NOTE: THIS IS A REDACTED COPY OF THE COURT'S REPORT AND ASSEMBLING AUTHORITY'S COMMENTS

COURT OF INQUIRY

(Army 5202/2/301)

Assembled by

BRIGADIER MARK WHEELER, ONZM,
LAND COMPONENT COMMANDER

into the circumstances in which

X1028259 PRIVATE MICHAEL VICTOR ROSS, RNZIR

was

DROWNED IN LAKE MOAWHANGO WHILE ON EXERCISE

in the

WAIOURU MILITARY TRAINING AREA

on

25 SEPTEMBER 2012

NOTE: THIS IS A REDACTED COPY OF THE COURT'S REPORT AND ASSEMBLING AUTHORITY'S COMMENTS

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ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY

REVISED 2009
MD 634

ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY

Orders by Brigadier Mark Wheeler, ONZM, Land Component Commander
Service description and appointment of assembling authority

A court of inquiry consisting of the following persons is to assemble at the Officers' Mess, Waiouru Military Camp
Place

on 27 September 2012 at 0900 hours for the purpose of collecting and recording evidence on:[1]
Date *Time*

the circumstances in which X1028259 Private Michael Victor ROSS, RNZIR was lost overboard from a boat on Lake Moawhango in the Waiouru Military Training Area on 25 September 2012

(and reporting and commenting)[2] ~~(and making a declaration under section 201 of the Armed Forces Discipline Act 1971)~~[2] as required by the terms of reference below.

President[3] F991581 Lieutenant Colonel J.P. Kaio, RNZAC

Member[4] Lieutenant Commander P.J. Rowe, RNZN

Counsel assisting[5] V1019287 Captain M.A.R. Mercer, BA, LL.B, NZALS

The president is to order or summon the witnesses to attend in accordance with section 200I of the Armed Forces Discipline Act 1971.[6] Upon completion the president is to forward the record of proceedings to the assembling authority.

The court is to have regard to sections 200M and 200N of the Armed Forces Discipline Act 1971 at all times. The court is to read DM 69 (2 ed) Volume 1 Chapter 11 Section 2 before commencing its inquiry.

TERMS OF REFERENCE[7]

See attached Terms of Reference.

Dated at Trentham on 26 September 2012.
Place *Date*

Signature of assembling authority

Brigadier
Rank

Land Component Commander
Appointment

---

[1] Insert a short description of the matter to be inquired into.
[2] Delete the words in parentheses if inapplicable.
[3] Insert full Service description of the officer appointed as president.
[4] Insert full Service description of the officer(s) and/or warrant officers and/or the members of the Civil Staff appointed as members.
[5] Insert full Service description of the officer appointed as counsel assisting, if appointed.
[6] A summons is to be in form MD 637.
[7] Specify the terms of reference. If necessary attach an additional page.

TERMS OF REFERENCE

You are to consider and report on the following:

Background

1. Outline briefly the service history of X1028259 Private Michael Victor ROSS.

2. When, where, and at what time did the incident occur (enclose maps and photographs if available)?

3. What were the weather and lake conditions at the time of the incident?

4. What activity was Private ROSS participating in at the time he was lost overboard?

5. Describe in chronological order the events leading up to the incident that are, in the Court's view, relevant to the loss of Private ROSS overboard.

Safety in New Zealand Army Small Boat Operations

6. Was an appropriate safety briefing provided to the personnel participating in this activity before it commenced?

7. How was Private ROSS equipped at the time he was lost overboard? Was he provided with adequate safety equipment for a water-borne activity? Make recommendations as to any enhancements of water safety equipment for New Zealand Army water-borne activities that should be made.

8. Was Private ROSS correctly wearing any water safety equipment provided? If not, why not?

9. Describe the boat which was being used in the context of the activity in which Private ROSS was lost overboard. Is that class of boat fit for purpose? If not, make recommendations as to what class of boat should be used in training activities to prepare New Zealand Army personnel for service in the Joint Amphibious Task Force.

10. Were the personnel taking part in this activity adequately trained in water safety? Make recommendations as to any enhancements of such training which should be made.

11. Was Private ROSS a competent swimmer? What steps are taken to ensure that all New Zealand Army personnel participating in water-borne activities are competent swimmers?

12. Was the activity in which Private ROSS was lost overboard conducted in accordance with relevant orders and instructions? Make recommendations as to any enhancements of such orders or instructions which should be made.

13. Comment on the overall adequacy of the planning and conduct of this activity.

14. Could the loss of Private ROSS overboard have been prevented and, if so, how?

15. Is it likely that an offence against the AFDA has been committed? (NOTE: You cannot comment whether, in fact, an offence has been committed only that there is the possibility of such).

16. Was there any damage or loss to service property and if so what was damaged or lost and what was the extent of that damage or loss?

17. Are there any recommendations as to changes that can be made to NZDF practices and procedures that may prevent an occurrence of similar incidents?

18. Are there any other lessons than can be learnt that the Court of Inquiry considers relevant to the development of the Enhanced Infantry Company, or the Joint Amphibious Task Force?

19. Are there any other matters which the Court of Inquiry considers relevant to this matter?

REVISED 2009
MD 634

ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY

Orders by Brigadier Mark Wheeler, ONZM, Land Component Commander

A court of inquiry consisting of the following persons is to assemble at Officer's Mess, Linton on 22 January 2013 at 0900 hours for the purpose of collecting and recording evidence on:[1]

> The circumstances in which X1028259 Private Michael Victor ROSS, RNZIR was lost overboard from a boat on Lake Moawhango in the Waiouru Military Training Area on 25 September 2012.

(and reporting and commenting)[2] (and making a declaration under section 201 of the Armed Forces Discipline Act 1971)[2] as required by the terms of reference below.

President[3] F991581 Lieutenant Colonel J. P. Kaio, RNZAC

Members[4] F1019710 Lieutenant Commander P. J. Rowe, RNZN

Counsel assisting[5] V1019287 Captain Mike Mercer, NZALS

The president is to order or summon the witnesses to attend in accordance with section 200I of the Armed Forces Discipline Act 1971.[6] Upon completion the president is to forward the record of proceedings to the assembling authority.

The court is to have regard to sections 200M and 200N of the Armed Forces Discipline Act 1971 at all times. The court is to read DM 69 (2 ed) Volume 1 Chapter 11 Section 2 before commencing its inquiry.

TERMS OF REFERENCE[7]

Unchanged from the Terms of Reference of 26 September 2012

Dated at Trentham *Place* on 18 January 2013 *Date*

Signature of assembling authority

BRig

Rank

LCC

Appointment

---

1 Insert a short description of the matter to be inquired into.
2 Delete the words in parentheses if inapplicable.
3 Insert full Service description of the officer appointed as president.
4 Insert full Service description of the officer(s) and/or warrant officers and/or the members of the Civil Staff appointed as members.
5 Insert full Service description of the officer appointed as counsel assisting, if appointed.
6 A summons is to be in form MD 637.
7 Specify the terms of reference. If necessary attach an additional page.

ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY

AMENDMENT NO. 1

Orders by Brigadier M. Wheeler, Land Component Commander

WHEREAS on 26 September 2012 a Court of Inquiry was assembled on my behalf for the purpose of collecting and recording evidence on the circumstances in which X1028259 Private Michael Victor ROSS, RNZIR was lost overboard from a boat on Lake Moawhango in the Waiouru Military Training Area on 25 September 2012:

AND WHEREAS I have now noted an error in assembling a new Court of Inquiry on 18 January 2013:

AND WHEREAS I am aware a member of the Court of Inquiry is no longer available to assist the Court:

AND WHEREAS I require the Court of Inquiry to reassemble:

NOW THEREFORE I hereby vary the order assembling the court of inquiry pursuant to section 200C(2) of the Armed Forces Discipline Act 1971, as follows:

a. **Revoke** the order for the assembly of a Court of Inquiry dated 18 January 2013;

c. **Direct** the Court of Inquiry to reassemble as of 13 May 2013.

Dated at Trentham on 13 May 2013

M. WHEELER
Brigadier
Land Component Commander

STATEMENT UNDER AFDA S200G

1. The Court was unable to assemble in accordance with MD 634 issued by Brigadier M. Wheeler ONZM, Land Component Commander dated 26 September 2012. The reason was that the Court members had to travel from disparate locations to get to Waiouru. The Court was fully assembled by 1400 on 27 September 2012, five hours late.

2. The Court of Inquiry was reopened by the Land Component Commander via order dated 18 January 2013 and was to assemble on 22 January 2013 in Linton. Due to the short notice and previous engagements the Land Component Commander gave verbal approval to the President for this to be delayed until 30 January 2013.

3. The Court of Inquiry was reopened by the Land Component Commander via an order dated 13 May 2013 and assembled on 13 May 2013 in Waiouru until 20 May 2013.

STATEMENT OF COMPLIANCE WITH AFDA S 200N

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WITNESSES

1.	Soldier A
2.	Soldier U
3.	Soldier B
4.	Soldier C
5.	Soldier D
6.	Soldier E
7.	Soldier K
8.	Soldier L
9.	Soldier M
10.	Soldier N
11.	Civilian A
12.	Soldier O
13.	Soldier F
14.	Soldier I
15.	Soldier G
16.	Soldier P
17.	Doctor A
18.	Soldier Q
19.	Soldier J
20.	Soldier R
21.	Soldier S
22.	Soldier T
23.	Sailor A
24.	Soldier V
25.	Soldier W
26.	Civilian B
27.	Airman A
28.	Doctor B
29.	Soldier X
30.	Sailor B
31.	Sailor C
32.	Sailor D
33.	Soldier Y
34.	Soldier Z
35.	Civilian C
36.	Sailor E
37.	Civilian D
38.	Soldier AA
39.	Sailor F
40.	Civilian E
41.	Soldier BB
42.	Soldier H
43.	Soldier CC
44.	Soldier DD
45.	Sailor G
46	Civilian G
47.	Soldier EE
48.	Soldier FF

ACRONYMS

AFDA	Armed Forces Discipline Act 1971
DFO	Defence Force Order
EIC	Enhanced Infantry Company
HUET	Helicopter Underwater Evacuation Training
LFF	Live Field Firing
MBIE	Ministry of Business, Innovation and Employment
NZDF	New Zealand Defence Force
NZSAS	1st New Zealand Special Air Service Regiment
OLOC	Operational Level of Capability
RNZE	Corps of Royal New Zealand Engineers
RNZIR	Royal New Zealand Infantry Regiment
WMTA	Waiouru Military Training Area

EXECUTIVE SUMMARY

Background

1. Private Ross was a member of 2 Platoon, Alpha Company, 1st Battalion Royal New Zealand Infantry Regiment ('RNZIR'). The Company that he belonged to was the key component of a new capability known as the Enhanced Infantry Company ('EIC') of the New Zealand Defence Force ('NZDF'). The EIC was engaged in training as part of Exercise BUNNY 1 on Lake Moawhango ('the Lake'). Exercise BUNNY 1 was scheduled to take place over the period 24 September to 5 October 2012. The purpose of the training was to reinforce the Enhanced Infantry Company skill sets though the conduct of advanced training focussed on Amphibious Live Field Firing ('LFF'), Explosive Breaching and Urban Searching. This exercise was developed to consolidate skills that had been taught throughout the year and to improve combat effectiveness.

2. On 25 September 2012, Private Ross' platoon was conducting Amphibious Live Firing in the Waiouru Military Training Area ('WMTA') on and around Lake Moawhango. This involved blank firing contact drills from Marine Command FC 470 Zodiac inflatable boats ('Zodiacs') on the western side of the Lake in the morning and then Live Field Firing drills on the east side of the Lake in the afternoon.

3. At approximately 1630 hours the Live Field Firing was halted and the participants packed up, and proceeded to return back to the boat ramp at 1700 hours, which was the administration area for the training on the Lake. As Private Ross was travelling across the lake, onboard a Zodiac, he fell overboard and drowned. Attempts were immediately made to recover Private Ross but these were unsuccessful. Private Ross was recovered from the Lake on 2 October 2012.

Causes

4. The Court finds that Private Ross fell overboard from the Zodiac. This occurred due to a combination of events occurring almost simultaneously as he was adjusting his position in the Zodiac. The bow of the Zodiac flexed upward excessively forcing him to move rearward and as he was doing so the boat decelerated. Almost immediately the bow 'snapped' forward creating a *bouncy castle* effect causing him to lose his balance. This effect was caused by the following factors:

a. The Zodiac was under-inflated; and

b. The sea state of the Lake was choppy.

5. Once in Lake Moawhango, Private Ross drowned. The Court finds that this occurred as:

a. Private Ross' RFD Type 60B Life Jacket failed to deploy because the CO_2 canister was empty.

b. Private Ross was weighed down by his equipment.

c. The safety boat was unable to recover Private Ross, despite an attempt to do so using a boat hook. This was aggravated by having only one person onboard, instead of the three personnel required.

d. Attempts to rescue Private Ross by his colleagues who jumped into the Lake from his Zodiac were unsuccessful.

6. The Court further finds that the following facts aggravated the situation, albeit they were not the immediate cause of this accidental death:

a. The cold temperature of Lake Moawhango.

b. The safety boat travelled in advance of the Zodiac formation, however it arrived immediately, and a recovery attempt was commenced.

c. The life rings that were on the safety boat were not immediately available. Instead a boat hook was passed to Private Ross who made contact with it but was then separated as he moved towards the rear of the safety boat.

d. The impact of the safety boat lacking propeller guards cannot be established. The standard operating procedure to mitigate this was to place the gears in neutral and in this instance the Water Safety Officer was able to do so. The Court finds no evidence that the propellers struck Private Ross, however it is possible that he let go of the boat hook out of a concern that this could occur.

e. A lack of coordination in the movement of the Zodiacs and Safety Boat.

f. The RFD Type 60B Life Jacket used by the EIC had only been issued recently prior to Exercise BUNNY 1 after failures of the New Zealand Army's Mustang Personal Flotation Device ('PFD'). The RFD Type 60B Life Jacket was not fit for purpose in accordance with the New Zealand Army equipment publication, as the weight of the soldier's personal equipment exceeded the RFD Type 60B Life Jacket specifications. However, it has subsequently been identified that the RFD Type 60B Life Jacket was in fact capable of providing sufficient buoyancy for Private Ross and his personal equipment. Other issues with the use of the RFD Type 60B Life Jacket have been identified:

(1) No formal training on the RFD Type 60B Life Jacket was conducted.

(2) Safety briefings on the correct use of the RFD Type 60B Life Jacket were conducted but these were not universal.

(3) Soldiers did not fully understand what to check for, when they uplifted their RFD Type 60B Life Jacket each time before embarking the Zodiac.

g. Defence Force Orders (Army) that deal specifically with watermanship were out of date, and had not kept pace with the emerging EIC capability.

h. Soldiers carried their weapons on their person, rather than securing them to the boat, as specified in Defence Force Orders (Army) for the security of weapons whilst boating.

Rescue and Recovery

7. The Court finds that once Private Ross fell overboard the man overboard procedures that had been briefed were largely implemented, with the exception that the safety boat conducted the initial recovery attempt rather than the Zodiac concerned. The Court considers that the use of the safety boat in the first instance was warranted and if it had been crewed by the required three safety staff then it is highly likely that the rescue would have been successful. Because the safety boat was not manned as prescribed in Defence Force Orders (Army), the Court considers that the Zodiac from which Private Ross fell should have been allowed to conduct the recovery of Private Ross in accordance with the man overboard drill which had been taught. The personnel from Private Ross' Zodiac made a valiant attempt to dive underwater to rescue Private Ross but were unsuccessful.

8. The Royal New Zealand Navy ('RNZN') Operational Dive Team and the New Zealand Police Dive Teams are to be commended for their efforts in locating and then recovering Private Ross.

Process

9. This inquiry was carried out over the period 27 September 2012 to 20 May 2013. Evidence from 46 witnesses and 68 exhibits has formed the basis of this report. It should be noted that the following separate investigations were conducted concurrently with this inquiry:

a. A Military Police investigation to identify any possible offences which might have been committed pursuant to the Armed Forces Discipline Act 1971;

b. A Ministry of Business, Innovation and Employment ('MBIE') investigation pursuant to the Health and Safety in Employment Act 1992; and

c. A coronial inquiry into the death of Private Ross.

10. The family of Private Ross was briefed on the Court's preliminary findings on 9 February 2013 and requested that further information about the injuries sustained to Private Ross' face be sought from the pathologist. This information has now been included in this report in order to clarify this particular issue.

11. Throughout the course of this inquiry, assistance has been provided to the Watermanship Working Group in order to allow for recommendations to be instituted as soon as possible in order to allow for amphibious operations training in the New Zealand Army to be continued.

12. This accident stemmed from personnel not adhering to the appropriate safety procedures. Minimal water safety briefs and minimal water safety inspections were typical of the events leading up to this incident. Any recommendations to improve procedures should include safety checks of a person's dress and equipment before taking part in any amphibious operations. An inspection check list should be produced and the use of these check lists enforced. This process will identify faulty or unserviceable equipment in order to prevent another tragedy like this occurring again. At the most basic level these safety checks should be conducted in pairs in the same manner as buddy checks for scuba diving, buddy checks for parachuting and buddy checks of webbing before conducting a fighting patrol.

13. All persons involved with the conduct of amphibious operations and training should undergo refresher and or corrective training immediately and should subsequently be warned that they will be held accountable for any lack of application of the rules and procedures in the future.

14. It is the opinion of the Court that both systemic and personal failures were involved in this accident. The Court identified a number of breaches of Defence Force Orders (Army), however these have been referred to the Military Police to be included within their investigation**.** Immediate remedial action is required to ensure that future NZDF small boating operations are conducted in a safe yet operationally focused manner.

REPORT OF THE COURT OF INQUIRY

General

1. The Court of Inquiry was carried out over the period 27 September 2012 to 20 December 2012. It then reported to the Assembling Authority. Following advice, the Assembling Authority ordered that the inquiry be re-opened and that the Court re-assemble on 22 January 2013. With the consent of the Assembling Authority, the re-assembly of the Court was delayed until 30 January 2013. The second session of the Court continued until 12 March 2013. The Court of Inquiry was again re-opened by the Assembling Authority on 13 May 2013 in Waiouru. The third session of the Court continued until 20 May 2013.

2. Evidence from 48 witnesses and 68 exhibits was considered.

Service history of X1028259 Private Michael Victor Ross

3. Private Ross joined the New Zealand Army on 19 August 2009 and completed his recruit training in December of that same year. On completion of his Combat Corps Training in April 2010 at Burnham Military Camp, Private Ross was posted to the 1st Battalion, Royal New Zealand Infantry Regiment ('RNZIR') as a Rifleman[1].

