



## **Bushfire Assessment**

**Alex Avenue Primary School**

**Pelican Drive, Schofields**

**Group GSA**

**25 January 2019**

**(Ref: 17072)**

---

report by  
**david peterson**

**0455 024 480**

david@petersonbushfire.com.au

po box 391 terrigal nsw 2260

**petersonbushfire.com.au**

FPA AUSTRALIA (NO.BPAD18882)  
BPAD LEVEL 3 ACCREDITED PRACTITIONER

ABN 28 607 444 833

# Contents

<b>1</b>	<b>Introduction .....</b>	<b>3</b>
<b>2</b>	<b>Bushfire hazard assessment.....</b>	<b>7</b>
<b>3</b>	<b>Bushfire protection measures.....</b>	<b>9</b>
<b>4</b>	<b>Conclusion and recommendations.....</b>	<b>12</b>
	<b>References .....</b>	<b>13</b>
	<b>Appendix 1 – CI 44 Rural Fire Regs.....</b>	<b>14</b>

# 1 Introduction

<b>Street or property name:</b>	14 & 34-38 Schofields Road	
<b>Suburb, town or locality:</b>	Schofields	<b>Postcode:</b> 2762
<b>Lot/DP no:</b>	Lot 121 DP 1203646 and Lot 4 DP 1208329	
<b>Local Government Area:</b>	Blacktown City Council	
<b>Type of development:</b>	New primary school (SFPP development)	

## 1.1 Background

Group GSA commissioned Peterson Bushfire to prepare a bushfire assessment of the proposed new Alex Avenue Primary School. This report presents the assessment and recommendations to achieve compliance with the relevant bushfire protection legislation and policy.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

## 1.2 Location and proposed development

The school site is situated within the Alex Avenue Precinct of the North West Growth Centre of Sydney as shown in Figure 1. Predominantly surrounded by new subdivisions under development, the bushfire prone land near the school site is limited consisting of remnant woodland to the north-west and a riparian corridor to the south.

The proposal consists of a new school as shown on the development site plan in Figure 2.

## 1.4 Assessment requirements


The subject lands are identified as containing bushfire prone land as mapped on the Blacktown Bushfire Prone Land Map. Development (see Figure 3) proposals involving schools on bushfire prone land are defined 'Special Fire Protection Purpose' (SFPP) development by s100B *Rural Fires Act 1997* and require assessment in accordance with the NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2006* (referred to as 'PBP' throughout this report) and c44 *Rural Fires Regulation 2013*.

Section 4.2 of PBP addresses SFPP development and outlines the assessment methodology and protection measures, such as asset protection zones building setbacks from identified hazards, building construction standards to withstand bushfire attack (i.e. Bushfire Attack Levels – 'BALs'), adequate road access for emergency response and evacuation, the provision of water supply for fire-fighting, and vegetation management. Statements of compliance with PBP are made within each subsection of this Bushfire Assessment Report. Assessment of compliance against c44 *Rural Fires Regulation 2013* is contained within Appendix 1.





