Thuroona Services

Supply Nation CERTIFIED

Quality Management · ISO 9001 · Global-Mark.com.au®

Environmental Management · ISO14001 · Global-Mark.com.au®

OHS Management · AS/NZS 4801 · Global-Mark.com.au®

OHS Management · OHSAS 18001 · Global-Mark.com.au®

Indigenous Employment & Community Engagement

Thuroona Services are proud to be a Supply Nation Certified Supplier and we believe in indigenous empowerment and employment.

The Thuroona team strongly believe in genuine economic opportunities for Indigenous Australians and that starts with community engagement, employing local, providing real transferable skill sets and promoting Indigenous advancement.

Aboriginal belief is that we are put on this earth to look after the land and our family. If we don't look after the land, the land won't look after us.

Balancing local traditional knowledge with technical expertise, Thuroona Services including Hazrad Australia provides holistic solutions to a wide range of waste management solutions.

We are proud to firstly support and engage other indigenous companies. The key to every successful project is community engagement.

We build our relationships by firstly understanding our own employee's and contractors backgrounds, undertaking one on one mentoring then providing support, inspiration and opportunities with vision for our workers to thrive as individuals.

Maintaining a connection to culture and country are critical elements in our company.

By working together we will do our part in bridging the gap between Indigenous and Non-Indigenous Australians Thuroona will create Indigenous jobs and allow us to financially support the training and employment of Indigenous trainees, staff and contractors.

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The Team

Thuroona Services would like to introduce and welcome Hazrad Australia to the family.

Hazrad Australia has been created due to the overwhelming requests from our valued clients to assist in the area of secure hazardous waste disposal. Hazrad has been built on the same beliefs as Thuroona Services, by balancing local traditional knowledge with technical expertise. The service standards and achievements Thuroona Services has already delivered, will be replicated in the field of hazardous waste management.

Hazrad sets out to get the best value solutions for all waste management requirements. The ability to coordinate and centralise waste services, allows Thuroona Services and Hazrad to carry out the complete supply chain from initial investigation to secure disposal. What other Supply Nation Certified Supplier can do this?

Our overall aim is to add value to our client's triple bottom line – delivering environmental, financial and social benefits through tailored management solutions.

Together we provides a bespoke service, designed to manage all removal of hazardous materials and your recycling and waste management.

Our expert project management enables us to be cost-effective, reducing your impact on the environment, and to closely align with environmental objectives and protocols. We provide responsive, sustainable management through technical expertise and innovation.

By understanding your business and processes through onsite audits, we can advise on opportunities to minimise production, adopt effective re-use strategies or supply sustainable recycling and disposal techniques. We assure complete compliance with all relevant legislation and regulatory bodies, including the Department Water, Environment & Regulation and Department of Mines, Industry Regulation & Petroleum.

SECTORS SERVICED

- Government – Local / State / Federal
- Defence
- Mining
- Oil & Gas
- Chemical & Manufacturing Industry
- Petrochemical
- Agrochemical
- Pharmaceutical
- Utilities
- Power
- Water
- Healthcare
- Hospitality
- Logistics

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Hazardous, Environmental Approvals, Permits & Licences & Materials Project Management

Thuroona provides impartial trusted advice to our national clients in managing the identification or removal of hazardous materials.

This includes provision of project management and expert guidance for to ensure safety of workers, staff and the public.

Approval is one of the most critical factors for successful project delivery.

Navigating the environmental approvals process can be difficult. Depending on the nature of your project, there may be a requirement to secure an approval, permit or licence at a local, state or federal level prior to the commencement of works, as well as the requirement to monitor for potential impacts and audit environmental compliance.

Thuroona are experts in obtaining approvals for projects in the infrastructure, construction and land development sectors. Whether it be a simple discharge permit for discharge to allow dewatering works to proceed, or a complex multi-disciplinary approval for a large scale infrastructure or land development project, We can tailor a solution to get you started, as well as help you understand the area where you operate and minimise the environmental impact of your project.

Thuroona is able to address all of the environmental requirements for your project, including:

- Site contamination and remediation
- Acid sulfate soils
- Asbestos and hazardous materials survey and management
- Asbestos removal
- Dewatering and discharge
- Surface and groundwater assessment and management
- Dust and air quality

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- Environmental Impact Assessment (EIA)
- Noise and vibration
- Controlled waste and dangerous goods
- Waste management
- Native flora and fauna and vegetation clearance
- Biosecurity and quarantine (dieback, weeds, pathogens and pests)
- Aboriginal and Non-Indigenous heritage

Thuroona can provide your project with expertise and innovation to exceed project delivery objectives and environmental requirements. We understand that doing business tomorrow depends on demonstrating innovative and high quality environmental management today.