4. Private Ross undertook a variety of combat related courses and deployed to Timor Leste on Operation KORU over the period 14 May to 10 November 2011. Upon return to New Zealand, Private Ross was posted to Alpha Company, 1st Battalion RNZIR where he subsequently commenced training. Alpha Company was designated to develop the Enhanced Infantry Company. When Private Ross drowned on 25 September 2012 he was the Machine Gunner for 2 Section, 2 Platoon, Alpha Company.

5. Private Ross served for three years and 45 days in the Regular Force of the New Zealand Army[2].

Location and time of the incident

6. On 25 September 2012 Private Ross was conducting training as part of Exercise BUNNY 1 on Lake Moawhango ('the Lake'). This training saw his platoon conduct blank firing contact drills from Zodiac boats on the west side of the Lake in the morning and then Live Field Firing drills on the east[3] side of the Lake in the afternoon. At approximately 1700 hours the Live Field Firing was halted and the participants were informed to pack up their equipment and prepare to move back to the boat ramp (this was the administration area for the training on the Lake). At approximately 1739 hours[4] Private Ross fell from Zodiac 3 in the vicinity of

[1] Exhibit N.
[2] Exhibit R is a print-out from KEA showing the service history of Private Ross. The exhibit states that Private Ross served for 3 years and 47 days however the print-out was taken on 4 October 2013. The Court decided to calculate his service date from the day he was recovered on 2 October 2013 therefore explaining the discrepancy.
[3] Exhibit B.
[4] Witness 11, dated 14 May 2013, A2; Exhibit AX, recording 94.

36°46’.547S 174°47’.266E[5] whilst transiting back to the ramp. These key locations are shown in Figures 1 and 2.

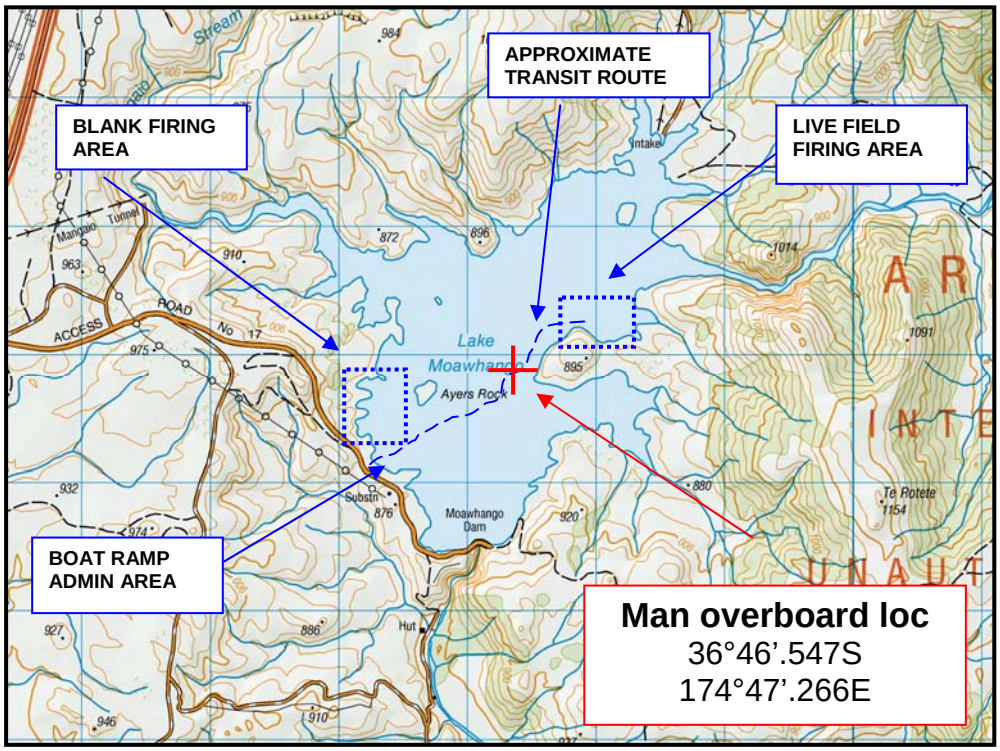

Figure 1: Key Locations 1

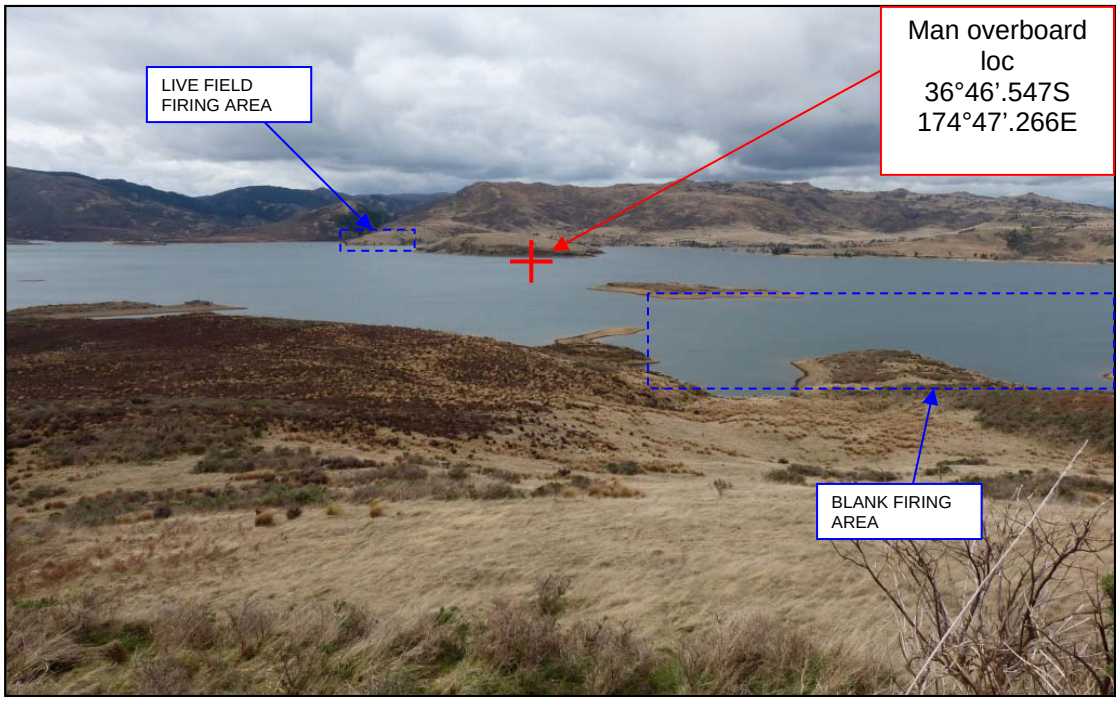

Figure 2: Key Locations 2

[5] Exhibit AJ, Annex A.

Weather and lake conditions at the time of the incident

7. The Royal New Zealand Navy ('RNZN') Mine Counter Measures REMUS unit measured the temperature of the lake as varying between 6 and 7ºC across the six day period it was deployed as part of the search and recovery operation.[6]

8. Figure 3 shows the 'Curve of Estimated Time against Water Temperature for which 50% of Unprotected Casualties May Expect To Survive Immersion'.[7] This is based on the probable survival times for unprotected casualties immersed in water of various temperatures.

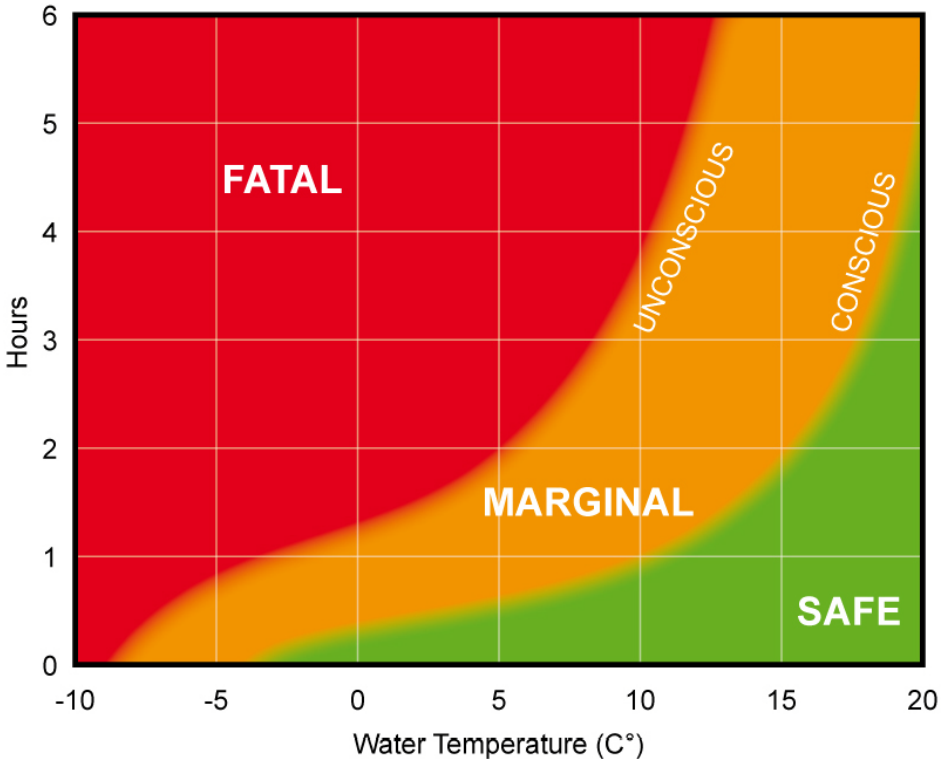

Figure 3: Estimated Time vs Water Temperature Model

9. No detailed weather forecast was obtained for the activities on Lake Moawhango for 25 September 2012.[8] However, the Court obtained meteorological data for that day from **(Redacted)**, RNZN, **(Redacted)**, Naval Warfare Development Centre.[9] This forecast is based on the actual Numerical Weather Picture (NWP) model run made during the week commencing 24 September 2012.[10]

10. There are no observations for Lake Moawhango however observations were available from Waiouru Airfield.[11] Figure 4 is a Global Forecast System (GFS) model which supports the airfield observations and this model indicates wind gusts exceeding 20 knots for short periods around the time of the incident.

[6] Witness 31 dated 30 January 2012, A2 and Exhibit AI.
[7] Exhibit AQ, Figure 6.1.
[8] Witness 6, 18 October 2012, A84 and A85; and Witness 13, 3 October 2012, A90.
[9] Witness 30 dated 30 January 2012 A3; Exhibit AAL.
[10] Exhibit AH.
[11] Exhibit AAL.

11. Based on the data available from the NWP and GFS, the Court finds that the weather for 25 September 2012 at Lake Moawhango was:

a. **Wind:** North to North Westerly 5 to 10 knots becoming Northerly late afternoon. Winds increasing to 15 to 20 knots early evening continuing to rise 20 to 25 knots by midnight.

b. **Weather:** Partly cloudy throughout the day becoming cloudy to overcast by late evening as a ridge moves moist air flow from the North over New Zealand.

12. Taking into consideration the wind, fetch and duration, sea state would have been no more than 2 (smooth (0.3 to 0.4m)).[12]

13. Based on the local topography stronger winds would be the result of funnelling through the ranges and the mixing down of winds at 2000ft. It is also quite likely that there may have been a night katabatic wind establishing, that would have assisted the strengthening of the wind.[13]

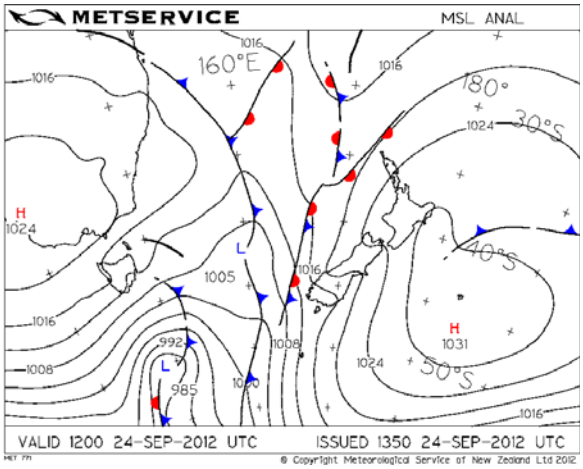

Figure 4: Valid: 0001 25 September 2012

14. Defence Force Orders (Army) ('DFO(A)') Volume 2, Book 1 Part 8 Chapter 3 paragraph 8154 states: "Before the commencement of training on open waters, a detailed maritime or local area weather report covering the training area is to be obtained." Paragraph 8121 of that chapter defines the term "open waters" as follows:

> Open Waters. Open waters means the open sea, large bays, harbours, lakes, and channels where the distance between shorelines is greater than five kilometres.

15. The Court finds that Lake Moawhango is 2.73km across at its widest point[14] and that it is therefore not "open waters" as defined by DFO(A).

16. Lake Moawhango is defined as "semi-protected waters" therefore a weather brief was not required. Paragraph 8121 of the above chapter defines the term "semi-protected waters" as follows:

[12] Witness 30, dated 30 January 2013, A4.
[13] Exhibit AH.
[14] Witness 30, dated 30 January 2013, A4.

Semi-Protected Waters. Semi-protected waters are moderate-sized bays, harbours, channels and lakes where the distance between shorelines is greater than one and a half kilometres but less than 5 kilometres.

17. However, the Court recommends that DFO(A) paragraph 8121 is re-written to include all bodies of water and the weather report should include water temperature and any known local effects.

Activity in which Private Ross was participating when he was Lost Overboard

18. At the time of the incident Zodiac 3 contained eight personnel – three of these persons were designated as Boat Crew (Boat Commander, Coxswain and Bowman) and five were passengers. Private Ross was the front left passenger aboard Zodiac 3 and was transiting from the Live Field Firing area on the eastern side of the Lake to the ramp on the western side of the Lake at the time of incident[15] as shown in Figure 5.

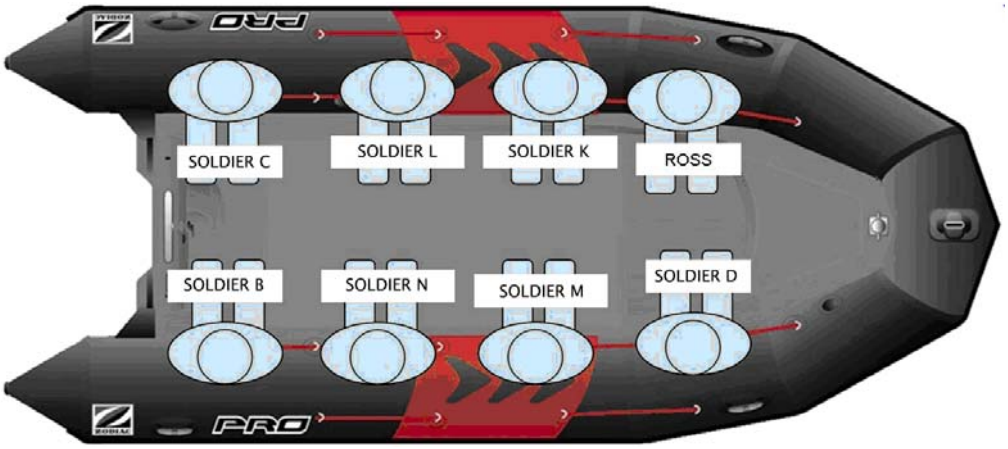

Figure 5: Original Positions on Zodiac 3[16]

19. During the transit across the Lake a number of passengers adjusted their seating positions in order to stabilise the bow of the Zodiac.[17] At the time that he was lost overboard it appears that Private Ross was adjusting his seated position.[18]

20. It appears that the bow of Zodiac 3 was flexing up and down excessively and four of the passengers repositioned themselves to help stabilise the boat. Private Ross and **SOLDIER D** shifted their positions forward,[19] **SOLDIER M** moved to the centre front of the boat and sat on the boat box[20] whilst **SOLDIER N** shifted forward on the right hand pontoon.[21] The seat positions at the time of Private Ross falling overboard are shown in Figure 6.

[15] Witness 7, dated 6 December 2012, A7.
[16] Exhibits AW, AY, AZ, AAA, AAB, AAC and AAG.
[17] Witness 5, dated 4 October 2012, Q33 to Q35 and Witness 9, dated 28 September 2012, A13.
[18] Witness 5, dated 4 October 2012, A32.
[19] Witness 5, dated 4 October 2012, A34.
[20] Witness 9, dated 14 May 2013, A4.
[21] Witness 5, dated 4 October 2012, Q33 to Q35 and Witness 9, dated 28 September 2012, A13.

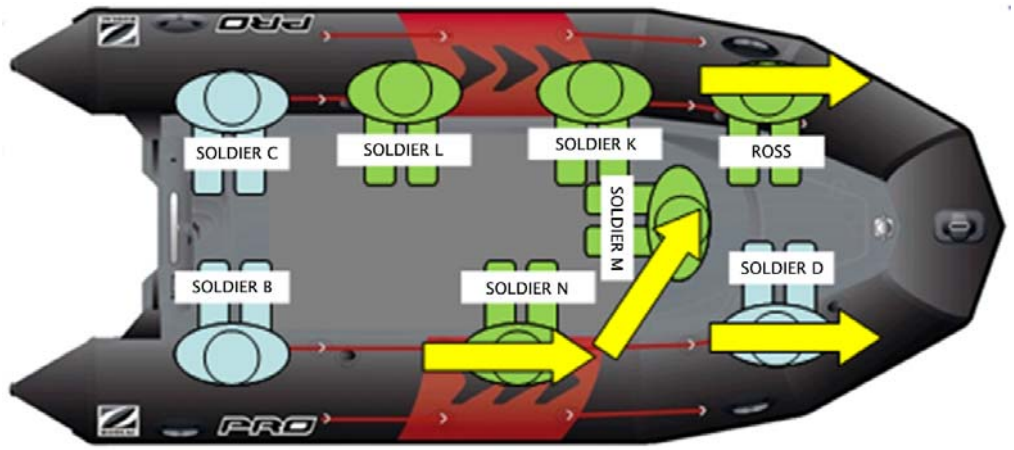

Figure 6: Repositioned locations on Zodiac 3[22]

21. The Court finds that there were two causes for the bow of the Zodiac flexing excessively, which contributed to Private Ross falling overboard. These were:

a. The keel and/or pontoons not fully inflated thereby reducing the rigidity and stability of the Zodiac;[23] and

b. The effect of the chop on the Lake.[24]

22. When the bow was flexing excessively some passengers asked the coxswain to stop.[25] It appears that the boat slowed down rapidly and this sudden loss of speed may have unbalanced Private Ross. The deceleration may also have caused the Zodiac 3 pontoon that Private Ross was sitting on to regain its normal state thereby unseating Private Ross from Zodiac 3 into the water *(the bouncy castle effect)*. It may also have caused Private Ross to lose his grip on the hand rails or, alternatively, Private Ross may have consciously let go of the hand rails in order to shift position on the pontoon.

