



**METROPOLITAN COAL
CONSTRUCTION MANAGEMENT PLAN**

SURFACE WORKS ASSESSMENT FORM

**EASTERN TRIBUTARY CROSSING GROUNDWATER
PIEZOMETER AND SHALLOW PATTERN GROUTING**

JANUARY 2019

Proposed Groundwater Piezometer Installation and Shallow Pattern Grouting

Background

The subject Surface Works Assessment (SWA) form is submitted to Department of Planning & Environment (DP&E) and WaterNSW for the proposed installation of four (4) groundwater piezometers, ground characterisation and shallow pattern polyurethane (PUR) grout installation, seeking endorsement for these works.

Site Location

The site is within the Woronora Special Area in the local government area (LGA) of Wollongong City Council. The Woronora Special Area covers a region of approximately 75 km² and includes the catchment of Woronora Dam. The proposed activities are situated within the Metropolitan Coal mining lease (Consolidated Coal Lease (CCL) 703) along Fire Road 9J at Eastern Tributary Crossing. The township of Helensburgh is located approximately 5 km to the east.

Construction Management Plan Surface Works Assessment Form

**Note, this form must be completed in full
prior to the commencement of surface disturbance works**

Date: 4 February 2019

Name and position: Kane Organ (Environment and Coordinator)

Register number (i.e. Number 1, 2, etc.): 14

RMP register number:

Site name: Eastern Tributary Crossing, Pool ETO

Site type: Environmental monitoring piezometers and remediation - groundwater monitoring bores & shallow pattern polyurethane resin grout injection

Site co-ordinates (easting/northing): Coordinates for paired piezometer installation sites in table below.

Site	Easting	Northing
ET01	311530	6214147
ET02	311593	6214119
ET03	311630	6214336
ET04	311671	6214080

Expected duration of works:

Approximately one to two days per site for drilling and groundwater bore installation.

Approximately four months to undertake ground characterisation works and shallow pattern polyurethane installation

Works schedule:

- Describe the activities (including timing) to be conducted during construction works.

Four (4) groundwater monitoring boreholes will be drilled to depths between 20 and 38 m.

Shallow pattern (1-2m) PUR injection at Pool ETO and under Eastern Tributary crossing using handheld drilling and injection equipment.

Access and Equipment Delivery

Access to the site will be from the existing Fire Road 9J. No vegetation clearing is required. All equipment and truck mounted and/or tracked drill rig will be transported to each location using Fire Road 9J.

Drilling

Each groundwater monitoring borehole will have a diameter of up to 125 mm. The boreholes will be drilled using either a small tracked remote access drill rig and/or a truck mounted drill rig.

Water Management and Cuttings Containment

Drilling will occur during forecast dry weather wherever practicable. Water will be used to clear the drill cuttings.

The monitoring boreholes will be drilled in Hawkesbury Sandstone which will negate the need for chemicals to reduce swelling clays. Swelling clays are typically found in the Stanwell Park Claystone and the Wombarra Shale. Metropolitan Coal has drilled approximately 300 holes of similar depth in the Hawkesbury Sandstone and only water has been used to remove cuttings.

Drill water will be supplied as necessary to each location by pumping it from an Intermediate Bulk Container (IBC). A 150 L drum may be used at the site to store contingency water if necessary.

At the conclusion of drilling at each location the water from the baffled tank will be pumped to a location outside of the area and filtered using a geotextile to capture sediment. Sediment and cuttings will be collected and removed offsite for disposal.

Shallow Pattern PUR Grout Injection

PUR works will be undertaken in accordance with the Draft Metropolitan Coal Stream Remediation Management Plan (November 2018).

Bore Casing

A 12m PVC bore screen will be installed approximately 8-26 m below ground level (mbgl) with a blank PVC casing from 2 mbgl to the surface. A sand gravel pack to 2 mbgl, a bentonite seal to 3 mbgl and a cement grout to the surface. A PVC well screen will be installed to the full depth of the hole with a sand gravel pack to the surface. The PVC screen and casing (Class 18) for each monitoring bore would be up to 50 mm in diameter.

Blank PVC casing would extend to a height of 1 m above the ground for each monitoring bore with a steel monument to protect the casing from damage.

Monitoring Equipment

A water level sensor and data logger will be installed within each bore.

Construction Site Rehabilitation

Construction sites will be rehabilitated in accordance with Metropolitan Coal's Rehabilitation Management Plan.

Fuel Management

Large quantities of fuel will not be stored on site. Fuel will be transported in closed containers (e.g. jerry cans). 60 L plastic containers will be used to hold fuel cans after use. Re-fuelling will be conducted using an appropriately sized funnel. Refuelling of equipment will be completed before the equipment is transported to the drill site so as to reduce the requirement of transporting fuel. Care will be taken not to spill fuel. Oil/fuel absorbent materials or other containment materials will be made available at the site to prevent contact with the surrounding environment.

