

Range Inspection Checklist Cover Sheet

General

Name of range: **SA Police Academy**

Date inspected: 10 October 2023

Inspected by: Jan Pek

Representative: Leighton Moulds

Location of range: 11 Strathfield Tce, Taperoo

Pistol & Shotgun – law enforcement training

INSPECTION SUMMARY

Inspection was requested by facility coordinator Courtney Douglas following completion of repairs to the Police Academy range. Repairs were required following discovery that projectiles were leaving the range proper behind the backstop and impacting into the maintenance room wall. Evidence of projectile damage was also found in the air filtration padding.

On investigation, staff located a section of deflector plate had become detached from the backstop structure, allowing projectiles to impact the concrete structure of the building. Over time, the projectiles had sufficiently damaged the concrete structure to form a significant hole, allowing exit into the maintenance room.

It should be further noted that complaints have been made regarding ricochet and particles falling up-range and being found in the maintenance room opposite the existing hole.

CONSTRUCTION

As noted in the 2019 report, the SAPOL Academy range is a 10 lane indoor firing range designed to capture all projectiles with the confines of the building.

A high volume air extraction system is in use which is checked regularly. There is some consideration that the extraction system may be responsible for some projectile debris in the maintenance room as there is reasonable build up on top of the upper deflection plates.

The previous report describes the backstop as a CASWELL design, made of 10mm toughened steel plate. In my investigation however the design more closely replaces a Total Containment Trap (TCT) design (see image 1.11) with steel plates angled from the floor and ceiling to funnel projectiles into a central trap. Here it varies however as the TCT design normally culminates in a deceleration chamber where all projectiles are captured and removed via a bullet collection system.

The SAPOL design appears to culminate in a steel plate which projectiles impact with and then fall into what is essentially a strengthened cavity. This hinders inspection of the structure as the steel plates covering the cavity need to be removed prior to lead collection and inspection. I was advised onsite that lead collection occurred infrequently with this being the first collection in decades.

Repairs had already been conducted prior to my attendance with the deflector plate being re-installed in position.

SUITABILITY

When in proper working condition the existing bullet trap / backstop design is functional and efficient in ensuring retention of all projectiles to the range proper. The flaw in the existing setup is the inability (or infrequency) to check all aspects of the structure for fatigue.

Correspondence from Alex Haines in 2019 referred to vertical deflector plates coming away from the wall with masonry fixings coming loose. Considering the use, which was estimated

at 600,000 rounds per year at full capacity, I would high recommend maintenance and inspection should not exceed 12 months.

RECOMMENDATIONS

As the structure of the backstop / bullet trap has been restored to its original design, I endorse the resumption of shooting activities at the SA Police Academy Range. It is noted that on October 27th further remedial work will be completed on the range where fixings will be replaced / reinforced to strengthen the existing structure.

The following recommendations are made to monitor the situation and address the secondary matter of ricochet.

- The concrete affected by the backstop fatigue is to be repaired.
- Ballistic blocks will be installed above the ventilation system to ensure capture of any stray projectiles should this issue occur again – 12 months to install.
- Walls in the maintenance extraction room to be painted / papered to monitor any new markings post repair work.
- Ballistic blocks to be placed across range floor to inhibit ricochet as matter of urgency. To be monitored for at least three months as this issue may be a side-effect of the backstop failure.
- Thorough cleaning of all affected areas and monitor to determine whether overshoot is still occurring.
- SAPOL will provide photos of existing deflector plates etc when additional work is completed October 27th.

Follow up inspection will be conducted early 2024.

Jan Pek 7112/1

Jan Pek

Range Officer, Firearms Branch

MAP / PHOTOS

1.1 Debris located on top of hanging upper deflection plates. As this has not been recorded in the past the origin is unknown. Suggestion would be to clean and monitor.