We offer a complete range of services to secure environmental approvals for our clients, including:

- Strategic assessment: establishing a pathway which clearly identifies the environmental approvals, permits, licenses or clearances that need to be secured
- Project management: preparing budgets, cash flow forecasts, project schedules and work progress reports whilst keeping our clients well-informed through strong communication skills
- Contract management: selection, procurement an management of sub- contractors and sub-consultants to provide an integrated and project-specific delivery team
- Technical assessment: undertaking all necessary technical assessments required to support approval, permit and licence applications to ensure prompt regulatory review and approval
- Stakeholder liaison and consultation: interaction with regulators, industry, community groups and interested parties via workshops, meetings, newsletters and other forms of communication
- Once approvals are secured, Thuroona offers a complementary range of services which will ensure you meet the management and reporting conditions under your approval, including:
- Project support and training: preparation of site-specific training and induction materials, educating and training site staff with respect to environmental objectives and compliance requirements. This also includes the option to second technical experts and environmental project managers into your existing team to successfully deliver major projects
- Environmental compliance monitoring and site inspection: soil, groundwater, surface water, sediment, air, dust, weather, waste, flora, fauna
- Environmental incident response: fast field deployment to assess and manage environmental non-compliances or condition breaches
- Compliance reporting: technical reports, weekly / monthly / annual compliance reports, incident and noncompliance audit and review
- Closure / Close-out reporting: end of project life reporting to demonstrate compliance with approval conditions and meeting project environmental objectives

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Management Systems

Thuroona's certified scope includes:

"Removal and disposal of hazardous materials including all types of asbestos, asbestos containing materials, lead, mould and synthetic fibres (SMF), resulting from demolition, environmental site remediation, and refurbishment (including heritage listed work).

COMMITMENT TO SAFETY

Safety and regulatory compliance are of paramount importance to Thuroona. Safety is a competitive advantage for Thuroona right at the top of the list along with quality work, on time and on budget. The Thuroona team commitment of each of our employees to do their best work includes working safely.

Our safety performance demonstrates continuous improvement and consistently and significantly outperforms industry benchmarks.

Thuroona's training and guiding our people in the safe handling of potentially hazardous materials and conditions. Our project management teams are hands-on with safety inspections and training.

Our safety programs are wide-ranging and flexible, with the ability to incorporate industry- and site-specific requirements for behavior-based safety, lockout/tagout, subcontractor safety, etc. We have industry-leading programs in a number of areas, including:

- Job safety analysis to identify, analyze and control potential hazards or risks associated with specific job tasks and equipment operation, and then ensure that all precautions and protective equipment requirements are in place.
- A comprehensive approach to fall hazard assessment, including formalized fall arrest plans for every project.
- Line-of-sight supervision requirements to ensure that work is done within sight of a supervisor or foreman, and every incident investigation we conduct addresses this requirement.
- Safety incentive plan, which provides significant financial incentives to workers, lead foremen, supervisors and site safety officers who maintain high performance in the areas of compliance, safe behaviors and injury prevention.

No matter how challenging the work or working conditions – and we take on some of the most difficult projects in the industry – the commitment to safety is consistent and evident on every one of our projects. Our employees and clients expect and deserve nothing less.

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Demolition

At Thuroona; we pride ourselves on being leaders in safe, efficient and innovative demolition and decommissioning services.

To mitigate against hazards and risk, we analyse every step of the demolition and salvage process prior to work commencing.

Thuroona's target is to salvage and recycle wherever possible. Thuroona partners with other indigenous businesses for large scale scrap metal recycling.

We understand that both manual and mechanical demolition techniques require a wealth of experience and as such our team are highly trained in a diverse array of dismantling and demolition projects. We deliver a complete package of integrated services, experienced management, and innovative equipment as well as the means and methods to maximize value for our clients

Thuroona has proven experience for commercial high-rises, chemical plants, manufacturing sites, process plants, petrochemical facilities, military bases, and many other structures with complex demolition needs.

Our comprehensive services include, but are not limited to, the following:

FACILITY DEMOLITION

Turnkey decontamination and decommissioning ("D&D") services, structural and selective deconstruction, and high-value asset recovery for aging or damaged infrastructure.

Jobs requiring sophisticated program management capabilities, specialised equipment, and skilled supervisors and staff.

FACILITY ABATEMENT

Asbestos, lead, and mold remediation and/or abatement, hazardous and universal waste removal, and fireproofing applications for industrial, utility, commercial, and government buildings.

RESPONSE & RESTORATION

Time-critical recovery, cleanup solutions and containment of oil or other liquid spill (fuel, emulsion,chemical etc), Bonded or Friable Asbestos from occurring

- Well positioned for rapid response times following both recurring unplanned events of moderate scale (facility fire or water incursion) and large-scale disasters, with ability to restore damaged property/facilities in shortest amount of time so that customers can quickly resume operations.

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Site Remediation Contamination Management

If a site is contaminated, it must be appropriately managed to mitigate potential risks to the environment and / or human health.