## Legend

 Subject Land



Date: 10/11/2017

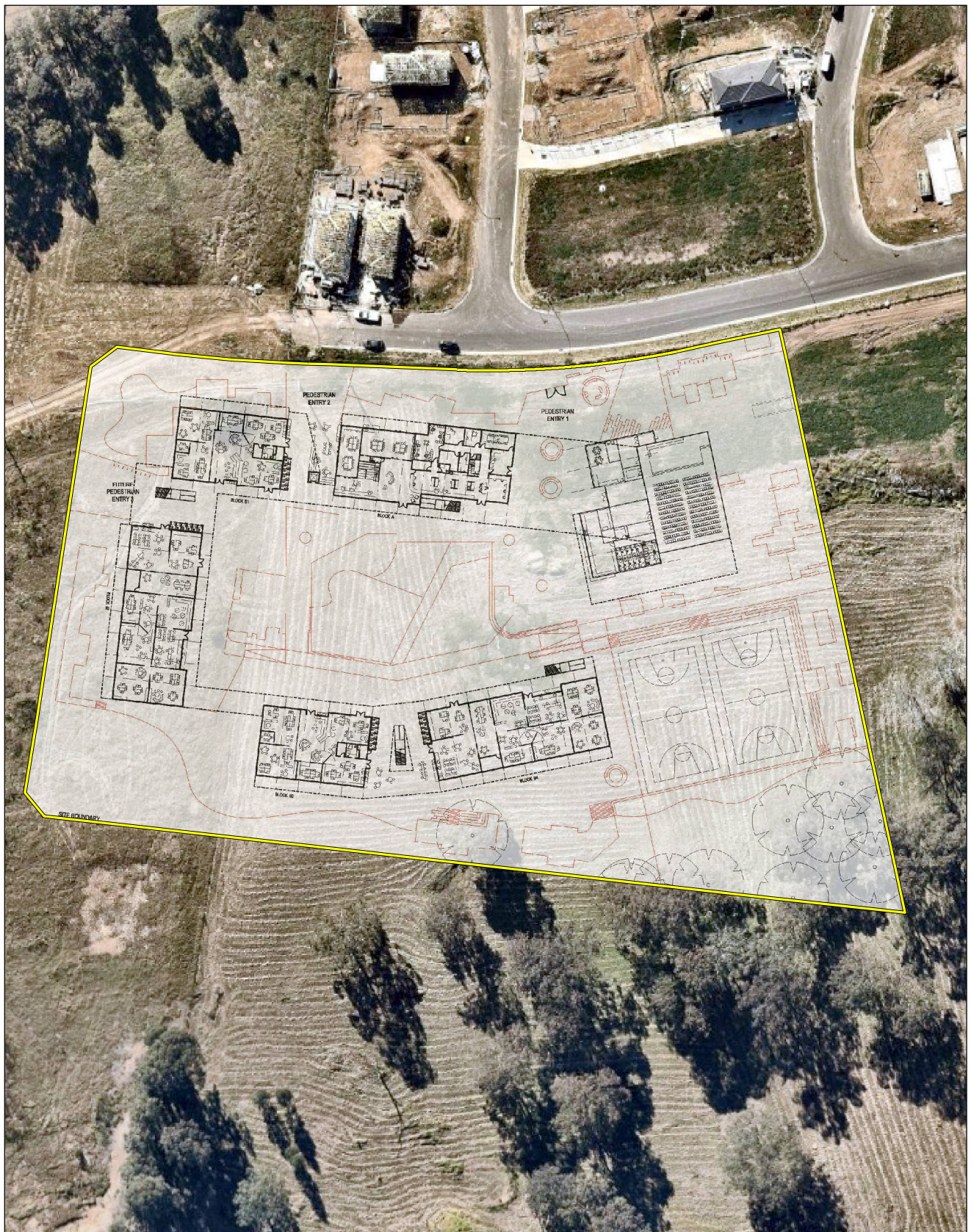
0 150 300 600  
Metres

Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap





### Legend

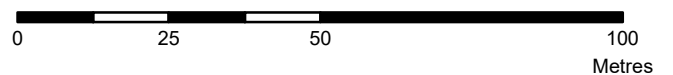


### Subject Land



DKGIS

Date: 25/01/2019



Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

### Figure 2: Proposal

**peterson  
bushfire.**  
expert consulting services

david peterson

0455 024 480 • david@petersonbushfire.com.au

po box 391 terrigal nsw 2260 • [petersonbushfire.com.au](http://petersonbushfire.com.au)

FPA AUSTRALIA (NO.BPAD18882) BPAD LEVEL 3 ACCREDITED PRACTITIONER • ABN 28 607 444 833





### Legend



Subject Land

**Bushfire Prone Land**



Vegetation  
Category 1



Vegetation  
Category 2



Vegetation Buffer  
100m & 30m



Date: 10/11/2017

0 150 300 600  
Metres

**Figure 3: Bushfire Prone Land**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



## 2 Bushfire hazard assessment

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone location and dimension and Bushfire Attack Level. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour approaching the development site.

Site inspection occurred in May 2017.

### 2.1 Assessment of bushfire prone land mapping

The Blacktown Bushfire Prone Land Map as it relates to the school site is shown in Figure 3. The '100 m Vegetation Buffer' extends within the development site from a remnant of woodland located to the north-west. The riparian corridor to the south does not impact on the development site.

### 2.2 Predominant vegetation

The vegetation within 140 m of the proposed development has been assessed in accordance with the methodology specified within PBP. There are two areas of vegetation within 140 m. Each are described and classified below and mapped on Figure 4:

#### *Woodland to the north-west*

A remnant of woodland is located over 60 m to the north-west of the proposed school buildings. Approximately 1.2 hectares in size, the remnant is confined by surrounding development and development approval has been granted that will result in its removal. Some vegetation alongside Schofields Road will remain.

#### *Riparian forest to the south*

A corridor of riparian forest is located along a creekline to the south over 100 m from the proposed school buildings. The mapping on Figure 4 shows the current extent of the corridor, which will be further reduced in size once adjoining residential subdivision and road construction take place. The land between the corridor and the school development site is being regularly maintained (slashed) and will undergo residential subdivision.

### 2.3 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most influence fire behaviour where the hazard occurs within 100 m of the development proposal. The slope was determined using a 1 m contour layer.

