



## Capability Statement





## Introduction

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Silver Raven is an Australian owned company home to an industry-leading team of experts with extensive experience delivering a range of specialist services for clients around Australia and overseas. Being ISO accredited for Health, Safety, Environment and Quality our integrated management systems ensure a superior service.

Since 1998, government agencies, local councils and private clients have benefited from Silver Raven's proven technology, team, and quality assured systems to provide innovative solutions and consistently deliver quality results.

### Silver Raven

#### **High Pressure Water Jetting**

We are specialists in HPWJ for Demolition, Surface Preparation, Industrial Cleaning & Cold Cutting.

#### **Civil & Remedial Projects**

From Concrete & Steel Remediation to Earthworks we can provide Turnkey Project Management.

Silver Raven also has two specialist subsidiaries who work in line with Silver Raven to provide unique solutions based services:

### Lodestar 11

#### **Research & Development**

An Innovative and creative team working across Mechanical, Environmental & Robotic Solutions. As well as providing specialised reporting and even Drone Inspections.

#### **Fabrication, Installation & Testing**

Working with standard & Exotic Metals for Structural, parts manufacture and plant modification applications.

### Titanium Suppliers Australia

Supply & Manufacturing of Titanium & Other Exotic Metals

## Associations & Accreditations



## Silver Raven

### Hydro Demolition

Hydro Demolition is the superior method for the demolition of damaged, degraded and failed concrete in all manner of reinforced concrete structures. We develop our own systems to suit specific projects and can provide a solution for any type of hydro demolition project.

Traditional demolition methods cause damage to sound concrete via both excessive vibration and direct mechanical damage. This causes micro cracking, and essentially instigates the failure mechanism of the remaining concrete.

- No vibration and therefore no stress fractures of the remaining substrate
- No dust produced
- No damage to steel reinforcement
- Cleans the steel during the demolition process
- No Sparks = Avoids 'Hot Works' Restrictions
- Creates a clean aggressive substrate for superior bonding of the repair materials

The automated demolition may be machine mounted or a fully robotic apparatus that is operated remotely.

Common applications for Hydro Demolition are:

- Concrete remediation and repair
- Concrete structure modifications
- Removal of cementitious grouts and epoxy coatings
- Refractory Removal
- Rock removal such as sandstone and granite.





## Silver Raven Industrial Cleaning

Industrial cleaning is the service of specialised cleaning of industrial equipment and manufacturing plant using ultra high pressure water jetting equipment. This process allows plant to run at optimal operating conditions. Silver Raven's wide range of industrial cleaning services and maintenance solutions are designed to maintain your equipment and facilities in a safe, timely and environmentally sustainable way.

Silver Raven provides an extensive range of Industrial Cleaning solutions that are designed to cater for each individual plant's requirements. Our range of services is as diverse as your plant, with

Silver Raven able to provide the following:

- Tank/Pipe/Tube Cleaning
- Drain and Sewer Cleaning
- Boiler Tube Cleaning
- Plant Floors & Degreasing
- Scrubbers & Heat Exchanger
- Cleaning Vessel & Drum
- Cleaning Silt & Sludge Management
- General Cleaning Services

High Pressure Water Blasting can clean and provide surface preparation for coatings to be applied.



## Silver Raven

### Cold Cutting

Cold Cutting is the process of cutting metallic, cementitious or a combination of the two materials through the use of an abrasive material in the water stream to cut the materials to a high degree of accuracy with numerous advantages over other mechanical methods. Cold Cutting produces no heat and therefore no distortion of the base material, does not effect the metallurgy and produces no sparks so it can be used in volatile atmospheres. It can be used to simultaneously cut and weld prepare steel.

Silver Raven has developed our own in house cold cutting technology, we can engineer and customise the jigs to suit any application; Bevelled & Compound Cuts Odd shape cuts. Silver Raven only use automated HPWJ cold cutting techniques so our technology allows to safely and accurately control the speed of cut depending on the thickness and makeup of the materials.

