

# WHAT YOU NEED TO USE THE RANGE

## CARSON CITY RIFLE AND PISTOL RANGE

- Eye protection
- Hearing protection (ear plugs or muffs)
- Appropriate target (your bullets must hit the backstop)
- Pistols: your target should be approximately chest high
- Rifles: height dependent on the distance you are shooting
- Stand (industry type or equivalent
  - uprights (usually 1"X2" wood)
  - backing (cardboard)
  - paper target
  - staple gun or clips to hold backing to uprights
  - tape or staples to hold targets to backing

~ OR ~

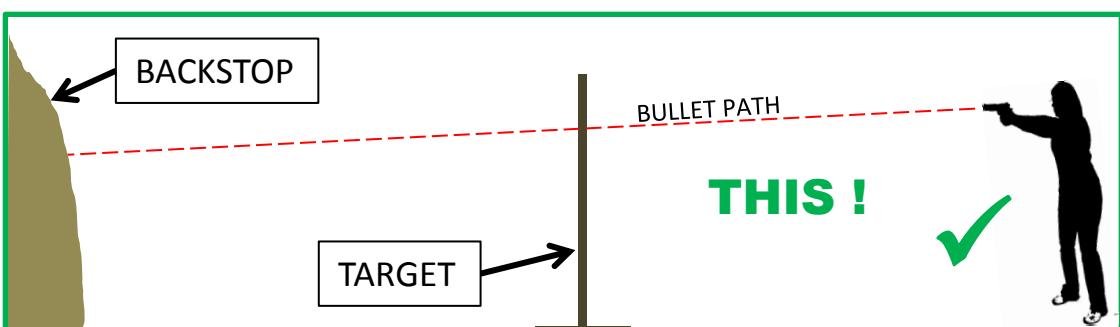
- Commercial steel targets or gongs with stand
- Firearm
- Appropriate ammunition for your firearm (no tracer or armor piercing)



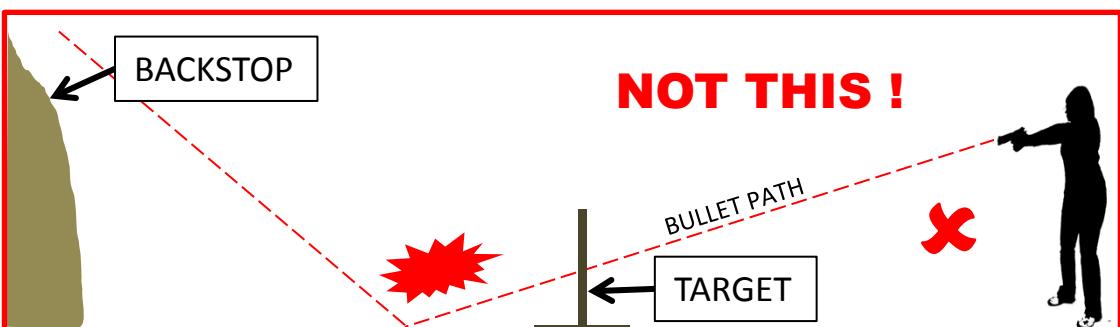
**THIS !**



**NOT THIS !**



**THIS !**



**NOT THIS !**

**NATIONAL RIFLE ASSOCIATION OF  
AMERICA**  
**RANGE TECHNICAL TEAM**  
**RANGE SERVICES DEPARTMENT**  
**RECREATIONAL PROGRAMS AND RANGES DIVISION**

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**Final Report**

***Range Evaluation Report***

**Case #: RCN NV-2382-18**

**Subject: CARSON CITY RIFLE AND PISTOL RANGE**

**Date: 31 JANUARY 2019**

**STATEMENT REGARDING INFORMATION IN THIS REPORT**

Nothing in the information that follows should be considered "requirements" of the NRA. The informational items are "suggestions". The range operator may or may not choose to act upon any or all of these suggestions. It should not be interpreted by anyone that a failure on any part of the range operator to accept and/or implement any of the suggestions set forth herein as evidence of a "cavalier attitude" regarding health and/or safety. A range operator may otherwise be very safety and health conscious without having to resort to any or all of these suggestions.