23. The Court notes that Zodiac 3 was not segregated after the incident because it was used in the search for Private Ross. Additionally the equipment for Army amphibious operations is not dedicated to a particular boat. This means that the Court has not been able to positively identify the boat, engine and equipments that belonged to Zodiac 3. As with weapons that have a malfunction or vehicles that are involved in an accident, it is recommended that any NZDF boat involved in an accident in future be segregated as soon as practicable in order for a technical inspection to be undertaken.

[22] Exhibits AW, AY, AZ, AAA, AAB, AAC, AAG
[23] Witness 5, dated 4 October 2012, A29; Witness 8, dated 11 December 2012, A5; and Witness 9, dated 28 September 2012, A12; A13, A49 and A50.
[24] Witness 5, dated 4 October 2012, A29; Witness 7, dated 6 December 2012, A9; Witness 10, dated 11 October 2012, A13; Witness 3, dated 26 November A45 and 49.
[25] Witness 9, dated 28 September 2012, A13.

The Events leading up to the Loss of Private Ross

24. Private Ross was a member of Alpha Company, 1st Battalion, RNZIR. This company had been tasked with the development of a new capability within the NZDF, namely the Enhanced Infantry Company ('EIC'). The intent with the development of EIC was to use the existing experience found within 1st New Zealand Special Air Service Regiment ('NZSAS') and to transfer some of those specific skills to the EIC.[26] The Train the Trainer ('TTT') concept was used to transfer small boating, urban combat and airmobile skills from the NZSAS to the EIC. Throughout 2012 the EIC conducted a number of amphibious training activities on the ocean and on inland waterways.[27] The amphibious training activities are graphically represented in Table 1 below.

EIC TRAINING CYCLE FOR AMPHIBIOUS ACTIVITIES						
TTT 6 instructors from Linton including RNZIR and RNZE Auckland	High Readiness Company/EIC Enabling Training Amphibious package (8 days) Auckland Private Ross attended	Exercise ALAM HALFA Amphibious Activity Auckland OLOC Testing	Block 2 Amphibious Training Landguard Bluff Wanganui	Exercise RIMPAC HUET Hawaii	EIC Amphibious Capability Demonstration Somes Island	Exercise BUNNY 1 Waiouru
November 2011	February - March 2012	April - May 2012	May 2012	July - August 2012	August 2012	September 2012

KEY

HUET: Helicopter Underwater Escape Training
OLOC: Operational Level of Capability
RNZE: The Corps of Royal New Zealand Engineers
RNZIR: Royal New Zealand Infantry Regiment

Table 1: EIC Amphibious Training Activities

25. As Table 1 illustrates, Private Ross undertook a number of small boating and amphibious operations in 2012. These were as follows:

a. **February / March:** High Readiness Company / EIC enabling training (amphibious package).

b. **April/May:** Exercise ALAM HALFA saw the EIC conduct Operational Level of Capability ('OLOC') testing. Following this testing, the EIC was assessed to have achieved OLOC.[28] During this exercise the EIC conducted numerous amphibious tasks.

[26] Witness 29, dated 11 December 2012, A4.
[27] Witness 1, dated 2 October 2012, A34; Witness 15, dated 24 October 2012, A5; Exhibit K.
[28] Witness 1, dated 17 May 2013, A4; and Exhibit AA, para 6

c. **9 May:** Private Ross passed the Army Basic Water Skills Test.[29]

d. **May:** Block 2 training in Whanganui.

e. **July/August:** Exercise RIM OF THE PACIFIC ('RIMPAC'). During this exercise in Hawaii each member of the EIC was required to undergo Helicopter Underwater Evacuation Training ('HUET'). Private Ross participated in this training and demonstrated no signs of stress whilst in or under the water.[30]

f. **August:** Amphibious capability demonstration activity off Petone, Wellington.

g. **24 September.** Exercise BUNNY 1 commenced and in the afternoon Private Ross conducted boating drills in the Waiouru Pool. This training included capsize drills and swimming in military equipment.[31]

26. Exercise BUNNY 1 continued on 25 September 2012, this time at Lake Moawhango. The evidence before the Court establishes the following chronology of Private Ross' activities in connection with that activity:

a. 0900-1200 hours: Private Ross conducted blank firing drills from Zodiacs on the west side of the Lake.[32]

b. 1200-1300 hours: Private Ross removed his blank ammunition and reloaded with live ammunition in preparation for the Live Field Firing on the east side of the Lake.[33]

c. 1300-1700 hours: Private Ross conducted Life Field Firing from both an anchored and moving Zodiac.[34]

d. Between 1700 and 1730 Private Ross embarked Zodiac 3 and this boat moved into a holding area awaiting the loading of all other personnel onto their boats.[35]

e. At approximately 1739 hours: Private Ross fell overboard from Zodiac 3.[36]

f. After one to three minutes, Private Ross disappeared below the water and did not resurface.[37]

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[29] Exhibit S.
[30] Witness 14, dated 30 October 2012, A16 to A19.
[31] Witness 13, dated 2 September 2012, A4 to A6 and Witness 14, dated 30 October 2012, A23 and A30.
[32] Witness 10, dated 11 October 2012, A5; Witness 13, dated 28 September 2012, A26 and A27; Exhibit E.
[33] Witness 10, dated 11 October 2012, A5; Witness 6, dated 18 October 2012, A11; Exhibit E.
[34] Witness 10, dated 11 October 2012, A12; Witness 8, dated 11 December 2012, A3; Witness 7, dated 6 December 2012, A8.
[35] Witness 3, dated 26 November 2012, A30; Witness 15, dated 24 October 2012, A44.
[36] Witness 11, dated 14 May 2013, A2 and A3; Exhibit AX, recording 94.

g. 1741 hours: Waiouru Range Safety received a radio call from Alpha Company on the safety net raising the alarm that a soldier was missing and requested emergency services to the Lake.[38]

Events following the Loss of Private Ross

27. On 2 October 2012 Private Ross was located and then recovered from the bottom of Lake Moawhango after seven days of underwater searching by the RNZN and New Zealand Police Dive Teams. Private Ross was recovered from a depth of approximately 42 metres.[39] When he was found Private Ross was half buried in silt and the Light Support Weapon[40] that he was carrying when he entered the water was not found with his body.[41]

28. On 3 October 2012, **DOCTOR B** conducted an autopsy on Private Ross at Palmerston North Hospital mortuary.[42] She reported his cause of death as drowning. During the autopsy, the pathologist identified superficial lacerations on the 'dorsum' (back) of Private Ross' left hand as well as on his face.[43] After receiving the pathologist's evidence on 11 December 2012, the Court asked **DOCTOR B** whether there was any forensic evidence suggesting that Private Ross had been struck by the propeller of a boat. She gave evidence that his injuries were not consistent with that hypothesis.[44]

29. On 9 February 2013 the Court briefed Private Ross' family on its preliminary findings. Following that briefing, at the request of the family, the Court recalled **DOCTOR B** to seek confirmation as to whether the injuries to Private Ross' face could have been caused by the Light Support Weapon hitting him in the face as he fell off the boat. This question arose from the Ross family's perception, after seeing Private Ross shortly after he was recovered, that there was a distinctive mark or straight line running across his face from top right to bottom left. As indicated in the pathologist report dated 8 March 2013,[45] **DOCTOR B** concluded that, after cleaning Private Ross' body, there were no injuries consistent with being struck with a firearm. **DOCTOR B** gave evidence that the injuries to Private Ross' face were typical of, and therefore more likely to have been caused by, marine life when a body has been submerged for an extended period of time.[46]

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[37] Witness 5, dated 4 October 2012; A52; Witness 7, dated 6 December 2012, A17; and Witness 9, dated 28 September 2012, A37. The Court notes the timings given by the witnesses however finds that Private Ross would only have remained on the surface of the lake for less than a minute based upon trials conducted at the Linton Military Camp swimming pool (Exhibit T and U) in which a soldier, equipped the same as Private Ross, struggled to remain afloat after 15 seconds in 29.2° water.
[38] Witness 11, dated 14 May 2013, A2 and A3; Exhibit AX, recording 94.
[39] Witness 39, dated 15 May 2013, A6.
[40] Light Support Weapon is the standard issue Machine Gun used by the New Zealand Army.
[41] Witness 23, dated 11 October 2012, A4.
[42] Witness 28, dated 11 December 2012, A1; Exhibit AP.
[43] Exhibit AP.
[44] Witness 28, dated 11 December 2012, A4 and A5.
[45] Witness 28, dated 8 March 2013, A3; Exhibit AP.
[46] Witness 28, dated 8 March 2013, A2.

Safety Briefs Prior to the Activity

30. Due to the nature of the training that was to be conducted on 25 September 2012, a number of safety briefs should have been conducted in accordance with Defence Force Orders (Army) Volume 2. The briefs which were required in the opinion of the Court are shown in Table 2.

SER	TYPE OF SAFETY BRIEF	RESPONS	AUDIENCE	REFERENCE
1.	Blank Firing Safety brief	Platoon Commander	All participants	DFO(A) Volume 2 Part 1 Chapter 1 Section 4 paragraph 1373(b)[47]
2.	Water Safety brief	Water Safety Officer	All participants	DFO(A) Volume 2 Part 8 Chapter 3 paragraphs 8110, 8188 and 8189[48]
3.	Live Field Firing ('LFF') Safety Staff brief	Range Control Officer ('RCO')	All LFF Safety staff	DFO(A) Volume 2 Part 2 Chapter 3 Section 3 paragraph 2803(b)(1)[49]
4.	LFF Participants brief	RCO	All participants	DFO(A) Volume 2 Part 2 Chapter 3 Section 3 paragraph 2803(b)(2)[50]

Table 2: Safety Brief Requirements

31. The outline sequence of events for 25 September 2012 is shown in Table 3.[51]

25 Sep	1 Platoon	2 Platoon
AM	Boat drills in Waiouru Pool	Blank firing drills from Zodiacs on the West side of the Lake
		Blank firing room clearance drills at Ramp
PM	Blank firing drills from Zodiacs on the Western side of the Lake	Live Firing Fire activity on the Eastern side of the Lake
	Blank firing room clearance drills at the Ramp	

Table 3: Training Plan for 25 September 2012

32. As shown in Table 3 there were simultaneous activities occurring at the Lake on 25 September 2012. The Court assesses the safety brief compliance in respect of those activities as follows:

a. **Blank firing drills from Zodiacs on the western side of the Lake.** This activity should have been preceded by safety brief serials 1 and 2. For 1

[47] Exhibit AM.
[48] Exhibit AL.
[49] Exhibit AK.
[50] Exhibit AK.
[51] Witness 13, dated 28 September 2012, A13; Witness 14, dated 30 October 2012, A23 and Exhibit E.

Platoon it appears that the serial 2 brief was not given.[52] The Court finds that it was **SOLDIER F's** responsibility to give this brief.[53]

b. **Room clearance drills.** When personnel were not involved with the blank firing drills from the Zodiacs they conducted room clearance drills in the vicinity of the ramp. It appears that a serial 1 safety brief was given.[54]

c. **Live Field Firing activity from Zodiacs on the eastern side of the Lake.** This activity should have been preceded by safety brief serials 2, 3 and 4 and all of these were conducted by relevant safety staff.

33. Due to the complex nature of the training and multiple tasks that were occurring at the same time, it appears that some of the detailed coordination required was lacking. This is highlighted by the boat crews operating with 1 Platoon being tasked to uplift 2 Platoon without sufficient detail. This task was not expected by the **(Redacted) SOLDIER G** or his boat crews.[55]

34. For Exercise BUNNY 1, **SOLDIER A (Redacted)** was designated as the Coordinating Officer for the Live Field Firing conducted over the period from 0700 hours on 25 September to 1900 hours on 3 October 2012.[56] The Coordinating Officer is required to conduct appropriate safety briefings to all Range Control Officers and exercise participants, however this responsibility can be delegated.[57] On 25 September 2012 there was only one Live Field Firing activity therefore the Coordinating Officer was not required to conduct a safety briefing. However, given the complexity of tasks and the support requirements for each activity, it would have been beneficial for a central coordination and safety brief to have been provided to all participants.

How was Private Ross Equipped at the Time he was Lost Overboard?

35. When Private Ross was lost overboard, he was dressed in what is known as patrol order. The Court finds that Private Ross was wearing the clothing and equipment, as indicated at Table 4, when he entered the water. However when recovered some of these items were missing, specifically his: [58]

a. Advanced Combat Helmet (this was found floating on the surface of the Lake just after Private Ross disappeared from view); and

[52] Witness 3, dated 26 November 2012, A29; Witness 15, dated 24 October 2012, A37.
[53] [R]Witness 15, dated 24 October 2012, A37; Witness 3, dated 26 November 2012, A29; Witness 5, dated 4 October 2012, A13 and 14; and Witness 4, dated 4 October 2012, A26. **Soldier F** disputes the Court's finding that he did not provide a water safety brief. The Court has made this finding based upon two witnesses stating that they did not receive a water safety brief and another two witnesses who were unsure whether they received a water safety brief or not.
[54] Witness 10, dated 11 October 2013, A5.
[55] Witness 15, dated 24 October 2013, A43 and A44.
[56] Exhibit B, Part 2, paragraph 11.
[57] Exhibit AK, paragraph 2803(a) and 2817.
[58] Witness 25, dated 10 October 2012, A8; Exhibit Y and Exhibit V.

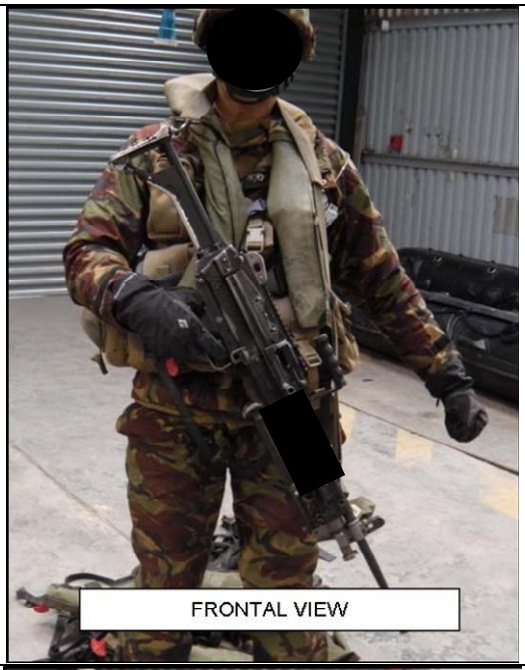
b. Light Support Weapon (when Private Ross was recovered by **SAILOR F** there was no visible sign of the Light Support Weapon). [59]

PTE ROSS EQUIPMENT WEIGHTS				
EQUIPMENT ITEM	**KG**	**QTY**	**KG**	
WATCH		1	0	0
COMBAT TROUSERS	0.514	1	0.514	0.514
COMBAT SHIRT	0.501	1	0.501	0.501
SOCKS **ECW** (PR)	0.172	1	0.172	0.172
COMBAT BOOT: **EXTREME HOT WEATHER (EHW)**	1.875	1	1.875	1.875
SSPE Vest Tactical, **Coyote Brown NB: Niin; 98-207-0873 (SML)**	1.167	1	1.167	1.167
POUCH GRENADE / HE **Coyote Brown**	0.061	2	0.122	0.122
POUCH GRENADE / SMK **Coyote Brown**	0.099	1	0.099	0.099
POUCH GP **Coyote Brown**	0.233	3	0.699	0.699
POUCH AMMO DBL **Coyote Brown**	0.107	1	0.107	0.107
CUPS CANTEEN **US Pattern**	0.248	1	0.248	0.248
FLASHLIGHT/ BEACON SIDEWINDER (C/W ACH BRACKET);	0.138	1	0.138	0.138
WPN CLEANING KIT	0.3	1	0.3	0.3
MOLLE CAMEL BAK COVER	0.8	1	0.8	0.8
POW / DETAINEE KIT	0.02	1	0.02	0.02
TOGGLE ROPE / 15M NYLON TAPE	0.38	1	0.38	0.38
CAM KIT (PAINT FACE CAMOUFLAGE)	0.058	1	0.058	0.058
CYALUME STICK		1	0	0
BATTERIES	0.024	5	0.12	0.12
WATER BOTTLE **U.S.Pattern**	0.142	2	0.284	0.284
UNDER GARMENTS **BOTTOM**	0.073	1	0.073	0.073
UNDER GARMENTS **TROUSERS**	0.296	1	0.296	0.296
WW PARKA	1	1	1	1
WOOLLEN NECKOVER	0.172	1	0.172	0.172
C9 SPARE BARREL	1.69	1	1.69	1.69
C9 SPARE BARREL BAG	0.4	1	0.4	0.4
RFD 60B (LIFE JACKET)	1.6	1	1.6	1.6
SMOKE GENERATOR	0.5	1	0.5	0.5
TOTAL EQUIPMENT WEIGHT **WHEN FOUND**				13.335 KG
C9- LIGHT SUPPORT WEAPON	6.48	1	6.48	6.48
ACH Ballistic Helmet **complete to CES**	1.6	1	1.6	1.6
TOTAL WEIGHT OF EQUIPMENT PTE ROSS WAS WEARING UPON **ENTERING THE WATER**				21.415 KG

Table 4: Equipment that Private Ross was wearing when he fell overboard

[59] Witness 39, dated 15 May 2013, A8.

36. An indicative representation of Private Ross' equipment and layout when he was on Zodiac 3 is shown in Table 5:



Note:

- Life jacket is worn over webbing
- Light Support Weapon is slung around neck over the top of the life jacket
- B (spare) barrel is worn on back and underneath life jacket
- Red toggle is exposed on right hand side
- Wet weather jacket
- Helmet has night vision goggle mount affixed
- Note: Private Ross was not wearing gloves.