Contamination management is a carefully prescribed, staged process that is overseen by several different environmental regulators and typically includes the preparation of site management plans, supervision and monitoring of remedial activities and validation of the remedial exercise. This process needs to be administered by a qualified environmental practitioner that is familiar with all the necessary requirements, in order to ensure appropriate management and confidence in outcomes.

Thuroona are industry leaders in contamination management, drawing on over 80 years of specialised scientific and engineering experience across a broad range of projects and contamination profiles, including

- Environmental Investigations
- Asbestos Impacted soils
- Lead Remediation
- Hydrocarbons and heavy metals
- Acid Sulphate soils
- PFAS treatment and management
- Bio-Remediation
- Contaminated groundwater
- Unexploded Ordnance (UXO) handling and disposal
- Specialised remediation equipment
- Clandestine Laboratory remediation

Remediation for land development projects (former market gardens, industrial land uses) Service station remediation and hydrocarbon tank pulls Pesticide and organic contaminant remediation Contamination management is often synonymous with “dig and dump remediation” (contaminant removal and disposal), which can be a costly and unsustainable management model. There are, however, alternative approaches to contamination management, which may be more cost effective and practical than conventional remedial practices.

Our management solutions are tailored to site specific conditions and the consideration of multiple constraints, including budget, timeline, client sensitivity, public perception, asset saleability and end land use objectives. Management options may include one or a combination of the following strategies:

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- Detailed, site specific environmental / human health risk assessment and modelling
- On / off site treatment or processing of contaminated media
- Chemical fixation and immobilisation of contaminants in soil to mitigate migration risks
- Onsite encapsulation / retention of contaminated media
- Monitored Natural Attenuation (MNA) to allow natural degradation to reduce contamination levels
- Selective excavation and removal of contaminated media to landfill

Thuroona offers a range of complementary services, which can be administered as a turnkey or "hands-off" solution, or can be provided in discrete components to suit your existing project requirements.

Our solutions have been devised in close consultation with specialist alliance contractors who have industry-leading experience in soil and groundwater treatment and management, meaning the strategies are the most practical and cost-effective management solutions available.

Our range of services are delivered by highly qualified and industry-recognised experts, which ensures time and cost-effective management of your project, including:

- Project management and multi-disciplinary delivery team integration
- Regulator, stakeholder and community consultation
- Approvals management and clearance of conditions and notices
- Remedial design and planning
- Feasibility / Remedial Cost Benefit Analysis
- Environmental and human health risk assessment
- Soil and groundwater modelling
- Site Management Plans (SMP)
- Dust and Air Quality Management Plans (DAQMPs)
- Remediation and Validation Reporting (RAV)
- Remediation contractor selection / commissioning
- Supervising / advising contractors during site works
- Soil, sediment, water, air and dust compliance Monitoring

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Underground Storage Tanks/ Contamination Assessment

Underground Storage Tanks are considered an environmental risk as being located underground any uncontrolled release of substances stored within the tank may be difficult to detect or identify.

Thuroona can help in removing any underground storage tanks that are located on a property that are no longer used or required. Along with total demolition of the structure, Thuroona performs regular groundwater monitoring programs for a number of clients around Australia with underground storage tanks.

Impacts may be caused by one or more of a broad range of potentially contaminating industries, activities or land uses, including;

- General Industry (manufacturing, fabrication, processing, bulk storage)
- Chemical manufacture, refining, treatment, storage or blending
- Automotive / mechanical industries
- Service stations and hydrocarbon processing and storage facilities
- Mining and extractive industries
- Pest control, dry cleaning and other small scale commercial industries
- Landfilling, composting, waste management and recycling
- Agriculture, horticulture and market gardening
- Animal, textile and timber operations
- Foundries and gasworks, smelting and refining
- Ports, railways, airports and defence sites

There are several regulations and other legislative instruments that require landowners and site occupiers to assess and manage the risks presented by site contamination. This usually occurs when sites are redeveloped for more sensitive land uses, or a regulator is made aware of an impact and issues a formal notice, requiring action.

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In addition to the formal triggers listed above, there are situations where it is prudent for land and infrastructure owners to develop an understanding of site contamination for asset management or liability / risk mitigation purposes, for example:

- Risk assessment and site registration to meet duty of care requirements to site occupiers
- Pre-purchase / due diligence / feasibility assessments for asset acquisition or sale
- Baseline site assessment prior to site leasing for commercial / industrial land use

Site contamination assessment is a carefully prescribed, staged process that is overseen by several different environmental regulators. Assessment needs to be administered by a qualified environmental practitioner familiar with all the necessary requirements in order to ensure proper assessment and confidence in outcomes.

Thuroona draws on the considerable experience of its senior personnel (with backgrounds in the public sector, private industry and government regulation) to provide the highest level of confidence in contaminated site assessment.

Our range of services are delivered by highly qualified and industry-recognised experts, which ensures timely and cost-effective assessment of your project.

