Environmental Management Plan

Bradshaw Field Training Area Sewage Waste Collection and Transport

Bradshaw and Timber Creek Contracting and Resource Company

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ACRONYMS

AAPA	Aboriginal Areas Protection Authority
ANZECC	Australian and New Zealand Environment and Conservation Council
BFTA	Bradshaw Field Training Area
BoM	Bureau of Meteorology
BTCCRC	Bradshaw and Timber Creek Contracting and Resourcing
CSM	Conceptual Site Model
DoD	Department of Defence
EA Act	*Environmental Assessment Act*
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EPA	Environmental Protection Approval
EPBC Act	*Environmental Protection and Biodiversity Conservation Act*
EPL	Environmental Protection Licence
ERP	Emergency Response Plan
NLC	Northern Land Council
NT	Northern Territory
NT EPA	Northern Territory Environmental Protection Authority
NT PFES	Northern Territory Police, Fire and Emergency Services
TPWC Act	*Territory Parks and Wildlife Conservation Act*
WDL	Waste Discharge Licence
WMPC Act	*Waste Management and Pollution Control Act*

1 INTRODUCTION

Bradshaw and Timber Creek Contracting and Resourcing Company (BTCCRC) have been engaged by Veolia Group (Veolia) to undertake the ongoing collection and transport of sewage waste within the Department of Defence's (DoD) Bradshaw Field Training Area (BFTA), and a nearby radar tower site known as the Radar Site.

BTCCRC will undertake the collection and transport of sewage waste from porta-loo facilities during periods of DoD training operations, which predominantly take place within the Dry season (i.e. late April to September) each year. The waste will be transported to the existing BFTA wastewater treatment system (WWTS) for disposal.

The collection and transport of sewage waste from porta-loo facilities to the established WWTS is not a new activity for the site, and has been previously undertaken by Veolia as the primary waste contractor engaged by DoD. BTCCRC has been sub-contracted by Veolia to undertake the task over the 2019 period and will be using their own equipment.

The activity of collecting and transporting a listed waste (i.e. sewage) requires an Environmental Protection Licence (EPL) under the *Waste Management and Pollution Control (WMPC) Act*. This Environmental Management Plan (EMP) has been developed to support the application for an EPL, as well as provide a framework for environmental management to be adhered to when conducting sewage collection and transportation activities.

2 PROJECT DESCRIPTION

2.1 Project location

The BFTA is a training area for the DoD located immediately north of the town of Timber Creek and approximately 150 km west of Katherine in the NT (see Figure 2-1). BFTA is located on NT Portion 3686, which consists of approximately 900,000 ha of Commonwealth Government land. The main site facilities within the BFTA include an airstrip, several office and accommodation buildings, a vehicle wash facility and a wastewater treatment system. Various training activities take place across the BFTA and the locations are highly mobile throughout each Dry season. Where training activities are occurring within the BFTA, temporary amenities are established for DoD personnel, including porta-loos.

The Radar Site is located on NT Portion 3122, approximately 2 km south-west from the centre of Timber Creek (see Figure 2-2). The site is located on Mayat Aboriginal Land Trust land, and is accessed by Microwave Tower Access Road. The road is an unsealed access road that originates at the Victoria Highway north-east of Tiber Creek, as Lookout Access Road, before turning in to Microwave Tower Access Road. The Radar Site is located within a cleared area and consists of a portable radar tower, which is installed only during training activities. Porta-loos are temporarily deployed to the site to service the DoD personnel, then removed following completion of the training activities.

