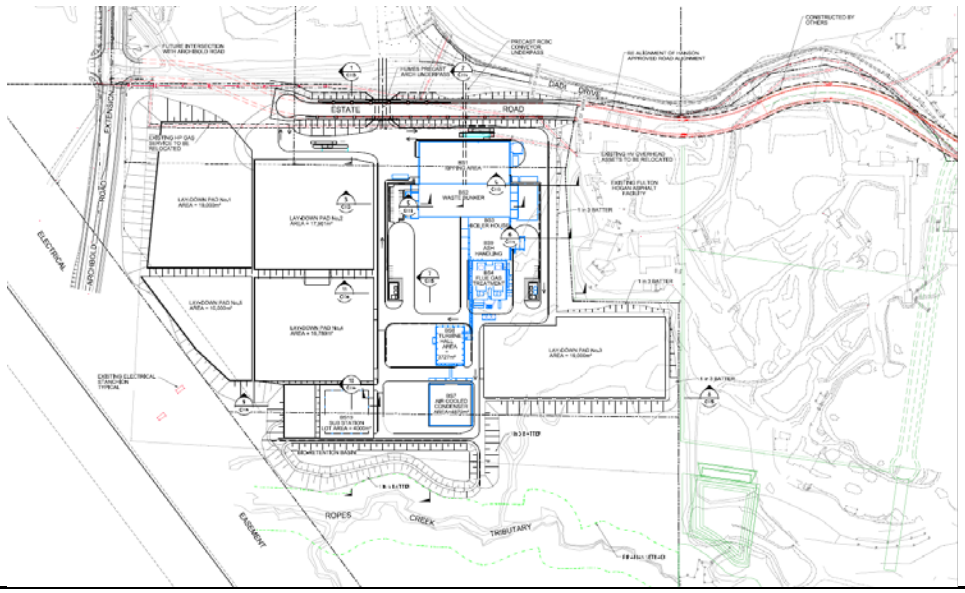
Energy from Waste (EFW) Plant, Eastern Creek



Development Application - Civil Infrastructure

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Finalisation signatures

The design described in this report is considered to have been finalised.

	Signature	Date
Andrew Tweedie Civil Engineer (Author)		26/09/2017
Mark Marsic Lead Designer		26/09/2017
Anthony McLandsborough Director		26/09/2017

Notes: The finalisation signatures shown above do not provide evidence of approval to the design. Approval signatures are shown on the title sheet of the design plans.

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APPENDIX

1 PROJECT DESCRIPTION

The proposed development involves the construction of the first of two Stages for an Energy from Waste (EFW) electricity generation plant for The Next Generation NSW Pty Ltd (TNG) in Eastern Creek approximately 36km west of the Sydney CBD.

This revision has been prepared with the objective to separate the original ultimate EFW development into two Stages, reducing the size of the initial development. The reason for this is so that the first Stage can be suitably serviced by the existing infrastructure surrounding the site.

The Stage 1 development (the development) involves the construction and operation of an Electrical Generation Plant, which will allow for unsalvageable and uneconomic residue waste from the Genesis Xero Material Processing Centre (MPC) and Waste Transfer Station (WTS) to be used for generation of electrical power. The EFW Plant is proposed to be located on Part Lot 1, Part Lot 2 and 3, DP 1145808.

The development site is part of a proposal to construct and operate an Energy from Waste Plant using residual waste, which would otherwise be land filled, as fuel to allow for a "green" electricity generation facility. The plant within the development will have a technological capacity for up to 552,500 tonnes per annum of residual waste fuels (engineering capacity for approximately 405,000 to 675,500 tpa with an optimum expected throughput of 552,500 tpa).

The development will generate energy by burning non-recyclable combustible waste material, sourced from the neighbouring Genesis Facility. The combustible waste will enter the site via conveyor and private under pass culvert. Waste will also be delivered to the site from third parties via the public road network.

The Stage 1 development will comprise the following plant and systems:

- Tipping hall and fuel storage.
- Waste bunker.
- Combustion line 1.
- Combustion line 2.
- Two independent boilers.
- Flue gas treatment systems.
- One stack.
- One turbine.
- One air cooled condenser.
- Associated auxiliary equipment.
- Control room, workshop, offices and amenities.
- Laydown areas 1, 2, 3, 4 and 5.
- Sewerage.
- Potable Water Supply.
- Telecommunications.
- Power Supply
- Gas.

The ultimate EFW development (Stages 1 and 2) will have technological capacity for up to 1.35 million tonnes of waste material per annum. The ultimate EFW facility will provide employment of a total of up to 55 staff upon operation, working over 3 shifts (i.e. not on site at any one time).

The project is identified as State Significant Development (SSD) under Schedule 1 of the State Environmental Planning Policy (State and Regional Development) 2011 being:

Cl. 20 Electricity generating works and heat or co-generation:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distallate, waste, hydro, wave, solar or wind power) that:

(a) has a capital investment value of more than $30 million, or
(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance

The proposal has a capital investment value of greater than $30 million and therefore is classified as a SSD.

The site which is accessed off Honeycomb Drive at Eastern Creek is surrounded by land owned by ACN 114 843 453 Pty Ltd and ThaQuarry Pty Ltd, Australand, Hanson, Jacfin, the Department of Planning and Infrastructure and Sargents. All the surrounding land is earmarked under the "Western Sydney Employment Area State Environmental Planning Policy" (WSEA SEPP) to be redeveloped for higher end industrial and employment uses over the next decade. Refer to Figure 1 for site location plan.

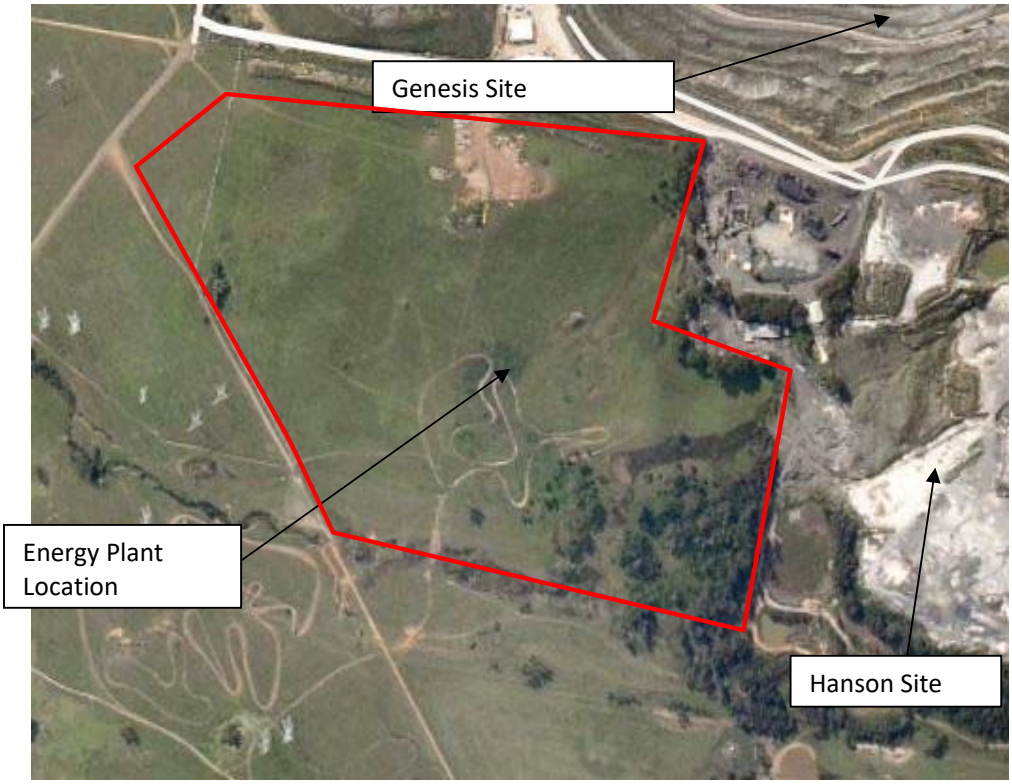


Figure 1 - Site Location Plan

The site has a total area of approximately 56 Ha including the Riparian Corridor, with a specific development area circa 9Ha.

The proposed works will, in addition to the Energy from Waste Electricity Generation Facility, include the adoption of a plan of subdivision and the following ancillary works:

- Earthworks associated with the balance of the site
- Internal roadways;
- Provision of a direct underpass connection (Precast Arch and Conveyor Culvert) between TNG Facility and the Genesis Xero Waste Facility;
- Staff amentities and ablutions;
- Staff carparking facilities;
- Water detention and treatment basins;
- Services (Sewerage, Water Supply, Communications, Power Supply)

Further to the above physical works associated with the proposed Energy from Waste Facility, this application seeks approval for the subdivision Lot 1, 2 and 3 in DP 114805 for land administration purposes.

2 INTRODUCTION

AT&L have been engaged by TNG to undertake the Civil Design for the Development Application for the new Energy from Waste (EFW) electricity generation plant.

This report should be read in conjunction with the following AT&L Development Applications 14-187 drawings dated September 2017:

C000	COVER SHEET AND LOCALITY PLAN
C001	NOTES AND LEGENDS
C002	GENERAL ARRANGEMENT PLAN
C003	TYPICAL SECTIONS SHEET 1
C004	TYPICAL SECTIONS SHEET 2
C005	TYPICAL SECTIONS SHEET 3
C006	TYPICAL SECTIONS SHEET 4
C007	ESTATE ROAD TYPICAL SECTIONS AND DETAILS
C009	BULK EARTHWORKS CUT AND FILL PLAN
C010	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 1 OF 7
C011	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 2 OF 7
C012	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 3 OF 7
C013	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 4 OF 7
C014	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 5 OF 7
C015	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 6 OF 7
C016	SITEWORKS AND STORMWATER DRAINAGE PLAN SHEET 7 OF 7
C020	ESTATE ROAD LONGITUDINAL SECTIONS SHEET 1 OF 3
C021	ESTATE ROAD LONGITUDINAL SECTIONS SHEET 2 OF 3
C022	ESTATE ROAD LONGITUDINAL SECTIONS SHEET 3 OF 3
C030	PAVEMENT PLAN
C040	EROSION AND SEDIMENTATION CONTROL
C041	EROSION AND SEDIMENTATION CONTROL DETAILS

Summary

This report generally covers the following items:

- Stormwater Management
  - On Site Detention (OSD)
  - Piped and Overland Flows
  - Water Sensitive Urban Design (WSUD)
  - Sedimentation and Erosion Control
- Review of Flooding
- Services Infrastructure
- Road / Car Park and Pavement

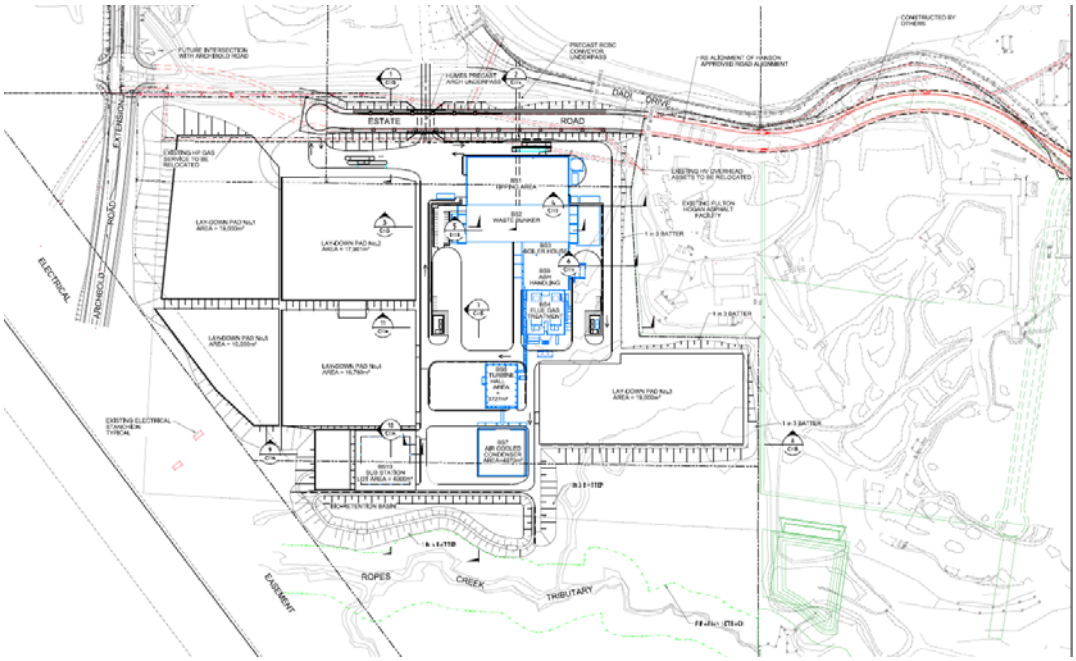


Figure 2 - Site Plan

3 STORMWATER MANAGEMENT

3.1 The Site

The subject site is legally described as Part Lot 1, Part Lot 2 and 3 in DP 1145808. The developed site approximately 22.1Ha in area and is located within the Blacktown City Council Local Government area (LGA).

The site is currently undeveloped and classified as a "Greenfield" site. The site generally falls from the north east corner at RL78.99 down to the south west corner at RL 54.2 adjacent a Ropes Creek tributary to the south of the development. This tributary drains to the west of the site and connects into Ropes Creek. It should be noted there is a 40m riparian zone over this tributary creek (measured 20m either side from the top of bank). Refer to Civil drawings as mentioned in Section 2 for the riparian zone boundary.

It is proposed to drain all stormwater from the development into the tributary creek to the south of the site via a bio-retention basin.

3.2 Council Requirements

As the site falls within the Blacktown City Council LGA the civil and stormwater design principles have been designed to comply with the BCC Engineering Guide for Development. Confirmation was received from Blacktown City Council that the On Site Detention calulcations for this area should confirm with the Blacktown City Council Stormwater Management SEPP 59- Eastern Creek Precinct Plan (Stage 3). The area of the site falls within the Ropes Creek Tributary Catchment as indicated in Figure 10 of the SEPP 59-Eastern Creek Precinct Plan.

A summary of Council requirements adopted for this catchment is as follows:

"Detention Basins and wetlands:

- *Will need to include appropriate safety features, especially with regard to edge treatments*
- *Shall be designed to prevent induced salinity*
- *Shall be sized to attenuate peak flows to a maximum of rural flows over a range of storms from the critical 2 year ARI event up to and including the critical 100 year ARI event*
- *Shall be sized to limit pollutant export loads to the levels specified in the water quality section of this Precinct Plan*

The detention basins shall be designed to attenuate flows to a maximum of the rural flowrates. This shall be addressed over a range of storms from the 2 year ARI to the 100 year ARI. The objective of this is to achieve a more natural flow regime in the creek systems as well as providing flood attenuation in major flood events (the attenuation of flows may be assisted with the incorporation of WSUD techniques). The affects of the PMF on the basin shall be assessed and measures

prepared to avoid catastrophic failure. Where required the basins shall be referred to the Dam Safety Committee for assessment.

- WSUD to achieve target reductions:
    - 85% Total Suspended Solids (TSS)
    - 65% Total Phosphorus (TP)
    - 45% Total Nitrogen (TN)
    - 90% Total Hydrocarbons
    - 90% Gross Pollutants (GP)
- Finished Floor Levels (FFL) to have minimum 300mm freeboard to 100 year overland flows.
- In accordance with Blacktown City Council DCP Part R, rainwater tanks must be installed within the developed site with the aim to reduce the water demand for the development. Rainwater tanks are an effective system to provide non-potable water for reuse for irrigation, toilets and other non-potable water uses. The rainwater tanks should be designed in accordance with *Rainwater Tank Design and Installation Handbook, Australian Rainwater Industry Development Group, November 2008*.

4 HYDRAULICS & HYDROLOGY

4.1 General Design Principles

DRAINs modelling software has been used to calculate the Hydraulic Grade Line (HGL) of the stormwater system. DRAINs model is attached in Appendix A.

4.1.1 Hydrology

- Pipe drainage shall be designed to accommodate the 20 year ARI storm event in accordance with Blacktown City Council requirements for industrial subdivisions
- The combined piped and overland flow paths shall be designed to accommodate the 100-year ARI storm event
- Where trapped low points are unavoidable and potential for flooding private property is a concern, an overland flowpath capable of carrying the total 100-year ARI storm event shall be provided. Alternatively, the pipe and inlet system may be upgraded to accommodate the 100 year ARI storm event
- Rainfall intensities shall be as per the Intensity-Frequency-Duration table in accordance with the Australian Rainfall and Runoff volume 2
- Times of concentration for each subcatchment shall be determined using the kinematic wave equation. Minimum time of concentration is 5 mins and the maximum is 20 mins
- Runoff coefficients shall be calculated in accordance with the AR&R. The fraction impervious shall be determined from analysis of the subcatchments
- Flow width in gutter shall not exceed 2m for the minor design storm event.
- Velocity depth rations shall not exceed 0.4 for all storms up to and including the 100 year ARI event
- Blockage factors of 20% and 50% shall be adopted for pits on grade and at sags respectively for all storm events
- The maximum spacing between pits shall be 60m
- The minimum lintel size within a sag shall be 2.4m
- The minimum lintel size for any road drainage pit shall be 0.9m

4.1.2 Hydraulics

- A hydraulic grade line HGL design method shall be adopted for all road pipe drainage design. The HGL shall be shown on all drainage long sections
- The minimum underground pipe size shall be 375mm diameter.
- The minimum pipe grade shall be 0.5%
- All pipes shall be Rubber Ring jointed
- The minimum cover over pipes shall be 450mm in grassed areas and 600mm within carriageways
- Where minimum cover cannot be achieved due to physical constraints the pipe class shall be suitably increased
- All trafficable pipes shall be Class 3 Reinforced Concrete Pipes or Fibre Reinforced Cement equivalent
- The pipe friction coefficients to be adopted shall be:

Materials	Mannings – n	Colebrook-White – k	Min. Pipe Class
RCP	0.012	0.3	3
FRC	0.01	0.15	3

Table 1 - Pipe Details

- All pipes shall be designed for the ultimate service loads and where applicable, construction loads will be designed for.
- Pipes discharging to the overland flow path shall adopt a minimum tailwater level equivalent to respective overland flow level.
- Where the tailwater level is unknown 150mm freeboard shall be adopted
- Pit Loss coefficients shall be calculated in accordance with Missouri Charts
- A minimum 150mm freeboard shall be maintained between pit HGL and pit surface levels
- Overland flowpaths shall maintain a minimum of 300mm freeboard to all habitable floor levels
- Pits deeper than 1.2m shall contain step irons at 300mm centres

4.2 On-Site Detention (OSD)

As mentioned within Section 3.2 Blacktown City Council have confirmed the OSD for this site should be designed to comply with the Blacktown City Council Stormwater Management SEPP 59 – Eastern Creek Precinct Plan (Stage 3)As a result the following OSD parameter and conditions apply to this development

The detention basin will be designed to attenuate peak flows over a range of storms from the critical 2 year ARI event up to and including the critical 100 year ARI event.

This OSD will be achieved by the construction of an open basin to the south of the site. All stormwater generated from site will discharge into this basin.

The discharge from the basin will be controlled with a pit and pipe structure and designed to ensure the maximum PSD is not exceeded for all storms up to the 100 year ARI event. This outlet pipe will discharge into the creek via a headwall and energy dissipater. Refer to Civil drawings for all outlet details.

It should be noted the OSD basin will be positioned outside the riparian zone of the Ropes Creek tributary.

Results

The results of the drains model indicate the following targets are achieved:

- Actual Maximum combined discharge (100 year ARI event) = 1,859 L/s
- Actual Minimum combined OSD volume = 10,010m^3 (Capacity of the Basin from Base of Basin RL 55.85 to Weir of Basin RL 57.8 AHD)

The OSD achieves mitigation of peak flows for the 2 year, 10 year, 20 year and 100 year ARI for the discharge out of basin. (*See table 2*)

	2 YR ARI (m^3/s)		10 YR (m^3/s)		20 YR ARI (m^3/s)		100 YR ARI (m^3/s)	
Duration	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
	0.4	0.397	2.91	0.91	3.73	1.19	5.27	1.86

Table 2- Pre-Post Developed Flows (With OSD)

4.3 Overland Flows

Overland flows within the site have been designed to be safely conveyed within the roads, car parking and loading docks.

The FFL of the building has been set above the 300mm freeboard requirement.

Flood modeling carried out by Brown Consulting in March 2010 for Blacktown City Council form the basis of the existing flood levels for the creek to the south of the site. The 100 year ARI flood level determined in this Brown Report adjacent to the

proposed basin has been adopted as the tailwater level for hydraulic modeling of the basin and stormwater network. This level has been assigned as 52.8m AHD. Refer to Brown Report within Appendix C.

A Stormwater Management Report carried out by Storm_Consulting in November 2008 titled "Site Surface Water Management Plan" also forms the basis to determine existing overland flows from external catchments. This Storm_Consulting report discusses stormwater management for the ThaQuarry site to the north and north east of the TNG site.

A review of this Storm-Consulting report indicates the OSD basins within the AN 114 843 453 Pty Ltd and ThaQuarry Pty Ltd site compensate for 100 year storm events from their site. It is also evident overland flows from this site do not affect the TNG site as runoff is directed to the west into the adjacent Ropes Creek. The construction of the new access road to the north of the TNG will also prevent overland flows from the north affecting the site. Overland flows will be directed to the west into the adjacent Ropes Creek.

4.4 Water Sensitive Urban Design (WSUD)

4.4.1 Policy and Guidelines

Water Sensitive Urban Design encompasses all aspects of urban water cycle management, including water supply, wastewater and stormwater management. WSUD is intended to minimise the impacts of development upon the water cycle and achieve more sustainable forms of urban development.

The stormwater design considers the following guidelines:

- Australian Rainfall Quality (2006)
- Department of Environment and Climate Change NSW (DECC), Management Urban Stormwater: Urban Design (Consultation Draft, 2008)
- Blacktown City Council Stormwater Quality Control Policy (2001, reviewed 2009)
- Landcom Water Sensitive Urban Design Policy (2009)
- Blacktown City Council Stormwater Management SEPP 59 – Eastern Creek Precinct Plan (Stage 3)

4.4.2 MUSIC Analysis

The MUSIC Model for Urban Stormwater Improvement Conceptualisation (MUSIC, Version 5.00.10) was used to evaluate pollutant loads from the developed site for Post-development (treated) conditions based on the proposed site development.

A conceptual view of the MUSIC model used in this report can be found in Appendix B.

4.4.3 Catchment Areas and MUSIC Parameters

All building lot catchment areas were assumed to be 50% roofed. Of the non-roofed areas, 80% of this area was assumed to be impervious. To provide a more accurate model, separate catchment nodes were created to simulate the roofed area and non-roofed areas for each lot.

MUSIC model input parameters for these catchments including rainfall-runoff, base flow concentration and stormflow concentration parameters were selected as per the Draft MUSIC Modelling Guidelines for New South Wales. The parameters used for the various catchment areas can be seen in tables 4, 5, 6 and 7.