Report prepared by  
Range Technical Team  
National Rifle Association

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***Range Evaluation Report***

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**Date: 31 JANUARY 2019**

**Subject: CARSON CITY RIFLE AND PISTOL RANGE**

**Opening Statement:**

The Range Technical Team visited Carson City Nevada on January 28, 2019 and met with Carson City Parks, Recreation & Open Space Director Jennifer Budge and her staff. A meeting was held in their office at 3303 Butti Way, Carson City NV 89701 to go over materials, plans, issues and documents. This meeting was followed up by a site visitation of the Carson City Rifle and Pistol Range (4000 Flint Rd, Carson City, Nevada) and the neighboring Carson City Land Fill.

**Summary:**

The Range Technical Team purpose for the visit was to evaluate and make suggestions regarding current range conditions in relationship to potential projectile issues, as well as current status of range configuration, management, safety procedures, operations, maintenance, environmental controls and suggested improvements.

**Background:**

The Carson City Rifle and Pistol Range, a public range owned by Carson City and operated under an agreement with the Carson City Rifle and Pistol Club, began in 1980 with the acquisition of the property followed by road development and site construction. It was completed in 1982 and partial funding was provided by the Nevada Department of Wildlife through the Pittman-Robertson Grant. A master development plan was developed in 1999. Improvements have been added to the site on a frequent basis. The Carson City Rifle and Pistol Club is an NRA Club and maintains a web page at [www.carsonrapc.org](http://www.carsonrapc.org).

The physical range layout consists of a (Long Range, Short Range and Private Shooting Bays), which consists of a 40 point 300 yard range (20 points covered with concrete shooting tables at six foot centers and 20 points uncovered at 6 foot centers), connected

by an ADA sidewalk and ramp to a 100 yard covered range with concrete table shooting points. Separated from these two ranges are four 50 yard deep bays. See **Exhibit A** for photos. There are garbage cans and a vault toilet to provide for public sanitation and waste management.

**Observations: The Range Technical Team made the following observations as a result of the meeting, site visit, and document review.**

**OPERATIONS**

- The Carson City Rifle & Pistol Range is owned by Carson City (City), managed by Carson City Parks, Recreation and Open Space Department and operated under agreement dated April 17, 2001 by the Carson City Rifle & Pistol Club (CRPC a non-profit organization) and renewed on a three year term basis. (**Photo 1, 2 & 3**)
- Per agreement, the primary use of the facility shall be to promote, encourage and foster recreational and competitive rifle and pistol shooting sports.
- The City, at its own expense, provides all property maintenance which includes roads, buildings, fences, vandalism repair, removal of trash and debris, refuse disposal. CRPC shall provide volunteers 2 days a year for clean up.
- CRPC shall provide one million dollars in general liability insurance, \$500,000 of bodily injury and \$100,000 of property damage insurance with the City being named as additional insured.
- Per approval of the City, CRPC has developed safety rules for the use of the range. These rules are posted at the range in two visible locations and on their web site at [www.carsonrapc.org](http://www.carsonrapc.org). (**Photo 8**)
- The range is open to public shooting, but may be closed upon reservation for special events with prior authorization by CRPC. These reservations are posted on their web site.
- In response to recent issues, CRPC maintains a NRA certified Range Safety Officer on site during shooting, however, in the past, the use of this range was unsupervised.
- In response to recent issues, CRPC has banned “firearms chambered in 50 BMG, 416 Barrett, 408/375 Chey Tac, .338 Lapua or any round derived from the same or producing kinetic force equal to or higher are prohibited. Fully automatic weapons are only allowed in the reservable private bays by authorized users.” In addition, the rules require that targets be placed so that all rounds impact the intermediate ground berms and backstop. Firing of armor piercing or tracer ammunition is prohibited.
- In response to recent issues, the City and CRPC has closed the range to any type of shooting except on Sundays where no personnel are working at the City Land Fill.
- CRPC has approximately 120 members and is an NRA Club.
- No fees are charged for use of the range, and CRPC membership is not required to use the range.
- There is no Environmental Stewardship Plan for the site.
- There are no safety flags indicating that firing is occurring on the ranges.