Our services include:

- Project management and multi-disciplinary delivery team integration
- Regulator, stakeholder and community consultation
- Approvals management and clearance of conditions and notices
- Feasibility assessment / design and contaminated sites strategic planning
- Asbestos and hazardous materials assessment and management
- Due diligence assessment for purchase or sale
- Conceptual Site Modelling (CSM)
- Sampling, Analysis and Quality Plans (SAQPs)
- Preliminary Site Investigation Reports (PSIs)
- Detailed Site Investigation Reports (DSIs)
- Field investigations (planning / design, OHS and sub-contractor management)
- Field and laboratory testing of soil, sediment, water, waste, air and gas
- Expert interpretation of field and laboratory data
- Soil and groundwater modelling
- Specialist contaminant studies
- Human Health Risk Assessment
- Ecological Risk Assessment

At the conclusion of the assessment phase, many sites (particularly those with low risk profiles) are deemed to be uncontaminated, meaning relevant clearances and approvals may be obtained without site remediation. In the event a site assessment identifies contamination, Thuroona can assist to ensure it is managed appropriately (see related capability statement "Contamination Management").

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Class A (Unrestricted) Asbestos

All types of Asbestos Friable and non-Friable including naturally occurring asbestos. Thuroona specialises in asbestos removal projects for the industrial, commercial and civil sectors, including sites situated in highly complex and hazardous environments. We have a comprehensive understanding of all state and territory Acts and Regulations. We hold Australia wide A class asbestos removal licencing and are licensed with all state authorities to transport asbestos waste.

Our fully trained and experienced site managers, supervisors and labourers are qualified in asbestos management practices with extensive experience delivering asbestos remediation projects nationally.

Be reassured Thuroona has in depth asbestos insurance cover, which not only protects ourselves as contractors, but transfers benefits to our clients, by incorporating both parties under the policies Contractor's Pollution Liability (Asbestos Disease) Public & Products Liability – Asbestos Removal & Demolition.

Our fully trained and experienced site managers, supervisors and labourers are qualified in asbestos management practices with extensive experience delivering asbestos remediation .

Our outstanding reputation in the industry means we have worked with authorities, regulatory bodies and government to develop approved codes of practice and safe-work procedures surrounding the safe removal of commercial and industrial asbestos removal projects nationally.

Our experience include but are not limited to, the following:

COMMERCIAL SECTOR

» Shopping centres

» Kindergartens, Primary, High schools,Colleges and Universities.

» Hospitals

» Office buildings

» Industrial

» Refineries

» Power stations

» Ports and other maritime premises

» Chemical plants

» Manufacturing plants

HERITAGE LISTED WORKS

Commercial, Industrial and Residential

This includes, removal of asbestos from roofing, wall sheeting, fences, tiles and other materials, including putty, electrical boards and tape.. Removal of asbestos pipe lagging and re-insulation.Remediation of asbestos and other contaminants in soil. Removal and transport of waste to approved facility 24/7.emergency response – spills, fire, wind and water damage.

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Asbestos in Soil

The legacy of many old building materials containing asbestos, combined with urban redevelopment and implementation of the Contaminated Sites Act 2003 (CS Act), has resulted in asbestos-contaminated sites becoming an important health risk and management issue. Once these buildings are demolished, fragments have entered the soil system where they have remained over time.

ACM in soil is the most common form of asbestos site contamination in Western Australia due to its historical widespread use as uncharacterised fill material for site landscaping, dumping as debris on vacant or development sites and inadequate removal and disposal of asbestos products during building demolitions.

The asbestos can have in causing lung cancer and mesothelioma, asbestos contaminated soil management has come to the fore to be regarded in the same manner as other asbestos management practices.

Asbestos contaminated soil was historically managed in a range of different ways, depending on the State or Territory where works occurred, and depending on which Council or State based body was enforcing varying aspects of the environmental and OH&S Regulations.

This has recently changed with the harmonisation of OH&S and Environmental Regulations and the publication of key guidelines for the industry that we adhere too.

It also requires trained personnel and specially modified plant and equipment to be used in order to meet the requirements of the regulatory bodies, the community and the client.

State of the art asbestos plant and equipment include:

- Custom designed and fabricated portable asbestos enclosure, airlock and HEPA extraction system; Modified excavators with positive air system;
- Negative air picking lines and screening equipment;
- Dust suppression and stockpile management systems as well as use of novel dust suppression reagents.
- All soil investigations undertaken in full accordance with state and national guidelines
- Preliminary Site Investigation
- Detailed Site Investigation
- Risk assessment, remediation and management of impacted soils emergency response – spills, fire, wind and water damage asbestos insurance cover available in Australia, which not only protects ourselves as contractors, but transfers benefits to our clients, by incorporating both parties under the policies Contractor's Pollution Liability (Asbestos Disease) Public & Products Liability – Asbestos Removal & Demolition.