Table 5: Indicative Equipment being worn by Private Ross at time of Incident

37. The Court finds that most Army personnel wear their wet weather equipment when conducting boating and, although this form of dress is not prohibited when conducting boating, it is also not stated that it can be worn.[60] As part of a comparison trial it was found that wearing wet weather equipment actually assisted in the

[60] Witness 13, dated 3 October 2012, A71 and 72.

buoyancy of a soldier in clean fatigues when compared to a soldier not wearing wet weather equipment.[61] However once the individual became fully submerged then the wet weather clothing did hold water and thus made the individual heavier. The Court therefore finds that:

a. The wearing of wet weather equipment whilst boating is not a hazard, rather it will allow personnel to remain dry and it also aids in flotation; and

b. The Army swim test, conducted in uniform, should still be used as a means to encourage confidence in the water.[62]

Did Private Ross have adequate safety equipment for a waterborne activity?

38. DFO(A) Volume 2 Part 8 Chapter 3 is the prime reference for "watermanship" in the New Zealand Army. Paragraph 8141 stipulates the general safety precautions for all types of water vessel training. Sub paragraph (a) states that "…life jackets…are to be worn at all times by all personnel on board small boats…".

39. At the time of loss, Private Ross was wearing the RNZN issued RFD Type 60B Life Jacket, also known as the Embarked Forces Life Jacket.[63] This Life Jacket was originally introduced into the RNZN as part of the Project Protector fit from Tenix Defence Pty Ltd to be held on board HMNZS CANTERBURY for issue to embarked New Zealand Army personnel. It can be worn with Army uniform, immersion suits and ordinary clothing.[64] NZ P96, *New Zealand Land Equipment Manual*, Part 2.4.2.7 paragraph 4(b)[65] provided detail about the life jacket that was in use by the EIC and worn by Private Ross on 25 September 2012:[66]

> **Lifejacket, RFD 60B.** This Life Jacket is used by Army on a Multi-Role Vessel and is a **manually** activated buoyancy aid used for general purpose maritime activities. The buoyancy rating and design of the **RFD 60B [Life Jacket] is sufficient to support personnel in full combat clothing and worn equipment not exceeding 10 kg**. This Life Jacket was brought into service as an interim solution for Operation RATA in the Solomon Islands only, until such time as the Lifejacket, GP-PFD, 290N, MD4020NZ replaced it in theatre. On their return from Operation RATA, these Life Jackets were issued to Navy for use by Army on the Multi Role Vessel (HMNZS CANTERBURY). These Life Jackets are managed by Navy.

40. The manufacturer's specifications for this life jacket are shown at Figure 7 below:[67]

[61] Witness 22, dated 24 October, A6; Exhibit T, page A5, question3.
[62] The Court provides more detailed comment on New Zealand Army swim training from paragraph 113 onwards.
[63] Exhibit AT, paragraph 07100.
[64] Exhibit AT, paragraph 07100.
[65] Exhibit AO.
[66] As a result of the Court's interim findings reported to the Assembling Authority, the RFD 60B was removed from NZ P96 in November 2012.
[67] Exhibit AG, page 4.

Figure 7. RFD Type 60B Life Jacket

41. Immediately after Private Ross was recovered, his life jacket (serial number 17780) was taken as evidence by the New Zealand Police and then subjected to technical testing by Survitec Group. The key result of the technical report was that Private Ross' life jacket did not have a serviceable gas canister attached to it:[68]

> …the CO2 from the cylinder could only have entered the lifejacket bladder and could not have escaped through any leakage or fault. This suggests that the jacket was deployed at some time before this incident and was subsequently deflated, probably using the oral inflation tube cap which was then inadvertently left off. The jacket was then folded and reclosed without the cylinder being replaced and at this point would have appeared to have been in an operational condition.

42. There are three possibilities for the aforementioned scenario to have occurred:

a. **During the technical serviceability checks**. All 50 of the RFD Type 60B Life Jackets were inspected and certified serviceable by the Safety Equipment Servicing Bay, Maintenance Support Squadron, Royal New Zealand Air Force ('RNZAF') Base Whenuapai. This work was done pursuant to Work Order 500080120 and was completed on 3 August 2012. It was certified by **AIRMAN A**.[69] It is possible that this jacket was wrongly certified by the RNZAF maintenance personnel, however the Court finds this scenario the least likely of the three.

b. **During transit and/or storage**. After the issuing of the 50 RFD Type 60B Life Jackets, from the RNZN to 2 Engineer Regiment, the life jackets have been stored in a number of locations which are not subject to constant security.[70] Although kept under lock and key by night in storage trunks and inside the boat store, throughout the day they were kept in an open-air storage facility. Additionally the life jackets have been transported between

[68] Witness 26, dated 6 December 2012, A3; Exhibit AB.
[69] Witness 27, dated 13 December 2012, A3; Exhibit AC.
[70] Witness 6, dated 15 May 2013, A6.

Linton, Wellington and Waiouru. It is the Court's opinion that during this process Private Ross' life jacket may have been inadvertently activated and then repacked without being tagged as requiring a replacement canister. The Court finds this scenario less likely than the third scenario described below.

c. **During the EIC training in Waiouru.** Personnel who deployed on Exercise BUNNY 1 were required to undertake training at the Waiouru Pool prior to boating at the Lake. During one of these training sessions one of the life jackets was inadvertently activated and then marked with unserviceable tags and segregated from the other life jackets.[71] One witness described how measures were taken to avoid a further accidental activation because it was "embarrassing".[72] It is possible that during the afternoon or night of 24 September 2012 another life jacket was inadvertently activated. Believing that he may get into trouble, the soldier responsible may have deflated the life jacket, repacked it and placed it with all the other jackets. The Court finds it highly unlikely that this soldier would have purposely placed a discharged life jacket back with the serviceable jackets to cause injury. The Court finds that this scenario is the most likely cause of the discharged canister being left on Private Ross' life jacket.

43. **Green safety pin.** As a result of the technical report by Survitec Group mentioned above at paragraph 41, an immediate check of the remaining 49 RFD Type 60B Life Jackets on loan from the RNZN to 2 Engineer Regiment was conducted. Some of these life jackets were found to be missing the green safety pin.[73] This safety pin is part of the release mechanism that passes through the firing head body and firing lever to act as a resistive force against inadvertent deployment of the jacket as well as a visible indicator that the jacket has not previously been deployed.[74] However, after statements from 2 Engineer Regiment personnel that the green pin can pop off without a full activation, a demonstration was conducted and proven to be correct. The toggle can be subjected to pressure causing the green safety pin to be shorn off without the gas canister being activated.[75]

44. The Court finds this of concern from a safety perspective. Regardless of whether or not the gas canister has been activated, any life jacket showing red on the canister mechanism should be deemed unserviceable and sent for repair and servicing.

45. The images in Table 6 were taken by Survitec during its technical inspection of Private Ross' life jacket:[76]

[71] Witness 19, dated 6 December 2012, A3; Witness 13, dated 25 October 2012, A3.
[72] Witness 19, dated 6 December 2012, A3.
[73] Witness 6, dated 15 May 2013, A2.
[74] Exhibit AB, paragraph 5.
[75] Witness 6, dated 15 May 2013, A4.
[76] Exhibit AB.

<table>
<tr>
<td> 
Image 1</td>
<td> 
Image 2</td>
</tr>
<tr>
<td> 
Image 3</td>
<td>This sequence of photos shows PTE ROSS' RFD Type 60B Life Jacket activation system.

Image 1 shows the state in which the life jacket toggle was found – the metal firing lever is clearly exposed.

Image 2 shows the same system however the valise has been opened and the red safety indicator can be observed.

Image 3 shows the gas canister removed and clearly 'struck' after being activated by the firing lever.</td>
</tr>
<tr>
<td>  </td>
<td>This is the type of plastic safety clip that was missing from Private Ross' life jacket. This plastic pin passes through the firing head body and firing level to act as a resistive force against inadvertent deployment of the jacket as well as a visible indicator that the jacket has not been previously deployed. This clip would normally be ejected from the firing head when the firing lever is pulled.</td>
</tr>
</table>

	The plastic cap on the oral inflation tube was not fitted to the top of the tube and had slid down to the base. After servicing this cap would normally be fitted to the top of the tube to prevent the ingress of dust, grit and water into the life jacket bladder via the non return valve in the oral inflation tube. The bladder had a significant amount of water inside it suggesting hat this cap had not been in place when the life jacket had been immersed in water at some point. The fact that the Velcro fasteners on the jacket were still closed means that the oral inflation tube had not been accessed during the incident. This cap on the tube also doubles as a 'deflation tool' by reversing it and pressing it into the top of the oral inflation tube. The protrusion on top of the cap then depresses the non-return valve allowing the jacket to deflate.

Table 6: SURVIVATEC Life Jacket Inspection

46. **Wearing technique.** With the life jacket correctly worn over the webbing vest and a weapon slung across the body it is extremely difficult to locate and operate the red toggle to activate the life jacket. The bottom of the life jacket sits just above the waistline of an individual and in line with the webbing straps. It is covered by the slung weapon. To become proficient in the activation of their life jackets, personnel must conduct training and rehearsals to gain confidence in locating the toggle and activating the life jacket.

Figure 8: RFB 60B life jacket with toggle exposed

47. Water tests were conducted on the life jacket by order of the Court on 5 October 2012 at Linton Pool.[77] The tests were conducted in benign conditions with a water temperature of 29ºC. They were conducted with and without patrol order equipment. One test was based on a soldier of similar weight to Private Ross, wearing the same equipment, rolling backwards from the side of a Zodiac. The test indicated that the individual began to struggle after 15 seconds. The RFD Type 60B Life Jacket was manually operated and supported the soldier's mouth just above the water level. Based on this test, the Court concludes that a serviceable RFD Type 60B Life Jacket would have been capable of providing Private Ross with positive buoyancy to remain afloat.[78]

48. Another test was conducted with the soldier simulating a short swim to the safety boat. The soldier became weak after 20 seconds and began to show signs of submerging. After repeated attempts to find the toggle and activate the life jacket, the soldier needed to be assisted to the pool edge by the physical training instructor and safety diver. In discussions after the test the soldier said that he could not distinguish the toggle from the other straps on his webbing (see Figure 8). In view of this test, the Court finds that, whilst the RFD Type 60B Life Jacket supported the weight of the soldier, the current life jacket is not an adequate buoyancy aid for the activities expected of the New Zealand Army.[79]

49. The manufacturer's information regarding the RFD Type 60B Life Jacket rates the life jacket to 23.5 kg of buoyancy.[80] There is nothing contained in any publication to explain what weight of person and weight of equipment can be supported. NZ P96 Part 2.4.2.7 stated that the "the buoyancy rating and design of the RFD Type 60B is sufficient to support personnel in full combat clothing and worn equipment not exceeding 10 kg".[81] The Court has been unable to adduce any evidence which explains where this figure came from. It is the view of the Court that this figure of 10kg is incorrect but it was the only information available when the RFD Type 60B Life Jacket was accepted for service in the Army. If the figure were correct, the RFD Type 60B Life Jacket should not have been accepted as a suitable replacement for the General Purpose Personal Flotation Device 290N MD4020NZ (known as the 'Mustang'), which had been in service until that point.

50. In June 2012, the decision was made to replace the Mustang life jacket with the RFD Type 60B Life Jacket, due to faulty actuators and incomplete inflation.[82] Liaison between the 2 Engineer Regiment Quartermaster store, **SOLDIER F** and **CIVILIAN C** in the Naval Supply Chain at Devonport Naval Base, shows that they identified the RFD Type 60B Life Jacket as a possible interim replacement option for the Mustang life jacket.[83] When finding a replacement life jacket, **SOLDIER F** was asked where the life jackets were to be used and what the life jackets were to be used for. In his response to **CIVILIAN C** and the Quartermaster store, **SOLDIER F** failed to accurately portray the types of activities and weights the life jackets would be

[77] Exhibit T, page 1.
[78] Exhibit T, page A-4.
[79] Exhibit T, page A-10.
[80] Exhibit AG.
[81] Exhibit AAF, paragraph 4B.
[82] Witness 13, dated 3 October 2012, A7; Exhibits J and Z.
[83] Exhibit J.

subjected to, rather he provided an environmental assessment only.[84] **SOLDIER F** then informed his Officer Commanding and the Officer Commanding EIC that the RFD Type 60B Life Jacket was available for use by the EIC.[85] The Court finds that at some stage doing the acquisition process an assessment of the RFD Type 60B Life Jacket's suitability should have occurred in order to ensure that it had sufficient buoyancy for the tasks required. The Court further finds that **SOLDIER F** should have checked that the buoyancy rating was sufficient for EIC personnel and the tactical tasking they were required to conduct.

51. A total of 50 life jackets were supplied to 2 Engineer Regiment after undergoing servicing at RNZAF Base Whenuapai on 3 August 2012. These life jackets were sent to **SOLDIER F** and they were first used by the EIC during an amphibious operations demonstration in Wellington Harbour for Commander Joint Forces New Zealand.[86]

The Mustang Life Jacket

52. The Mustang Life Jacket is the primary life jacket that the New Zealand Army purchased in 2008 for use when conducting boating operations. However, as the Court noted above, in June 2012 this life jacket was removed from service for safety reasons.[87]

53. The specifications of the Mustang life jacket are indicated below in general terms below:[88]

> **Mustang Survival Lifejacket, General Purpose-Personal Floatation Device, 290N, MD4020NZ.** This is an automatically activated buoyancy aid **which can be converted to manual activation** used for general purpose maritime activities; such as beach assaults, river patrols, assault river crossing, Open sea passage (sheltered), bridging (bridge erection) and reconnaissance. The buoyancy rating and design of the GP-PFD, 290N Life Jacket is sufficient to support personnel in full combat clothing and worn equipment not exceeding **30 kg**.

[84] Witness 13, dated 3 October 2012, A19; and Exhibit J. **Soldier F** disputes this statement as he believes that the decision to use the RFD 60B life jacket was made between **Civilian C** and the supply technician at the 2 Engineer Regiment Quartermaster store. The Court has relied upon Exhibit J as a key piece of evidence to demonstrate **Soldier F's** complicity in the acquisition of the RFD 60B life jacket.
[85] Witness 13, dated 3 October 2012, A20; and Witness 1, dated 2 October 2012.
[86] Exhibit AAD; Witness 14, dated 30 October, A8.
[87] Exhibit Z.
[88] Exhibit AO.

Table 7: Mustang Survival Lifejacket

54. The key differences between the two types of life jackets are that the Mustang Life Jacket has two separate inflatable cells with two individual CO_2 cylinders, unlike the RFD Type 60B Life Jacket which only has one. The Mustang Life Jacket can be manually operated from both sides and is also fitted with two hydrostatic inflation devices. These are designed to automatically inflate within five seconds upon entering the water.[89] The Mustang Life Jacket is rated to support a soldier in full combat clothing and equipment not exceeding 30 kilograms.[90] The Court finds that, if Private Ross had been wearing a functioning Mustang Life Jacket set to automatic, he would not have drowned.

55. Whilst the Mustang Life Jacket appears to be a suitable life jacket for Army use during amphibious operations, it does have some significant technical issues which are currently under investigation. The automatic actuators were not working as intended and the zips were jamming causing incomplete inflation. [91] The Mustang was temporarily removed from service in late June 2012[92].

Potential Enhancements of NZDF Water Safety Equipment

56. It is recommended that the NZDF investigates the replacement of both the RFD Type 60B Life Jacket and the Mustang Life Jacket. Whilst the Court has found it highly likely that an inflated RFD Type 60B Life Jacket would have supported Private Ross, it is not known whether a heavier individual, weighing between 100 and 110kg with equipment, could be supported. Both life jackets also provide no protection from water spray. The Court also recommends that all life jackets should be centrally controlled, maintained and serviced within the NZDF and a NZDF standard for the

[89] Exhibit AO, page 3.
[90] Exhibit AO, page 4.
[91] Exhibit Z.
[92] Exhibit Z.

checking of life jackets also needs to be implemented. The following process should be adopted:

a. The unit maintainer should conduct an initial issue and receipt check prior to storage.

b. Any person signing for life jackets from a store is to conduct a life jacket safety check.

c. Prior to the commencement of any amphibious operation the Water Safety Officer should personally conduct a safety check, which includes checking that all life jackets:

(1) Are certified serviceable;

(2) Are in working condition (i.e. no tears, buckles are operational, packed properly); and

(3) Have intact gas canisters.

d. Life jacket users should conduct a safety check prior to operational use, including checking:

(1) That the life jacket has not expired its safety certification date;

(2) That there are no tears in the material;

(3) That the buckles are in a working condition;

(4) That the manual toggle is exposed;

(5) That the auto-flation device is free of obstructions, if fitted; and

e. The checks referred to above at subparagraph d should be done again as part of a buddy check similar to those done in parachuting and scuba diving.

f. Upon completion of an amphibious operation (whether the life jacket has been activated or not) the unit maintainer should conduct a check prior to storage.

g. Units should conduct a physical safety inspection every three months; and

h. All life jackets should undergo an annual safety check by RNZAF Safety and Service Bay.

57. The Court also recommends that the Army introduces immersion suits and marine safety helmets into service for amphibious operations.

Assault Troop life jacket – Challenger 300 or 400 model

58. The Court has ascertained that the Assault Troop life jacket, Challenger 300 or 400 models, supplied by International Safety Products UK, would be a suitable replacement (see Figure 8 below). This life jacket has a 363 Newton buoyancy rating which can hold a fully clothed combat soldier and, dependent on model, support an additional 36 to 45 kg of equipment.[93] It also affords the wearer a deployable spray hood to shield the wearer's face and airways from the effects of wave action and spray in open waters. It is secured around the body with a 50mm adjustable webbing harness. The harness is fitted with a quick release pin for swift removal.[94]

59. The front pouches are also much shorter than the RFD Type 60B Life Jacket, enabling the inflation toggle to present itself clear of a slung weapon and not be interfered with by webbing straps as shown at Figure 9.

Figure 9: Assault Troop Life Jacket

Immersion suit

60. It is recommended that an immersion suit be introduced into service for New Zealand Army amphibious operations and training conducted in cold weather conditions. The RNZN operates boats consistently with the Royal Navy's policy as stated in BRd 67, *Admiralty Manual of Seamanship*, and the New Zealand Supplement to BRd 67. BRd 67, paragraph 05052(c) states in part:[95]

> To avoid the danger of hypothermia or drowning if personnel are thrown out of the boat, the crew and passengers must be dressed appropriately. Crew members are to wear an immersion suit or similar garment with appropriate undergarments to suit the prevailing conditions. This is mandatory when operating in water temperatures up to and including 15ºC but is left to the discretion of the Commanding Officer in water temperatures between 16ºC and 20ºC, giving due consideration to the nature of the task and the risk of cooling from wind-chill, spray and wave splash. Above 20ºC there are very few circumstances in which the wearing of such clothing is of value, and the penalties from overheating are likely to outweigh any benefits. A hazardous duty lifejacket and DMS boots are to be worn. Properly sheathed seaman's knives are to be carried. When personnel from other nations or navies are being carried as passengers they must conform to the dress requirements outlined above. They must carry a properly sheathed seaman's knife.

