

# Appendix B

## Municipal and essential infrastructure

# Elliott North & South Camp

# Elliott North Camp

## 1 Design

The infrastructure reviews have been undertaken against current relevant standards for typical sub-divisions. The following standards have been used in undertaking the reviews.

### Sewerage and water supply

- Water Services Association of Australia – Sewerage Code – WSA 02 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 02
- Water Services Association of Australia – Sewerage Pumping Station Code – WSA 04 -2005 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 04
- Water Services Association of Australia – Water Supply Code – WSA 03 2002 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 03
- Power and Water Corporation Indigenous Community Engineering Guidelines (2008)
- Department of Housing and Community Development Indigenous Community Engineering Guidelines (ICEG 2014, updated September 2016)
- Power and Water Corporation Essential Services Infrastructure Assessment and Upgrade Guidelines (for Town Camps in Urban Communities, 2009)
- Power and Water Corporation Standard Drawings
- Australian Standards

### Electrical services

Electrical infrastructure has been assessed against AS/NZS3000 Wiring Rules and against PWC Service, Installation and Metering Rules and Urban Residential Development (URD) Design Standards where possible.

With one exception, town camps are each a single lot and compliance with AS/NZS3000 is sufficient to address potential safety concerns.

As such application of PWC URD Design Standards will mainly apply to the incoming supply and bulk or initial multi-metering panels if provided.

URD Design Standards for internal reticulation and street lighting appear to have been applied in many cases for convenience rather than compliance.

For the purposes of this report, the demand per dwelling allowances of URD Design Standards have been used to estimate incoming supply and overall distribution capacity requirements.

The following standards apply:

- Australian Standards
- Power Networks Design and Construction Guidelines, Power and Water Corporation
  - NP001.1\_Design and Construction of Network Assets – General Requirements
  - NP001.3\_General Specification for Overhead Electrical Reticulation
  - NP001.6\_General Specification for URD Subdivisions
  - NP003\_Installation Rules\_V3
  - NP007\_Service Rules
  - NP027\_Capture of Newly Installed Street Lighting Information

- NP041\_Guidelines for Electrical Design Consultants

Further referral to the guidelines in this report will be designated by the guidelines number, NP001.1.

### **Communications**

- National Broadband Network Website viewed 21 January 2017  
(<http://www.nbnco.com.au/>) – NBN rollout maps

### **General**

It should be noted that if the town camps are proposed to be subdivided and services assets gifted to Power and Water Corporation (PWC) for operation and maintenance, all of these services will need to fully meet PWC standards. With the exception of a few town camps that have recently been upgraded, this will require the full replacement and/or realignment of most services.

## 2 Condition assessment

### 2.1 Rating assessment matrix

A condition rating matrix was developed and used to assess all municipal infrastructure. The same rating was used for all services to maintain consistency in assessments. Table 1 below shows the condition rating and operability.

Table 1 Condition rating

	Condition rating	Operability
1	Very Poor	Not operational
2	Poor	Not fully operational or requires immediate maintenance to keep operational
3	Good	Fully operational, may require routine maintenance
4	Very Good	Fully operational, may require maintenance in the next six months
5	Excellent	New, fully operational

### 2.2 Civil assessment limitations

The civil infrastructure condition investigations were subject to a number of limitations. These include:

- Only accessible services have been investigated. This includes inspecting the top of sewer manholes, side entry pits, etc., however, does not include opening pits to inspect infrastructure below ground.
- No physical testing of the sewer, water or stormwater network was undertaken.
- No survey or service locating was undertaken.

As there was no survey, potholing or CCTV undertaken on the underground infrastructure there is insufficient information to make determinations on the asset condition. The condition assessments discussed in this report are only for the accessible services and do not necessarily represent the condition of the underground infrastructure. For the majority of the town camps, other than a few that have recently been upgraded it was found that the underground services are generally undersized and it is likely, due to their age, that these services are in poor condition. Either factor would trigger the need for a complete replacement to meet current relevant standards.

### 2.3 Electrical assessment limitations

The electrical infrastructure condition investigations were subject to a number of limitations. These include:

- Inspections were carried out without the assistance of an electrical tradesman.
- Only accessible services were investigated. Assessments were of a visual nature and no pit covers were removed.
- Overhead equipment was assessed from ground level.
- Switchboards were not opened and no assessment of the internal connections or bus ratings was made.
- Electrical infrastructure was assessed down to the meter for multi-meter panels and down to the termination, overhead pole or distribution pillar, of the supply cable to a meter located at a dwelling.

### **3 Current infrastructure issues**

Power and Water Corporation (PWC) have advised of the following concerns and issues in regard to the sewerage, water and electrical infrastructure at all town camps.

#### **3.1 Ownership and maintenance**

PWC stated there has always been confusion regarding the ownership and responsibilities of the internal sewer, water and electrical infrastructure. PWC have advised that they have no legal tenure on the majority of assets in any town camps and that the owner is essentially that of the land owner or leaseholder. This is further discussed for each type of infrastructure for each town camp.

The ownership and who is responsible for the maintenance of the sewage pump stations and street lighting is a major concern. In most town camps it was found that PWC have been maintaining the assets on an in-kind basis, although there are no maintenance or access agreements in place and the infrastructure is generally not compliant to PWC standards.

#### **3.2 Access to infrastructure**

PWC advised that due to the uncertainty surrounding ownership and responsibility of the sewerage, water and electrical infrastructure, each town camp is seen as a single lot with multiple houses on it. There are no formal road reserves or easements where the municipal infrastructure should be located. PWC therefore have no legal right to enter the town camps to work on the infrastructure, nor can PWC stop others from working on the infrastructure. There is a risk that the maintenance undertaken by others may be to a lower standard than PWC.

It should be noted that there are currently no legal services easements within the town camps, except for a few cases where a town service passes through the town camp. Therefore it is recommended that easements are created over any infrastructure owned by PWC and any future assets to be gifted to PWC, to allow the service providers access to the infrastructure.

#### **3.3 Existing infrastructure**

PWC have stated that although the existing sewerage and water infrastructure appears to comply with relevant standards in some locations, the capacity cannot be assumed to meet PWC requirements due to the potential for underground substandard condition and/or grading of pipework. It is likely that these assets will need to be fully replaced to PWC standards to ensure sufficient capacity.

The planning process currently allows construction within the town camps on Commonwealth land without requiring service authority (PWC) approvals. This means that there has been no opportunity for PWC to recover contributions towards required upgrades to headworks servicing the developments and these upgrades have been paid for by PWC in the past. This inconsistency needs to be addressed for future developments within the town camps to ensure PWC are able to continue to provide adequate services.

#### **3.4 Safety concerns**

PWC have expressed concerns with safety of PWC staff and contractors working within the camps. PWC have employed procedures such as multiple people / vehicles to attend the site, with police or housing safety officers as required. This

generally leads to a delayed response time and increased cost to respond to and remediate emergency situations.

PWC have also raised the concern that if others work on water infrastructure within the town camps and do not apply the correct sanitation procedures they not only risk contaminating the entire water supply network within the town camp, at some town camps with direct connections to the town supply, they risk contaminating the entire town's water supply.

#### 4 Available information

As the site investigations were limited to accessible / visible services, information on below ground services (such as electrical cables, sewer pipes, water supply pipes, etc.) were determined from available information. This information included:

- Serviced Land Availability Program (SLAP) maps,
- Department of Family & Community Services - Connecting Neighbours Program – Essential Services Scoping Study Report Volume 1 April 2005,
- Connecting Neighbours Project – Infrastructure Assessment and Recommendation Report - Arup Pty Ltd, April 2005,
- Drawings supplied by NT Department of Infrastructure - Technical Records,
- Drawings supplied by Power and Water Corporation,
- Bennett Design inspection reports and population data.

Aurecon undertook a site investigation of the Elliott North Camp on Tuesday 29 November 2016 to inspect roads, stormwater drainage, electrical services, sewerage and water supply, and community structures. The following sections detail the outcomes of this investigation and the assessments of the infrastructure.

The civil and electrical inspection reports can be found in the Appendices.

## 5 Sewerage

### 5.1 Ownership and boundaries

Elliott North Camp's current sewage disposal system is via septic tanks. There were no drawings of the location or type of septic tank.

It is understood that the septic tanks are owned by Gurungu Aboriginal Land Trust, however are the responsibility of Barkly Regional Council to maintain.

#### 5.1.1 Connection methods and billing

The billing arrangement is not known. It is assumed that the Barkly Regional Council would organise for the septic tanks to be emptied, and a bill issued to the Commissioner of Consumer Affairs. It is not known what contribution the residents make towards this bill.

### 5.2 Existing infrastructure condition assessment

The condition of the septic tanks was not assessed.

### 5.3 Current performance and risks

There is no town sewer in the township of Elliott. The septic tank arrangement is common throughout the town. Therefore, the septic tanks in Elliott North Camp should remain until town sewer is installed in Elliott.

The current performance of the septic tank arrangement cannot be assessed.

It is recommended that sewerage infrastructure, including underground pipes, pump stations, and a sewage pond arrangement, is considered if the town is expected to expand.

### 5.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### 5.5 Recommended works

As there is no town sewer in Elliott, constructing a sewer network to PWC standards within the community would not be effective, unless dedicated sewage ponds and associated infrastructure is also constructed. However, if the community or the town is expected to have future developments, it is recommended that a sewer network is installed for the entire town, including the communities. These headworks are expected to be a significant cost.

The cost estimates have focussed only on upgrading the sewer network within Elliott North Camp, assuming that a town sewer network would be provided at the same time a sewer network is provided in Elliott North Camp.

## 6 Water supply

### 6.1 Ownership and boundaries

The reticulation servicing the community is a combination of DN100 and DN150 PVC looped water mains, with a single supply point (refer appendices). The network contains several dead ends and appears to be constructed outside of the road reserve. As-built drawings were not attainable to validate the water mains layout and sizing.

The water supply assets within Elliott North Camp are believed to be owned by Gurungu Aboriginal Land Trust, but are the responsibility of Barkly Regional Council to maintain.

The water is supplied from PWC owned a water main outside of the community. Figure 1 shows the extent of the water reticulation network.

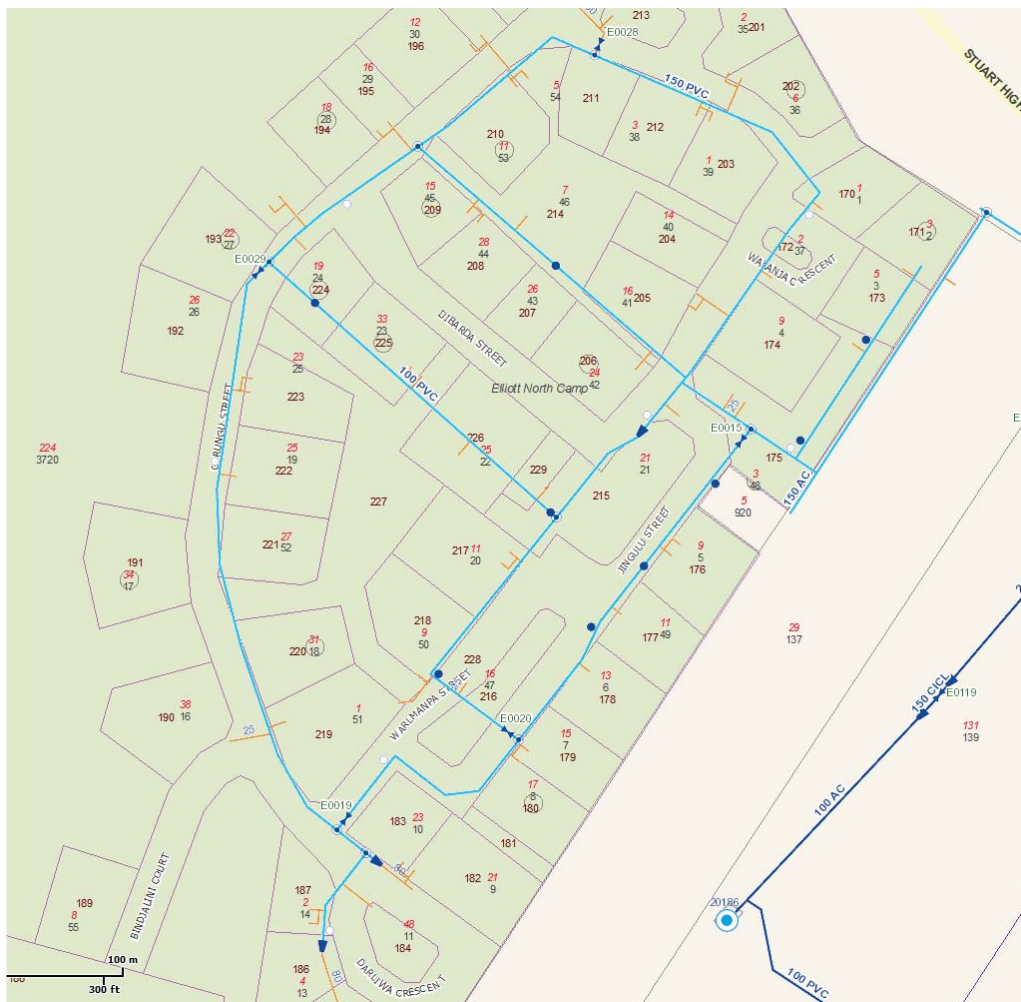


Figure 1 Elliott North Camp water supply

#### 6.1.1 Connection methods and billing

Through consultation with PWC it has been determined that the water usage is currently charged as a fixed daily rate for a single bulk water meter at Elliott North Camp. The bill is issued to Barkly Regional Council. It is not known what contribution the residents make towards water bills.

It is proposed that PWC continues to measure the water supply to the entire community, as opposed to individual lots within the community. Under this scheme, the water bill for the entire community is the responsibility of the governing body, being the Gurungu Aboriginal Land Trust for Elliott North Camp. It will be up to governing body to assign bills to residents accordingly.

It is recommended that individual lot meters are maintained in addition to the proposed continuation of using bulk water meters to measure water usage. This will assist the governing body with distributing bills to residents, the identification of any leaks in the network, and meeting PWC standards should the town camp be subdivided in the future.

Only two lot water meters were assessed during the inspection. It is believed there are 36 dwellings in the community. Therefore, with respect to current PWC guidelines, up to an additional 34 water meters are required to be installed to cover the properties without an existing water meter. Note, some water meters may have been present however, not visible due to overgrown flora or restricted property access. Consequently water meters may have not been discovered during the inspection.

## 6.2 Existing infrastructure condition assessment

The site investigation for the water infrastructure included assessing the condition of any air valves, fire hydrants, tanks, taps, and water meters. The assessment was limited to services that could be accessed above ground; no below ground services were inspected.

The condition of each asset is as follows:

Table 2 Water asset condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Fire hydrants	1		4	3		8
Taps	1	1	1			3
Water meter (residential lots)		1	1			2



Figure 2 Fire hydrant, condition: *very poor*

Figure 3 Tap, condition: *very poor*

Figure 4 Water tank, condition: *poor*

A fire hydrant and a tap were assessed as being in very poor condition and both should be replaced. Minor repairs are also needed on another tap which has a bent pipe and may require a replacement handle. Further maintenance is required on a single lot water meter to clear calcium build up.

### 6.3 Current performance and risks

The current demand of the community was calculated based on the following design assumptions:

- The nominal peak day flow is 1300 L/capita/day, based on PWC’s supplement to WSA 03 2002. This value is for the southern region of NT. It was assumed that the nominal peak day flow of 1300 L/capita/day also applies to water usage within the community, although it is possible that this value could be higher in real life due to a lack of controls to reduce water usage.
- The Equivalent Population (EP) has been calculated assuming one household equates to 9 EP, based on discussions with Power and Water Corporation.
- The peak hour factors are listed in PWC’s Supplement to WSA 03-2002, and they depend on the population range of the community. The peak hour factor of 3.0 has been adopted, for populations less than 500.

Table 3 shows the calculated demand.

Table 3 Current water demand

Total dwellings	EP	Demand (l/s)	Peak hour demand (l/s)
36	324	4.86	14.58

A 10 year plan has been established for water supply throughout the township of Elliott. Significant headworks are planned to provide fire flows throughout the township. The headworks appears to be external upgrades from the community. It is understood that the existing network within the community will have capacity for fire flow demands following the upgrades.

The assessment of water supply for firefighting has been based on the size of the water mains and the condition of the accessible fire hydrants. Additional hydrants have been recommended where it appears the existing number of hydrants are insufficient. In the case of Elliott North Camp no additional fire hydrants are expected to be required.

Current PWC standards do not permit DN100 sized pipes for fire flows. Furthermore, the water mains appears to be positioned outside the road reserve. The existing network does not strictly meet current standards. Although the existing network is currently not compliant with PWC standards it is expected that there will be no tangible benefit to the community by upgrading the DN100 PVC pipes to DN150.