- There are no first aid kits on site.
- The range does not provide target frames nor stipulations regarding the use and construction of target frames.
- Shotgun shooting at clay birds is prohibited.

## RANGE SITE

- The range is located on approximately 200 acres of hilly landscape sloping generally to the north. The site ultimately drains into the Carson River which is downhill and south of the ranges. To the south east of the ranges is the Carson River Canyon Open Space Area. (**Photos 1, 2 &3**)
- Shooting is prohibited by city ordinance on all lands surrounding the range site, and is patrolled by Park Rangers and County Sheriff Deputies.
- The range has neither electricity, nor water and is in a cell phone void area making emergency calls problematic.
- The restroom is a vault toilet.
- The area immediately north and down range of the 300 yard and 100 yard rifle ranges is a city landfill that is expanding. The southern edge of the landfill is in a basin but is approximately 2,500 feet down range from the firing line of the 300 yard rifle range. In approximately 25-30 years, this portion of the landfill will rise to be above the ridge line and be visible to the firing line.
- The entrance to the range site is closed by a high quality code operated electric gate.
- There is no fencing or range use signs around the range site and off road trespass routes are in evidence. The City tries to block access with boulders, but the terrain defeats obstacles.
- There is evidence of recent fires apparently started by ricochets leaving the range, or by direct fire. Steel core bullets are gaining a reputation for starting wildfires, and some of the bullet fragments collected were of this type.
- There are no RV camping facilities.

## LONG RANGE (300 YARD RANGE)

- The range faces in a north-north east direction (**Photo 4**)
- There are no lateral berms
- The firing line with concrete benches is covered and in good repair. A blue “safety line” is used as a safety feature to keep shooters away from the shooting tables during “cease fire” periods.
- The firing line is elevated above the floor of the range by approximately five feet; this creates a situation where almost all rounds fired at targets less than 100 yards will strike the floor of the range. (**Photo 5**)
- The uncovered portion of the firing line is in good repair.
- There are intermediate ground impact berms at 100, 200 and 300 yards
- There is no 20 foot high backstop
- There is no range flag, nor any device to signal the status of firing (cease fire period).
- The floor of the range is 300 yards long and raises 32 feet from the firing line to

the end of the range; however the firing line is elevated above the floor of the range by approximately 5 feet. This creates an upward slope of over 3.5%. The firing line is elevated above the range floor out to 100 yards.

- The elevation of the 300 yard intermediate backstop is approximately 4,795 feet and the maximum height of the hill directly beyond the backstop is at 5,010 feet with a valley of 4,800 to 4,900 feet to its immediate east.
- The range floor generally drains towards both sides of the firing line. There is vehicle access on the west side of the firing line.
- From the firing line, there is an intermediate ground berm at 100 yards approximately 3-4 feet high. The floor of the range behind this berm maintains this elevation, so the 200 yard intermediate ground berm and consequently the 300 yard backstop are elevated above each other.
- At approximately 50 yards there is an elevated berm that contains target stand holders that are severely damaged and unusable and protruding above the ground. It is assumed this was installed to elevate the targets to move the impact zone further down range. At current height this is still 2 feet below the grade of the firing line. (**Photo 6**)
- At other distances there are unmaintained and unusable target stand holders.
- Site inspection revealed that other than paper targets have been shot on the range including steel and other debris, and that targets have been placed on top of intermediate ground berms and at various distances in disregard of the intermediate ground berms. There is evidence of bullet strikes on the floor of the range.

