

MIDLAND HIGHWAY SPRING HILL

Submission to the Parliamentary Standing
Committee on Public Works

Version: 2 Date: 7 August 2017

Document Development History

Build Status

Version	Date	Author	Reason	Sections
1	07/07/2017	Kathryn Easter	Original version	All
2	7/08/2017	Damien Dry	Minor modifications	All

Amendments in this Release

Section Title	Section Number	Amendment Summary

Distribution

Copy No	Version	Issue Date	Issued To

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Authorisation

	Name	Signature	Date
Authorised by:	Damien Dry		7/08/2017

1 Introduction

1.1 Background

The Midland Highway Spring Hill project is a component of the Midland Highway 10 Year Action Plan Program, a 10-year plan with a commitment of \$500 million from the Australian and Tasmanian Governments to make safety improvements along a 157km length of the Midland Highway between Mangalore and Breadalbane.

The crash pattern along the Midland Highway is relatively dispersed, with crashes occurring along its entire length, including locations of multiple crashes. The AusRAP Star Rating Australia's National Network of Highways 2013 report outlined that 86% of the Midland Highway rated at one or two stars, on a five-star scale. By the end of 2016-17, the Midland Highway Upgrade Program will have upgraded approximately 35km of highway and projects will be underway to increase that to approximately 50km.

The Highway's absence of adequate safety features in many areas has resulted in this low rating. A lack of safety features is often a contributing factor in the type and severity of road crashes. For most of the Midland Highway the predominant crash type is loss of control, most of which are single vehicle crashes. Some loss of control crashes have resulted in head-on crashes and fatalities, with 60% of the fatalities on the Highway due to head-on crashes.

The section of Highway over Spring Hill has been identified for works as part of the safety package and this Parliamentary Standing Committee on Public Works (PSCPW) Report provides information regarding these works.

The site has a current AADT of 4,180 vehicles per day, with 17.2% heavy vehicles. Between January 2006 and December 2014, 15 crashes occurred within the project site. The crashes have involved out of control vehicles, vehicles travelling off the carriageway, vehicles emerging from driveways/lanes and overtaking vehicles. In December 2014, there was a fatality resulting from a head-on collision on the highway at the northern limit of the project. There have been two other serious crashes within the project site over this 10 year period.

The project ties in with two recently completed Midland Highway projects, "North of Spring Hill" and "South of Spring Hill."

1.2 Project Objectives

The main objectives for the upgrades at Spring Hill are:

- Reduce head-on collisions through provision of a flexible safety barrier within a central median
- Upgrade the road to a minimum 3-Star AusRAP rating
- Provide safe overtaking opportunities through a '2+1' lane arrangement
- Maintain a 110 km/h speed environment, consistent with the Tasmania Guidelines for Category One Roads which apply to this National Highway

- Improve safety of junctions

The key outcomes intended from this project will be to achieve the objectives outlined above, while managing the infrastructure assets to deliver an appropriate level of service within the agreed budget and program.

To achieve these objectives the Department utilised Australian Standards, Austroads guidelines and the Department's Design Guidelines for Category One Roads. The Midland Highway upgrade projects also utilise a 'Safe System' approach, which has been adopted by all Australian state and territory road authorities to achieve the minimum 3 star AusRAP rating. The approach recognises that people will make mistakes which result in crashes and road infrastructure needs to be designed to take account of these errors.

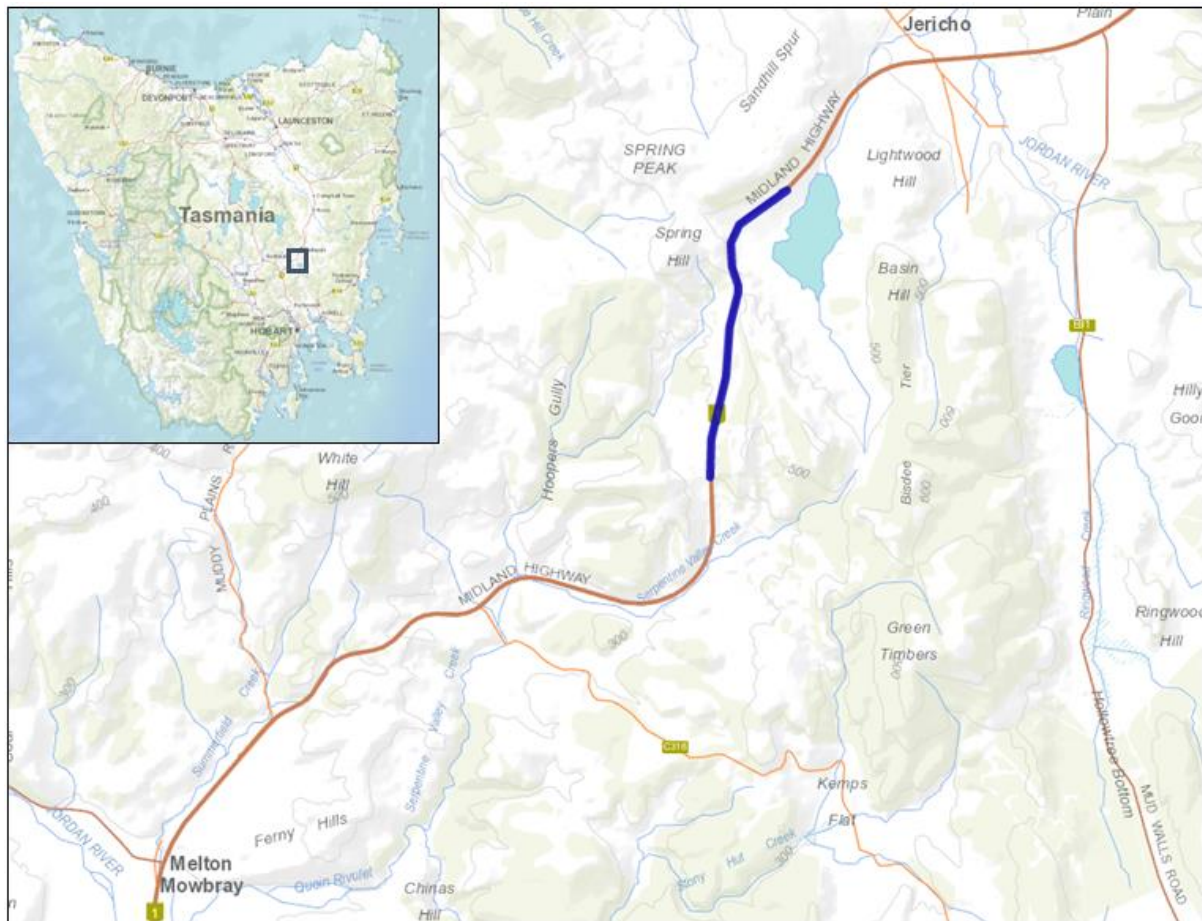
Several safety treatments will be applied to achieve the objectives, including:

- Lane separation with a flexible safety barrier, which can achieve a 90% reduction in serious road trauma caused by head-on and run-off road crashes
- Audible edge lines (rumble strips) alert drivers when they deviate towards the edge of the road and provide time to recover
- Extended sealed shoulders to reduce the likelihood of loss of control when a vehicle crosses the edge line
- Clearing roadside hazards or providing roadside barriers where hazards can't be removed
- Upgrading junctions by providing turning lanes to allow turning vehicles to move out of the traffic flow
- Constructing '2+1' lane arrangements to improve overtaking opportunities and avoid driver frustration
- Minimising breaks in the median flexible safety barrier
- Provide turning facilities at 3-5km intervals, for residential access, maintenance and emergency services
- Lane widths of 3.5m
- Shoulder widths of 2.0m, to allow for correction in the event of loss of control

1.3 Project Location

The project is located approximately 68km north of Hobart on the Midland Highway (A0087), from Bisdee Tier Road to a location 3 km south of Lower Marshes Road (Department of State Growth Link 31, Chainage 3.8 (E 521313, N 5302225) to Link 31 Chainage 7.3 (E 521931, N 5305513)). The project site is designated Spring Hill and is shown in Figure 1.