#### **6.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

#### **6.5 Recommended works**

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following maintenance works are recommended;

- Restore fire hydrant pit
- Replace one tap
- Repair one tap
- Remove calcium build up from one residential lot water meter

The community is viewed a single lot and water usage is proposed to be measured for the entire community at the bulk meter, however, it is also recommended that residential lot water meters are located on the connection to each dwelling. The lot meters will assist with distribution of bills to the residents and identify any leaks within the internal network. The cost estimates for the upgrades at Elliott North Camp include;

- Install up to 34 water meters

## 7 Roadworks

### 7.1 Ownership and boundaries

It is the current understanding that the roads within Elliott North Camp are owned by Gurungu Aboriginal Land Trust, however are the responsibility of Barkly Regional Council to maintain.

### 7.2 Existing infrastructure condition assessment

Road furniture including signs and foot paths were inspected. Table 4 below summarise the condition of the road furniture as assessed during the site inspection.

Table 4 Roadworks condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Footpath	1	4				5
Signs		3		11		14



Figure 5 Footpath, condition: *poor*



Figure 6 Signs, condition: *very good*

The footpaths within Elliott North were generally in poor to very poor condition. The footpaths were overgrown with weeds and grass, covered in dirt or debris, and some sections were non-existent. It is recommended that the footpath is repaired for the entire community. This may include sections of rebuilding the footpath, or just a general tidy up.

The signs in the community were generally in very good condition, with the exception of three signs that were in poor condition. It is recommended that the three signs are replaced.

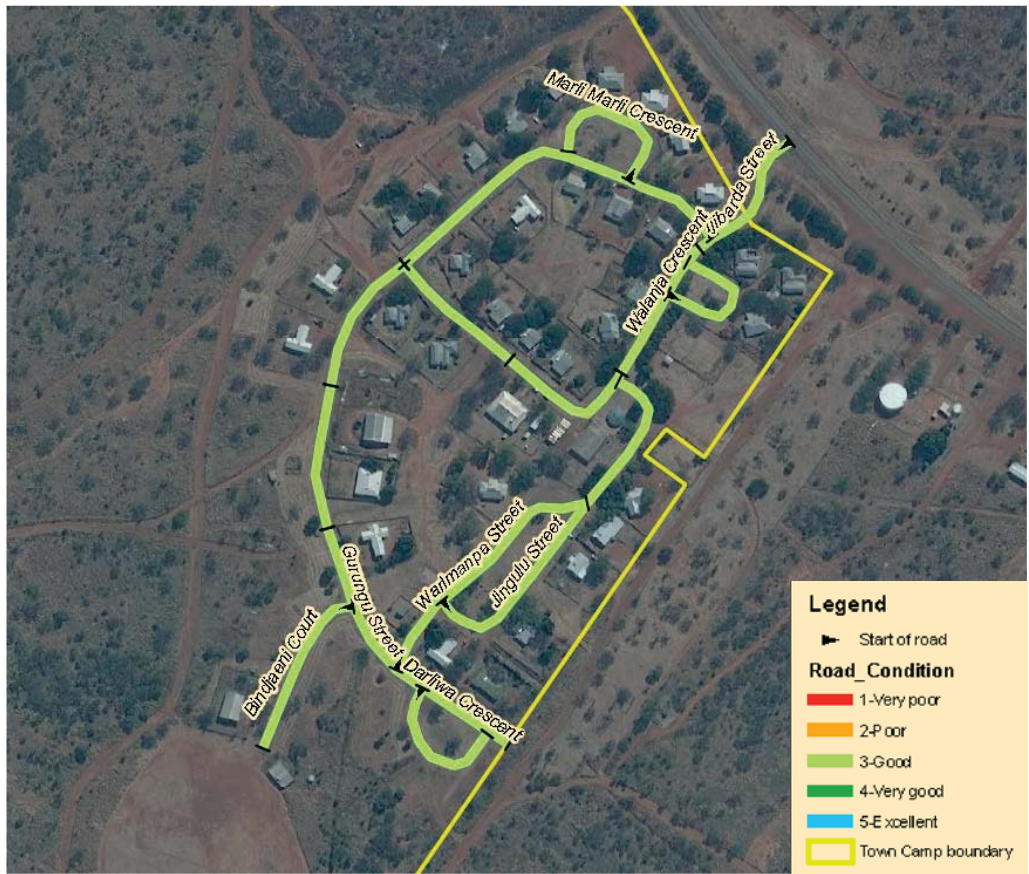


Figure 7 Community road network

Table 5 below details the condition of the roads within Elliott North Camp for specific segments. Figure 7 shows a map of the road network with the condition ratings, road name, and chainage direction. Note, the percentage refers to the percentage of that particular road segment which experiences the defect.



Figure 8 Bindjaeni Court, condition: *good*



Figure 9 Ijibarda Street, gutters filled with dirt, condition: *poor*

Table 5 Road network condition assessment

Road Name	Chainage Start (km)	Chainage end (km)	Road segment condition (1-5)	Defects and associated condition
Bindjaeni Court	0	0.12	3	-10% of road has surface cracks (3) - 4 m of ruts due to grader/heavy machinery driving over road
Darliwa Crescent	0	0.1	3	-some stone loss (3) -5% of road has surface cracks (3)
Gurungu Street	0.25	0.35	3	-5% of road has surface cracks (2)
	0.35	0.65	3	-10% of road has surface cracks (3)
Ijibarda Street	0	0.1	3	-5% of road has surface cracks (3) -20 m of kerb and gutters filled with dirt (2)
	0.1	0.2	3	-5% of road has surface cracks (3) -Road has some spray paint, rubbish, dirt in gutters (3)
	0.2	0.3	3	-5% of road has surface cracks (3)

Road Name	Chainage Start (km)	Chainage end (km)	Road segment condition (1-5)	Defects and associated condition
	0.3	0.4	3	-5% of road has surface cracks (3)
Jingulu Street	0	0.25	3	-5% of road has surface cracks (3)
Marli Marli Crescent	0	0.11	3	-5% of road has surface cracks (3)
Walanja Crescent	0	0.1	3	-5% of road has surface cracks (5)
Warlmanpa Street	0	0.18	3	-5% of road has surface cracks (3)

### 7.3 Current performance and risks

The road network is sufficient for the current number of houses. It was noted during the site inspections that a number of unsealed 'short-cuts' had been created and were regularly used. It is not recommended that these paths are formalised.

The roads in Elliott North Camp were all generally in good condition. The most common defect was that the pavement had surface cracks and the gutters were filled with dirt in some areas.

It is recommended that the cracks are sealed to prevent further damage to the pavement. It is also recommended that the gutters are cleaned out to improve the stormwater drainage and to prevent blockages in the stormwater drainage pipes.

### 7.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### 7.5 Recommended works

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following works are recommended to upgrade the current infrastructure;

- Seal cracks on all roads – 550 m<sup>2</sup> has been allowed for in the cost estimates.
- Clean out gutters – 50 m has been allowed for in the cost estimates.
- Repair and rebuild footpath – approximately 1500 m
- Replace three signs (Keep Left, 20 km/hr, Jingulu St Jibarda St road name sign)

## 8 Stormwater drainage

### 8.1 Ownership and boundaries

The stormwater drainage assets within Elliott North Camp are owned by Gurungu Aboriginal Land Trust, however are the responsibility of Barkly Regional Council to maintain.

### 8.2 Existing infrastructure condition assessment

The site investigation for the stormwater infrastructure included assessing the condition of swales, culverts, headwalls, and side entry pits (SEP). Only the above ground infrastructure was assessed. As the inspection was undertaken outside of a storm event and no CCTV of the pipes was undertaken, flooding due to blockages or damage to the underground infrastructure could not be assessed. Table 6 below summarises the condition of the stormwater assets as assessed during the inspection.

Table 6 Stormwater condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Culvert	1	3				4
SEP		9	4			13
Swale		1				1



Figure 10 Swale, condition: *poor*



Figure 11 Culvert headwall, condition: *very poor*



Figure 12 One bay side entry pit, condition: *poor*



Figure 13 One bay side entry pit, condition: *good*

The swale as rated in poor condition due to having trees and debris in the swale. It is recommended that the trees are removed to improve the hydraulic efficiency.

The culverts were rated in poor and very poor condition. Three culverts were blocked up to 50%, 90% and 100% respectively. It is recommended that the culverts, and swales upstream and downstream of the culverts are cleared out.

Approximately 70% of the side entry pits investigated were found to be in poor condition. Although generally the hydraulic capacity was not affected, the side entry pits were damaged and appear to be quite old. It is recommended that the lid and surrounding concrete of all side entry pits assessed as poor are replaced.

### **8.3 Current performance and risks**

The detailed performance of the stormwater network cannot be fully analysed without significant hydraulic and hydrodynamic modelling, which is outside the scope of this project. However based on the condition of the stormwater infrastructure assessed it would appear that it is not currently operating sufficiently. A number of the side entry pits and culverts were blocked, meaning that the stormwater is not getting away as quickly as it should, resulting in ponding.

### **8.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

## **8.5 Recommended works**

The following works are recommended to upgrade or improve the current infrastructure:

- Clear out trees and debris from within swale
- Clear out culverts and headwalls (three)
- Clear out blockage from seven side entry pits
- Replace lids and surrounding concrete of nine side entry pits

## 9 Community structures

### 9.1 Ownership and boundaries

The community structures within Elliott North Camp are owned by Gurungu Aboriginal Land Trust, however are the responsibility of Barkly Regional Council to maintain.

The community structures assessed during the site inspections included playgrounds and a basketball court. There are other community facilities such as a football field, workshop and a child care centre in the community.

### 9.2 Existing infrastructure condition assessment

The site investigation for the community structures included assessing the condition and features of the two playgrounds and basketball court. The following table shows the condition rating given to the community structures.

Table 7 Community structures condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Basketball court		1				1
Playground			2			2



Figure 14 Basketball court, condition: *poor*



Figure 15 Playground 1, condition: *good*



Figure 16 Playground 2, condition: *good*

### 9.3 Current performance and risks

The basketball was rated in poor condition due to having broken glass on the court, no basketball hoops, and no shade structure.

Both playgrounds were in good condition, although there was some evidence of rust and paint starting to peel, and they did not have shade cloths.

#### **9.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

#### **9.5 Recommended works**

The following works are recommended to upgrade the community structures:

- Install a shade cloth over the two playgrounds
- General tidy up of the basketball court
- Install new basketball hoops on basketball court

## 10 Electrical services

### 10.1 Ownership and boundaries

The following points, from Network Policy NP003 Installation Rules Section 3, define the typical shared ownership of electrical infrastructure by Power and Water Corporation (PWC) and customers.

- The point of supply is defined as the point where PWC makes the electrical supply available. For domestic supply, this is normally one of the following:
- A point of attachment of an overhead service on to a building or pole on which a metering panel is fitted.
- A point of attachment of an overhead service on to a pole forming part of unmetered aerial consumer's mains.
- A nominated point on a distribution substation located on the customer's lot.
- A point of connection of an underground service in a metering panel, including underground services originating at an overhead line.
- A point of connection of an underground service in a pillar or junction box forming part of unmetered consumer's mains, located on the customer's lot.
- A point on a Power and Water pillar located on the customer's lot.

Typically, distribution infrastructure upstream of the Point Of Supply is owned and maintained by PWC and infrastructure below the point of supply is owned and maintained by the customer.

In many cases PWC have defined a Point Of Supply to ensure that they retain responsibility for aerial high voltage infrastructure, and aerial low voltage infrastructure where installed with aerial high voltage infrastructure, to minimise the possibility of the community or its contractors coming into contact, either deliberately or inadvertently, with aerial high voltage infrastructure.

In other cases isolation facilities are present or desired by PWC to define the Point of Supply at or near the boundary of the town camp.

PWC advise that most of Tennant Creek/Alice Springs Town Camps have undergone upgrades under the SIHIP program with the intent to normalise the services to look like an urban subdivision but have never been formally handed over to PWC for operations and maintenance.

The Elliott North Camp community electrical reticulation system is supplied from a pole mounted transformer located within the town camp from which LV overhead reticulation extends to individual dwellings. The town camp has power pole mounted street lights.

PWC advise that the Point Of Supply is the LV terminals of the first transformer where power first enters the town camp.

PWC recommend that a GBS (Gas Break Switch) and LV isolation facilities be provided at a pole outside the town camp to establish a demarcation point.

PWC advise that street lighting is supplied from unmetered LV infrastructure and is the responsibility of the lot holder and not PWC.

All meters, whether pre- or post-paid are the property of PWC.

Elliott North Camp community are responsible for all unmetered and metered LV infrastructure including the main switchboard, metering panel (excluding meter), LV distribution feeders, distribution pillars, consumers' mains and consumer switchboards.

## 10.2 Existing infrastructure condition assessment

Table 8 shows the condition rating given to the distribution switchboards and/or pillars. The distribution panels had 50% operational rating, one metering panel is redundant.

Table 8 Distribution panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Distribution panels		1	1			2

Table 9 shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, sodium lamp S70D. The street lights have 100% operational rating, from visual inspection in the day time.

Table 9 Street light condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Street light			2			2

Table 10 shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, sodium lamp S70D. The street lights have 90% operational rating with 10% inoperable.

Table 10 Street light on O/H pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Street light on O/H pole	2		18			20

Table 11 shows the condition rating given to the transformer. The transformer is a pole mounted substation design. The transformer was visually assessed to be in good condition.

Table 11 Transformer condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Transformer			1			1

Table 12 shows the condition rating given to the overhead poles. The overhead poles are of Welded Construction (Universal Pole construction) and steel consumer service poles.

Table 12 Overhead pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Overhead pole			32			32

The meters in Elliott North Camp community were not inspected by Bennett Design (as they did not go to Elliott) or by Aurecon (as access to properties was restricted).

Table 13 shows the condition rating given to the switchboards associated to dwellings.

Table 13 Switchboard condition assessment (housing footprint)

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Switchboard						0

The details of the individual inspections and photographs of each infrastructure item are included in Appendices.

### 10.3 Current performance and risks

The electrical infrastructure evaluation was conducted against the following criteria

- Number of dwellings on tenure, the higher value of the funded dwelling and as quoted in the population report was utilised.
- Urban area, NP001.1, 4. Definitions.
- General Specification for URD Subdivisions, NP001.6, 4.3 Substation Size.
- Normal ADMD (After Diversity Maximum Demand) of 4.5 kVA and high cost subdivisions at 7 kVA.
- Transformer ratings were assumed to be correct in Dekho (PWC asset information system) and compared against photographs of test or transformer numbers collected.
- Substation loads were compared against transformer sizes only. No load flow analysis was conducted.
- No load calculations were performed or assessment conducted on overhead or underground cable, visual inspection from the ground only.
- Streetlighting loads were ignored as they are not significant.

The calculated maximum demand of the Elliott North Camp community transformer is 162% of rated capacity based on 4.5kVA/dwelling.

PWC advise that no damage has occurred to this infrastructure.

Table 14 Elliott North Camp current demand load vs transformer ratings

Com Id	Community name	Dwellings	Transformer (kVA)	kVA Total @ 4.5kVA	kVA Total @ 7kVA
225	Elliott North Camp	36	100	162	252

A tabulated summary of all community transformers is included in Appendices.

There is a risk of equipment not being maintained associated with the non-standard division of responsibilities between the customer and PWC.

The following points from the PWC Metering Rules should be noted:

- The routine maintenance of metering installations and the replacement of any faulty meters is the responsibility of PWC.
- The property owners are responsible for the maintenance and upkeep of meter rooms, boxes and panels (including lids, doors and locking mechanisms).
- The installation of pre-paid metering is a cost to the customer, refer NP010 Meter Manual-Maintenance of Metering Installations, Power and Water Corporation.

#### **10.4 Future demands**

No new dwellings are currently planned for the community, i.e. no upgrades are proposed to cater for future demands.

#### **10.5 Recommended works**

It is recommended that the Elliott North Camp community electrical infrastructure be upgraded to PWC requirements.

The following maintenance works and upgrades are recommended:

- Replace two street lights 70W
- Load monitoring to allow PWC to determine, by assessment, whether the transformer needs to be upgraded or not.

## 11 Communications

### 11.1 Ownership and boundaries

Details of Telstra pit and conduit infrastructure within the town camp boundaries were sought but were not forthcoming.

### 11.2 Existing infrastructure condition assessment

The telecommunications infrastructure assessed included pits and telephone booths.

The Appendices contain the individual reports.

Table 15 Telecommunication pit condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Telecommunication Pit		1	8			

Table 16 Phone booth condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Phone booth						1 (status unknown)

### 11.3 Current performance and risks

No details of the performance of communications infrastructure were obtained.

### 11.4 Future demands

The current availability of broadband services at Elliott North Camp is displayed in the Figure 17 below. NBN is available to residents via satellite on application to an appropriate NBN access provider.