Rainfall-Runoff Parameters

Parameter	Unit	Figure
Rainfall Threshold	mm/day	1.40
Soil Storage Capacity	Mm	170
Initial Storage	% of Capacity	30
Field Capacity	Mm	70
Infiltration Capacity Coefficient	a	210.0
Infiltration Capacity Coefficient	b	4.7
Initial Depth (Ground Water)	mm	10
Daily Recharge Rate	%	50.00
Daily Baseflow Rate	%	5.00
Daily Seepage Rate	%	0.00

Table 3 - Rainfall-Runoff Parameters - All Catchment Areas

Base Flow/Stormflow Concentration Parameters – Impervious (Roofed) Areas

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	0.000	0.000	1.300	0.320
Phosphorus	0.000	0.000	-0.890	0.250
Nitrogen	0.000	0.000	0.300	0.190

Table 4 - Base Flow/Stormflow Concentration Parameters - Impervious (Roofed) Areas

Base Flow/Stormflow Concentration Parameters – Pervious Areas

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.150	0.320
Phosphorus	-0.850	0.190	-0.600	0.250
Nitrogen	0.110	0.120	0.300	0.190

Table5 - Base Flow/Stormflow Concentration Parameter - Pervious Areas

Base Flow/Stormflow Concentration Parameters – Road

Pollutant	Baseflow Concentration Parameter – Mean (log mg/L)	Baseflow Concentration Parameter – Std Dev (log mg/L)	Stormflow Concentration Parameters – Mean (log mg/L)	Stormflow Concentration Parameters – Std Dev (log mg/L)
TSS	1.200	0.170	2.430	0.320
Phosphorus	-0.850	0.190	-0.300	0.250
Nitrogen	0.110	0.120	0.340	0.190

Table6 - Base Flow/Stormflow Concentration Parameters – Road

Parameters used for the Bioretention basin were based off guidelines provided by FAWB – Stormwater Biofiltration Systems – Version 1, 2009, and were modified accordingly. Parameters used to model the bioretention basin are shown in the table 8 below.

Parameter	Unit	Figure
Extended Detention Depth	m	0.30
Surface Area	m^2	2,400
Filter Area	m^2	2,400
Unlined Filter Media Perimeter	M	2,400
Saturated Hydraulic Conductivity	mm/hour	125
Filter Depth	m	0.50
TN Content of Filter Media	mg/kg	800
Orthophosphate Content of Filter Media	mg/kg	40.0
Exfiltration Rate	mm/hour	0.00
Base Lined	-	Yes
Vegetation Properties	-	Effective Nutrient Removal Plants
Overflow Weir Width	m	2.00
Underdrain Present	-	Yes
Submerged Zone	-	No

Table 7 - Bioretention Basin Parameters

Results

Stormwater quality treatment for "the site" will ultimately be provided by the proposed WSUD biodiversity basin south of the site. A total surface area of **2,400m²** of the basin will be dedicated to bio-retention. Refer to MUSIC model within Appendix B.

MUSIC modellings results presented as mean annual loads at the receiving node indicate that adopted target reductions are achieved, as shown in Table 9.

Pollutant	Sources (Kg/yr)	Residual Load (Kg/yr)	Reduction (%)	Target Reduction (%)
Total Suspended Solids	40,700	5980	85.3	85
Total Phosphorus	73.4	20.7	71.8	65
Total Nitrogen	395	193	51	45
Gross Pollutants	4420	0	100	90

Table 8 - Pollutant Loads- Combined

4.5 Sediment and Erosion Control (Construction)

Stormwater runoff generated from within the works area during construction will likely contain sediments and oils from construction machinery. A number of options are available for the removal of these contaminants from stormwater, some of which include:

- Wheel wash down/cattle grid at site access
- Sediment fence at downstream boundary
- Sediment basins
- Diversion banks
- Stabilisation of finished areas
- Cut off drains

Erosion and Sedimentation controls are to be installed and maintained in accordance with Department of Housing (1998), *Managing Urban Stormwater, Soils and Construction*, Fourth Edition. Following are possible levels of control that are to be constructed.

- Silt fences shall be installed along the base of excavated slopes and stockpiles to prevent runoff.
- Kerb inlet sediment traps are to be installed at the completion of the drainage works. Whilst works are underway, geotextile filter fabric fences are to be installed around open pits.

5 FLOODING

Flood modeling carried out by Brown Consulting in March 2010 for Blacktown City Council form the basis of the existing flood levels for the creek to the south of the site. The 100 year ARI flood level determined in this Brown Report adjacent to the proposed basin has been adopted as the tailwater level for hydraulic modeling of the basin and stormwater network. This level has been assigned as 52.8m AHD. Refer to Brown Report within Appendix C.

Based on this modeling carried out by Browns, the proposed flood levels of the creek do not adversely affect the proposed site. Flood levels associated with the creek are at least 2m below the proposed finished levels of the site.

6 PROPOSED UNDERPASSES

Two underpasses are proposed to cross the estate road to provide private connectivity between the proposed TNG plant and the existing Genesis facility. These underpasses are described below;

- **Humes Precast Arch** will be constructed to allow for unimpeded vehicle access between the TNG and Genesis facilities. The arch proposed will be approx. 18m wide with 6m overhead clearance. The arch will be precast in nature with precast wing walls to suit the estate road over. During detailed design an alternative bridge structure may be design and constructed depending on the final construction costs.
- **Conveyor Culvert** will be constructed to allow for a conveyor to connect the Genesis plant to the TNG bunker. The culvert is proposed to be approx. 3.6m wide and 2.4m high and precast in nature. The final size, location and depth is subject to detailed design.

Initial discussions have been had with BCC regarding the ownership of the underpasses and the licenses and or deeds that will be required to operate the underpasses under a public roadway. TNG and BCC agreed to prepare draft agreements for review. These agreement will be prepared as part of the detail documentation stage.

7 INFRASTRUCTURE SERVICES

As previously stated, the previous development proposal has been amended by separating it into two stages. The objective of this is so that the first stage can be suitably serviced by the existing services, including sewer, water, power, telecommunication and gas, which can be made available to the site.

Upgrading of these services (if required) will be undertaken during the second stage of the development.

Internal reticulation to be coordinated at the Construction Certificate (CC) stage of works.

7.1 Sewerage

There are no existing sewer mains within the area of the proposed development.

Sydney Water are proposing to construct the Ophir sewer carrier main which will be installed east of Ropes Creek to the west of the site. Discussions have been entered into with Sydney Water to construct the lead in sewer main from the TNG site to this carrier sewer.

7.2 Potable Water Supply

There is an existing 375mm Ductile Iron Cement Lined (DICL) water main within the access road off Honeycomb Drive to the East of the site and terminates in front of the existing Hanson site. This water main runs across the northern boundary of the site. It is assumed water for the site can be accessed from this main.

Refer to the existing water drawings within Appendix D.

7.2.1 Expected Potable Water use

7.2.2 Facility Requirements

Based on the water balance from a typical EfW facility, the average process water requirement is likely to be 23.25 m3 per hour for the overall plant. Based on 8,000 operating hours a year this equates to approximately 186,000 m3 per year for the overall plant. The primary requirement for water is to provide make-up for the boiler and steam cycle (to replace that which is blown down) and the FGT plant.

The EfW process includes three (3) main stages of water use as follows:

- Water/Steam Cycle;
- Flue Gas Treatment and Boiler Cleaning; and
- Bottom Ash Handling.

The overall operational water demand is 558kL/day and is currently assumed as a constant water use requirement at approximately 6.45L/sec. This information has been provided by HZI

7.2.3 Staff Facilities

Based on an average water use of 1.125 kL/m2/yr, and an office space allocation per person of 23m2, water use is estimated to be 1.43 ML/yr.

There is limited data available to divide the staff use between potable and non-potable sources. For the purpose of this report, a split of 70/30 respectively has been adopted. On this basis the potable versus non-potable water use for staff facilities is estimated to be 1.00 ML/yr and 0.43 ML/yr respectively.

7.2.4 Overall Operational Demand

The below potable water demand values are HZI specified process water requirements for the plant (8000 operational hours) and abovemetioned specified values for the staff facilities (365 days per year).

USE	ML/a	kL/day
EfW PLANT (LP 1)	186.0	558.0
STAFF FACILITIES	1.43	3.92
TOTAL	187.43	561.92

Table 1 – Operation water demand (LP 1)

The overall operational water demand is 591.92kL/day and is currently assumed as a constant water use requirement at approximately 6.5L/sec. This information has been provided by HZI.

7.2.5 Authority consultation

7.2.5.1 Sydney Water

Based on the above information, a feasibility application (case number 143099) was lodged with Sydney Water by Land Partners to obtain Sydney Water requirements relating to potable water connection to TNG. Response was received from Sydney Water on the 14th January 2015, Refer to Appendix E for details.

The following is a summary of the Sydney Water response;

- The potable water main available for connection is the 375mm main constructed under case 119408PW;
- Detailed requirements for connection will be provided at the Section 73 application process;

- If the development is completed in stages then a new application (and new application fee) will need to be made for each stage.

- A Sydney Water Section 73 application must be made to Sydney Water in order to obtain a definitive statement of Sydney Water's requirements. To get a Section 73 certificate the following must be done;

    - Obtain Development Consent from the consent authority for the development proposal;
    - Engage a Sydney Water Servicing Coordinator

For full details of the Sydney Water feasibility application response, refer to Appendix E.

Ray Thompson from Sydney Water mentioned verbally that even though the State Environmental Planning Policy No. 59 (SEPP 59) for the Eastern Creek Precinct states there are concerns with capacity and elevations for potable water connection, there shouldn't be an issue with a constant 7l/s connection to facilitate TNG operations. Though details will have to be confirmed at Section 73 application.

7.2.6 Proposed Connection

Extension of the existing 375mm diameter potable water main is required to supply connection to TNG.

A Sydney Water Section 73 application must be made to Sydney Water in order to obtain a definitive statement of Sydney Water's requirements.

As potable water connection is critical infrastructure to TNG operation, it is advised that Section 73 application is undertaken as soon as Development Approval is granted for TNG.

7.3 Communications

From Dial Before You Dig records there does not appear to be any telecommunications cables adjacent the site. The closest telecommunications cables are within Honeycomb Drive to the east of the site. In order to service the site, extensions from this existing network will be required

Refer to existing Telstra drawings within Appendix D.

7.4 Power Supply

Existing electricity cables are located within Honeycomb Drive to the north of the site. It is assumed the power for the development can be connected to this supply.

Refer to existing electrical drawings within Appendix D.

7.5 Gas

7.5.1 Existing Network

Existing easement within the proposed TNG site for Services 2.5, 5m wide & variable width. On DP1145808. For details refer to Appendix D.

Within the aforementioned utility easement is a high pressure 150mm diameter gas service connection between the existing Jemena 200mm diameter 1050kPa secondary gas main within Archbold Road and the adjacent Hanson property to the East.

7.5.2 Facility Requirements

The following requirements have been advised by HZI.

- The gas burners require a minimum pressure of 50kPa;
- The gas burners require 400GJ/hr on each line to start up. HZI advised that only one (1) line will be started up at a time. Line start-up takes between 2-6 hours;
- The facility utilises gas periodically for incineration. The principal application is for the gas burners;
- The gas will be required for start-up between 7-14 times per year. This could possibly be up to 20 times per year;

7.6 Gas connection

Contact was made with Jemena (Brad Gee) regarding the gas connection for TNG.

Assuming that the existing gas service is relocated as a main as described in Section 10.3, Brad Gee outlined the following requirements regarding the gas connection for TNG;

- Formal request for connection will need to be made through a retailer.
  - Formal request can only be made once details/location for the proposed gas main are confirmed;
  - Formal request for connection is required 12-6 months prior to connection requirements;
- Confirmation of gas usage requirements by TNG will be required from Jemena;
- Terms and conditions will need to be discussed and agreed (ie. Length of contract) between DADI and a gas service retailer and will significantly vary the cost for gas connection. Brad mentioned that the 400GJ/hr gas meter set is required to facilitate connection. The costings of the gas meter set is subject to negotiations between DADI and a gas service retailer. This advice was given by Jemena as indicative only.
- Jemena will need to be notified 6 months prior to required connection to program installation works;

- The gas meter set required to facilitate a 400GJ/hr load will require an indicative 5m x 5m area which is easily accessible.
- Design and Construction of the 400GJ/hr meter must be completed by Jemena;

Brad Gee confirmed (Phone 25/03/2015) that Jemena's engineering team has checked the capacity between the existing 200mm diameter 1050kPa secondary gas main stub connection within Archbold Road and the upstream gas pressure reducing station and confirmed that there is adequate capacity to;

- Maintain the existing demand load requirements of the existing customer (Hanson/Fulton Hogan) along the existing gas service;
- Facilitate connection and the maximum gas demand load requirements of 400GJ/hr for TNG

8 ROAD / CAR PARK DESIGN

8.1 Horizontal and Vertical Geometry

The loading docks have generally been designed in accordance with AS 2890.1, AS 1428.1 and Council specifications.

All roads have been designed generally in accordance with Australian Standards to accommodate B-Double truck movements.

8.2 Pavement

Pavement will be designed based on the requirements of Austroads Pavement Design Guide – A Guide to the Structural Design of Road Pavements.

9 ESTATE ROAD DESIGN

The proposed estate road is intended to match the existing Honeycomb Road cross section. As shown below in Drawing C007.

The Proposed pavement will be designed based on the requirements of Austroads Pavement Design Guide – A Guide to the Structural Design of Road Pavements.

10 CONCLUSION

Services including sewer, water, electrical and telecommunications can be made available to the site.

The relevant requirements as set out in Council's Guidelines are demonstrated to be achieved in the Civil Engineering design drawings and supporting reports.

A summary of the stormwater management strategy for the proposed development is as follows:

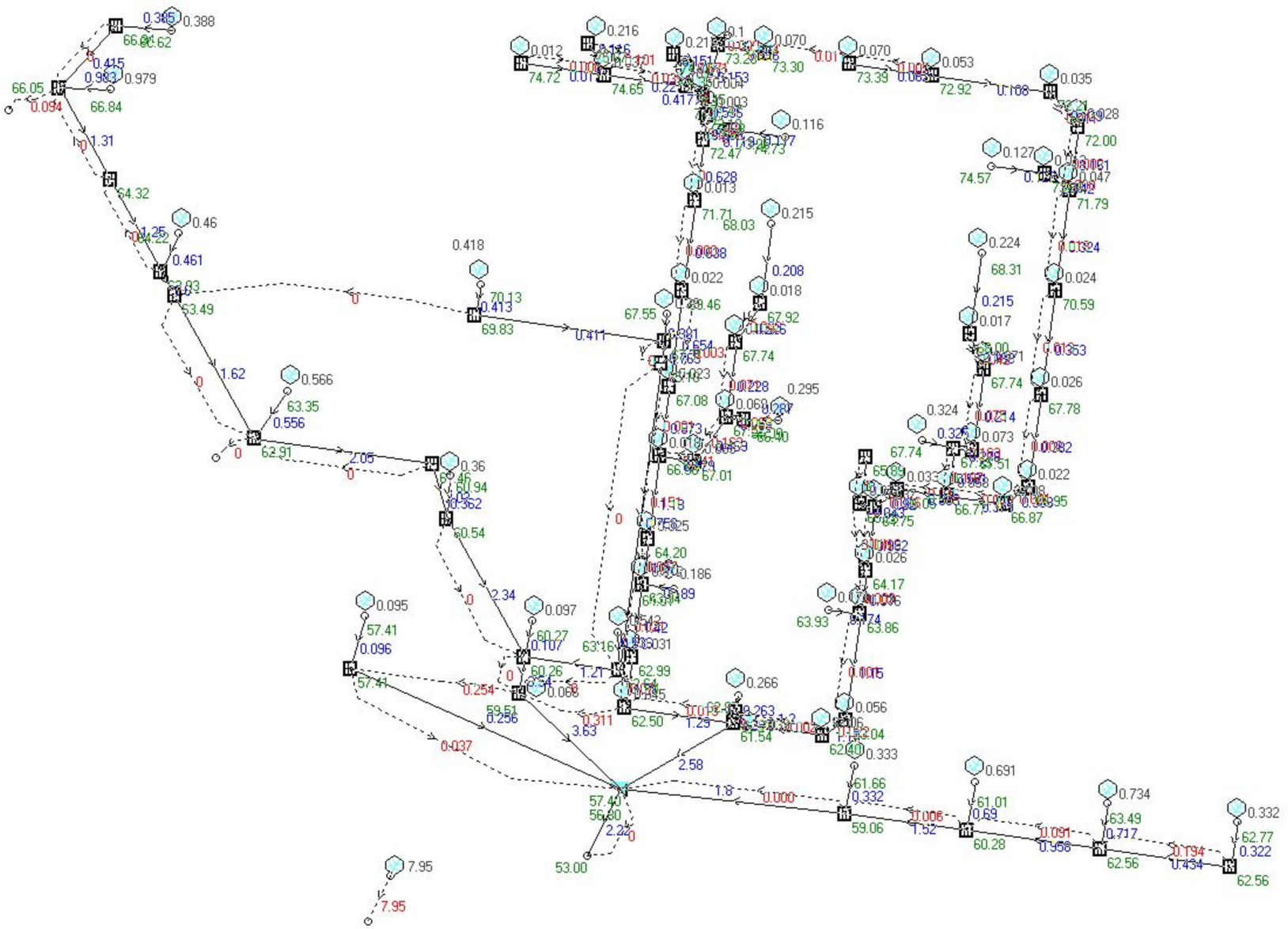
- The stormwater generated from site will drain to the south into a bio-retention basin to be detained and treated. A pit and pipe system will control the outflow to ensure post developed flows do not exceed pre developed flow for all storms up to the 100 year ARI events. An outlet from the basin will discharge into the existing Ropes Creek tributary to the south of the site

This report has demonstrated that a storm water system consistent with good management practices can be provided for the proposed development.

Appendix A

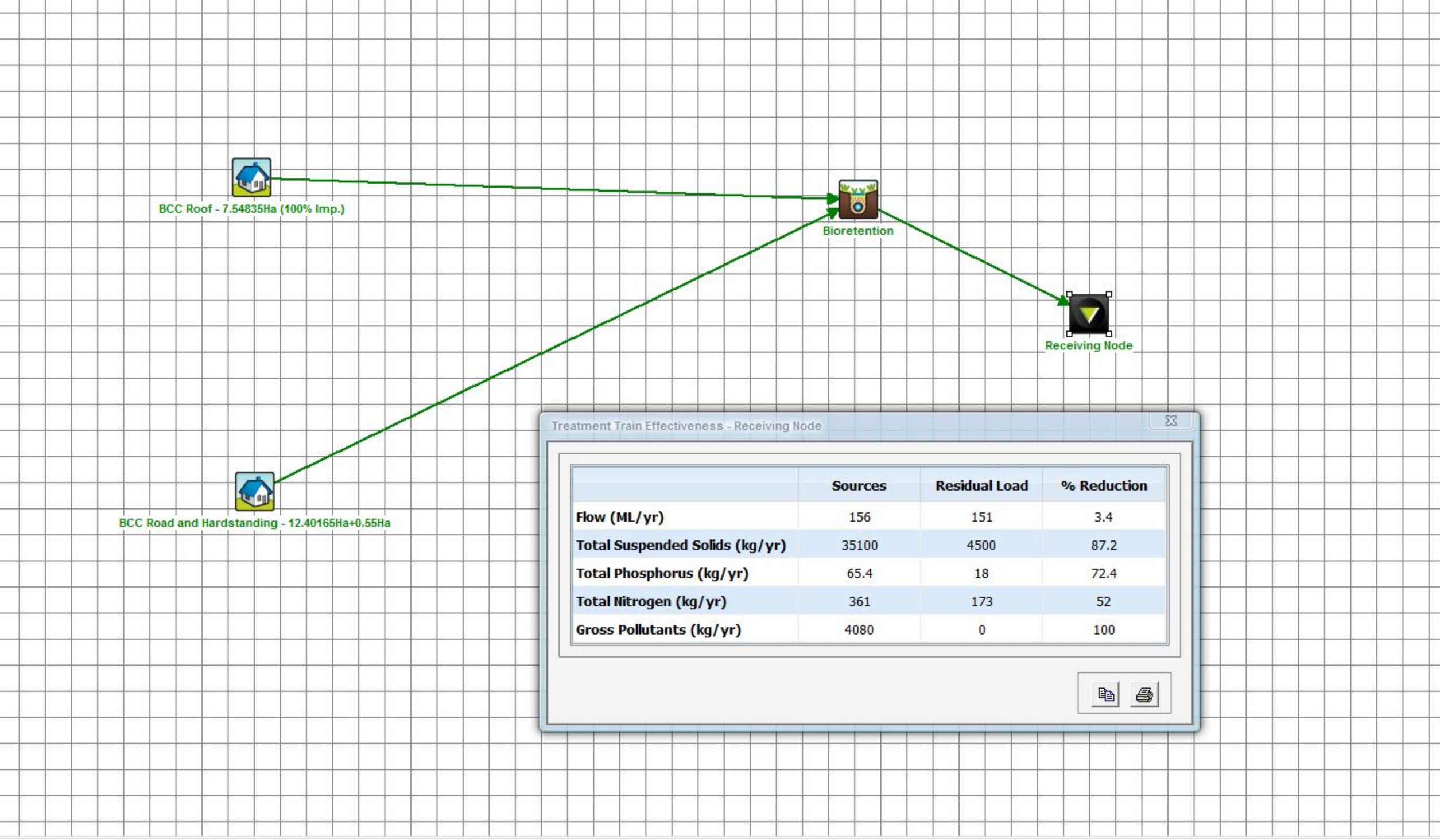
DRAINs Model

Worst case major storm



Appendix B

MUSIC Data and Results

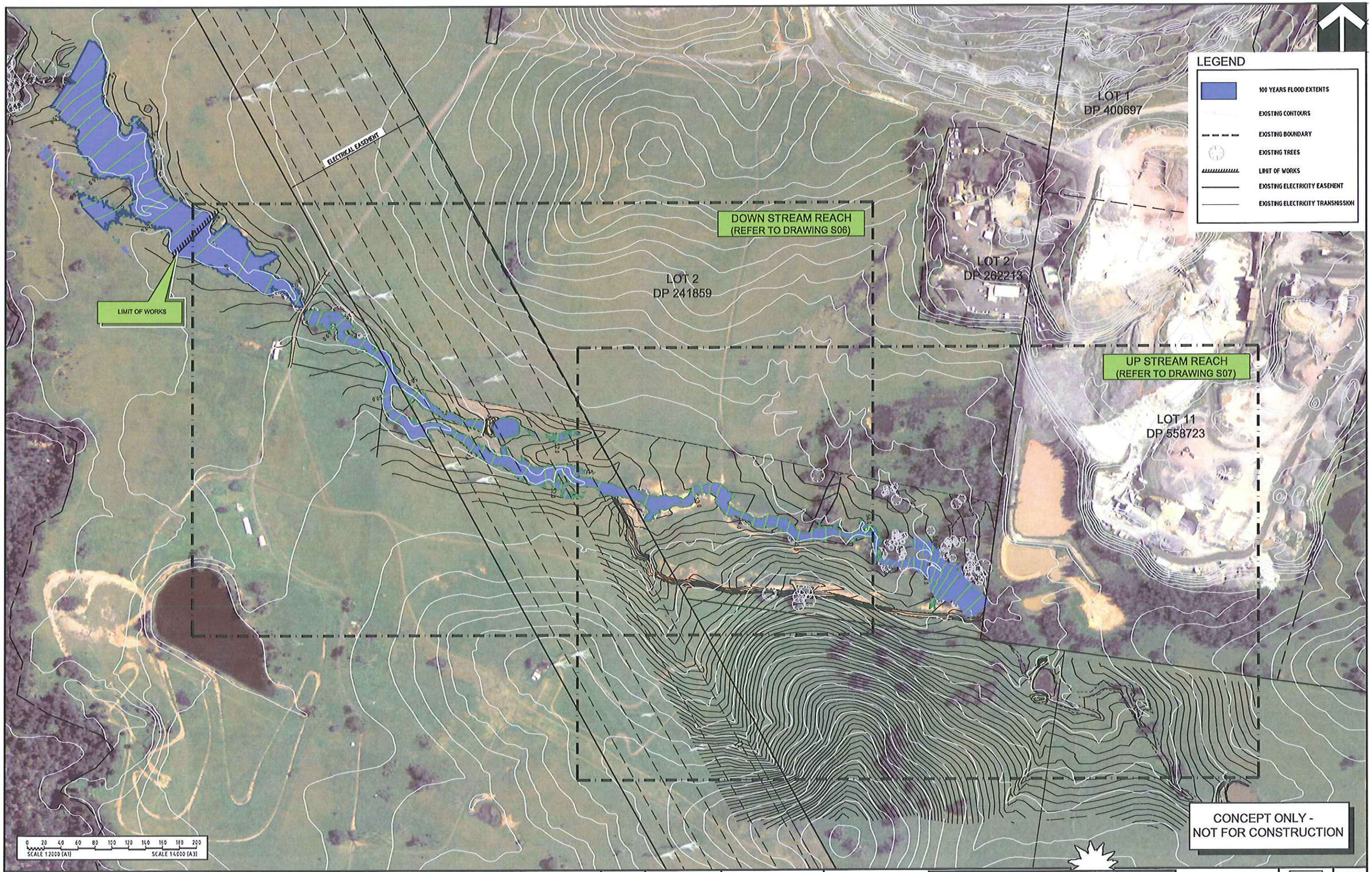


Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	156	151	3.4
Total Suspended Solids (kg/yr)	35100	4500	87.2
Total Phosphorus (kg/yr)	65.4	18	72.4
Total Nitrogen (kg/yr)	361	173	52
Gross Pollutants (kg/yr)	4080	0	100