Equipment (e.g. drill rigs, pumps) will be regularly inspected for leaks of oil/fuel/coolant. Impervious bunding will be provided with greater than 110% of the capacity of the item being banded. Spill containment/treatment resources (i.e. spill kits) will be provided and personnel will be trained in their use. The spill kits will include: absorbent material 40 L bag of Organic Oil/Fuel absorbent; absorbent pads: 20 of 480 X 430 mm pads; garbage bags; shovel; and a bag of rags.

Any spill that occurs will be immediately cleaned up and reported to:

- the site supervisor;
- the Metropolitan Coal Environment & Community Co-ordinator (Kane Organ 0413 314 422);
and
- Water NSW (via the incident Management Number 1800 061 069).

The site supervisor and the Metropolitan Coal Environment & Community Co-ordinator will investigate any spills.

Human Waste Water

A portable toilet will be located on a proximal access road near the site. The toilet will be serviced weekly with a vacuum truck on a Friday.

Review of baseline information - site features (refer Section 5 of the ConMP)

Are any of the following features located within the proposed disturbance area or immediate surrounds?

Are there occurrences of the Southern Sydney Sheltered Forest on Transitional Sandstone Soils EEC in the general area? **No**

Are there occurrences of the O'Hares Creek Shale Forest EEC in the general area? **No**

Are upland swamps located in the general area? **Yes**

Are there records of known threatened flora species in the general area? **Yes**

Are there records of known threatened fauna species in the general area? **No**

Are existing (or proposed) monitoring sites located nearby? **No**

Are known Aboriginal heritage sites present? **Yes**

Is this an area in which disturbance is to be avoided and/or limited? (refer Sections 6.1.1 and 6.1.2 of the ConMP) **No**

If the proposed disturbance area is located in an area to be avoided or limited, relocate site where appropriate in accordance with the requirements of the ConMP

Threatened flora survey (refer Section 6.1.3 of the ConMP)

Date of survey for threatened flora.

25th October 2018

Name of suitable qualified ecologist conducting survey

Chris McEvoy, Niche Environment & Heritage

Have any threatened flora been identified within the proposed disturbance area or immediate surrounds.

No

Scientific names of threatened flora species recorded.

Pultenaea aristata has been identified in general area

Will works be relocated to avoid or minimise impacts on the threatened flora species?

N/A

If it is not feasible to relocate the works, have the impacts of the proposed works on the population of the threatened flora species been assessed by a suitably qualified and experienced ecologist?

N/A

If No, do not proceed

Has the assessment concluded that the proposed surface activities are likely to have a significant impact on a population of the threatened flora species?

No

If Yes, the proposed works are to be modified to avoid such an outcome

[Attach any relevant ecological reports to this assessment form]

"Eastern Tributary Piezometer Installation Surface Works Biodiversity Assessment" dated 12th November 2018 (Niche Environment & Heritage).

Vegetation clearance and site access (refer Section 6.1.6 of ConMP)

Is vegetation clearing required for the construction works? If yes, describe extent (e.g. m²) and method of clearing (e.g. slashing/lopping branches/removal)?

No

Describe the access requirements for the construction site (e.g. vehicle/pedestrian/helicopter) and where the access will be from (e.g. which fire road).

Direct access via Fire Road 9J to all sites.

Is vegetation clearing required for site access? If yes, describe the extent and method of clearing?

No

Vegetation management measures to be implemented (refer Section 6.1.4 of the ConMP)

Disturbance would be appropriately limited by the following mitigation measures:

- Care will be taken to ensure no disturbance to native vegetation.
- Equipment will be transported to the construction site by truck utilising existing fireroads and rubber-tracked remote access drill rig to minimise impacts

- Existing fire trails, tracks and exposed bedrock will be used for access and placement of equipment.

Site Layout Plan (refer Section 6.1.5 of ConMP)

Has a Site Layout Plan been prepared and attached to the Works Assessment Form?

Yes

Have the following been indicated on the Site Layout Plan?

- Site location
- Works design
- Management measures (e.g. erosion and sediment controls, spill kits)
- Access track/s (indicate type of access, e.g. pedestrian/vehicle. Also indicate location of nearest fire trail where access will be from)
- Areas of vegetation clearance
- Location of equipment (e.g. pump, generator, fuel storage, portable toilets)
- Equipment storage areas
- Safety equipment (e.g. fire extinguisher and first aid kit)

Attach photographs, where appropriate



Photo showing site ET02 on the side of Fire Road 9J.



Photo showing site ET01 on the side of Fire Road 9J.



Photo showing ET03 site on the side of Fire Road 9J at Eastern Tributary Crossing.



Photo showing site ET04 on the side of Fire Road 9J.



Photo of a typical groundwater bore installation within a swamp.

Aboriginal heritage pre-clearance survey (refer Section 6.2 of the ConMP)

Date of pre-clearance survey for Aboriginal heritage sites.

23 October 2018

Name of suitably qualified archaeologist conducting survey

Renee Regal, Niche Environment & Heritage

Are any Aboriginal heritage sites identified within the proposed disturbance area or immediate surrounds? **Yes**

Description of recorded Aboriginal heritage sites.

The proposed sites have been inspected by an archaeologist. One registered site within close proximity to the proposed bore holes comprising of an Open Camp Site of stone artefacts. An Aboriginal Objects Due Diligence Assessment has concluded there will be no adverse effects to Aboriginal cultural heritage sites as a result of the proposed borehole sites.