### **SHORT RANGE (100 YARD RANGE)**

- This range faces more to the east than does the 100 yard range.
- This covered range has a lateral berm on the west side that is less than 8 feet in height, no lateral berm on the east side and a backstop that is less than 20 feet in height. The lateral berm on the west side does not extend beyond the back of the firing line.
- It has covered concrete shooting tables that are well maintained and also employs the “blue safety line” which keeps shooters away from the tables during cease fire periods. (**Photo 7**)
- There is no range flag, nor indicator of the shooting status/operation of the range.
- The floor of the range drains to the firing line, but the slope exceeds 2% grade.
- There is evidence of bullet strikes on the floor of the range.
- There are no target frame holders on the floor of the range.
- There were large quantities of 7.56 X 39 steel brass on the floor of the range, which is a rifle caliber.
- This range is connected on its east side to the 100 yard range and an ADA access ramp.
- Currently this range is restricted to “pistol calibers” only.
- A new and highly visible safety sign is posted near the entrance sidewalk to the range between the parking lot and range access. (**Photo 8**)

## PRIVATE SHOOTING BAYS (4)

- These four bays are located south and east from the 100 yard range. They face approximately the same direction as the 300 yard range.
- The backstops are cut into the side of the hill which gets progressively higher to the east.
- The cut above bay number 2 is approximately 50 feet above the surface of the range with a hill beyond. (**Photo 9**)
- Bay #2 also has a rocky outcrop which is over 2 feet above the 20 foot backstop.
- All the bays are approximately 50 yards deep and vary in width between 45 and 60 feet. Vehicle barrier bollards are installed at approximately 50 yards to prevent vehicle access; however, the center bollard is removable. (**Photo 10**)
- The slope of these ranges is on a down grade from the entrance of the bays, consequently water does not drain and pools develop on the north side by the base of the backstop. (**Photo 11**)
- The lateral berms are approximately 27 to 30 feet in height, with the shortest in bay #4 on the north east corner. All lateral berms extend beyond the firing line.
- There are no target frame holders on the floor of the bays and there was evidence of rounds striking the floor of the range and of the lateral berms being used as backstops. There was also evidence that shooters were not going down range to shoot, but were shooting from or near the bollards (possibly using their tail gates of their trucks as a table) which results in a significant number of their rounds striking the floor of the range.

## CITY LAND FILL

- Carson City operates a major land fill site immediately down range from the 300 and 100 yard ranges. The area called “south monitoring well” is the closest to the range and is located in a valley behind the hill nearest the range. Employees in this area have reported ricochet noise going over head and have collected bullet and bullet fragments in proximity of this area from 9 mm to 50 BMG.
- It is projected that within 30 years, the floor of this portion of the landfill will rise in elevation higher than the hill behind the 300 yard backstop and that equipment and personnel will be visible from the firing line.

## ISSUES

- Volunteers performing an inspection of the hill beyond the 300 yard and 100 yard range backstop in November 2018 found spent bullets and fragments of pistol and rifle rounds up to and including 50 BMG up to 2,500 feet beyond the backstop. In addition, city workers have collected spent rounds in the area of the south monitoring well and have reported the noise of ricochets passing over head within the east side of the land fill. (**Photos 12, 13, 14 &15**)
- The landfill is within the 30 degree ricochet area of both the 300 yard and 100 yard firing lines.
- Due to this, the City and CRPC has restricted use of the ranges to Sundays when there are no workers at the land fill, and are now providing NRA Certified Range Safety Officers to enforce safety regulations during range use.
- There is no on site feature to contain run-off water draining from the ranges,

- The elevated firing line on Long Range contributes to bullet strikes on the floor of the range. (**Photo 4**)