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Asbestos in Soil Investigations

- All soil investigations undertaken in full accordance with state and national guidelines
- Preliminary Site Investigation
- Detailed Site Investigation
- Risk assessment, remediation and management of impacted soils emergency response – spills, fire, wind and water damage asbestos insurance cover available in Australia, which not only protects ourselves as contractors, but transfers benefits to our clients, by incorporating both parties under the policies Contractor's Pollution Liability (Asbestos Disease) Public & Products Liability – Asbestos Removal & Demolition.

Asbestos Surveys

The common use of asbestos as a building material until the mid to late 1990s means it is regularly identified in buildings that were constructed or renovated prior to this time.

National legislation requires that the employer, main contractor, self-employed person or person in control of the workplace identifies the presence and location of asbestos at the workplace and assesses the health risks. This needs to be in accordance with the relevant codes of practice. This information is to be recorded in an Asbestos Register. If the ACM presents a health risk, the employer or person in control of the workplace has a duty of care to implement controls.

The Asbestos Register and associated risk assessments must be reviewed at least every three years. Warning signs and labels supplement the information on an Asbestos Register and must be used as part of a safe system of work.

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Hazardous Materials Survey

A Hazardous Materials Survey comprises an inspection and report on building structures for materials likely to be hazardous to human health and the environment.

Hazardous materials identified through our survey can include but are not limited to:

- Asbestos Containing Material (ACM)
- Lead
- Polychlorinated Biphenyls (PCBs)
- Synthetic Mineral Fibres (SMF)
- Chlorofluorocarbons (CFCs)

- A Hazardous Materials Survey fulfils your obligations as a building manager or owner by:
- Meeting your occupational health and safety legislative requirements to protect workers and building occupiers from asbestos materials.
- Meet legislative requirements for the register and management of asbestos in the workplace under state and national legislation.
- To comply with the Australian Standard AS2601-2001: The Demolition of Structures.
- General due diligence for property buyers, sellers and developers.

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Rehabilitation / Site Clearing

- Mine sites
- Bulk Tyre removal
- Built up waste
- Earth moving
- Geofabric lining
- Tailing dam lining

ACID SULFATE SOILS

Acid sulfate soils are naturally occurring soils and sediments that exist in low-lying and coastal areas, but can cause significant impact if disturbed during site development.

While undisturbed, these soils are benign; however, they react when exposed to air, producing acidic conditions in soil and groundwater that can mobilise contaminants, such as heavy metals. If located in close proximity to sensitive or protected environments, disturbance can also result in detrimental impacts to terrestrial and aquatic flora and fauna.

Where impact occurs as a result of acid sulfate soil disturbance, environmental regulators can compel those responsible for disturbance to remediate any soil or groundwater impacts that have caused contamination. Penalties for non-compliance are severe and remediation costs are typically high.

The early identification, assessment and proper management of acid sulfate soil is therefore essential for any project where bulk earthworks or dewatering is likely to occur within, or near, high risk environments.

In many cases, the requirement to identify and manage acid sulfate soil disturbance is established by conditions for development or other planning instruments; however, given potential repercussions, understanding and managing acid sulfate soil at any site is a prudent decision for any proponent or project manager involved in grounddisturbing works.

Similarly, understanding constraint, liability and costs associated with management on a site-specific basis prior to project commencement or property acquisition, is an investment in time and project cost saving.

Thuroona draws on the considerable experience of its senior personnel, with backgrounds in the public sector, private industry and government regulation, to provide you with the best quality advice for your specific project, including;

- Regulator liaison to determine the most appropriate level of assessment for your project
- Due Diligence investigation for property prepurchase / preliminary design phase
- Regional scale assessment and strategic planning

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- Modelling of soil and dewatering treatment requirements and contracting costs for input to feasibility assessments, including development of innovative management methodologies
- Preliminary / strategic site assessment to assess risk, augment early stage project design and devise strategies for avoidance and cost minimisation
- Detailed site assessment and management plan preparation to comply with best practice, planning conditions and / or regulator guidance

Thuroona offers a range of complementary services that can be administered as a turnkey or "handsoff" solution, or can be provided in discrete components to suit your existing project requirements. Our solutions have been devised in close consultation with specialist alliance contractors who have industry leading experience in soil and groundwater treatment and management, meaning the strategies are the most practical and cost effective management solutions available.

Our range of services are delivered by highly qualified and industry-recognised experts, which ensures timely and cost-effective management of your project, including:

- Feasibility / design consulting to minimise consulting and contractor costs
- Desktop / Preliminary ASS investigations
- Site investigations, including drilling and subcontractor management
- Field and laboratory testing of soil and groundwater
- Expert interpretation of field and laboratory data
- Soil and groundwater modelling
- Dewatering drawdown and impact modelling
- Acid sulfate soil and groundwater investigation reports to satisfy environmental regulator requirements
- Soil and dewatering management plans specifically designed to minimise treatment, management and contracting costs
- Calculation of liming rates, dewatering treatment requirements and rates and contracting costs
- Contractor selection / commissioning
- Supervising / advising contractors during site works
- Soil, groundwater and dewatering compliance monitoring and testing
- Preparation of compliance monitoring and closure reports
- Stakeholder and regulator negotiation / liaison and project management

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Air Quality Services

Thuroona offers a comprehensive level of experience and technical competence in the assessment and management of ambient air quality and occupational air quality in Australia.