Figure 1 - Project location map



1.4 Strategic Context of the Project

The Midland Highway forms part of Tasmania's National Transport Network and is the major transport link between Tasmania's north and south. In May 2014, the Australian and Tasmanian Governments committed to the Midland Highway Action Plan, which is to provide \$500 million in funding over 10 years to the upgrade of the Highway. The upgrades at Spring Hill are a component of this Plan and also support the Midland Highway Partnership Agreement that was developed between the Tasmanian Government and the seven Councils abutting the Midland Highway.

The AusRAP Survey undertaken by the Australian Automobile Association in 2013 identified up to 86% of the Midland Highway has a safety rating of less than 3 stars. The predominant type of vehicle crash on the Highway is loss of control with some resulting in head-on collisions. Approximately 60% of fatalities from vehicle crashes are a result of head-on collisions.

The Midland Highway is a gazetted high productivity vehicle (HPV) route. The highway over Spring Hill consists of a southbound and a northbound overtaking lane on either side of Spring Hill with a posted speed limit of 110 km/h. The land adjacent to the highway within the project site is agricultural, used for grazing and cropping.

The existing road has deficiencies in sight distance and geometric alignment for a 110 km/h speed environment. It has a current AusRAP rating of 2-Stars.

The upgrades to the Midland Highway at Spring Hill will provide safety benefits to all road users, and will in particular help to reduce serious injuries and fatalities caused by head-on collisions through the provision of a flexible safety barrier within a central median.

1.4.1 Alignment with Approved Strategies

Upgrading of the Midland Highway is a priority for the Tasmanian Government, and this is being supported by the Australian Government.

The project is a key component of the Midland Highway 10 Year Action Plan and the requirement for safety upgrades along strategic urban freight routes has been identified in the Tasmanian Infrastructure Strategy, the Southern Integrated Transport Plan 2010 and the Midland Highway Partnership Agreement 2009.

The design adheres to the Midland Highway 10 Year Action Plan and specifically the Design Guidelines for Category One roads.

2 Project Details

2.1 Proposed Works

The proposed development includes:

- Widening of the existing carriageway for provision of '2+1' traffic lanes
- Lane separation through a flexible safety barrier within a central median
- Extended sealed shoulders
- Reduction of roadside hazards
- Junction upgrades
- Provision of trucks stops
- Associated earthworks with the proposed widening, requiring significant cutting in some sections due to the nature of the terrain

The design includes one overtaking opportunity in each direction, with both of these tying in with overtaking lanes from the adjacent completed Midland Highway projects. Turn facilities are provided for access to Tedworth Drive, Bisdee Tier and a private access (Hutton Park) at the northern end of the project.

The design includes one truck stop in each direction. The truck stops have storage capacity for three B-doubles, are 7m wide and include a stopping lane and a bypass lane to allow trucks to exit the bay around other parked vehicles.

2.2 Design Speed

Within the project site, the highway is currently signposted at 110 km/h. The horizontal design speed adopted for the safety upgrades is 120km/h, i.e. 10km/h higher than the posted limit, except where value for money and safety benefits can be better achieved through the provision of a lower design speed. Instances where these conditions occur are as follows:

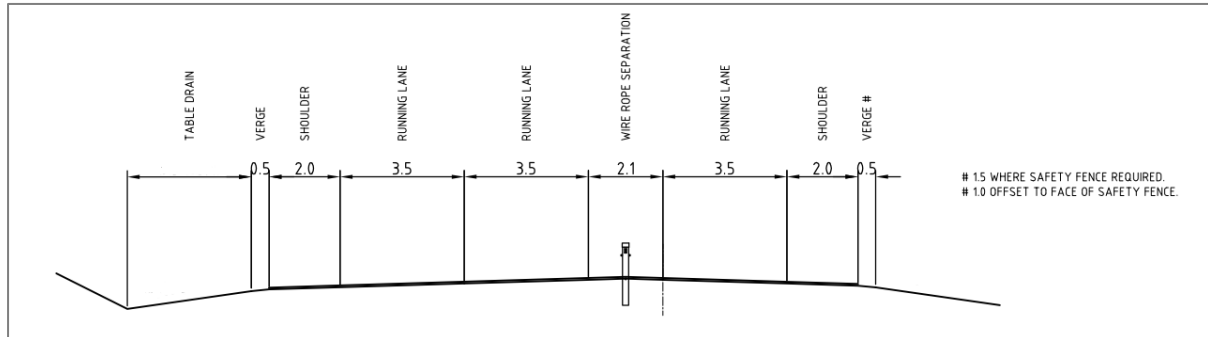
- Ch. 6007 – 6401, 530m radius (Design Speed 110 km/h)
- Ch. 6433 – 7176, 510m radius (Design Speed 108 km/h)

The vertical design speed adopted is 110 km/h. The existing vertical alignment is mostly compliant with the requirements for a 110 km/h design speed. There is one vertical crest curve between Ch. 6020 and Ch. 6710 which is only suitable for a 99 km/h design speed. Due to the large amount of cut required to improve this curve (particularly through a significant rock cutting), the cost of improving the existing vertical alignment in this section significantly outweighs the overall benefit.

2.3 Road Cross Section

The typical cross-section of the “2+1” lane arrangement is shown in Figure 2.

Figure 2 - Midland Highway 2+1 typical cross-section



2.4 Drainage

Due to the steep nature of the topography in the area, drainage conditions within the project extents are generally free draining, with no anecdotal reports of flooding or standing water. Hydraulic calculations were undertaken to ensure that existing drainage infrastructure meets the requirements of *Department of State Growth Specification T8 – Drainage*.

Open surface drains have been included as per the typical cross section for a “2+1” lane arrangement, and where required to account for existing conditions and changes to the roadside environment. There is a small section of kerb and channel at the southern extent of the project which will be reinstated as part of the works.

A hydraulic assessment of existing culverts was undertaken using the Rational Method as described in *Australian Rainfall & Runoff – 1987 Edition (AR&R)* as well as the AR&R Regional Flood Frequency Estimation 2016 (RFFE) online tool to determine peak flows for the required Annual Recurrence Interval (ARI). In accordance with the *Department of State Growth Professional Services Specification T8 – Drainage*, a 100 year ARI was adopted for analysis of peak flows for Category One roads.

Existing culverts within the project site were found to have sufficient hydraulic capacity to convey catchment flows under the highway in a 100 year ARI flood event. These culverts are to be retained and extended where new earthworks extend beyond the existing headwall.

2.5 Utilities

A Dial Before You Dig (DBYD) search was undertaken to determine the presence of any services that may be affected within the project area. Based on this information and details from the engineering field survey, no assets were found to be directly impacted by the works.

There is an overhead powerline crossing at approximately Ch. 4660, however this has adequate clearance and will not be affected by the upgrades.

3 Social, Environmental Impacts and Stakeholder Engagement

3.1 Property Acquisition

No property acquisition is required as part of these works.

3.2 Noise

Noise management has been considered in accordance with the Tasmanian State Road Traffic Noise Management Guidelines. Under the Guidelines, this project was assessed as a safety upgrade, and is not an eligible scenario for noise mitigation under the Guidelines.

3.3 Flora and Fauna

A Botanical and Vegetation Survey was conducted along the length of the project in November 2014. Five state listed (Threatened Species Protection Act 1995 - TSPA) flora were recorded:

- *Austrostipa scabra var falcata* (rough speargrass) Rare
- *Vittadinia cuneata subsp. cuneata* (fuzzy New Holland Daisy) Rare
- *Vittadinia gracilis* (woolly New Holland daisy) Rare
- *Scleranthus fasciculatus* (spreading knawel) Vulnerable
- *Lepidium hyssopifolium* (soft peppercross) Endangered

One nationally listed (Environment Protection and Biodiversity Conservation Act 1999 – EPBC) flora species was recorded:

- *Lepidium hyssopifolium* (soft peppercross) Endangered

Any impact to the nationally endangered *L. hyssopifolium* would likely trigger a referral under the EPBC Act and is likely to require some form of offsetting. The proposed upgrades specifically avoid impacting these species. A significant impact assessment will be prepared by a suitably qualified ecologist outlining the reasons as to why the Department has chosen not to refer the project under the EPBC Act.