Appendix C

Existing Flood Report for Blacktown City Council



PREPARED BY:

Brown Consulting (NSW) Pty Ltd
Level 2, 3 Burbank Place Norwest Business Park NSW Australia 2153
Telephone: 02 8808 5000 Facsimile: 02 8808 5099
BROWN
Sydney Canberra Brisbane Adelaide Regional

REV	DATE	DESCRIPTION	CHECKED	APPROVED	DATE
B	02.06.09	CLIENT REVIEW	PB	RP	02.06.09
A	23.12.08	CONCEPT DESIGN	PB	RP	23.12.08

PUBLIC UTILITIES LEGEND

WATER MAINS —W—	GAS —G—	TELSTRA —T—
HYDRANT	GAS VALVE	TELSTRA PIT
STOP VALVE	ELECTRICITY —E—	TELSTRA PILLAR
WATER METER	ELECTRICITY PIT	TELSTRA POLE
WATER TAP	POWER POLE	
SEWER —S—	POWER LIGHT POLE	
SEWER LAMPHOLE	LIGHT POLE	
SEWER MANHOLE	STAY POLE	

DATUM: AHD
GRID: MGA
SHEET SIZE: A1
TITLE BLOCK VERSION: A

SURVEYED: CONICS
DESIGNED: PB
CADD: KT
VERIFIED: RP
DATE: DEC 08

APPROVED
MANAGER INVESTIGATION AND DESIGN
DATE

CLIENT
DATE

COUNCIL CHAMBERS 62 FLUSHCOMBE ROAD,BLACKTOWN
ALL MAIL: GENERAL MANAGER PO BOX 63, BLACKTOWN NSW 2148
TELEPHONE: (02) 9839 6000 FAX: (02) 9831 1961
DX: 8117 BLACKTOWN

PROJECT TITLE:
SEPP 59 EASTERN CREEK
ROPES CREEK TRIBUTARY

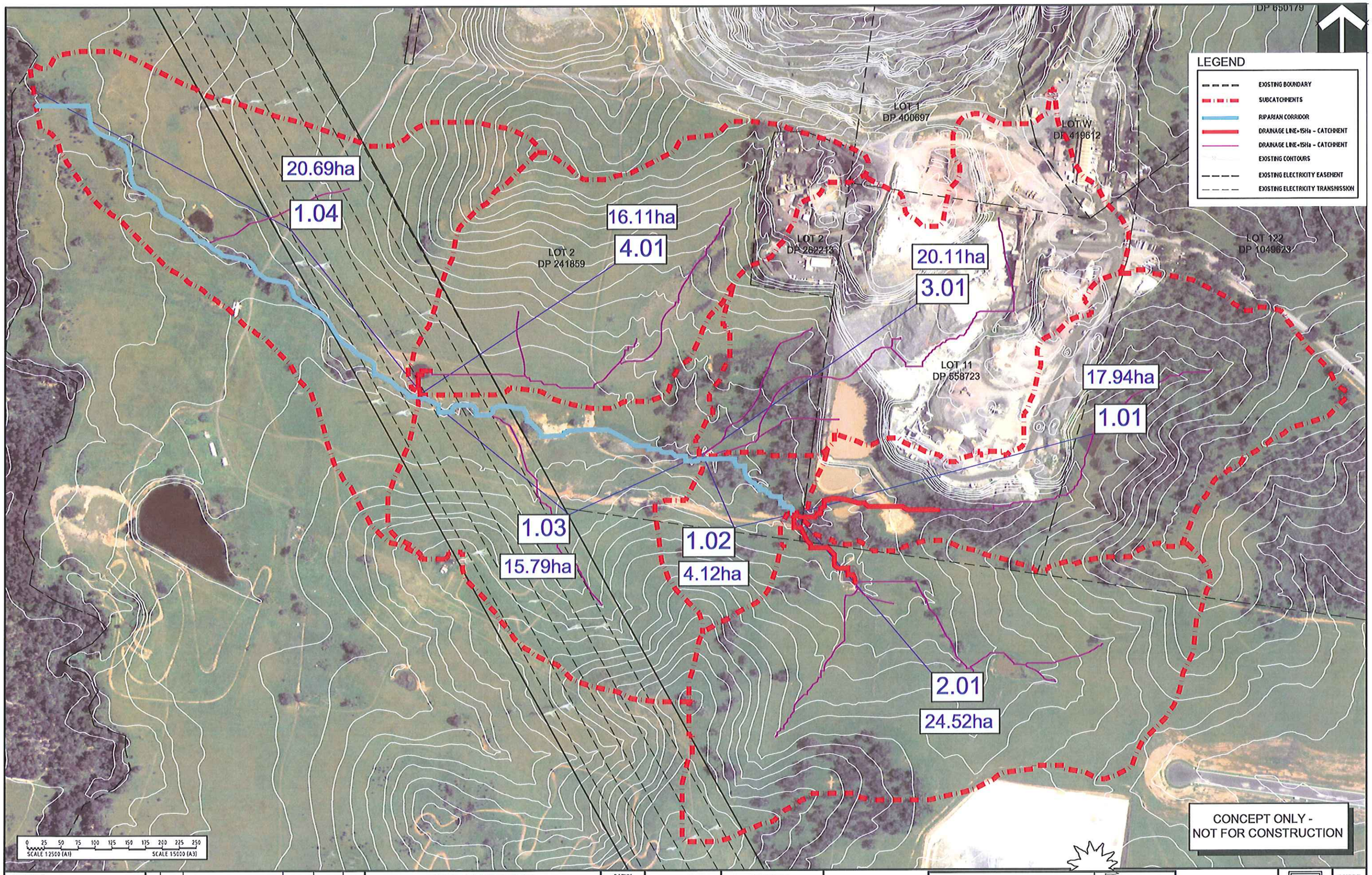
SHEET TITLE:
PLAN SHOWING OVERALL SITE TOPOGRAPHY & CONSTRAINTS

CAD FILE: X07083.D
FILE No: 152-121-QBI
DRAWING No: X07083.D.00.01

QUALITY ASSURED COMPANY ISO 9001
International Standards Certifications Lic. No. QAC/SYS/183

INVESTIGATION AND DESIGN

SHEET 1 OF 3 SHEETS
REV B



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BROWN
Cities Towns Shires Regions

REV	DATE	DESCRIPTION	CHECKED	APPROVED	DATE
B	02.06.09	CLIENT REVIEW	PB	RP	02.06.09
A	23.12.08	CONCEPT DESIGN	PB	RP	23.12.08

PUBLIC UTILITIES LEGEND

WATER MAINS —W—	GAS —G—	TELSTRA —T—
HYDRANT	GAS VALVE	TELSTRA PIT
STOP VALVE	ELECTRICITY —E—	TELSTRA PILLAR
WATER METER	ELECTRICITY PIT	TELSTRA POLE
WATER TAP	POWER POLE	
SEWER —S—	POWER LIGHT POLE	
SEWER LAMPHOLE	LIGHT POLE	
SEWER MANHOLE	STAY POLE	

DATUM: AHD
GRID: MGA
SHEET SIZE: A1
TITLE BLOCK VERSION: A

SURVEYED: CONICS
DESIGNED: PB
CADD: KT
VERIFIED: RP
DATE: DEC 08

APPROVED
MANAGER INVESTIGATION AND DESIGN
DATE .....

CLIENT
DATE .....

COUNCIL CHAMBERS 62 FLUSHCOMBE ROAD,BLACKTOWN
ALL MAIL: GENERAL MANAGER PO BOX 63, BLACKTOWN NSW 2148
TELEPHONE: (02) 9839 6000 FAX: (02) 9831 1961
DX: 8117 BLACKTOWN

PROJECT TITLE: SEPP 59 EASTERN CREEK ROPES CREEK TRIBUTARY

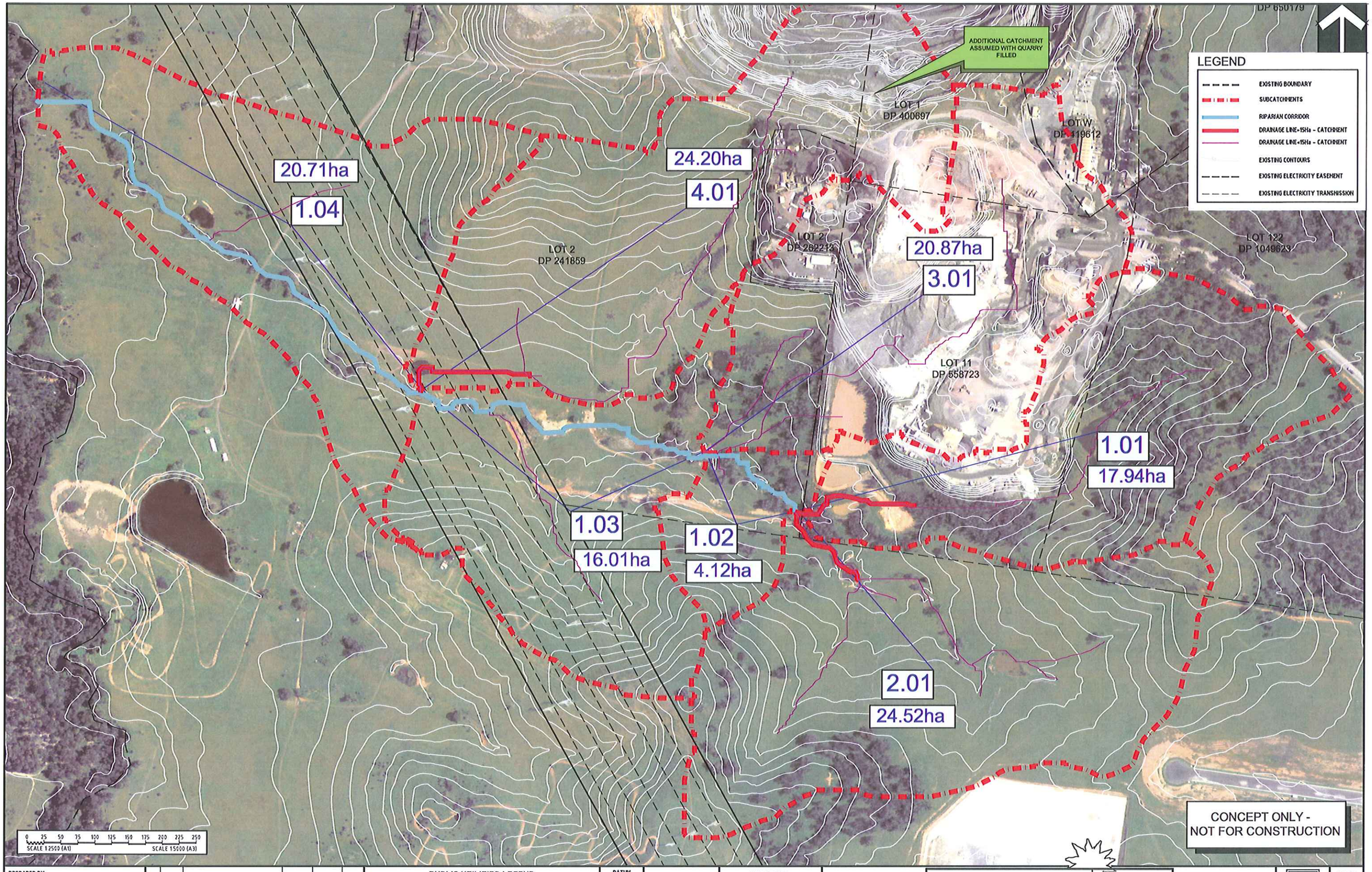
SHEET TITLE: EXISTING CATCHMENT AREA PLAN WITH CURRENT LAND USE

CAD FILE: X07083.D
FILE No: 152-121-QBI
DRAWING No: X07083.D.00.02

QUALITY ASSURED COMPANY ISO 9001
International Standards Certification Lic. No. QAC/SW/183

INVESTIGATION AND DESIGN

SHEET 2 OF 3 SHEETS
REV B



PREPARED BY:

BROWN

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Level 2, 3 Burbank Place Norwest Business Park NSW Australia 2153
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Sydney Canberra Hunter Illawarra Brisbane

REV	DATE	DESCRIPTION	CHECKED	APPROVED	DATE
B	02.06.09	CLIENT REVIEW	PB	RP	02.06.09
A	23.12.08	CONCEPT DESIGN	PB	RP	23.12.08

PUBLIC UTILITIES LEGEND

WATER MAINS	GAS	TELSTRA
HYDRANT	GAS VALVE	TELSTRA PIT
STOP VALVE	ELECTRICITY	TELSTRA PILLAR
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WATER TAP	POWER POLE	
SEWER	POWER LIGHT POLE	
SEWER LAMPHOLE	LIGHT POLE	
SEWER MANHOLE	STAY POLE	

DATUM	AHD
GRID	MGA
SHEET SIZE	A1
TITLE BLOCK VERSION	A

SURVEYED	CONICS
DESIGNED	PB
CADD	KT
VERIFIED	RP
DATE	DEC 08

APPROVED

MANAGER INVESTIGATION AND DESIGN

DATE

CLIENT

DATE

COUNCIL CHAMBERS 62 FLUSHCOMBE ROAD,BLACKTOWN
ALL MAIL: GENERAL MANAGER PO BOX 63, BLACKTOWN NSW 2148
TELEPHONE: (02) 9839 6000 FAX: (02) 9831 1961
DX : 8117 BLACKTOWN

PROJECT TITLE:
SEPP 59 EASTERN CREEK
ROPES CREEK TRIBUTARY

SHEET TITLE:
EXISTING CATCHMENT AREA PLAN WITH ASSUMED ADDITIONAL CATCHMENT

CAD FILE:	FILE No:	DRAWING No:
X07083.D	152-121-QBI	X07083.D.00.03

INVESTIGATION AND DESIGN

QUALITY ASSURED COMPANY ISO 9001
International Standards Certification Lic. No. QUAS/98/193

SHEET 3 OF 3 SHEETS

REV B

LEGEND

52.0 100yr CREEK FLOOD LEVEL FROM BROWN CONSULTING FLOOD REPORT MARCH 2010

TRANSGRID SWITCHING OR SUB STATION

TRANSGRID SWITCHING OR SUB STATION

AREA = 8888m²
RL 64.20

AIR COOLED CONDENSER

AIR COOLED CONDENSER

ELECTRICAL EASEMENT

BIO-RETENTION BASIN No.1

BIO-RETENTION BASIN No.1

TOP OF BERM RL58.00

TOP OF BERM RL58.00

PROPOSED OPEN SWALE DRAIN TO SMOOTHLY TIE-IN TO EXISTING CREEK

52.0

ROPES CREEK

52.8

TRIBUTARY

53.0

54.0

55.0

Issue	Description	Date
P1	ISSUE FOR INFORMATION	14-05-14

100mm on Original

Bar Scales

0 10 20 30 40 50m

1 : 500 @ A1 1 : 1000 @ A3

Client

BROOKFIELD MULTIPLEX AUSTRALASIA

Scales		Drawn	TS
1 : 500 @ A1		Designed	TS
Grid	MGA	Checked	AT
Height Datum	AHD	Approved	

Project

THE NEXT GENERATION

Title

FLOOD PLAN

Civil Engineers and Project Managers
at&l
Suite 702, 154 Pacific Hwy
St Leonards NSW 2065
ABN 96 130 882 405
Tel: 02 9439 1777
Fax: 02 9460 8413
www.atl.net.au
info@atl.net.au

Status: PRELIMINARY ONLY NOT TO BE USED FOR CONSTRUCTION

A1

Drawing No.	Project No.	Issue
SKC33	14-187	P1

F:\14-187 TNG\Drgs\Civil\Sketches\SKC33 Flood Plan.dwg

Appendix D

Dial Before You Dig Records

AARNet

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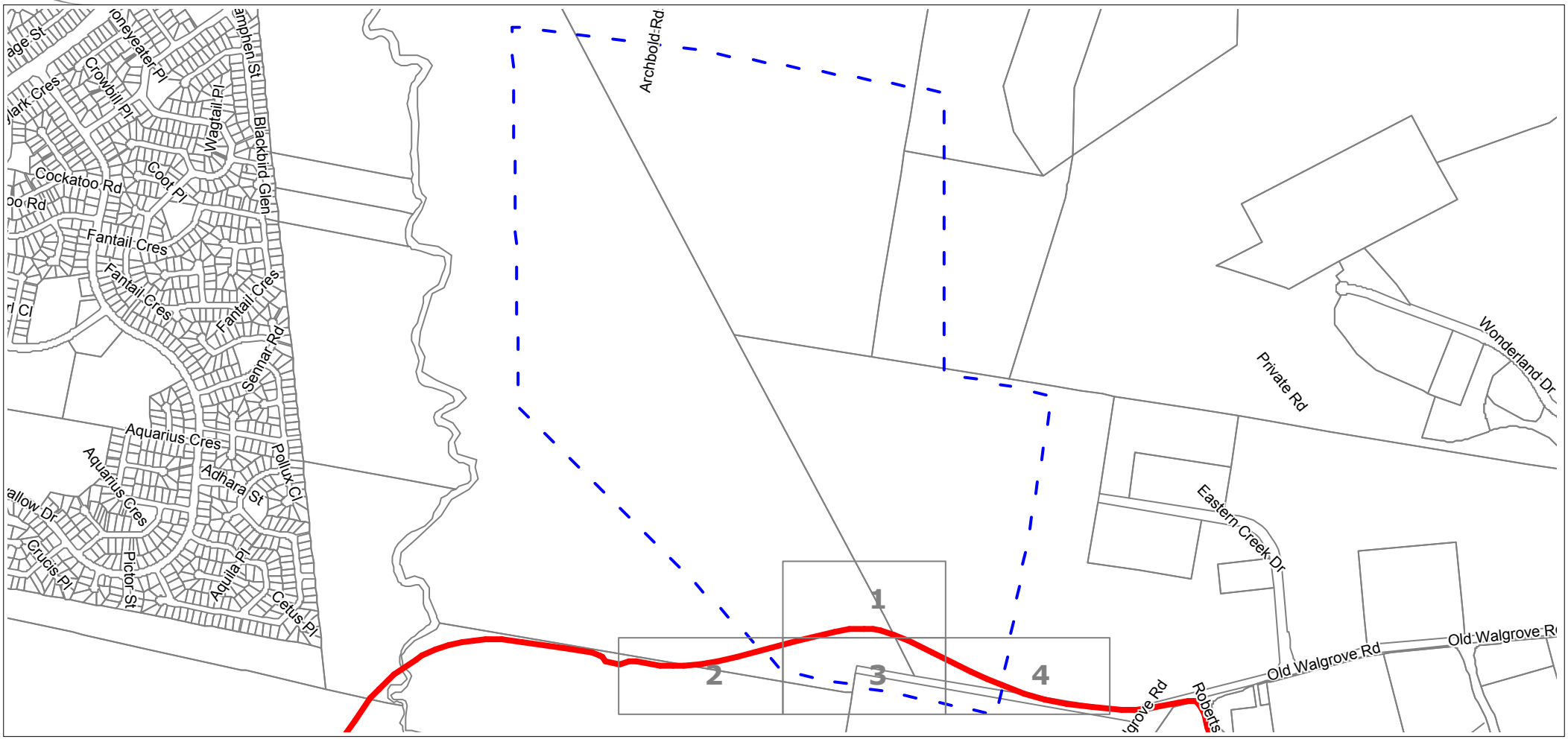