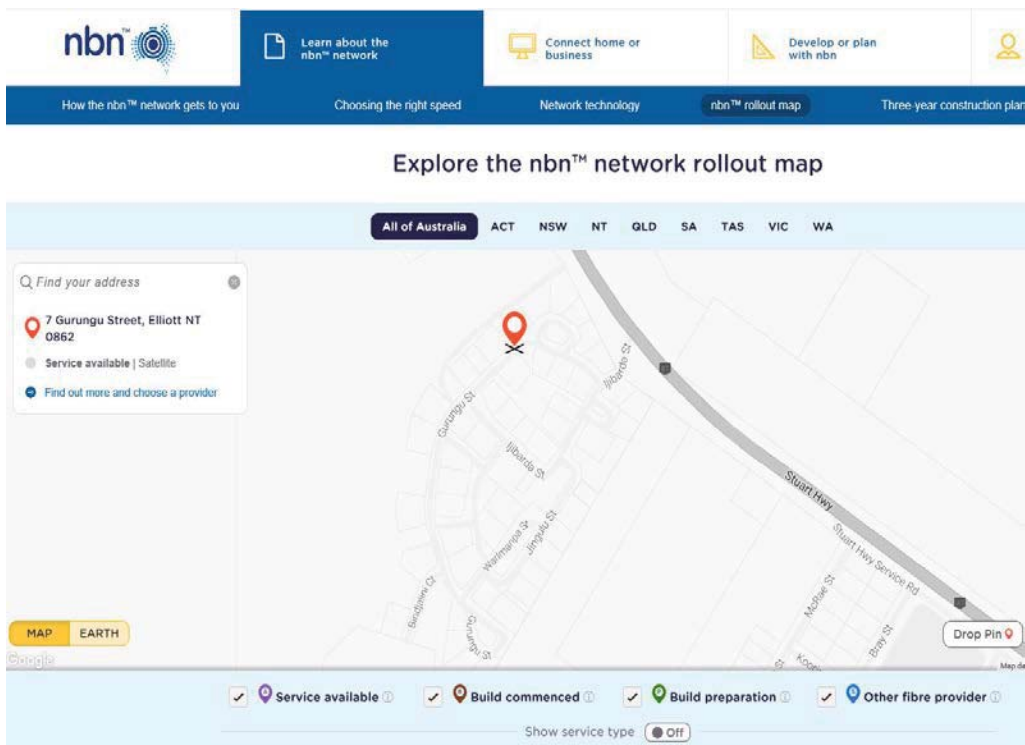


Figure 17 NBN network availability map

NBN is available to residents via satellite on application.

### 11.5 Recommended works

Representatives from NBN's Land Access and Stake Holder management teams are currently engaged with Yilli Housing and NT Housing to look at how camps will be serviced. It is expected that any existing premises in these camps will have some type of NBN service via the NBN brownfields rollout in the future.

No works are required at Elliott North camp because NBN is available to residents via satellite on application to an appropriate NBN access provider.

## 12 Cost estimates

Table 17 below shows a summary of the cost estimates to undertake the maintenance required to fix the existing infrastructure and to upgrade the existing network to meet current design standards. There are no upgrades required for the future design. The estimates take into account a 30% contingency, are inclusive of GST, and a location factor has been applied to town camps outside of Darwin.

Table 17 Cost estimates

Infrastructure	Maintenance of existing infrastructure	Upgrades to meet current design
Sewerage	\$ 0	\$ 1,999,000
Water supply	\$ 6,000	\$ 219,000
Roadworks	\$ 232,000	\$ 0
Stormwater drainage	\$ 47,000	\$ 0
Community structures	\$ 2,000	\$ 34,000
Electrical	\$ 2,000	\$ 0
Communications	\$ 0	\$ 0
Miscellaneous provisions	\$ 49,000	\$ 285,000
<b>Total (including GST)</b>	<b>\$ 338,000</b>	<b>\$ 2,537,000</b>
<b>Grand total</b>	<b>\$ 2,875,000</b>	

The cost estimates are a preliminary estimate only. Since Aurecon has no control over the cost of labour, materials, equipment or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Aurecon cannot guarantee actual costs will not vary from these estimates.

## 13 Summary

The following works are recommended for Elliott North Camp community:

### Sewerage

- Install DN150 PVC gravity main, including house connections and connections to new town sewer. This is assuming that town sewer will be provided at the same time the community is upgraded, however the cost estimates are for the community upgrades only.

### Water supply

- Install up to 34 water meters
- Restore fire hydrant pit
- Replace one tap
- Repair one tap
- Remove calcium build up from one residential lot water meter

### Roadworks

- Seal cracks on all roads – 550 m<sup>2</sup> has been allowed for in the cost estimates.
- Clean out gutters – 50 m has been allowed for in the cost estimates.

### Stormwater drainage

- Clear out trees and debris from within swale
- Clear out culverts and headwalls (three)
- Clear out blockage from seven side entry pits
- Replace lids and surrounding concrete of nine side entry pits

### Community structures

- Install a shade cloth over the two playgrounds
- General tidy up of the basketball court
- Install new basketball hoops on basketball court

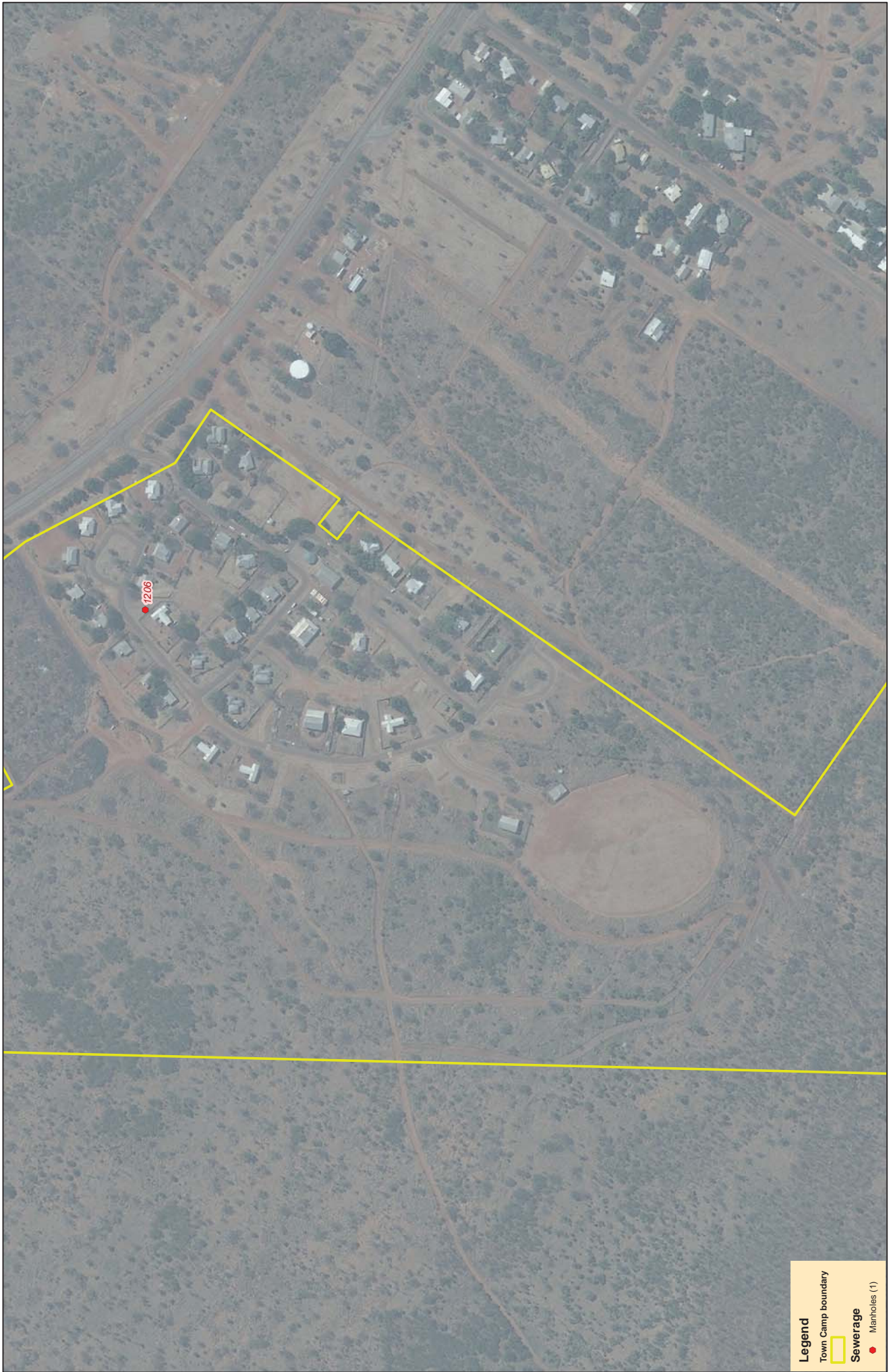
### Electrical services

- Replace two street lights 70W
- Load monitoring to allow PWC to determine, by assessment, whether the transformer needs to be upgraded or not.

### Communications

- No works are required because NBN is available to residents via satellite on application to an appropriate NBN access provider.

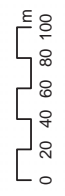




Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_CIVIL\_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016

**Legend**  
 Town Camp boundary  
 Sewerage  
 Manholes (1)

A3 scale: 1:3,500

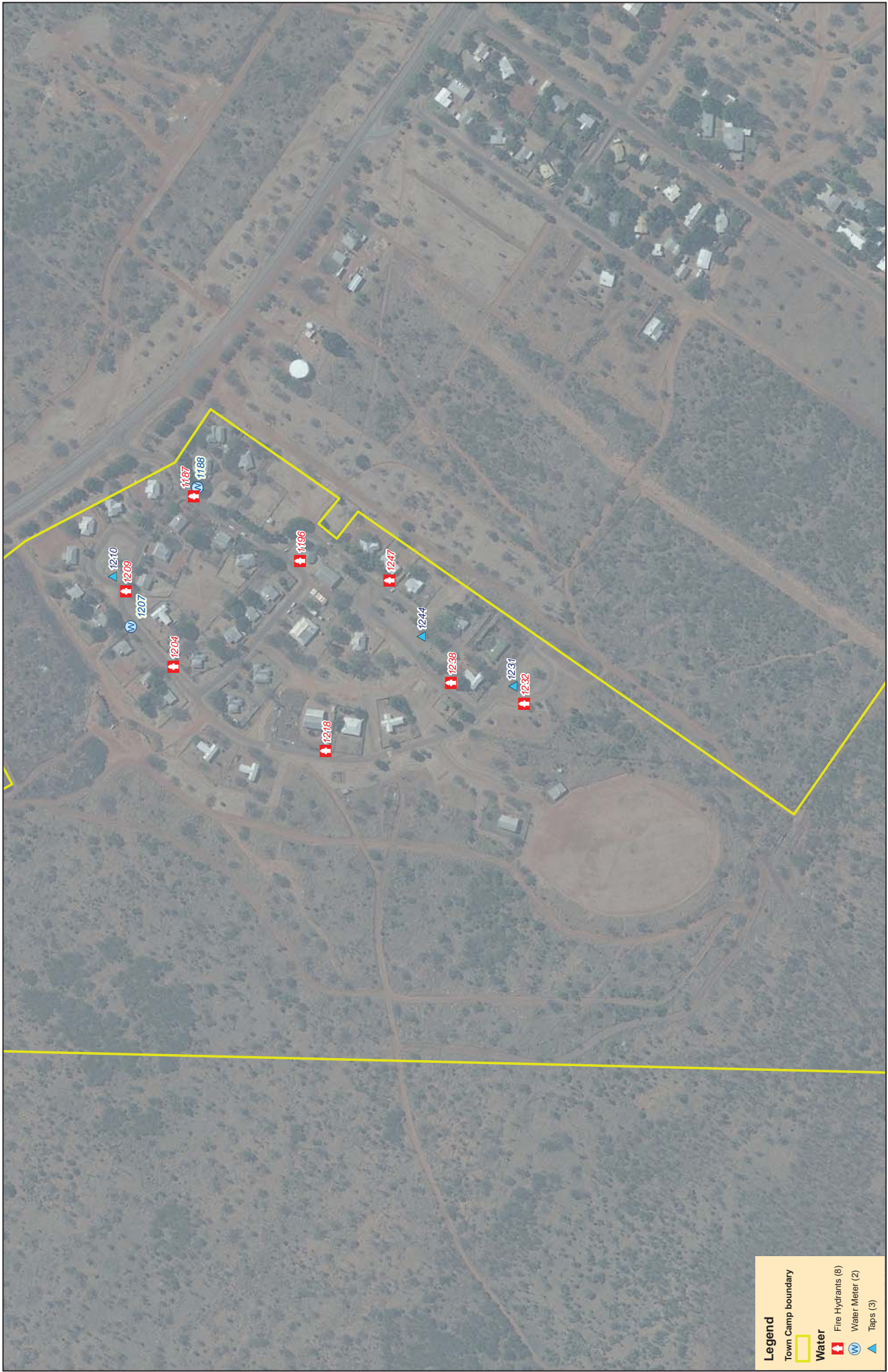


Note:  
 Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2  
 Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments: Sewerage**  
**225 - Gurungu (Elliott North Camp)**



Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_CIVIL\_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016

A3 scale: 1:3,500

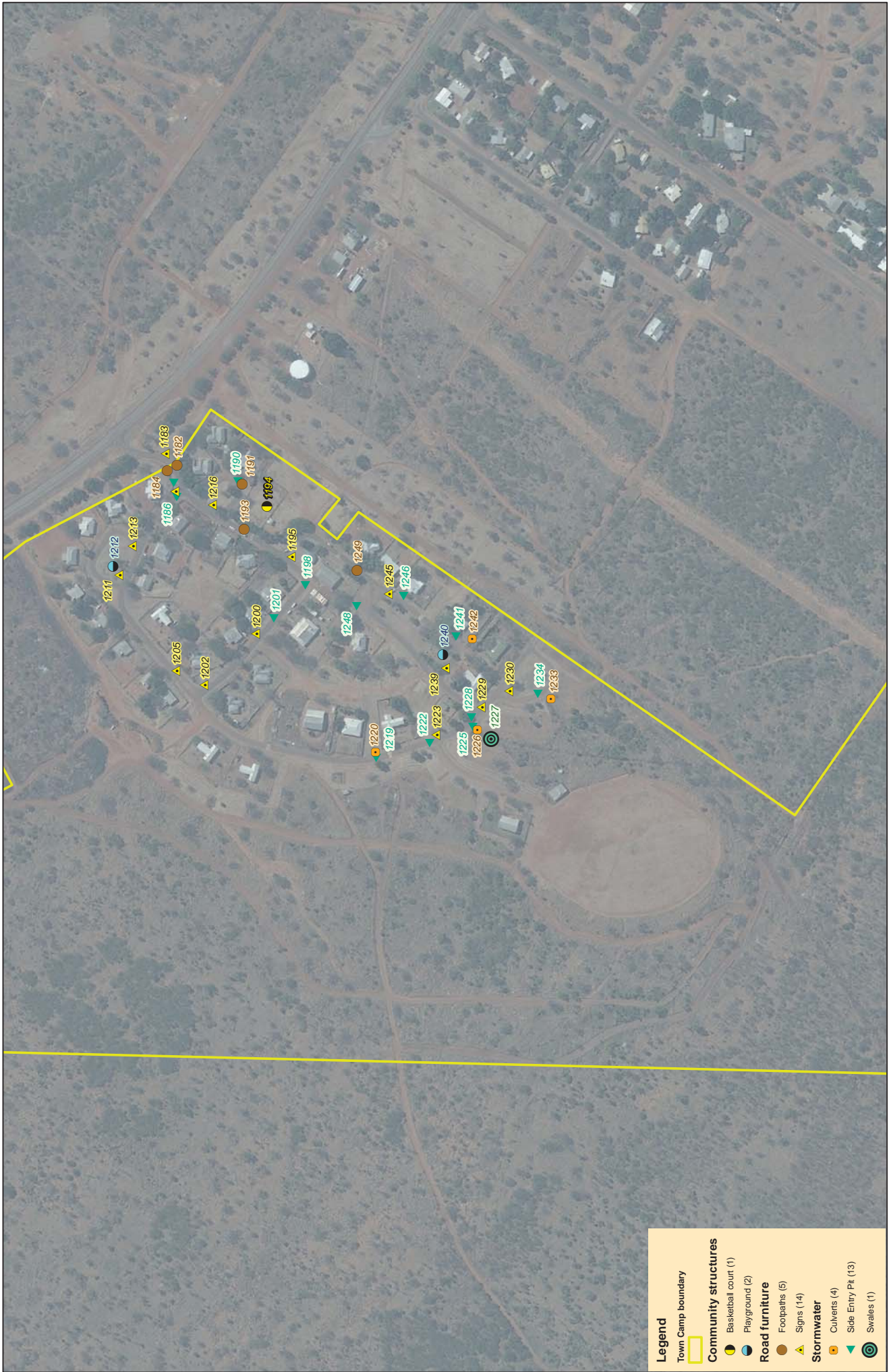


Note:  
Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2  
Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments: Water**  
**225 - Gurungu (Elliott North Camp)**

