



## **Planning Assessment Report**

### **Request to modify the Minister's approval for the Southern Highlands Regional Shooting Complex - MP 06-0232 Mod 4**

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#### **1 MAJOR PROJECT APPROVAL HISTORY**

On 1 March 2010, the previous Minister for Planning approved a project application for the Southern Highlands Regional Shooting Complex, at Wattle Ridge Road, Hill Top subject to conditions, for the following:

1. Retention of the existing rifle range (800m) and ancillary facilities;
2. An additional rifle range (500m x 100m);
3. A new pistol range (50m x 140m);
4. A new combined rifle and pistol shooting range (200m x 85m);
5. A new shotgun range;
6. An new indoor air range (21m x 17m x 6.5m); and
7. New supporting facilities and infrastructure including:
  - Clubhouse and toilet facilities
  - Internal access roads
  - Diesel generator, solar panels, water supply tanks and septic system
  - Sealed parking for approximately 180 cars
  - Ponds for water quality control and fire fighting purposes

The approval allowed the use of the existing 800m range to increase from 2 to 4 days per week subject to noise limits. The new outdoor ranges were permitted to operate 4 days per week, and the indoor range was permitted to operate 7 days per week.

Stage 1 of the shooting complex will consist of the first 3 ranges (the existing 800m range, new 500m rifle range, and 50m pistol range) and new supporting facilities and infrastructure. Construction of the remaining 3 ranges (200m combined range, shotgun range and indoor air range) will be subject to future funding agreements.

On 23 October 2010, the approval was modified under section 75W of the Act, amending the location of the 500m and 200m combined rifle and pistol ranges, and adjacent sedimentation ponds, to be approximately 100m closer to Wattle Ridge Road. This was to rectify the incorrect location of land clearing for these ranges.

On 1 December 2010, the approval was further modified under section 75W of the Act by amending one of the approved plans, which showed the incorrect location of the 50m pistol range.

On 16 February 2011, the approval was further modified under section 75W of the Act by including two sign-in control booths for the 500m rifle and 50m pistol range, and use of the clubhouse building footprint for overflow car parking.

## 2 THE PROPOSED MODIFICATION

The Department of Education and Communities – Sport and Recreation (the proponent) seeks approval to modify the following conditions of the project approval, as updated in the Preferred Project Report submitted on 24 November 2011:

### (a) Condition A9 – Firearm Noise Limits

The proposal seeks to modify the condition as follows:

- Increase the maximum permitted noise level of the 800m rifle range from 75dB(Lin) peak hold to 80dB(Lin) peak hold.
- Noise levels to be arithmetic averages.
- Require a specific methodology for noise monitoring to ensure consistency for future testing. This is to include specific noise monitoring locations, minimum number of shots to be fired, and wind conditions.

### (b) Condition D4 – Acoustic Shelters

The proposal seeks to modify this condition by deleting the need for acoustic shelters at the 800m firing point at the existing 800m range, which are considered to be of limited benefit.

### (c) Condition A6(d) – Use of the Existing Range

The proposal seeks to modify this condition by increasing the time period for noise compliance testing reports for the existing range to be placed on a website, from 7 days to 14 days.

## 3 ASSESSMENT PROCESS

### Repeal of Part 3A

Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act), as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the Act, continues to apply to transitional Part 3A projects, which includes approved projects.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the modification to the approved project under section 75W of the Act.

### Statutory Process

Section 75W(2) of the Act provides that a proponent may request the Minister to modify the approval of a project. The Minister's approval is not required if the project as modified will be consistent with the original approval.

The proposed modification seeks to change the terms of the previous Minister's determination by amending conditions of approval that relate to noise levels, noise monitoring reports and acoustic shelters. Accordingly, the modification will require approval.

Section 75W(3) of the Act provides the Director-General with scope to issue environmental assessment requirements (DGRs) that must be addressed before the consideration by the Minister or his delegate. DGRs have not been issued for the modification because the potential impacts arising from the modification are addressed by the DGRs issued for the original project application. It is considered that the nature of the impacts arising from the proposed modification are similar to the original proposal, and that no further assessment requirements are necessary.

Section 75W(4) of the Act gives the Minister the authority to modify the approval (with or without conditions) or disapprove the modification. The Minister has delegated the authority to determination the application to the Planning Assessment Commission by way of a special delegation dated 4 December 2011. Following consideration of the proposed modification (see below), the Department recommends the modification be approved subject to conditions.