Air quality is important to us all, and poor air quality affects both human health and the environment in exterior and interior (enclosed) spaces, such as home and workplaces.

Air pollution occurs when the air contains substances that can affect or even injure humans and animals, or damage plants or materials. Air toxics can be in the form of gaseous, aerosol or particulate pollutants.

With combined monitoring and testing experience, Thuroona can offer customised, practical and innovative solutions to air monitoring requirements for investigation, regulatory compliance or commitment to best practice principles.

We specialise in ambient and occupational air quality monitoring for a variety of sectors,including infrastructure projects, industrial and commercial activities, land development projects, agricultural, port and mining operations.

All sampling and analysis is undertaken in accordance with relevant legislation and guidance documents including: National Environment (Ambient Air Quality) Measure (2003), Australian Standards, USEPA, NOHSC, WorkSafe, OSHA and NIOSH.

Our air quality monitoring and management capabilities include the following:

- Project management of data provision services with existing equipment, auditing existing monitoring programs and data validation services
- Development and implementation of Dust / Air
- Quality Management Plans
- Monitoring and management of dust generated from diffuse sources such as land clearing activities, earthworks during construction, remediation and contaminated sites
- Determination of suspended particulate matter using high volume samplers with size selective inlet, installation, monitoring and management [Total Suspended Particulate (TSP), Particulate Matter 10 µm (PM10), Particulate Matter 2.5 µm (PM2.5)]
- Determination of suspended particulate matter utilising tapered element oscillation microbalance analyser (TEOM)
- Real time on-site dust management utilising DusTraks and EBAMs
- Airborne asbestos fibre monitoring and project management during asbestos removal and remediation programs in accordance with NOHSC guidance
- Vehicle traffic air quality emission (NOx, SOx, CO, CO2, PM2.5 and PM10) monitoring and management
- Occupational monitoring for respirable and inhalable dust (including silica and metals) and airborne asbestos fibres
- Landfill gas monitoring for field parameters and speciated volatile organic compounds
- Indoor Air Quality assessments
- Compliance with Environmental Management Plans

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» Extensive experience in National Greenhouse and Energy Reporting (NGERS) and National Pollutant Inventory (NPI) emissions interpretation and reporting Vapour Intrusion Monitoring

» Field assessment for petroleum hydrocarbons and chlorinated solvent vapours

AMBIENT AIR QUALITY MONITORING

» Mobile ambient monitoring stations

» High volume samplers (TSP, PM2.5 and PM10)

» DusTraksTM

» EBAMs

» TEOMs

» Remote power generation systems

» Relocatable enclosures

» Meteorological stations

» Automated reporting systems for equipment

OCCUPATIONAL HYGIENE AND MONITORING

» Inhalable dust

» Respirable dust

» Respirable silica

» Airborne asbestos fibres

» Diesel particulate matter

INDOOR AIR QUALITY MONITORING

» Temperature and humidity

» CO2, CO, Ozone

» Microbiological (mould, bacteria)

» Formaldehyde

» Volatile organic compounds (VOCs)

» Dust

» Airborne asbestos fibres

» Odours

ENVIRONMENTAL MONITORING & TESTING

Robust and reliable environmental data is at the heart of every well managed project.

The collection of useful environmental data is a highly specialised process involving the design of monitoring systems, deployment of complex instrumentation and adherence to recognized procedural standards and guidelines.

Thuroona prides itself on maintaining unparalleled, industry-leading environmental monitoring and testing capabilities. This is achieved through a focus on quality and expertise, including:

» A strong commitment to Quality Assurance and

» Quality Control (QA / QC) via: established and frequently audited sample collection, handling and transport procedures; instrument calibration and maintenance schedules; and staff training and senior participation in fieldwork

» A dedicated team of field scientists and technicians, specially trained in a broad range of environmental monitoring and testing techniques

» Investment in a wide array of specialised environmental monitoring instruments, maintained and calibrated to be ready for immediate site deployment

In addition to a focus on quality and expertise, Thuroona also pursue innovative, cutting edge solutions and technologies for environmental data collection, including:

» Paperless data collection: increasing efficiency, minimising error potential and avoid paper usage to enhance sustainability

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- Proprietary software: industry leading environmental database management software, data logging and geolocation software and Geographical Information Systems (GIS)
- In-house and field laboratory: soil processing and field testing facilities, including custom-built 4WD-mounted field laboratories for instruments and data collection
- Remote data collection: research and development of proprietary systems to collect, transmit, receive and interpret real-time data streams via telemetry to provide immediate management responses

Thuroona have significant project experience in environmental monitoring across the land development, industrial, construction and resource sectors. We can assist you in developing an understanding of your environmental monitoring requirements, including:

- Interpretation of conditions, notices, orders and / or management plans
- Liaison with regulators to establish project-specific monitoring requirements
- Provision of advice regarding monitoring program design and instrument selection
- Development of Sampling and Analysis Plans (SAPs)
- Selection / commissioning of sub-contractors and sub-consultants to execute fieldwork

We are also capable of undertaking all types of environmental monitoring, either through in-house capability, or where required, via specialist subconsultants.