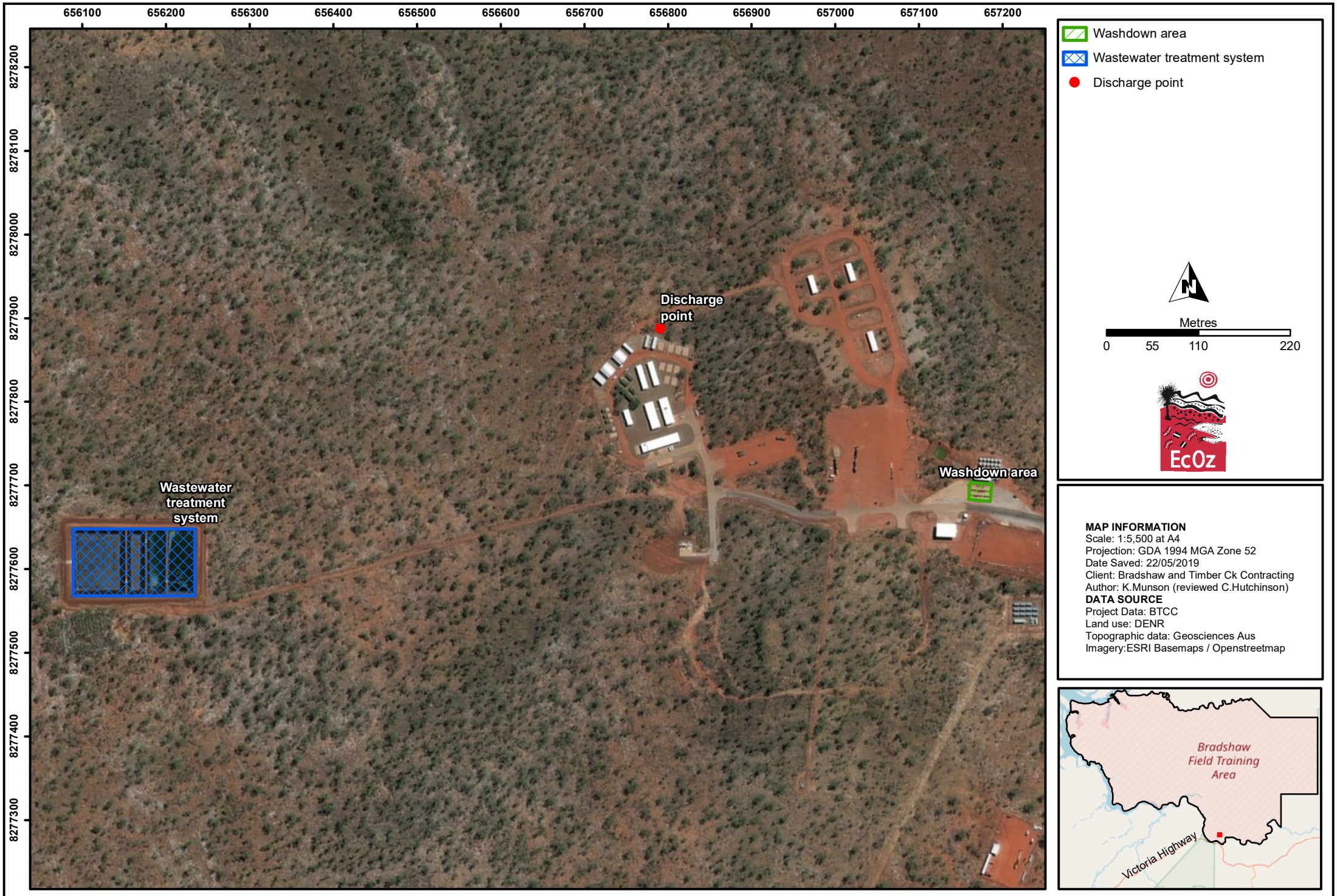

Figure 2-1. BFTA location and site plan

Figure 2-2. Radar site location and plan

2.2 Project activities

The works will involve the collection of sewage waste from numerous porta-loos placed across the BFTA and at the Radar Station, using truck mounted vacuum tanks. The waste will be transported to the existing WWTS for disposal. Discharge to the system will occur via a discharge point located at the BFTA accommodation and mess facilities (see Figure 2-1).

The BFTA WWTS is located approximately 600 m to the west of the main accommodation and mess facilities in the southern part of the training area. The system consists of a series of stabilisation ponds including anaerobic, facultative and maturation ponds. The ponds remove organic matter and are a typical design for remote areas in tropical climates. The high evaporation rates of the ponds result in no discharge of treated wastewater to the surrounding environment. The WWTS is operated by DoD under a separate approval, and will not be covered by BTCCRC EPL.

Training activities at BFTA are limited to the Dry season and therefore porta-loos are transported to there from various other DoD facilities within northern Australia, placed around BFTA by DoD personnel/contractors depending on the location of the training activity, and utilised during training. Once training activities are completed, the porta-loos are emptied at the BFTA WWTS by BTTCCRC, prior to being returned to their origin by DoD.

The number of porta-loos placed around the BFTA and Radar Station vary year to year depending on the planned training activities and expected number of DoD personnel. Typically, four porta-loos are required for the Radar Station and up to 80 porta-loos could be required across the BFTA during periods where large numbers of personnel are participating in training activities. DoD Range Standing Orders require porta-loos to be placed at least 100 m from any watercourse to minimise risks to surface water quality.

The frequency that the porta-loos require emptying varies depending on DoD personnel movements; however, on average they are emptied approximately twice a week during training activities. The maximum volume of sewerage disposed of at the BFTA WWTS from porta-loos is 100,000 litres during a single Dry season.

Details of the vehicles used by BTTCRC to transport the sewage are provided in Table 2-1. The sewage will be collected using an 8,000 litre Vorstrom truck mounted, sewage vacuum tank, and a 2,000 litre Jurop Vac-Jet trailer mounted vacuum tank as shown in Figure 2-3 to Figure 2-6. The BTCCRC vehicles will utilise the BFTA wash-down facilities to decontaminate vehicles following each disposal activity. The location of the facilities is shown on see Figure 2-1.

Table 2-1. Vehicle details

Vehicle Specification		
Type	Vac Truck	Trailer
Make	Iveco	Unknown
Model	Trakker	Unknown
Registration	CC42VM	N/A
Carrying capacity	8,000 L Vorstorm tank	Mounted with 2,000 L Jurop Vac-Jet tank

2.3 Environmental responsibilities

The BTCCRC Manager is responsible for ensuring that all BTCCRC personnel and contractors undertake their operations in an environmentally responsible manner and that all environmental incidents are reported. The BTCCRC Manager is responsible for reporting the environmental performance of BTCCRC to Veolia and DoD including incident and corrective action reporting, and will be responsible for any conditions under an EPL.

Figure 2-3. Volstorm 8,000 L tank

Figure 2-4. Volstorm tank compliance plate

Figure 2-5. Jurop 2,000 L tank

Figure 2-6. Jurop pump compliance plate

2.4 Surrounding environment, land uses and activities

BFTA

The BFTA is surrounded by various parcels of Aboriginal land (including the Daly River/Port Keats Aboriginal Land Trust, Menngen Aboriginal Land Trust and Ngaliwurru/Nungalii Aboriginal Land Trust), pastoral land (including the Wombuni, Auvergne, Bullo River, Spirit Hills and Legune Stations), leased crown land and vacant crown land. The town of Timber Creek is immediately to the south along the Victoria Highway (see Figure 2-7). The western boundary of BFTA is defined by the Victoria River and the northern boundary is defined by the Fitzmaurice River.

The BFTA is situated within five watercourse catchments including the Lalngang Creek, Lobby Creek, Ikymbon River and Angalarri River, which flow into the Victoria River and eventually into the Joseph Bonaparte Gulf (Figure 2-7). The fifth catchment is the Fitzmaurice River catchment, which also flows into the Joseph Bonaparte Gulf further north. Downstream sections of the Fitzmaurice and Victoria Rivers are tidally influenced; however, surface water within the BFTA is freshwater. Two minor unnamed creeks are the closest waterbodies to the BFTA WWTS, which are approximately 700 m to the north and south respectively, and drain in a westerly direction towards the Victoria River. Water quality within the BFTA is monitored through the on-going DoD NT Water Quality Monitoring Program and includes several surface water sites, including one site downstream of the BFTA WWTS and associated facilities that drains to the west before joining the Victoria River.