Any impacts on state listed species as a result of the project will trigger the requirement for a 'Permit to Take' from the Department of Primary Industries Parks Water and Environment (DPIPWE). Of the state only listed flora, the populations of *A.scabra*, and *V. cuneata subsp. cuneata* are not likely to be deemed significant. Offset requirements are unlikely for impact to *V. gracilis* (1300 plants recorded) and *S. fasciculatus* (3 plants) however this would depend on the final number impacted.

A number of native vegetation communities were found to be present within the project site including;

- lowland *Poa* grassland (GPL), dry *Eucalyptus* – approximately 452 m² impacted
- *globulus* forest and woodland (DGL) – no impact
- A narrow band of dry *Eucalyptus tenuiramis* forest and woodland on sediments (DTO) – no impact

Both DGL and DTO are listed as threatened under the *Tasmanian Nature Conservation Act 2002*. Whilst the DGL community on the eastern side of the Midland Highway is in good condition, the sliver on the western side of the highway is largely regrowth with introduced species dominating the area beneath the canopy.

GPL is no longer listed as threatened under the *Act*, but is EPBC listed. The GPL community located on the western side of the highway immediately south of the *L. hyssopifolium* populations will be affected by the works. However, given the large amount of grassland nearby, it is unlikely that a small sliver of impact due to road widening would be viewed as significant. Furthermore, the patches identified during the vegetation survey did not meet the criteria for protection of high quality examples.

Fauna:

During the Botanical and Vegetation Survey conducted in November 2014, remnant trees were assessed for their potential fauna habitat. Based on the suitable fauna habitat identified in this initial survey, a follow up fauna survey was conducted in March 2015, with the two key *Poa* grassland (GPL) remnants being the target areas for the survey at Ch. 5700 (eastern side of the highway) and Ch. 6200 (western side of the highway).

During the targeted survey, the majority of habitat values found to be present within the *Poa* grassland areas were restricted to foraging values for a number of threatened fauna including the state-listed vulnerable tussock skink (vulnerable) and federally-listed ptunnarra brown butterfly (endangered). No tussock skinks were physically recorded during the habitat survey, most likely because the habitat present is likely of low quality due to the cooler temperatures. Ptunnarra brown butterflies were observed in one large grassland on the western side of the highway at Ch. 6200.

A significant impact assessment will be prepared by a suitably qualified ecologist stating why the impacts to GPL and ptunnarra brown butterfly are not significant and does not require referral under the EPBC Act.

3.4 Aboriginal Heritage

Aboriginal Heritage Tasmania has advised that there are no Aboriginal heritage sites recorded within or close to the road easement. Due to a review of previous reports and the area being highly disturbed it is believed that the area has a low probability of Aboriginal heritage being present.

3.5 Historic Heritage

A guard house listed on the Tasmanian Heritage Register is located at the southern end of the project at Tedworth Drive. Other features of the heritage property include a cistern, gate and an Oak tree. The project will not impact this property. Works in proximity to this site will be performed in a sensitive manner to ensure no adverse impacts to the property.

3.6 Landscape and Visual Impacts

The Midland Highway at Spring Hill is the topographic high point of the Midland Highway. The Spring Hill Tier (long ridge with prominent steep to vertical slopes) begins northwest of Spring Hill and travels to the southeast. The Midland Highway generally follows the natural contours, but crosses the Tier in a series of deep trench excavations into the natural geology.

A large proportion of the highway within the project site is surrounded by high cut batters on either side of the road. Either side of the Spring Hill Tier the adjacent landscape is predominantly pastoral with views to historic buildings and surrounding hills.

A large proportion of the vegetation within the project site is dominated by introduced species or planted natives. On the top of some road cuttings is native regrowth comprised of in large part *Acacia dealbata* (silver wattle). Native communities present include lowland *Poa* grassland (GPL), dry *Eucalyptus globulus* forest and woodland (DGL) and a narrow band of dry *Eucalyptus tenuiramis* forest and woodland on sediments (DTO).

There is an oak tree adjacent to the highway on the heritage property at Tedworth Drive. This will not be impacted by the works. There are no pioneer avenue trees or other historic landscape plantings within the project area.

The project will have minimal impact on the landscape. The project maintains the existing alignment and existing batter slopes. Vegetation removal has been minimised.

3.7 Stakeholder Engagement

Individual meetings have been held with affected landowners to discuss the design. All landowners are accepting of the design and access layouts.

A public display was undertaken on 23 February 2017 at Oatlands from 2pm-6pm, in conjunction with the York Plains to St Peters Pass project. Generally feedback for the Spring Hill Upgrade was that the project is a good idea and will improve safety.

3.8 Development Approvals

The project is located within the Southern Midlands Local Government Area. Development in this area is subject to the provisions in the *Southern Midlands Interim Planning Scheme 2015* (the Scheme).

A Development Application (DA) was submitted to Southern Midlands Council in May 2017. The DA was publically exhibited for 14 days. No representations from the public were received. The DA was approved on 30 June 2017.

4 Project Program and Costs

4.1 Project Program

The critical path of the project is based on the delivery of detailed design and tender documentation in August 2017. Meeting these critical dates will ensure that construction works can begin in the 2017 / 2018 summer construction season. The key dates for the project are shown in Table 2.

Table 2 – Critical Project Tasks and Timing

Project Task	Completion Date / Timing
Development application submission	19 May 2017
Approval of Project Proposal Report	July 2017
Parliamentary Standing Committee of Public Works submission	August 2017
Detailed design delivery	August 2017
Tender document delivered	August 2017
Advertisement of tender	September 2017
Award of contract	October 2017
Commencement of works	November 2017
Practical completion of works	June 2018
Project close out	June 2018

4.2 Costs

A detailed estimate of the expected out-turn costs has been produced for the project, including probabilistic methods using a Monte Carlo analysis of inherent and contingent risk factors that have been identified by the wider project team, as outlined in State Growth's Best Practice Cost Estimation Guidelines.

An extract of this has been included in the Table 1 and additional information is provided in Appendix B.

Table 1 - Cost Estimate Summary

Cost Item	Estimated Value
Scoping and Development Phase costs (including design and project management)	\$806,459
Property Acquisition ¹	\$5,000
Delivery Phase costs (including contract management, project management, and insurance costs)	\$567,968
Estimated construction contract costs, including: <ul style="list-style-type: none">• Earthworks• Drainage• Pavements• Bituminous surfacing• Bridge structures• Traffic facilities• Landscaping	\$7,859,889
Expected contingency on base estimate outlined above (P50) plus Escalation	\$1,354,412
<i>Expected project out-turn cost (P50)</i>	<i>\$10,593,728</i>

The above is based on the contingency required to provide a P50² level of confidence in the cost estimate. The equivalent project out-turn cost for a P90 level of confidence is \$12,037,200.

¹ Estimated value, final value subject to Valuer General's determinations.

² P50 refers to the value at which there is a 50% chance of the project coming in below this cost.

5 Conclusion

The design for the proposed Spring Hill upgrade on the Midland Highway has been carried out in accordance with the appropriate design standards and guidelines. The requirements of abutting landowners and Southern Midlands Council have been incorporated.