#### Public Exhibition

Modifications are not required to be publicly exhibited, however as the proposed changes to the firearm noise levels could potentially impact adjoining residences, a public exhibition was held. The application was placed on exhibition from 15 June 2011 until 15 July 2011. The request for the modification was also placed on the Department's website in accordance with Clause 8G of the *Environmental Planning and Assessment Regulation 2000*. A total of 41 submissions were received from organisations and households, including 3 submissions in support. Two submissions were received from agencies (see discussion at Section 7 of this report).

#### Response to Submissions

A response to the submissions, and issues raised by the Department was submitted on 24 November 2011 which is referred to in this report as the Preferred Project Report (PPR). A copy of the PPR was placed on the Department's website on 25 November 2011. In summary, the changes to the original application are:

- Condition A9 – Firearm noise limits
  - Reduction of the proposed maximum noise level for the 800m rifle range from 85dB(Lin) peak hold to 80dB(Lin) peak hold.
  - Change the proposed noise levels to be expressed as arithmetic averages rather than logarithmic averages.
  - Specify the locations for the noise measurement to be undertaken, using GPS coordinates, as well as number of shots to be fired and wind conditions.
- Condition A6(d) - Use of Existing 800m Range
  - Reduce the proposed time period for noise compliance testing reports to be placed on a website, from 30 days to 14 days.

## **4 THE SITE**

### **4.1 Location**

The Southern Highlands Regional Shooting Complex site is located on the southern side of Wattle Ridge Road, approximately 5.5km north-west of the centre of Hill Top, within the Wingecarribee Shire local government area (refer to Figure 1).