## **Suggestions: The Range Technical Team Suggests the following:**

### **OPERATIONS**

- Shooting ranges are a density dependent operation. In other words, the range must be able to safely provide shooting opportunities dependent upon design, use, supervision, operation, and maintenance. This facility was designed for lower use in the 1980s. The advent of down range activities and increased use is dictating a change in operations. The City and CRPC have responded to this by no longer allowing unsupervised shooting and have implemented caliber restrictions.
- When open to shooting, the range Technical Team suggests the range be supervised by a Range master or RSO. The range master could be issued a radio for emergency communication with the City and supplied with a trauma management kit and an AED for first aid emergencies.
- It is suggested that a future operation plan include descriptions of maximum height, width, and construction of target frames to be used on the ranges. For steel targets, specifications concerning metal hardness, use, 30 % downward deflection angle, height, and position be established.
- It is suggested that Safety flags be installed at the three different range areas, which allows the Rangemaster to provide a visual indication that shooting is occurring. [http://materials.nrahq.org/go/products.aspx?cat=Range\\_flags/signs/posters](http://materials.nrahq.org/go/products.aspx?cat=Range_flags/signs/posters)
- It is suggested that Rangemasters be trained in first aid and AED techniques as part of a developed and implemented Emergency Management Plan.
- It is suggested that an Environmental Stewardship Plan (ESP) be developed and implemented which addresses the management and prevention of migration from the site of any potential hazards and includes lead and metal recycling and scheduled monitoring and maintenance tasks. A good source of information concerning this program is the book entitled “Best management Practices for Lead at Outdoor Shooting Ranges.” This book can be downloaded for free at: <https://www.epa.gov/lead/best-management-practices-lead-outdoor-shooting-ranges-epa-902-b-01-001-revised-june-2005>
- If not done already, it is suggested that all authorized users sign a use and safety agreement/waiver and provide insurance naming the city and the property management company as coinsured.
- It is recommended that the range operator consider establishment of an employee health protocol, including pre-employment/volunteer assignment and annual, lead and hearing testing.

### **RANGE SITE**

- The range area ultimately drains into the Carson River. It is suggested that the City design and construct a system that catches all water runoff from the ranges into a double weir catchment basin before flowing off property. In the double catchment basin design, all water flows into a catchment basin whose outflow is via a weir. When the water flows over the weir it goes into another catchment

basin with another weir out flow, which then drains into the natural water flow course. The first basin is inspected and maintained on a regular basis according to the protocol established in the ESP. The weirs allow the heavy particles to settle out.

- It is suggested that areas that allow off road unauthorized vehicle access, be fenced off with barbless wire fencing with signs that state “No Trespassing, Carson City Rifle & Pistol Range.” In areas where there is no vehicle access, vertical “carsonite” style signs that state “No Trespassing, Carson City Rifle & Pistol Range” may suffice. Fencing and no trespassing signs should be in harmony with “NRS 207.200 unlawful trespass on land: warning against trespassing.”
- The City might consider the further development of the 1999 master site plan, and consider providing for some RV camping, especially if this would allow the use of a range site host program to assist the property manager with on site supervision, security and service.

### **LONG RANGE (300 YARD RANGE)**

- It is suggested that the Long Range be redesigned to include 8 foot lateral berms on both sides of the range that extend beyond the firing lines. The height of the lateral berms is dependent upon the height of the firing line, not the floor of the range. This includes a lateral or block/cement wall between the 300 yard and 100 yard ranges so that shooters on the firing lines cannot see the shooters on the adjacent range.
- It is also suggested that the range floor be graded to a 2% upward slope and a 2% western slope to allow water to drain south and west off the west side access road. This water should then be carried across the roadway into a catchment basin per the ESP.
- It is suggested that the grading begin on level with the firing line, so there is not a five foot drop, i.e. the firing line should not be elevated above the range floor.
- It is suggested to immediately remove the old exposed target frame holders.
- It is suggested that the backstop should be designed and constructed per NRA Range Source Book standards (minimum 20 foot high, 90% compaction, rock free impact face, 1:1 to 1:1.5 bullet impact slope (NRA Range Source Book Section 2, Article 2.04)
- It is suggested that the redesign of the range include analysis of the installation of an overhead safety baffle near the firing line that would prevent/block rounds that may go over the backstop.
- It is suggested that the City and CRPC continue the current caliber restrictions.
- It is suggested that the City consider shortening the range to 200 yards and install a concrete eyebrow “horizontal bullet catcher” above the 200 yard backstop. By shortening the range to 200 yards and adding this horizontal bullet catcher, potential ricochets would be reduced. (NRA Range Source Book Section 2, Article 2.06.3)
- It is suggested that target frame holders to accommodate approved target frames be provided at 50, 100, 150 and 200 yards centered on each firing position. The