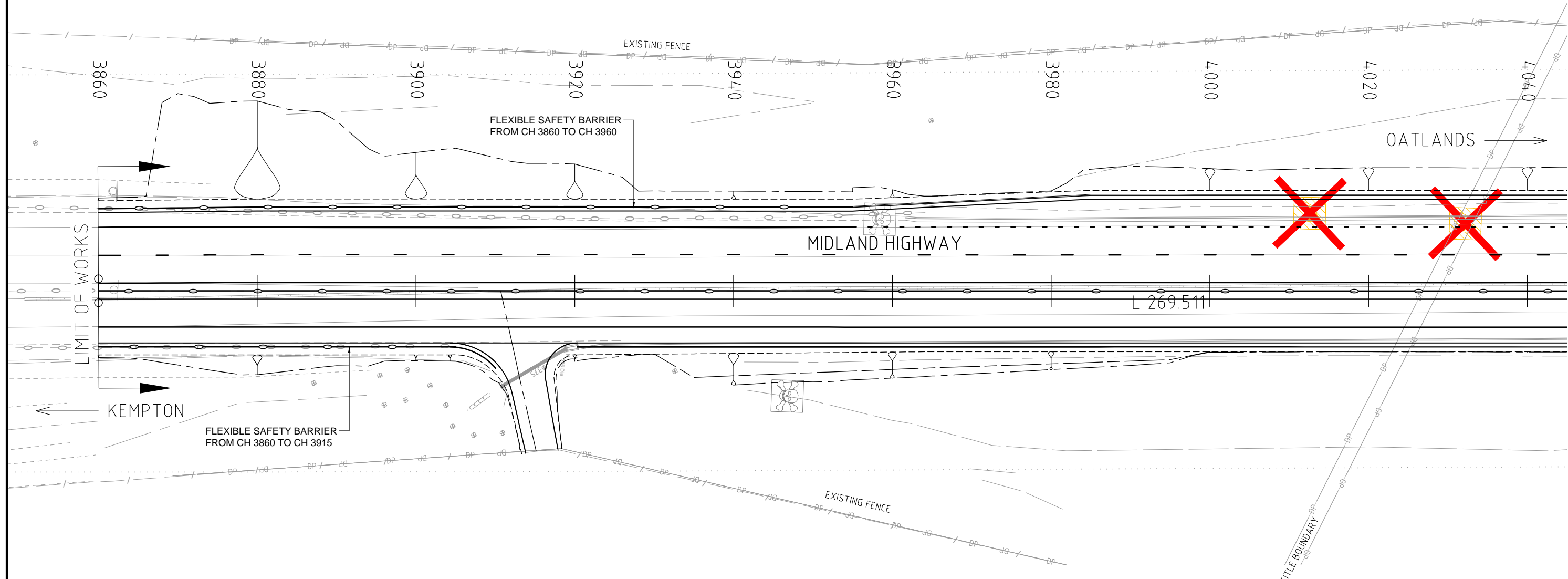
Once complete, the works will provide improved safety by providing a central wire rope safety barrier, a wider pavement with sealed shoulders and will provide safer property accesses. The completed works will support transport efficiency objectives on the National Land Transport Network by providing improved overtaking opportunities.

It is recommended that the project be approved.

Appendix A. Drawings



'SUNNYHAVEN' - MIDLAND HWY
 MELTON MOWBRAY TAS 7030
 Property ID 7657945
 Title Reference 42956/1
 RODNEY CLIFFORD JONES
 REDSIDE 4208 MIDLAND HWY
 MELTON MOWBRAY TAS 7030



LEGEND:

- PROPOSED CONTROL LINE - CENTRELINE
- PROPOSED FLEXIBLE SAFETY BARRIER
- PROPOSED W-BEAM SAFETY BARRIER
- PROPOSED DRAIN
- PROPOSED EARTHWORKS

ENVIRONMENT LEGEND:

- Lh - SOFT PEPPERCRESS
- As - ROUGH SPEARGRASS
- Vc - FUZZYNEW HOLLAND DAISY
- Vg - WOOLLY NEW HOLLAND DAISY
- Sf - SPREADING KNAWEL
- WEED
- (GPL) LOWLAND POA
LABILLARDIEREI GRASSLAND
- (DGL) EUCALYPTUS GLOBULUS DRY
FOREST AND WOODLAND
- (DTO) EUCALYPTUS TENUIRAMIS FOREST AND
WOODLAND ON SEDIMENTS
- VEGETATION TO BE REMOVED

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No.	Amendment Description	Initials Date
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SCALES

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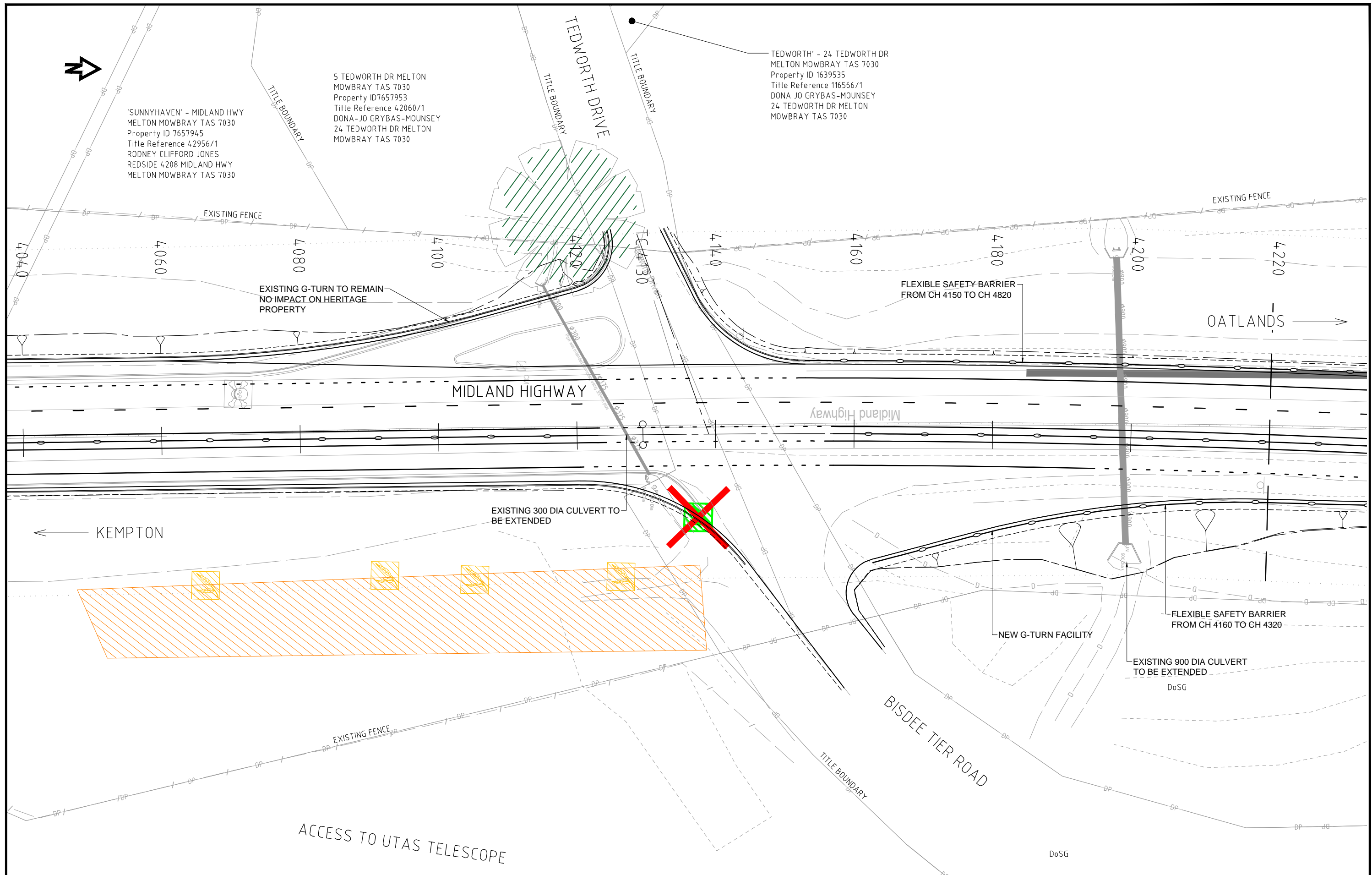
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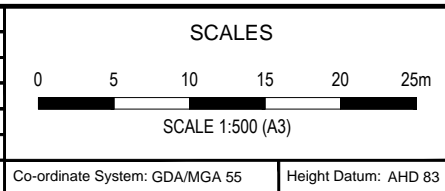
Department of State Growth

MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 1

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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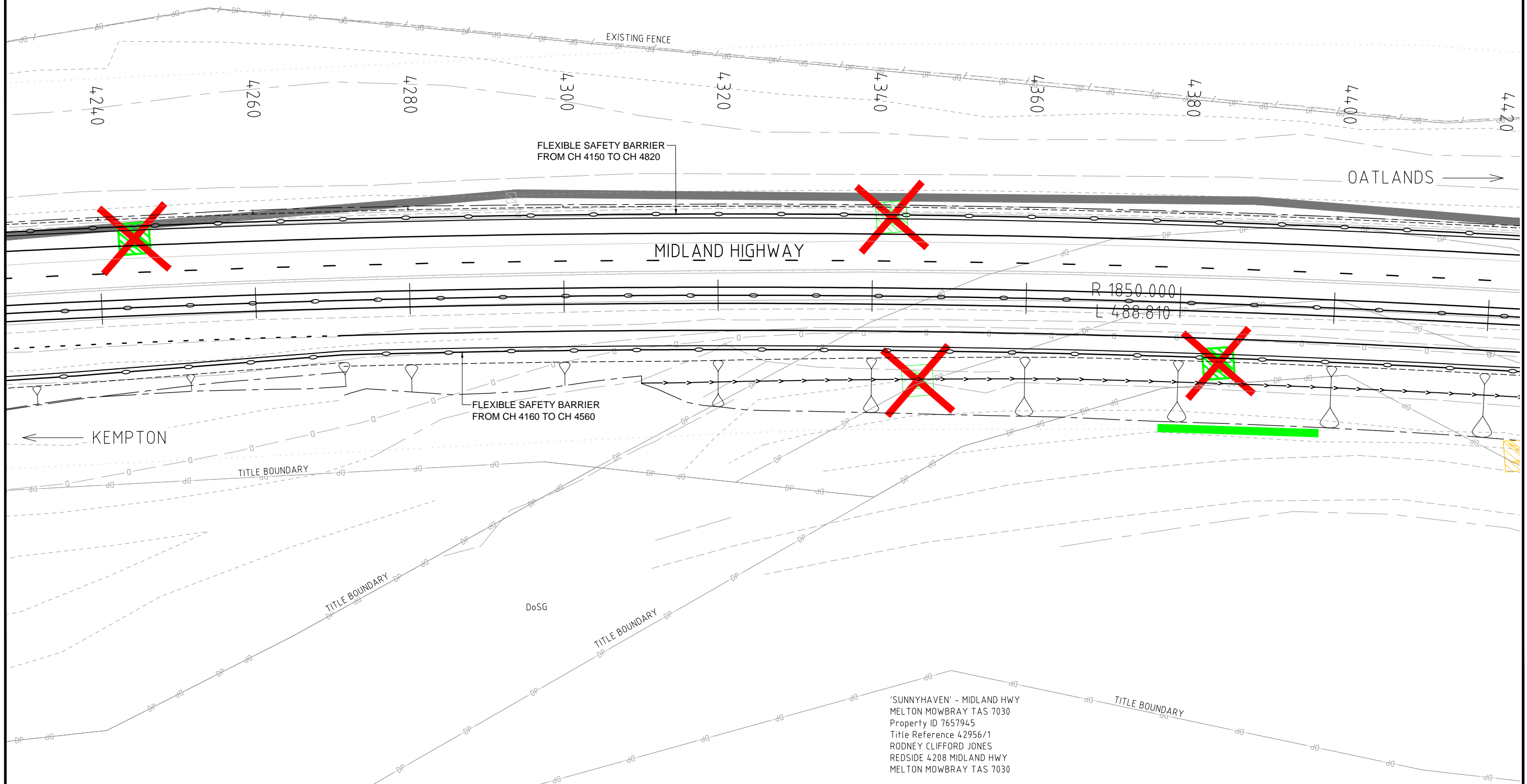
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MIDLAND HIGHWAY (A0087)
SPRING HILL UPGRADE
DEVELOPMENT APPLICATION
GENERAL ARRANGEMENT
SHEET 2

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SKT-0011			



1231 LOVELY BANKS RD
 MELTON MOWBRAY TAS 7030
 Property ID 3236801
 Title Reference 116566/2
 LOVELY BANKS PL.
 ELIZABETH MARY MCSHANE
 3997 MIDLAND HWY MELTON
 MOWBRAY TAS 7030



'SUNNYHAVEN' - MIDLAND HWY
 MELTON MOWBRAY TAS 7030
 Property ID 7657945
 Title Reference 42956/1
 RODNEY CLIFFORD JONES
 REDSIDE 4208 MIDLAND HWY
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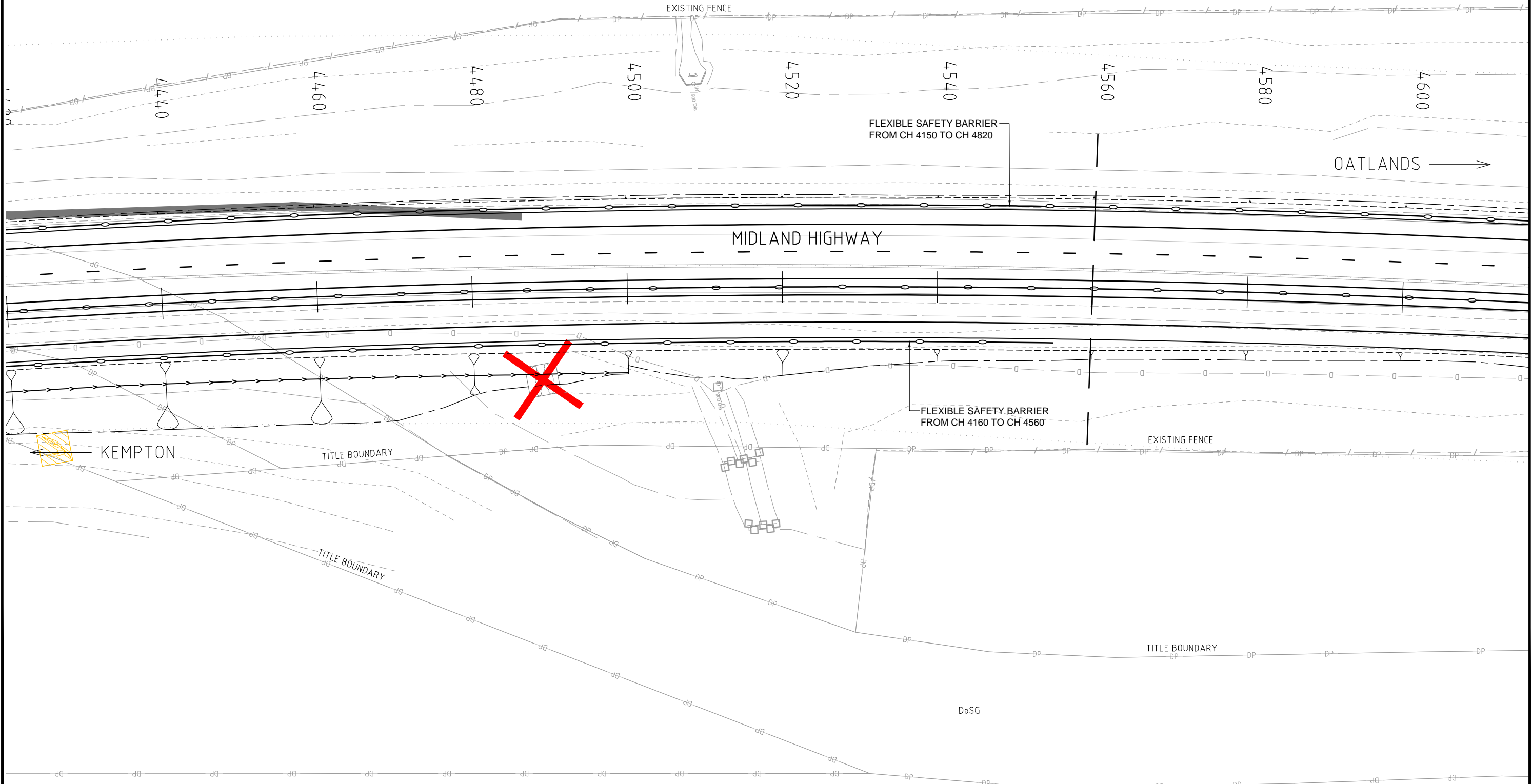
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MIDLAND HIGHWAY (A0087)
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 SHEET 3