Will works be relocated to avoid impacts on the Aboriginal heritage site? **No**

If it is not feasible to relocate the works to avoid impacts to the Aboriginal heritage site, management and/or mitigation measures to be implemented in accordance with the Metropolitan Mine Heritage Management Plan. Describe measures below.

Where avoidance is not practicable, has a comprehensive baseline record been obtained and salvage considered in consultation with Aboriginal stakeholders prior to disturbance.

Attached is "Eastern Tributary Piezometer Installation Surface Works Aboriginal Due Diligence Assessment" dated 12th November 2018 (Niche Environment & Heritage).

Known Aboriginal heritage sites located close to surface disturbance works

Details of demarcation (e.g. fencing, sign-posting or temporary flagging) implemented to avoid accidental damage to known Aboriginal heritage sites located close to surface disturbance works.

The proposed sites have been inspected by an archaeologist. An Aboriginal Objects Due Diligence Assessment has concluded there will be no adverse effects to Aboriginal cultural heritage sites as a result of the proposed borehole sites.

Erosion or sediment control measures required?

- Is any erosion or sediment control required? **Yes**
- If yes, has an Erosion and Sediment Control Plan been prepared and attached to the Surface Works Assessment Form? **Yes**

Fuel and spill management measures required?

- Are compressors and pumps bunded and with sufficient capacity? **Yes**
- Where fuels are used, are spill kits available at the construction site? **Yes**
- Have personnel been trained in spill clean-up procedures? **Yes**

List Hazardous Materials and Storage Requirements

- What hazardous materials are required to be used and how will they be stored on site?

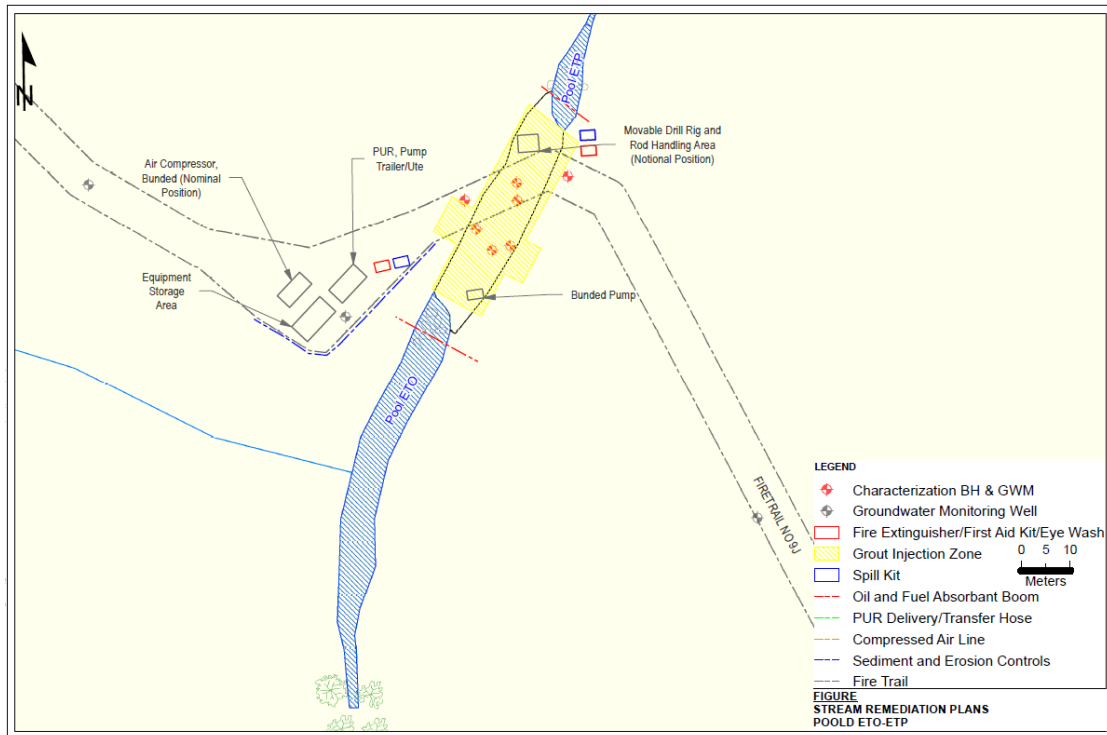
If fuel (diesel or petrol) is required at the drill site it will be stored on-site during construction works in bunded containers.

- Are Materials Safety Data Sheets (MSDS) for hazardous materials located at the construction site? **Yes**

Bushfire Preparedness and Management

- Have MCPL staff and contractors been provided with fire awareness and fire safety training? **Yes**
- Has a Hot Work Permit been obtained from the Water NSW if required? **N/A**

INDICATIVE SITE LAYOUT PLAN



Notes:

1. A portable toilet will be located in an easily accessible location near the site.
2. Proposed groundwater monitoring sites and indicative access are shown on the attached plans.