Create Date: 06/05/2014 **Scale** 1:1500

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Enquiry Area

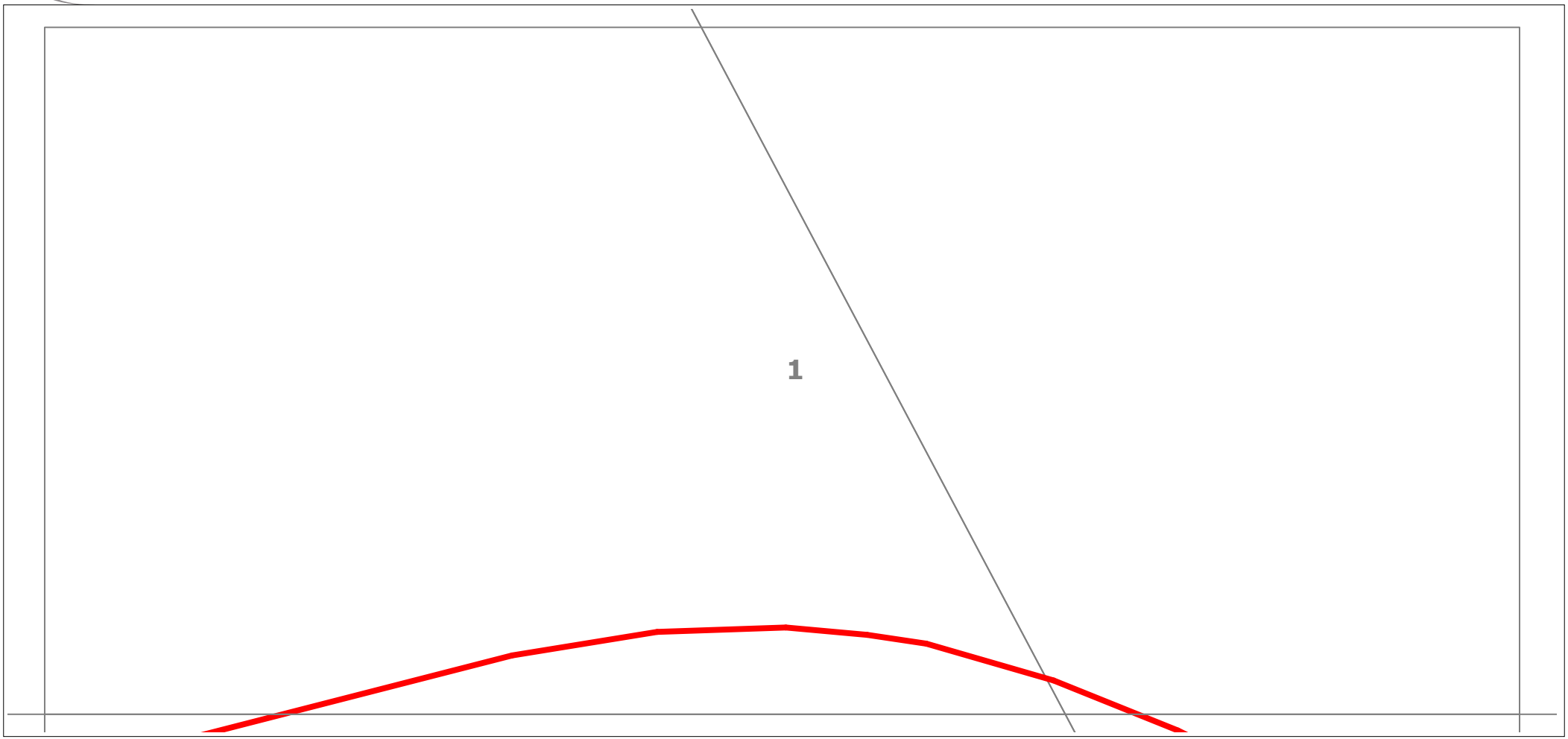
AARNet Assets

Cadastre

AARNet

Sequence Number: 33862790

Address:Wonderland Drive, Eastern Creek, NSW, 2766



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Enquiry Area

AARNet Assets

Cadastre

AARNet

Sequence Number: 33862790

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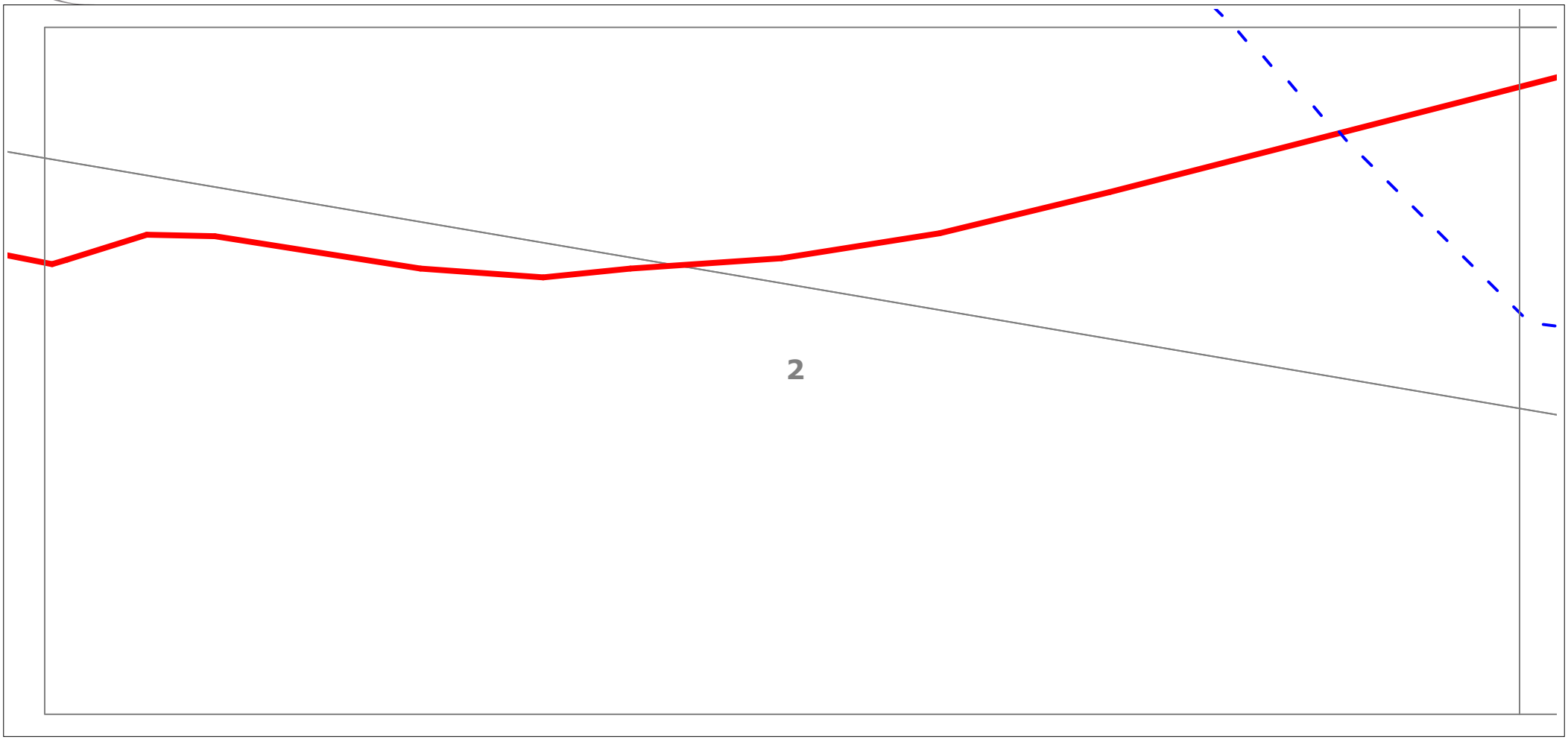

Create Date: 06/05/2014

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Enquiry Area

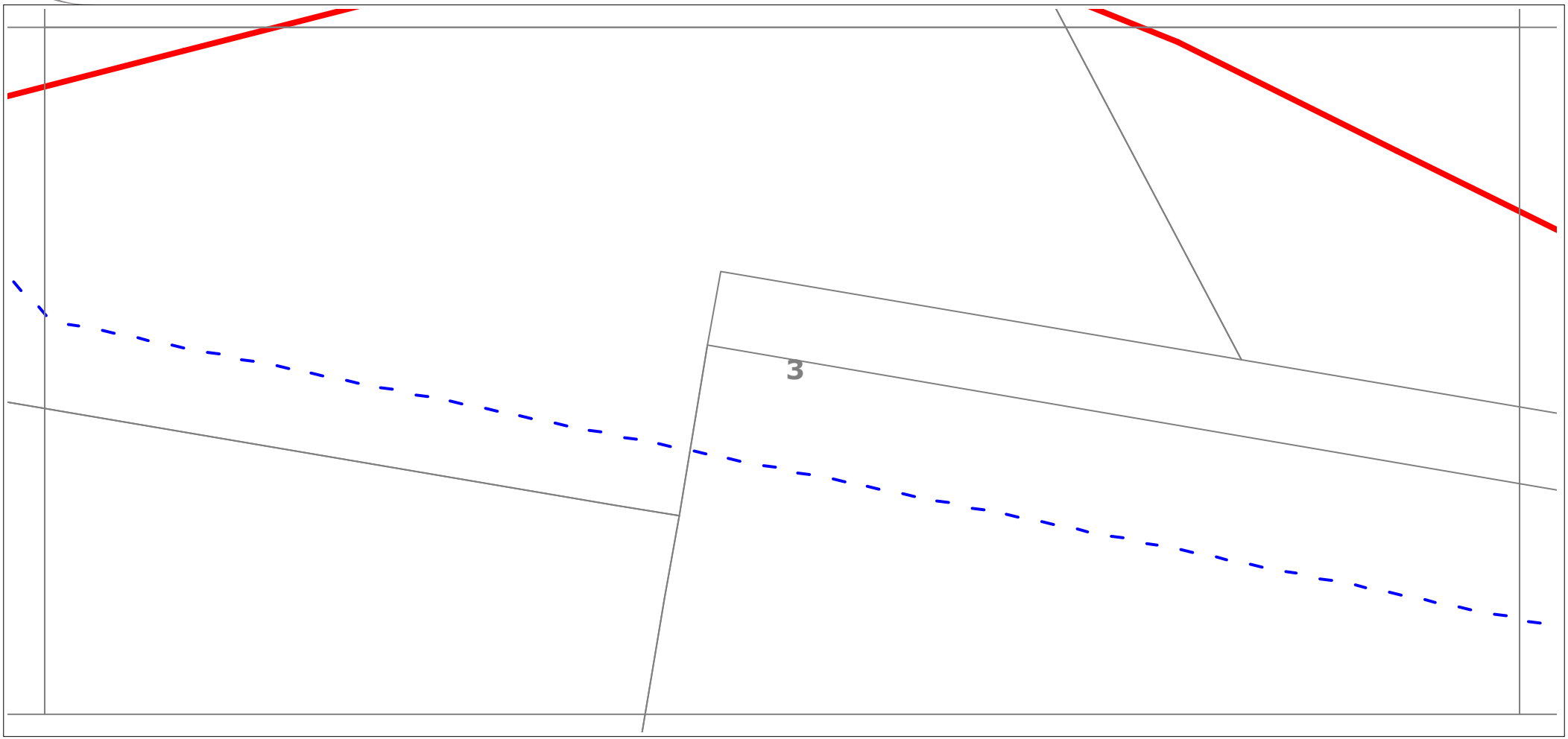
AARNet Assets

Cadastre

AARNet

Sequence Number: 33862790

Address:Wonderland Drive, Eastern Creek, NSW, 2766



Create Date: 06/05/2014

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Enquiry Area

AARNet Assets

Cadastre

AARNet

Sequence Number: 33862790

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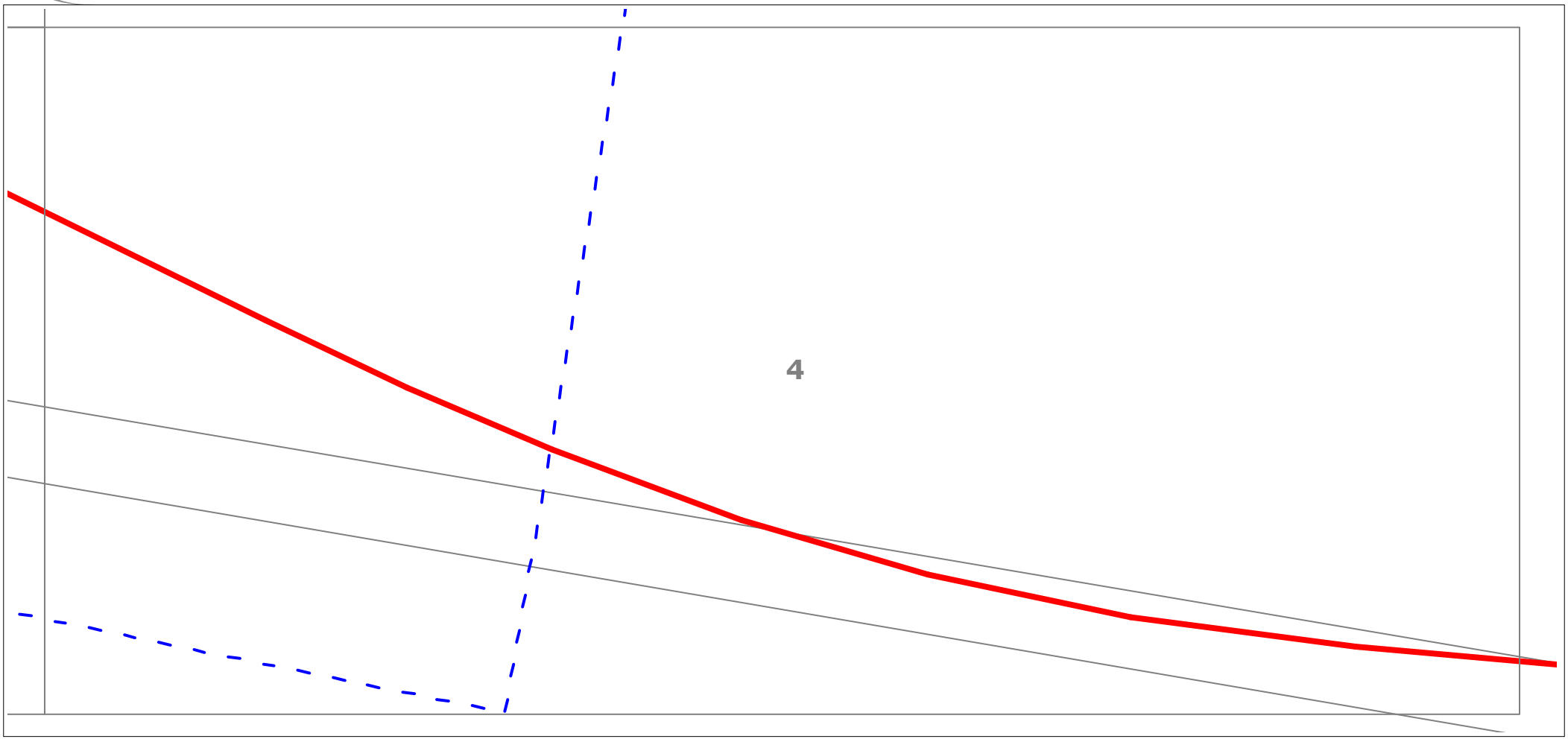

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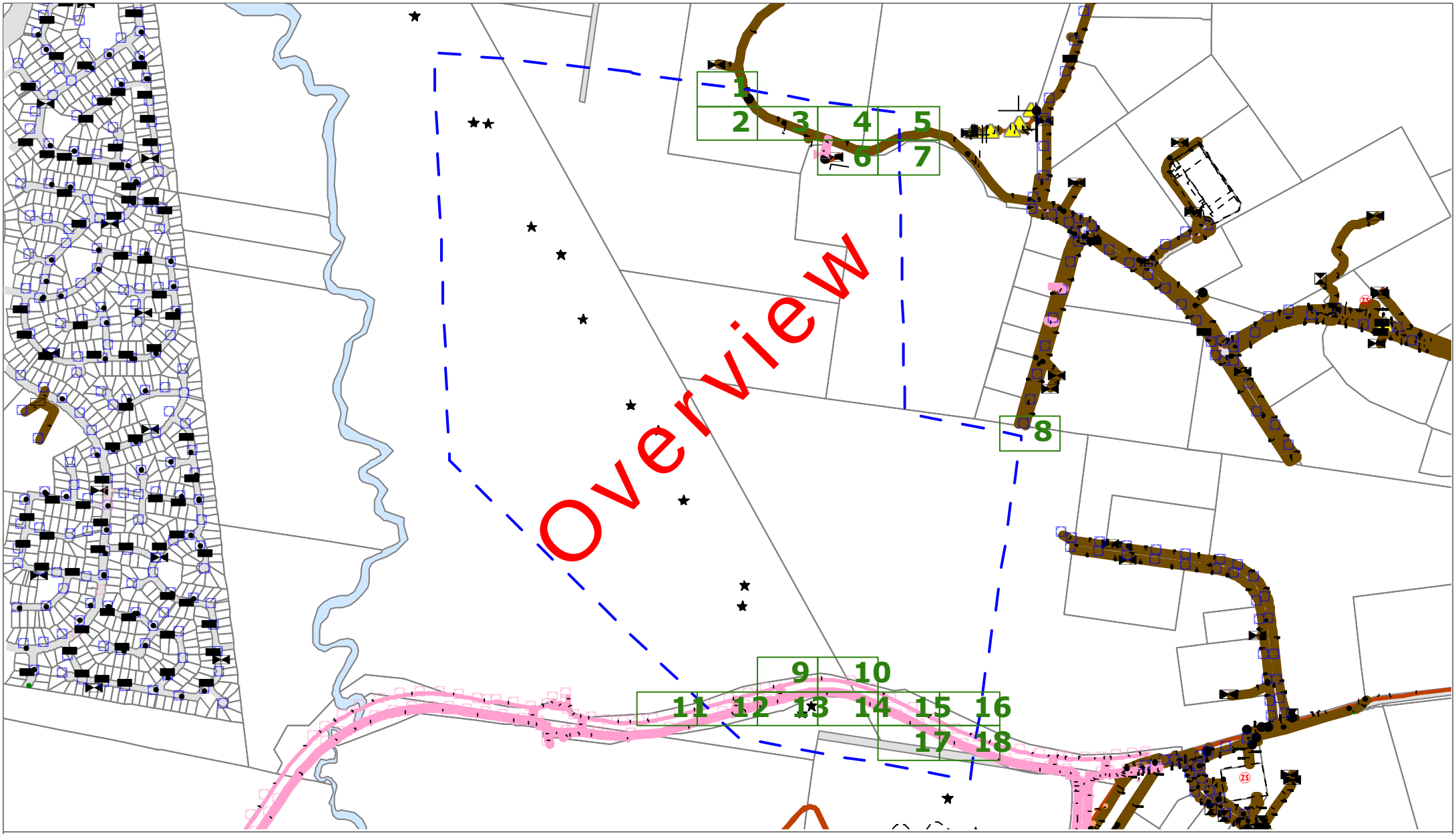
Enquiry Area

AARNet Assets

Cadastre



Endeavour Energy

ENDEAVOUR ENERGY WARNING

This plan shows the approximate location of underground cables relative to fixtures existing when the cables were laid, and has been prepared solely for Endeavour Energy's own use. Endeavour Energy has taken all reasonable steps to ensure that the information is accurate as possible but will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever arising. Persons excavating are expected to exercise all due care in the vicinity where cables are indicated and will be held responsible for any damage caused to Endeavour Energy's property.

ALL ELECTRICAL APPARATUS SHALL BE CONSIDERED LIVE UNTIL PROVED DE-ENERGISED.
Contact with live electrical apparatus will cause severe injury or death.

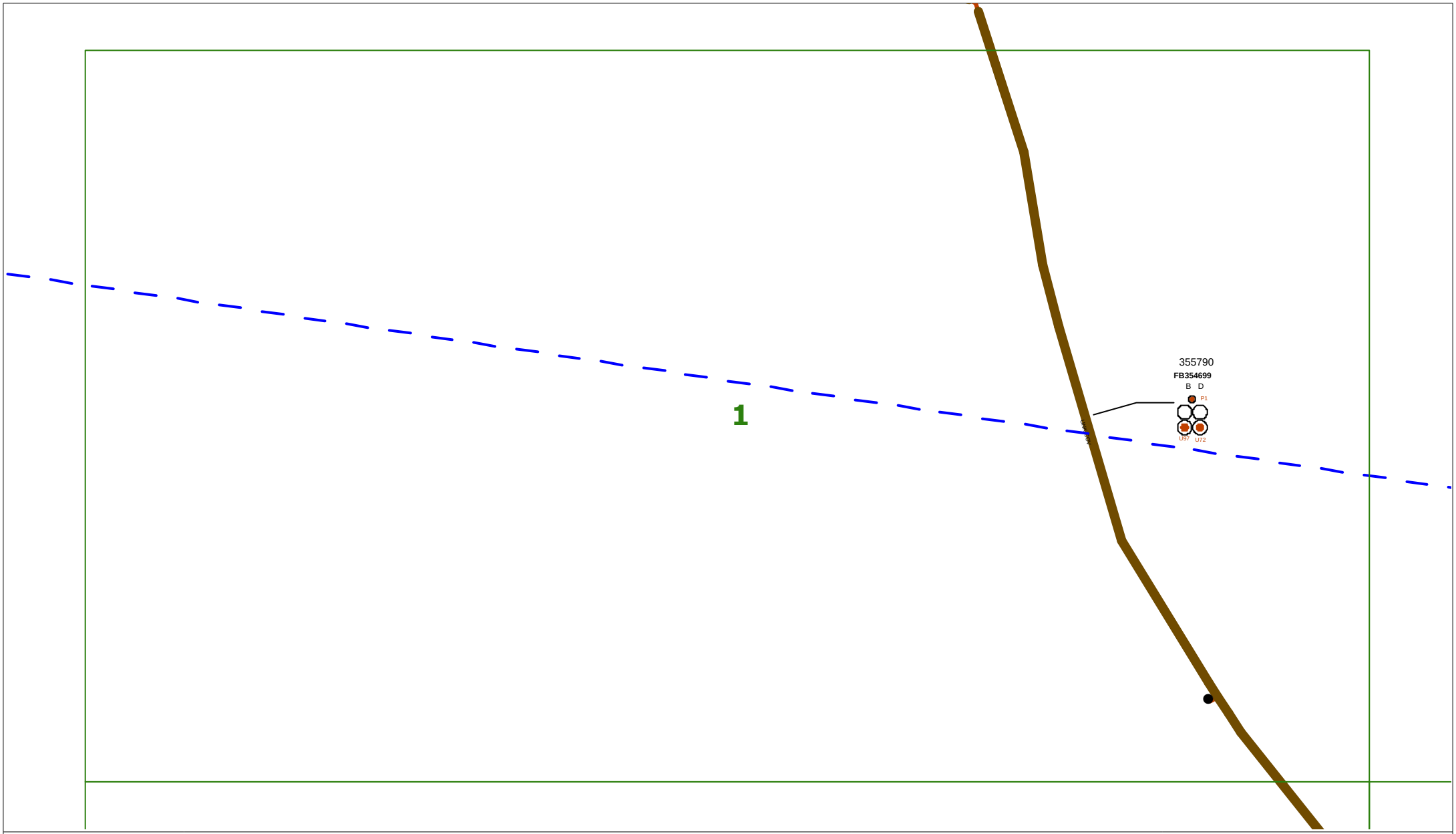
Those excavating near Endeavour Energy's cables should be aware that **ASBESTOS OR ASBESTOS - CONTAINING MATERIAL MAY BE PRESENT** in Endeavour Energy's underground assets and that Organo-Chloride Pesticides(OCP) may be present in some sub-transmission trenches.

WARNING
ASBESTOS

N

DO NOT SCALE

DBYD Sequence Number:	33862785
Issued Date:	07/05/2014



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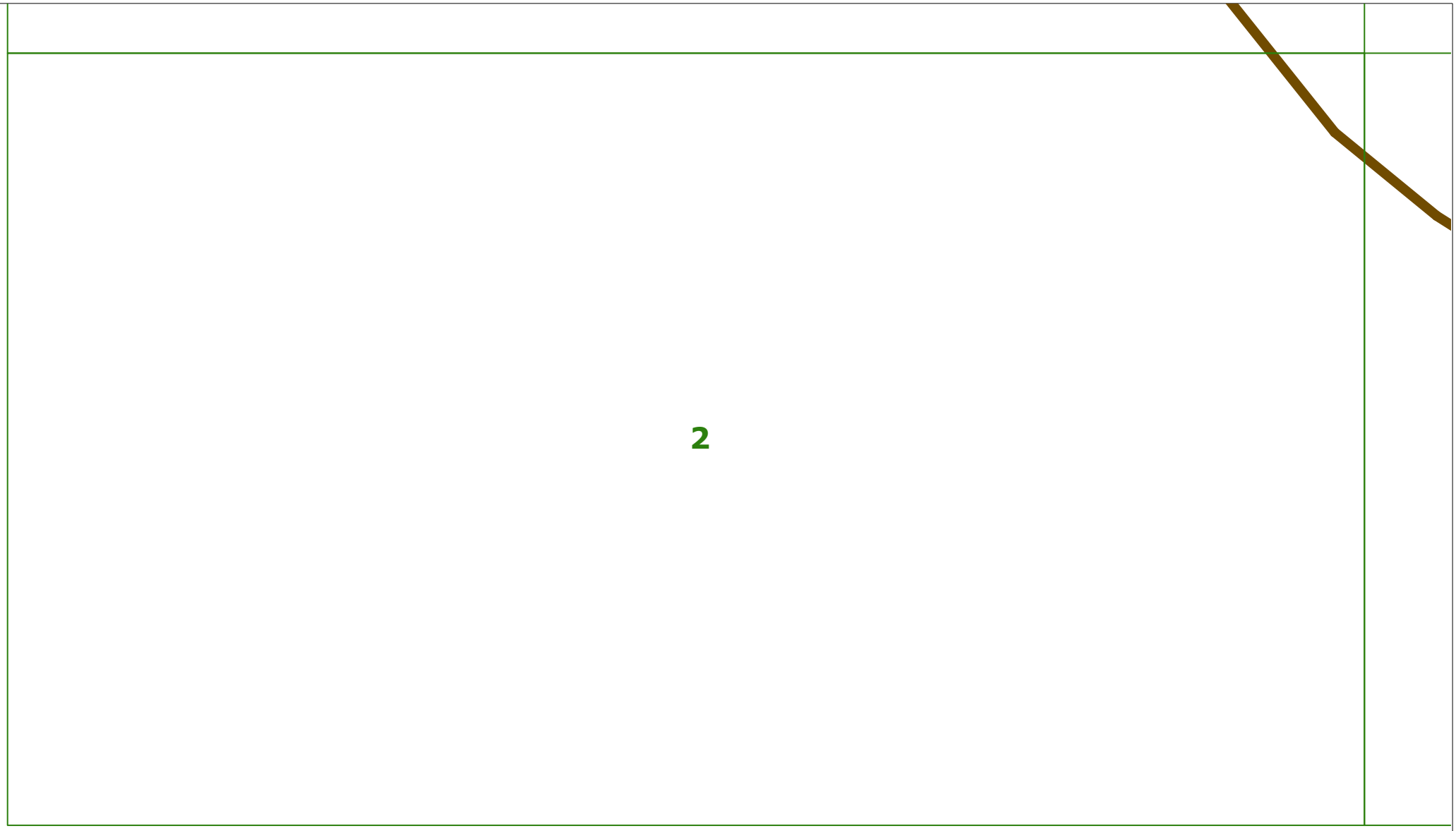
DO NOT SCALE