200 yard frames holders should be approximately 10 feet from the toe of the backstop, so naturally the toe of the backstop would be 200 yards plus ten feet from the firing line. It is suggested that rules be established that authorized target frames can only be placed in these provided holders.

- It is suggested that Intermediate ground berms be placed behind the 50, 100 and perhaps the 150 yard targets to stop rounds from striking the floor of the range.
- It is suggested that target frame holders be designed to accommodate the specified target frames and not protrude above ground but be level with the ground's surface. Most public range frames for rifle ranges have an outside dimension of 48", and height is determined by the range standards. It is suggested that at minimum they be designed to accommodate the NRA 200 yard rifle target.

#### **SHORT RANGE (100 YARD RANGE)**

- It is suggested that the 100 yard range be redesigned to include 8 foot lateral berms on both sides of the range that extend beyond the firing lines. This includes a lateral or block/cement wall between the 300 yard and 100 yard ranges so that shooters on the firing lines cannot see the shooters on the adjacent range.
- It is suggested that the backstop should be designed and constructed per NRA Range Source Book standards (minimum 20 foot high, 90% compaction, rock free impact face, 1:1 to 1:1.5 bullet impact slope.)
- It is also suggested that the range floor be graded to a 2% upward slope and a 2% western slope to allow water to drain south and west off the west side access road. This water could then be carried across the roadway into a catchment basin per the ESP.
- It is suggested that target frame holders to accommodate approved target frames be provided at 5, 7, 15, 25 and 50 yards on six foot centers spacing. The 100 yard frames holders be approximately 10 feet from the toe of the backstop, so naturally the toe of the backstop would be 100 yards plus ten feet from the firing line. It is suggested that rules be established that authorized target frames can only be placed in these provided holders.
- It is suggested that target frame holders be designed to accommodate the specified target frames and not protrude above ground but be level with the ground's surface. Most public range frames for pistol ranges have an outside dimension of 24", and height is determined by the range standards. At minimum it is recommended that they be designed to accommodate the target used for police qualification, and the target used to qualify for the CCW permit.
- At the present time, this range and the 300 yard range should both be in cease fire and live fire status at the same time. No one should be down range on the 300 yard range if firing is taking place on the 100 yard range.

#### **PRIVATE SHOOTING BAYS (4)**

- It is suggested that these bays be graded to provide 2% slope to the opening of the bays and 2% to the west for drainage. This water should then be carried across the roadway into a catchment basin per the ESP.
- It is recommended that shooting into the lateral bays be prohibited and all rounds

impact the backstop.

- Shooters must be encouraged to place target frames near the backstop. It is understood that “tactical” type events use steel targets at various distances, however any rounds that miss these targets must impact the backstop.
- It is suggested that the bays have target frame holders installed near the backstop. These can be four feet apart for pistol shooting and qualifications. The target frame size for this type bays is typically 24 inches wide and tall enough to hold the style targets used in police and CCW qualifications.
- It is suggested that “target placement zones” be indicated on each bay which prohibits the positioning of targets farther than 15 yards from the backstop.

## **CITY LAND FILL**

- The future development of the city land fill is problematic for the long term future of the shooting range. Planning should begin for alternative site development some 20-30 years in the future. Perhaps the current land fill operation could be structured so that when it is time to relocate the range, it could be located in prepared final graded site within the current landfill area.

## **Conclusion**

Carson City Parks, Recreation & Open Space Department is committed to providing public shooting opportunities by maintain this range as a safe shooting location in agreement with the Carson City Rifle & Pistol Club. The issues being experienced at this range are a result of expanding land use coupled with an expanding volume of public use which in have exceeded the design and operational standards of their 300 yard and 100 yard ranges. Implementation of physical range improvement and enhanced operational parameters will ensure safe operation for the future.