Both identified hazards are situated on a gradient within the PBP slope class of 'Downslope 0-5 degrees'. The slope assessment is shown on Figure 4.





### Legend

	Subject Land		Forest		BAL 12.5
	Contour - 2m		Woodland		

### Vegetation Formations



Date: 25/01/2019

0 25 50 100  
Metres

**Figure 4: Bushfire Hazard Analysis and Asset Protection Zone**

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



### 3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for SFPP development. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

**Table 1: PBP bushfire protection measures**

Bushfire protection measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ setbacks from identified hazards.
Construction standards (BALs)	Application of BALs to new building works.
Access	Assessment to include access and egress, perimeter access and design standards of internal roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

#### 3.1 Asset protection zones (APZ)

Using the vegetation and slope information presented in Section 2 and mapped on Figure 4, APZs suitable for the development of a school have been calculated. The APZs have been mapped on Figure 4 and listed in Table 2 below.

The APZs comprise of adjoining land that is under a management regime that maintains the land in a state preventing regrowth until development occurs.

**Table 2: APZ determination**

Location <sup>1</sup>	Vegetation <sup>2</sup>	Slope <sup>3</sup>	Required APZ <sup>4</sup>	Required APZ <sup>5</sup>	APZ provided by:
North-west	Woodland	Downslope 0-5°	50 m	>60 m	Land managed and undergoing development
South	Forest	Downslope 0-5°	70 m	>100 m	As above
Remaining directions	Managed	Not required	Not required	>100 m	As above

<sup>1</sup> Direction of assessment from proposed development. Refer to Figure 4.

<sup>2</sup> Predominant vegetation classification over 140 m from the proposed development.

<sup>3</sup> Effective slope assessed over 100 m from the proposed development where the bushfire hazard occurs.

<sup>4</sup> Asset Protection Zone (APZ) required by Table A2.6 of Planning for Bushfire Protection 2006.

<sup>5</sup> Asset Protection Zone (APZ) provided by proposed and/or existing management arrangements.



### 3.2 Vegetation management and landscaping

The school site currently complies with the performance requirement of an Inner Protection Area (IPA) as described by PBP. Additional vegetation management or tree removal is not required.

Any proposed landscaping across the school site should comply with the principles listed within Appendix 5 of PBP.

### 3.3 Bushfire Attack Level (BAL)

As shown on Figure 4, three out of the five proposed buildings are rated BAL-12.5 in accordance with a Method 1 assessment under Australian Standard AS 3959-2009 *Construction of buildings in bushfire-prone areas* (AS 3959). The BAL extends outwards 100 m from the woodland remnant to the north, impacting three buildings.

It is therefore recommended that the three affected buildings be designed and constructed to comply with BAL-12.5. The NSW variation to AS 3959 is to be applied to BAL specifications. The variation can be found in the *Planning for Bushfire Protection Addendum Appendix 3 May 2010*.

As it is expected that the woodland to the north-west will be removed for impending development, an opportunity exists to revise the BAL assessment in due course and downgrade the BAL rating to BAL-LOW.

The two buildings located near the southern boundary and the hall are all greater than 100 m from a bushfire hazard. These buildings are therefore rated BAL-LOW. There is insufficient threat to warrant the application of specific construction measures for bushfire protection for buildings rated BAL-LOW.

### 3.4 Access

Pelican Drive (to be constructed) and Farmland Drive provide the public road access to the school site. Farmland Drive and connecting roads comply with the PBP Acceptable Solutions for the design and construction of public roads.

The buildings can be accessed from the street or via the access point in the north-eastern corner. Additional access provisions for bushfire protection are not required.

### 3.5 Water supply and utilities

#### **Water supply**

Hydrants are available along Farmland Drive on the northern boundary, and will be available along Pelican Drive that will form the western boundary. The distance between them and the most external point of the proposed buildings may exceed that required by PBP and AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419). The development will require the installation of hydrants on site to ensure a compliant coverage.



***Electricity supply***

Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).

***Gas supply***

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2008 The storage and handling of LP gas*.



## 4 Conclusion and recommendations

### 4.1 Conclusive summary

The proposal consists of a new primary school on land identified as bushfire prone. The bushfire hazard within 100 m of the school site will be removed in the near future once the adjoining lands are developed as part of the continuing progression of the Alex Avenue Precinct. Until such time, three out of the five buildings have been rated BAL-12.5 under AS 3959. The surrounding managed lands provide adequate managed separation from the few remaining bushfire hazards in the area.

With the adoption of the recommendations below, the proposed development will comply with *Planning for Bushfire Protection 2006* for Special Fire Protection Purpose (SFPP) development proposals on bushfire prone land.