DBYD Sequence Number:	33862785
Issued Date:	07/05/2014



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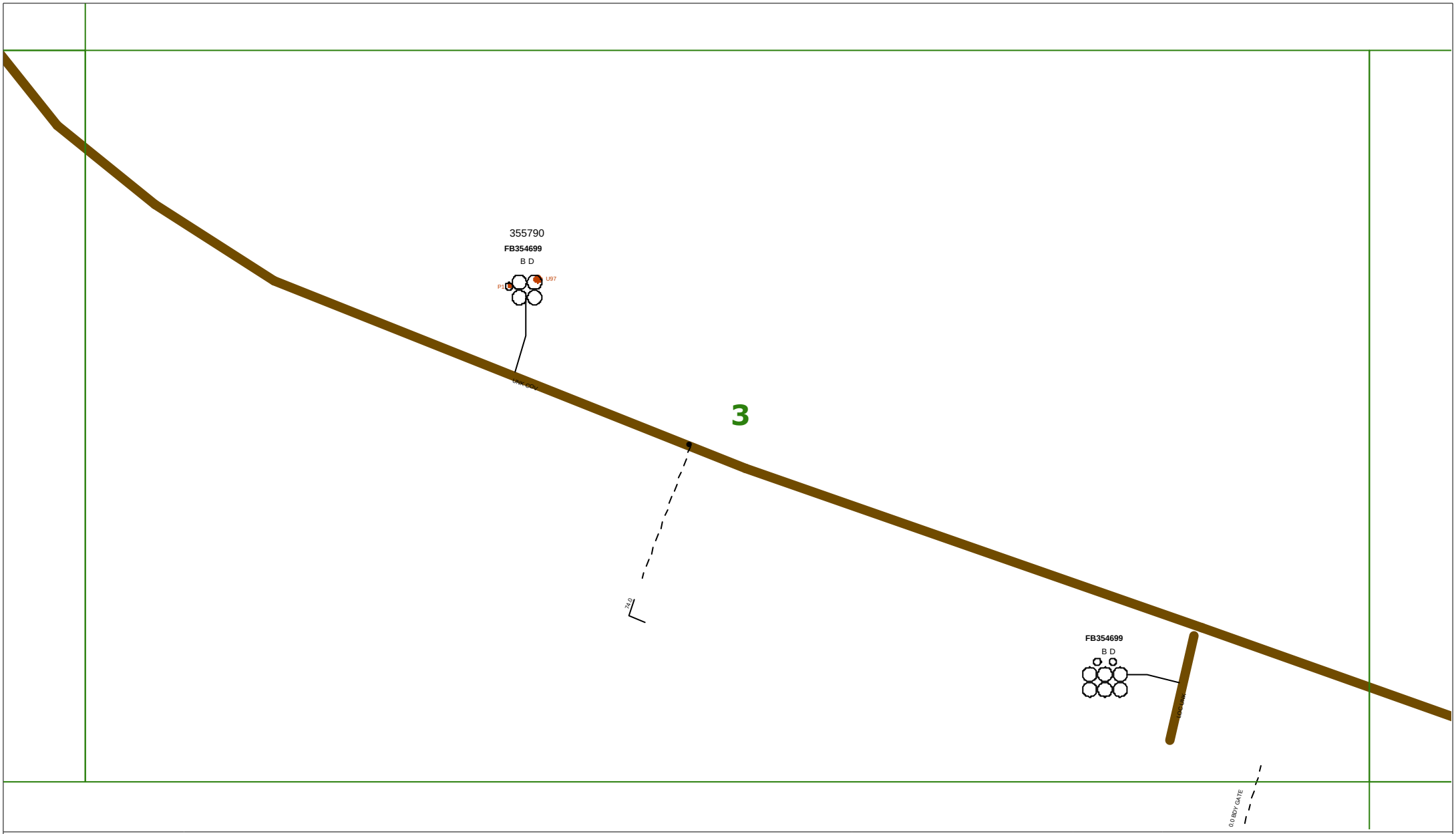

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WARNING
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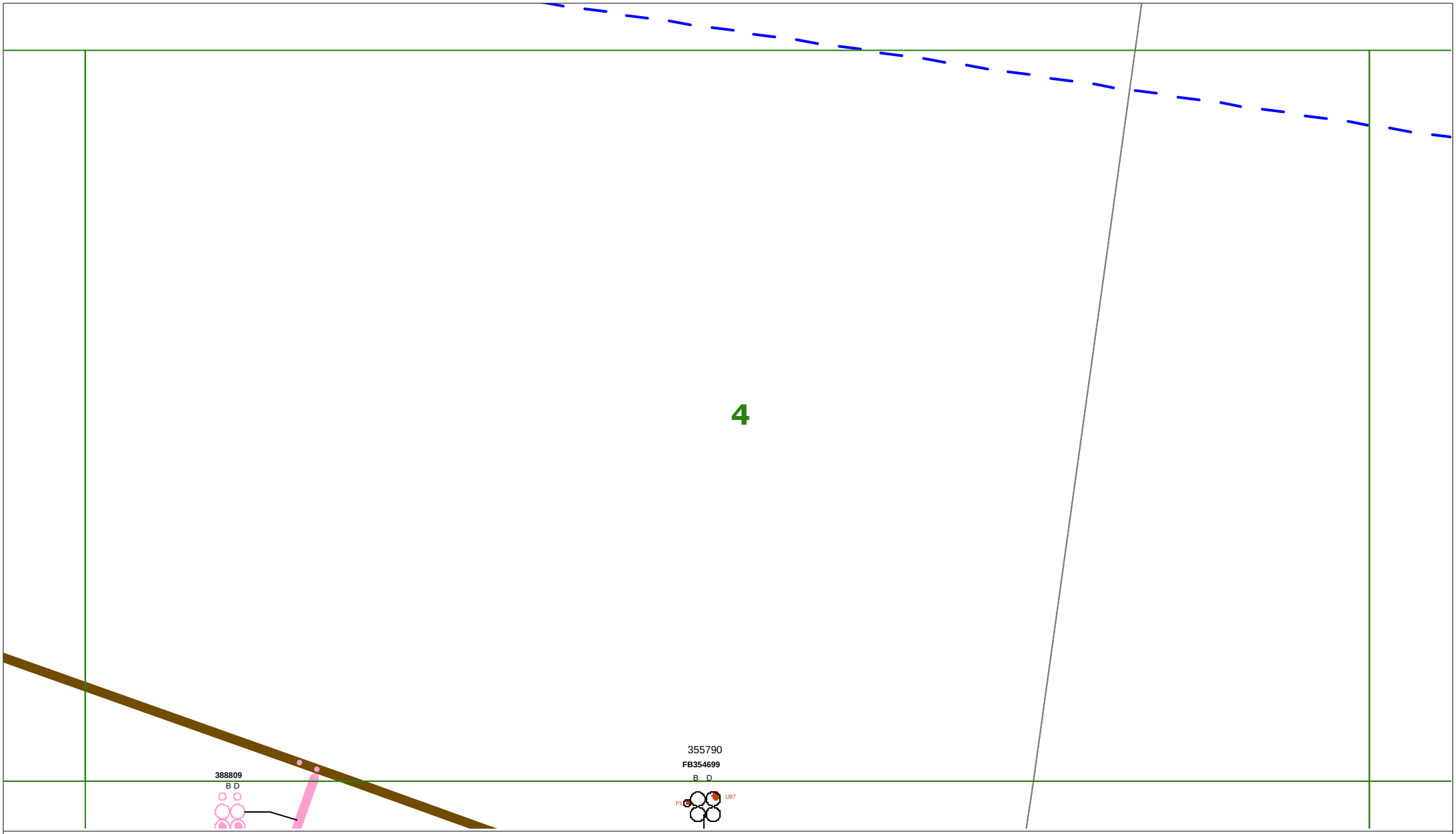

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DO NOT SCALE

DBYD Sequence Number:	33862785
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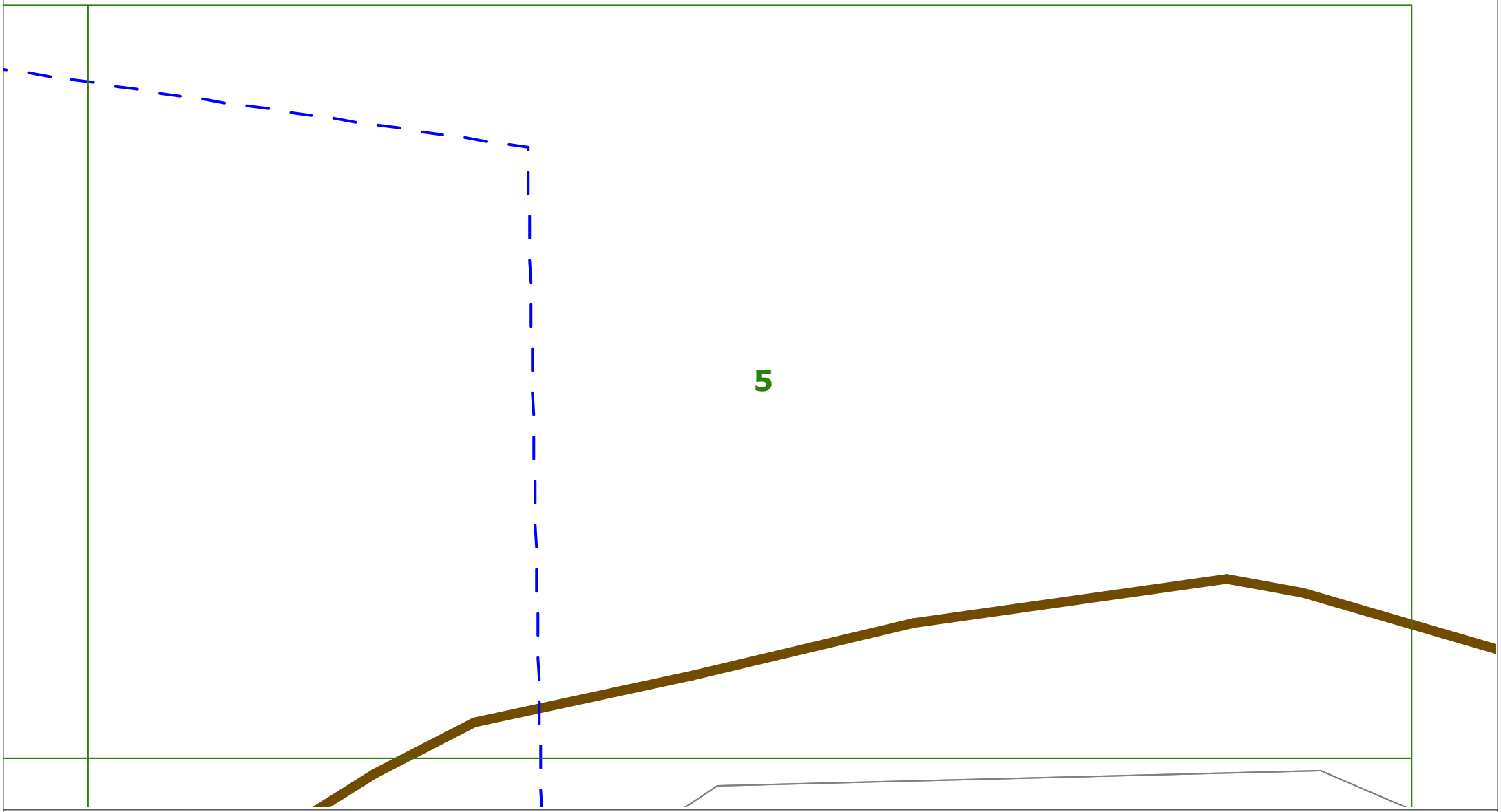

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WARNING
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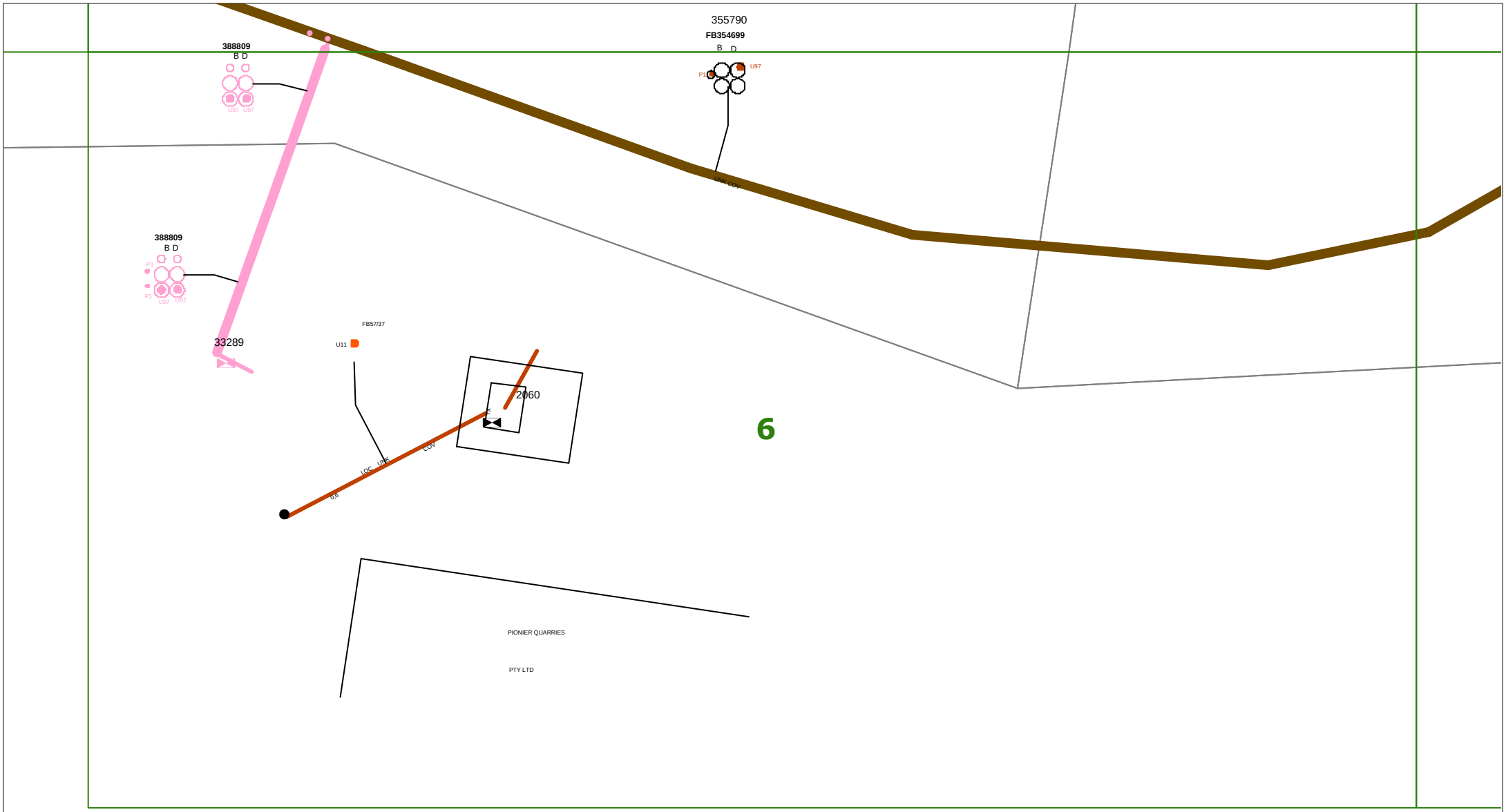

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WARNING
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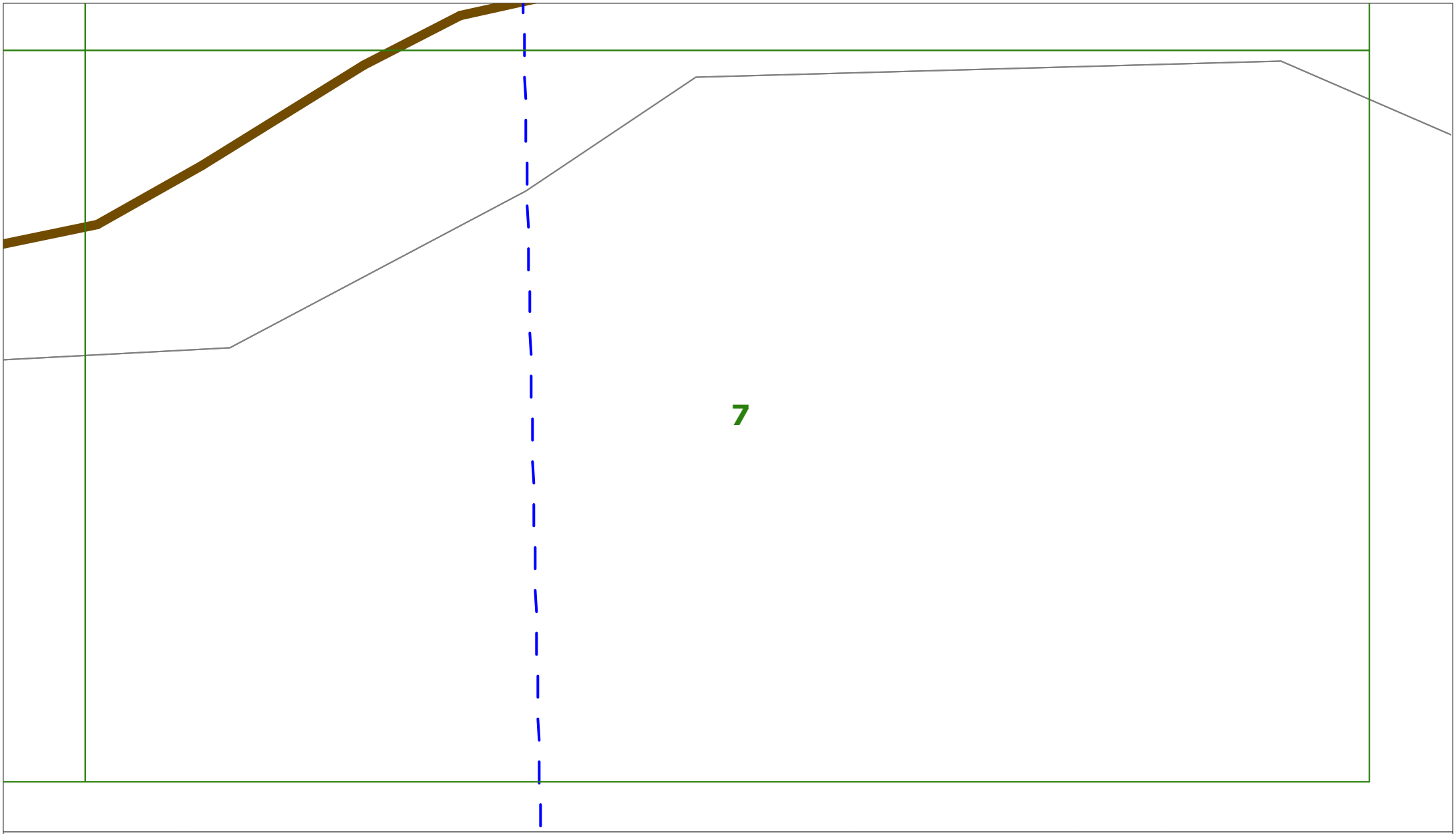
N

DO NOT SCALE

DBYD Sequence Number:	33862785
Issued Date:	07/05/2014



Endeavour Energy

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WARNING
ASBESTOS

N

DO NOT SCALE

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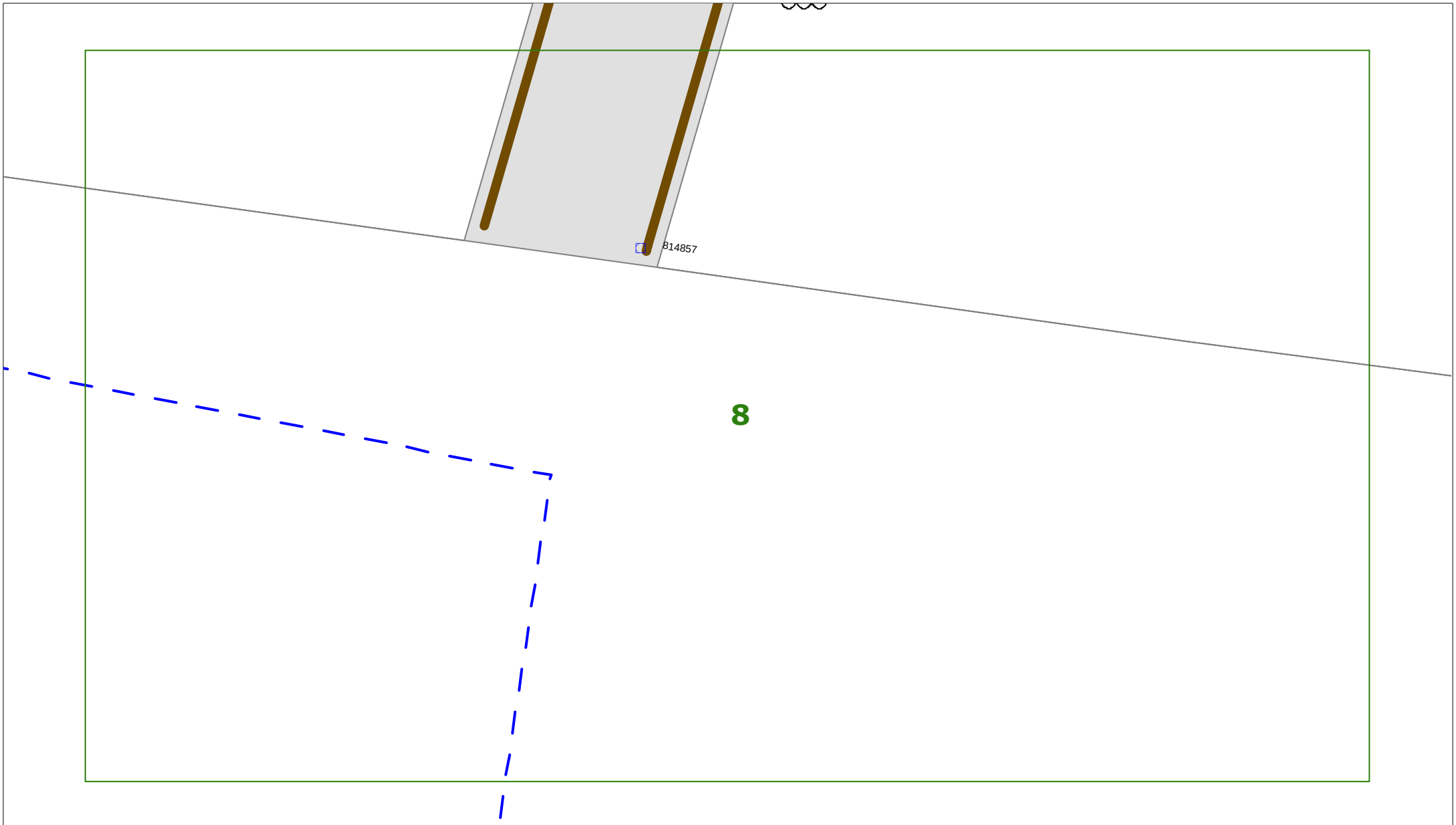

