Officer’s Report.

This proposed shed structure is consistent with many other rural sheds within the Shire. Although the shed is enormous, it is not inconsistent with the zoning or the intended land use.

	The application is incapable of approval under TPS6 based on the physical scale of the development as well the fact that the proposed manufacturing, repair and fabrication uses are not permitted on the site. Further, the proposed development would undermine the Shire's clear and adopted position towards consolidating transport and storage/warehouse uses on appropriately zoned industrial land. Development of this nature in the 'Agricultural Resource' zone is inconsistent with the objectives of the zone and unfairly impacts residents who have a reasonable expectation that they are protected from land uses such as this.		

*Note: Comments are as per original submission received by the Shire. Submission comments have not been edited unless for the purposes of confidentiality where necessary.