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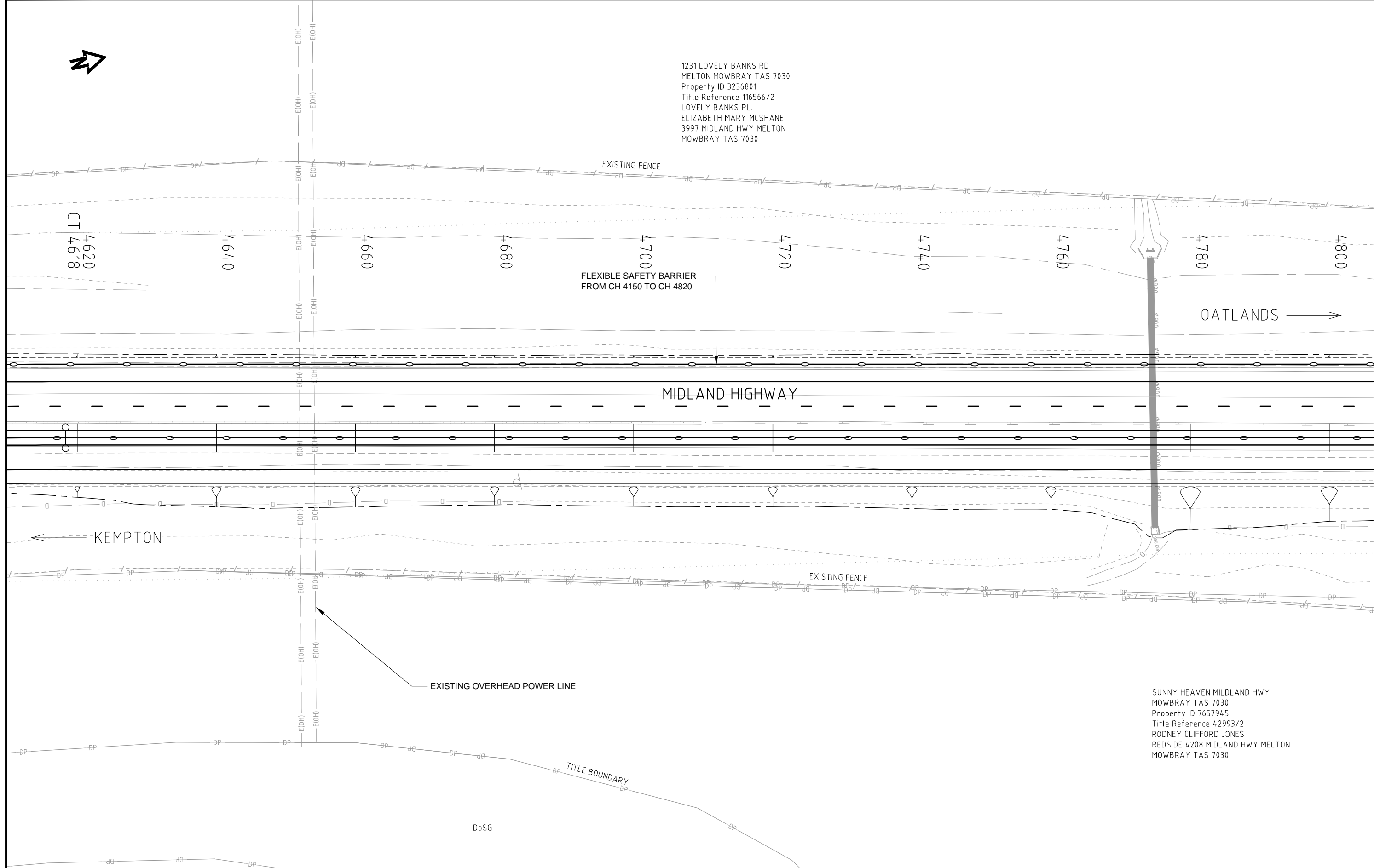
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MIDLAND HIGHWAY (A0087)
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SKT-0011			



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SUNNY HEAVEN MILDLAND HWY
 MOWBRAY TAS 7030
 Property ID 7657945
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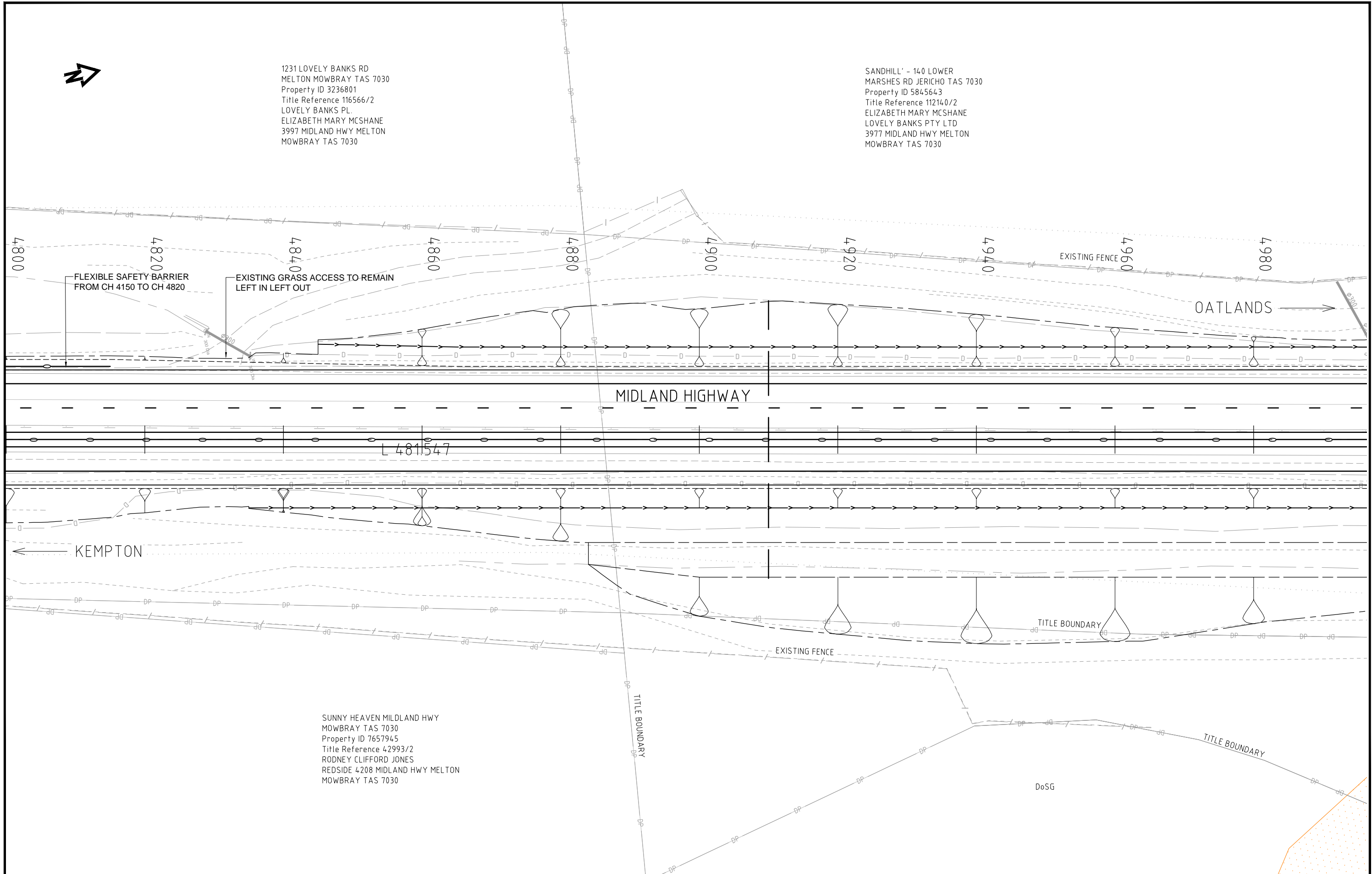
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ELIZABETH MARY MCSHANE
3997 MIDLAND HWY MELTON
MOWBRAY TAS 7030

SANDHILL - 140 LOWER
MARSHES RD JERICO TAS 7030
Property ID 5845643
Title Reference 112140/2
ELIZABETH MARY MCSHANE
LOVELY BANKS PTY LTD
3977 MIDLAND HWY MELTON
MOWBRAY TAS 7030



SUNNY HEAVEN MIDLAND HWY
MOWBRAY TAS 7030
Property ID 7657945
Title Reference 42993/2
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REDSIDE 4208 MIDLAND HWY MELTON
MOWBRAY TAS 7030

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Co-ordinate System: GDA/MGA 55 Height Datum: AHD 83