Utilising Intrinsically Safe Equipment we have successfully used our engineering & technology services in the petrochemical industry, where potentially flammable atmospheres and by-products may still be present.

We have proven capability to cut through various vessels, penetrating mild steel, stainless steel and refractory concrete in one pass.

Applications for cold cutting can be utilised all mobile cutting requirements, cutting hatches and openings on vessels.





## Silver Raven

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### Civil & Remedial

From design, planning and project management we deliver integrated civil & remedial services for routine and preventative maintenance for Road, Rail and Water infrastructure. We have the capability to self-perform as well as manage contractors to provide turnkey project management solutions.

Our expertise extends to many areas of the industry, from bulk earthworks and foundation works to concrete remediation.

We are specialists in:

- Demolition
- Abrasive Blasting
- Concrete Remediation
- Shotcreting & Guniting
- Painting
- Steel Remediation
- Cathodic Protection
- Bulk and Retained Earthworks
- Protective Coatings and Linings
- Concreting

We have extensive experience carrying out projects on:

- Rail
- Roads & Bridges
- Marine Environments; Wharfs, Jetties, Shipyards.
- Sewer & Stormwater





## Lodestar 11

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### Research & Development

Lodestar 11 utilizes our wide range of skills and services for project specific research and development. We have vast experience in undertaking innovation and invention of new systems for our clients with a focus on:

- Artificial Intelligence
- Sonar
- Robotics
- Mechanical
- Environmental

We manage each project using our ISO certified Integrated Management system ensuring high levels of quality from start to finish. Our success in this field has created strong connections with reputable Australian Universities, Scientists and Engineers.

Design and Operate robots Mining, Oil and Gas, Civil, Industrial Processes Remote Disarming Hazardous Pressure Vessels, Stored Energy (Gas Cylinders) Neutralizing and Handling extremely hazardous, unstable and explosive materials Highly skilled robotics operators Multiple robots working daily on projects Specialty robot designs Purpose built Associated technology – Robot manipulators CCTV, Long distance remote control, magnetic systems Repairs to AFP Bomb Squad Robot

## Lodestar 11

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### Drone Inspections

Lodestar 11 have pilots that are accredited and licensed by Civil Aviation Safety Authority (CASA). We offer both indoor and outdoor inspections specialising in hard-to-access and confined spaces.

Industries we service:

- |                              |             |
|------------------------------|-------------|
| • Agriculture                | • Mining    |
| • Construction               | • Oil & Gas |
| • Infrastructure & Utilities | • Chemical  |
| • Energy                     | • Marine    |

Lodestar 11 can carry out standalone inspections as well as incorporating them into our R&D projects.



## LodeStar 11

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### Fabrication

Our fabrication department is involved in a broad range of briefs including general structural assembly as well as vehicle and plant modification.

Our team are familiar with a wide range of materials from typical steel systems to exotic metals such as aluminum, stainless steel, titanium and Inconel.

What we can fabricate:

- Structural Steelwork
- Staircases
- Handrails and gates
- Steel treatment and partial replacement for bridges
- Lift Shafts
- Vehicle & Plant Modification
- Pipes & Flanges
- Custom Parts

We specialise in providing innovative and custom-designed services to suit the specifics of your project and we can customise the associated jigs and engineering to suit any application. We have a range of engineers on the team, including civil, mechanical, fabrication and structural engineers.

This has enabled us to offer various skills and services, consisting of but not limited to:

- CAD design of custom parts
- Simulation testing of designs
- Load testing
- Plasma and laser cutting
- Welding—All materials including testing (non-destructive and destructive) and certification.
- Bending and folding—All materials to custom angles
- Press – Close angles and curves
- Machining – Custom parts (CNC & Lathe)
- Hydro Cutting – All materials (maintains metallurgy)
- Hex Rotor Broach – Cutting out hex and square shapes
- Powder Coating – all colours, thicknesses, and grades
- Abrasive Blasting – all finishes to any material
- Galvanising – HDG 200 & 500