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Manager, Range Services  
Recreational Programs and Ranges Division  
Range Services Department

## Exhibit A:

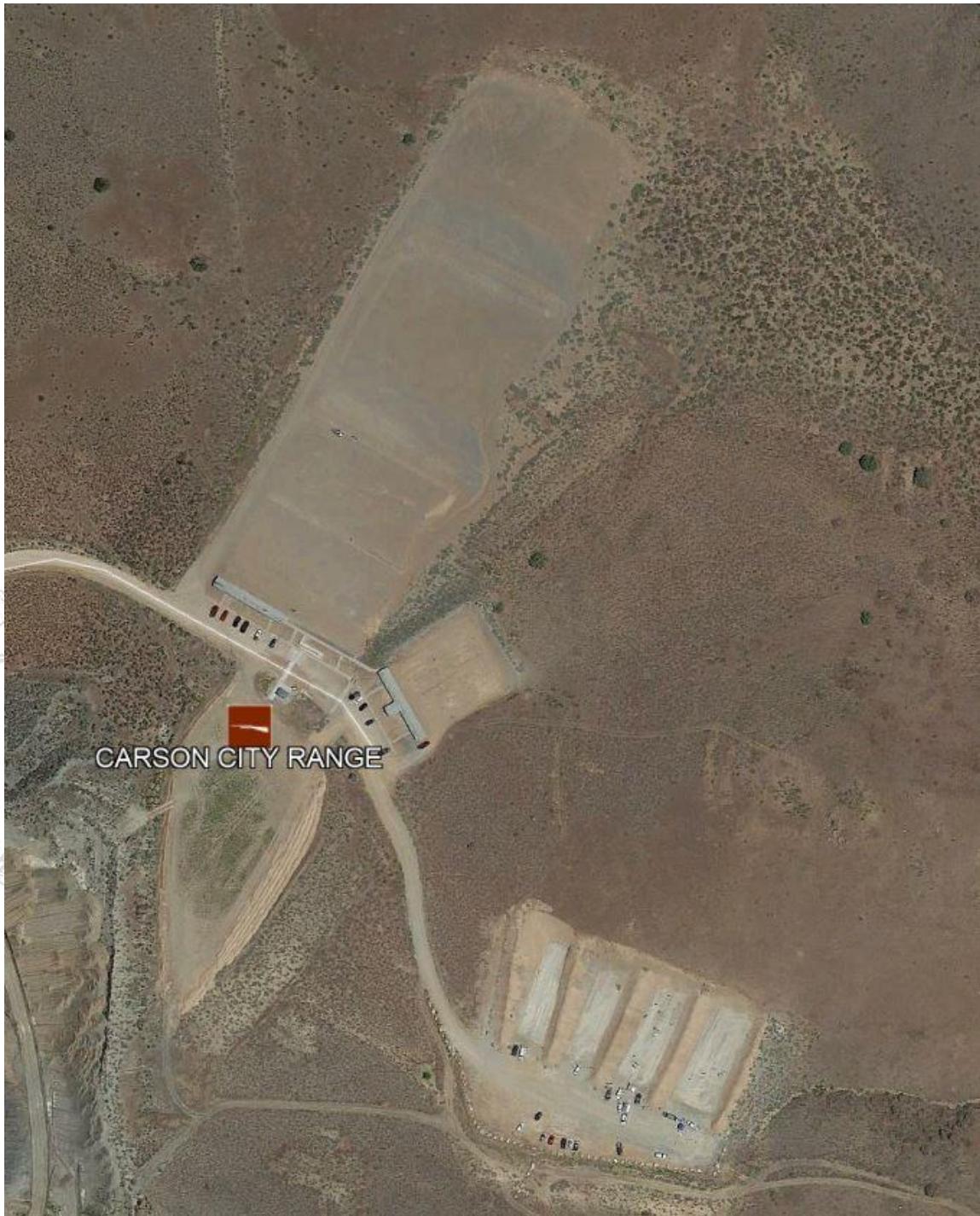
Pages (11) to (19) are all inclusive for the completion of this Final Report.