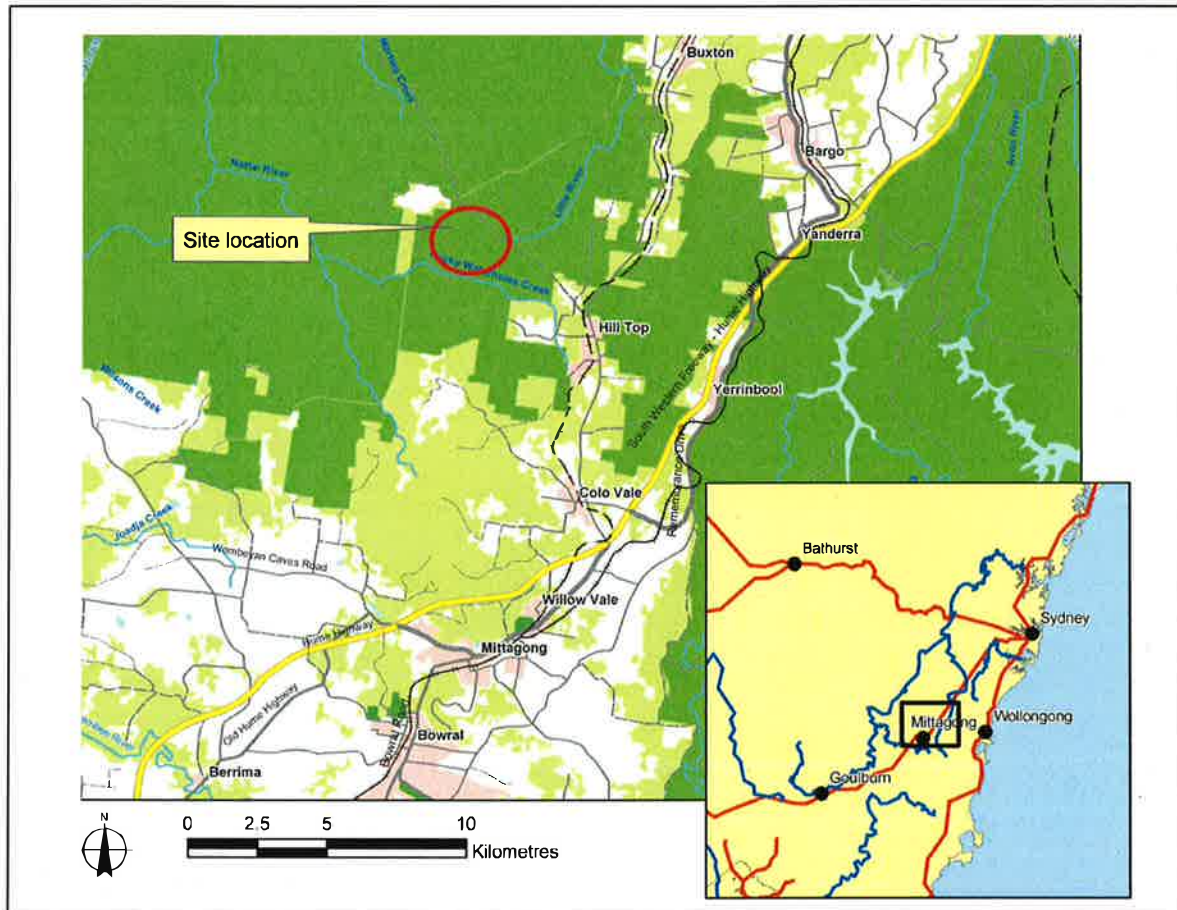
### **4.2 Existing 800m Range**

On 26 September 1986, Wingecarribee Shire Council approved Development Application 6100-4-407/86 for an 800m rifle range at Hill Top. The consent approved shooting on Saturdays and Sundays between 9.00am and 5.00pm, and permitted up to 25 shooters per day, and up to 36 shooters for competition days. A small clubhouse, amenities block and internal roads were also approved.

The consent did not place a restriction on firearm noise levels, types of firearms or shooting disciplines that could be used on the range. However the types of firearms and events held at the range are controlled by a licence issued by the NSW Police Firearms Registry.

On 28 May 2008, Council approved a Section 96 modification to change the number of shooters per day to a maximum of 12, and competitions 2-4 times a year with a maximum 40 shooters per day. The modification increased the starting time to 10am.

The proponent has confirmed that the range was first used in October 1988.



*Figure 1. Location of the Southern Highlands Regional Shooting Complex*

### **4.3 Surrounding Development**

The Bargo State Conservation Area surrounds the northern, eastern and southern boundaries of the site. The Nattai National Park adjoins the western boundary, which forms part of the greater Blue Mountains World Heritage Area. The Wattle Ridge pastoral property adjoins the north-western corner of the site, and a cleared TransGrid electricity easement runs along the eastern boundary. Residential dwellings in Hill Top are located approximately 3km east and south-east of the existing range.

## 5 FIREARM NOISE

### 5.1 Measuring Firearm Noise

There are different methods for measuring different types of noise. Linear peak hold (dB(Lin) peak hold) is the noise indice used to measure short, sharp noises such as firearms. Projectiles from firearms usually travel at speeds greater than that of sound and the impact on the ear is akin to a shock wave vibration. This effect on the human ear is different to other environmental noise such as traffic, air conditioners etc, which are measured on the "A" weighted scale (reported as dB(A)). These different types of noises are not easily comparable. For example an L(max) level of traffic noise measured at 75dB(A) is not the same noise level as firearm noise measured at 75dB(Lin) peak hold. For this reason, firearm noise is expressed as dB(Lin) peak hold in this report. In addition, unlike the type of noise measured on the "A" weighted scale, the noise level produced by firearms does not necessarily increase if several shots are fired at once.

### 5.2 Environmental Noise Control Manual

Chapter 164 – Target Shooting Ranges of the Environmental Noise Control Manual (ENCM) provides guidelines for firearm noise from shooting ranges. The document was published by the Environmental Protection Authority (EPA) in 1985, but is no longer in print. As no replacement controls have been adopted, it is considered to be the most relevant document for the consideration of firearm noise in NSW. This view is supported by the Office of Environment and Heritage (OEH).

The ENCM guidelines do not provide a maximum noise level for shooting ranges, rather, it specifies usage rates of ranges be limited according to the measured noise level at residential dwellings, as shown in the table below:

**Table 1: ENCM guidelines for target shooting ranges**

Residential Level dB(Lin) Peak Hold											
	60	65	70	75	80	85	90	95	100	105	>105
Maximum Usage – Days/Nights per week											
Existing range daytime use	7	7	7	7	7	7	5	4	3	2	1
Existing range night time use	3	3	2	2	2	1	-	-	-	-	
Future range daytime use	7	5	5	4	3	2	1	-	-	-	
Future range night time use	3	2	1	-	-	-	-	-	-	-	

According to the ENCM guidelines, daytime is 10am to 5pm, and night time is 5pm to 10pm.

The guidelines state that existing ranges should incorporate a movement towards the "future range" figures where possible.

### 5.3 Major Project Application – Firearm Noise Assessment

As part of the Major Project application for the expanded shooting complex, a noise assessment was prepared by the proponent's noise consultant, GHD, to identify noise from the existing 800m range and to predict future noise levels. There is no record of any noise testing having been carried out for the range prior to the testing conducted by GHD in February 2007.