Groundwater Monitoring Bore Installation Erosion and Sediment Control Plan

This Erosion and Sediment Control Plan (ESCP) has been developed for the construction of groundwater monitoring bores. The purpose of this ESCP is to minimise the risks of the groundwater bore construction activities causing erosion or sedimentation. The construction activities will involve the use of a mobile drill rig to drill groundwater bore holes at approximately 20-36m depth. The construction of the bores is anticipated to take approximately one to two days per site. Construction will be conducted during dry weather wherever practicable.

Groundwater bore construction sites have been selected to minimise the potential for erosion, such as locating the drilling site on flatter ground, away from drainage paths.

Bores will only be constructed when there is no flowing water within the drilling site to minimise the potential for sediment transport away from the construction site.

Sediment control measures will be implemented around the drill sites in accordance with the *Management Urban Stormwater: Soils and Construction Volumes 1 and 2A* as required.

All sediment, cuttings and drilling fluids will be collected and transferred off-site for disposal.

Given the construction works are only anticipated to take one day per site, all construction equipment and materials will be transported into and out of the site each day.

Weekly inspections of erosion and sediment control structures for structural integrity and effectiveness will be conducted by the Metropolitan Coal Environmental Coordinator or their delegate.

At the conclusion of the construction works all construction equipment and materials will be removed from site including all waste materials and sediment recovered from the construction area.

Site Layout Plans



Subject Area

Eastern Tributary Piezometer Desktop Assessment

FIGURE 2

Imagery: (c) DigitalGlobe 2017-01-13

Attachment 1

“Eastern Tributary Piezometer Installation Surface Works Biodiversity Assessment” dated 12th November 2018 (Niche Environment & Heritage). Project 4598

“Eastern Tributary Piezometer Installation Surface Works Aboriginal Due Diligence Assessment” dated 12th November 2018 (Niche Environment & Heritage). Project 4598.

12 November 2018

Kane Organ
Environment & Community Coordinator
Metropolitan Coal Helensburgh – Peabody Australia
Parkes Street,
Helensburgh, NSW 2508
via email: korgan@peabodyenergy.com

Dear Mr Organ,

Re: 4598 Metropolitan Colliery Eastern Tributary Piezometer Installation – Surface Works Biodiversity Assessment

Niche Environment and Heritage Pty Ltd (Niche) was commissioned by Metropolitan Coal to assess the potential impact of the proposed Eastern Tributary groundwater piezometer installation works on biodiversity.

Niche understand that Metropolitan Coal is planning to install four shallow groundwater piezometers on either side of the Eastern Tributary, on the side of Fire Road 9J, to monitor groundwater levels in the slopes beside the watercourse (Figures 1-3). The piezometers will be installed on the side of the road with no native vegetation clearing proposed. The disturbance footprint around each piezometer is expected to be up to several metres.

This assessment has been undertaken in consideration of Section 6.1 of the *Metropolitan Coal – Construction Management Plan*.

Review of Baseline Information

Niche undertook a review of the baseline information to determine whether there are any occurrences of the following features located within the proposed disturbance area or immediate surrounds:

- any occurrences of the Threatened Ecological Communities (TECs) under the NSW *Biodiversity Conservation Act 2016* (BC Act) and or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), including: Southern Sydney Sheltered Forest on Transitional Sandstone Soils O'Hares Creek Shale Forest TEC, and Coastal Upland Swamps of the Sydney Basin Bioregion;
- known threatened flora species records;
- known threatened fauna species records; and
- existing (or proposed) monitoring sites.

With the exception of nearby *Pultenea aristata* records (listed as a threatened flora under the BC Act and EPBC Act), there are no occurrences of the above mentioned features located within the proposed disturbance area or immediate surrounds. Refer Figures 2 to 5.

Pultenea aristata records (Figure 4) are mapped on or adjacent to Fire Road 9J, approximately 40 m north-west of the westernmost piezometer location and approximately 70 m south of the easternmost piezometer location (Figure 4).

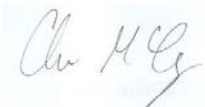
Threatened flora surveys of the proposed piezometer sites were undertaken on 25 October 2018. The surveys determined that there were no *Pultenea aristata* individuals within, or in close vicinity to, the proposed disturbance footprint. Therefore the activity is not expected to cause direct impacts on the species.

As the proposed activity will be conducted on disturbed roadside land, it will not result in native vegetation disturbance or impact fauna habitat features such as large trees and stags, hollow bearing trees, rock outcrops, termite mounds, large hollow logs, ephemeral drainages etc.

It is therefore unlikely that the proposal will result in a significant loss of habitat or direct impact to any threatened flora or fauna species. Five-part Tests under the BC Act, and Significant Impact Criteria Assessments under the EPBC Act are therefore not required for any threatened biodiversity.

Due to the minor nature of the proposed works, and no impacts to native vegetation, the proposal will not result in a significant impact to any threatened biodiversity listed on the BC Act and/or EPBC Act.

Yours sincerely



CHRIS MCEVOY
Principal - Environmental Approvals

Attached: Figure 1. Location Plan, Figure 2. Site Plan, 3. Vegetation and AHIMS, Figure 4 Threatened Flora Records, Figure 5 Threatened Fauna Records.