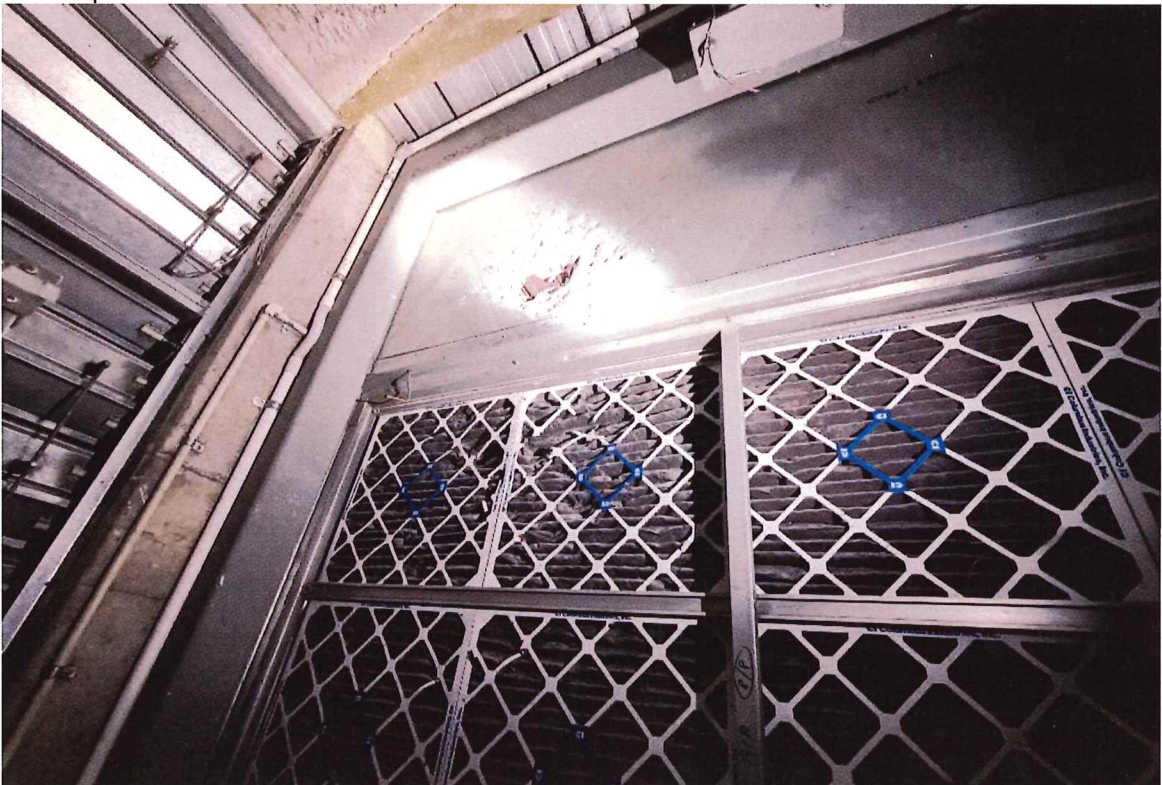
1.2 Vent housing showing impact damage from below, causing framework to buckle. Concrete on other side is significantly damaged. Lower right shows beginning of hole eventually caused by repeated strikes. Unable to view internal damage.



1.3 Hole in concrete visible from ground level



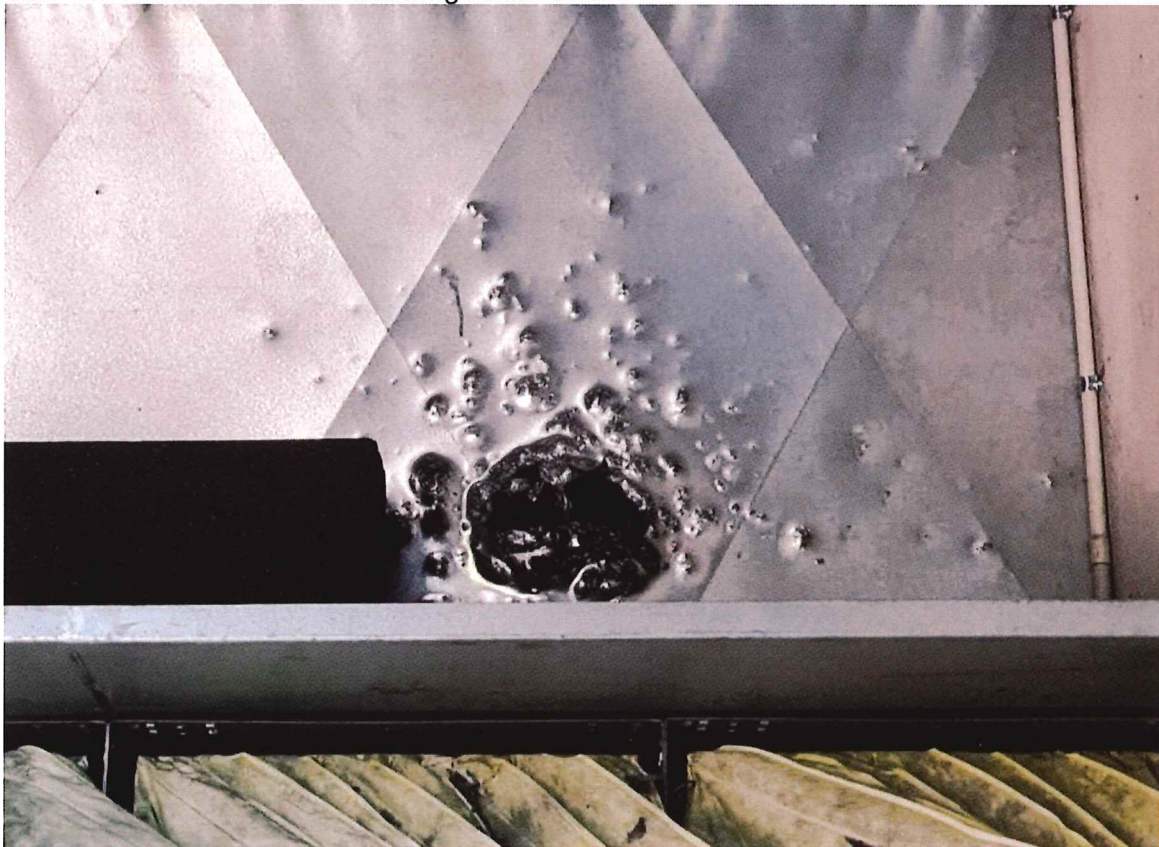
1.4 Multiple exit points through metal cladding and ventilation mesh. Note marking on ceiling from repeated strikes.