Shots were fired from the 100m position on the existing 800m range. It was considered by GHD that this would result in the greatest noise impact on residential properties, due to the topography and proximity to those residences. Certain rifles only available for use by the Australian Army (7.62mm and SR98 sniper rifles) were also tested as the Army occasionally uses the range. The loudest standard-use firearm was recorded at 71dB(Lin) peak hold, and the loudest military firearm was recorded at 73dB(Lin) peak hold.

During the course of the major project assessment, an Independent Hearing and Assessment Panel (IHAP) was established to review the proposal and consisted of Mr Ian Armstrong (chair), Mr Najah Ishac (noise expert) and Mr Vince Berkhout (planning expert). The Panel was to consider a number of key issues relating to the proposal, namely noise impacts, as well as impacts on residential amenity, operations management of the shooting complex, and ongoing management and mitigation of environmental impacts on the whole site. A public meeting was held in Hill Top on 30 May 2008.

The IHAP report included a number of recommendations to minimise the impacts of the proposal on the environment and surrounding residents. This included a recommendation that noise from firearms must not exceed 75dB(Lin) peak hold at the boundary to any existing or possible future private property with a dwelling, and that as a result, the shooting complex be limited to 4 days per week in accordance with the ENCM guidelines for "future ranges". The 75dB(Lin) peak hold noise level was based on the noise testing undertaken by the proponent's noise consultant, where firearm noise levels at residences did not exceed this level. The application of the "future ranges" rates were considered appropriate given the increase in shooting activities at the site. Conditions of approval for the project included this recommendation.

#### 5.4 Noise Monitoring and Compliance

The project approval included Condition A6 for noise monitoring to be undertaken for the 800m range, which could be used prior to the construction and use of the new ranges. Testing was required to be on a quarterly basis for the first year, and annually therefore to demonstrate compliance with the noise levels.

The noise monitoring for the 800m range has been undertaken by the proponent's original noise consultant (GHD), and more recent consultant, The Acoustic Group (TAG). The noise monitoring recorded noise from firearms shot at a greater number of positions along the range than the original testing, including the 800m firing point which is the furthest distance from the targets on the range.

Table 2 below shows the loudest shot recorded on each occasion, the shooting position this was fired from, and the number of shots, number of shots recorded above 75 dB(Lin) peak hold, and average noise level of shots from this position. These figures were recorded when the loudest rifles (.308, .303 and .223 calibres) used at the range were being fired.

**Table 2: Maximum noise of shots from compliance noise testing**

Testing date	Loudest shot dB(Lin)peak hold	Shooting position	Number of shots fired	Number of shots >75dB (Lin) peak hold	Arithmetic Average (dB (Lin) peak hold)
June 2010 (GHD)	81.4	800m	6	3	77.08
Oct/Nov 2010 (TAG)	80	300m	59	14	71.88
	80	200m	7	3	73.57
Jan 2011(TAG) (Day 1)	83	500m	388	2	64.34
Jan 2011(TAG) (Day 2)	88	500m	307	58	68.85



The TAG report notes that wind was affecting results on the second day of testing in January 2011 when the 88dB(Lin) peak hold level was recorded, and therefore may not be accurate.

It is noted that the majority of shooting produced a noise level below 75dB(Lin) peak hold.

The noise recorders for these maximum readings were in similar locations, at the two ends of Rocky Waterholes Creek Road and Starlight Place.