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PHOTO 1 & 2: Carson City Rifle & Pistol Range and surrounding lands





**PHOTO 3: Carson City Rifle & Pistol Range**



**PHOTO 4: LONG RANGE**



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**PHOTO 5: LONG RANGE**



**PHOTO 6: Damaged target holder system Long Range**



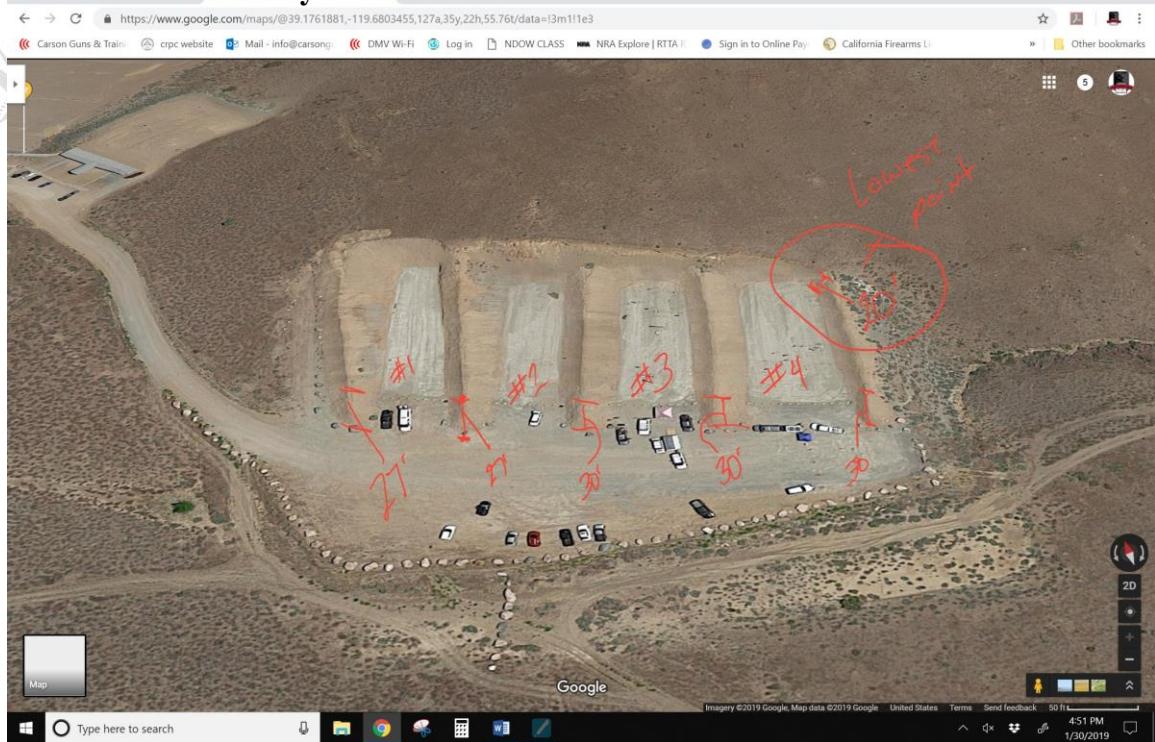
**PHOTO 7: SHORT RANGE**



PHOTO 8: Safety Sign Short Range



**PHOTO 9" Private Bay #2**



**PHOTO 10: Private Bays**



**PHOTO 11: Private Bay #4 showing water ponding down range**



**PHOTO 12: Location of escaped rounds recovered in November 2018**



**PHOTO 13:** Recovered bullet fragments



**PHOTO 14:** Recovered bullet fragments



**PHOTO 15: Recovered bullet fragments**



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