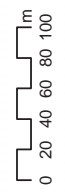


Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_Civil\_DFP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016

**Legend**

- Town Camp boundary
- Community structures**
  - Basketball court (1)
  - Playground (2)
- Road furniture**
  - Footpaths (5)
  - Signs (14)
- Stormwater**
  - Culverts (4)
  - Side Entry Pt (13)
  - Swales (1)

A3 scale: 1:3,500



Note: Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2  
Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments**  
**Road furniture, stormwater drainage & community structures**  
**225 - Gurungu (Elliott North Camp)**

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:54:23 AM

Insp ID: 1220

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:

Culverts

Culvert Type:

Diameter (mm):

Width (mm):

Culvert Depth (mm):

Culvert Length (m):

Culvert Condition:

1 - Very Poor

Culvert Blockage (%):

100

Culvert Comments:

Culvert Head Wall:

Yes

Safety Grate:

No Access

Headwall Blockage:

100

Headwall Condition:

Headwall Comment:

End Wall:

No

End Wall condition:

EW Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:19:32 AM

Insp ID: 1226

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:

Culverts

Culvert Type:

Diameter (mm):

Width (mm):

Culvert Depth (mm):

Culvert Length (m):

Culvert Condition:

2 - Poor

Culvert Blockage (%):

90

Culvert Comments:

Culvert Head Wall:

NA

Safety Grate:

NA

Headwall Blockage:

Headwall Condition:

Headwall Comment:

End Wall:

Yes

End Wall condition:

2 - Poor

EW Comment:

Couldn't see culvert dimensions



# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 11:41:52 AM

Insp ID: 1233

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: Culverts  
Culvert Type: RCP  
Diameter (mm): 300  
Width (mm):  
Culvert Depth (mm):  
Culvert Length (m):  
Culvert Condition: 2 - Poor  
Culvert Blockage (%): 50  
Culvert Comments:  
Culvert Head Wall: No  
Safety Grate:  
Headwall Blockage:  
Headwall Condition:  
Headwall Comment:  
End Wall: Yes  
End Wall condition: 3 - Good  
EW Comment:



# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 12:17:36 PM

Insp ID: 1242      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Stormwater Infrastructure:      Culverts  
Culvert Type:      RCP  
Diameter (mm):      450  
Width (mm):  
Culvert Depth (mm):  
Culvert Length (m):  
Culvert Condition:      2 - Poor  
Culvert Blockage (%):  
Culvert Comments:  
Culvert Head Wall:      No  
Safety Grate:  
Headwall Blockage:  
Headwall Condition:  
Headwall Comment:  
End Wall:      Yes  
End Wall condition:      2 - Poor  
EW Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:59:42 AM

Insp ID: 1187

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 4 - Very Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:31:30 AM

Insp ID: 1196

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 1 - Very Poor

FH Comment: Cover not sitting properly, cover broken



# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 9:59:46 AM

Insp ID: 1204

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 4 - Very Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:21:47 AM

Insp ID: 1209

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 3 - Good

FH Comment: Covered in leaves , next to fence



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 10:50:58 AM

**Insp ID:** 1218

**Group 3 - Tennant Creek, Elliott**

**Elliott North Camp**

**What Water Asset Are you Capturing:** Fire Hydrants

**Single or Double:**

**Sluice Valve:** No

**Above or Below ground:** Below ground

**FH Leakage:** No Access

**Bollards around hydrant:** No

**FH Condition:** 4 - Very Good

**FH Comment:**



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:39:41 AM

**Insp ID:** 1232      **Group 3 - Tennant Creek, Elliott**

**Elliott North Camp**

**What Water Asset Are you Capturing:** Fire Hydrants

**Single or Double:**

**Sluice Valve:** No

**Above or Below ground:** Below ground

**FH Leakage:** No Access

**Bollards around hydrant:** No

**FH Condition:** 3 - Good

**FH Comment:** Erosion around lid



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:58:00 AM

Insp ID: 1238

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

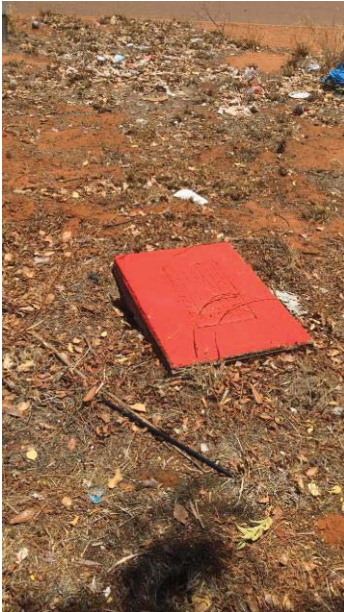
Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 3 - Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:32:37 PM

Insp ID: 1247

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 3 - Good

FH Comment: Lid not flat on ground



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:52:13 AM

Insp ID: 1182

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name:

What are you inspecting: Foot Paths

Footpath Width (mm):

Footpath Type: Concrete

Footpath Condition: 1 - Very Poor

Comment: Covered in dirt

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:54:14 AM

Insp ID: 1184

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Foot Paths

Footpath Width (mm): 900

Footpath Type: Concrete

Footpath Condition: 2 - Poor

Comment: Broken sections and covered in dirt

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:11:06 AM

Insp ID: 1191

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Walanja Crescent

What are you inspecting: Foot Paths

Footpath Width (mm): 900

Footpath Type: Concrete

Footpath Condition: 2 - Poor

Comment: Overgrown, cracked sections, not maintained

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:17:00 AM

Insp ID: 1193

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Foot Paths

Footpath Width (mm): 900

Footpath Type: Concrete

Footpath Condition: 2 - Poor

Comment: Broken, non existent sections

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:38:47 PM

Insp ID: 1249

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Jingulu Street

What are you inspecting: Foot Paths

Footpath Width (mm): 900

Footpath Type: Concrete

Footpath Condition: 2 - Poor

Comment:

General Comment:

---



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:09:15 AM

Insp ID: 1206

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Sewerage Asset are you capturing: Manholes

MH Cover Shape:

Manhole Cover Diam (mm):

Manhole Length (mm):

Manhole Width (mm):

Manhole Condition:

Notes on Lid:

Comments:

Septic tanks



# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 8:43:03 AM

Insp ID: 1181      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.1

Road Type: Sealed - spray seal

Section Width (m): 6.1

Road Condition: 3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road is cracked
Kerb	20	2 - Poor	20m of dirt covering kerb

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	First 50m flush kerb, then kerb and gutter

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:43:03 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 8:43:03 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:03:51 AM

Insp ID: 1189      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name:              Walanja Crescent

What are you inspecting: Pavements

Ch From (km):            0

Ch To (km):              0.1

Road Type:                Sealed - spray seal

Section Width (m):      6

Road Condition:         3 - Good

General Comment:

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	5 - Excellent	5% of road has cracks

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	4 - Very Good	

Shoulders Section

Linemarking Section

Obstruction Section

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 9:03:51 AM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:03:51 AM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:12:44 AM

Insp ID: 1192

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Pavements

Ch From (km): 0.1

Ch To (km): 0.2

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
General Appearance		3 - Good	Some spray paint, rubbish, dirt in gutters
Surfacing Cracks	5	3 - Good	5% of road has cracks

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:12:44 AM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:12:44 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:33:25 AM

Insp ID: 1197      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Pavements

Ch From (km): 0.2

Ch To (km): 0.3

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road has cracks

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 9:33:25 AM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:33:25 AM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:42:52 AM

Insp ID: 1199      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Pavements

Ch From (km): 0.3

Ch To (km): 0.4

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road has cracks

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:42:52 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 9:42:52 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:56:53 AM

Insp ID: 1203      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Pavements

Ch From (km): 0.25

Ch To (km): 0.35

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	2 - Poor	5% of road cracked

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	4 - Very Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:56:53 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 9:56:53 AM

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 10:17:57 AM

Insp ID: 1208      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Marli Marli Crescent

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.11

Road Type: Sealed - spray seal

Section Width (m):

Road Condition: 3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	% of road has cracked

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:17:57 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 10:17:57 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:30:38 AM

Insp ID: 1214      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Pavements

Ch From (km): 0.35

Ch To (km): 0.65

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	3 - Good	10% of road has cracks

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 10:30:38 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 10:30:38 AM

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 10:47:03 AM

Insp ID: 1217      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Pavements

Ch From (km): 0.25

Ch To (km): 0.45

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	3 - Good	10% of road has cracks , speed bumps

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:47:03 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 10:47:03 AM

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 10:55:41 AM

Insp ID: 1221      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Pavements

Ch From (km): 0.45

Ch To (km): 0.65

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road cracked

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:55:41 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 10:55:41 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:13:10 AM

Insp ID: 1224

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Bindjaeni Court

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.12

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	10	3 - Good	10% road has cracks
Rutting	4	2 - Poor	Rita due to grader/heavy machinery drivin ove

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter		

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:13:10 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:13:10 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:48:05 AM

Insp ID: 1236      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Darliwa Crescent

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.1

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Stone Loss	5	3 - Good	Some stone loss. Unused road
Surfacing Cracks	5	3 - Good	5% of road has cracks

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	Some broke sections

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:48:05 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:48:05 AM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:53:37 AM

Insp ID: 1237      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name: Warlmanpa Street

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.18

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

#### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:53:37 AM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:53:37 AM

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 12:19:31 PM

Insp ID: 1243      Group 3 - Tennant Creek, Elliott      Elliott North Camp

Road Name:                      Jingulu Street

What are you inspecting: Pavements

Ch From (km):                      0

Ch To (km):                        0.25

Road Type:                        Sealed - spray seal

Section Width (m):                6

Road Condition:                    3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:19:31 PM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:19:31 PM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:55:39 AM

Insp ID: 1185

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Right  
Condition: 3 - Good  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:57:29 AM

Insp ID: 1186

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:	SEP
Number of Bays:	1
On grade or sag pit:	
Both sides of road:	Left
Condition:	2 - Poor
Blockage (%):	10
Comment:	Leaves inside pit too, can't tell % blocked. Broken lid



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:09:52 AM

Insp ID: 1190

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Left  
Condition: 2 - Poor  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:36:21 AM

Insp ID: 1198

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:	SEP
Number of Bays:	2
On grade or sag pit:	Sag
Both sides of road:	Left
Condition:	2 - Poor
Blockage (%):	50
Comment:	Blocked inside. Anecdotal reports of flooding



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:52:48 AM

Insp ID: 1201

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:	SEP
Number of Bays:	2
On grade or sag pit:	
Both sides of road:	Left
Condition:	2 - Poor
Blockage (%):	50
Comment:	Blockage inside , concrete damaged



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:52:13 AM

Insp ID: 1219

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 2  
On grade or sag pit:  
Both sides of road: Left  
Condition: 2 - Poor  
Blockage (%): 50  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:00:00 AM

**Insp ID:** 1222

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Right  
Condition: 2 - Poor  
Blockage (%):  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 11:17:24 AM

**Insp ID:** 1225

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:	SEP
Number of Bays:	2
On grade or sag pit:	
Both sides of road:	Right
Condition:	3 - Good
Blockage (%):	50
Comment:	Blocked inside



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:29:52 AM

Insp ID: 1228

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Left  
Condition: 3 - Good  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:40:48 AM

Insp ID: 1234

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 2  
On grade or sag pit:  
Both sides of road: Right  
Condition: 3 - Good  
Blockage (%): 20  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:07:56 PM

Insp ID: 1241

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 2  
On grade or sag pit:  
Both sides of road: Right  
Condition: 2 - Poor  
Blockage (%): 30  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:31:12 PM

Insp ID: 1246

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road:  
Condition: 2 - Poor  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:34:01 PM

Insp ID: 1248

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure: SEP  
Number of Bays: 2  
On grade or sag pit:  
Both sides of road:  
Condition: 2 - Poor  
Blockage (%): 40  
Comment:



## Northern Territory Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:20:18 AM

Insp ID: 1194

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Inspection Type:	Shade Structure
Shade Structure Type:	Basket Ball Court
Shade Floor Type:	Concrete
Roof Type:	Not Covered
Width (mm):	
Length (mm):	
Appearance:	1
Appearance Comment:	Glass on court, no basketball hoops, no shade
Condition:	2 - Poor
Comment:	



## Northern Territory Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:26:12 AM

Insp ID: 1212

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Inspection Type:	Shade Structure
Shade Structure Type:	Play ground
Shade Floor Type:	Sand
Roof Type:	Not Covered
Width (mm):	
Length (mm):	
Appearance:	3
Appearance Comment:	Some rust and paint peeling
Condition:	3 - Good
Comment:	



## Northern Territory Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:00:30 PM

Insp ID: 1240

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Inspection Type: Shade Structure

Shade Structure Type: Play ground

Shade Floor Type: Sand

Roof Type: Not Covered

Width (mm):

Length (mm):

Appearance: 3

Appearance Comment:

Condition: 3 - Good

Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 8:51:15 AM

Insp ID: 1183

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: 20

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:29:37 AM

Insp ID: 1195

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 2 - Poor

Sign Comment: Sign bent

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:51:26 AM

Insp ID: 1200

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: 20 kph

Sign Condition: 2 - Poor

Sign Comment: Faded, graffiti

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:54:17 AM

Insp ID: 1202

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:06:48 AM

Insp ID: 1205

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Signs

Type of Sign: Keep left

Sign Condition: 2 - Poor

Sign Comment: Faded, has graffiti

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:25:03 AM

Insp ID: 1211

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:28:34 AM

Insp ID: 1213

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:33:58 AM

Insp ID: 1215

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:35:22 AM

Insp ID: 1216

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Ijibarda Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment: Two signs



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:04:32 AM

Insp ID: 1223

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:31:03 AM

Insp ID: 1229

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Gurungu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:32:26 AM

Insp ID: 1230

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Jingulu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:59:21 AM

Insp ID: 1239

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Warlmanpa Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:29:56 PM

Insp ID: 1245

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Road Name: Warlmanpa Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 11:26:38 AM

Insp ID: 1227

Group 3 - Tennant Creek, Elliott

Elliott North Camp

Stormwater Infrastructure:	Swales
Type of lining:	Natural Grasses
Are dimensions uniform along drain:	No
Base Width (m):	
Overall Width (m):	6
Swale Depth (m):	2
Length of Batter 1 (m):	
Length of Batter 2 (m):	
Swale Condition:	2 - Poor
Swale Ponding:	No
Drain flooded at time of inspection:	No
Swale Comments:	Dimensions estimated



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:23:12 AM

Insp ID: 1210

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Taps

Diameter(mm): 25

Tap Leakage: No

Tap Condition: 1 - Very Poor

Tap Comment: No tap handle



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 11:35:56 AM

Insp ID: 1231

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Taps

Diameter(mm):

Tap Leakage: No

Tap Condition: 2 - Poor

Tap Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 12:22:38 PM

Insp ID: 1244

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Taps

Diameter(mm): 25

Tap Leakage: No

Tap Condition: 3 - Good

Tap Comment: Tap works, calcium build up on outside



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 9:01:44 AM

Insp ID: 1188

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number: 1

Lot Water Meter Size:

Lot Water Meter Condition: 3 - Good

Lot Water Meter Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 10:10:46 AM

Insp ID: 1207

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number: 30

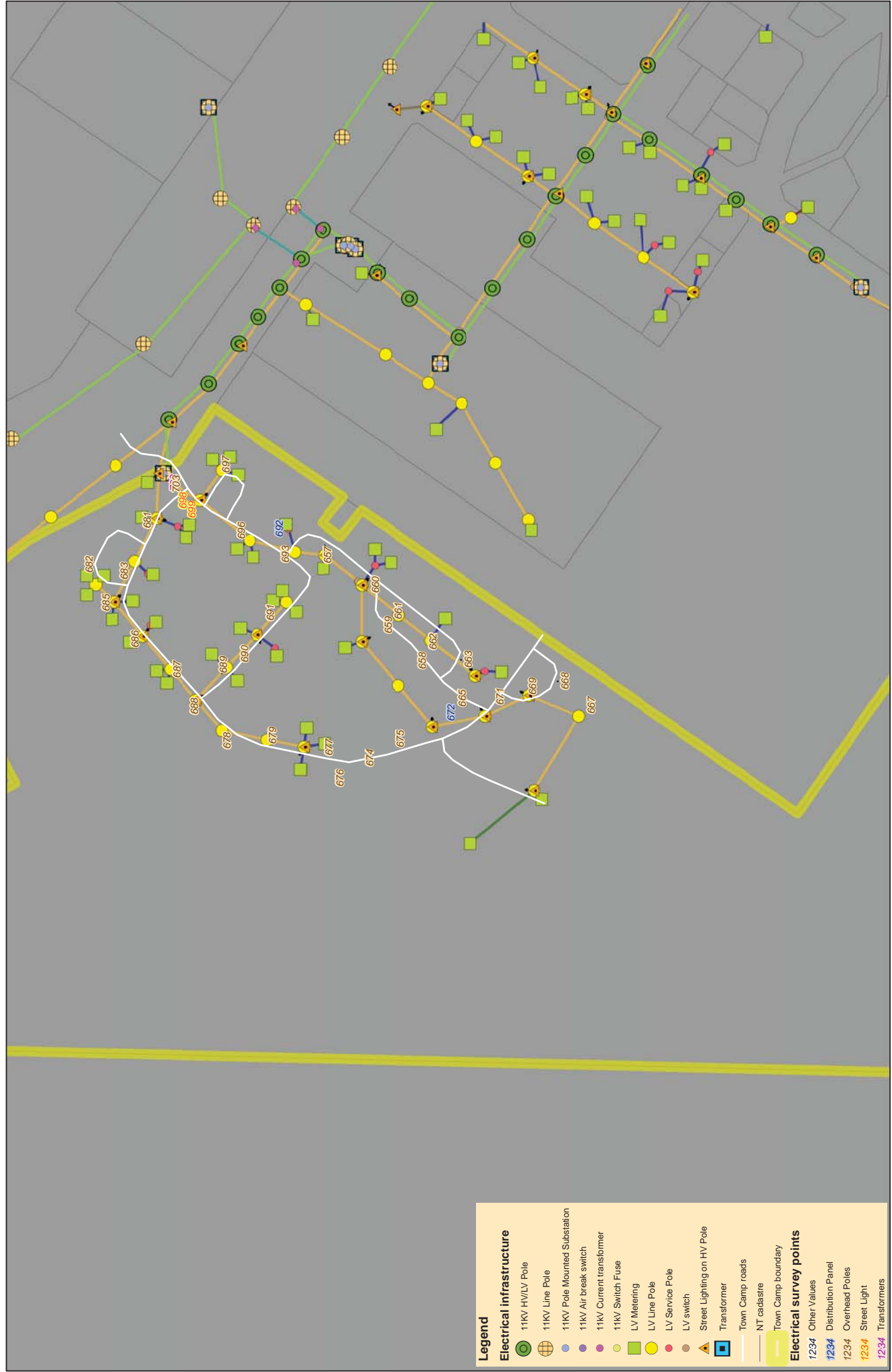
Lot Water Meter Size:

Lot Water Meter Condition: 2 - Poor

Lot Water Meter Comment: Calcium build up outside tap







Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_004\_Elec\_DDP\_report.mxd 23/02/2017 12:22

**Legend**

- Electrical infrastructure**
- 11kV HV/LV Pole
  - 11kV Line Pole
  - 11kV Pole Mounted Substation
  - 11kV Air break switch
  - 11kV Current transformer
  - 11kV Switch Fuse
  - LV Metering
  - LV Line Pole
  - LV Service Pole
  - LV switch
  - Street Lighting on HV Pole
  - Transformer
  - Town Camp roads
  - NT cadastre
  - Town Camp boundary
- Electrical survey points**
- 1234 Other Values
  - 1234 Distribution Panel
  - 1234 Overhead Poles
  - 1234 Street Light
  - 1234 Transformers

A3 scale: 1:3,500



Date: 23/02/2017 Version: 3  
Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments: Electrical**  
**225 - Gurungu (Elliott North Camp)**

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:33:49 PM

Insp ID: 664      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Comms Category are you capturing:      Distribution

What is distribution method to households:      Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo:      No

What is Pit Condition:      3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:02:16 PM

Insp ID: 670

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 2

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:53:27 AM

Insp ID: 672

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Distribution Panel

What is Main Distribution Panel installation method:

Pole

Is the distribution panel labelled:

No

What is Distribution Panel main CB Rating:

What is the main incoming cable type/Size to Distribution Panel:

Unknown

What is the condition of switchboard:

2

Condition Comments:

What is the condition of cables/glands into switchboard:

Cable/Gland Condition Comments:

Distribution Panels name plate access:



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:53:27 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:47:07 AM

Insp ID: 673

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:11:29 AM

Insp ID: 680

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:43:41 AM

Insp ID: 684

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:43:41 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:59:01 AM

Insp ID: 692

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Distribution Panel

What is Main Distribution Panel installation method:

Pole

Is the distribution panel labelled:

No

What is Distribution Panel main CB Rating:

32

What is the main incoming cable type/Size to Distribution Panel:

unknown

What is the condition of switchboard:

3

Condition Comments:

Door unlocked

What is the condition of cables/glands into switchboard:

Cable/Gland Condition Comments:

Unknown

Distribution Panels name plate access:

No



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:59:01 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:47:43 AM

Insp ID: 694

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:46:48 AM

Insp ID: 695

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:28:05 AM

Insp ID: 700

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:27:06 AM

Insp ID: 701      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Comms Category are you capturing:      Distribution

What is distribution method to households:      Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo:      No

What is Pit Condition:      3

Underground Comments:



## Northern Territory Town Camps

### Communications Infrastructure

Inspection Date 29/11/2016 1:15:26 PM

Insp ID: 656

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Comms Category are you capturing:

General

Telstra Comms Drawing Available:

No

Facility upgrade not in drawings:

No

Which telecoms carriers are present in the town camp:

Telstra

How many Communications Pit(s) are allocated in this town camp:



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 1:14:35 PM

Insp ID: 657

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S30D 93
Street Light Watts	30
Street Light Condition	1
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 1:14:35 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:54:43 PM

Insp ID: 658

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Welded

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 400

What is the arrangement of connected cables: Twisted

Are there isolators on the pole: No

What is the Condition: 3

How many Lots are connected to this pole: 0

Overhead Pole Comments: Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:54:43 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:52:25 PM

Insp ID: 659

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:52:25 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:48:54 PM

Insp ID: 660

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 90
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:48:54 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:45:34 PM

Insp ID: 661

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:45:34 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:43:19 PM

Insp ID: 662

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:43:19 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:41:03 PM

Insp ID: 663

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 14
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:41:03 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:32:51 PM

Insp ID: 665

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:32:51 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:15:58 PM

Insp ID: 667

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Welded

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 400

What is the arrangement of connected cables: Twisted

Are there isolators on the pole: No

What is the Condition: 3

How many Lots are connected to this pole: 0

Overhead Pole Comments: Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:15:58 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:12:41 PM

Insp ID: 668

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 10
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	0
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:12:41 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:09:47 PM

Insp ID: 669

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Welded

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 400

What is the arrangement of connected cables: Twisted

Are there isolators on the pole: No

What is the Condition: 3

How many Lots are connected to this pole: 0

Overhead Pole Comments: Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:09:47 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:56:55 AM

Insp ID: 671

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 11
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	0
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:56:55 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:45:53 AM

Insp ID: 674

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	0
Overhead Pole Comments:	Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:45:53 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:44:07 AM

Insp ID: 675

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 06
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:44:07 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:35:31 AM

Insp ID: 676

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Steel

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 400

What is the arrangement of connected cables: Twisted

Are there isolators on the pole: No

What is the Condition: 3

How many Lots are connected to this pole: 0

Overhead Pole Comments: Distribution panel mounted on pole

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:35:31 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:35:31 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:31:30 AM

Insp ID: 677

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 09
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:31:30 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:26:36 AM

Insp ID: 678

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Welded

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 400

What is the arrangement of connected cables: Twisted

Are there isolators on the pole: No

What is the Condition: 3

How many Lots are connected to this pole: 1

Overhead Pole Comments: Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:26:36 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:24:08 AM

Insp ID: 679

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 08
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:24:08 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:00:37 AM

Insp ID: 681

Group 3 - Tennant Creek, Elliott

Elliott North Camp

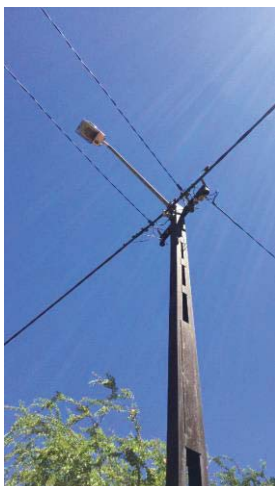
What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 11
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:00:37 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:56:15 AM

Insp ID: 682

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 06
Street Light Watts	80
Street Light Condition	1
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:56:15 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:51:34 AM

Insp ID: 683

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:51:34 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:40:21 AM

Insp ID: 685

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	SD55
Street Light Watts	55
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:40:21 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:40:21 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:35:18 AM

Insp ID: 686

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 07
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:35:18 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:31:49 AM

Insp ID: 687

Group 3 - Tennant Creek, Elliott

Elliott North Camp

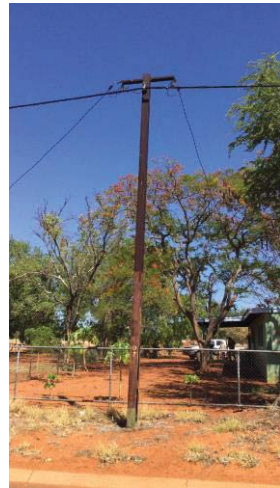
What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:31:49 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:24:33 AM

Insp ID: 688

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 08
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	0
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:24:33 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:19:17 AM

Insp ID: 689

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:19:17 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:14:50 AM

Insp ID: 690

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 08
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:14:50 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:10:57 AM

Insp ID: 691

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 16
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:10:57 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:10:57 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:55:19 AM

Insp ID: 693

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:55:19 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:46:04 AM

Insp ID: 696

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 06
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:46:04 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:36:18 AM

Insp ID: 697

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80D 06
Street Light Watts	80
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:36:18 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:20:49 AM

Insp ID: 703

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

What is Pole Material type: Welded

What is the condition of pole: 3

How is the pole planted: Concrete

What is the Condition of plant: 3

Is street light fitted: No

Street Light Power Supply:

Street Light Type

Street Light Watts

Street Light Condition

Street Light Height

What is the type of service: Three

What is the HV voltage level: 11000

What is the arrangement of connected cables: Parallel

Are there isolators on the pole: Yes

What is the Condition: 3

How many Lots are connected to this pole: 1

Overhead Pole Comments: Surface rusted

## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:20:49 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 1:14:35 PM

Insp ID: 657      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S30D 93  
Street Light Watts 30  
Street Light Condition 1  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 1:14:35 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:52:25 PM

Insp ID: 659      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type Unknown

Street Light Watts

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:52:25 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:48:54 PM

Insp ID: 660      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type S70D 90

Street Light Watts

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:48:54 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:41:03 PM

Insp ID: 663      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S70D 14  
Street Light Watts 70  
Street Light Condition 3  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:41:03 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:32:51 PM

Insp ID: 665      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type Unknown

Street Light Watts

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:32:51 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 12:12:41 PM

Insp ID: 668      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type S70D 10

Street Light Watts

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 12:12:41 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:56:55 AM

Insp ID: 671      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S70D 11  
Street Light Watts 70  
Street Light Condition 3  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:56:55 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:44:07 AM

Insp ID: 675      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 06

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:44:07 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:31:30 AM

Insp ID: 677      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S70D 09  
Street Light Watts 70  
Street Light Condition 3  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:31:30 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:24:08 AM

Insp ID: 679      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 08

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:24:08 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 11:00:37 AM

Insp ID: 681      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S70D 11  
Street Light Watts 70  
Street Light Condition 3  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 11:00:37 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:56:15 AM

Insp ID: 682      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 06

Street Light Watts 80

Street Light Condition 1

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:56:15 AM

---



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:40:21 AM

Insp ID: 685      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type SD55

Street Light Watts 55

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:40:21 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:35:18 AM

Insp ID: 686      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 07

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:35:18 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:24:33 AM

Insp ID: 688

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type S70D 08

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:24:33 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:14:50 AM

Insp ID: 690      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes  
Street Light Power Supply:  
Street Light Type S70D 08  
Street Light Watts 70  
Street Light Condition 3  
Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:14:50 AM

---



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 10:10:57 AM

Insp ID: 691      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 16

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 10:10:57 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:55:19 AM

Insp ID: 693      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type Unknown

Street Light Watts

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:55:19 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:46:04 AM

Insp ID: 696      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

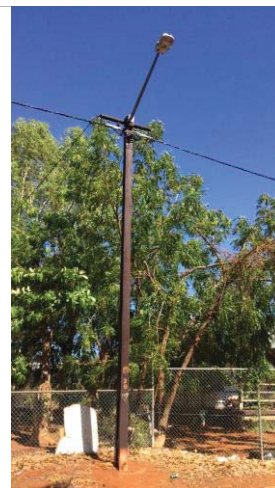
Street Light Power Supply:

Street Light Type M80D 06

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:46:04 AM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:36:18 AM

Insp ID: 697

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Overhead Poles

Is street light fitted: Yes

Street Light Power Supply:

Street Light Type M80D 06

Street Light Watts 80

Street Light Condition 3

Street Light Height



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:36:18 AM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:33:00 AM

Insp ID: 698

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Street Light

What is power supply method:

Overhead

What is the lamp type:

M80D 06

What Wattage is the lamp:

80

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):

6



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:30:31 AM

Insp ID: 699      Group 3 - Tennant Creek, Elliott      Elliott North Camp

What Category are you capturing: Street Light

What is power supply method:

Overhead

What is the lamp type:

S70D 12

What Wattage is the lamp:

70

What is the condition of street lights:

3

What is Street Lighting pole installation height (approximate):



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 9:25:15 AM

Insp ID: 702

Group 3 - Tennant Creek, Elliott

Elliott North Camp

What Category are you capturing: Transformers

What is Transformer installation method:

Pole

If method know:

11SS1P

What is the condition of the mounting:

3

What is Transformer Rating:

Unknown

Is there access to transformers name plate to take a photo:

No

What is the condition of transformer:

3

What is cable type to transformer:

PVC insulated black

What is cable size to transformer:

Is there switch gear or fusing associated with the transformer:

Cut out fuse

Transformer Comment:



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 9:25:15 AM

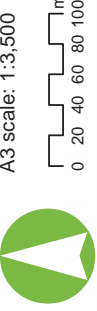






**Legend**

- ▲ Start of road
- Road Condition**
- 1-Very poor
- 2-Poor
- 3-Good
- 4-Very good
- 5-Excellent
- Town Camp boundary