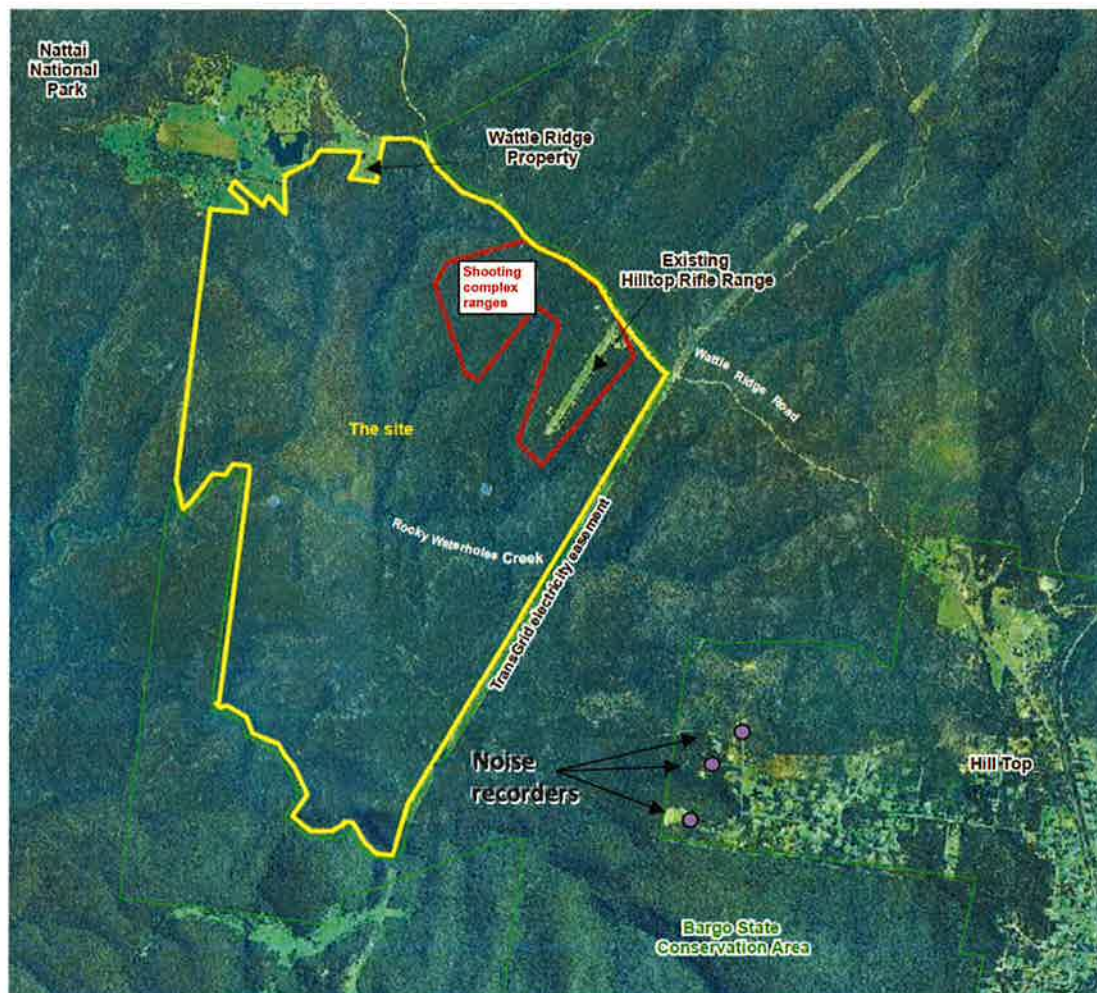


Figure 2. Shooting complex site (including the existing 800m range) and noise recorder locations in Rocky Waterholes Creek Road and Starlight Place.

## **6 ASSESSMENT**

### **6.1 Averaging of Noise Levels**

The proponent is requesting that the noise levels for the shooting complex be specified as being an average noise level as this is considered to be standard practice.

The Office of Environment and Heritage (OEH) submission on the modification application advised that the advice note issued by the Environmental Protection Authority in 1993 to accompany the ENCM guidelines states that noise levels are to be expressed as an arithmetic average. This is obtained by adding all the noise readings for each recorded shot, and dividing this figure by the total number of recorded shots.

The proponent originally requested that the noise levels be expressed as a logarithmic average, as the noise scale is logarithmic. This would result in a higher average noise level being recorded compared to an arithmetic average, however the difference is likely to be only a few decibels. In response to comments by OEH and the noise report by Renzo Tonin and Associates commissioned by the Hill Top Resident's Action Group, the proponent revised the proposal to use arithmetic averaging. This is consistent with the EPA advice note, and it is therefore recommended that arithmetic averaging be used to measure noise from the existing and new ranges.

### **6.2 Firearm Noise Levels**

The proponent's noise consultant, The Acoustic Group (TAG), is of the opinion that there were flaws in GHD's noise report submitted with the project application, including only measuring noise of standard use (non-military) firearms from the 100m firing position. This was assumed by GHD to be the worst case position as it was closest to dwellings and was a more elevated position. However the post approval noise monitoring recorded noise from firearms shot at various positions on the range which exceeded 75dB (Lin) peak hold. This included high calibre .308 rifles which have been used on the range since 1988. The TAG report explains that firearms shot at distances further from dwellings produce more noise due to the way the firearm noise travels.

As a result, the proponent is seeking to increase the noise level for the 800m range to 80dB (Lin) peak hold, as an average, to permit the use of high calibre firearms on the range and continue using the range for four days a week as approved in the project application.