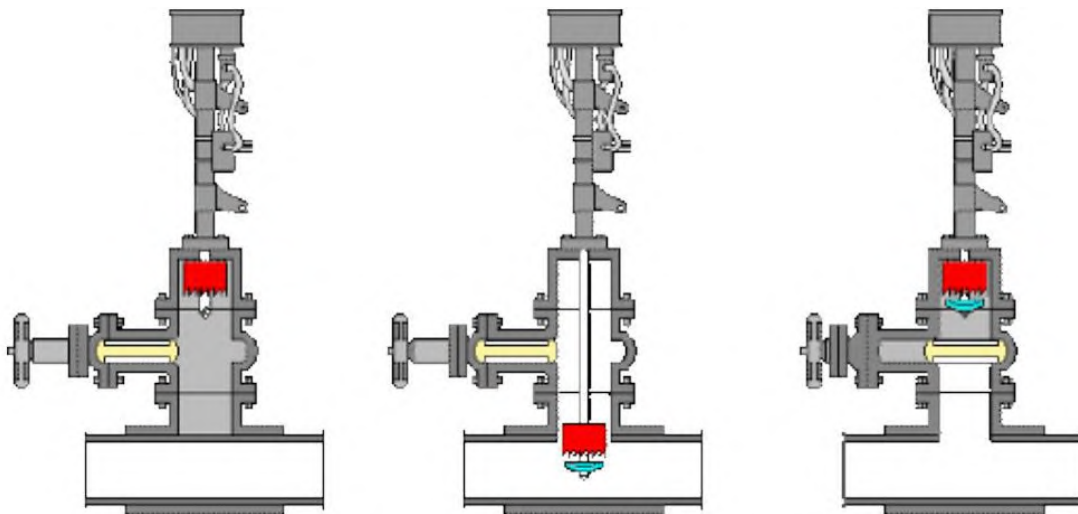
## LodeStar 11

### Cold Tapping & Purging

LodeStar 11 is leading research and development into intrinsically safe, cold tapping and purging systems to allow for testing and disposal of long-life hazardous products and chemicals. This same technology is applicable to tapping into live oil and gas line. We have developed a safe and environmentally friendly approach to remotely tapping, testing and purging chemical containers and vessels which were otherwise inaccessible.

Lodestar 11 can achieve these works even at great distances (Currently up to 1km) using remote control systems and continual surveillance monitoring. The entire tapping process occurs within a fully enclosed system capable of withstanding pressures of up to ~ 3MPa. Prior to tapping, this containment system is usually purged with an inert gas (nitrogen or argon) to prevent the possibility of creating ignition sources when tapping into explosive or flammable internal material.

The encapsulation system also prevents any material leaking from the vessel into the atmosphere or surrounding environment, which is favourable for tapping into environmentally harmful liquids or gasses.





## Titanium Suppliers Australia

### Supply & Manufacturing of Titanium & Other Exotic Metals

Titanium Suppliers Australia Pty Ltd (TSA) is a subsidiary of Silver Raven Pty Ltd that has operated in numerous Australian and international projects. TSA independently operates as a wholesaler of titanium, frequently importing and exporting various unique and hard to source grades and configurations, focusing on tailoring towards client requirements.

TSA has also organised a wide variety of manufacturing and engineering work for its clients. Notably, a series of manufacturing procedures have been conducted by TSA including laser, plasma and waterjet cutting, CNC machining, welding, folding, and bending, all allowing for expertly engineered products to be developed.

Within these various projects, TSA has produced sophisticated engineering drawings and CAD models, as well as performing extensive simulation testing, all allowing for effective R&D and innovative engineering developments.

To verify our engineering work, TSA frequently pursues physical material load testing and laboratory assessments with our material scientists.

This is used to assist in concluding and further optimising the unique properties of the titanium and other distinctive substances required on these projects.

The capabilities of our material scientists and simulation facilities also expand into work on heat recognition signatures and ballistics.