### 4.2 Recommendations

The recommendations made within this assessment are repeated below:

1. Proposed landscaping should comply with the principles listed within Appendix 5 of PBP.
2. It is recommended that the three buildings within the north-western portion of the site are designed and constructed to comply with BAL-12.5 of AS 3959-2009 *Construction of buildings in bushfire-prone areas*. The NSW variation to AS 3959 is to be applied in addition to the BAL specifications. The variation is listed within *Planning for Bushfire Protection Addendum Appendix 3 May 2010*. The BAL can be revised to BAL-LOW once the woodland hazard to the north-west of the school site has been removed to a distance of at least 100 m from the proposed school buildings.
3. Hydrants are to be installed to achieve compliance with AS 2419.1 – 2005 *Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
4. Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).
5. Any gas services are to be installed and maintained in accordance with AS/NZS 1596-2008 *The storage and handling of LP gas* (Standards Australia, 2008).



David Peterson





# References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2006. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas*, AS/NZS 1596-2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2009 (Amendment 3). *Construction of buildings in bushfire-prone areas*, AS 3959, Third edition 2009, Standards Australia International Ltd, Sydney.

# Appendix 1 – Cl 44 Rural Fire Regs

**Table 3: Assessment against Clause 44 Rural Fires Regulation 2013**

<b>Clause 44 Rural Fires Regulation 2013</b>	<b>Assessment</b>
<i>For the purposes of section 100B (4) of the Act, an application for a bush fire safety authority must be made in writing and must include the following:</i>	
<i>(a) description (including the address) of the property on which the development the subject of the application is proposed to be carried out.</i>	Section 1 – Introduction.
<i>(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bush Fire Protection.</i>	Section 2.2 and Figure 4.
<i>(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property).</i>	Section 2.3 and Figure 4.
<i>(d) identification of any significant environmental features on the property.</i>	Not included – refer to EIS. Recommended bushfire protection measures will not impact any features in addition to the proposed development (i.e. land clearing, bulk earthworks, construction, landscaping and maintenance of the site as school grounds).
<i>(e) the details of any threatened species, population or ecological community identified under the Threatened Species Conservation Act 1995 that is known to the applicant to exist on the property.</i>	Not included – refer to EIS. Recommended bushfire protection measures will not impact any features in addition to the proposed development (i.e. land clearing, bulk earthworks, construction, landscaping and maintenance of the site as school grounds).
<i>(f) the details and location of any Aboriginal object (within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property.</i>	Not included – refer to EIS. Recommended bushfire protection measures will not impact any features in addition to the proposed development (i.e. land clearing, bulk earthworks, construction, landscaping and maintenance of the site as school grounds).



<b>Clause 44 Rural Fires Regulation 2013</b>	<b>Assessment</b>
<i>(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:</i>	
<i>(i) the extent to which the development is to provide for setbacks, including asset protection zones.</i>	Section 3.1. and 3.2 states that the site and surrounding land management provides the required APZs.
<i>(ii) the siting and adequacy of water supplies for fire fighting.</i>	Section 3.5 states that the school will require a compliant hydrant system as per AS 2419. This is also a requirement of the NCC.
<i>(iii) the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency.</i>	Section 3.4 states that the public roads servicing the site (designed and constructed to comply with PBP) are adequate.
<i>(iv) whether or not public roads in the vicinity that link with the fire trail network have two-way access.</i>	Not applicable. A fire trail network is not required. All public roads in the vicinity are two-way.
<i>(v) the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response.</i>	Section 3.4 states that the public roads servicing the site comply with PBP and are therefore adequate.
<i>(vi) the adequacy of bush fire maintenance plans and fire emergency procedures for the development site.</i>	Section 3.2 states the requirement to maintain the school site as an Inner Protection Area (IPA) and in accordance with Appendix 5 of 'Planning for Bushfire Protection 2006'. There are no emergency procedures set at this stage in the planning process. The RFS will list the requirement for the preparation of a 'Bushfire Emergency Management and Evacuation Plan' on the Bush Fire Safety Authority that will be issued. The plan is to be prepared prior to occupation.
<i>(vii) the construction standards to be used for building elements in the development.</i>	Section 3.3 lists those buildings that are required to comply with BAL-12.5 (AS 3959), and those that do not require a BAL.
<i>(viii) the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.</i>	Other measures listed not included in the above are requirements (recommendations) include electricity and gas supply installation (refer to Section 3.5).

Clause 44 Rural Fires Regulation 2013	Assessment
<i>(h) an assessment of the extent to which the proposed development conforms with or deviates from the standards, specific objectives and performance criteria set out in Chapter 4 (Performance Based Controls) of Planning for Bush Fire Protection.</i>	Section 4.1 includes a statement of conformance.
<i>Sections (2) and (3) of Clause 44 do not apply to the proposal.</i>	