There are several production bores surrounding the BFTA WWTS including two located at the nearby facilities (RN034250 and RN034533), and three to the west along an access road. Standing water levels range from 9.1 to 17.8 m.

Radar Site

The Radar Site is south-west of the town of Timber Creek. To the west is Aboriginal Land owned by the Winan Aboriginal Land Trust and to the south and east is Aboriginal Land owned by the Ngaliwarru/Nungali Aboriginal Land Trust (see Figure 2-8). The Aboriginal communities of Muruning, Mayat and Gulardi are located to the south-east of the Radar Site along the Victoria Highway.

The Radar Site is located between several drainage lines that flow to the north and into the Victoria River, including Little Horse Creek approximately 3.5 km to the west, and Timber Creek approximately 2.5 km to the east (Figure 2-8).

The closest groundwater production bores are located towards the town of Timber Creek (approximately 1.5 km to the east and north-east), with standing water levels averaging around 9 m.

The surrounding land is predominantly open *Eucalyptus* woodland and the Radar Site falls within land unit 4a, which is described as open woodland of *Corymbia polycarpa*, *Lophostemon lactifluus* over *Themeda triandra* and *Eriachne burkittii*.

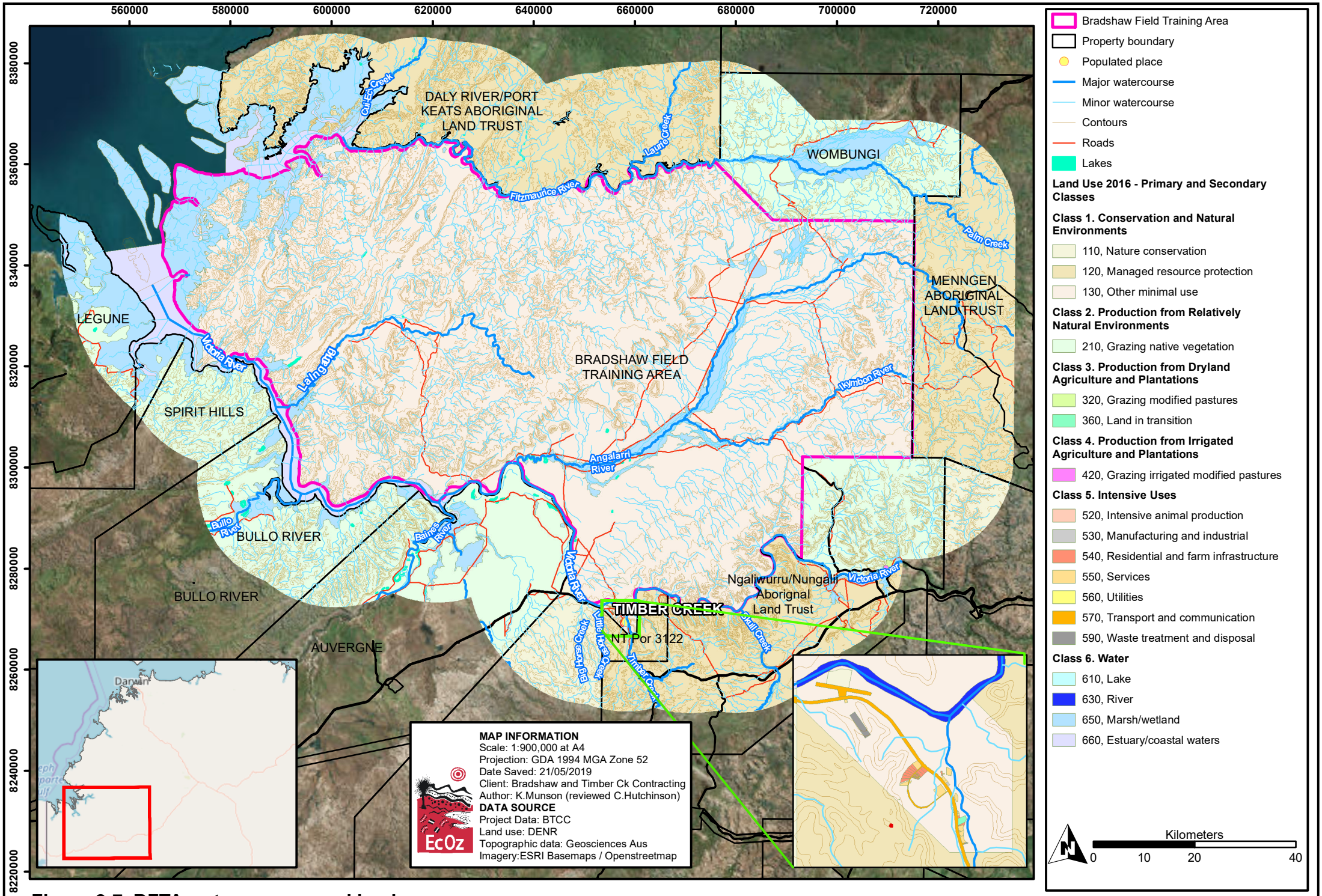

Figure 2-7. BFTA watercourses and land use

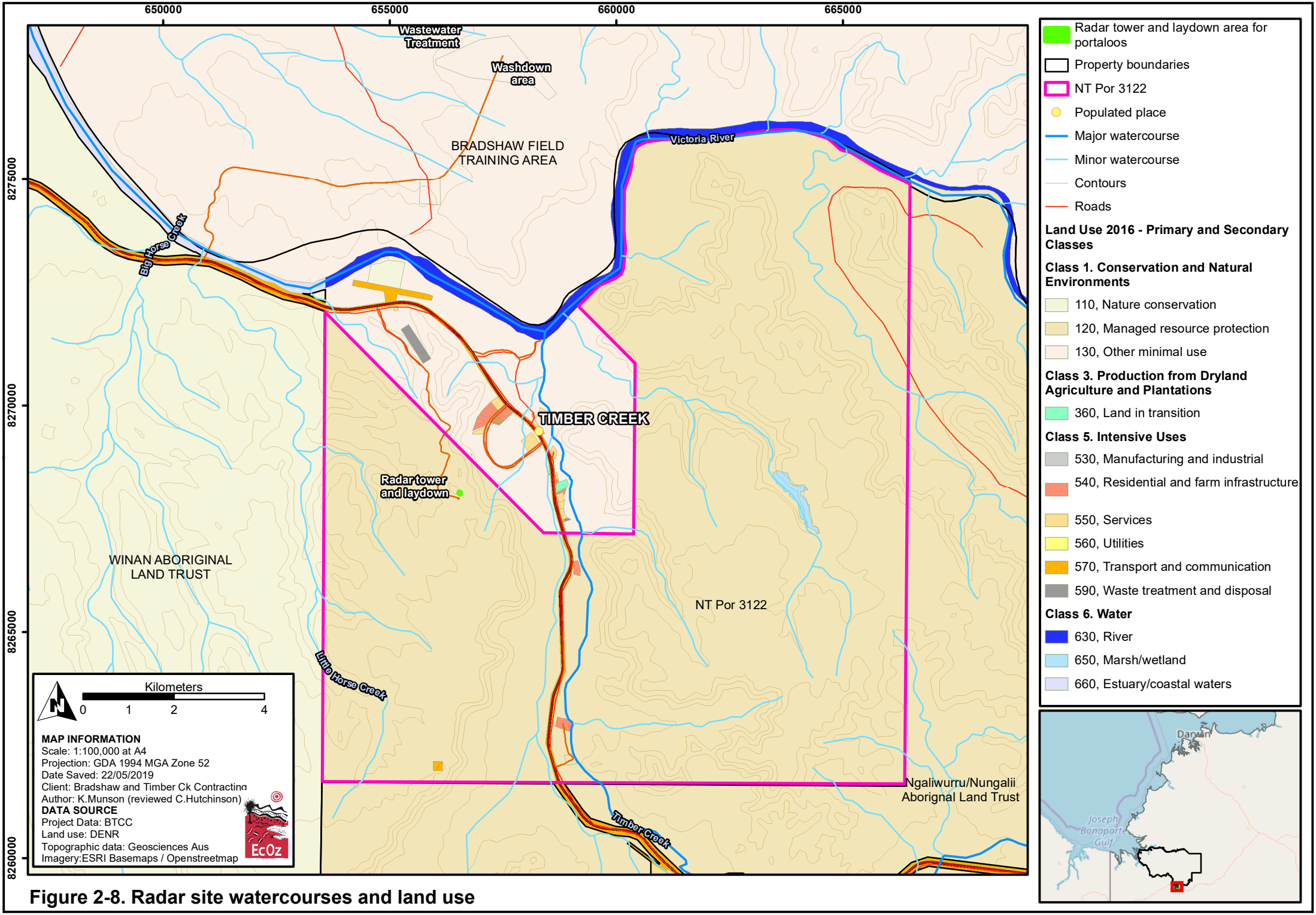

Figure 2-8. Radar site watercourses and land use

3 ENVIRONMENTAL LEGISLATION AND APPROVALS

Bradshaw Station was purchased by DoD in 1996 and has since been used as the BFTA. DoD submitted an Environmental Impact Statement (EIS) and Supplement to the EIS, to the NT Government in 1997, which was assessed under the *Environmental Assessment Act*. The NT Government assessment concluded that environmental impacts of the BFTA could be managed under an Environmental Management Plan (EMP).

Significant infrastructure development has occurred within the BFTA since 2001 including the establishment of a road network, fencing and firebreaks, accommodation and maintenance areas, and clearing of target areas in the Angalarri Valley. The DoD BFTA EMP acts as an overarching guidance on the environmental management of the BFTA in accordance with the *Environment Protection and Biodiversity Conservation Act*. BTCCRC will operate under all DoD BFTA EMP requirements for the collection and transport of sewage waste within the BFTA, as well as the specific environmental management measures outlined in this EMP.