12 November 2018

Kane Organ
Environment & Community Coordinator
Metropolitan Coal Helensburgh – Peabody Australia
Parkes Street,
Helensburgh, NSW 2508
via email: korgan@peabodyenergy.com

Dear Mr Organ,

Re: Metropolitan Colliery Eastern Tributary Piezometer Installation – Aboriginal Due Diligence Assessment

Niche Environment and Heritage (Niche) was commissioned by Metropolitan Coal to determine the potential impact of the proposed Eastern Tributary groundwater piezometer installation works on Aboriginal cultural heritage sites and objects.

Niche understand that Metropolitan is planning to install four shallow groundwater piezometers on either side of the Eastern Tributary, on the side of Fire Road 9J, to monitor groundwater levels in the slopes beside the watercourse (Figure 2 and 3). The piezometers will be installed on the side of the road with no vegetation clearing proposed.

This assessment has been undertaken in accordance with the *NSW Minerals Industry Due Diligence Code for the protection of Aboriginal Objects* (NSW Minerals Council 2010).

Step 1. Check for records of Aboriginal Objects and Places in the area of the proposed activity

A search of the Aboriginal Heritage Information Management System (AHIMS) of the entire Metropolitan Colliery Mine lease area was conducted on 23 October 2018 (AHIMS Client ID: 378066). There was one registered site within close proximity to the proposed piezometers (Figure 3). The site, Flat Rock Creek 252 (AHIMS ID# 52-2-0540) comprises of an Open Camp Site of stone artefacts. The site could not be relocated during a previous assessment.

Step 2: Is the activity a ‘low impact activity’, as defined by the NPW Regulation?

Yes.

The proposed works are a low impact activity as defined by the NPW Regulation.

Construction and maintenance of groundwater monitoring bores on disturbed land is defined as a low impact activity.

The piezometers will be installed on the side of Fire Road 9J and will not require vegetation clearing. Therefore they meet the definition.

Step 3. Are there any landscape features on undisturbed land that like likely to indicate the presence of Aboriginal Objects?

Yes.

NSW Minerals Council 2010 identifies a number of landscape features, which are of archaeological interest and require further consideration. Specifically areas that are:

- Within 200m of water, or
- Located within a sand dune system, or
- Located on a ridge top, ridge line or headland, or
- Located within 200 m below or above a cliff face, or
- Within 20 m of or in a cave, rock shelter , or a cave mouth
- And is on land that is not disturbed land.

The proposed works are within 200 m of the eastern tributary watercourse and in vicinity of other ridgelines.

The proposed works are located on Fire Road 9J, which has been previously cleared, during the original development of the Fire Road.

Step 4: Does a desktop assessment and visual inspection confirm that there are Aboriginal objects present or likely to be present?

No.

A visual inspection was previously undertaken by Renée Regal (Senior Heritage Consultant- Niche), Nathaniel Kennedy (Illawarra Local Aboriginal Land Council), Paul Cummins (Woronora Plateau Gundungarra Elders Corporation) and Daniel Chalker (Cubbitch Barta Native Title Claimants) on 24 August 2017. During this inspection no new Aboriginal Objects or sites were identified There is low potential for any further Aboriginal objects or places to be present within, or in close proximity, to the proposed works.

Step 5: Can the activity be relocated away from the known/likely area for Aboriginal objects.

No.

The proposed piezometer near AHIMS ID# 52-2-0540 cannot be moved. It has been located in a previously disturbed area to avoid the need for further vegetation clearing, and is in a suitable position for the proposed groundwater monitoring. There is no compelling reason to relocate the proposed works.

Step 5. Further investigations and impact assessment

No further assessments are considered necessary and the proposed rehabilitation piezometer installation may proceed with caution. It is recommended that temporary fencing be placed along the eastern edge of the cleared area on Fire Road 9J adjacent to the tributary (where the central piezometer is proposed), so as to avoid AHIMS site Flat Rock Creek 252 (AHIMS ID# 52-2-0540). Access should be made via the existing Fire Road 9J only, so as to not disturb the site.

In the unlikely event that Aboriginal heritage objects and/or sites are discovered, all work should stop immediately and a suitably qualified Aboriginal heritage specialist be consulted.

Please do not hesitate to contact me should you have any questions or would like to discuss this assessment further.