Date: 11/02/2017 Version: 1  
 Coordinate system: GDA 1984

**NT Town Camp Road Assessments**  
**225 - Gurungu (Elliott North Camp)**







Group	Com Id	Location	Community Name	Dwellings No. (Funded Dwellings)	Dwellings No. (Bennett Design)	New Houses ** (Future Demand)	Primary Voltage Level (KV)	PWC Substation ID	PWC Test Number	Transformer size (KVA)	KVA Total dwellings @ 4.5KVA	KVA Total dwellings @ 7KVA	Comments
1	290	Darwin	Bagot	55	55		11	1924	1735	300	247.5	385	
	344	Darwin	Knudsey Lagoons	18	19	2	11	1771	2163	100	85.5	133	
	347	Darwin	Kulabuk	19	19		11	1092	10607	50	85.5	133	
	403	Darwin	Palmerston Town Camp	20	16		22	10196	10245	100	90	140	Two transformers for this Town Camp. Transformers are not in boundary of Town Camp [The nearest transformers data to Town Camp are highlighted in yellow].
	412	Darwin	Railway Dam (One Mile Dam)	5	6	2	22	265	11645	25	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	427	Adelaide River	Almangal	9	9		11	1041	4378	200	40.5	63	Two transformers for this Town Camp.
	687	Jabiru	Manabadurna	10	12		22	184	5646	63	54	84	
	825	Darwin	Minmarana Park	24	24		11	2147	11372	100	108	168	
	606	Katherine	Waripiri Transient Camp	9	9		22	6416	4886	100	40.5	63	Two transformers for this Town Camp.
	621	Katherine	Miali Brumby (Kalano)	47	31		22	6133	12247	315	211.5	329	
2	640	Pine Creek	Pine Creek Compound	4	4		22	6686	3147	25	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	971	Mataranka	Mulgagan	12	9	4	22	6818	5297	16	54	84	
	215	Tennant Creek	Blueberry Hill (Munji-Maria)	2	2		22	7079	1968	200	9	14	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	223	Tennant Creek	Dump Camp (Ma-la-Maria)	7	7		11	7904	4718	300	31.5	49	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	224	Elliott	Elliott North Camp	12	12		11	7505	4715	100	162	252	
	225	Elliott	Elliott North Camp	36	25		22	7572		200	54	84	
	238	Tennant Creek	Kagaru (East Side Camp)	12	12	1	22	7179		200	94.5	147	Two transformers for this Town Camp.
	246	Tennant Creek	Ngalapa Ngajala	18	21		22	7033	10904	315	54	84	
	271	Tennant Creek	Village Camp	12	12	1	22	7183	11107	200	54	84	
	681	Tennant Creek	Tingkaril	12	12		22	7180		200	54	84	
3	684	Tennant Creek	Wuppa	15	15	1	22	7141	11092	100	67.5	105	Two transformers for this Town Camp.
	3	Alice Springs	Alngwerntjere (Morris Soak)	11	15		11	8596	14386	300	67.5	105	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	16	Alice Springs	Anthelk Ewipaye (Charles Creek)	17	10		11	8569	315	315	76.5	119	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	17	Alice Springs	Anthepe	15	15		22	8598	5874	200	67.5	105	Data extracted from PWC asset information. There was not access to this Town Camp due to ceremony on inspection day.
	19	Alice Springs	Aper Alwerrkings (Palmers)	7	6		22	8597	11244	315	31.5	49	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	35	Alice Springs	Ewepner Atwaye (Hidden Valley)	47	47		11	8405	2938	200	211.5	329	
	47	Alice Springs	Iparpa	13	13		11	8622	11202	100	58.5	91	
	48	Alice Springs	Iperle Tyathe (Walpiri)	10	9		11	8623	11203	100	45	70	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	50	Alice Springs	Ilyperenye (Old Timers)	10	10		22	8145	3323	100	45	70	
	64	Alice Springs	Bassos	2	2		11	8002	10946	50	9	14	
4	69	Alice Springs	Karnte	19	19		22	8282	2345	100	85.5	133	
	87	Alice Springs	Yarrenty Altere (Larapitua Valley)	34	34		11	8617	11334	100		238	
	90	Alice Springs	Inarlinge (Little Sisters)	16	22		22	8137	2925	100	99	154	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	108	Alice Springs	Mpwetyerre (Abbotts)	6	6		11	8093	11703	315	27	42	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	113	Alice Springs	Mount Nancy (Nyevents)	11	12		11	8405	2939	200	54	84	
	129	Alice Springs	Nyewente (Trucking Yards)	26	26		11	8629	11312	300	117	182	There is not any Transformer in boundary of Town Camp. Also it's not shown in PWC asset information.
	675	Alice Springs	Hoppys	15	19		11	8314	369	50	67.5	105	
	676	Alice Springs	Ilype Ilype (Golders Camp)	15	14		11	8569	315	100	18	28	Transformer is not in boundary of Town Camp [The nearest transformer data to Town Camp is highlighted in yellow].
	1029	Alice Springs	Kunoth	4	4		11	8569	315	100	130.5	203	Two transformers for this Town Camp.
	222	Borroloola	Mara	28	29	2	11	6187	12610	100	72	112	Two transformers for this Town Camp.
5	229	Borroloola	Garawa 1	16	14		11	6546	10166	100	130.5	203	Data extracted from PWC asset information. It's outside of Town Camp, shown only Transformer to this Town Camp.
	278	Borroloola	Yanyula	29	29		11	6162	10496	200	130.5	203	This transformer is not shown in PWC asset information. It's installed in Boat Ramp Road near to Town Camp and connected to Electrical reticulation of Town Camp.
	992	Borroloola	Garawa 2	11	11		11	6189	2669	25	49.5	77	

\*\* For New house's demand calculation see section 13.4 "Future Demand".

# Elliott South Camp

## 1 Design

The infrastructure reviews have been undertaken against current relevant standards for typical sub-divisions. The following standards have been used in undertaking the reviews.

### Sewerage and water supply

- Water Services Association of Australia – Sewerage Code – WSA 02 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 02
- Water Services Association of Australia – Sewerage Pumping Station Code – WSA 04 -2005 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 04
- Water Services Association of Australia – Water Supply Code – WSA 03 2002 Part 1: Planning and Design
- Power and Water Corporation supplement to WSA 03
- Power and Water Corporation Indigenous Community Engineering Guidelines (2008)
- Department of Housing and Community Development Indigenous Community Engineering Guidelines (ICEG 2014, updated September 2016)
- Power and Water Corporation Essential Services Infrastructure Assessment and Upgrade Guidelines (for Town Camps in Urban Communities, 2009)
- Power and Water Corporation Standard Drawings
- Australian Standards

### Electrical services

Electrical infrastructure has been assessed against AS/NZS3000 Wiring Rules and against PWC Service, Installation and Metering Rules and Urban Residential Development (URD) Design Standards where possible.

With one exception, town camps are each a single lot and compliance with AS/NZS3000 is sufficient to address potential safety concerns.

As such application of PWC URD Design Standards will mainly apply to the incoming supply and bulk or initial multi-metering panels if provided.

URD Design Standards for internal reticulation and street lighting appear to have been applied in many cases for convenience rather than compliance.

For the purposes of this report, the demand per dwelling allowances of URD Design Standards have been used to estimate incoming supply and overall distribution capacity requirements.

The following standards apply:

- Australian Standards
- Power Networks Design and Construction Guidelines, Power and Water Corporation
  - NP001.1\_Design and Construction of Network Assets – General Requirements
  - NP001.3\_General Specification for Overhead Electrical Reticulation
  - NP001.6\_General Specification for URD Subdivisions
  - NP003\_Installation Rules\_V3
  - NP007\_Service Rules
  - NP027\_Capture of Newly Installed Street Lighting Information

- NP041\_Guidelines for Electrical Design Consultants

Further referral to the guidelines in this report will be designated by the guidelines number, NP001.1.

### **Communications**

- National Broadband Network Website viewed 21 January 2017  
(<http://www.nbnco.com.au/>) – NBN rollout maps

### **General**

It should be noted that if the town camps are proposed to be subdivided and services assets gifted to Power and Water Corporation (PWC) for operation and maintenance, all of these services will need to fully meet PWC standards. With the exception of a few town camps that have recently been upgraded, this will require the full replacement and/or realignment of most services.

## 2 Condition assessment

### 2.1 Rating assessment matrix

A condition rating matrix was developed and used to assess all municipal infrastructure. The same rating was used for all services to maintain consistency in assessments. Table 1 below shows the condition rating and operability.

Table 1 Condition rating

	Condition rating	Operability
1	Very Poor	Not operational
2	Poor	Not fully operational or requires immediate maintenance to keep operational
3	Good	Fully operational, may require routine maintenance
4	Very Good	Fully operational, may require maintenance in the next six months
5	Excellent	New, fully operational

### 2.2 Civil assessment limitations

The civil infrastructure condition investigations were subject to a number of limitations. These include:

- Only accessible services have been investigated. This includes inspecting the top of sewer manholes, side entry pits, etc., however, does not include opening pits to inspect infrastructure below ground.
- No physical testing of the sewer, water or stormwater network was undertaken.
- No survey or service locating was undertaken.

As there was no survey, potholing or CCTV undertaken on the underground infrastructure there is insufficient information to make determinations on the asset condition. The condition assessments discussed in this report are only for the accessible services and do not necessarily represent the condition of the underground infrastructure. For the majority of the town camps, other than a few that have recently been upgraded it was found that the underground services are generally undersized and it is likely, due to their age, that these services are in poor condition. Either factor would trigger the need for a complete replacement to meet current relevant standards.

### 2.3 Electrical assessment limitations

The electrical infrastructure condition investigations were subject to a number of limitations. These include:

- Inspections were carried out without the assistance of an electrical tradesman.
- Only accessible services were investigated. Assessments were of a visual nature and no pit covers were removed.
- Overhead equipment was assessed from ground level.
- Switchboards were not opened and no assessment of the internal connections or bus ratings was made.
- Electrical infrastructure was assessed down to the meter for multi-meter panels and down to the termination, overhead pole or distribution pillar, of the supply cable to a meter located at a dwelling.

### **3 Current infrastructure issues**

Power and Water Corporation (PWC) have advised of the following concerns and issues in regard to the sewerage, water and electrical infrastructure at all town camps.

#### **3.1 Ownership and maintenance**

PWC stated there has always been confusion regarding the ownership and responsibilities of the internal sewer, water and electrical infrastructure. PWC have advised that they have no legal tenure on the majority of assets in any town camps and that the owner is essentially that of the land owner or leaseholder. This is further discussed for each type of infrastructure for each town camp.

The ownership and who is responsible for the maintenance of the sewage pump stations and street lighting is a major concern. In most town camps it was found that PWC have been maintaining the assets on an in-kind basis, although there are no maintenance or access agreements in place and the infrastructure is generally not compliant to PWC standards.

#### **3.2 Access to infrastructure**

PWC advised that due to the uncertainty surrounding ownership and responsibility of the sewerage, water and electrical infrastructure, each town camp is seen as a single lot with multiple houses on it. There are no formal road reserves or easements where the municipal infrastructure should be located. PWC therefore have no legal right to enter the town camps to work on the infrastructure, nor can PWC stop others from working on the infrastructure. There is a risk that the maintenance undertaken by others may be to a lower standard than PWC.

It should be noted that there are currently no legal services easements within the town camps, except for a few cases where a town service passes through the town camp. Therefore it is recommended that easements are created over any infrastructure owned by PWC and any future assets to be gifted to PWC, to allow the service providers access to the infrastructure.

#### **3.3 Existing infrastructure**

PWC have stated that although the existing sewerage and water infrastructure appears to comply with relevant standards in some locations, the capacity cannot be assumed to meet PWC requirements due to the potential for underground substandard condition and/or grading of pipework. It is likely that these assets will need to be fully replaced to PWC standards to ensure sufficient capacity.

The planning process currently allows construction within the town camps on Commonwealth land without requiring service authority (PWC) approvals. This means that there has been no opportunity for PWC to recover contributions towards required upgrades to headworks servicing the developments and these upgrades have been paid for by PWC in the past. This inconsistency needs to be addressed for future developments within the town camps to ensure PWC are able to continue to provide adequate services.

#### **3.4 Safety concerns**

PWC have expressed concerns with safety of PWC staff and contractors working within the camps. PWC have employed procedures such as multiple people / vehicles to attend the site, with police or housing safety officers as required. This

generally leads to a delayed response time and increased cost to respond to and remediate emergency situations.

PWC have also raised the concern that if others work on water infrastructure within the town camps and do not apply the correct sanitation procedures they not only risk contaminating the entire water supply network within the town camp, at some town camps with direct connections to the town supply, they risk contaminating the entire town's water supply.

#### 4 Available information

As the site investigations were limited to accessible / visible services, information on below ground services (such as electrical cables, sewer pipes, water supply pipes, etc.) were determined from available information. This information included:

- Serviced Land Availability Program (SLAP) maps,
- Department of Family & Community Services - Connecting Neighbours Program – Essential Services Scoping Study Report Volume 1 April 2005,
- Connecting Neighbours Project – Infrastructure Assessment and Recommendation Report - Arup Pty Ltd, April 2005,
- Drawings supplied by NT Department of Infrastructure - Technical Records,
- Drawings supplied by Power and Water Corporation,
- Bennett Design inspection reports and population data.

Aurecon undertook a site investigation of the Elliott South Camp community on Tuesday 29 November 2016 to inspect roads, stormwater drainage, electrical services, sewerage and water supply, and community structures. The following sections detail the outcomes of this investigation and the assessments of the infrastructure.

The civil and electrical inspection reports can be found in the Appendices.

## **5 Sewerage**

### **5.1 Ownership and boundaries**

Elliott South Camp's current sewage disposal system is via septic tanks. There were no drawings of the location or type of septic tanks.

It is understood that the septic tanks are currently owned by the Commissioner of Consumer Affairs, and are the responsibility of Barkly Regional Council to maintain.

#### **5.1.1 Connection methods and billing**

The billing arrangement is not known. It is assumed that the Barkly Regional Council would organise for the septic tanks to be emptied, and a bill issued to the Commissioner of Consumer Affairs. It is not known what contribution the residents make towards this bill.

### **5.2 Existing infrastructure condition assessment**

The condition of the septic tanks was not assessed.

### **5.3 Current performance and risks**

There is no town sewer in the township of Elliott. The septic tank arrangement is common throughout the town. Until this situation changes, the septic tanks in Elliott South Camp should remain until town sewer is installed in Elliott.

The current performance of the septic tank arrangement could not be assessed.

It is recommended that sewerage infrastructure, including underground pipes, pump stations, and a sewage pond arrangement, is considered if the town is expected to expand.

### **5.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### **5.5 Recommended works**

As there is no town sewer in Elliott, constructing a sewer network to PWC standards within the community would not be effective, unless dedicated sewage ponds and associated infrastructure is also constructed. However, if the community or the town is undergoes considerable future development, it is recommended that a sewer network is installed for the entire town, including the communities. These headworks are expected to be a significant cost.

The cost estimates have focussed only on upgrading the sewer network within Elliott South Camp, assuming that a town sewer network would be provided at the same time a sewer network is provided within the community.

## 6 Water supply

### 6.1 Ownership and boundaries

The water reticulation servicing the Elliott South Camp is believed to be a looped network including DN100 and DN150 PVC pipes, with a single supply point. As-built drawings were not attainable to validate the water mains layout and sizing.

The water supply assets within Elliott South Camp are believed to be owned by the Commissioner of Consumer Affairs, but are the responsibility of Barkly Regional Council to maintain.

The water is supplied from a PWC owned water main outside of the community. Figure 1 shows the extent of water services.

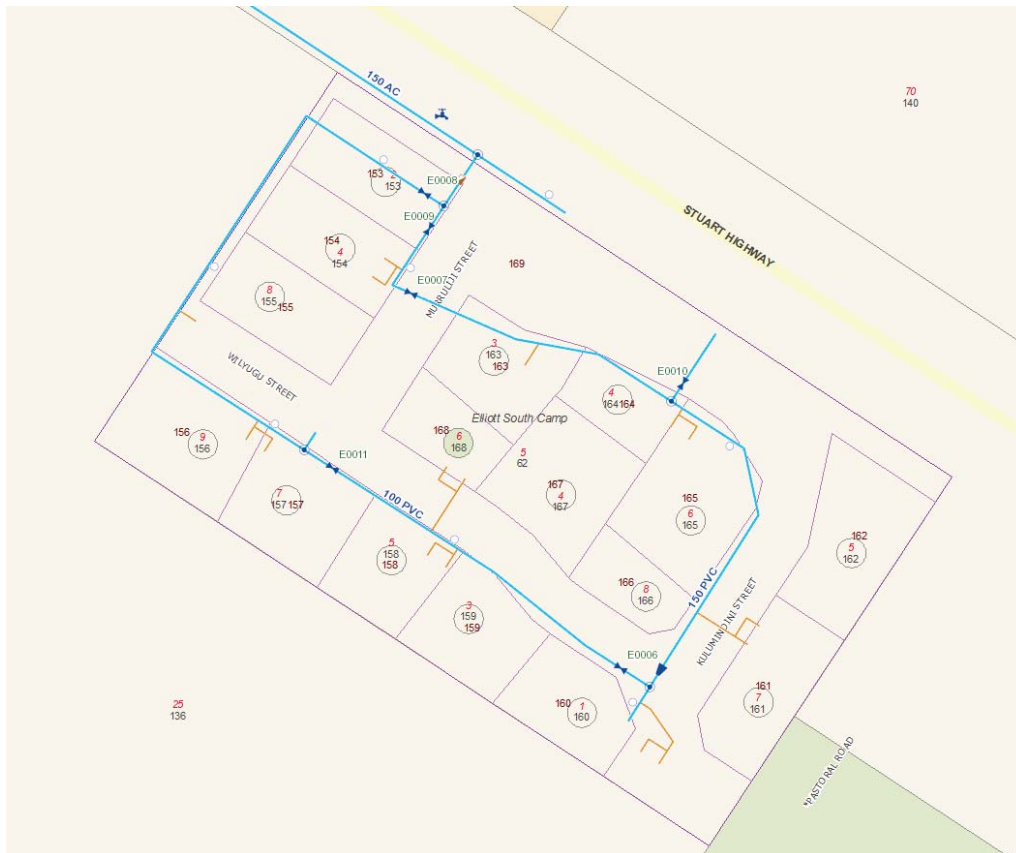


Figure 1 Elliott South Camp water supply

#### 6.1.1 Connection methods and billing

Through consultation with PWC it has been determined that the water usage is currently charged as a fixed daily rate for a single bulk water meter at Elliott South Camp. The bill is issued to Barkly Regional Council. It is not known what contribution the residents make towards water bills.

It is proposed that PWC continues to measure the water supply to the entire community, as opposed to individual lots within the community. Under this scheme, the water bill for the entire community is the responsibility of the governing body, being the Commissioner of Consumer Affairs for Elliott South Camp. It will be up to governing body to assign bills to residents accordingly.

It is recommended that individual lot meters are maintained in addition to the proposed continuation of using bulk water meters to measure water usage. This will

assist the governing body with distributing bills to residents, the identification of any leaks in the network, and meeting PWC standards should the town camp be subdivided in the future.

A total of three lot water meters were assessed during the inspection. South Elliott Camp is believed to contain 12 dwellings. Therefore up to an additional 9 residential lot water meters are required to be installed to cover the properties without an existing water meter. Note, some water meters may have been present however not visible due to overgrown flora or restricted property access. Consequently water meters may have not been discovered during the inspection.