3.1 Relevant legislation

Table 3-1 provides a summary of the legislation and guidelines that have been considered in this EMP.

Table 3-1. Summary of legislation applicable to the EMP

Legislation/Guideline	Regulation/approval	Project relevance
Aboriginal Sacred Sites Act	AAPA Certificates ILUA between Traditional Owners, NLC and DoD	Aboriginal scared sites are identified on the AAPA Certificates for the BFTA. The BFTA Range Standing Orders identify areas from which activities are excluded to protect cultural heritage values. As Defence training activities are not permitted in these areas, the activity of emptying porta-loos poses no risk to sacred sites.
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)	Ongoing water quality monitoring and reporting	Water quality monitoring is undertaken as part of the established and ongoing DoD NT Water Quality Monitoring Program which includes a specific chapter concerning BFTA. Water quality data is compared against the relevant ANZECC guidelines.
Code of Practice for On-Site Wastewater Management	EIS	Administered by the Department of Health, and used in the design of the BFTA WWTS as per the BFTA EIS and EMP, and approved by the NT Government.
Environmental Assessment (EA) Act	EIS	Approval was granted for the construction of the BFTA under the *EA Act* by the NT Government in 1998, including approvals for the construction and use of the WWTS.
Environmental Protection and Biodiversity Conservation Act (EPBC Act) (Commonwealth)	EIS	The BFTA EMP was developed in conjunction with the EIS which provides a framework for the effective long term management of the BFTA and includes several sub-plans including Vegetation Management and Fauna Management that address species listed under the *EPBC Act*. BTCCRC will undertake their sewage waste collection and transport activities under the existing approvals held by DoD.
Heritage Act	EIS	Heritage sites identified through archaeology surveys are protected under the DoD BFTA