The Department has reviewed the noise monitoring reports for the 800m range and identified the highest average noise level recorded to be 77.28dB(Lin) peak hold, on 19 June 2010, recorded at the northern end of Rocky Waterholes Creek Road and fired from the 800m position (this figure is not in Table 1 of this report as the loudest shot was not recorded at this location). Therefore a maximum average noise level of 80dB(Lin) peak hold is considered to be representative of the noise from the range, and is considered reasonable provided the usage of the range is decreased to 3 days per week in accordance with the ENCM guidelines. Future testing required by the approval will ensure compliance with this noise level.

The proponent submits that the "existing range" criteria should apply and the 800m range be permitted to be used for 4 days a week. The reasons for this include that shooters have been using the range for the last 25 years without incident, that every weekend is booked, that when the Malabar range is closed there may be increased demand from shooters to use the range, and that it would make it harder for shift workers and others who cannot shoot on weekends to use the range. Concerns were also raised that it will restrict Army use of the range, which can only occur when there are no civilians in attendance.



The Department does not support the use of “existing range” criteria for a number of reasons. Use of this criteria would translate into use of the range for up to 7 days per week under the ENCM guidelines. The Council issued the consent in 1986, after the ENCM guidelines were published in 1985. The consent restricted use of the range to 2 days per week and limited the number of shooters each day (25 shooters per day, and up to 36 shooters for competition days). Both the IHAP and the Department considered that firearm use was intensifying and therefore the “future range” criteria was appropriate. In any case, the ENCM guidelines states that existing use should transition to future use. For these reasons, the continued application of the future range criteria is considered to be justified and consistent with the ENCM guidelines.

The Department recommends that the new outdoor ranges continue to comply with the 75dB(Lin) peak hold noise level and operate 4 days per week in accordance with the ENCM guidelines. The 800m range shall be limited to operate for 3 of these 4 days.

The proponent stated in the modification application that “with the opening of the new 500m rifle range, only 3 of the present SHRSC Inc rifle clubs will continue to use the 800m range”, reducing the need to vary the ENCM guidelines for this range given the other ranges that will be available for use 4 days per week. It is noted that clearing for the 500m range has been completed and construction is nearing completion.

The Army have not submitted any details about their use of the range that would necessitate varying the project approval for their use of the shooting complex.

### **6.3 Noise Monitoring Methodology**

Condition A9 requires the measurement of the maximum noise level to be undertaken at the following locations:

*“...at the boundary to any existing private property with a residential dwelling, or where this is more than 30 metres from a dwelling, at the most affected location within 30 metres of the dwelling. This is to apply during prevailing weather conditions”.*

The proposed amendment is to ensure a consistent methodology each time noise monitoring occurs.

The changes proposed are as follows:

- Specify the location for 4 noise monitoring locations using GPS coordinates. These are at both ends of Rocky Waterholes Creek Road (A1 and A2), and the end of Starlight Place (A3) to the south-east of the complex. A fourth location is opposite the entrance of the rural property to the north-west of the shooting complex (A4A). Refer to Figure 3 below.
- The noise monitoring requires a minimum of 50 shots fired over a half hour period. The monitoring may be conducted at the 4 locations individually or simultaneously.
- Specify that testing be undertaken under still wind or light wind condition to avoid noise meters recording wind rather than firearm noise.

The four monitoring locations proposed are more than 30m from the dwellings closest to the ranges, as currently required in the approval. However monitoring at 30m, which would require access to private property or dense bushland in the Bargo State Conservation Area, is impractical. The proposed locations are publicly accessible, closest to the most affected dwellings, and in similar locations used for the original noise testing by GHD and the post approval noise monitoring (refer to Figure 3 below). Locations A1 and A3 are within approximately 100m of the dwellings closest to the shooting complex site. Location A2

provides an additional monitoring location for dwellings in this part of Hill Top. Location A4A is approximately 400m north of the main dwelling on this property, however is a similar distance from the 800m range as the main dwelling (just over 3km). The Department therefore considers these locations to be acceptable.