### 6.2 Existing infrastructure condition assessment

The site investigation for the water infrastructure included assessing the condition of any air valves, fire hydrants, tanks, taps, and water meters. The assessment was limited to services that could be accessed above ground; no excavation of below ground services was undertaken.

The condition of each asset is as follows:

Table 2 Water asset condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Fire hydrants			1	3		4
Taps	1		1			2
Water meters (residential lots)		2	1			3



Figure 2 Fire hydrant, condition: *good*



Figure 3 Tap, condition: *very poor*



Figure 4 Water meter (lot), condition: *poor*

A tap was found in very poor condition and should be replaced. Furthermore, two residential water meters require maintenance works to remove calcium build up and leaks.

### 6.3 Current performance and risks

The current demand of the community was calculated based on the following design assumptions:

- The nominal peak day flow is 1300 L/capita/day, based on PWC’s supplement to WSA 03 2002. This value is for the southern region of NT. It was assumed that the nominal peak day flow of 1300 L/capita/day also applies to water usage within the community, although it is possible that this value could be higher in real life due to a lack of controls to reduce water usage.
- The Equivalent Population (EP) has been calculated assuming one household equates to 9 EP, based on discussions with Power and Water Corporation.
- The peak hour factors are listed in PWC’s Supplement to WSA 03-2002, and they depend on the population range of the community. The peak hour factor of 3.0 has been adopted, for populations less than 500.

Table 3 shows the calculated demand.

Table 3 Current water demand

Total dwellings	EP	Demand	Peak hour demand (l/s)
14	126	1.89	5.67

A 10 year plan has been established for water supply throughout the township of Elliott. Significant headworks are planned to provide fire flows throughout the township. The headworks appears to be external upgrades from the community. It

is understood that the existing network within the community will have capacity for fire flow demands following the upgrades.

Current PWC standards do not permit DN100 sized pipes for fire flows. Furthermore, the water mains appear to be positioned outside the road reserve. The existing network does not strictly meet current standards. Although the existing network is currently not compliant with PWC standards it is expected that there will be no tangible benefit to the community by upgrading the DN100 PVC pipes to DN150.

The assessment of water supply for firefighting has been based on the size of the water mains and the condition of the accessible fire hydrants. Additional hydrants have been recommended where it appears the existing number of hydrants are insufficient. In the case of Elliott South Camp no additional hydrants were noted as being required at this stage.

#### **6.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

#### **6.5 Recommended works**

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following maintenance works are recommended;

- Replace one tap
- Repair leak on one lot water meters
- Remove calcium build up on one lot water meter

The community is viewed as a single lot and water usage is proposed to be measured for the entire community at the bulk meter, however, it is also recommended that residential lot water meters are located on the connection to each dwelling. The lot meters will assist with distribution of bills to the residents and identify any leaks within the internal network. The cost estimates for the upgrades at Elliott South Camp include;

- Install nine new residential lot water meters

## 7 Roadworks

### 7.1 Ownership and boundaries

It is the current understanding that the roads within Elliott South Camp currently owned by the Commissioner of Consumer Affairs, and are the responsibility of Barkly Regional Council to maintain.

### 7.2 Existing infrastructure condition assessment

The road network within Elliott South Camp consists primarily of sealed roads. It appears the location of the roads have allowed for future developments. There are also numerous tracks which appear to be used frequently which are not included in the inspection and report. Road furniture such as signs were also inspected. Table 4 below summarise the condition of the road furniture as assessed during the site inspection.

Table 4 Roadworks condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Sign			3	6		9



Figure 5 Sign, condition: *good*



Figure 6 Sign, condition: *very good*

The signs in Elliott South community were generally of good and very good condition. It appears as though the road name signs have been recently installed. No upgrades are required. There were no footpaths in the community.



Figure 7 Elliott South Camp road network

Table 5 below details the condition of the roads within Elliott South Camp for specific segments. Figure 7 above shows a map of the community's road network with the condition ratings, road name, and chainage direction. Note, the percentage refers to the percentage of that particular road segment which experiences the defect.

Table 5 Road network condition assessment

Road name	Chainage start (km)	Chainage end (km)	Condition (1 to 5)	Defects and associated condition
Wilyugu Street	0.0	0.18	3	-5% of road has surface cracks (3)
Kulumindini Street	0.0	0.1	3	-5% of road has surface cracks (3)
	0.1	0.27	3	-5% of road has surface cracks (3)



Figure 8 Wilyugu Street, condition: *good*



Figure 9 Kulumindini Street, condition: *good*

The roads in Elliott South Camp were generally in good condition with minimal defects. The main defect was that 5% of the road has surface cracks. It is recommended that the surface cracks are repaired to prevent future pavement failure.

### **7.3 Current performance and risks**

The roads in Elliott South Camp were rated as having good condition, although there was some surface cracking. The layout of the road network is sufficient for the current number of houses.

It was noted during the site inspections that a number of unsealed 'short-cuts' had been created and were regularly used. It is not recommended that these paths are formalised.

It is also recommended that a road safety audit is undertaken to determine where signage, line marking, etc. are required.

### **7.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### **7.5 Recommended works**

The infrastructure that was assessed as very poor or poor is recommended to be upgraded to prevent failure in the future. The following works are recommended to upgrade the current infrastructure;

- Seal surface cracks – 50 m<sup>2</sup> has been allowed for in the cost estimates.

## 8 Stormwater drainage

### 8.1 Ownership and boundaries

The stormwater drainage assets within Elliott South Camp are currently owned by the Commissioner of Consumer Affairs, and are the responsibility of Barkly Regional Council to maintain.

### 8.2 Existing infrastructure condition assessment

The site investigation for the stormwater infrastructure included assessing the condition of swales, culverts, headwalls, and side entry pits (SEP). Only the above ground infrastructure was assessed. As the inspection was undertaken outside of a storm event and no CCTV of the pipes was undertaken, flooding due to blockages or damage to the underground infrastructure could not be assessed. Table 6 below summarises the condition of the stormwater assets as assessed during the inspection.

Table 6 Stormwater condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Culvert		1				1
SEP		3	2			5



Figure 10 Culvert endwall, condition: *good*, blockage: *50%*



Figure 11 One bay side entry pit, condition: *poor*

### **8.3 Current performance and risks**

The detailed performance of the stormwater network cannot be fully analysed without significant hydraulic and hydrodynamic modelling, which is outside the scope of this project. However based on the condition of the stormwater infrastructure assessed it would appear to be operating adequately.

Of the five side entry pits that were inspected in Elliott South Camp, all were one bay side entry pits, two had broken lids, and all were blocked by at least 10%. It is recommended that the broken lids are fixed and the blockages are cleared.

The culvert was blocked by approximately 50%. The blockages in this culvert should be cleared out, and the swale downstream re-shaped to prevent future blockages.

### **8.4 Future demands**

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### **8.5 Recommended works**

The following works are recommended to upgrade or improve the current infrastructure:

- Replace two side entry pit lids
- Clear blockages from all five pits
- Clear blockages from culvert
- Reshape swale downstream of endwall

## 9 Community structures

### 9.1 Ownership and boundaries

The community structures within Elliott South Camp are owned by the Commissioner of Consumer Affairs, but are the responsibility of Barkly Regional Council to maintain.

### 9.2 Existing infrastructure condition assessment

The site investigation for the community structures included assessing the condition and features of the playground and basketball court. The following table shows the condition rating given to the community structures.

Table 7 Community structures condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Playground		1				1
Basketball Court				1		1



Figure 12 Basketball court, condition: very good



Figure 13 Playground, condition: *poor*

### 9.3 Current performance and risks

The playground was given a poor rating due to not having a shade cloth. It appears that a structure is in place for a shade cloth. It is recommended that this structure is reviewed for structural integrity and a new shade cloth installed.

The basketball was in very good condition.

### 9.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

### 9.5 Recommended works

The following works are recommended to upgrade the community structures:

- Check the existing shade cloth structure
- Install new shade cloth

## 10 Electrical services

### 10.1 Ownership and boundaries

The following points, from Network Policy NP003 Installation Rules Section 3, define the typical shared ownership of electrical infrastructure by Power and Water Corporation (PWC) and customers.

- The point of supply is defined as the point where PWC makes the electrical supply available. For domestic supply, this is normally one of the following:
- A point of attachment of an overhead service on to a building or pole on which a metering panel is fitted.
- A point of attachment of an overhead service on to a pole forming part of unmetered aerial consumer's mains.
- A nominated point on a distribution substation located on the customer's lot.
- A point of connection of an underground service in a metering panel, including underground services originating at an overhead line.
- A point of connection of an underground service in a pillar or junction box forming part of unmetered consumer's mains, located on the customer's lot.
- A point on a Power and Water pillar located on the customer's lot.

Typically, distribution infrastructure upstream of the Point Of Supply is owned and maintained by PWC and infrastructure below the point of supply is owned and maintained by the customer.

In many cases PWC have defined a Point Of Supply to ensure that they retain responsibility for aerial high voltage infrastructure, and aerial low voltage infrastructure where installed with aerial high voltage infrastructure, to minimise the possibility of the community or its contractors coming into contact, either deliberately or inadvertently, with aerial high voltage infrastructure.

In other cases isolation facilities are present or desired by PWC to define the Point of Supply at or near the boundary of the town camp.

The Elliott South Camp community electrical reticulation systems is supplied by overhead reticulation scheme to individual house.

PWC advise that most of Tennant Creek/Alice Springs Town Camps have undergone upgrades under the SIHIP program with the intent to normalise the services to look like an urban subdivision but have never been formally handed over to PWC for operations and maintenance.

PWC advise that the Point Of Supply is the LV terminals of the substations and that they own and are responsible for the first pole mount substation and upstream infrastructure.

PWC recommend that a GBS (Gas Break Switch) be provided upstream of the first transformer to establish a demarcation point.

PWC advise that street lighting is supplied from unmetered LV infrastructure and is the responsibility of the lot holder, not PWC.

All meters, whether pre- or post-paid are the property of PWC.

Elliott South Camp community are responsible for all unmetered and metered LV infrastructure including the main switchboard, metering panel (excluding meter), LV distribution feeders, distribution pillars, consumers' mains and consumer switchboards and street lights.

### 10.2 Existing infrastructure condition assessment

Table 8 shows the condition rating given to the distribution switchboards and distribution pillars.

Table 8 Distribution panel condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Distribution panels						1 (status unknown)

Table 9 shows the condition rating given to the street lights. The street lights were of a low voltage overhead feeder design, mercury lamp type, M80D. The street lights have 75% operational rating and 25% inoperable.

Table 9 Street light on O/H pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Street light on O/H pole	1	1	6			6

Table 10 shows the condition rating given to the Overhead poles. The overhead poles are of Weld Construction (Universal Pole construction). The overhead poles have 92% operational rating from the visual inspection.

Table 10 Overhead pole condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Overhead pole		1	12			13

The meters in Elliott South Camp community were not inspected by Bennett Design (as they did not go to Elliott) or Aurecon (as property access was restricted).

The details of the individual inspections and photographs of each infrastructure item are included in the Appendices.

### 10.3 Current performance and risks

The electrical infrastructure evaluation was conducted against the following criteria

- Number of dwellings on tenure, the higher value of the funded dwelling and as quoted in the population report was utilised.
- Urban area, NP001.1, 4. Definitions.
- General Specification for URD Subdivisions, NP001.6, 4.3 Substation Size.
- Normal ADMD (After Diversity Maximum Demand) of 4.5 kVA and high cost subdivisions at 7 kVA.
- Transformer ratings were assumed to be correct in Dekho (PWC asset information system) and compared against photographs of test or transformer numbers collected.
- Substation loads were compared against transformer sizes only. No load flow analysis was conducted.
- No load calculations were performed or assessment conducted on overhead or underground cable, visual inspection from the ground only.
- Street lighting loads were ignored as they are not significant.

The calculated maximum demand of the Elliott South Camp community transformer is 27% of rated capacity based on 4.5kVA/dwelling. The calculated maximum demand is within the total capacity of the substation on site.

Table 11 Elliott South Camp current demand load vs transformer ratings

Community name	Dwellings	Transformer (kVA)	kVA Total @ 4.5kVA	kVA Total @ 7kVA	Comments
Elliott South Camp	12	200	54	84	Transformer is not in boundary of Town Camp [The upstream transformer data not identified to Town Camp].

A tabulated summary of all community transformers is included in the Appendices.

There is a risk of equipment not being maintained associated with the non-standard division of responsibilities between the customer and PWC.

The following points from the PWC Metering Rules should be noted:

- The routine maintenance of metering installations and the replacement of any faulty meters is the responsibility of PWC.
- The property owners are responsible for the maintenance and upkeep of meter rooms, boxes and panels (including lids, doors and locking mechanisms).
- The installation of pre-paid metering is a cost to the customer, refer NP010 Meter Manual-Maintenance of Metering Installations, Power and Water Corporation.

#### 10.4 Future demands

As no new developments are currently planned for the community, there are no additional upgrades required to cater for future demand.

#### 10.5 Recommended works

The following maintenance works and upgrades are recommended:

- Replace two 80W street lights.
- Confirm if overhead pole redundant

## 11 Communications

### 11.1 Ownership and boundaries

Details of Telstra pit and conduit infrastructure within the town camp boundaries were sought but were not forthcoming.

### 11.2 Existing infrastructure condition assessment

The telecommunications infrastructure assessed included pits and telephone booths.

The Appendices contains the individual reports.

Table 12 Telecommunication pit condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Telecommunication pit			2			2

Table 13 Telephone booth condition assessment

Asset	1 Very Poor	2 Poor	3 Good	4 Very Good	5 Excellent	Total
Phone booth						1 (status unknown)

### 11.3 Current performance and risks

No details of the performance of communications infrastructure were obtained.

### 11.4 Future demands

The current availability of broadband services at Elliott South Camp is displayed in the Figure 14 below. NBN is available to residents via satellite on application to an appropriate NBN access provider.

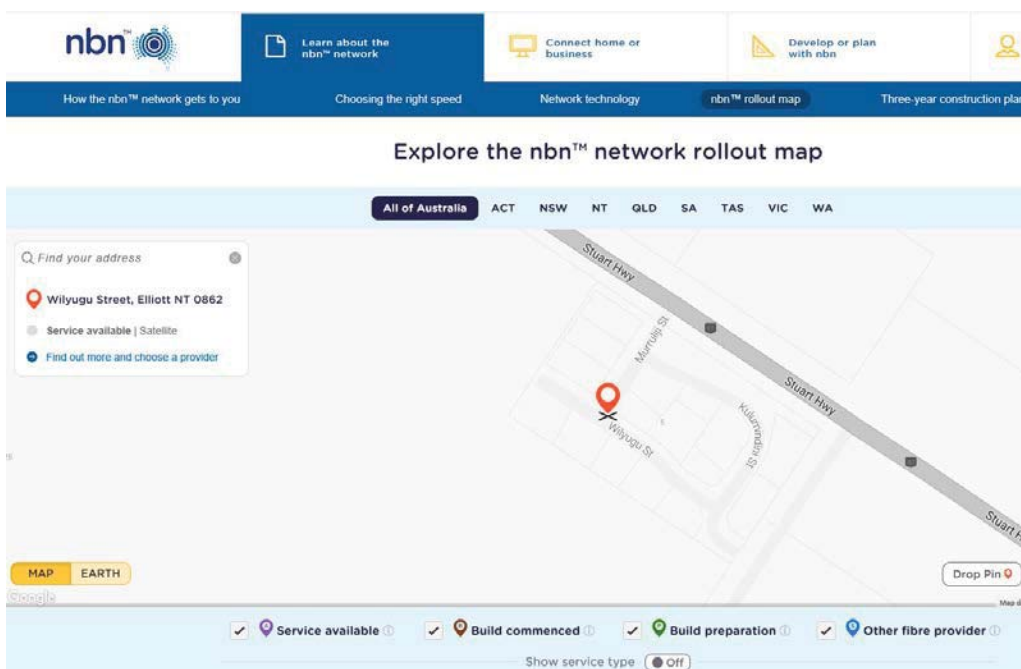


Figure 14 NBN network availability map

NBN is available to residents via satellite on application.

### **11.5 Recommended works**

Representatives from NBN's Land Access and Stake Holder management teams are currently engaged with Yilli Housing and NT Housing to look at how camps will be serviced. It is expected that any existing premises in these camps will have some type of NBN service via the NBN brownfields rollout in the future.

No works are required at Elliott South Camp because NBN is available to residents via satellite on application to an appropriate NBN access provider.

## 12 Cost estimates

Table 14 below shows a summary of the cost estimates to undertake the maintenance required to fix the existing infrastructure and to upgrade the existing network to meet current design standards. There are no upgrades required for the future design. The estimates take into account a 30% contingency, are inclusive of GST, and a location factor has been applied to town camps outside of Darwin.