Legislation/Guideline	Regulation/approval	Project relevance
		management plans. As Defence training activities are not permitted in areas with heritage value, the activity of emptying porta-loos poses no risk to heritage sites.
Native Title Act	ILUA between Traditional Owners, NLC and DoD	The provisions of the *Native Title Act* were fulfilled and complied by DoD in respect to the conversion of the Bradshaw Station title to freehold land. An Indigenous Land Use Agreement is in place. BTCCRC will operate in accordance with the ILUA requirements, which are prescribed in the BFTA RSO's.
Public and Environmental Health Act	Wastewater works design approval	The WWTS was constructed in accordance with the then Code of Practice for Small On-Site Sewage and Sullage Treatment Systems and the Reuse of Sewage Effluent as per the conditions of the EIS. BTCCRC will undertake their sewage waste collection and transport activities under the existing approvals held by DoD.
Territory Parks and Wildlife Conservation Act (TPWC Act)	EIS	The BFTA EMP was developed in conjunction with the EIS which provides a framework for the effective long term management of the BFTA and includes several sub-plans including Vegetation Management and Fauna Management that address species listed under the *TPWC Act*. BTCCRC will undertake their sewage waste collection and transport activities under the existing approvals held by DoD.
Waste Management and Pollution Control Act	Environmental Protection Approval or Licence (EPA and EPL)	EPA and EPLs are required for construction and operation of facilities that store and handle listed wastes. This EMP has been develop to support the BTCCRC EPL application to gain a licence for the collection and transport of a listed waste.
Water Act	Waste Discharge Licence (WDL)	Any off-site discharge from operational areas to a watercourse would require a Waste Discharge Licence (WDL). The licencing system is managed by the NT EPA. Here will be no discharges to watercourses occurring from BTCCRC activities in the BFTA. The BFTA WWTS is also managed as a closed system with no discharge to watercourses.

3.2 Permission to conduction activities

BTCCRC has obtained permission from the relevant landholders to conduct the activity of collecting and transporting sewage waste. DoD have provided written permission for BTCCRC to undertake waste collation and transportation at the BFTA (see Figure 3-1), as well as awarded contracts to Veolia and sub-contracts to BTCCRC to undertake the activity. The Bradshaw Indigenous Liaison Officer works with Mayat Aboriginal Land Trust as a representative member of the NLC and has been involved in the land use agreements between Mayat and DoD.

From: Gavican, Martyn MAJ [mailto:martyn.gavican@defence.gov.au]
Sent: Wednesday, 22 May 2019 9:26 AM
To: Greg Kimpton <KimptG@nlc.org.au>
Subject: Iveco Vac truck [SEC=UNCLASSIFIED]

UNCLASSIFIED

Greg,

In my capacity as Regional Training Area Manager for the NT, I approve access to BFTA for the Bradshaw and Timber Creek Company Iveco vac truck to support activities conducted upon the training area.
This is an essential service that allows Defence meet the environmental conditions set for use of the Bradshaw Training Area.

Bets regards

Marty Gavican

MARTY GAVICAN
MAJOR
RTAM NT
Directorate of Operations and Training Area Management
Darwin Range Control
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NT 0830

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Figure 3-1. DoD permission to operate within the BFTA

4 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) has been developed to identify key sources, pathways and receptors of potential contaminants and include the following considerations:

- Potential contaminants
- Inferred sources
- Pathways and mechanisms for transport
- Potential sensitive receptors.

Potential contaminants

The contaminants of concern that could result from the proposed activity of collecting and transporting sewage are nitrates, phosphates, ammonia, bacteria and pathogens (i.e. *E. coli*, enterococci or faecal coliforms). The release of these contaminants could result in an increased biochemical oxygen demand, reduced dissolved oxygen, changes in pH, increased electrical conductivity, turbidity or total suspended solids, and/or an increase in chlorophylla-a.

Sources

The source of the sewage is from the collection and transport activities required to empty the porta-loos across the BFTA and Radar Site. Release to the environment would only occur in the event of a spill. Porta-loos hold a maximum 40L of sewage. The trucks used to pump out the porta-loos hold 2,000 to 8,000L.

Pathways and transport

Sewage spills can result in the migration of potential contaminants to soils, and to surface and groundwater's through horizontal and vertical migration through soils and water. There is a higher risk of contaminant migration during the Wet season when soils are saturated and when surface waters are flowing across land, or in watercourses. Emptying of porta-loos will take place only during the dry season, when the absence of surface water flows means there will be limited pathways for movement of contaminants into surface water and groundwater.

Receptors

Receptors include the receiving watercourses, which flow into the Bonaparte Gulf and recreational users of the watercourses; as well as terrestrial and aquatic organisms along the Victoria River and its tributaries such as fish and shellfish. Range Standing Orders require porta-loos to be placed at least 100 m from any watercourse to minimise risks to surface water quality.

The BFTA WWTS is located in the Victoria River catchment. The nearest surface watercourses are two unnamed, minor streams located approximately 700 m to the north and south respectively of the WWTS. These watercourses are ephemeral and flow only during the Wet season.

There are several production bores surrounding the BFTA WWTS including two located at the nearby accommodation and mess facilities (RN034250 and RN034533), and three to the west along an access road. Standing water levels range between 9.1 to 17.8 m. The BFTA WWTS has been sited and designed to ensure no risk of bore contamination and regular water quality testing is undertaken to confirm drinking water quality.

The Radar Site is located between the Little Horse Creek (approximately 3.5 km to the west), and Timber Creek (approximately 2.5 km to the east). An unnamed, minor stream that flows into Timber Creek to the north of Timber Creek town is the closest watercourse to the Radar Site and is approximately 520 m to the east. The closest groundwater production bores are located towards the town of Timber Creek (approximately 1.5 km to the east and north-east), with standing water levels averaging around 9 m.

5 ENVIRONMENTAL RISK ASSESSMENT

The potential risks associated with collecting and transporting sewage waste from porta-loos at BFTA and Radar Site, have been considered through an environmental aspect and impacts register. The likelihood and consequence categories adopted in the assessment are provided in Table 5-1 and Table 5-2, and have been combined to derive an overall risk rating using the matrix in Table 5-3. The environmental aspects and impacts register is included as Table 5-4.