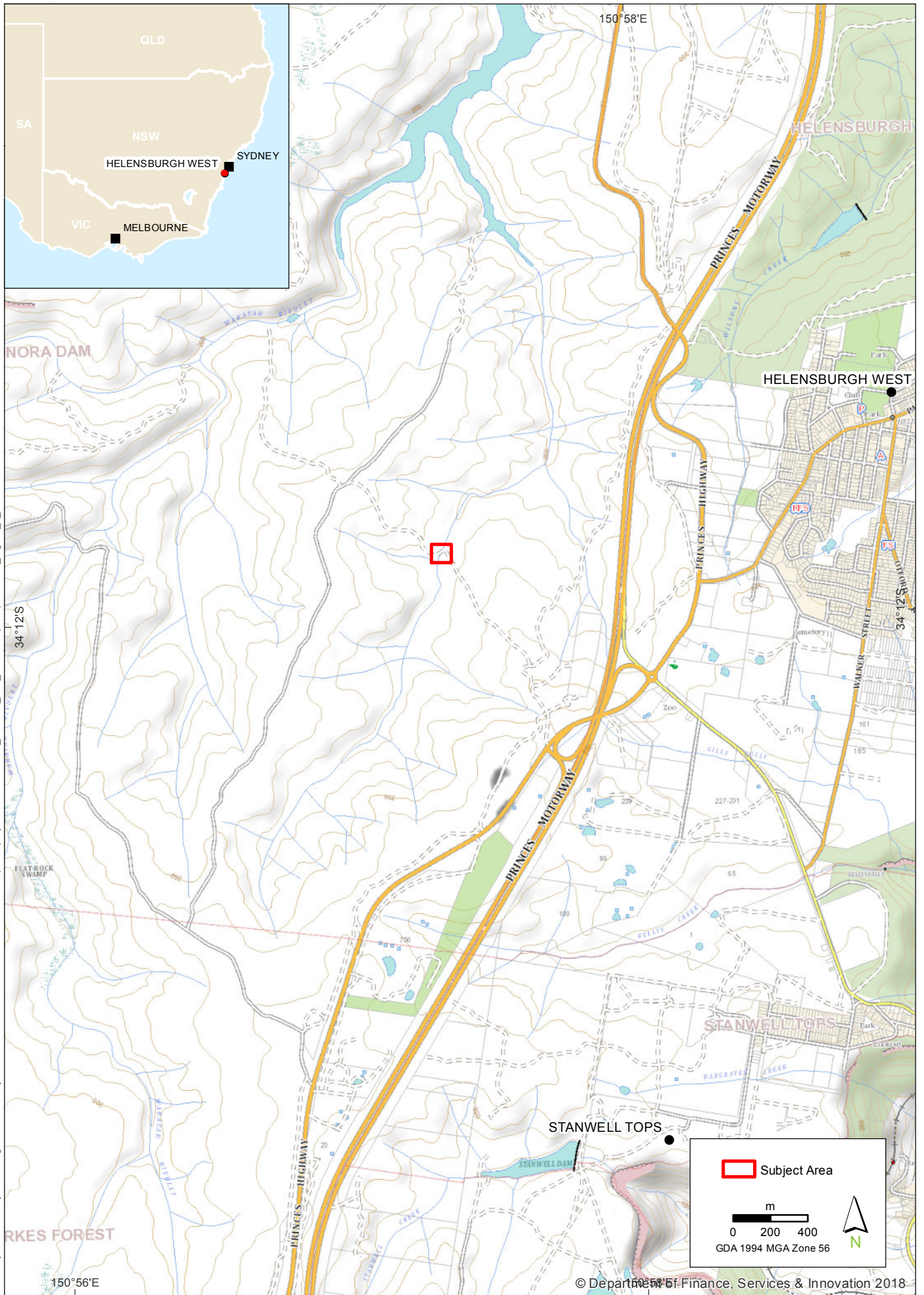
Yours sincerely



Renée Regal
Team Leader- Heritage
Niche Environment and Heritage

Attached: Figure 1. Location Plan, Figure 2. Site Plan and Figure 3. AHIMS results within close proximity to the proposed works.