[93] Exhibit AU
[94] Exhibit AU
[95] Witness 32, dated 30 January 2013, A3; Exhibit AQ.

61. Given the temperature of the Lake when Private Ross was lost overboard, if the RNZN had been controlling the activity that day all personnel would have been required to wear immersion suits.[96] The Court considers that the Army should adopt this policy and should also require that soldiers participating in waterborne activities carry a diver's knife and a day/night flare, in accordance with the practice observed by 1st New Zealand Special Air Service Regiment ('NZSAS').[97]

62. An example of an appropriate immersion suit is shown below as Figure 10:

Figure 10: Military Immersion Suit

Safety Helmet

63. BRd 67, paragraph 05052(e) requires that a marine safety helmet be worn during small boat operations. The RNZN adheres to this policy and uses the Gecko Marine Safety Helmet, shown below at Figure 11.[98] The NZSAS uses a bicycle type helmet. Neither of these two types of helmet provides any ballistic protection. At the time of the incident Private Ross was wearing an Advanced Combat Helmet and the Court believes that this provided sufficient protection to him. However the Court recommends that safety orders are changed to ensure that all personnel wear a form of head protection when operating in small boats.

[96] Witness 32, dated 30 January 2013, A3.
[97] Exhibit AAH, paragraph 40A.
[98] Exhibit AQ, article 05002.4.

Fig 11: RNZN GECKO Marine Safety Helmet

Was Private Ross Correctly Wearing any Water Safety Equipment Provided?

Training

64. The Court has already established that Private Ross was wearing a RFD Type 60B Life Jacket when he drowned. As a member of the EIC, he will have first encountered this life jacket during the Commander Joint Forces New Zealand amphibious operations demonstration in August 2012.[99] The soldiers received a basic brief from **SOLDIER S**. He assumed that, since the RFD Type 60B Life Jacket looked similar to the Mustang Life Jacket previously used by the EIC, its operation would also be the same.[100] There is conflicting evidence as to whether or not the secondary mode of inflation, the oral tube, was briefed on.[101] The Court is satisfied that Private Ross attended this briefing and demonstration.[102]

65. None of the personnel involved in Exercise BUNNY 1 had received any formal training in the use of the RFD Type 60B Life Jacket.[103]

Briefing

66. On 25 September 2012 briefs were given to some, but not all personnel, on how to wear the RFD Type 60B Life Jacket. On the completion of the live field firing, and prior to boarding Zodiac 3, a visual inspection of the life jackets was undertaken by the **(Redacted)**, **SOLDIER D**. He confirms that he checked that the life jackets were correctly worn but did not physically check straps, buckles and whether the red toggle was showing.[104]

67. The Court is concerned that, according to the evidence of **SOLDIER J** from the same platoon as Private Ross, his Section Commander ordered the section to tuck

[99] Witness 5, dated 4 October 2012, A4
[100] Witness 21, dated 25 October 2012, A2 to A13.
[101] Witness 21, dated 25 October 2012, A11: **Soldier D** states that he did not brief on this aspect. Witness 1, dated 2 October 2012, page 15: **Soldier A** states that the life jacket briefs he attended did include information on this mode of inflation.
[102] Witness 14, dated 28 September 2012, A13.
[103] Witness 9, dated 28 September 2012, A59; Witness 10, dated 11 October 2012, A68 and A69.
[104] Witness 5, dated 4 October 2012, A24.

the red toggle away after accidental life jacket activation on 24 September whilst undergoing training at the Waiouru pool.[105] A subsequent interview with this section commander, **SOLDIER H** has confirmed that such an order was given as he had been ordered to do so by his Platoon Commander, **SOLDIER I**.[106] **SOLDIER I** denies that he gave such an order. The Court finds that **SOLDIER I's** intent may have been misinterpreted by those under his command.

Other matters

68. From the New Zealand Police photographs taken of Private Ross after the recovery of his body,[107] it is difficult to ascertain whether he was wearing the RFD Type 60B Life Jacket correctly. The New Zealand Police photos show the life jacket lying from left chest to right groin on Private Ross and the red toggle is visible and it appears to have been pulled down.[108] It is unclear how the life jacket came to be in this position however the Court considers the following to be possible explanations:

a. Private Ross, in an attempt to remove his weapon, grabbed the life jacket and pulled it over his head. This would also account for why no weapon was with him and why his helmet came off. The Court considers this to be the more likely scenario.

b. The life jacket dislodged itself as Private Ross hit the bottom of the Lake, possibly as a result of the life jacket becoming caught on debris. The Court finds this a less likely scenario.

69. DFO(A) Volume 2 Book 1 Part 8 Chapter 3 paragraph 8141(b) stated that "webbing, in skeleton form only, may be worn over life-jackets for realism during tactical training".[109] However, Private Ross was wearing a full Molle webbing vest underneath his life jacket when he fell overboard (see Tables 4 and 5). This technique was taught to the EIC by the NZSAS and reflects the NZSAS Standing Orders for Training.[110]

Stowage of Weapons

70. DFO(A) Volume 2 Book 1 Part 8 Chapter 3 paragraph 8141(d)(1) states that:

a. …personnel on small vessels are to secure their weapons with the aid of toggle ropes, slings or strong cord, to the side of the vessel in such a manner that weapons may be fired by individuals from the sitting or kneeling position within the vessel.

71. Private Ross did not have his C9 Light Support Weapon attached to the Zodiac, rather it was slung around his neck. The Court understands that the reason for doing this is to allow the soldier the full use of his or her weapon when in contact and to not

[105] Witness 19, dated 6 December 2012, A2 to A5.
[106] Witness 42, dated 17 May 2013, A9.
[107] Exhibit W.
[108] Exhibit W.
[109] Exhibit AL.
[110] Exhibit L, paragraph 41022.

have its use restricted by being affixed to the boat. However, this is in contravention of the above DFO(A) reference.[111]

72. Regardless of whether the EIC was conducting an administrative or tactical movement across the Lake, the Court finds that all weapons should have been affixed to the Zodiacs, not worn on the soldier's person, as required by DFO(A) Volume 2 Part 8 Chapter 3 paragraph 8140.d.[112] If Private Ross' Light Support Weapon had been secured to the Zodiac, it would have reduced his overall weight by 6.48kg when he entered the water.[113]

Description of the Boats and their Fitness for Purpose for the EIC Activity

73. At the time Private Ross was lost overboard, the Zodiac that he was in was being used for an administrative personnel transfer from the east to the west side of Lake Moawhango. However, immediately prior to this 2 Platoon had been conducting live field firing from two zodiacs.

74. The EIC used six Zodiacs and one safety boat for this EIC activity. Five Zodiacs were used to transport personnel on the Lake and were fitted with a 40 HP outboard motor.[114] One did not have a motor and was simply used as a platform for live field firing. [115]

75. The Zodiac is the principal small craft used by the New Zealand Army. The Zodiac was introduced into New Zealand Army service in 2005.[116] This design of craft replaced the Lancer 390P and 520P Inflatable Boat.

76. The manufacturer describes the range of inflatable military boats as "combat proven, fast to deploy (diving or CO_2 Bottle) [with] excellent proven performance for infiltration and assault missions".[117] The Zodiac is widely used in military forces worldwide.[118] The Zodiac is a durable, lightweight inflatable craft designed to be powered by paddles or an outboard motor. It is designed primarily for high speed water reconnaissance on mainly inland waters. The craft can be used as a general purpose carrier or diving platform. The Zodiac is capable of operating in Sea State 5, to and from a parent craft and/or shore.[119]

77. The specifications for the Zodiac prescribe that it is capable of carrying a maximum payload of 1250 kg or 10 persons.[120] However, NZ P96 Part 2.4.2.1 prescribes a maximum payload for the Zodiac of 1230 kg, including the engine and fuel.[121]

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[111] Exhibit L, paragraph 41027
[112] Exhibit AL, paragraph 8141(d)(1)
[113] Exhibit AAJ, Exhibit Y
[114] Exhibit AN, Witness 37, dated 31 January 2013, A2.
[115] Witness 6, dated 15 May 2013, A9.
[116] Exhibit AN and Witness 37, dated 31 January 2013, A2.
[117] Exhibit AD, page 11.
[118] Exhibit X, page 3.
[119] Exhibit AN, pages 2 and 3.
[120] Exhibit AD.
[121] Exhibit AN.

78. The School of Military Engineering Corps Training Watermanship publication provides for the Zodiac to carry two crew and eight soldiers in patrol order, or alternatively four soldiers in field service marching order; or two crew and a cargo of up to 1000kg.[122]

79. The Court finds that on 25 September 2012, Zodiac 3 was carrying eight personnel, one of whom was Private Ross. Five of these soldiers were dressed in patrol order. By order of the Court, the soldiers onboard the Zodiac from which Private Ross fell overboard were weighed, wearing the exact same equipment they had on the day of the incident. The combined total boat weight, including the boat box, engine and fuel was 930.18 kilograms as shown in Figure 12.[123] This was within the capacity of the Zodiac as listed in the manufacturer's specification, the NZ P96 and the School of Military Engineering publication.

ZODIAC 3 WEIGHT

	ROSS	Soldier N	Soldier M	Solider L	Soldier K	Soldier C	Soldier D	Soldier B	OTHER
BODY + UNIFORM + BOOTS	85	89.2	108	70.98	87	74.88	85	81.62	
WET WEATHER KIT	2	2	2	2	2	2	2	2	
HELMET	1.6	1.6	1.6	1.6	1.6	0	0	0	
WEBBING	11.735	13	13	13	13	0	0	0	
WEAPON	6.48	6.48	3.6	3.6	3.6	0	0	0	
LIFE JACKET	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
BOAT BOX	0	0	0	0	0	0	0	0	40.2
ENGINE									69
FUEL									15
TOTAL	108.415	113.88	129.8	92.78	108.8	78.48	88.6	85.22	124.2

TOTAL BOAT WEIGHT	930.18	KG
AVAILABLE CAPACITY	1230	KG
SPARE CAPACITY	299.83	KG

NOTE:
1. PTE ROSS weight is indicative from the autopsy report
2 Webbing weights have been standardised as individuals can not accurately remember what they were carrying in their webbing.
3. fuel weight has been calculated from the maximum capacity of the fuel bladder

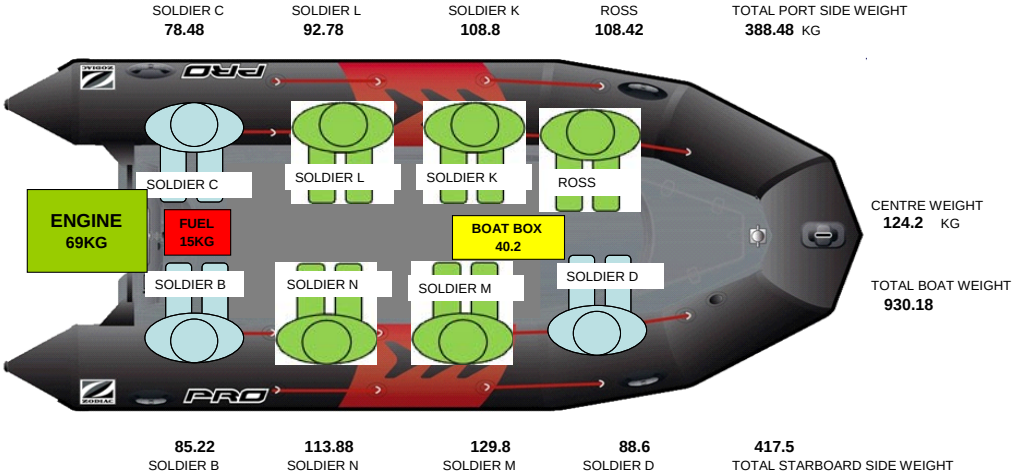

Figure 12: Zodiac 3 Weights and Distribution

Engine

80. The outboard motor used to power the Zodiac is the Mercury 40 Lightening XR.[124] The NZ P96 Part 2.4.2.5 currently references NZ P98 B 310 as having a list of civilian repair agents, however no such list exists.[125]

[122] Witness 18, dated 11 October 2012, A3; Exhibit X, page 3.
[123] Witness 43, dated 17 May 2013, A4; Exhibit AAJ.
[124] Exhibit AAK.
[125] Exhibit AAK, paragraph 12.

81. The Court heard conflicting evidence about the operability of the Mercury 40 Lightening XR engine operated by Zodiac 3 and whether it was performing to standard.[126] On the balance of probabilities, the Court finds that the engine of Zodiac 3 is likely to have not been operating to full capacity on 25 September 2012. However, there is no evidence to suggest that the engine's lack of capacity had a bearing on the death of Private Ross.

82. The Court considers that the engines are fit for purpose for use with the Zodiac. Coincidently, as part of routine capability development the NZDFs Capability Branch is working on the procurement of a replacement engine which is likely to be multi fuel capability. The Court recommends that, if a larger Zodiac is purchased, an assessment of a suitable engine is conducted.

Is the Zodiac Fit for Purpose?

83. Zodiac is the main manufacturer of inflatable boats for military applications and has been designing military products since 1896 for those operating on the water, with the modern inflatable boat developed in the 1930's. In 1990, Zodiac set up MILPRO, which focuses on the military and professional field. Zodiac has more than 20,000 boats in daily use by over 80 military forces across the globe.[127]

84. The Court finds that the Zodiac is fit for purpose for general military operations including diving, providing it is fully functional and operated within its specifications.

85. The fitness of the Zodiac to support this EIC activity however has been questioned. The Chief Instructor of the School of Military Engineering stated that "establishing a fire support base from an inflatable boat is fraught with faults…it is an unstable platform which I wouldn't recommend."[128] The suitability of the Zodiac to support EIC amphibious tasks was addressed early in 2012, where it was identified that a minimum of eight boats were required to get the troops onto the beach. At this meeting it was suggested that trials should be conducted towards acquiring a new platform better suited to supporting these operations, in particular one capable of delivering a platoon-size organisation onto the beach with two to three craft.[129]

86. The Officer in Charge of BUNNY 1 had also identified performance concerns with the Zodiac, at earlier training in the Hauraki Gulf.[130] Consequently he determined that the EIC was to plan to limit the numbers of personnel on each boat, to five with a maximum of six, until a sea trial could prove that the boats could handle the weight listed in the specifications.

[126] Witness 4, dated 4 October 2012, A39 and A40; Witness 8, dated 11 December 2012, A5; and Witness 10, dated 11 October 2012, A19 to A23.
[127] Exhibits AD and AN.
[128] Witness 18, dated 11 October 2012, A15.
[129] Witness 18, dated 11 October 2012, A20.
[130] Witness 1 dated 2 October 2012, A24.

87. The Court endorses this proposal and recommends that further analysis is required as to the suitability of the Zodiac, given the concerns expressed about its suitability as a platform for amphibious operations.[131]

88. The Court finds however that the New Zealand Defence Force Zodiac was fit for purpose solely for the administrative move it was being used for when Private Ross fell overboard into the Lake.

89. However the Court finds that the actual Zodiac that Private Ross fell out of was not fit for purpose, owing to the manner in which it was operated, specifically the fact that it was under inflated. This was aggravated by the choppy sea state. These two circumstances combined resulted in the flexing of the bow and produced the *bouncy castle effect* experienced by the Zodiac that Private Ross was on.[132]

90. The Court finds that all personnel operating the Zodiac on Exercise BUNNY 1 were qualified, as they had completed one of the following courses:

a. The Basic Combat Engineer course;[133]

b. The NZSAS Rigid Inflatable Boat Coxswains course; or

c. The NZSAS Cycle of Training - Phase 3 Small Boating Course.

91. Given the risks incurred with an under inflated boat, and the apparent requirement for the EIC to use a boat that holds greater weight and therefore requires greater stability, the Court recommends that the Zodiac is not used for amphibious operations until a thorough analysis has been conducted of its fitness for purpose at Capability Branch. Further, any amphibious operation must be strictly within defined limitations, and training on the risk of under inflation of the boats must be conducted.

92. If this recommendation is not agreed, then at the very least the Court recommends, in the interim, that the use of the Zodiac is only continued strictly within the parameters of its specifications and weight limitations. If a replacement boat is not considered necessary then the Court recommends that the replacement of the deck boards must be considered in order to prevent excess bow flexing during amphibious operations. [134]

93. Some options that could be investigated are identified below:

[131] Witness 18, dated 11 October 2012, A20 and Exhibit AA page 5, paragraph 16(c).
[132] Witness 3, dated 26 November 2012 A 45,46
[133] See paragraph 102 below.
[134] Exhibit AD, page 12: Rigid floor consists of aluminium panels and wooden bow boards, which bring high resistance and allow high payload.

a. Zodiac FC 470 with the Futura hull[135] (Figure 13) and rigid floor (Figure 14). This boat provides increased stability through its unique hull form and deck boards that run from the bow to the stern.

Figure 13: Futura Hull

Figure 14: Rigid Floor

b. Zodiac also produces two other military specification boats that could provide an improved capability to the NZDF without any major changes to operating methods and would assist in delivering the future amphibious roles of the New Zealand Army (Table 8):

(1) **Zodiac FC 530.** This boat is a 5.30m inflatable boat designed to carry 12 persons with a combined weight of 1690 kg. The boat has a Futura hull system and a four section hard deck from bow to stern. The recommended power is a 50 HP outboard motor, but the craft is capable of utilising an 80 HP outboard motor if the hard deck is fitted. .

(2) **Zodiac CRRC 520.** This boat is a 5.24m inflatable boat designed to carry 12 persons with a combined weight of 1590 kg. This craft

[135] Exhibit AD, page 13: Zodiac's patented Futura hull concept features two speed tubes under the boat. These speed tubes increase hydrodynamic lift and reduce drag. This specific and unique hull shape can plane large loaded as well as give the driver unsurpassed manoeuvrability in different and often dangerous conditions.

incorporates a large hull and tube design for increased and bulky loads. The recommended power is a 40 HP outboard motor.