Table 5-1. Likelihood categories

Categories	Score	Likelihood Description
Rare	A	Highly unlikely; will only occur in exception circumstances
Unlikely	B	Could occur at some time, but unlikely
Possible	C	Might occur at some stage; has previously occurred
Likely	D	Known to occur or will probably occur; has occurred several times
Almost certain	E	Common or repeating occurrence; is expected to occur in most circumstances

Table 5-2. Consequence categories

Categories	Score	Consequence Description
Insignificant	1	No/low measureable impact on the environment
Minor	2	Some, minor, temporary environmental impact
Moderate	3	Contained temporary, or permanent minor, localised environmental damage. Impacts to BTCCRC reputation or relationships with stakeholders
Major	4	Severe environmental damage. Impacts to BTCCRC reputation or relationships with stakeholders
Catastrophic	5	Environmental disaster. Impacts to BTCCRC reputation or relationships with stakeholders

Table 5-3. Risk matrix

		Consequence				
		1	**2**	**3**	**4**	**5**
Likelihood	**A**	Low (1)	Low (3)	Low (6)	Moderate (10)	High (15)
	B	Low (2)	Low (5)	Moderate (9)	High (14)	High (19)
	C	Low (4)	Moderate (8)	High (13)	High (18)	Extreme (22)
	D	Low (7)	Moderate (12)	High (17)	Extreme (21)	Extreme (24)
	E	Moderate (11)	High (16)	High (20)	Extreme (23)	Extreme (25)

Table 5-4. Environmental aspects and impacts register for the collection and transport of sewage waste

Aspect	Incident/Event	Potential Impact	Assumptions	Initial Risk			Management and Mitigation Controls	Residual Risk		
				L/ hood	Cons	Risk		L/ hood	Cons	Risk
Portaloo operation at BFTA and Radar Site	Sewage spills (approximately 40 L per porta-loo) from overflowing porta-loos)	Contamination of surface water	Porta-loos are located at least 100 m from nearest watercourse in accordance with Range Standing Orders.	Possible (C)	Minor (2)	Moderate (8)	• Undertake regular collections for all porta-loos used at BFTA and the Radar Site during periods of DoD training activities. • Adhere to all equipment operating instructions. • All personnel have participated in a BTCCRC induction, and a DoD BFTA site induction • All personnel undertaking collection and transporting activities have been trained in the use of all required equipment including porta-loos, transport vehicles and collection equipment. • Ensure all collection vehicles contain an adequately stocked and sized spill kit to contain the largest possible spill volume. • Ensure all personnel undertaking collection and transporting activities have been trained in the use of the spill kits. • Enact Spill Response Procedure as per Section 6.3. • All spills and/or environmental incidents are reported to the BTCCRC Manager as soon as possible.	Unlikely (B)	Minor (2)	Low (5)
		Contamination of groundwater	40 L spill will soak into soil but unlikely to enter aquifer. No proximal use of groundwater for potable water supply.	Possible (C)	Minor (2)	Moderate (8)		Unlikely (B)	Minor (2)	Low (5)
		Contamination of soils	40 L spill will affect a small area of soils which will be of a volume that impacted soils can be collected and disposed of.	Possible (C)	Minor (2)	Moderate (8)		Unlikely (B)	Minor (2)	Low (5)
Use of collection vehicle at BFTA and Radar Site	Sewage spill during the collection process or from the collection vehicle (of up to	Contamination of surface water	Porta-loos are located at least 100 m from nearest watercourse in accordance with Range Standing Orders. Collection vehicles will	Unlikely (B)	Moderate (3)	Moderate (9)	• All personnel undertaking collection and transporting activities have been trained in the use of all required equipment including porta-loos,	Unlikely (B)	Minor (2)	Low (5)

Aspect	Incident/Event	Potential Impact	Assumptions	Initial Risk			Management and Mitigation Controls	Residual Risk		
				L/ hood	Cons	Risk		L/ hood	Cons	Risk
	8,000 L from Vac Truck, or 2,000 L from trailer mounted unit)		operate on existing access tracks to avoid watercourses during transportation of sewage.				transport vehicles and collection equipment. • Adhere to all equipment operating instructions. • Collection equipment will be monitored when in use to detect any potential leaks or spills. • Ensure collection equipment and transport vehicles are inspected and maintained regularly by BTCCRC qualified mechanic. • All personnel have participated in a BTCCRC induction, and a DoD BFTA site induction. • Ensure all collection vehicles contain an adequately stocked and sized spill kit to contain the largest possible spill volume. • Ensure all personnel undertaking collection and transporting activities have been trained in the use of a spill kit. • Enact Spill Response Procedure as per Section 6.3. • All personnel involved in discharging transported sewage to the WWTS have been trained and adhere to all DoD operational instructions. • Water quality monitoring will be undertaken across the BFTA as per the DoD existing and ongoing NT Water Monitoring Program. • All spills and/or environmental incidents are reported to the BTCCRC Manager as soon as possible.			
		Contamination of groundwater	Large spills will soak into soils and may reach shallow groundwater. Groundwater is known to be around 9 m below ground level. No proximal use of groundwater for potable water supply.	Unlikely (B)	Moderate (3)	Moderate (9)		Unlikely (B)	Minor (2)	Low (5)
		Contamination of soils	Large spills will soak into soils. Equipment is manufactured to Australian Standard AS1210 (Pressure Vessels) and contain several features to prevent spills including gate valves and hose drip trays.	Unlikely (B)	Moderate (3)	Moderate (9)		Unlikely (B)	Minor (2)	Low (5)