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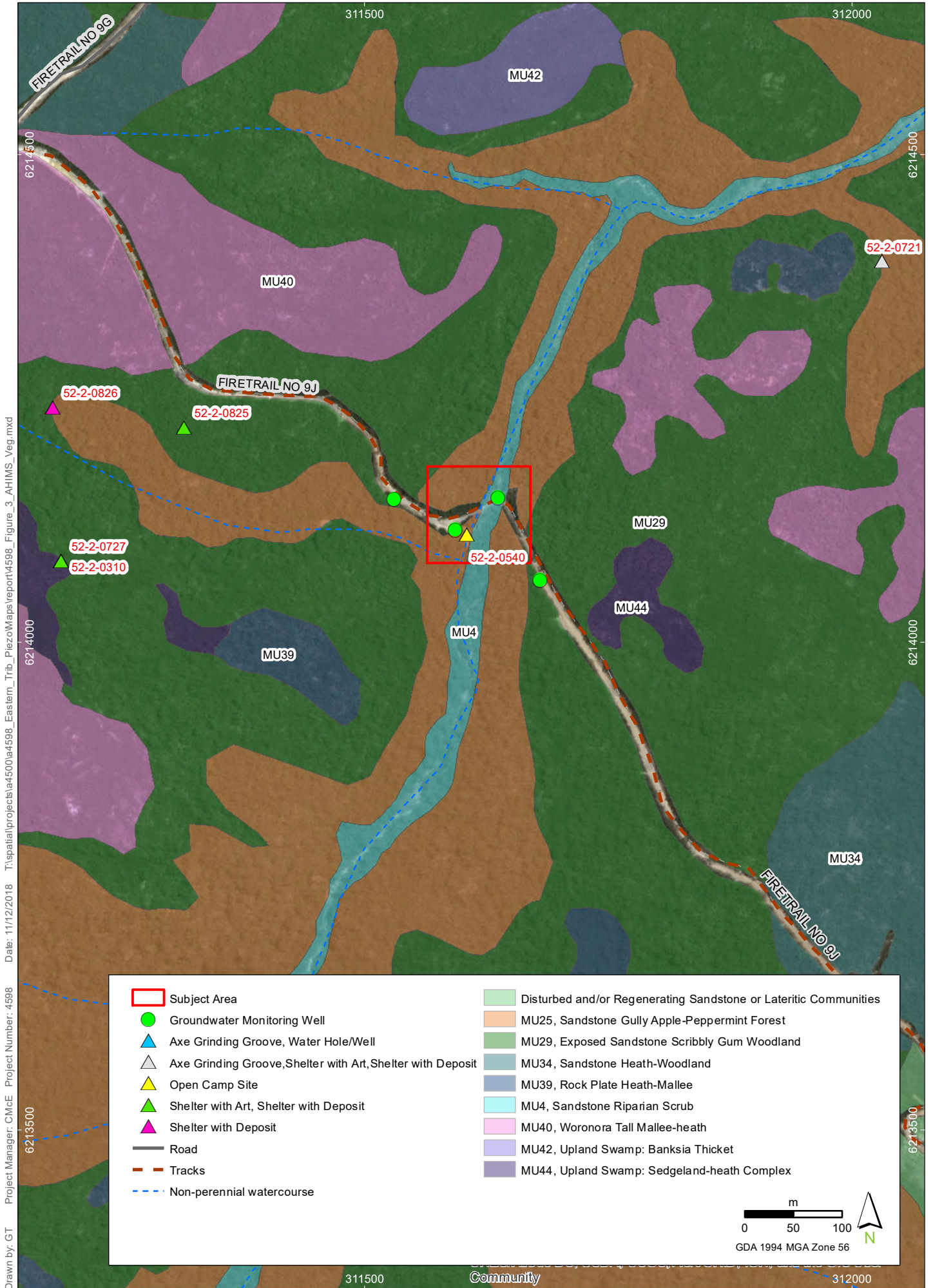
Subject Area