	FC 420	FC 470™	FC 470 EVO 7™
			
DIMENSIONS & WEIGHT			
Overall length	4.20 m / 13'9''	4.70 m / 15'5'	4.70 m / 15'5''
Weight (empty)	120 kg / 265 lb	146 kg / 322 lb	120 kg / 264 lb
CAPACITY			
Maximum payload	870 kg / 1918 lb	1250 kg / 2756 lb	1250 kg / 2756 lb
Number of persons	6	10	10
ENGINE			
Recommended power	25 hp	40 hp	40 hp
HULL SHAPE	Futura	Futura	Futura
FLOOR	Rigid / Roll-Up	Rigid / Roll-Up	Air/ Roll-Up

	FC 530	CRRC™ 450	CRRC™ 520
			
DIMENSIONS & WEIGHT			
Overall length	5.30 m / 17'5''	4.50 m / 14'7'	5.24 m / 17'2"
Weight (empty)	180 kg / 397 lb	110 kg / 243 lb	143 kg / 315 lb
CAPACITY			
Maximum payload	1690 kg / 3725 lb	1250 kg / 2756 lb	1590 kg / 3505 lb
Number of persons	12	9	12
ENGINE			
Recommended power	50 hp	30 hp	40 hp
HULL SHAPE	Futura	Classic	Classic
FLOOR	Rigid / Roll-Up	Roll-Up	Roll-Up

Table 8: Types of MILSPEC Zodiac boats[136]

Was the Safety Boat Fit for Purpose for this Activity?

94. DFO(A) Volume 2 Book 1, Part 8, Chapter 3 prescribes the requirements for a safety boat. For this activity, there were two Support Boats, a Zodiac and the Training Support Boat.

95. The Court finds that the safety boat, namely the Training Support Boat ('TSB') utilised, was not fit for purpose. Although it had some safety equipments stowed within it, it did not have all the prescribed equipments as detailed in DFO(A) Volume 2 Book 1 Part 8 Chapter 3.[137] Additionally the safety boat was not compliant with DFO(A) Volume 2 Book 1 Part 8 Chapter 3, paragraph 8149 as it was not "at least equal in capacity[138] to the largest vessel in the exercise fleet" as the Zodiacs carried eight personnel and the safety boat could only carry seven, including the three safety personnel required on board.[139] As previously recorded the Court also finds that the safety boat was not adequately manned contrary to Exhibits X and AL.

[136] Exhibit AD
[137] Witness 22, dated 20 May 2013, A3.
[138] Witness 22, dated 20 May 2013, A3 and Exhibit AAN, photograph 12.
[139] Exhibits AL paragraph 8149; Exhibit X page 11; Witness 13 and Witness 6, dated 18 October 2012, A23.

96. The Court recommends that the option of procuring a larger class of boat for use as a dedicated safety boat be investigated.

97. The Court also finds that the Zodiac used as a safety boat in the activity was fit for purpose as it was at least equal in capacity to the largest vessel in the exercise fleet. It is recorded however that it was only manned by two personnel in breach of orders.[140]

Propeller Guards

98. The Court finds that neither the Zodiac nor the TSB safety boat had propeller guards.[141] The Mercury 40HP Outboard Motor that is utilised by the RNZN is supplied with propeller guards as a standard fit as shown in Figure 15.[142] As this EIC activity involved both the Zodiac and the safety boat being capable of conducting rescue activities, the Court considers a propeller guard should be attached to both types of boat, accepting that the standard operating procedure (SOP) was to put the vessel into neutral, in the event of a recovery.[143] In this incident the Water Safety Officer was able to engage Neutral on the safety boat when attempting to rescue Private Ross.

Figure 15: RNZN Outboard Motors with Propeller Guards

Adequacy of Training in Water Safety

99. In terms of the training in water safety that they had received, the Court finds that the personnel undertaking the amphibious activities on 25 September 2012 fell into two distinct groups:

a. Members of the Corps of Royal New Zealand Engineers ('RNZE'); and

b. Members of the EIC.

[140] Witness 4, dated 4 October 2012, A29; Exhibits X and AL.
[141] Witness 15, dated 24 October 2012, A97.
[142] Exhibit AAO and AAP. Witness 47 dated 20 May 13 A4. It should be noted that since this incident the TSB has been fitted with propeller guards and the life rings have been relocated to the rear of the vessel – Witness 22 dated 20 May 2013, A7 and Exhibit AAN, photographs 15 to 21.
[143] Exhibits M page 2, paragraph 41065 and AL article 8180.

RNZE Personnel

Basic Combat Engineer course

100. All RNZE soldiers are trained on how to operate small boats as part of their Basic Combat Engineer course.[144] This course qualifies field engineers to undertake the bowman, coxswain and boat commander duties in Kevlar assault boats and Zodiacs. As part of this training, field engineers are taught equipment maintenance and operation, duties and responsibilities (including safety requirements), basic tactics and safety drills (man overboard and capsize). This training is conducted over six days which is divided into two days' theory and four days' practical experience including testing.[145] This is conducted for both types of craft. Based on this, the Court finds that all RNZE personnel who participated in Exercise BUNNY 1 were suitably trained in water safety. However the application of some safety procedures has been overlooked by the boat crews and Water Safety Officers.

Corps of Royal Australian Engineers' Regular Officer Basic Course

101. All RNZE officers attend the Corps of Royal Australian Engineers' Regular Officer Basic Course as there is no equivalent course in the New Zealand Army.[146] During this course officers are trained on the same Kevlar assault boat and a very similar Zodiac as the New Zealand Army Zodiac. This six month course teaches officers all manner of field engineering skills such as demolitions, boating and field construction. Specifically the boating phase covers equipment maintenance and operation, duties and responsibilities (including safety requirements), basic tactics and safety drills (man overboard and capsize). This boating training is conducted for a period of three to five days for both craft.[147]

102. The Court is concerned that New Zealand officers are taught the Australian Defence Force safety regulations on the abovementioned course and upon return to New Zealand are only required to conduct a conversion to New Zealand safety regulations for demolitions. **SOLDIER F** has stated that neither he nor his peers have received any formal training on DFO(A) Volume 2, the Army's orders on safety in training.[148] It has become apparent to the Court that a regime of water safety recertification and refresher training should be conducted for those personnel who are likely to be employed as Water Safety Officers.

103. Although the Court accepts **SOLDIER F's** evidence that he had not had conversion training in respect of the water safety orders in DFO(A) Volume 2, the Court finds that a reasonably capable and careful RNZE officer of his rank and experience would have known that, as the Safety Officer, it was his duty to ensure that all of his personnel were correctly equipped, trained and briefed for the training that was to take place. [149]

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[144] Witness 18, dated 11 October 2012, A2.
[145] Witness 18, dated 11 October 2012, A2.
[146] Witness 18, dated 11 October 2012, A2 and Witness 13, dated 3 October 2012, A54.
[147] Witness 18, dated 11 October 2012, A2; Witness 13, dated 3 October 2012, A52.
[148] Witness 13, dated 3 October 2012, A54 and A55.
[149] Exhibit AL, paragraph 8110.

EIC Personnel

104. All EIC personnel had received a number of briefings on water safety and had undertaken various training activities to prepare themselves prior to 25 September 2012.

New Zealand Army swim test

105. Private Ross conducted the New Zealand Army basic water skills test on 19 January and 9 May 2012.[150] These tests are designed to assess a soldier's ability to conduct basic water skills such as swimming in uniform and treading water. Additionally this type of training builds water confidence and assists the commanders to identify personnel who need further training to swim. It is understood that additional training was conducted in the Linton Pool whereby personnel conducted swim training in patrol order with body armour to build water confidence.[151] This water confidence training was also designed to give the individuals practice in the use of the Mustang life jacket and to develop confidence in using it. It also included developing confidence in the quick release system on their issued body armour and the removal of their webbing vest whilst underwater.

Helicopter Underwater Evacuation Training

106. This training was conducted by some EIC personnel, including Private Ross, who deployed on Exercise RIM OF THE PACIFIC ('RIMPAC') 2012.[152] The training is conducted while sitting in a helicopter simulator which is dunked under water in a deep pool and requires the soldier to[153]:

a. Push a window out;

b. Unclip a seat belt;

c. Escape via a window on a single breath; and

d. Escape via a window using an Underwater Escape Module breathing apparatus.

Man overboard drills

107. Man overboard drills were conducted as part of Initial Training Block 2.[154] Man overboard drills were taught during the Initial Training Block 1 however only a dummy or buoy was used to simulate someone in the water. This training also allowed the boat crews to practice their drills.

[150] Exhibits S.
[151] Witness 14, dated 30 October 2012, A65.
[152] Witness 14, dated 30 October 2012, A17.
[153] Witness 14, dated 30 October 2012, A17
[154] Witness 10, dated 15 May 2013, A10 and 13; Witness 9, dated 14 May 2013, A5; Witness 5, dated 15 May 2013, A5; Witness 7, dated 15 May 2013, A7; Witness 1, dated 18 May 2013, A6; Witness 6, dated 15 May 2013, A5; and Witness 13, dated 15 May 2013, A2.

Capsize drills

108. As part of the progression plan for Exercise BUNNY 1, the EIC conducted swimming and boat drills in the Waiouru swimming pool. 2 Platoon conducted this training on the afternoon of 24 September 2012 while 1 Platoon conducted this training on the morning of 25 September 2012.[155]

Finding in respect of water safety training

109. The Court finds that the EIC had conducted sufficient safety training to undertake the activities that it was conducting on the Lake on 25 September 2012, in accordance with DFO(A) Volume 2, Book 1, Part 8, Chapter 3.

Medical Support to the Activity at Lake Moawhango

110. **SOLDIER P** had been detailed to provide medical support to the live field firing activity conducted on the eastern side of the Lake however he was also put into the safety boat as part of the water safety team.[156] Having not done any training with the EIC before, and given that the EIC were conducting a 'new' type of training (live field firing from Zodiacs), it is the Court's opinion that a number of rehearsals should have been conducted to ensure that all safety staff understood how to react in this new environment.

Potential Water Safety Enhancements for the New Zealand Army

111. A number of enhancements can be made to improve the trained state of New Zealand Army personnel in respect of amphibious operations:

a. **Individual competency.** Although the New Zealand Army conducts a swim test there is more that can be done to ensure individual competence in and around water. This is covered in more detail below in the section dealing with the adequacy of New Zealand Army swim training.

b. **Helicopter Underwater Evacuation Training (HUET).** Given the NZDF's intent to transition towards a Joint Amphibious Task Force, it is likely that NZDF personnel will increasingly be required to transit over water in helicopters. It is understood that, while the RNZAF conducts HUET for its aircrews, such skills are not intended to form part of the Army's future soldier skill set. The Court suggests that this intent should now be reconsidered. This type of training will allow soldiers to be confident in the knowledge of what to do in an emergency if a helicopter is required to ditch at sea or over internal waters. This skill set is already required for elements of the NZSAS and all operators are to have completed this training before they can commence training using the NH90 helicopter. **(Redacted)** [157] As one of the EIC tasks is to support the NZSAS, the Court considers that it should conduct HUET as part of its OLOC training.

[155] Witness 14, dated 30 October 2012, A30.
[156] Witness 16, dated 17 October 2012, A4 to A6, A16 and A17.
[157] Witness 29, dated 17 May 2013, A12.

c. **Standardised safety brief.** As part of water training, a standardised safety brief for amphibious operations should be included in DFO(A) Volume 2 Book 1 Part 8 Chapter 3, similar to the RNZN or Australian Defence Force versions. This would ensure that personnel do not become complacent and it would be another means for commanders to reduce risk.

d. **Rehearsals.** The above mentioned safety brief should be supplemented by practical rehearsals of the following water safety skills:

(1) How to operate the life jacket;

(2) How to ditch a soldier's excess equipment (i.e. weapon, body armour and helmet); and

(3) Actions on man overboard and capsize, both by the boat itself and the accompanying safety boat.

Was Private Ross a Competent Swimmer?

112. The Court finds that Private Ross was a competent swimmer, based on the following facts:

a. He passed the Army Swim Test on 19 January and 9 May 2012;[158]

b. He successfully undertook HUET training as part of Exercise RIMPAC in Hawaii on 25 June 2012;[159] and

c. He successfully conducted rehearsals in the Waiouru Pool on 24 September 2012.[160]

Adequacy of New Zealand Army Swim Training

113. The New Zealand Army conducts a number of activities to evaluate, test, train and improve the confidence of its soldiers in and around the water. A generic process that is undertaken by a recruit is:

a. A watermanship assessment is conducted for all recruits to determine their swimming ability. This is not a pass or fail activity however their swimming ability is noted on their course report;[161] and

b. The second key watermanship test is the flotation test. Recruits are taught how to make a raft out of their pack and webbing in order to cross water obstacles.[162]

[158] Exhibits P and S.
[159] Witness 14, dated 30 October 2012, A17.
[160] Witness 14, dated 30 October 2012, A30.
[161] Witness 49, dated 16 May 2013, A16.
[162] Witness 49, dated 16 May 2013, A5.

114. After completing recruit training, soldiers undertake swimming as part of their unit's standard physical training programme. This normally entails swimming circuit training in the camp swimming pool. Soldiers may be required to conduct the basic water skills test which includes treading water and swimming 100 metres in uniform.[163]

115. Noting the RNZN's decades of experience in conducting operations in an aquatic environment, the Court has called evidence as to that Service's swim test requirement.[164] That requirement is prescribed in NZBR 21 *Royal New Zealand Navy Sport, Physical Fitness, Recreation and Adventure Training*, article 0824:[165]

1. An ability to swim is a basic survival skill for all officers and ratings. Proficiency in swimming is to be assessed by two tests:

a. **Provisional Swimming Test**. This test is to be carried out in shallow water or a suitable swimming pool. The qualification is to be met during initial training by all personnel and failure noted as a bar to sea service and all boat work. Failure to pass the provisional swimming test during initial training will be grounds for administrative release (Category DE). The provisional swimming test is always to be passed before the standard swimming test is attempted.

b. **Standard Swimming Test**. This test is to be carried out in the open sea.

116. Both tests require the candidate to swim 50 m and, on completion, remain afloat unaided by treading water for three minutes. The tests are to be conducted by a Physical Training Instructor. Tests are to be conducted in general working dress or overalls, without shoes but optionally with gym shoes and/or socks.[166]

117. The following rules with respect to safe water temperatures are to be followed:[167]

a. Before undertaking the provisional or standard swimming test instructors are to measure the water temperature. No testing is to be conducted if the water temperature is below 13 degrees Celsius.

b. When there is a risk of further cooling due to wind chill, dry protective clothing or blankets are to be provided at the point of exit.

c. Personnel can elect to wear extra protective under/over coveralls in the form of a woollen vest or jersey. Trainees electing to wear such a garment are to be made aware that it may make the test more difficult.

118. A pass in the standard swimming test is a mandatory pre-requisite for completion of Junior Officer Common Training and for ratings' promotion to Able Rank.

[163] Witness 49, dated 16 May 2013, A8.
[164] Witness 36, dated 31 January 2013, A1.
[165] Exhibit AAL
[166] Witness 36, dated 31 January 2013, A1.
[167] Exhibit AAL.

119. The following notations are to be made in each officer or rating's electronic personnel record with effect from the date of qualification:

a. Passed the provisional swimming test;

b. Passed the standard swimming test; and

c. Failed test: cannot swim.

120. With the advent of the Joint Amphibious Task Force is it recommended that the NZDF adopts the RNZN swim test process as a core skill requirement for all members of the Armed Forces, before they can undertake boat work or service at sea.

Compliance with Orders and Instructions

121. The Court finds that the Live Field Firing activity that took place prior to Private Ross being lost was conducted in accordance with the required rules and regulations.[168]

122. However, the Court finds that the amphibious operations training, in particular the safety procedures to support this training, was not conducted in accordance with DFO(A) Volume 2 Book 1 Part 8 Chapter 3. The following breaches of DFO(A) contributed to the loss of Private Ross:

a. The safety boats used for the activities were not equipped in accordance with the requirements of DFO (A) Volume 2 Book 1 Part 8 Chapter 3 paragraph 8131. In particular there was no radio on board the safety boat which came to the assistance of Private Ross.[169]

b. The safety boat had only one person on board for this move.[170] This is contrary to DFO(A) Volume 2 Book 1 Part 8 Chapter 3, paragraph 8149, which states there must be a minimum of three persons on the safety boat.[171]

Other Safety Failings

123. In addition to the breaches of DFO(A) Volume 2, Book 1 Part 8, Chapter 3 identified in the previous section, the Court has identified the following breaches of good safety practice:

a. The Zodiacs transporting 2 Platoon from the Live Field Firing administration area back to the boat ramp commenced their move without the safety boat being in support.[172]

[168] Exhibit B.
[169] Exhibit AL; Witness 6, dated 18 October 2012, A15; Witness 13, 28 September 2012, A68.
[170] Witness 6, dated 18 October 2012, A89 to A91; Witness 16, 17 October 2012, A27.
[171] Exhibit AL, paragraph 8145.
[172] Witness 15, dated 24 October 2012, A27, A34 and A44.

b. The flotilla commander did not brief his boat crews on formations or an order of march for the move back to the boat ramp.[173] In his response to this report, **SOLDIER G** agrees that he did not give a flotilla commander brief. He states that he did not do so because he understood the move to be an administrative one which did not require standard movement orders. The Court agrees that a flotilla commander brief is not a requirement in accordance with DFO(A) Volume 2, Part 8, Chapter 3 but considers that it should be incorporated into any rewrite of this publication.

c. The actions of the safety boat in the attempt to rescue Private Ross whilst he was in the water impeded the crew of Zodiac 3 from completing their man overboard drill, which if conducted may have been successful in rescuing Private Ross.[174] The Court finds that the action taken by the safety boat was done with the right intent, to get assistance to Private Ross as quickly as possible, however this action may have impeded his possible recovery. **SOLDIER E** quoted New Zealand maritime law which he indicated states "a distress signal indicates a boat or person is in grave and imminent danger and requires immediate assistance. If you see or hear a distress signal you must assist unless it will put you, your crew or your boat in danger". The Court accepts that as a reasonable summary of section 32 of the Maritime Transport Act 1994. **SOLDIER E** contends that he intervened because he observed Private Ross to be in imminent danger and assessed that Zodiac 3 was not reacting quickly enough to the situation. The Court finds that **SOLDIER E** responded to the incident based upon an instinctive reaction to someone in distress. However, the Court also considers that Zodiac 3 was better placed to recover Private Ross due to their training and the number of personnel in the boat.

d. It appears that some soldiers were told to place their life jacket toggles away so they would not be caught during training and accidentally inflate the jacket, when not required.[175] This was not picked up by the inspection of safety equipment before the individual embarked on the boat by the boat crews as only a quick safety check was done as individuals boarded the Zodiac.[176]

124. A number of witnesses involved in the training on 25 September 2012 indicated that there was a rush to get things done and briefings were overlooked or not given because of the hurried nature of the training.[177]

125. Noting the issues outlined above, the Court recommends that appropriate steps be taken to ensure that all Water Safety Officers in the New Zealand Army are familiar with DFO(A) Volume 2 Book 1 Part 8 Chapter 3 and they are held accountable for ensuring that the duties and responsibilities laid down in those orders are complied with. As part of this, it is recommended that 2 Engineer Regiment

[173] [R] Witness 15, dated 24 October 2012, A62.
[174] Witness 3, dated 26 November 2012, A45; Witness 4, dated 4 October 2012, A37.
[175] [R] Witness 19, dated 6 December 2012, A3; Witness 42, dated 17 May 2013, A7; and Witness 14, dated 18 May 2013, A4. As indicated above at paragraph 67, **Soldier I** contests **Soldier H's** evidence.
[176] Witness 5, dated 4 October 2012, A24.
[177] Witness 15, dated 24 October 2012, A100; Witness 6, dated 18 October 2012, A59; Witness 13, dated 3 October 2012, A92.

conduct refresher training for all persons who are required to be employed as Water Safety Officers to ensure they are aware of their duties and are capable and competent to conduct them correctly and in accordance with the Defence Force Order.