1.5 Ventilation mesh damaged by projectiles. Burn marks and holes clearly visible.



1.6 Hole in metal cladding above ventilation padding. Black ballistic block was put in place once issue was discovered and range was closed.



1.7 Damage caused to wall directly across from exit hole. Most recent damage was caused yesterday prior to range closure.

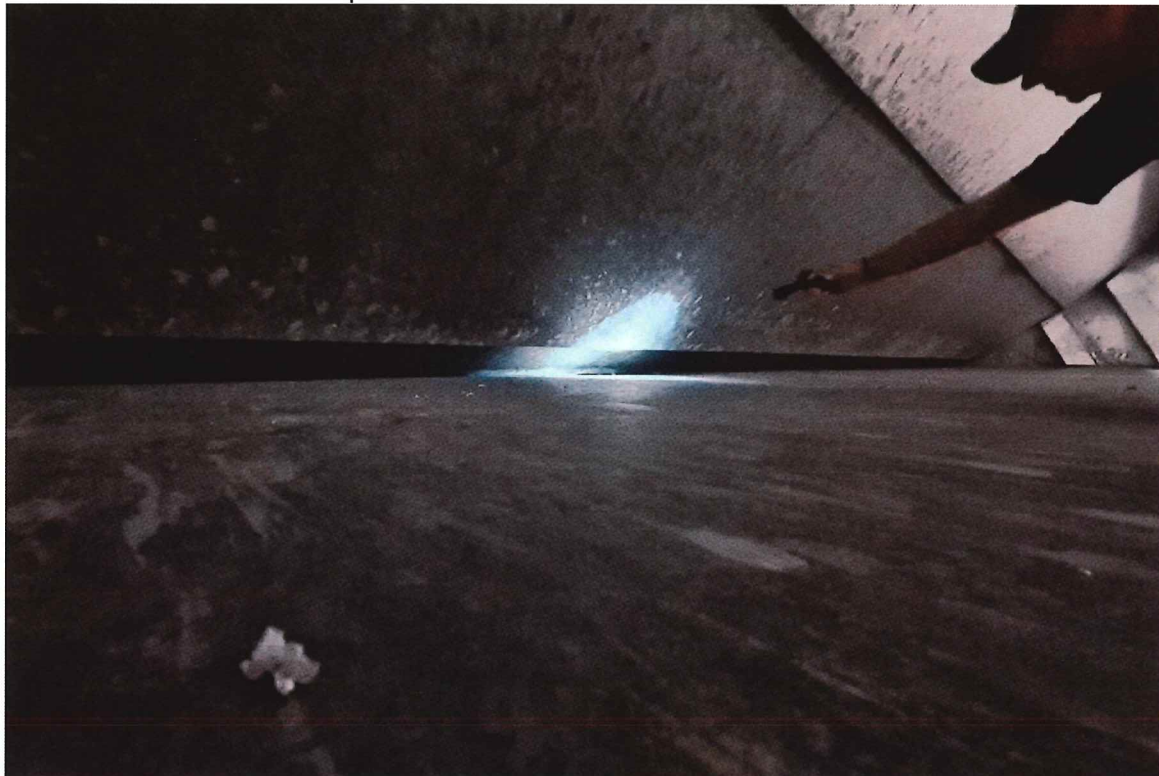


BACKSTOP STRUCTURE

1.8 Bullet trap. Note overlapping plates which allow some debris to filter through plates into underlying structure.



1.9 Funnel or "mouth" of trap



1.10 Underneath floor plates with opposite "projectile capture" sheeting. This must be removed to inspect deflection plate which failed and recycle lead.



1.11 example Total Containment Trap construction