Aspect	Incident/Event	Potential Impact	Assumptions	Initial Risk			Management and Mitigation Controls	Residual Risk		
				L/ hood	Cons	Risk		L/ hood	Cons	Risk
Discharge to the BFTA WWTS	Sewage spill when discharging into the WWTS discharge point	Contamination of surface water	The nearest surface watercourse to the WWTS discharge point is 700 m	Unlikely (B)	Moderate (3)	Moderate (9)	• All personnel involved in discharging transported sewage to the WWTS have been trained and adhere to all DoD operational instructions for the WWTS. • Ensure all collection vehicles contain an adequately stocked and sized spill kit to contain the largest possible spill volume. • Ensure all personnel undertaking collection and transporting activities have been trained in the use of the spill kits. • Enact Spill Response Procedure as per Section 6.3. • Water quality monitoring will be undertaken across the BFTA as per the DoD existing NT Water Monitoring Program. • All spills and/or environmental incidents are reported to the BTCCRC Manager as soon as possible.	Unlikely (B)	Minor (2)	Low (5)
		Contamination of groundwater	Large spills will soak into soils and may reach shallow groundwater. Groundwater is known to be around 9 m below ground level.	Unlikely (B)	Moderate (3)	Moderate (9)		Unlikely (B)	Minor (2)	Low (5)
		Contamination of soils	Large spills will soak into soils. Equipment is manufactured to Australian Standard AS1210 (Pressure Vessels) and contain several features to prevent spills including gate valves and hose drip trays.	Unlikely (B)	Moderate (3)	Moderate (9)		Unlikely (B)	Minor (2)	Low (5)

6 EMP IMPLEMENTATION

In combination with this EMP, which is specific to the activities of collecting and transporting sewage waste within the BFTA and Radar Site, BTCCRC will comply with all conditions of the existing DoD BFTA EMP and any DoD environmental approvals.

The following sections provide detailed information regarding the implementation of environmental management measures to ensure the potential risks to the receiving environment are mitigated. Table 6-1 provides a summary of how this EMP will be implemented to address the potential impacts associated with the collection and transport of the sewage waste.

6.1 Inductions and training

All new site personnel, contractors, and unaccompanied visitors will be required to undertake a BTCCRC induction, as well as DoD BFTA site inductions. These inductions will include information regarding the environmental responsibilities of individuals and the BTCCRC, as well as incident reporting requirements and methodologies.

Training will be provided to all personnel participating in the collection and transport of sewage waste and include the use and maintenance of all collection equipment, collection vehicles, porta-loos and the DoD operations procedures for the WWTS discharge point.

Scheduled regular toolbox meetings will keep personnel informed of environmental issues, as well as safety awareness and hazards in the workplace. This will ensure that personnel are continually aware of environmental management activities on the site, and enable any issues to be identified and resolved.

Relevant personnel will have training provided so that they are able to undertake the environmental management and monitoring activities specified in this plan. In-house training will be provided by relevant contractors (consultants) in specific environmental monitoring tasks such as incident based water or soil sampling (if required).

6.2 Non-Conformance and corrective action procedures

Any non-conformance will be documented through site inspections and/or incident recording, stating the nature of the non-conformance and the mechanisms implemented to correct the incident.

The BTCCRC Manager will be notified of any non-conformance or environmental incident by BTCCRC personnel as soon as possible (i.e. within 24 hours) of the incident occurring. The BTCCRC Manager will report any spills to DoD Range Control, which is a requirement of entry to BFTA.

Corrective/preventative action will be undertaken within a timely manner (i.e. immediately following notification of a non-conformance or incident) to ensure that the incident is addressed. If management controls are not implemented in the designated manner, additional training will be required for the BTCCRC Manager, and BTCCRC personnel.

If it is identified that the environmental management strategies are not being undertaken, corrective actions will be adopted. Corrective actions for the aspects and potential impacts have been provided in Table 6-1.

Table 6-1. Summary of EMP implementation

Aspect	Potential Impact	Target	Management Action	Performance Indicator	Non-conformance corrective action	Responsibility
Collection and transport of listed waste materials (sewage)	Sewage spill during the collection and transport resulting discharge of sewage to the receiving environment impacting surface water, groundwater or soils	• No contamination of surface water, groundwater or soils from the collection and transport of sewage waste • All personnel have received the required inductions and training prior to commencing operations • No complaints regarding the BTCCRC and their performance when collecting and transporting sewage waste	• Undertake regular collections for all porta-loos used at BFTA and the Radar Site during periods of DoD training activities. • Adhere to all equipment operating instructions. • Collection equipment will be monitored when in use to detect any potential leaks or spills. • Ensure collection equipment and transport vehicle are inspected and maintained regularly by BTCCRC qualified mechanic. • All personnel have participated in a BTCCRC induction, and a DoD BFTA site induction • All personnel undertaking collection and transporting activities have been trained in the use of all required equipment including porta-loos, transport vehicles and collection equipment. • All personnel involved in discharging transported sewage to the WWTS have been trained and adhere to all DoD operational instructions for the WWTS. • Ensure all collection vehicles contain an adequately stocked and sized spill kit to contain the largest possible spill volume. • Ensure all personnel undertaking collection and transporting activities have been trained in the use of the spill kits. • Enact Spill Response Procedure as per Section 6.3. • All spills and/or environmental incidents are reported to the BTCCRC Manager as soon as possible.	• No indication of significant spill of sewage • All BTCCRC personnel and contractors have received all relevant BTCCRC and DoD inductions and trainings. • All complaints received are recorded and responded to as per the Consultation and Communications plan (see Section 6.6).	• Review all equipment operating procedures and amended where additional controls and/or environmental safeguards are required. • Perform additional equipment maintenance at the BTCCRC compound at Timber Creek. • Implement spill response procedure as needed. • Maintain training records to ensure all personnel and contractors have been adequately trained and inducted for the works. • Maintain induction records to ensure all personnel have been inducted. • Review community engagement efforts and undertake additional methods. • Respond to all complaints and implement specific corrective actions. • Complete the Complaints Register for each complaint received.	BTCCRC Manager

6.3 Spill Response Procedure

All spills that occur as a result of the collection and transport of the sewage waste will be addressed under the following procedure:

- **Assess** the spill by determining:
    - The type of spill
    - Location of the spill
    - Source of the spill, and whether it can be isolated
    - The requirements to address the spill – i.e. personal protective equipment, volume of spill control materials, etc.
- **Severity** of the spill as per Table 6-2 and Table 6-3.