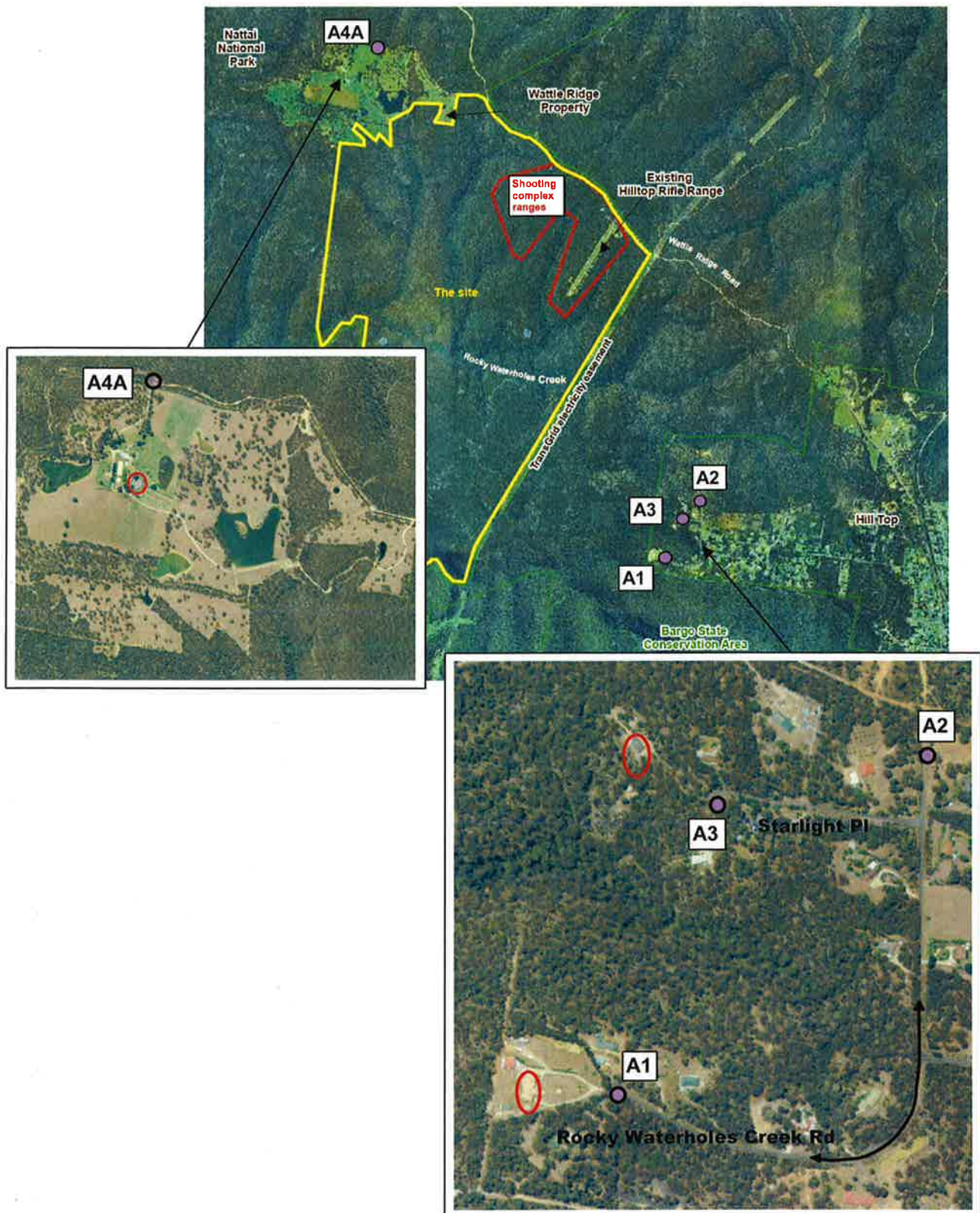


Figure 3. Proposed logger locations, and nearest dwellings to complex circled red

The Department also recommends that the noise testing be undertaken using the loudest firearms (ie .308 rifles) at the range to ensure the averages are not distorted by the use of quieter firearms.

Condition A6(c) – Use of the Existing 800m Range requires noise monitoring at the 800m range to be conducted quarterly for the first year following the project approval, and annually thereafter. The proponent states that as quarterly noise monitoring has been completed, noise monitoring should now revert to annual testing. The Department considers that as only three noise monitoring reports have been prepared for the first year, and that none of the noise monitoring reports has demonstrated compliance with the condition, further noise monitoring take place 3 months from the date of the modification approval, followed by annual testing thereafter. A condition has been recommended accordingly.

#### **6.4 Acoustic Shelters at the 800m Range**

The IHAP recommended that the proponent provide acoustically treated shelters at all external ranges, including the existing 800m range. This recommendation was adopted in the project approval as Condition D4.

