Contaminated Site Vegetation Reduction Capability
Overview

Reducing the vegetation in areas with potential Unexploded Ordnance (UXO), Chemical Warfare Agents (CWA), asbestos contamination, or other forms of contamination which can be compromised through disturbance of the sub surface profile requires specialist capabilities to ensure the safety of the client, operators and the public. Traditional de-vegetation methods involving bulldozing, chaining and other intrusive vegetation removal techniques can exacerbate safety risks and spread contamination. To ameliorate these risks OPEC has developed specialised vegetation mulching methods which minimise soil destabilisation. However, even using low impact techniques like mulching, the potential to disturb contaminants during the reduction of vegetation is a real threat which, if not mitigated against, can have life threatening consequences. OPEC Systems employs a set of specialist Standard Operating Procedures (SOP), equipment, operator training and risk management procedures designed to allow vegetation reduction to be undertaken on sites where contaminants may be present.
A desktop and historical assessment early on drives the risk management process. OPEC gathers as much information relating to the site as possible before mobilising, using local, state and federal databases available to Defence Environment and Heritage Panel (DEHP) members. This allows the most suitable vegetation reduction strategy to be employed from the start. OPEC will engage with all relevant stakeholders to gather additional local information whilst liaising with the stakeholders to reduce concerns over the process and answer questions if needed.

OPEC then deploys field teams to visually survey the areas to be de-vegetated. These field teams gather data on the types of contaminants on site, remove surface rubbish and scrap, detect contaminants that have potential for vehicle strike and mark these areas. These field teams may also be accompanied by fauna removal teams, if the environment management plan for the site should dictate such an approach. The field team also establishes and delineates areas of environmental, cultural or operational significance to ensure the vegetation operations cannot impinge in these areas. OPEC Technicians are trained specialists in the identification of contaminant types and risks. They are dressed in appropriate PPE to protect them from exposure to contaminants as well as general risks such as the elements and dangerous fauna on the site such as snakes.

Data from the field survey is then assessed and specific Safe Work Method Statement (SWMS) for the vegetation reduction is developed. This SWMS will direct the type of equipment to be used, separation distances between machines and personnel, no go zones for the public and site access controls.

The Vegetation Reduction approach will differ depending on the type of flora to be removed. OPEC normally uses a combination of Mega Mulcher, Posi Trac mulcher and timber grabs, excavators with grabs and grooming heads and tree lopping chainsaw teams. The details of the key capabilities can be found below:
Terex Posi Trac PT-100G Forestry

Accessories: High Flow Mulching Head, Slashing Attachment, Timber Grabs, 4 in 1 Multipurpose Bucket, Road Brooming Head

The Posi Trac Terex PT-100G Forestry, along with the Terex mulcher and slasher, is the ideal machine for selective land clearing, vegetation management, access road mowing and firebreak cutting for bushfire prevention. The cab of the PT-100G Forestry is fully sealed and pressurised, allowing the operating environment to stay clean and dust free, even when working in harsh, dry climates or on sites with potential for asbestos, phosphorus or CWA. A standard reversible fan assists its state-of-the-art cooling package and reduces the need for frequent oil cooler cleaning, allowing the PT-100G Forestry to reliably work in extreme ambient temperatures for extended intervals.

The rugged PT-100G Forestry was built with operator safety in mind, offering an impressive set of standard integrated protection features, including the only Roll Over Protection Structure (ROPS) cabin in the skid steer industry that meets level two Falling Object Protective Structures (FOPS) as well as forestry machine FOPS standards (ISO 3449 and ISO 8083). It also includes a complete forestry guarding package that consists of a heavy-duty polycarbonate door, a full rear brush guard, fuel tank and air con guards, rear limb risers and a screened engine air pre-cleaner.

Reinforced steel belly-pans have a convenient hinged design, allowing the operator to periodically clean out the belly of the machine and remove any material build-up. The mulching head is fitted with a depth protection bar to reduce UXO strike risk. The Terex can fell the forest and then move the dead fall away from the target area by changing the mulching head to the timber grabs that OPEC deploys with the system. For sites with grass vegetation OPEC deploys the slasher attachment, which allows a faster clearance rate than the mulcher and is also fitted with standoff plates to reduce the risk of UXO strike.

The PT-100 Forestry model meets British Columbia logging standards BC WCB G608, and works perfectly on timber up to 200mm dia. OPEC operators are all qualified Skid Steer Loader operators with years of vegetation reduction experience on sites contaminated with UXO, CWA and asbestos. All our operators have been trained to operate in Self Contained Breathing Apparatus and Level B PPE if needed.
John Deere 400HP Mega Mulcher

The tractor provides superior mulching power. The 2007 model 8530 has been factory upgraded to provide 400HP directly to the mulching head. As well as having the latest IVT transmission, allowing it to automatically maintain engine speed, ensuring constant power for more efficient productivity. The FM700 is the latest German technology in environmentally friendly mulching. The 48 tungsten tipped teeth shred the whole tree into a fine bed of mulch. The mega mulcher is the perfect machine for all broad acre clearing needs. It is normally operated with the support of the Posi Trac to position timber for mulching. One of the key environmental benefits of utilising mulchers for vegetation clearance is that the process leaves a thick layer of composting mulch on the soil surface. This assists in moisture retention and soil stabilisation dramatically reducing topsoil loss and contamination of adjacent waterways. The high nutrient load in the mulch also supports rapid regrowth.