Overall Adequacy of the Planning and Conduct of the Activity

126. Based on the evidence before it, the Court's overall assessment of the adequacy of the planning for and the conduct of the activity which resulted in the death of Private Ross is presented in three parts:

a. The adequacy of the planning for Exercise BUNNY 1.

b. The adequacy of the planning for the specific activities undertaken by 2 Platoon on 25 September 2012.

c. The adequacy of the process by which the amphibious concept for the EIC was developed.

Planning for Exercise BUNNY 1

127. Exercise BUNNY 1 was designed to enhance EIC skill sets through the conduct of advanced training focused on amphibious live field firing, explosive breaching and urban searching.[178] All necessary exercise documentation was completed as required by 1st Battalion RNZIR, Headquarters 1st (New Zealand) Brigade and Waiouru Military Training Area Range Standing Orders.[179] Annex A of the A Company OPORD 06/39/12 is the detailed programme for Exercise BUNNY 1 and it contains sufficient detail for personnel to understand who was responsible for the conduct of the various activities that were to be undertaken.[180] Of note is that Serial 6 of Annex A of the Exercise BUNNY 1 Operational Order 06/39/12 states that from 1900 to 2100 hours on 24 September the EIC was to undertake a lesson, conduct administration and receive safety briefings in preparation for the following day.

Planning for 25 September 2012

128. The concept of having the two platoons conduct concurrent activity on the Lake was sound, however the execution of this proved to be difficult. The Court suspects that if only one platoon had been operating on the Lake on 25 September 2012 then full safety briefings, complete Lake movement orders and detailed boat loading plans would have been conducted. More importantly if the available RNZE personnel had been focused solely on one platoon conducting boating and Live Field Firing, this may have allowed for the safety boat to be properly crewed and for detailed fault checking of equipment to be conducted. In short, given the lack of experience in waterborne activities among the EIC personnel, the Court finds that, with the benefit of hindsight, either the resources devoted to water safety should have been strengthened, or the complexity of the activity should have been reduced.

[178] Exhibit C.
[179] Exhibit B.
[180] Exhibit E.

Development of EIC amphibious concept

129. The EIC has undertaken an ambitious plan to become competent in a variety of specialist skills in a very short period of time. This inquiry has highlighted various areas in which the EIC has been taught skills by the NZSAS but have then modified or amended these skills to suit what they perceive as being their operational requirement. It appears that this has been done without understanding the full implications of such decisions.[181]

130. The example above serves to highlight the lack of an operational concept within which the EIC should be operating. This issue was raised by **(Redacted)**, **SOLDIER A** in May 2012.[182] The Court understands that such an operational concept is being developed by NZDF Capability Branch.[183] With the benefit of hindsight, the Court concludes that an operational concept should have been developed first in order to allow the training needs, performance requirements and subsequent equipment capabilities of the EIC to be developed.

131. By way of example, if the amphibious operating concept for the EIC were to be able to "*conduct unopposed platoon level amphibious operations from 15km from the shoreline, by night, to secure a beach head for follow on forces*" then this would inevitably lead to the requirement to reconsider a number of capability and training development settings:

a. **15km from the shoreline.** At this distance from the shore, consideration should be given to whether:

(1) The Zodiac is a suitable boat to effect the lodgement ashore.

(2) All personnel should be issued with immersion suits, day/night flares and knives. Webbing should be kept in a dry bag for the majority of the transit and then donned only when at the final rendezvous point. This would also mean that weapons need not be worn on the body until lodgement ashore.

(3) The safety boat should be fitted with radar to be able to see other vessels that may be transiting in the exercise area.

b. **Platoon level.** A landing force of this size would require sufficient boats to carry its personnel and this would drive the capacity and subsequent numbers of safety boats.

c. **Night operations.** This would require a significant build up period of training and subsequent checks during daylight to ensure this training was conducted safely.

132. The Court takes the view that, in transitioning the EIC towards this new operational concept, it may be more beneficial for it to develop a specific skill set to a

[181] Witness 13, 28 September 2012, A37 and A38.
[182] Exhibit AA.
[183] Witness 1, dated 17 May 2013, A2 and A3.

high level of competence, then move on to the next competency rather than trying to develop all skills sets at once. For example the EIC is attempting to master airmobile operations (fast roping and rappelling), amphibious operations (inclusive of Live Field Firing from moving vessels), and urban operations (close quarter battle and breaching) all within a single 12-month window. Given that the EIC skill set and responsibility is to be rotated between the three combat units annually then this is a very high rate of effort and skill set to maintain. A comparison has been drawn between the NZSAS cycle **(Redacted)** and the EIC training. However, the start point of those on the NZSAS cycle is very different – they have undergone a selection process to get onto the training cycle whereas EIC are conventional soldiers who, by being posted to a particular unit or sub-unit are being instructed on some special skill sets.

133. With this in mind, the Court recommends that the Assembling Authority considers suspending the development of amphibious skills by the EIC until such time that an operating concept for that capability is approved. This will allow the EIC to continue to conduct urban and airmobile capability development.

134. One option to upskill all three combat units concurrently would be to have at least one company per unit conduct training on one specialist skill set per year. This training would be a standardised programme that would be synchronised at Headquarters Joint Forces New Zealand, to ensure that necessary maritime and airmobile resources would be available to the land forces at required times. This would mean that, over time, the EIC would only have to re-qualify rather than re-train. This proposal is graphically represented in Table 10. This concept would reduce the amount of up skilling required by the EIC, thereby reducing risk.

	2013	2014	2015	2016
1 RNZIR	Airmobile	Urban	Amphibious	Airmobile
2/1 RNZIR	Amphibious	Airmobile	Urban	Amphibious
QAMR	Urban	Amphibious	Airmobile	Urban

Table 9: Skills training concept

Was the Death of Private Ross Preventable?

135. It is the opinion of the Court that the drowning of Private Ross was accidental but preventable and a number of contributing factors all conspired at the same time to create a tragic circumstance. The factors which could have been prevented are set out below under the heading of the following key themes:

a. How could the Army have reduced the risk of Private Ross falling out of the Zodiac?

b. How could the Army have ensured that Private Ross was able to survive once he entered the water?

c. How could the Army have ensured that Private Ross was rescued?

Reducing the risk of Private Ross falling out of the Zodiac

136. The Army could have reduced the risk of Private Ross falling out of the Zodiac by:

a. *Reducing the number of personnel within his Zodiac* thereby reducing the overall pressure on the inflatable pontoons and keel. This reduction in weight may have meant that there may not have been excessive bending in the bow of the Zodiac thereby negating the need for personnel to switch positions.

b. *Ensuring that the Zodiac did not launch from the lakeside unless it was fully inflated* and that the engine was working correctly.

c. *Ensuring the entire flotilla was given proper orders* and that a safe speed to match the weather conditions and an order of march was adhered to.

Ensuring that Private Ross was able to survive in the water

137. This may have been achieved if the Army had ensured that:

a. *Private Ross was wearing a life jacket which had a fully operational gas canister.* The Court is unable to determine whether Private Ross attempted to inflate his life jacket, but if he did the life jacket would have failed. The critical failing here is in not having a system which ensures that life jackets are checked to ensure that they are operational.

b. *Private Ross was wearing an auto-inflating life jacket.* If Private Ross was wearing a fully operational auto-inflating life jacket it should have inflated as soon as he was submerged in the Lake. Private Ross was not wearing this type of life jacket because the Army's auto-inflating life jacket had been withdrawn from use in late June 2012 due to inflation faults.

c. *Private Ross was not wearing unnecessary equipment.* Private Ross may have been able to tread water for longer allowing for rescue if he had not been encumbered by his webbing and weapon. In this particular case, it was an administrative move across the Lake, and there was no requirement for him to be carrying his weapon as this should have been secured to the boat in accordance with DFO(A) Volume 2 Book 1 Part 8 Chapter 3 paragraph 8141(d).

d. *Private Ross was wearing an immersion suit.* On 25 September 2012 the temperature of the Lake was so low that the RNZN would have ordered its personnel to wear immersion suits for waterborne activities. If Private Ross had been wearing an immersion suit then he may have been able to withstand the shock of the cold water longer and the suit may have also aided in his flotation.

Ensuring that Private Ross was rescued.

138. Private Ross may have been rescued if:

a. *The personnel on board Zodiac 3 had been allowed to conduct the man overboard drill as briefed and trained.* This did not occur because the safety boat intervened before Zodiac 3 was able to turn and pick Private Ross out of the water.

b. *The safety boat had been correctly manned.* At the time when Private Ross fell into the Lake, only one person was on the safety boat and this person was attempting to manoeuvre the boat and rescue Private Ross at the same time. Having said this, the Water Safety Officer was able to make contact with Private Ross with the boat hook but for reasons unknown Private Ross was unable to maintain positive contact with the hook.[184] If there had been three personnel on board the safety boat, one could have been manoeuvring the boat, whilst the other two personnel could have thrown the numerous available flotation aids to Private Ross.

c. *The safety boat had a standby swimmer.* Although the New Zealand Army does not utilise a standby swimmer for its waterborne activities, it is the Court's opinion that one of the three personnel in the safety boat could have been dressed and equipped to enter the water at short notice in order to assist the man overboard with staying afloat. If required, this person would effect the rescue and, if necessary, dive under the surface to search for a person who has not resurfaced.

Is it likely that offences against the AFDA have been committed?

139. DFO(A) Volume 2, Book 1, Part 8, Chapter 3 is the principal publication for watermanship in the New Zealand Army. These orders prevail and apply to Army small boat and ferry operations other than Joint Services Exercises or NZSAS Training.[185] It appears to the Court that these orders were breached on a number of occasions during Exercise BUNNY 1, and in the preparation for that activity. The Court also considers that there were some further systemic failures in the development of the EIC capability itself as well as preparation, conduct and supervision of the EIC. These are not directly attributable to any individual, but did not assist with overall compliance.

140. As indicated above, the Court has identified a number of breaches during its inquiry and it is the Court's opinion that many of these may constitute well-founded allegations of offences against the Armed Forces Discipline Act 1971. For clarity, the Court is not stating that each of the alleged offences directly contributed to Private Ross's death. However, some may have. These alleged offences, all of which have been drawn to the attention of the Corps of Royal New Zealand Military Police, are:

[184] Witness 9, dated 28 September 2012, A13 and Witness 10, dated 11 October 2012, A13.
[185] Exhibit AL paragraphs 8105, 8106, and 8107.

a. Negligently operating a safety boat below the minimum manning of three persons required by DFO(A) Volume 2, Book 1, Part 8, Chapter 3 paragraph 8149.

b. Failing to ensure the safety of all exercise vessels, contrary to DFO(A) Volume 2, Book 1, Part 8, Chapter 3, paragraph 8110(a).

c. Failing to provide a water safety brief to 1 Platoon personnel before they embarked in the Zodiacs to conduct amphibious operations contrary to DFO(A) Volume 2, Book 1, Part 8, Chapter 3, paragraph 8110(c).

d. Negligently permitting a Training Support Boat to be used as a safety boat when it was not at least equal in capacity to the largest vessel in the flotilla as required by DFO(A) Volume 2, Book 1, Part 8, Chapter 3, paragraph 8149.

e. Negligently failing to ensure the RFD Type 60B Life Jacket was fit for purpose for the EIC activity as a replacement for the New Zealand Army Mustang Life Jacket.

f. Negligently departing from the Live Firing Area for the boat ramp leaving the Zodiac flotilla behind unattended.

g. Failing to maintain radio communication with the exercise commander, contrary to DFO(A) Volume 2 Book 1 Part 8, Chapter 3, paragraph 8150.

h. Negligently operating the safety boat without all the safety equipment, namely, a first aid pack and radio as required by DFO(A) Volume 2 Book 1 Part 8, Chapter 3, paragraph 8131(i).

i. Negligently operating the safety boat without all the safety equipment, namely, a life raft as required by NZ P96 Part 3.4.1.2.

j. Negligently failing to ensure that all personnel conducting amphibious operations were sufficiently trained and confident in the use of the RFD Type 60B life jacket.

k. Failing to ensure the safety of the passengers, crew and boat, contrary to DFO(A) Volume 2 Book 1 Part 8, Chapter 3, paragraph 8114, by allowing the Zodiac to be operated with a deflated keel.

l. Negligently failing to ensure personnel secured their weapons to the boat, as required by DFO(A) Volume 2 Book 1 Part 8, Chapter 3, paragraph 8141(d)(i).

m. Negligently allowing Zodiac 3 to commence the move back to the boat ramp without the safety boat being in support.

n. Negligently failing to check the safety equipment namely the toggle of the life jackets of personnel embarking on Zodiac 3.

o. Negligently failing to brief the boat crews on formations or an order of march for the move back to the boat ramp.

p. Negligently directing personnel to tuck in the toggles of the RFD Type 60B to avoid inadvertent activation so that they would not get snagged.

141. The Court also notes the ability of civilian enforcement agencies to initiate charges against the NZDF and individuals. In particular, New Zealand Police and the Ministry of Business, Innovation and Employment (MBIE) also investigated the accident.

Damage or Lost Service Property

142. Exhibit O shows that Private Ross had signed for light support weapon Serial Number NZDAA870767 and B Barrel NZDAA870767B on 24 September 2012.

143. **(Redacted)**

144. **(Redacted)**

145. **(Redacted)**

Other Lessons

Certification

146. The NZDF typically posts personnel every two or three years within the various Services and these new jobs can sometimes be very different to their previous roles. The Court notes that, when personnel are posted to an operational unit in a role which may require them to assume the duties of safety officer, they are not necessarily required to undertake training in or revision of those duties prior to assuming them. Currently there is a test and retest procedure for those that are required to be Officers in Charge of Practices. There is potential for this to be expanded to incorporate personnel at lower ranks.

Best practice

147. The New Zealand Army is not the only military force that conducts amphibious operations. It is highly likely that other ABCA nations (America, Britain, Canada and Australia) have regulations in place to prevent this type of accident occurring. The Court recommends that the Assembling Authority directs the relevant New Zealand Army subject matter experts to engage with the other ABCA nations to understand their policies and whether they are applicable to our Army.

Enforcement of regulations

148. The New Zealand Army has a very good reputation for its safety standards with regards to Live Field Firing and the practical measures for its application. The Court recommends that this methodology be applied to a reviewed amphibious operations or boat handling safety document. Linked to this process is the need for commanders at all levels to enforce the promulgated safety regulations.

Psychological Support

149. A number of personnel were directly involved in this accident and the Court recommends that the following personnel should undertake some form of psychological follow up, if that has not occurred already:

a. **(Redacted)**

b. **(Redacted)**

c. **(Redacted)**

d. **(Redacted)**

e. **(Redacted)**

Conclusions

150. The Court finds that the death of Private Ross was accidental but his death may have been prevented by:

a. Reducing the risk of him falling out of the Zodiac;

b. Ensuring that he was able to survive after he fell into the water; and

c. Ensuring that he was rescued in a timely manner.

151. This accident stemmed from two major issues:

a. Personnel not adhering to the appropriate safety procedures. Minimal water safety briefs and minimal water safety inspections were typical of the events leading up to this incident.

b. The lack of an approved Operational Concept Document. The development of the EIC capability was conducted on verbal orders and intent without having an approved Operational Concept Document. This Operational Concept Document would have identified the tasks, capabilities and equipments that were needed to ensure the effective and efficient development of the EIC capability. This document would have also identified the discrepancies between existing safety instructions and the Tactics Techniques and Procedures that the EIC needed to adopt.

152. The Court finds that both personal and systemic failures were involved in this accident. Immediate remedial action is required to ensure that future New Zealand Army small boating operations are conducted in a safe yet operationally focused manner.