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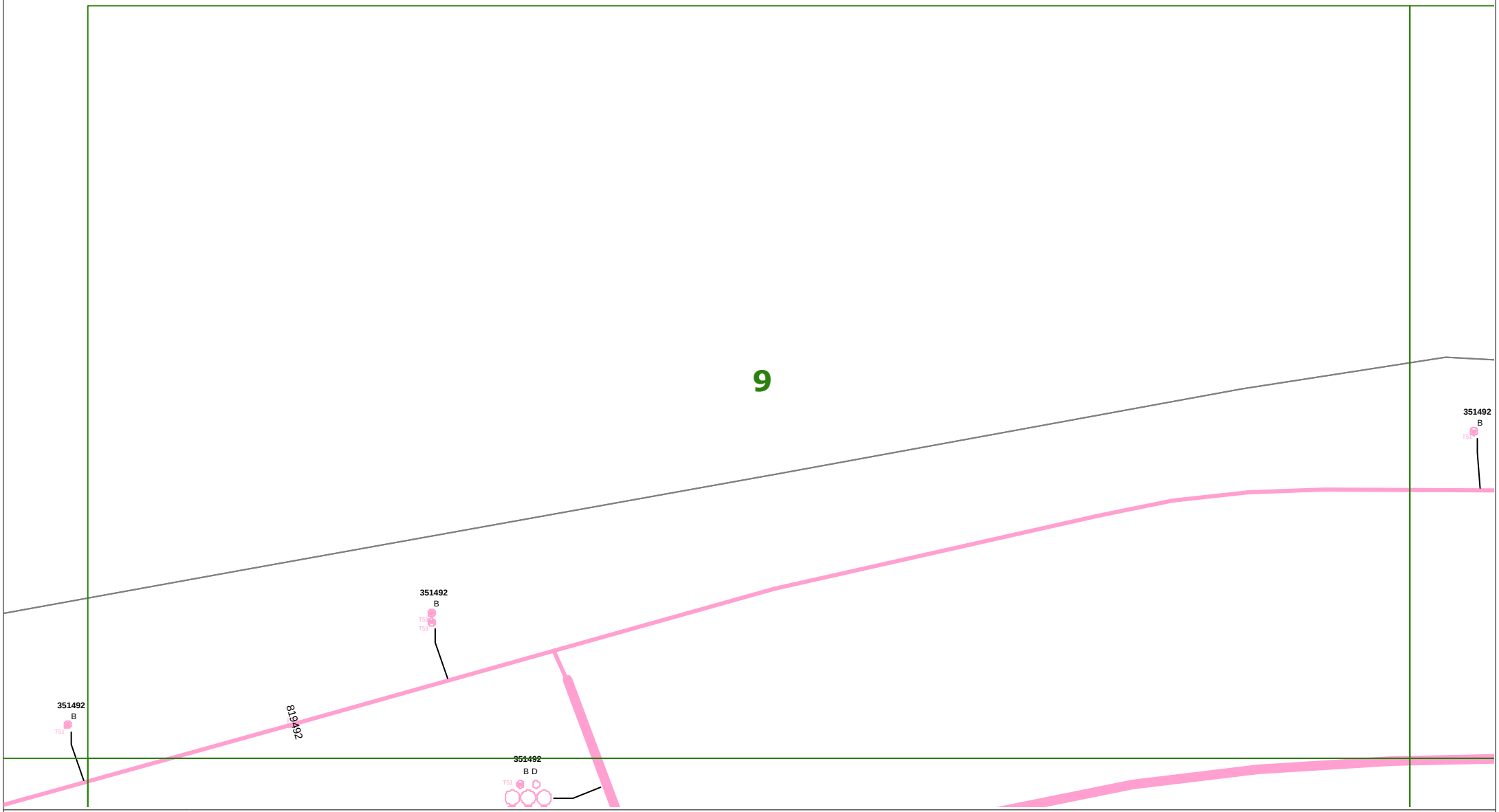

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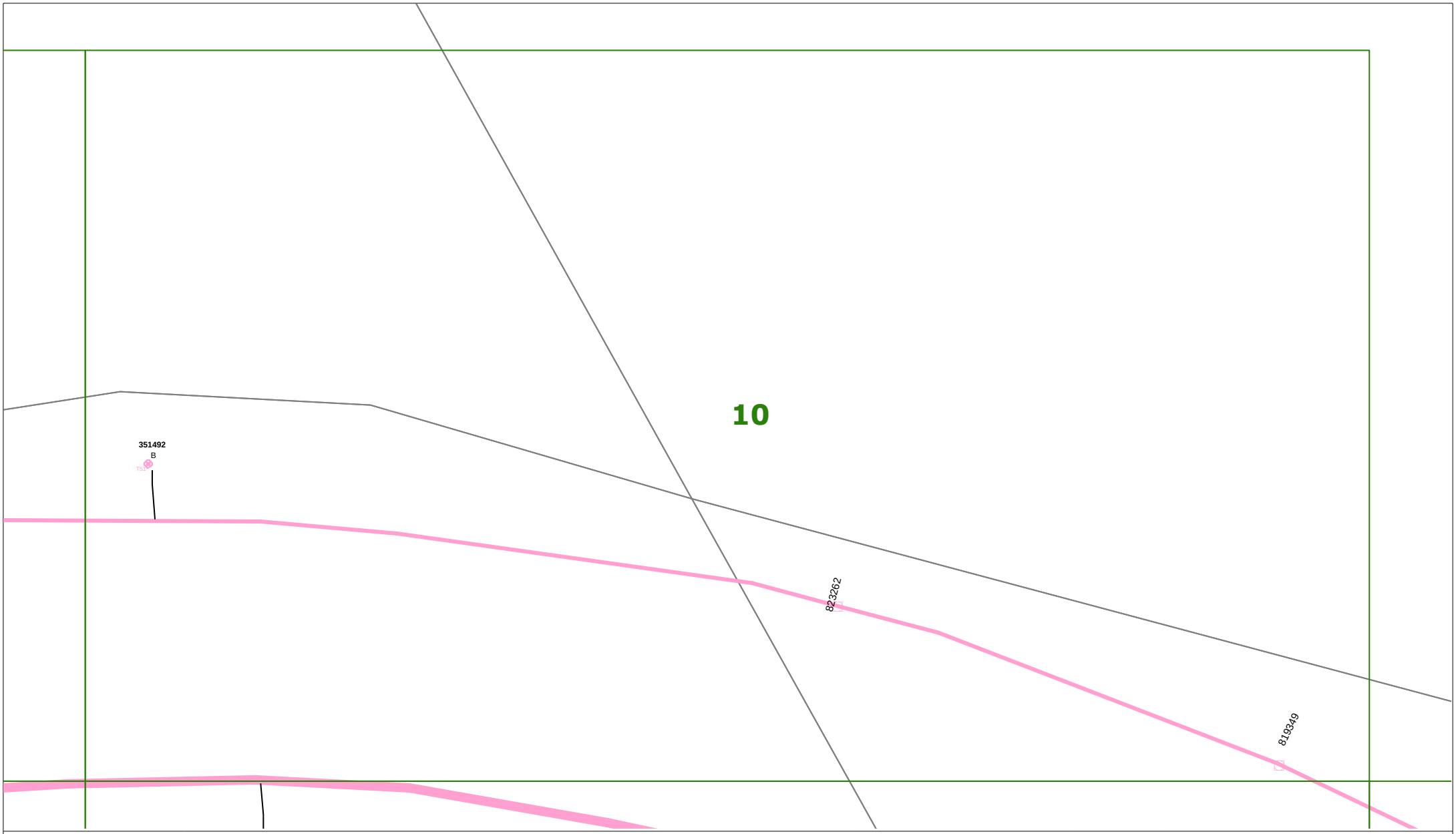

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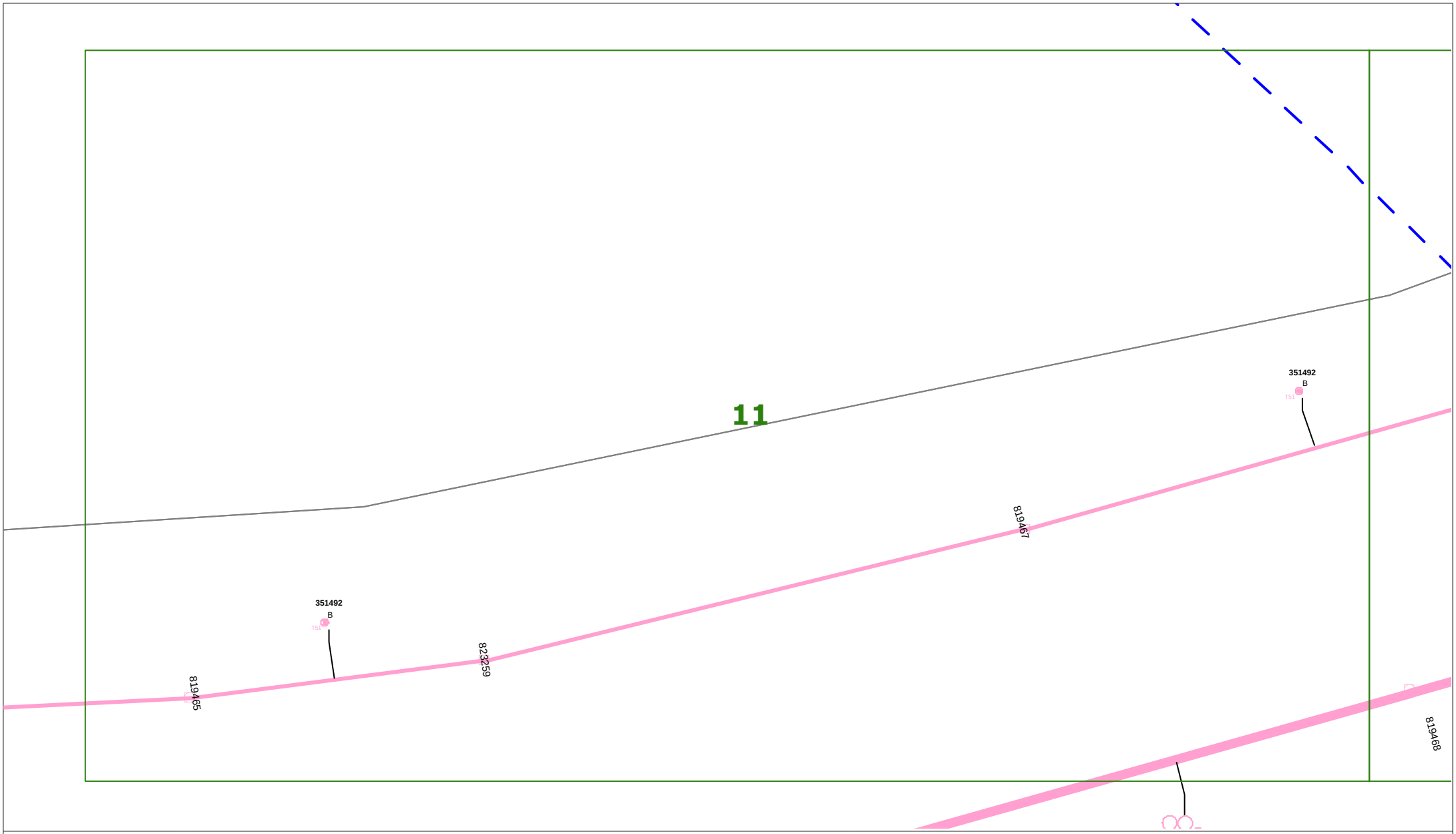

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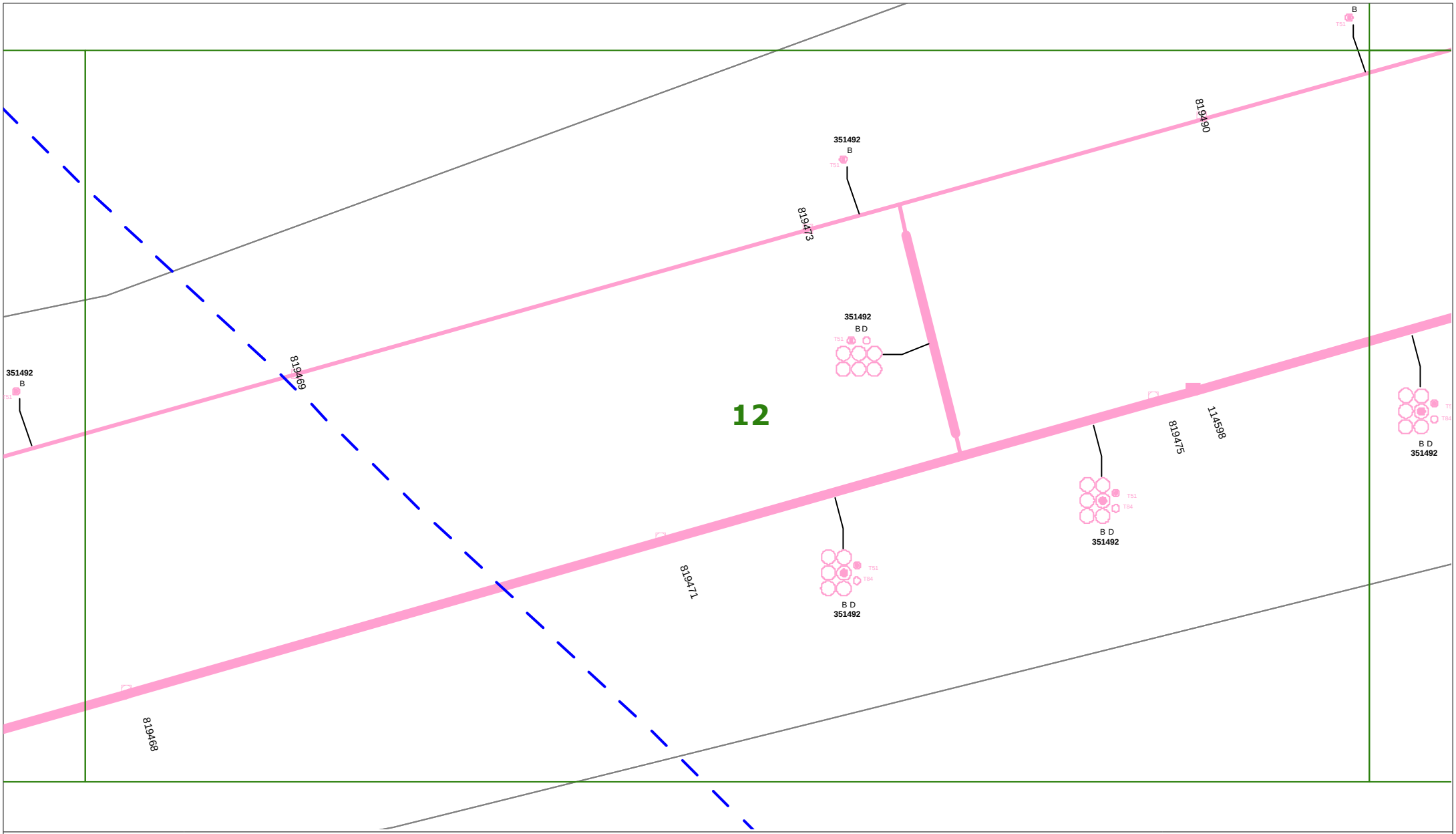

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WARNING
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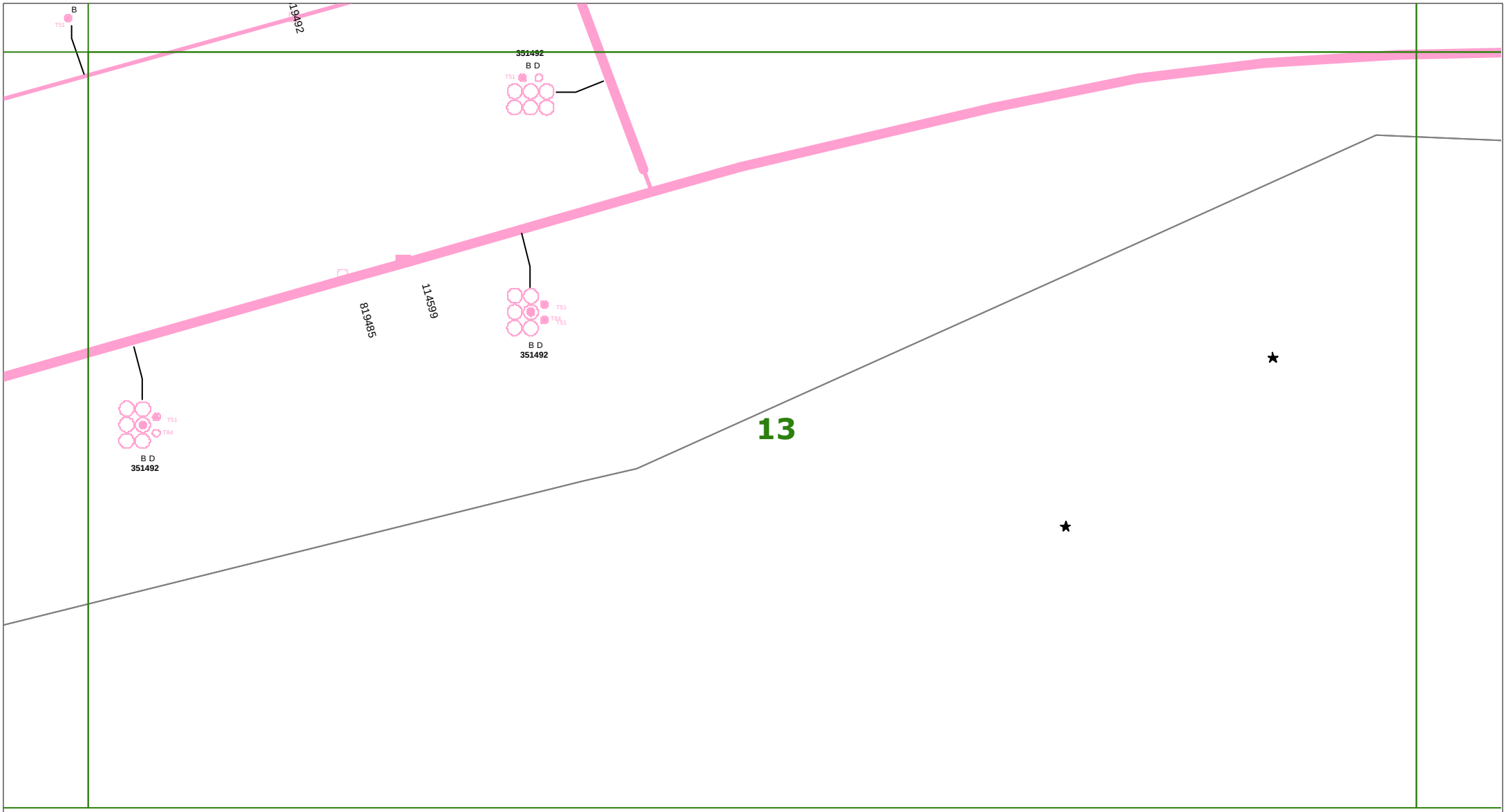

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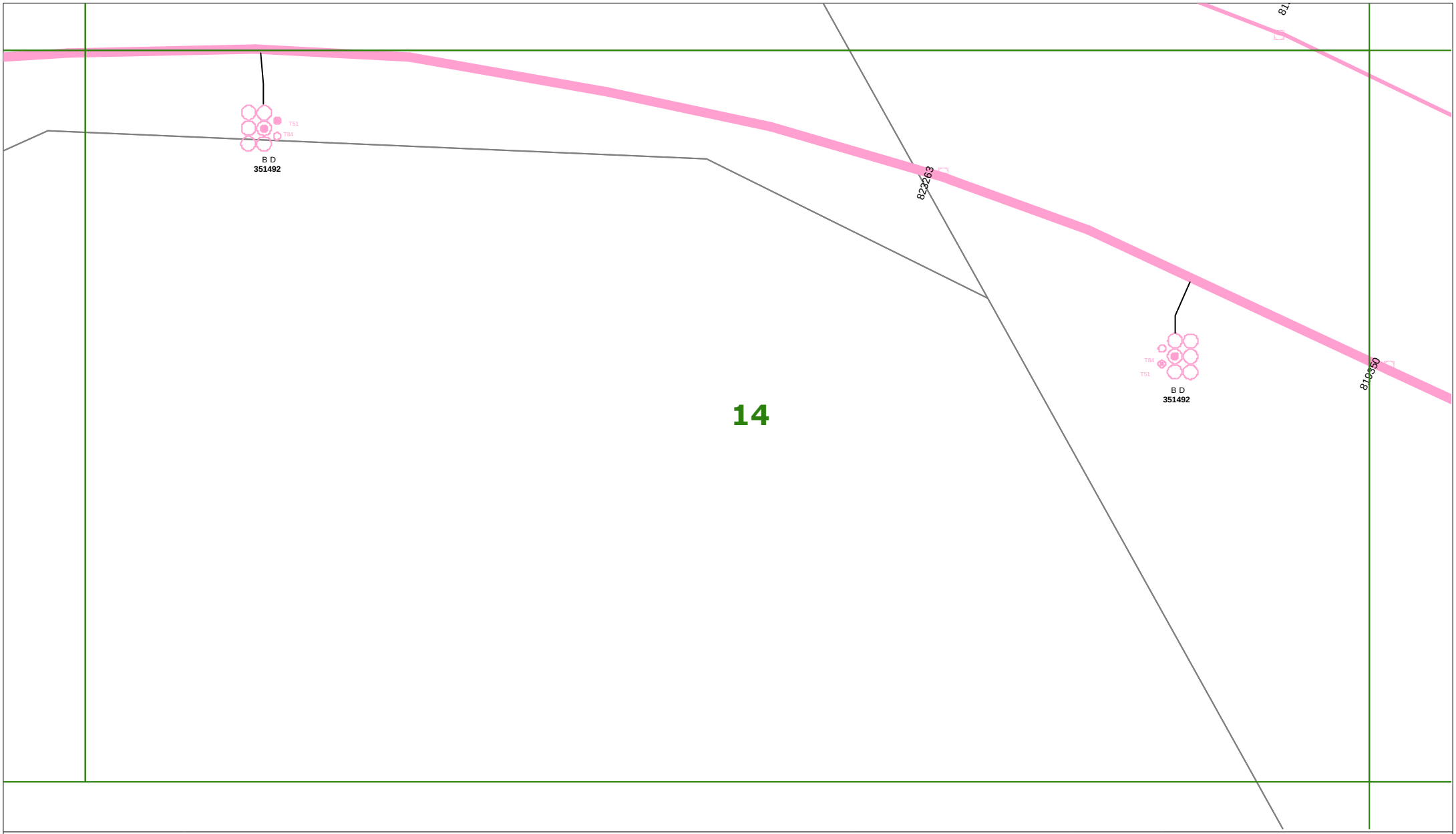

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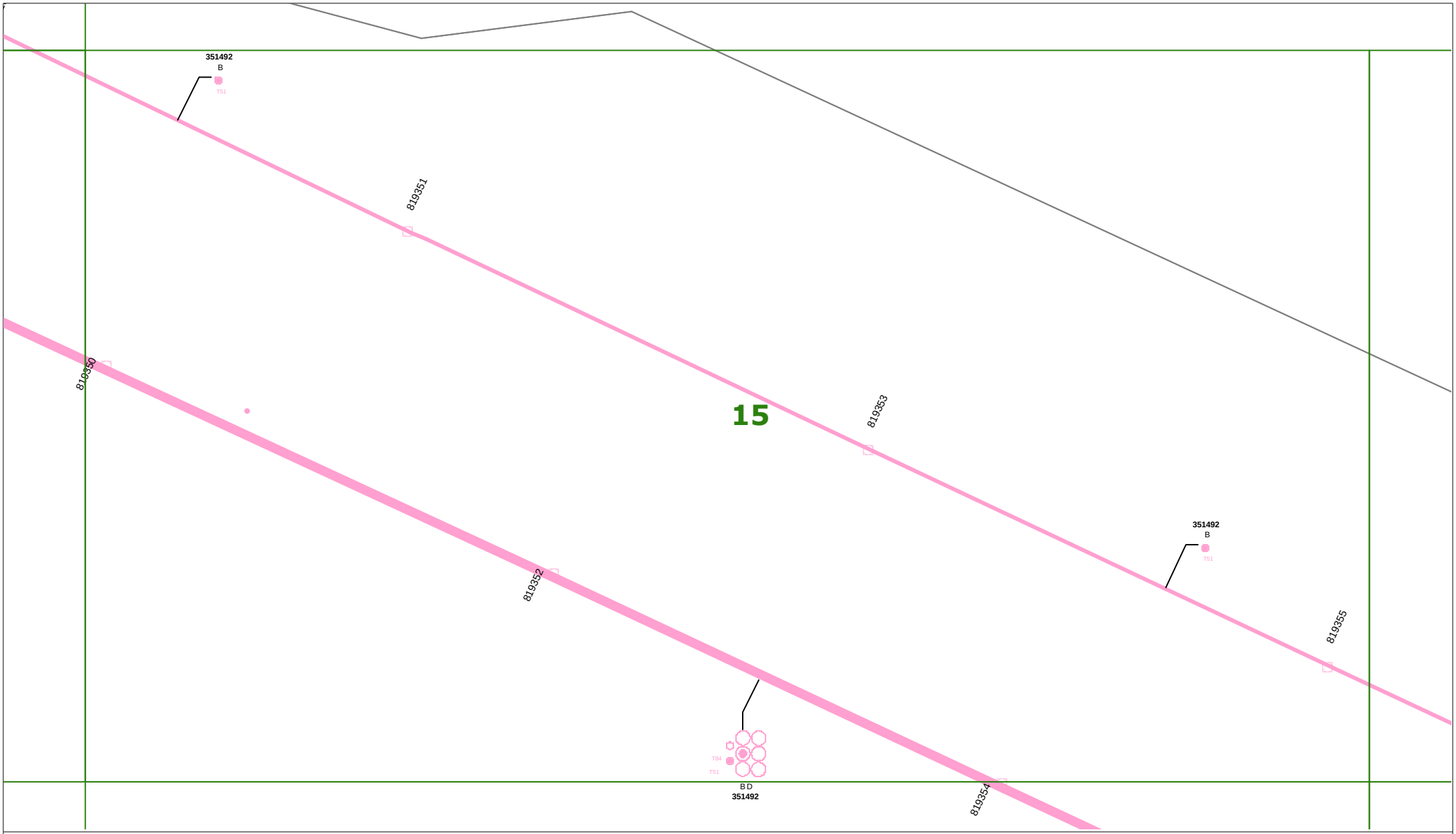