The proponent is seeking to delete the requirement for an acoustic shelter to be constructed at the 800m range, as it is considered that the effect will be minimal. The acoustic shelter is considered to be of little benefit as it is only for 1 of 8 firing points on the range, and that the majority of shooting events on the range are not held at this position. The 800m firing point also does not necessarily produce the loudest noise from the range.

The proponent has also advised that once the 500m range (currently under construction) is opened, shooting at the 800m position is predicted to be 1 in every 8 weeks. Comments provided by TAG, Renzo Tonin and Associates, and OEH support the view that the shelter will have little benefit. The Department therefore recommends that the requirement for a shelter at the existing 800m range be deleted.

#### **6.5 Publication of Noise Monitoring Reports**

Condition A6 requires an Interim Operational Management Plan to allow the 800m range to be used before the new ranges have been completed. Sub-condition A6(d) requires the following:

*Compliance monitoring results for the shooting complex to be posted within 7 days on a website and submitted to the Department of Planning and to Council to allow for public access to this information.*

Condition D2 requires an Operational Management Plan for the operation of the new ranges. Sub condition D2(c) requires the following:

*Compliance monitoring results for the shooting complex to be posted within 7 days on a website and submitted to the Department of Planning and to Council to allow for public access to this information.*

The proponent is of the opinion that 7 days is not sufficient time to conduct noise monitoring, interpret the results, prepare a report and place it on a website. The proponent requests the time limit be increased to 14 days. The Department considers the additional time to be reasonable, and supports the proposed modification of this condition.

## **7 CONSULTATION**

The proposal was publicly exhibited for 31 days from 15 June 2011 until 15 July 2011. A total of 41 submissions were received from organisations and households, including 3 submissions in support. Two submissions were received from agencies.

The key issues raised in the submissions were as follows:

- The 800m range should not be considered as an existing range under the ENCM guidelines;
- Firearm noise is already loud, it used to be much quieter;
- Do not want the noise to be any louder than current levels;
- Will impact on quiet and peacefulness of the village;
- Concern about the independence of the noise consultant;
- Will lead to decreased property values;
- Impacts of the noise on pets and wildlife;
- Impacts of the noise on recreational users in National Parks;
- Noise of 110dB recorded on NPWS land which is dangerous to human hearing;
- The increase in the numbers of shooters (from 7 to up to 200 at once) will increase noise;
- Noise barriers should be constructed to reduce noise from the range;
- Residents can tell when the army are using the range as the noise is much louder.

The relevant issues have been considered in the assessment of the proposal in Section 6 of this report.

## **8 CONCLUSION**

The proponent has requested that the noise level for the 800m range be increased from 75dB(Lin) peak hold to 80dB(Lin) peak hold, as the noise level in the approval was based on an underestimation of the noise at the range. The modified noise level would allow high calibre rifles, such as .308 calibre rifles, which have been used on the 800m range since 1988, to continue to be used on this range.

The ENCM guidelines require that the number of days a range is used decreases the louder the firearm noise. Therefore an increase to 80dB(Lin) peak hold to allow these rifles to be used is acceptable, provided that the use of this range is decreased to 3 days per week to be consistent with the guidelines. The new outdoor ranges are expected to comply with the 75dB(Lin) peak hold level and can therefore be used for 4 days per week, ie. one additional day per week as the 800m range.

Modifying the maximum noise levels to be average noise levels, rather than absolute level, is consistent with the advisory note which supports the ENCM guidelines.

The standardisation of noise testing methodology, increasing the time for noise compliance reports to be uploaded to a website from 7 to 14 days, and the deletion of the acoustic shelter for the 800m range are not considered to result in any significant impacts and are also supported.

It is therefore recommended that the modification be approved, subject to conditions.



## 9 RECOMMENDATION


It is recommended that the Planning Assessment Commission, by way of delegation from the Minister for Planning and Infrastructure:

- (A) **consider** the previous Minister's project approval for the Southern Highlands Regional Shooting Complex dated 1 March 2010 and subsequent modification approvals;
- (B) **consider** all relevant matters prescribed under Section 75W of the Environmental Planning and Assessment Act, 1979 as contained in the findings and recommendations of the attached report;
- (C) **approve** the proposed modification under section 75W of the EP&A Act; and
- (D) **sign** the attached instrument of approval at Appendix A.

Director  
Strategic Assessment

  
Executive Director  
Urban Renewal and Major Sites

Deputy Director General  
Plan Making and Urban Renewal

  
Director General 13/2/2012.