Table 6-2. Assessing the severity of the spill

Minor	Reversible and localised impact on the environment. OR Environmental impact requires a programmed commitment of time and/or money to remediate, OR would take less than 2 years to recover naturally.
Moderate	Significant but reversible, OR irreversible and localised, impact on the environment. OR Environmental impact requires a programmed commitment of moderate time and/or money to remediate, OR would take 2-10 years to recover naturally.
Major / severs	Significant AND irreversible impact on the environment. OR Environmental impact requires emergency commitment of significant time and/or money to remediate, OR would take more than 10 years to recover naturally.

In terms of volume, the following can be used as a guideline for determining severity.

Table 6-3. Volume of spill to determine severity

Minor	<100 L to inland waters/land
Moderate	100 – 1,500 L to inland waters/land
Major / sever	*>1,500 L to inland waters/land*

- **Secure** the spill – if safe to do so, the spill should be immediately secured, by eliminating the source, and barricading the area to prevent personnel from accessing the area unnecessarily.
- **Control** the spill – by constructing an earthen bund, or by deploying suitable absorbent spill kit materials (i.e. absorbent booms, absorbent pads, granular absorbents, disposable bags and ties).
- **Dispose** of the contaminated material – which will be determined by the nature and extent of the spill. Advice will be sought from DoD to determine the appropriate disposal method for the contaminated material in compliance with the NFTA RSO's and EMP. Used absorbent material including granular absorbents, boom and pads shall be put into disposable bags, tied and placed in regular waste bins. Bags will be clearly labelled and transported to a licenced waste disposal facility as soon as possible.
- **Report** the spill – BTCCRC personnel will report all spills to the BTCCRC Manager. The BTCCRC Manager will be responsible for reporting spills to Veolia and the DoD (within 24 hours).

6.4 Environmental Monitoring Plan

The DoD has conducted water quality monitoring at the BFTA since 1998. The current monitoring program falls within the DoD NT Water Quality Monitoring Program, and a specific BFTA section within this monitoring program addresses the ongoing water quality monitoring activities for the BFTA.

Surface water results from the DoD monitoring program show that water quality is relatively consistent and there have been minimal exceedances of the ANZECC (2000) trigger values over time. There are a total of 10 established surface water quality monitoring sites across the BFTA which are sampled during the Wet season or early Dry season when water is flowing. Water is typically analysed for physico-chemical parameters, cations and anions, total suspended solids, total recoverable hydrocarbons and heavy metals. A surface water monitoring site is located directly downstream of the BFTA wastewater treatment system and associated facilities that drains towards the west before joining the Victoria River.

While BTCCRC are not required by DoD to undertake their own monitoring for the activity of collecting and transporting sewage, they will comply with the requirements of the DoD monitoring program, report any spills that may occur.

BTCCRC will undertake continued visual monitoring during their activities to ensure that any possible sewage spills are detected and addressed as soon as possible.

6.5 Environmental Emergency Response Plan

An environmental emergency is an event or situation that results in an abnormal state and requires an immediate response in order to prevent serious environmental harm. Environmental emergencies may include tropical cyclone, storm, flooding or fire.

Environmental conditions are monitored by BTCCRC through the Bureau and Meteorology (BoM) website, NT Police, Fire and Emergency Services (NT PFES) announcements, local radio emergency announcements, and DoD, who monitor conditions within the BFTA.

When advice is issued by authorities (i.e. cyclone watch, cyclone warning, evacuation alter, etc.) the BTCCRC Manager will enact this Emergency Response Plan.

The following steps will be undertaken in the event that an environmental emergency warning is issued and/or an emergency is declared for the BFTA or the Radar Site:

- All personnel and contractors will report to the nearest muster area (i.e. a DoD muster area within the BFTA, or the muster area at the BTCCRC compound in Timber Creek), and receive further instructions regarding preparations for the emergency, or evacuation.
- Where there is sufficient preparation time (i.e. in the event of a cyclone watch issued by BoM), all waste collection and transportation equipment will be emptied at the BFTA wastewater treatment system, then returned to the BTCCRC compound, and secured (i.e. locked, tied down, and/or stored in an enclosed facility (i.e. shed).
- All essential vehicles will be fuelled, if required to evacuate personnel, and nonessential vehicles will be parked, secured and locked within the BTCCRC compound in Timber Creek.
- All potentially mobile items within the BTCCRC compound will be secured, tied down and/or stored and locked in the site office.
- All rubbish and debris will be will be secured in lidded receptacles, tied down and/or disposed of at the Timber Creek waste facility.
- BTCCRC will recommence the collection and transport of sewage waste, following advice from relevant authorities, and DoD once the emergency is no longer occurring.

6.6 Consultation and Communication Plan

The Bradshaw Indigenous Liaison Officer for the Northern Land Council (NLC) is responsible for the Indigenous Land Use Agreement (ILUA) between the Commonwealth Department of Defence, and the Traditional Owners of the Timber Creek area. This includes coordinating the land use agreement between DoD and the Mayat Aboriginal Land Trust for the lease permits to utilise the Radar Site. The Bradshaw Indigenous Liaison Officer is responsible for coordinating and managing the BTCCRC Manager and personnel.

BTCCRC will liaise regularly with Veolia, DoD and its contractors to adequately plan sewage waste collection and transport activities. Any changes to the proposed activities will be communicated to the NT EPA in order to fulfil any EPL requirements.

BTCCRC will liaise with the Mayat Aboriginal Land Trust, regarding the waste collection and transport activities at the Radar Site, when required.

6.7 Complaint management

For any complaints received regarding the waste collection and transport activities, a register of complaints will be kept that records:

- Date and time of complaint
- Method by which complaint was made (i.e. telephone, letter, meeting, etc.)
- Name, address, contact telephone number of complainant
- Details of complaint
- Action taken in response to the complaint, including follow up contract with the complainant
- Any monitoring to confirm the complaint has been satisfactorily resolved
- If no action was taken, the reason for no action being taken.

Table 6-4 provides an example complaints register that will be developed following the receipt of a complaint.

Table 6-4. Example complaints register

Complaint ID number	Name of recorder	Personnel responsible for responding to complainant	Date/time complaint received/ recorded	Complainant contact details (if available)	Details of the complaint	Corrective action summary	Reasons for no action taken

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