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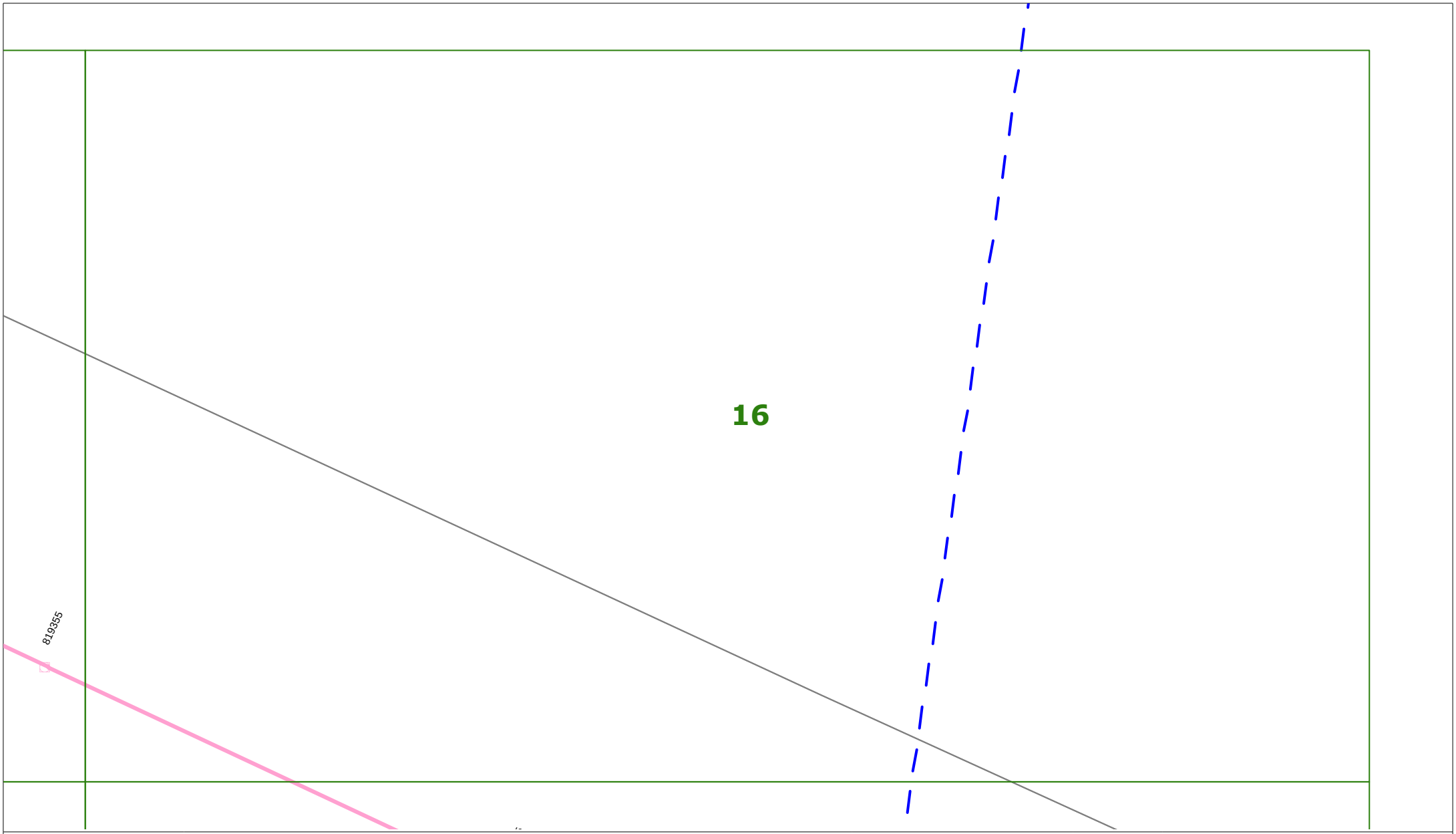

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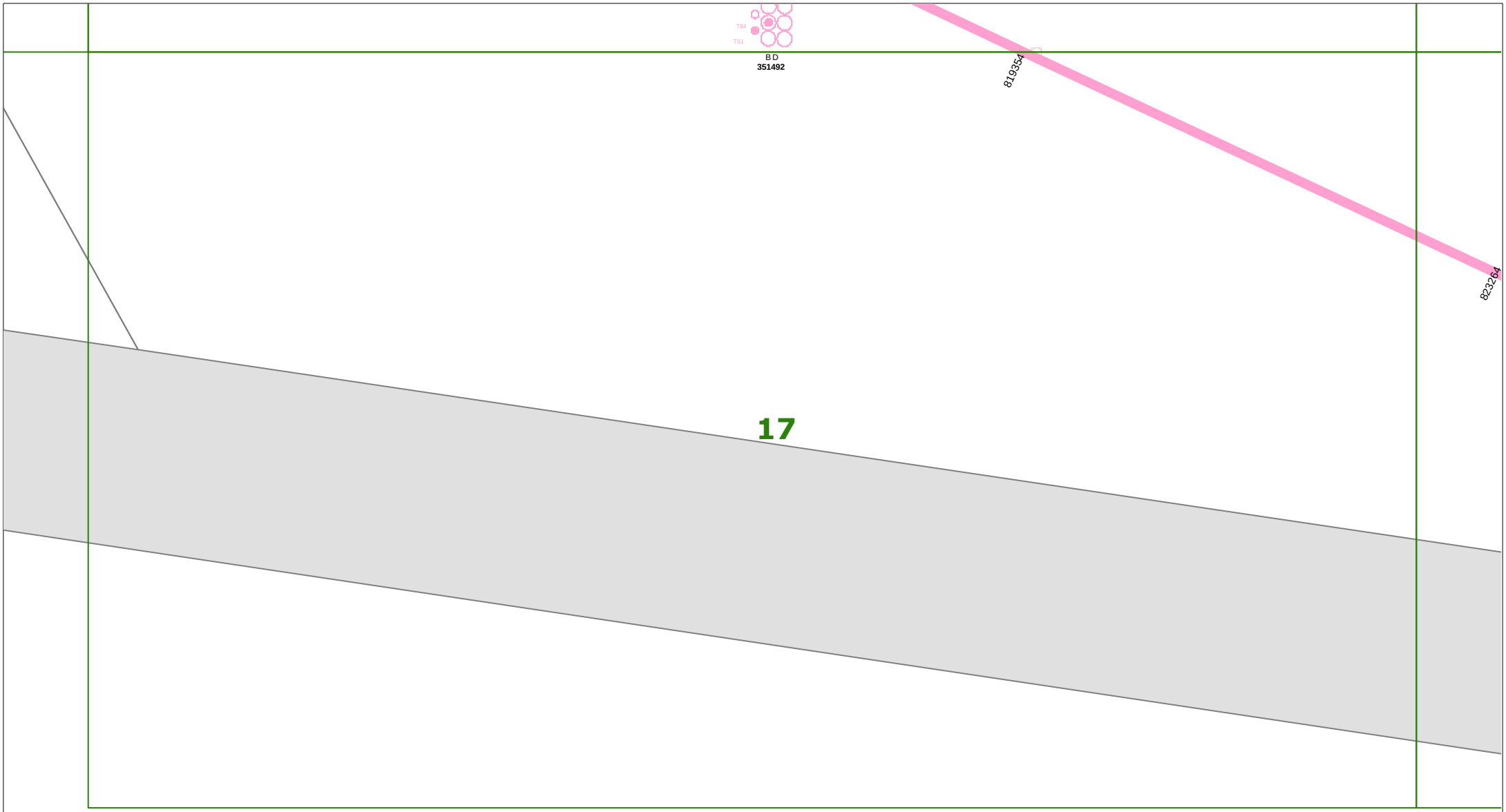

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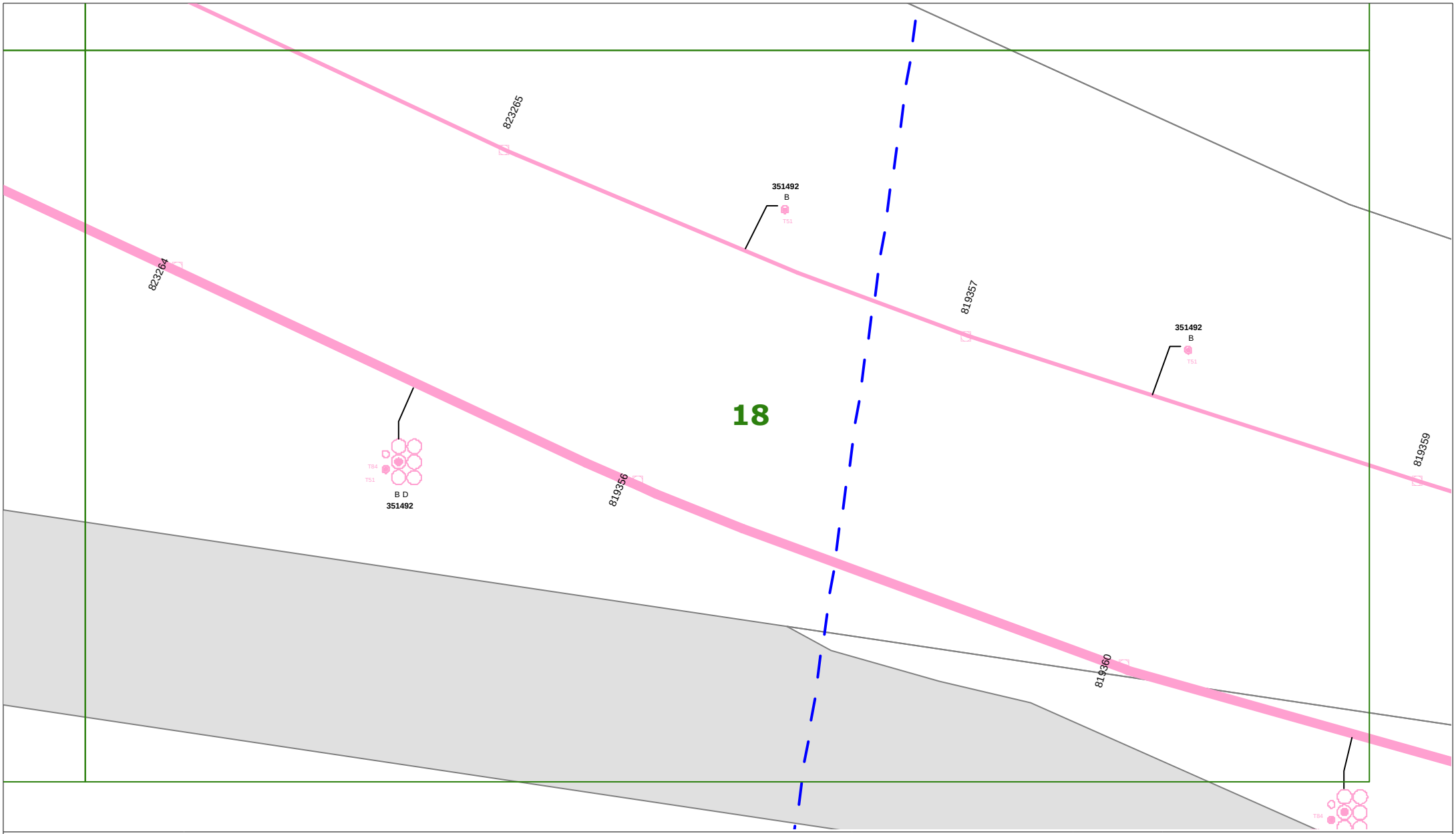

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WARNING
ASBESTOS

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DO NOT SCALE

DBYD Sequence Number:	33862785
Issued Date:	07/05/2014

HORSLEY PARK IA

SCALE 1:2000

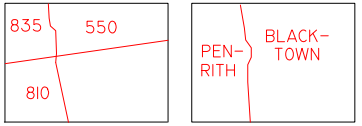
50 0 50 100 150 200

THIS MAP UPDATED ON 23/11/09
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

DATE ALTERED:..... BY:.....

SM9D	RH7C	RH7D
EP3B	HPIA	HPIB
EP3D	HPIC	HPID

ADJOINING MAPS



NETWORK AREA MUNICIPALITY AREA

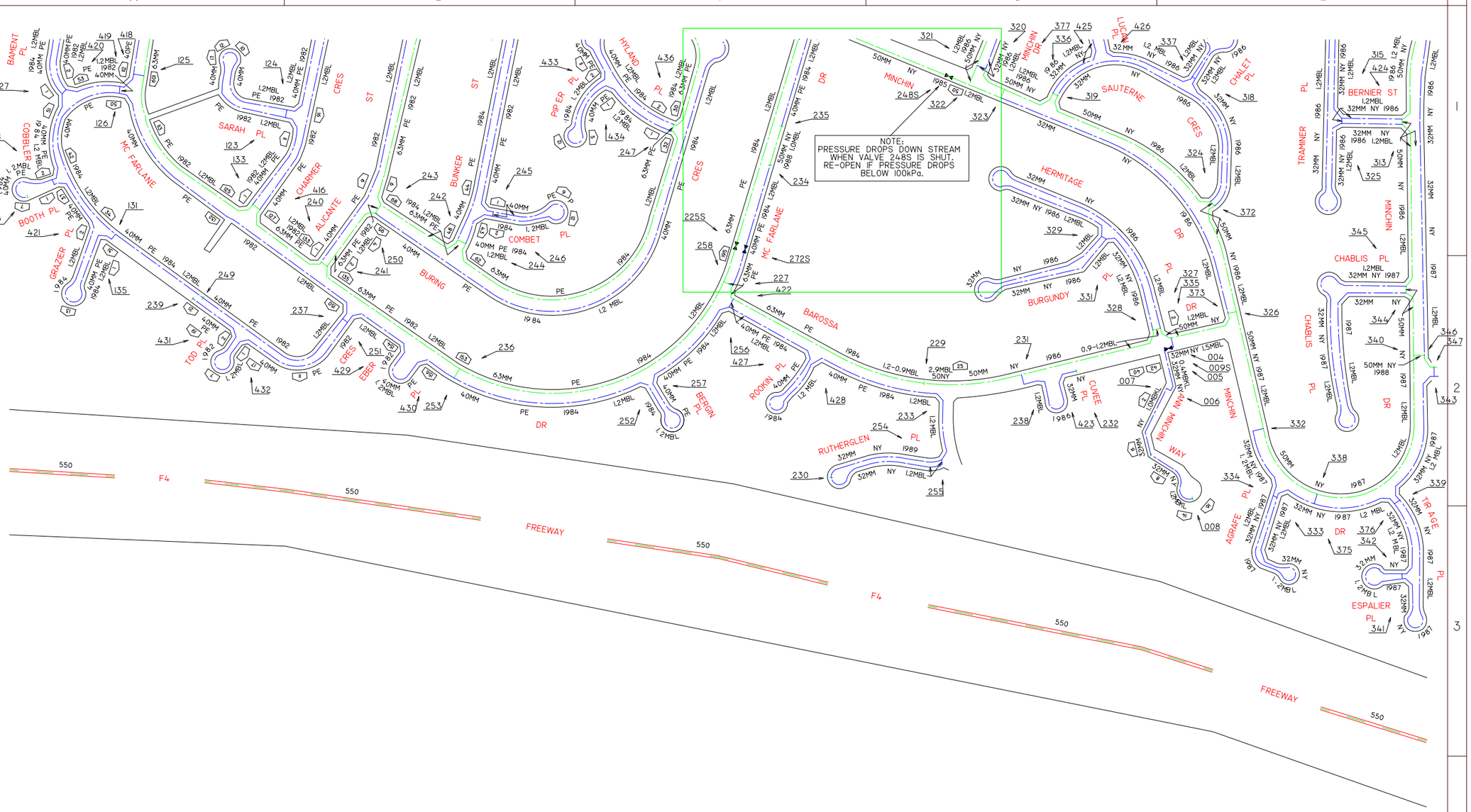
Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE

T	TRUNK MAIN	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODES	
1235	ITEM DETAIL SKETCH AVAILABLE	
598	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
83	HOUSE NUMBER	

HORSLEY PARK IA



HORSLEY PARK IB

SCALE 1:2000

50 0 50 100 150 200

THIS MAP UPDATED ON 12/07/2012
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES SCALED FROM THIS PLAN MAY NOT BE ACCURATE.

DATE ALTERED:..... BY:.....

RH7C	RH7D	RH8A
HP1A	HP1B	HP2A
HP1C	HP1D	HP2C

ADJOINING MAPS

550	BLACKTOWN
NETWORK AREA	MUNICIPALITY AREA

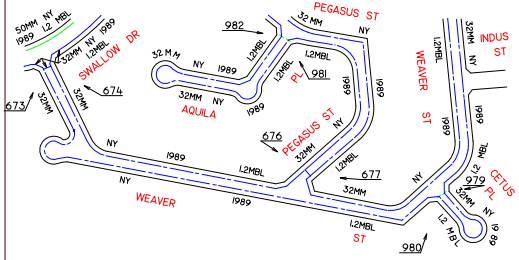
Jemena

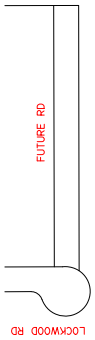
KEY

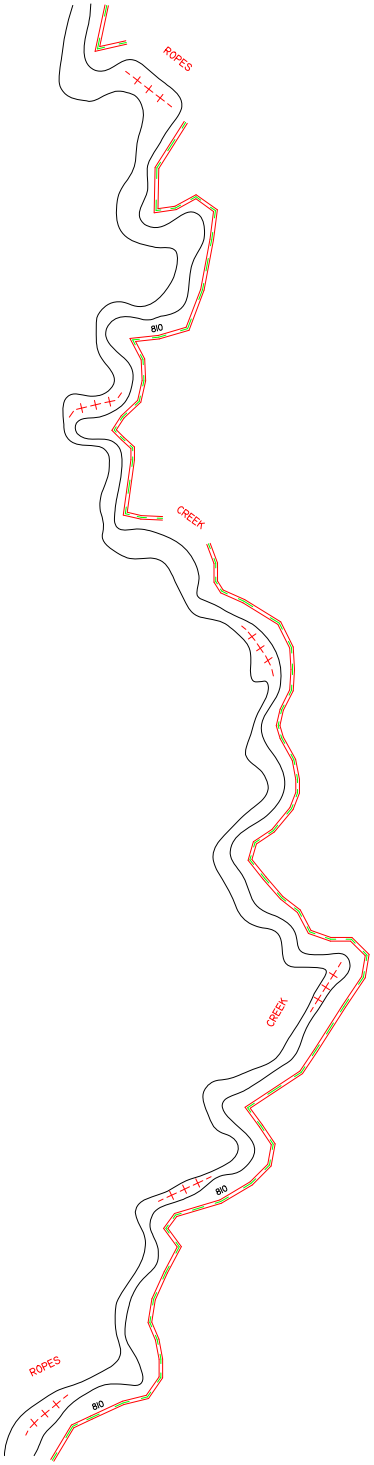
MAX ALLOWABLE OPERATING PRESSURE

T	TRUNK MAIN	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
PR II-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODES	
123S	ITEM DETAIL SKETCH AVAILABLE	
298	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
123	HOUSE NUMBER	

HORSLEY PARK IB







HORSLEY PARK 4A

SCALE 1:2000

50 0 50 100 150 200

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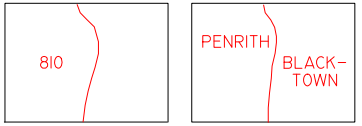
EP3D	HPIC	HPID
EP6B	HP4A	HP4B
EP6D	HP4C	HP4D

ADJOINING MAPS



NETWORK AREA MUNICIPALITY AREA

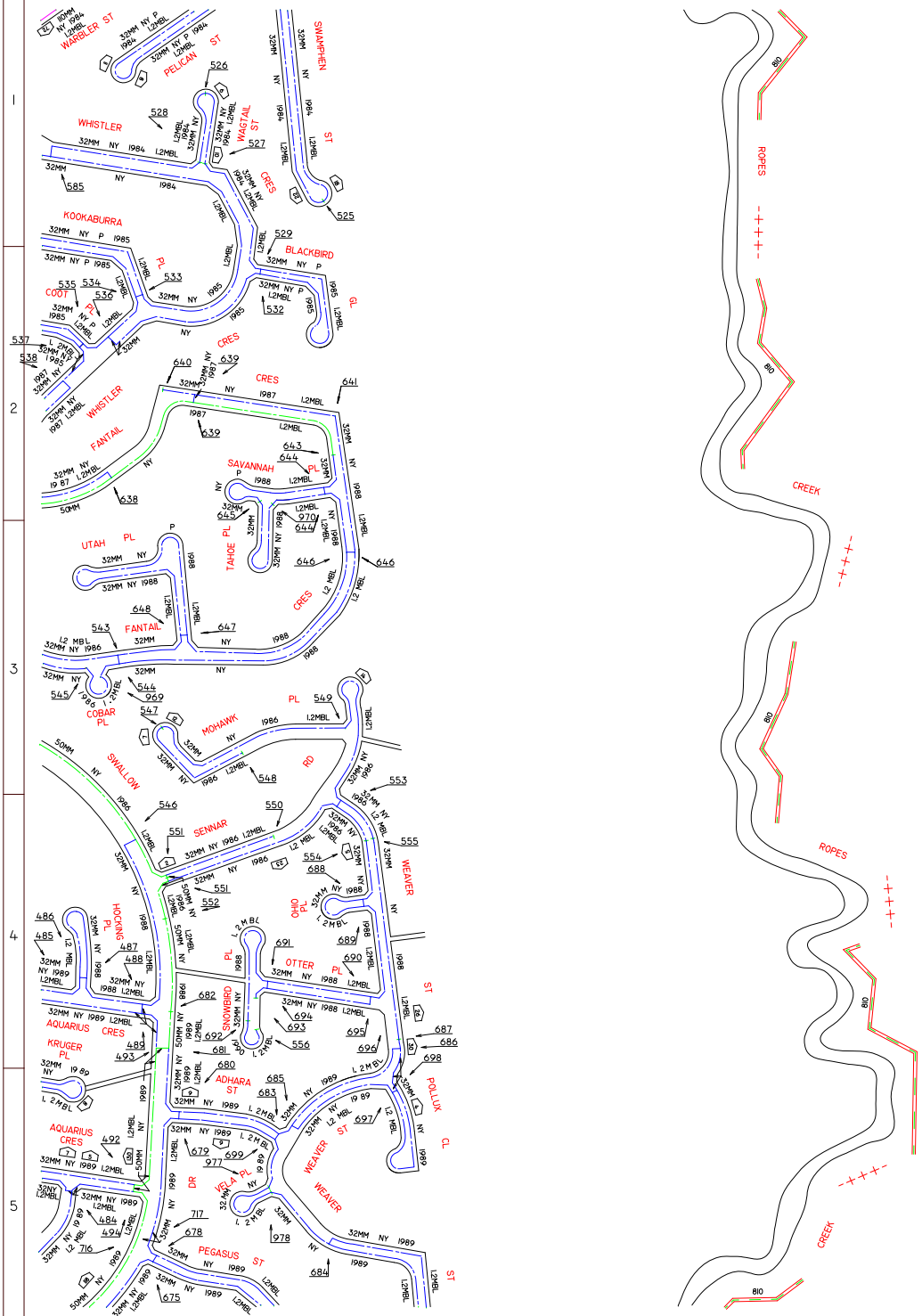
Jemena

KEY

MAX ALLOWABLE OPERATING PRESSURE

T	TRUNK MAIN	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODES	
1255	ITEM DETAIL SKETCH AVAILABLE	
298	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
83	HOUSE NUMBER	