We offer the following environmental monitoring and testing services:

SOIL

- Acid Sulfate Soil (ASS) testing (including treatment validation)
- Soil contamination testing
- Sediment contamination testing
- Waste classification
- Asbestos and hazardous materials testing

WATER

- Groundwater monitoring
- Complex groundwater assessment (LNAPL / DNAPL / rare contaminants)
- Surface water monitoring
- Dewatering monitoring
- Waste stream monitoring

AIR

- Dust monitoring (TSP, PM10 , PM2.5)
- Air quality monitoring (particulates, airborne contaminants)
- Asbestos in air monitoring (workplace, paraoccupational, fixed site)
- Ground gas monitoring
- Landfill gas monitoring

SPECIALIST SUB-CONSULTANTS

- Radioactive materials testing (soil, air groundwater)
- Flora / native vegetation surveys
- Fauna surveys
- Noise and vibration testing

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PFAS

Per- and Poly Fluoro Alkyl Substances (PFAS) are a group of emerging contaminants which have gained significant media and public attention in recent history due to their widespread use and potential risks to human health and the environment.

PFAS consist of thousands of individual compounds containing the per-fluoroalkyl moiety which have broad industrial and consumer applications. These compounds are extremely resistant to thermal, chemical and biological breakdown, and as such, are highly persistent in the natural environment. Bioaccumulation and biomagnification in the food chain combined with potential links to human and ecological toxicity has seen PFAS emerge as contemporary contaminants of global concern.

Environmental emissions of PFAS come from many sources, most notably in the application of Aqueous Film Forming Foams (AFFF). Historical use of AFFF across defence sites, airports, fire training facilities, mine sites and storage facilities has led to legacy contaminant issues that can persist for many decades.

Challenges to remediation are presented due to the high mobility of PFAS through water systems, leading to expansive contamination plumes that require remediation to low target concentrations in order to meet regulatory requirements and mitigate potential risks posed to receptors. Undertaking works within PFAS impacted areas can therefore have significant cost implications if conservative approaches are adopted in lieu of tailored, expert advice. Effective stakeholder engagement and responsive consultation is essential to ensuring timely project delivery.

There are few experts with enough experience to undertake site assessment, management and remediation, and provide strategic advice to successfully navigate these issues in a timely and cost effective manner.

Thuroona has been actively engaged in the development of PFAS assessment and management strategies over many years and are considered PFAS subject matter experts. Having worked on several major, high-profile projects where PFAS is the primary contaminant of concern, and being responsible for environmental management of construction projects where PFAS occurs, Thuroona can offer the following high quality, industry-leading services:

- Strategic project advice
- Preparation of PFAS specific Sampling, Analysis and Quality Plans, including site-specific sampling methodologies for soil, sediment, water, and biota.

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- Field data collection and sampling programmes in accordance with industry best practice
- Analytical laboratory selection, procurement and quality control data assessment
- Preparation of Detailed Site Investigation Reports
- Tier 3 Quantitative human and ecological risk assessment
- PFAS Remedial Action Plans
- PFAS Construction Environmental Management Plans
- PFAS Dewatering Management Plans
- PFAS Spoil Management Plans
- Cost-Benefit Analysis of PFAS disposal options
- Compliance monitoring for PFAS during works
- Post-works PFAS Closure Reporting

Cognisant of the costs associated with effective PFAS remediation and with experience in the design, fabrication and operation of groundwater treatment systems, Thuroona are leading a national consortium developing a proprietary remediation methodology for PFAS impacted soils, surface water and groundwater.

Comprising water treatment experts, remediation contractors, waste disposal contractors and multiple universities across Australia, the consortium is developing technology to minimise remedial costs by concentrating and reducing the volume of PFAS waste streams from environmental media.

The system is mobile, capable of treating waste volumes on scales that will facilitate large scale construction, and capable of remediating low-level impacts that are typically encountered at the interface with sensitive receptors to levels that are safe for human exposure.

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Waste Management

We have access to a specialist fleet of vehicles, fully equipped to take aqueous and sludge materials from a range of waste streams back to our facilities for processing and recycling. This includes: packaged hazardous waste, product destruction, sewerage, solvents, and industrial process wastes.

Additional services include: packaged hazardous waste, chemical fixation and solidification technology, and advice on liquid waste minimisation.