Eastern Tributary Piezometer Desktop Assessment

FIGURE 2

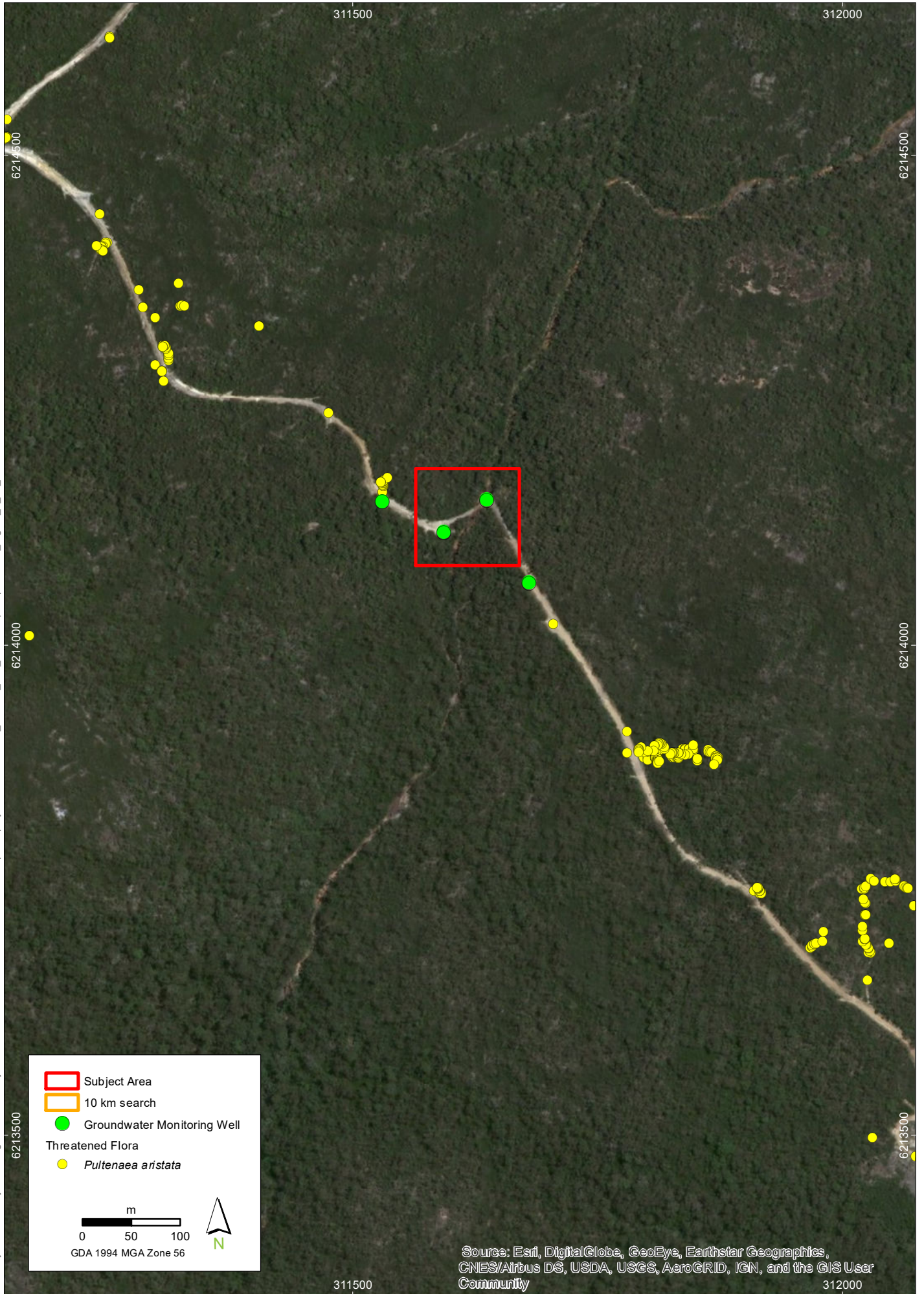
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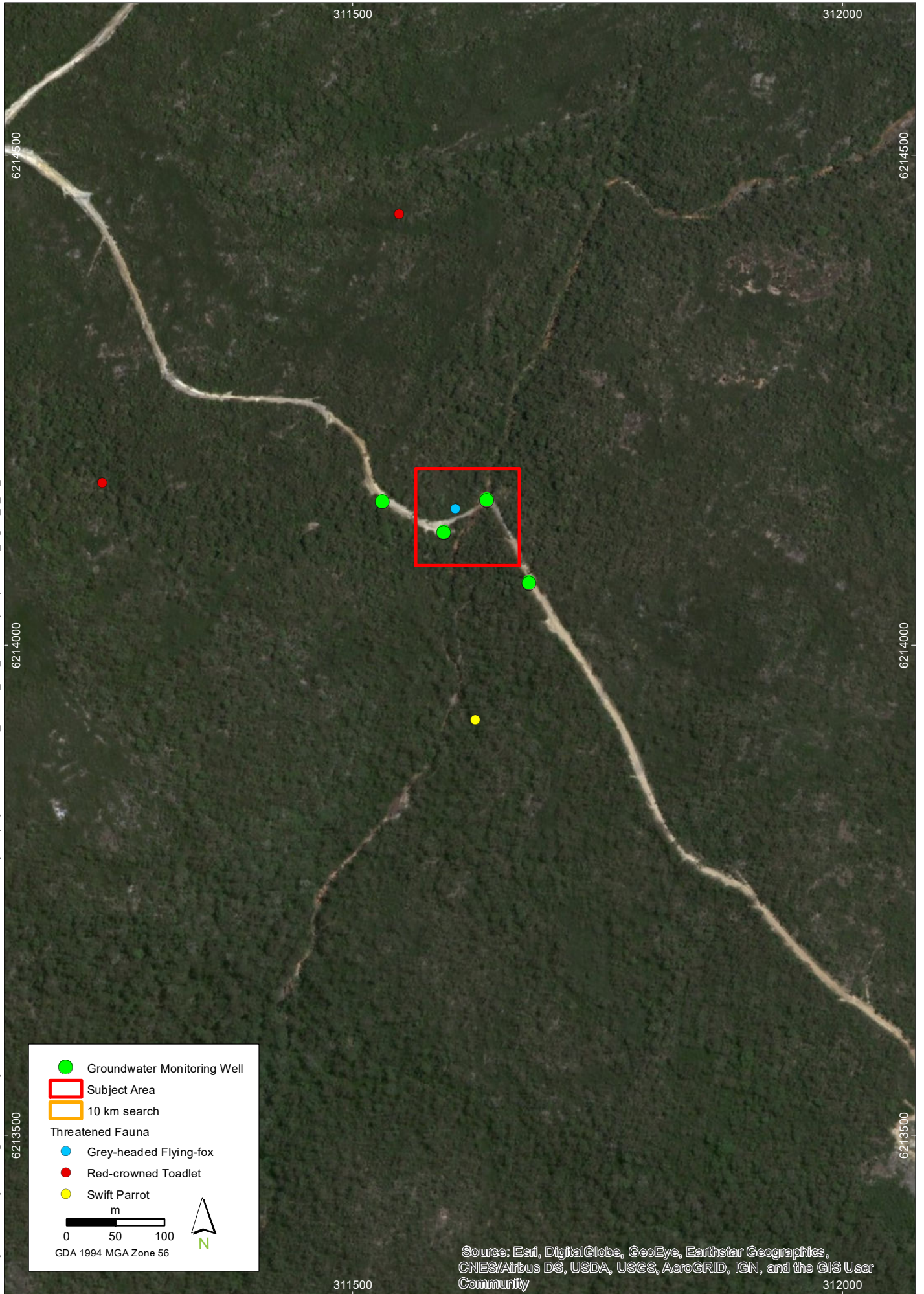
Threatened Flora

Eastern Tributary Piezometer Desktop Assessment

FIGURE 4

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Threatened Fauna

Eastern Tributary Piezometer Desktop Assessment

FIGURE 5

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