HORSLEY PARK 4A



HORSLEY PARK IC

SCALE 1:2000

50 0 50 100 150 200

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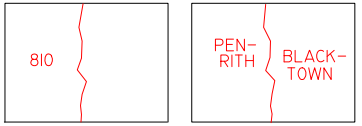
EP3B	HP1A	HP1B
EP3D	HP1C	HP1D
EP6B	HP4A	HP4B

ADJOINING MAPS



NETWORK AREA MUNICIPALITY AREA

Jemena

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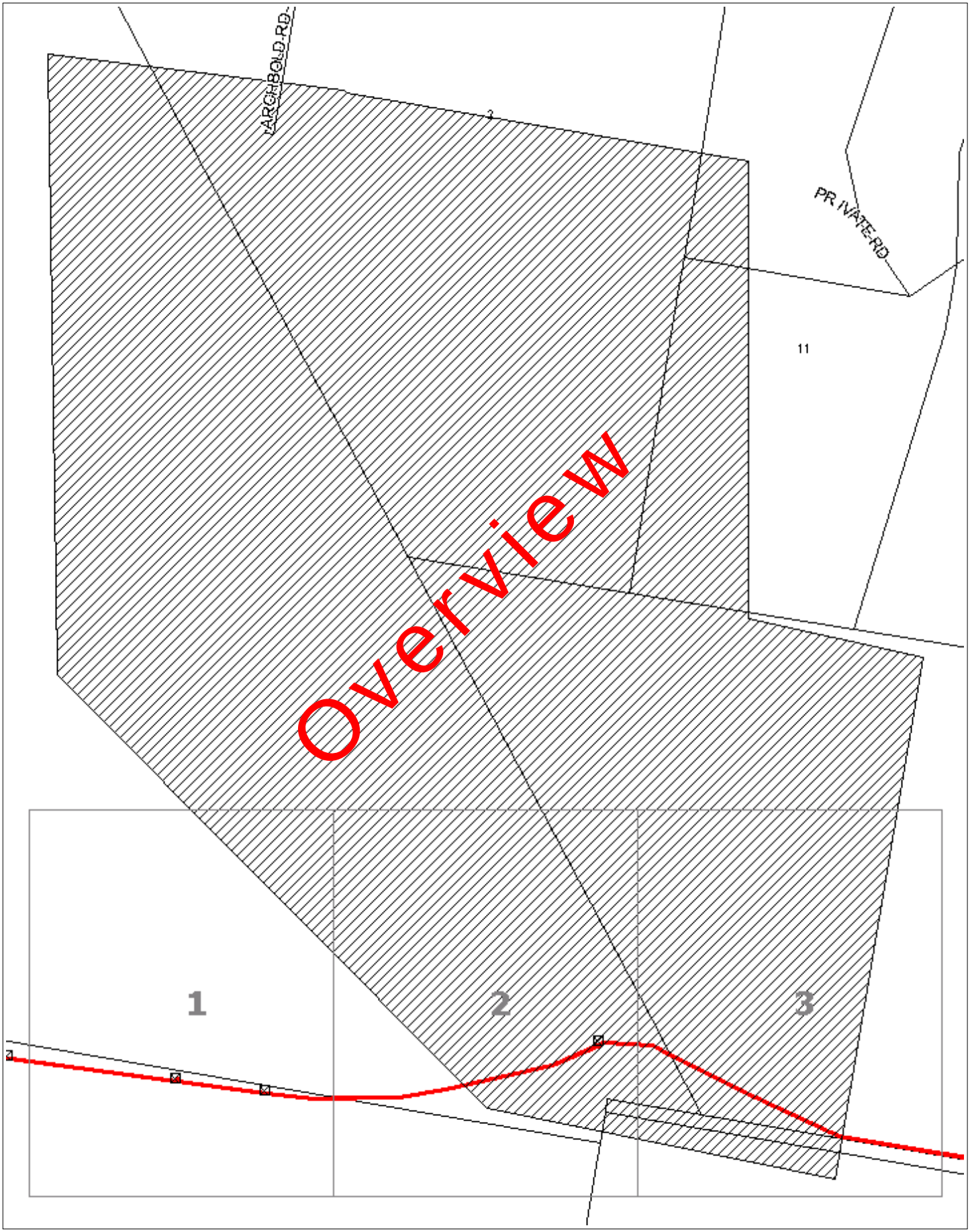
MAX ALLOWABLE OPERATING PRESSURE

T	TRUNK MAIN	7000 kPa
P	PRIMARY MAIN	3500 kPa
S	SECONDARY MAIN	1050 kPa
		300 kPa
		210 kPa
		7 kPa
400		400 kPa
100		100 kPa
		2 kPa
	PROPOSED MAINS	
PR 11-2 3	STEEL MAIN PROJECT NUMBER	
P	PRESSURE MONITORING STATION	
	VALVE	
	SYSTEM PRESSURE REGULATOR	
S	SIPHON	
123	NETWORK NODES	
123S	ITEM DETAIL SKETCH AVAILABLE	
698	VALVE NUMBER (OLD NUMBERING)	
6NB	6 INCH CAST IRON MAIN	
150MM	150MM STEEL MAIN	
110MM PE/NY	110MM POLYETHYLENE/NYLON MAIN	
6NB 50MM NY	50MM NYLON INSERTED INTO 6NB MAIN CAST IRON MAIN	
1.2MBL	DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M)	
1957	YEAR LAID	
	MUNICIPALITY BOUNDARY	
	NETWORK BOUNDARY	
93	HOUSE NUMBER	

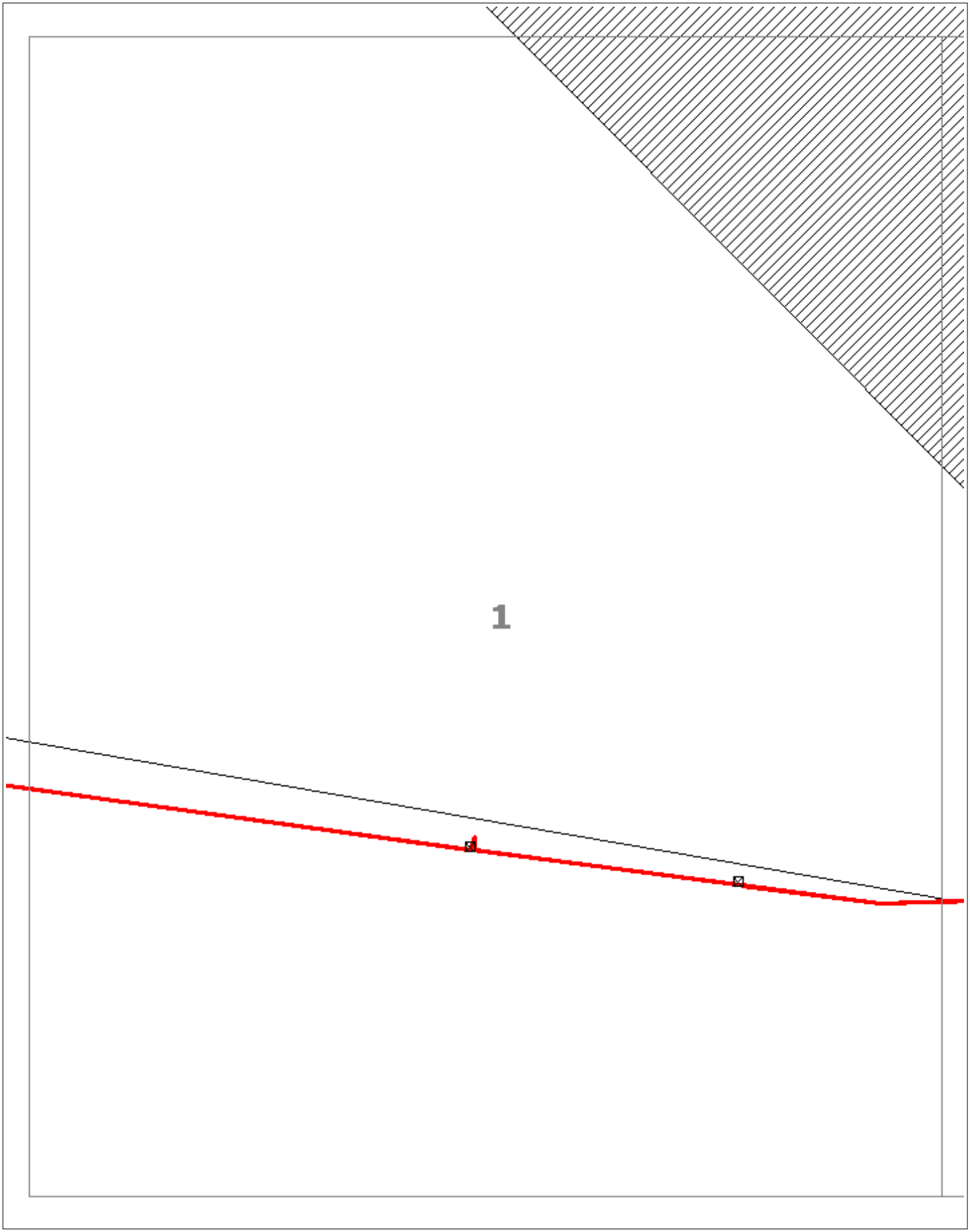
HORSLEY PARK IC



Sequence Number: 33862787

Date Generated: 06/05/2014

For all Optus DBYD plan enquiries –
Email: Fibre.Locations@optus.net.au
For urgent onsite assistance contact 1800 505 777
Optus Limited ACN 052 833 208



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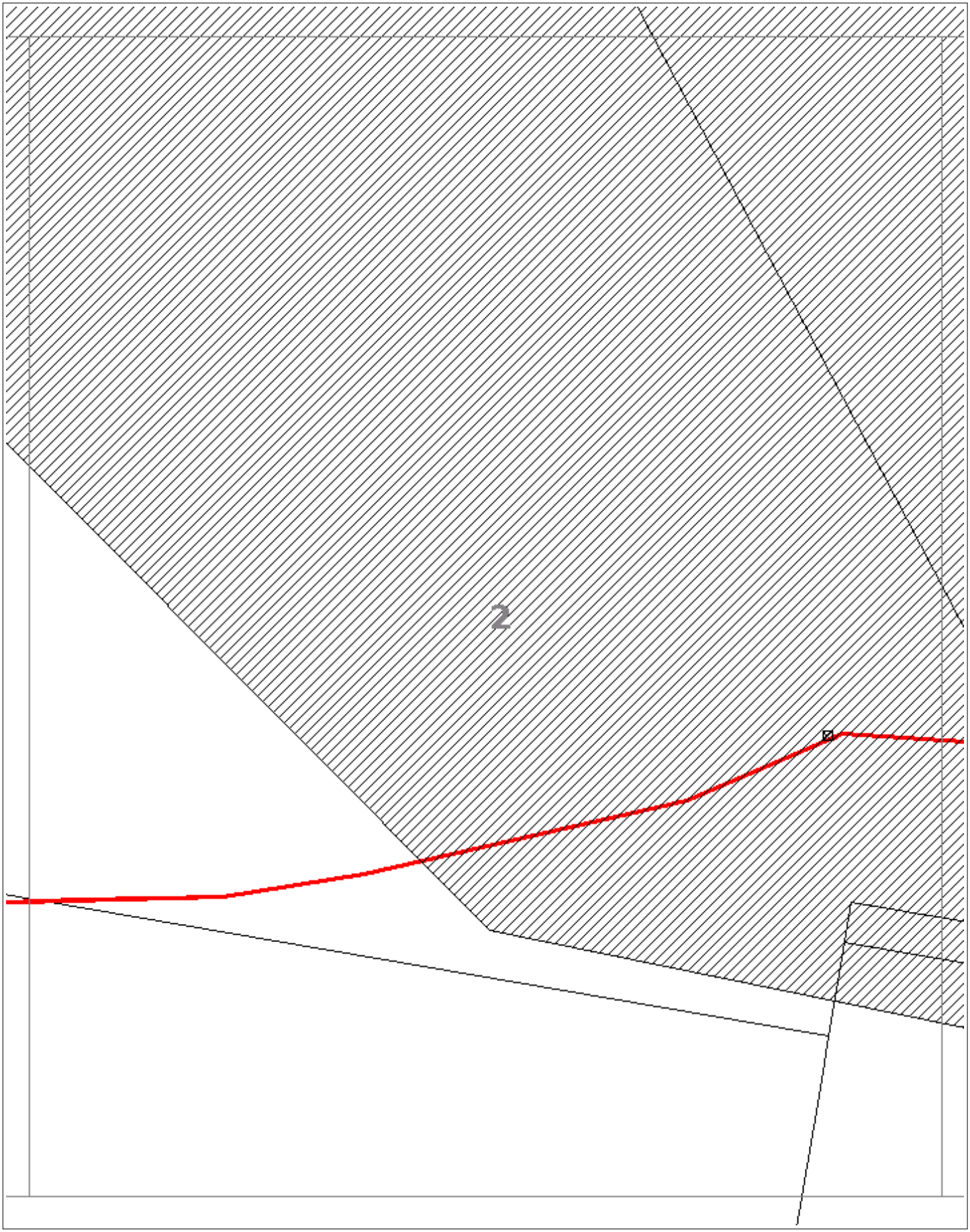

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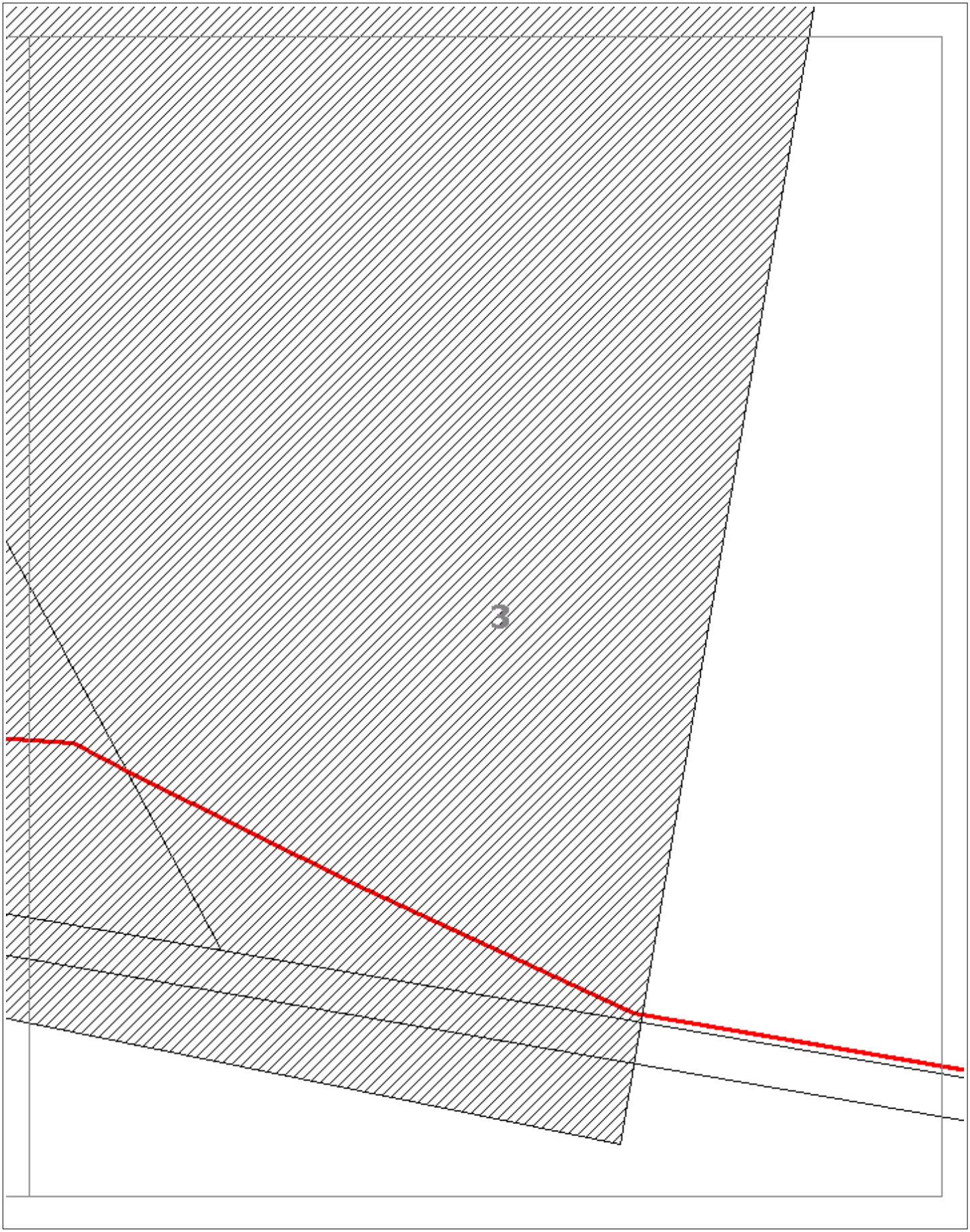

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A0

CHATSWORTH

KANGAROO AVE

GREENLEA

DBYD Address:
n/a Wonderland Drive
Eastern Creek NSW 2766

DBYD Job No: 7389467

DBYD Sequence No: 33862789

SYDNEY WATER CORPORATION

Scale: 1:2000

Date of Production: 06/05/2014

Plan 1 of 1

N

0m 30m 60m 90m 120m 150m

Appendix E

Sydney Water Feasibility Letter

Case Number: 143099

14 January 2015

The Next Generation NSW P/L
C/- MGP Building & Infrastructure Service P/L

FEASIBILITY LETTER

Developer:	**The Next Generation NSW P/L**
Your reference:	**SY072757.013**
Development:	**Lot 1 DP 1145808 Honeycomb Drive & Lots 2 & 4 DP 1145808 Wallgrove Road, Erskine Park**
Development Description:	**Construction & operation of an electrical Generation Plant, which allow for unsalvageable & uneconomic residue waste from the Genesis Xero Material Processing Centre (MPC) & waste Transfer Station (WTS) to be used for generation of electrical power. EFW Plant is proposed to be located on Lots 2 and 3, DP 1145808.**
Your application date:	**18 December 2014**

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what Sydney Water's requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (Coordinator).

Sydney Water will then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of Sydney Water's requirements.

There may be changes in Sydney Water's requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development e.g. the development description or the plan/ site layout, after today, the requirements in this Letter could change when you submit your new application; and

- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting www.sydneywater.com.au > Plumbing, building & developing > Developing > Land development.

1. **Obtain Development Consent from the consent authority for your development proposal.**

2. **Engage a Water Servicing Coordinator (Coordinator).**

   You must engage your current or another authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another Coordinator (at any point in this process) you must write and tell Sydney Water.

   For a list of authorised Coordinators, either visit www.sydneywater.com.au > Plumbing, building & developing > Developing > Providers > Lists or call **13 20 92.**

   The Coordinator will be your point of contact with Sydney Water. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including Sydney Water costs).

3. **Developer Works Deed**

   It would appear that your feasibility application is served from existing mains and does not require any works to be constructed at this time. Sydney Water will confirm this with you after you have received Development Approval from Council and your Coordinator has submitted a new Development application and Sydney Water has issued you with a formal Notice of Requirements.

4. **Water and Sewer Works**

   4.1 **Water**

   Your development must have a frontage to a water main that is the right size and can be used for connection.

   Sydney Water has assessed your application and found that:

   - The drinking water main available for connection is the 375mm main constructed under case 119408PW.
   - Detailed requirements will be provided at the section 73 application phase.

   4.2 **Sewer**

   Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's

boundaries.

Sydney Water has assessed your application and found that:

The proposed lots will be served by extensions off the Ophir Street carrier due for delivery by the end of 2015.

- The proposed wastewater infrastructure for this development will be sized & configured according to the Sewerage Code of Australia WSA 02-2002-2.2 (Sydney Water Edition 1 – Version 3)
- Detailed requirements will be provided at the section 73 application phase.

5. Ancillary Matters

5.1 Asset adjustments

After Sydney Water issues this Notice (and more detailed designs are available), Sydney Water may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you will need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. Sydney Water will need to see the completed designs for the work and we will require you to lodge a security. The security will be refunded once the work is completed.

5.2 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use Sydney Water's **Permission to Enter** form(s) for this. You can get copies of these forms from your Coordinator or the Sydney Water website. Your Coordinator can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement of Sydney Water in the future because of the impact of your development on our assets. You must read them before you go any further.

Stamping and approval of your building plans

Please note that your building plans must be stamped and approved. This can be done at a Quick Check agency. For an agency list visit www.sydneywater.com.au > Plumbing, building & developing > Building > Quick Check agents or call 13 20 92.

This is not a requirement of the Certificate but the approval is needed because construction/ building works may impact on existing Sydney Water assets (e.g. water and sewer mains). In any case, these works MUST NOT commence until Sydney Water has granted approval.

Your Coordinator can tell you about the approval process including:

- Possible requirements;
- Costs; and
- Timeframes.

Note: You must obtain our written approval before you do any work on Sydney Water's systems. Sydney Water will take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994.*

Disused Sewerage Service Sealing
Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to a Sydney Water sewer main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Soffit Requirements
Please be aware that floor levels must be able to meet Sydney Water's soffit requirements for property connection and drainage.

Requirements for Business Customers for Commercial and Industrial Property Developments
If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Trade Wastewater Requirements
If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must wait for approval of this permit before any business activities can commence.

The permit application should be emailed to Sydney Water's Business Customer Services at businesscustomers@sydneywater.com.au

It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

A **Boundary Trap** is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements
Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention**

Containment Device appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:
http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, http:// www.waterrating.gov.au/
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to http://www.sydneywater.com.au/Water4Life/InYourBusiness/ RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers,

such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at: http:// www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/ or contact Business Customer Services on **1300 985 227** or businesscustomers@sydneywater.com.au

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of Sydney Water's system to provide that flow in an emergency. Sydney Water's Operating Licence directs that Sydney Water's mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through any Quick Check agent and may be of some assistance when defining the fire fighting system. The Statement of Available pressure, may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main is available to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with a Quick Check Agent. You, or your hydraulic consultant, may need to supply the following:

A plan of the hydraulic layout;
A list of all the fixtures/fittings within the property;
A copy of the fireflow pressure inquiry issued by Sydney Water;
A pump application form (if a pump is required);
All pump details (if a pump is required).

You will have to pay an application fee.

Sydney Water does not consider whether a water main is adequate for fire fighting purposes for your development. We cannot guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to a Sydney Water main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection

Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. Sydney Water may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs;
- the installation of backflow prevention devices;
- trade waste requirements;
- large water connections and
- council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END