Table 14 Cost estimates

Infrastructure	Maintenance of existing infrastructure	Upgrades to meet current design
Sewerage	\$ 0	\$ 605,000
Water supply	\$ 5,000	\$ 58,000
Roadworks	\$ 2,000	\$ 0
Stormwater drainage	\$ 13,000	\$ 0
Community structures	\$ 17,000	\$ 0
Electrical	\$ 2,000	\$ 0
Communications	\$ 0	\$ 0
Miscellaneous provisions	\$ 19,000	\$ 94,000
<b>Total (including GST)</b>	<b>\$ 58,000</b>	<b>\$ 757,000</b>
<b>Grand total</b>	<b>\$ 815,000</b>	

The cost estimates are a preliminary estimate only. Since Aurecon has no control over the cost of labour, materials, equipment or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Aurecon cannot guarantee actual costs will not vary from these estimates.

## 13 Summary

The following works are recommended for Elliott South Camp community:

### Sewerage

- Install new sewerage network, including gravity main, housing connections and connection to new external network. This is assuming that an external sewer network will be constructed at the same time the Elliott South Camp sewer network is constructed. The cost estimates are for Elliott South Camp only.

### Water supply

- Replace one tap
- Repair two residential lot water meters
- Install nine new residential lot water meters

### Roadworks

- Seal surface cracks – 50 m<sup>2</sup>

### Stormwater drainage

- Replace two side entry pit lids
- Clear blockages from all five pits
- Clear blockages from culvert
- Reshape swale downstream of endwall

### Community structures

- Install new shade cloth

### Electrical services

- Replace two 80W street lights.
- Confirm if overhead pole redundant

### Communications

- No works are required because NBN is available to residents via satellite on application to an appropriate NBN access provider.





Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_CIVIL\_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WVZ 2013-2016

**Legend**  
Town Camp boundary

A3 scale: 1:2,000



Note:  
Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2  
Coordinate system: MGA94 Zone 52

# NT Town Camp Infrastructure Assessments: Sewerage 224 - Elliott South Camp (Elliott South)



Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_CIVIL\_DDP.mxd 23/02/2017 12:02 Imagery: Digital Globe WV2 2013-2016

**Legend**

- Town Camp boundary
- Water
- Fire Hydrants (4)
- Water Meter (3)
- Taps (2)

A3 scale: 1:2,000

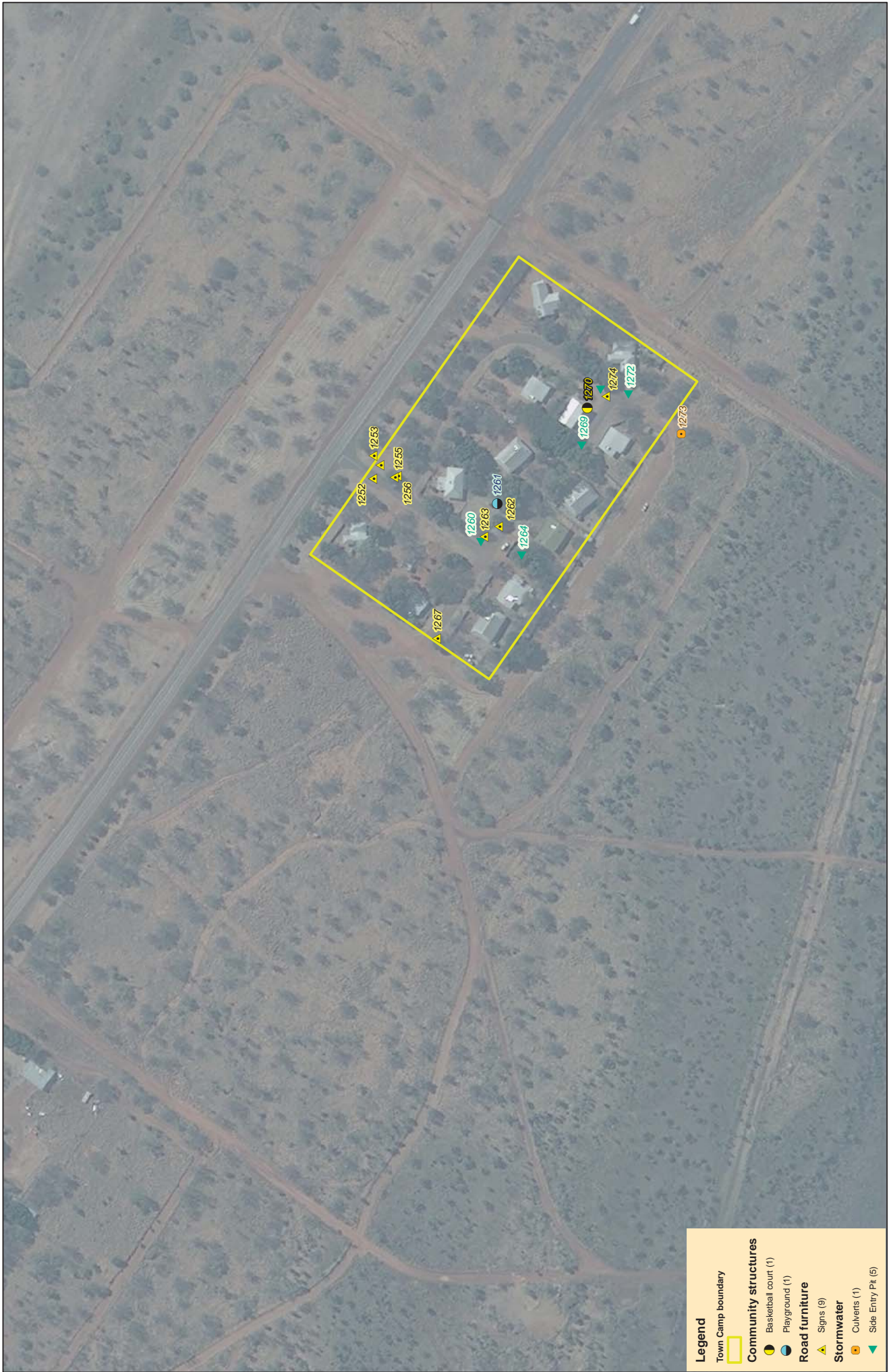


Note:  
Label numbers refer to survey / IDs



Date: 23/02/2017 Version: 2  
Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments: Water**  
**224 - Elliott South Camp (Elliott South)**



Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_003\_Civil\_DFP.mxd 23/02/2017 12:02  
 Imagery: Digital Globe WV2 2013-2016

**Legend**

- Town Camp boundary
- Community structures
  - Basketball court (1)
  - Playground (1)
- Road furniture
  - Signs (9)
- Stormwater
  - Culverts (1)
  - Side Entry Pt. (5)

A3 scale: 1:2,000



Note:  
 Label numbers refer to survey IDs



Date: 23/02/2017 Version: 2  
 Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments**  
**Road furniture, stormwater drainage & community structures**  
**224 - Elliott South Camp (Elliott South)**

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 2:22:04 PM

Insp ID: 1273

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure:	Culverts
Culvert Type:	RCP
Diameter (mm):	600
Width (mm):	
Culvert Depth (mm):	
Culvert Length (m):	
Culvert Condition:	2 - Poor
Culvert Blockage (%):	50
Culvert Comments:	
Culvert Head Wall:	No
Safety Grate:	
Headwall Blockage:	
Headwall Condition:	
Headwall Comment:	
End Wall:	Yes
End Wall condition:	3 - Good
EW Comment:	



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:40:48 PM

Insp ID: 1257

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 4 - Very Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:02:53 PM

Insp ID: 1265

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 3 - Good

FH Comment: Fence over lid



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:13:13 PM

Insp ID: 1271

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: Yes

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 4 - Very Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:33:15 PM

Insp ID: 1278

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Fire Hydrants

Single or Double:

Sluice Valve: No

Above or Below ground: Below ground

FH Leakage: No Access

Bollards around hydrant: No

FH Condition: 4 - Very Good

FH Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:25:02 PM

Insp ID: 1251

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.1

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment: Did form for wrong street (wilyugi) first. This is correct form.

#### Road Defects Section

#### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

#### Shoulders Section

#### Linemarking Section

#### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:25:02 PM



## Northern Territory Town Camps

### Civil Infrastructure

**Inspection Date** 29/11/2016 1:25:02 PM

# Northern Territory Town Camps

## Civil Infrastructure

Inspection Date 29/11/2016 2:06:48 PM

Insp ID: 1268      Group 3 - Tennant Creek, Elliott      Elliott South Camp

Road Name: Wilyugu Street

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.18

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

### Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5 % of road cracked

### Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

### Shoulders Section

### Linemarking Section

### Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:06:48 PM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:06:48 PM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:28:14 PM

Insp ID: 1276

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Kulumindini Street

What are you inspecting: Pavements

Ch From (km): 0.1

Ch To (km): 0.27

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	% of road

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
-----------	-----------	---------------

Kerb and Gutter

Shoulders Section

Linemarking Section

Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:28:14 PM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:28:14 PM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:30:26 PM

Insp ID: 1277

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Kulumindini Street

What are you inspecting: Pavements

Ch From (km): 0

Ch To (km): 0.1

Road Type: Sealed - spray seal

Section Width (m): 6

Road Condition: 3 - Good

General Comment:

Road Defects Section

Defect Type	Defect QTY	Defect Condition	Defect Comments
Surfacing Cracks	5	3 - Good	5% of road

Kerbs Section

Kerb Type	Kerb Cond	Kerb Comments
Kerb and Gutter	3 - Good	

Shoulders Section

Linemarking Section

Obstruction Section

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:30:26 PM



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:30:26 PM

## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:55:47 PM

Insp ID: 1260

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Left  
Condition: 2 - Poor  
Blockage (%): 20  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:57:26 PM

Insp ID: 1264

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Right  
Condition: 3 - Good  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:09:16 PM

Insp ID: 1269

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure: SEP  
Number of Bays: 1  
On grade or sag pit:  
Both sides of road: Right  
Condition: 3 - Good  
Blockage (%): 10  
Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:14:54 PM

Insp ID: 1272

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure:	SEP
Number of Bays:	1
On grade or sag pit:	
Both sides of road:	Left
Condition:	2 - Poor
Blockage (%):	10
Comment:	Broken lid



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:25:18 PM

Insp ID: 1275

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Stormwater Infrastructure:	SEP
Number of Bays:	1
On grade or sag pit:	
Both sides of road:	Left
Condition:	2 - Poor
Blockage (%):	10
Comment:	Broken lid



## Northern Territory Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:46:46 PM

Insp ID: 1261

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Inspection Type:	Shade Structure
Shade Structure Type:	Play ground
Shade Floor Type:	Sand
Roof Type:	Shadecloth
Width (mm):	
Length (mm):	
Appearance:	3
Appearance Comment:	
Condition:	2 - Poor
Comment:	Shadecloth non existent



## Northern Territory Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:11:49 PM

Insp ID: 1270

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Inspection Type:	Shade Structure
Shade Structure Type:	Basket Ball Court
Shade Floor Type:	Concrete
Roof Type:	Tin Roof
Width (mm):	
Length (mm):	
Appearance:	4
Appearance Comment:	
Condition:	4 - Very Good
Comment:	



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:29:36 PM

Insp ID: 1252

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Signs

Type of Sign: Give Way

Sign Condition: 3 - Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:30:29 PM

Insp ID: 1253

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:31:25 PM

Insp ID: 1254

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Signs

Type of Sign: 20 kph

Sign Condition: 3 - Good

Sign Comment: Sign is slightly bent

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:39:34 PM

Insp ID: 1255

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Kulumindini Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:32:41 PM

Insp ID: 1256

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Signs

Type of Sign: Prescribed area

Sign Condition: 3 - Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:45:42 PM

Insp ID: 1262

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Wilyugu Street

What are you inspecting: Signs

Type of Sign: 20

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:44:24 PM

Insp ID: 1263

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Murrului Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:04:20 PM

Insp ID: 1267

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Wilyugu Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:24:10 PM

Insp ID: 1274

Group 3 - Tennant Creek, Elliott

Elliott South Camp

Road Name: Kulumindini Street

What are you inspecting: Signs

Type of Sign: Street name

Sign Condition: 4 - Very Good

Sign Comment:

General Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:43:11 PM

Insp ID: 1259

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Taps

Diameter(mm): 25

Tap Leakage:

Tap Condition: 1 - Very Poor

Tap Comment: No handle



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:34:46 PM

Insp ID: 1279

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Taps

Diameter(mm): 25

Tap Leakage: No

Tap Condition: 3 - Good

Tap Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 1:41:40 PM

Insp ID: 1258

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number: 153

Lot Water Meter Size:

Lot Water Meter Condition: 2 - Poor

Lot Water Meter Comment: Calcium build up on outside



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:05:10 PM

Insp ID: 1266

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number: 155

Lot Water Meter Size:

Lot Water Meter Condition: 3 - Good

Lot Water Meter Comment:



## Northern Territory Town Camps

### Civil Infrastructure

Inspection Date 29/11/2016 2:35:55 PM

Insp ID: 1280

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Water Asset Are you Capturing: Water Meter

Water Meter Type: Lot

Bulk Water Meter Size (mm):

Bulk Water Meter Condition:

Bulk Water Meter Comment:

Lot Number:

Lot Water Meter Size:

Lot Water Meter Condition: 2 - Poor

Lot Water Meter Comment: Leaking







Map by: DMCP P:\GIS\Projects\253963\_NT\_Town\_Camps\253963\_004\_Elec\_DFP\_report.mxd 23/02/2017 12:22

**Legend**

**Electrical infrastructure**

- 11kV HV/LV Pole
- LV Metering
- LV Line Pole
- LV Service Pole
- LV switch
- Street Lighting on HV Pole
- Town Camp roads
- NT cadastre
- Town Camp boundary

**Electrical survey points**

- 1234 Other Values
- 1234 Distribution Panel
- 1234 Overhead Poles
- 1234 Street Light
- 1234 Transformers

A3 scale: 1:2,000



Date: 23/02/2017 Version: 3  
Coordinate system: MGA94 Zone 52

**NT Town Camp Infrastructure Assessments: Electrical**  
**224 - Elliott South Camp (Elliott South)**

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 3:01:04 PM

Insp ID: 639

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 2:02:14 PM

Insp ID: 652

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Distribution Panel

What is Main Distribution Panel installation method:

Outdoor

Is the distribution panel labelled:

No

What is Distribution Panel main CB Rating:

Unknown

What is the main incoming cable type/Size to Distribution Panel:

Unknown

What is the condition of switchboard:

Condition Comments:

Unknown

What is the condition of cables/glands into switchboard:

Cable/Gland Condition Comments:

Unknown

Distribution Panels name plate access:

No



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:02:14 PM



# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 1:58:02 PM

Insp ID: 654

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Comms Category are you capturing: Distribution

What is distribution method to households: Underground

Is it Shared with PWC:

Is there Anti-climb barrier provided for this pole:

What is Pole construction type:

Is street light fitted:

Is there concrete collar around the base of pole:

What is the condition of tap off to house:

What is the condition of pole:

How many Lots are connected to this pole:

Is there access to Pits to take a photo: No

What is Pit Condition: 3

Underground Comments:



# Northern Territory Town Camps

## Communications Infrastructure

Inspection Date 29/11/2016 2:52:04 PM

Insp ID: 642      Group 3 - Tennant Creek, Elliott      Elliott South Camp

What Comms Category are you capturing:      General  
Telstra Comms Drawing Available:      No  
Facility upgrade not in drawings:      No  
Which telecoms carriers are present in the town camp:      Telstra  
How many Communications Pit(s) are allocated in this town camp:



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:55:18 PM

Insp ID: 641

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	M80d 06
Street Light Watts	80
Street Light Condition	2
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	0
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 2:55:18 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:51:12 PM

Insp ID: 643

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S50D 08
Street Light Watts	50
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 2:51:12 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:46:46 PM

Insp ID: 644

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	No
Street Light Power Supply:	
Street Light Type	
Street Light Watts	
Street Light Condition	
Street Light Height	
What is the type of service:	Single
What is the HV voltage level:	230
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	1
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 2:46:46 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:44:05 PM

Insp ID: 645

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	Unknown
Street Light Watts	
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	2
Overhead Pole Comments:	Surface rusted

# Northern Territory Town Camps

## Electrical Infrastructure

Inspection Date 29/11/2016 2:44:05 PM



## Northern Territory Town Camps

### Electrical Infrastructure

Inspection Date 29/11/2016 2:40:16 PM

Insp ID: 646

Group 3 - Tennant Creek, Elliott

Elliott South Camp

What Category are you capturing: Overhead Poles

What is Pole Material type:	Welded
What is the condition of pole:	3
How is the pole planted:	Concrete
What is the Condition of plant:	3
Is street light fitted:	Yes
Street Light Power Supply:	
Street Light Type	S70D 11
Street Light Watts	70
Street Light Condition	3
Street Light Height	
What is the type of service:	Three
What is the HV voltage level:	400
What is the arrangement of connected cables:	Twisted
Are there isolators on the pole:	No
What is the Condition:	3
How many Lots are connected to this pole:	3
Overhead Pole Comments:	Surface rusted