Risk management, regulatory compliance and regulated waste management. Thuroona and Hazrad is certified to provide waste management services for all prescribed waste, regulated waste hazardous waste streams.

INTRACTABLE WASTE

Hazrad is currently working with a number of key stakeholders regarding the compliant packaging, transport, storage & disposal of hazardous waste currently outside landfill assessment criteria of Class I, II, III, IV Landfills.

Hazrad will be at the forefront of Intracable Class V wastes, providing clients with complete non-disclosure. These particular waste streams that have been deemed too difficult to treat, will require Hazrad's technical handling to safely manage the disposal process.

RADIOACTIVE WASTE

Hazrad currently holds a licence to store radioactive material. We are able to assist in the compliant packaging, transport, storage & final disposal of radioactive materials. Projects are already in commencement regarding in commencement regarding NORM (Natural Occurring Radioactive Material) waste, along with discussions in the Health sector regarding the safe disposal of radioactive laboratory material.

PACKAGED CONTROLLED WASTE & DANGEROUS GOODS

Hazrad specialises in hazardous waste. We take the challenge in taking a waste and finding opportunities to transform waste materials suitable for beneficial reuse, an alternative fuel or making it safe for disposal.

Our comprehensive waste management services offer the identification, collection, storage, transfer, treatment, recovery and final disposal of waste streams with a broad range of hazards. Hazrad can safely handle hazardous wastes in bulk and packaged forms.

BULK LIQUID WASTE

Hazrad's liquid waste service is ideal for customers who generate any form of bulk liquid or sludge waste. Hazrad offers safe collection and disposal services for the removal of a variety of liquid waste products.

Waste can be removed via vacuum tanker (bulk liquid) or packaged (drums or IBC's) for safe transportation and disposal. Liquid waste types include:

- Septic Tanks
- Grease Traps
- Oily Water Separators
- Surfactants & Emulsifiers
- Industrial Wash-waters
- Hydrocarbon & Wash Bay Sludges

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Thuroona Services

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INDUSTRIAL CLEANING SERVICES

Hazrad offers a range of high-tech industrial cleaning services, that is accompanied with specialised collection equipment and experienced technical personnel.

Our customised solutions provides industry with;

- Tank & Vessel Cleaning Services
- Septic Tank Cleans & Decommissions
- High Pressure Cleaning – Hot & Cold
- Road Sweeping
- Dry Ice Blasting
- Drain Cleaning & Unblocking
- Non Destructive Digging (NDD)
- Emergency Spill Response

HYDROCARBON WASTE

Hazrad handles all types of hydrocarbon waste includes liquids, soils and sludges contaminated by a wide range of hydrocarbon contaminants, such as lubricating oils, bunker and diesel fuels, lighter fractions such as petrol, monocyclic aromatic hydrocarbons, jet fuel, and polycyclic aromatic hydrocarbons (PAHs).

GENERAL WASTE, RECYCLING & AQIS SERVICES

As a value added service, Hazrad can co-ordinate and manage solid waste and recycling services onsite through our preferred suppliers. These services can include;

- Frontlift (FEL) Bin Services
- Rearlift (REL) Bin Services
- Skip Bin Services
- Hook Bin Services
- Flatbed Bulk Transport Services ie. Plastic & steel recovery
- DAFF (Dept Agriculture Fisheries & Forestry) - ex AQIS (Australian Quarantine Inspection Services) Waste Services

24HR EMERGENCY RESPONSE

Thuroona and Hazrad are available 24 hours a day, 7 days a week to assist businesses with the rapid removal of any unplanned emergencies resulting from spills, illegal-tipping or unforeseen events. Incidents Covered:

- Liquid spills
- General waste spills
- Illegal tipping
- Fire & flood damage
- Chemical
- Decontamination

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Thuroona Services

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WASTE IDENTIFICATION & TECHNICAL ASSESSMENT

Hazrad provides a quick and efficient service for the sampling of waste and its transport to specialist NATA approved laboratories for pre-acceptance evaluation and assessment.

Samples will be taken by our trained mobile chemists and will be packaged and labelled in accordance with safety guidelines. Once your waste is received at the laboratory it is analysed to generate data for preacceptance assessment.

These services provide our customers with the confidence that they are disposing of their waste products legally and responsibly.

EWASTE

Hazrad is able to provide a full e-waste collection and recycling service that will handle your e-waste ethically and responsibly and provide full time employment opportunities within Australia. Hazrad have teamed up with Activ, a not for profit disability services organisation.

Hazrad will be sourcing eWaste for secure recycling to recover precious metals, and avoid hazardous material ending up in landfill. Not only will this be an environmental win, we will be assisting the employment of the less privileged.

- Hazardous waste spills
- Friable Asbestos removal
- Sewage spills
- Hydraulic oil spills
- Structural Explosions

HAZRAD AUSTRALIA

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Thuroona Services

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