8T Kubota Excavator with AFE Mulcher

RDM Series offers a tough, solid mounting system and the only Digging Spade Feature in the industry, allowing the operator to dig, move material and aid in excavator movement. The digging spade feature is also designed to mate with the excavator’s thumb further enhancing movement in material. The unique reduction shroud design forces material through the reduction shroud system forcing the material into the fixed cutting teeth. Material less than 100mm in diameter is cut and pulled into the reduction shroud system resulting in a one-step mulching process.
Hand Vegetation Reduction Team

OPEC employs qualified chainsaw and brushcutter operators to rapidly move through heavy forest ahead of the machines to fell oversize timber or access areas where machines are unable to operate due to terrain or environmental management controls. Hand felling large timber ensures that the machines’ progress through the forest is not delayed by having to waste time felling timbers larger than 300mm. Hand vegetation teams can operate effectively in environmentally sensitive areas such as riparian zones.

Over OPEC’s 21 years of involvement in the contamination and remediation market it has developed a broad base of experience and capabilities which allows us to provide value to clients undertaking projects on these sites. Recent work on sites potentially contaminated by UXO, CWA and asbestos include:

Moorebank, Dept. of Defence NSW, 2015

As part of a larger remediation project to prepare surplus Defence owned land for use as a parkland, OPEC completed UXO remediation of a rifle grenade range which was extremely heavily contaminated with UXO and EO. OPEC deployed a specialist UXO team with a mechanical screed to the site to ensure that the site was ready for its future use on schedule and budget. These works were undertaken in areas containing plants of very high ecological value. OPEC developed a system of works which ensured none of the protected plants were impacted by the works.

RAAF Williamtown, Dept. of Defence NSW, 2015

OPEC deployed UXO remediation teams to reduce the threat of UXO for the upgraded F35 Lightning Joint Strike Fighter facilities. The project involved over 120 hectares of digital survey utilising the all new Ultra TEM technology. This equipment provides the geophysicist with the ability to narrow down anomalies to a specific target size, thus reducing remediation time and cost dramatically, often by over 40%. OPEC also removed over 44 hectares of vegetation including the grubbing and safe removal of tree stumps and root balls that had become entwined with UXO and existing services. OPEC removed over 1300 items from the site, including a complete buried WWI artillery gun.

Noosa National Park, Dept of Natural Resources and Mines QLD, 2014

OPEC vegetation reduction teams were tasked with expanding the existing fire trail network in the area between the suburbs of Peregian Beach, Sunshine Beach and Marcus Beach and Noosa National park on behalf of the Dept. of Natural Resources and Mines (DNRM). The area was used as an amphibious landing training area during and shortly after WWII. The site had substantial UXO contamination and the fire trails backed directly onto local homes. DNRM engaged with OPEC early on to develop a vegetation reduction plan that ensured the safety of the public and operators.
Defence Site Maribyrnong, Golder Associates, 2012-2013

OPEC provides logistics and operational support to the primary contractor, Golder Associates and the Edgewood Chemical and Biological Centre (ECBC), a US Government Agency, to assess the buildings and grounds of the former Defence Science and Technologies Organisation (DSTO) area at Defence Site Maribyrnong for contamination by chemical warfare agents and toxic industrial chemicals. OPEC has been an integral member of the on-site team since the early planning stage of the project and was responsible for developing and implementing the vegetation reduction of the site which was contaminated with UXO, explosives residue, carcinogenic defoliants and asbestos. The 127 hectare task was completed safely within 2 months of commencement and a maintenance program was then developed which ran for over 12 months to control the risk of fire and provide safe access to investigation teams and site security personnel.

Explosives Factory Maribyrnong, CH2M Hill, 2013

OPEC supported CH2M Hill’s US explosives assessment team to conduct an investigation of the Explosives Factory Maribyrnong site to determine the residual explosive risks remaining on the site. The works involved supporting the explosives assessment teams and reducing vegetation in advance of these teams to prepare access to work areas and check for potential asbestos contamination and structural building issues.

Columboola Munitions Destruction Project, Dept of Defence, 2010-2013

The Columboola Munitions Destruction project was the biggest CWA remediation project undertaken in Australia since WWII. The project involved the establishment of a destruction chamber (TC-60) on a remote site in Queensland and the clearing of 730 hectares of land for latent munitions. OPEC teams safely and successfully reduced the vegetation on site whilst working around highly sensitive environmental and aboriginal culture issues. OPEC ran the project under a 50/50 teaming agreement with the project Prime Contractor. OPEC plant operators were also used to excavate the CWA munitions found on site.