Recommendations

153. The Court makes the following recommendations for your consideration:

a. DFO(A) Volume 2, Book 1 Part 8 Chapter 3 paragraph 8154 should be re-written to include all bodies of water and the weather report should include water temperature and any known local effects.

b. DFO(A) Volume 2, Book 1 Part 8 Chapter 3 paragraph 8155 should be re-written to state **"**The weather report/forecast is to be briefed to all personnel involved in the training activities and in particularly the boats crews. This brief is to be conducted by the Water Safety Officer(s)".

c. As part of water training, a standardised safety brief for amphibious operations should be included into DFO(A) Volume 2 Part 8 Chapter 3. This would ensure that personnel do not become complacent and it is another means for commanders to reduce risk. This safety brief should also be complemented by rehearsals of core skills.

d. There should be a standard dress and equipment list that all individuals who are to conduct amphibious operations must wear and adhere to when operating on water and from small boats. This should be included in DFO(A) Volume 2 Part 8 Chapter 3.

e. The adoption of a Standby Swimmer as part of the three man safety boat crew should be investigated. This person should be dressed and equipped to enter the water at short notice in order to assist the man overboard with staying afloat. If required, this person will conduct the rescue and, if necessary, dive under the surface to search for a person who has not resurfaced.

f. The man overboard drill as it currently stands should be reinforced ensuring that the boat that lost its embarked person and/or crew is afforded priority to make the recovery.

g. The New Zealand Army and RNZN should investigate the replacement of the RFD Type 60B life jacket and the GP-PFD, 290N, MD4020NZ Mustang life jacket. This could allow the NZDF adopt a single general service life jacket that is used by all Embarked Forces on all boats. This would allow Army to train its personnel on a single life jacket for use on any boat or ship.

h. The NZDF should have one specialist organisation that is responsible for the servicing of its life jackets.

i. An NZDF standard for the checking of life jackets should be implemented.

j. The NZDF should develop a drill to find the life jacket activation toggle. This drill would allow personnel to be able to enact the drill under duress.

k. Wet weather clothing should be an approved dress for boating. This should be incorporated into DFO(A) Volume 2 Book 1 Part 8 Chapter 3.

l. The removal of all unnecessary equipment from embarked personnel when conducting administrative movements should be reinforced in accordance with DFO(A) Volume 2 Book 1 Part 8 Chapter 3, paragraph 8141(d). Equipment such as weapons and packs should be secured to the boat and not worn during transit.

m. As with weapons that have a malfunction or vehicles that are involved in an accident, any NZDF boat involved in an accident should be segregated as soon as practicable in order for a technical inspection to be undertaken.

n. A replacement for the Zodiac 470 linked with future capability plans and Operational Concept Documents should be investigated.

o. If a replacement boat is not considered necessary then the replacement of the deck boards should be considered to prevent excess bow flexing during amphibious operations.

p. All small boat engines should be fitted with propeller guards to reduce the risk of propeller strike of any personnel in the immediate vicinity of any boat.

q. A ratio of one safety boat to every four exercising boats should be adopted.

r. The safety boat should have some form of communication with the exercising boats.

s. The safety boat should have an approved Marine VHF radio with the capability of transmitting and receiving voice communications over Channel 16.

t. A type of recertification test, such as the Officer-In-Charge of Practices exam for live firing, should be designed for personnel who plan and conduct boating training.

u. All RNZE officers returning from the Royal Australian Engineers' Regular Officers Basic Course should conduct a formal safety conversion course based on their responsibilities under DFO(A) Volume 2 Book 1 Part 8.

v. 2 Engineer Regiment should conduct refresher training for all persons who are required to be employed as Water Safety Officers to ensure they are aware of their duties and that they are capable and competent to conduct them correctly.

w. The NZDF should investigate how it will provide Helicopter Underwater Evacuation Training ('HUET') with the likely increase of New Zealand Army personnel transiting in helicopters over water.

x. The NZDF should adopt a standard swim test, such as the RNZN process, which would mean that all personnel must qualify or be excluded from all boat work and service at sea with the advent of the Joint Amphibious Task Force.

y. Amphibious development by the EIC should be ceased until such time that an operating concept is approved. This will allow the EIC to continue to conduct urban and airmobile capability development.

z. The allegation of offences referred to in paragraph 140 should be referred to 1st (New Zealand) Military Police Company for investigation. This recommendation has been actioned.

aa. Private Ross' personal equipment **(Redacted)**.

bb. RNZE personnel on the Basic Combat Engineers' Course should be taught how to use a marine VHF radio.

cc. New Zealand Army boat operators who are not posted to 2 Engineer Regiment or the NZSAS for any extended period of time should undertake a recertification/requalification exam on water safety.

dd. The NZDF should standardise the appointments, terminology and responsibilities of any boat crew.

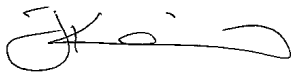
ee. A decision on whether or not to allow Live Field Firing from boats should not be made until a policy for conducting this has been approved.

ff. New Zealand Army subject matter experts should engage with other ABCA nations to understand those nations' amphibious operations policies and whether they are applicable to the New Zealand Army.

gg. Psychological follow up interviews should be conducted with those personnel that were directly impacted by this incident, as described in paragraph 149.

Dated at Linton Military Camp on 23 July 2013

President



J.P. KAIO,
Lieutenant Colonel
Commanding Officer
Queen Alexandra's Mounted Rifles

Member

P.J. ROWE
Lieutenant Commander, RNZN
Commanding Officer
HMNZS WELLINGTON

COMMENTS BY THE ASSEMBLING AUTHORITY

Introduction

1. Armed Forces by their raison d'être engage in activities that may result in injury or loss of life in order to achieve national objectives; however the death of X1028259 Private Michael Victor Ross, RNZIR was not one of these. The tragedy of this training accident was that all aspects were within the control of the New Zealand Defence Force. I agree with the conclusions of the Court of Inquiry that the death of Private Ross, while accidental, was preventable.

2. I am satisfied that the Court of Inquiry has comprehensively examined all of the issues surrounding the death by drowning of Private Ross in Lake Moawhango in the Waiouru Military Training Area on 25 September 2012. I am also satisfied with the procedural aspects of the Court of Inquiry.

3. I have also taken into account the Ministry of Business, Innovation and Employment Investigation Report. Together they provide a clear sequence of events that resulted in the death of Private Ross.

The Court's Findings

4. The recommendations from the Court of Inquiry into the tragic death of Private Ross have been and will continue to be used as a catalyst for comprehensive change to ensure that all Land Force training risk is identified, eliminated or isolated where practicable, or, at the very least, minimised. The recommendations of this Inquiry will now be reviewed on a routine basis to ensure that we have learnt from them.

5. The facts surrounding Private Ross's death are as follows:

   a. Private Ross was dislodged overboard from a rubber inflatable Zodiac boat at Lake Moawhango, when he was returning to the administrative area, after the conclusion of an Enhanced Infantry Company live field firing activity. His dislodgement was likely the result of the combined effects of the chop on the Lake and the wake of a passing Zodiac boat on an under-inflated Zodiac boat, which reduced its rigidity and stability and caused the bow to flex. Moreover, at the same time as personnel were adjusting position to stabilise the bow, the Zodiac was decelerating in an effort to mitigate the effects of the chop and the under-inflation.

   b. Once in the water, Private Ross's lifejacket failed to deploy as the CO2 canister was empty. Subsequent specialist findings indicate that this was caused by previous use of the lifejacket. In turn Private Ross's ability to remain afloat was impacted by the weight of his equipment and weapon, which he need not have been wearing during what was an administrative, as opposed to a tactical move. Private Ross should have been directed to remove his weapon and equipment and stow it in the boat. A rescue was attempted and physical contact was made with Private Ross. However, this was unsuccessful. The ability to conduct

the rescue was adversely impacted by the failure to have the correct level of manning and equipment on the Safety Boat. Further rescue attempts by his colleagues also proved unsuccessful.

c. A key failure was lifejacket management, including the suitability of the 60B life jacket for fully equipped soldiers, and how a previously used and thus unserviceable lifejacket was mixed up with serviceable lifejackets. The Court of Inquiry was unable to determine the cause of the empty canister, which is the subject to a separate investigation.

d. A number of contributing factors are associated with this tragedy, including:

(1) The temperature of the lake.

(2) The absence of propeller guards on the Safety Boat. While the pathologist has concluded that there is no evidence that Private Ross was struck by the propeller, nevertheless the absence of propeller guards may have had a bearing on the rescue and has since been addressed.

(3) Excessive personal equipment worn by Private Ross. The pathologist has concluded that there is no evidence that Private Ross was struck by his weapon or equipment and the Court has given appropriate weight to this expert opinion. However, I acknowledge that Private Ross's family have reservations about this finding.

6. The Court concluded that there were two major causes which compounded to result in the death of Private Ross. These were;

a. systemic and individual failings that led to personnel not complying with extant safety procedures and measures; and

b. shortcomings arising from poorly defined doctrinal and operational concepts needed to establish a Joint Amphibious Task Force (JATF) including defining the role to be assumed by the Enhanced Infantry Company (EIC) within that capability.

The Court's Recommendations

7. I accept all of the Court's 33 recommendations as a basis for further review. They address the immediate remedial actions required to recommence small boating operations in a safe manner. The findings will be implemented before small boating activities are fully reinstated.

8. I initially placed a full embargo on all Army small boating until confident that key remedial actions to address the recommendations identified by the Court of Inquiry had been completed. I will only lift this embargo on a case by case basis, if satisfied that appropriate health and safety precautions are in place for a particular activity, until full endorsement of the Army's revised boat handling programme by the Royal New Zealand Navy Seaworthiness Authority.

9. The Court noted that the lack of defined doctrinal and operational concepts contributed to the accident. The Enhanced Infantry Company was conducting directed Amphibious Operations training without an approved Operating Concept as this was under development by Headquarters New Zealand Defence Force. I believe that this doctrinal and procedural vacuum did not directly contribute to Private Ross's death. Private Ross fell overboard on an administrative move where extant small boating standard operating procedures and watermanship orders were in effect.

10. As the Court noted the lack of defined doctrinal and operational concepts did have two effects; detailed Tactics, Techniques and Procedures (TTP) and Standing Operating Procedures were being formulated as 'things went along' and consequently as the training gathered a momentum of its own, discrepancies with existing safety procedures were not fully identified. An Operational Concept Document, covering the Enhanced Infantry Company and its amphibious role, has since been developed.

Additional Comments

11. The Enhanced Infantry Company conducting the training was a well trained and equipped company. The death of Private Ross was not related to monetary or resource constraints.

12. The Enhanced Infantry Company was operating in new territory. After 12 years on operations the NZ Land Forces were adapting back to operations in the South West Pacific including amphibious operations, airmobile operations, close country operations and urban operations. The Enhanced Infantry Company was the leading Army organisation in this change and did have to modify its training as it transitioned. The training tempo and demands on this organisation were probably greater than the experience of its people could accommodate.

13. The Court of Inquiry reinforced that our fundamental Safety in Training Rules and Regulations remain sound as long as they are adhered to. These include both live field firing and small boating. Experience on which to base judgements to reinforce existing rules was lacking.

14. The tragedy highlighted that our support chains are hollow and inexperienced in terms of equipment management. Considerable effort has gone into addressing this area of risk.

15. Private Ross's death was not the result of a single act or omission. Rather it was the tragic result of a combination of actions not fully thought through or omissions or unacceptable shortcuts. A cultural change to one of 'Operations First; Safety Always' will be the biggest recommendation to address. This is being addressed at all levels of the New Zealand Defence Force.

16. Notwithstanding, any actions or omissions by individuals are under separate investigation.

Additional Recommendations by the Assembling Authority

17. In addition to the recommendations by the Court of Inquiry, I have leveraged off, initiated or implemented a number of other recommendations:

a. The New Zealand Defence Force has recently established a Health and Safety Governance Committee and directed enhanced education, training and improved reporting on all aspects of Health and Safety across the Defence Force. It has reinforced the imperative that our culture should be 'Operations First; Safety Always.'

b. The Service Chiefs' accountability for environmental Health and Safety has been clarified. As a result Army are working with the Royal New Zealand Navy as the subject matter experts in all aspects of boating to ensure Land Forces can train safely.

c. A Land Operational Worthiness Board (Safety Governance Board) has been established by the Land Component Commander, reporting directly to the Chief of Army. The Terms of Reference include agreeing a Land Health and Safety Strategy, strengthening the inspection, audit and reporting framework and a communications and education strategy to raise the profile of operational safety. The aim is to ensure that all activities conducted in the Land environment are as safe as possible and our equipment and training are fit for purpose, with sound leadership embracing a safety culture of operational excellence.

d. A single point for reviewing all Army Courts of Inquiry under the independent Inspector General (Army) has been established, with on going reviews of all outstanding recommendations. These will feed straight back into the Lessons Learnt process.

e. The Army's independent inspection and audit framework has been strengthened by the re-establishment of an Army level Senior Weapons Instructor and a Land Training Warrant Officer appointment.

f. A Battle School has been created, staffed by experienced full-time and Reserve Force Warrant Officers and Non Commissioned Officers who are available to mentor commanders at all levels through activities.

g. A separate review of land 'Safety in Training' has been completed and is in the process of being implemented.

h. An independent Equipment Assurance Review is underway by Commander Logistics Command to confirm all aspects of equipment are fit for purpose. This will feed into the Land Operational Worthiness Board.

i. Our leadership education and training on Health and Safety training is being enhanced at all levels in order to improve our risk aware safety culture.

j. The NZDF is implementing an improved reporting framework for health and safety incidents, and

k. Subject Matter Expert Working Groups such as the Watermanship Working Group are being given strengthened mandates and wider responsibilities.

18. All actions and requirements resulting from these recommendations will be subject to ratification by the Land Operations Worthiness Board.

Conclusion

19. The Court of Inquiry has established a chain of events that resulted in the tragic death of Private Ross. In doing so it exposed a culture tolerant of errors, omissions and departures from fundamentally safe regulations. Whilst there was a doctrinal vacuum, that is being addressed, it did not directly contribute to the death of Private Ross. While Private Ross and the Enhanced Infantry Company were well trained, the accident is also a timely reminder of the risk we face when training soldiers in new skills, if prescribed safety procedures are not scrupulously followed.

20. The death of Private Ross was tragic and avoidable The Army and I mourn his loss and we have offered our sincere apologies to his family. We are committed to ensuring his sacrifice is not in vain. It has been the catalyst for a fundamental review of Army safety culture. This report does not mark the closure of a tragic accident; rather it marks the start of an improved Train Safe culture.

Signed on the Original

M. WHEELER, ONZM
Brigadier
Land Component Commander

EXHIBITS

A.	Waiouru RANGE STANDING ORDERS Part 6 Chapter 1 Sect 22
B.	EX BUNNY 1 SINOFF dated 18/9/12
C.	EX BUNNY 1 New Activity Request Aug 2012
D.	Warning Order 01/12: EX BUNNY 1 dated 291645 Aug 12
E.	OPORD 06/39/12: EX BUNNY 1 dated 141200 September 12
F.	OPORD 01/11: EIC Initial Training Block 2 dated 051309 April 12
G.	Enhanced Infantry Company Training Programme (02 May – 14 June 2012)
H.	UPDATED PROGRAMME: Enhanced Infantry Company Training Programme (02 May – 14 June 2012)
I.	DVD: SONAR Imagery of Private Ross on bottom of Lake MAOWHANGO
J.	Email between **Civilian C** and **Soldier F** dated 061451 August 2012
K.	1 NZSAS Regiment EIC Training Plan
L.	1 NZSAS Regiment Standard Orders for Training (SOT) Part 1 Chapter 1 Section 1
M.	1 NZSAS Regiment Standard Orders for Training (SOT) Part 1 Chapter 1 Sect 3, Inflatable Rubber Boats
N.	UPF of Private Ross
O.	1 RNZIR Weapon Issue Register
P.	Linton Gymnasium Basic Water Swim Test
Q.	Linton Gymnasium Individual Combat Fitness Test
R.	KEA printout Service History
S.	KEA Fitness Test results
T.	RFD Type 60B Life Jacket Pool Trials of 5 Oct 12: Report
U.	RFD Type 60B Life Jacket Pool Trials of 5 Oct 12: Imagery CD
V.	NZ Police POL268: Equipment found on Private Ross
W.	NZ Police Photographs
X.	School of Military Engineering – RNZE Corps Training Watermanship Precise
Y.	NZ Army Equipment Weights: Calculation of Private Ross' equipment
Z.	Signal: SIC NAH282105Z JUN 12: Temporary Grounding of Life Jacket GP-PFD 290N
AA.	EIC SITREP dated 29 May 12
AB.	SURVITEC GROUP NZ Inspection Report 5396285 dated 19 Oct 12
AC.	RNZAF Safety Equipment Servicing Bay, Maintenance Support Squadron, RNZAF Base Whenuapai Auckland: Life Jacket Servicing Certificate dated 3 Aug 12
AD.	ZODIAC MILPRO Brochure (www.zodiacmilpro.com)
AE.	Medical Documents MD910A submitted 4 Oct 12
AF.	Ground Overlays of Incident Area
AG.	RFD (Australia) PTY LTD TYPE 60 Inflatable Life Jackets 60B and 60C
AH.	Numerical Weather Picture model / Weather Forecast 25 September 12
AI.	MCMT 3303-0001 dated 30 Jan 13: MCMT Report
AJ.	MCMT 3303-0001 dated 10 December 12: OP POSEIDEN 07/12
AK.	DFO (A) Vol 2 Part 2 Chapter 3 Section 3: All Arms Weapons Training
AL.	DFO (A) Vol 2 Part 8 Chapter 3: Watermanship
AM.	DFO (A) Vol 2 Chapter 1 Section 4 paragraph 1373
AN.	NZ P96 Part 2.4.2.1 : Zodiac Marine Commando FC470 ZDA

AO.	NZ P96 Part 2.4.2.21 : Life Jacket GP-PFD, 290N, MD4020NZ
AP.	Autopsy Report: Case Number A251/12
AQ.	BRd 67 Admiralty Manual of Seamanship 2008
AR.	NZBR 13 – RNZN Sea Survival Manual, Section 3 – Working Life Jacket
AS.	NZBR 13 – RNZN Sea Survival Manual, Section 4 – RHIB Life Jacket
AT.	NZBR 13 – RNZN Sea Survival Manual, Section 7 – Embarked Forces Life Jacket
AU.	Challenger Series Assault Troop Lifejacket
AV.	NZP96, Part 3.4.1.2: Training Support Boat
AW.	Zodiac seating plan –**Soldier M** dated 14 May 2013
AX.	Recording of the Incident Report dated 251741 Sep 2012, number 94
AY.	Zodiac seating plan –**Soldier D** dated 15 May 2013
AZ.	Zodiac seating plan –**Soldier B** dated 15 May 2013
AAA.	Zodiac seating plan –**Soldier K** dated 15 May 2013
AAB.	Zodiac seating plan –**Soldier L** dated 15 May 2013
AAC.	Zodiac seating plan –**Soldier N** dated 15 May 2013
AAD.	Courier Receipt for Life Jackets dated 16 Aug 2012
AAE.	Display PM Notification: Maintenance Request
AAF.	NZP96, Part 2.4.2.7: Personal Flotation Devices
AAG.	Zodiac seating plan –**Soldier C** dated 16 May 2013
AAH.	NZSAS Book 2 Training Standing Orders, Section 3 Small Boating
AAI.	NZSAS Small Boating Module Lesson Plan 2.3.8. Man Over Board drills.
AAJ.	Zodiac 3 Weight Table dated 17 May 2013.
AAK.	NZ P96 Part 2.4.2.5: Outboard Motor Mercury 40 Lightning XR
AAL.	NZBR 21 Sports, Physical Fitness, Recreation and Adventure Training in the RNZN.
AAM.	Email between **(Redacted)** RNZN and **(Redacted)** RNZN dated 1 October 2012.
AAN.	Training Support Boat – Kiwi Kraft Imagery
AAO.	Navy Order 2005/13 Introduction in Service Mercury Marine 40HP MH Lighting XR Outboard Motor
AAP.	NZBR 19 – RNZN Equipment Management Policy statements Volume 2 Article 183