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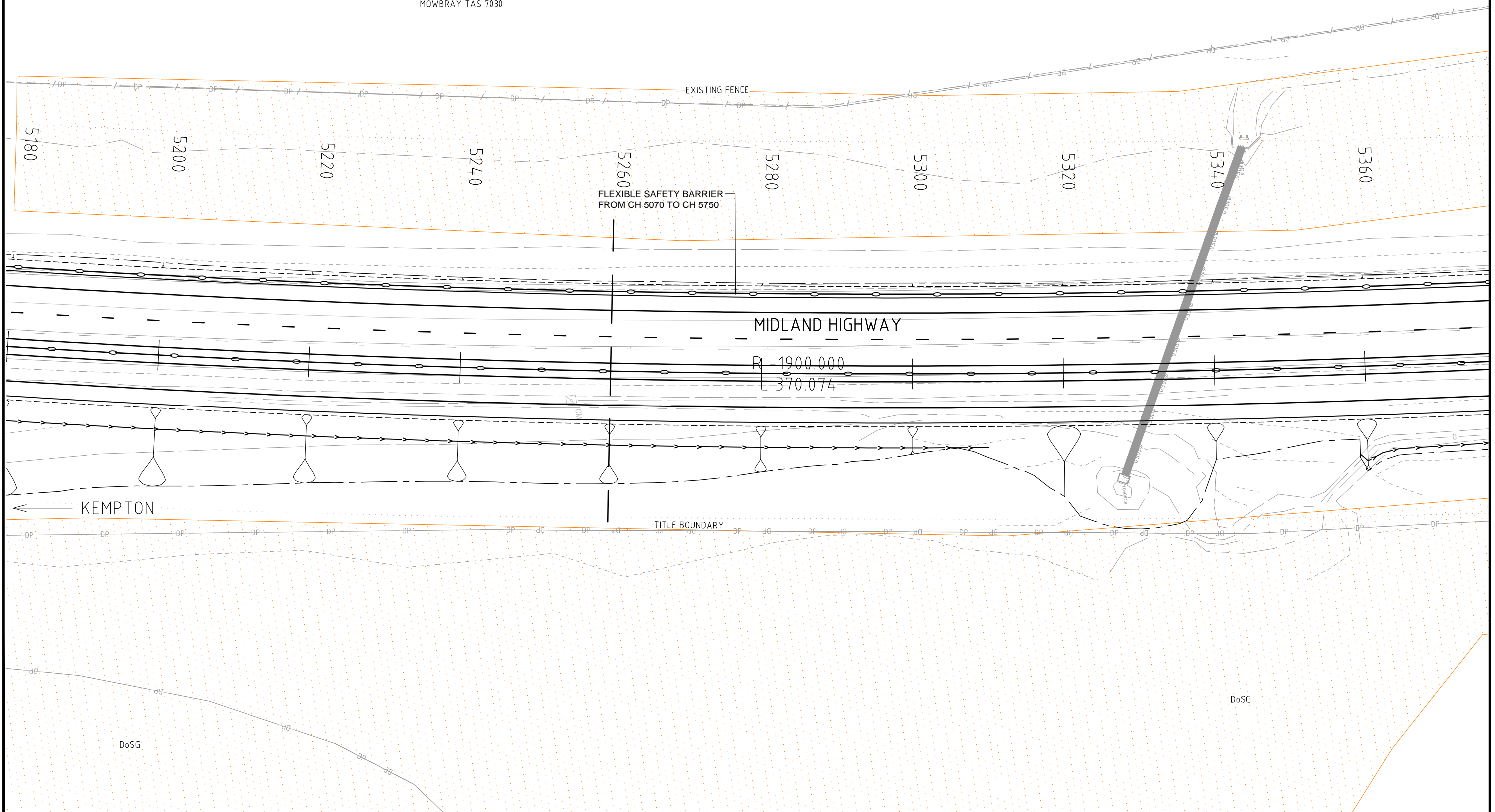
MIDLAND HIGHWAY (A0087)
SPRING HILL UPGRADE
DEVELOPMENT APPLICATION
GENERAL ARRANGEMENT
SHEET 6

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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SKT-0011			P1



SANDHILL - 140 LOWER
 MARSHES RD JERICO TAS 7030
 Property ID 5845643
 Title Reference 112140/2
 ELIZABETH MARY MCSHANE
 LOVELY BANKS PTY LTD
 3977 MIDLAND HWY MELTON
 MOWBRAY TAS 7030

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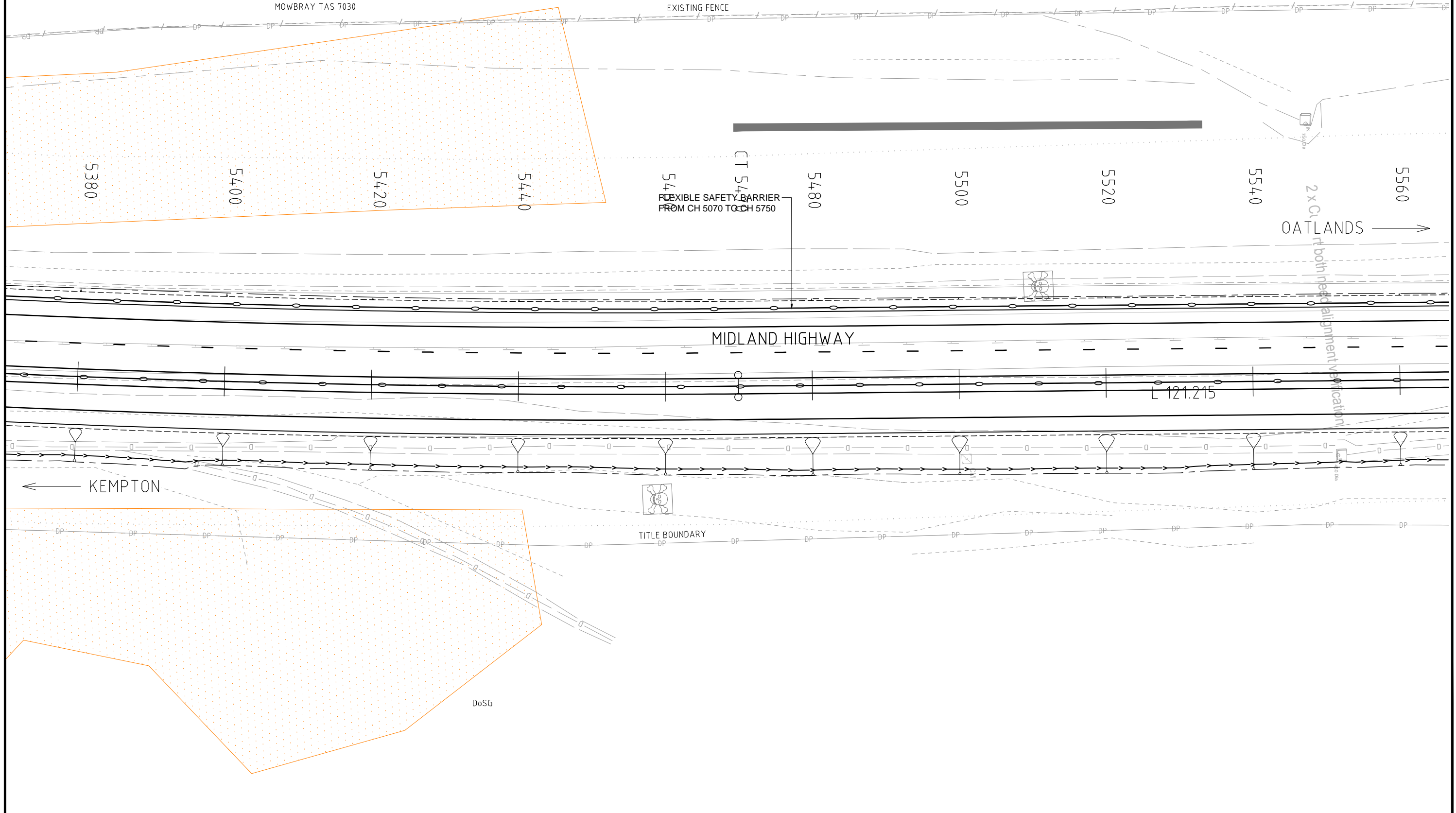
Department of State Growth

MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 8

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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REGISTRATION NUMBER			REVISION P1
SKT-0011			



SANDHILL' - 140 LOWER
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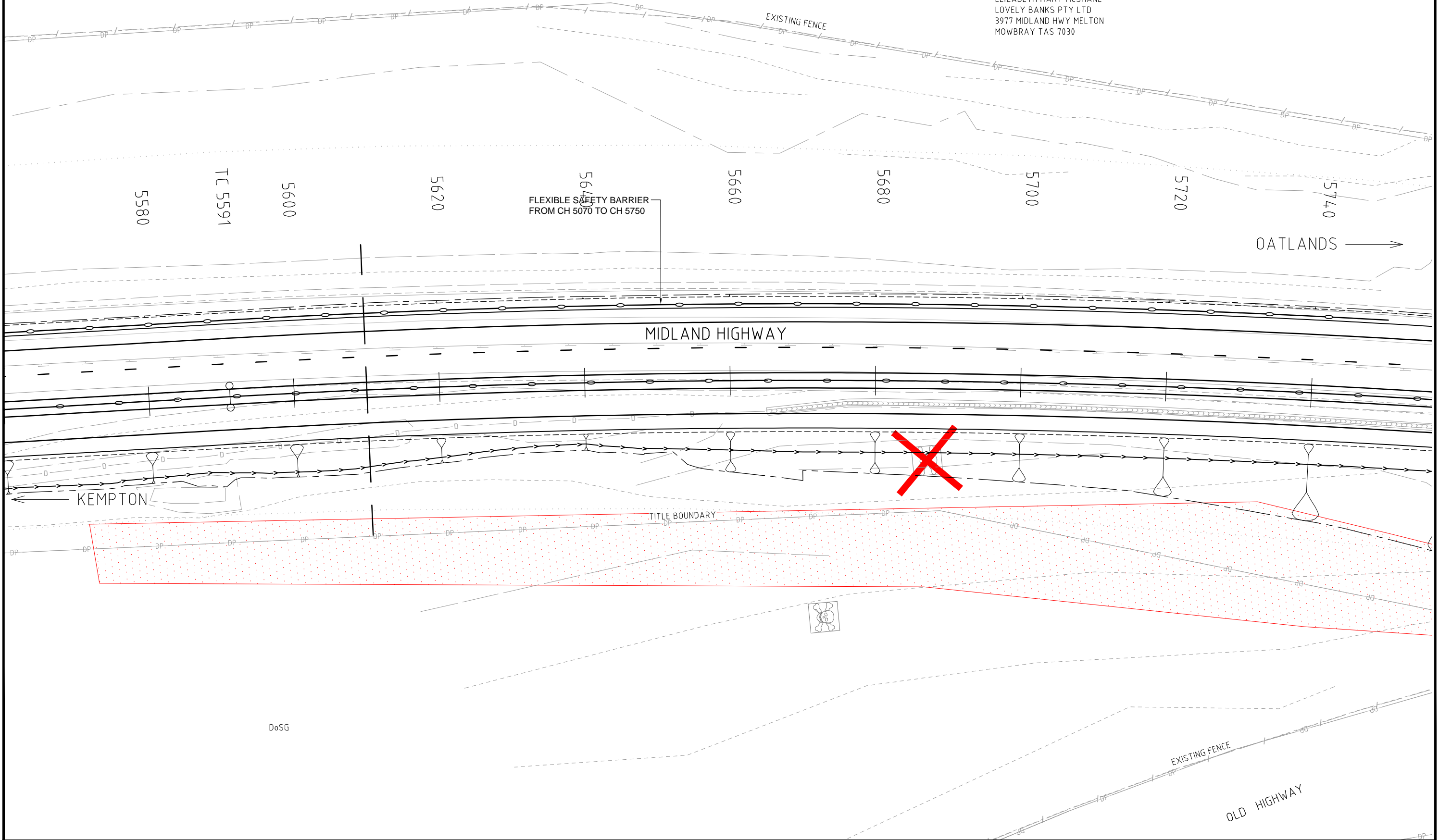
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
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 SHEET 9

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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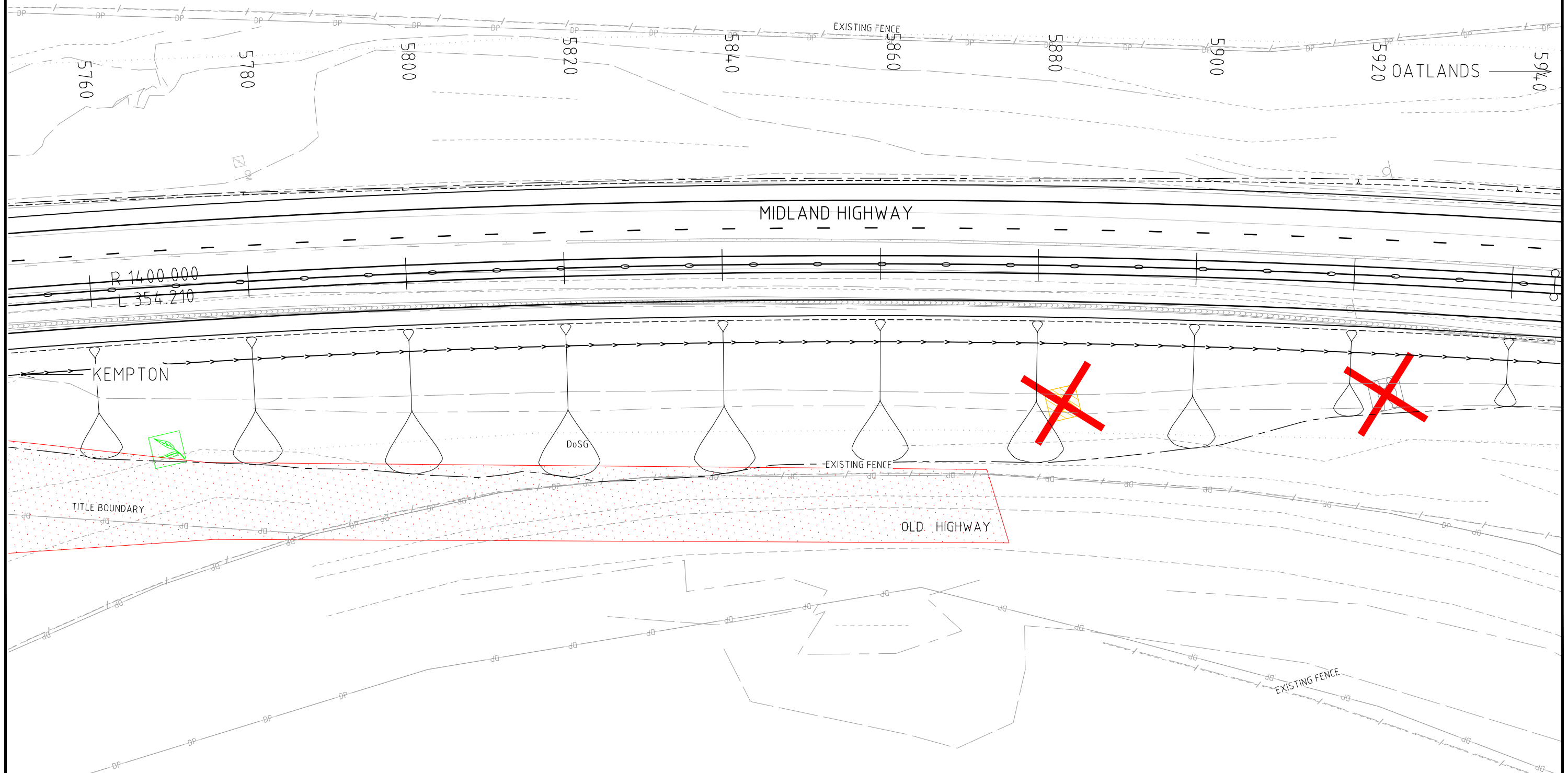
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 10

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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SKT-0011			



SANDHILL - 140 LOWER
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Co-ordinate System: GDA/MGA 55 | Height Datum: AHD 83

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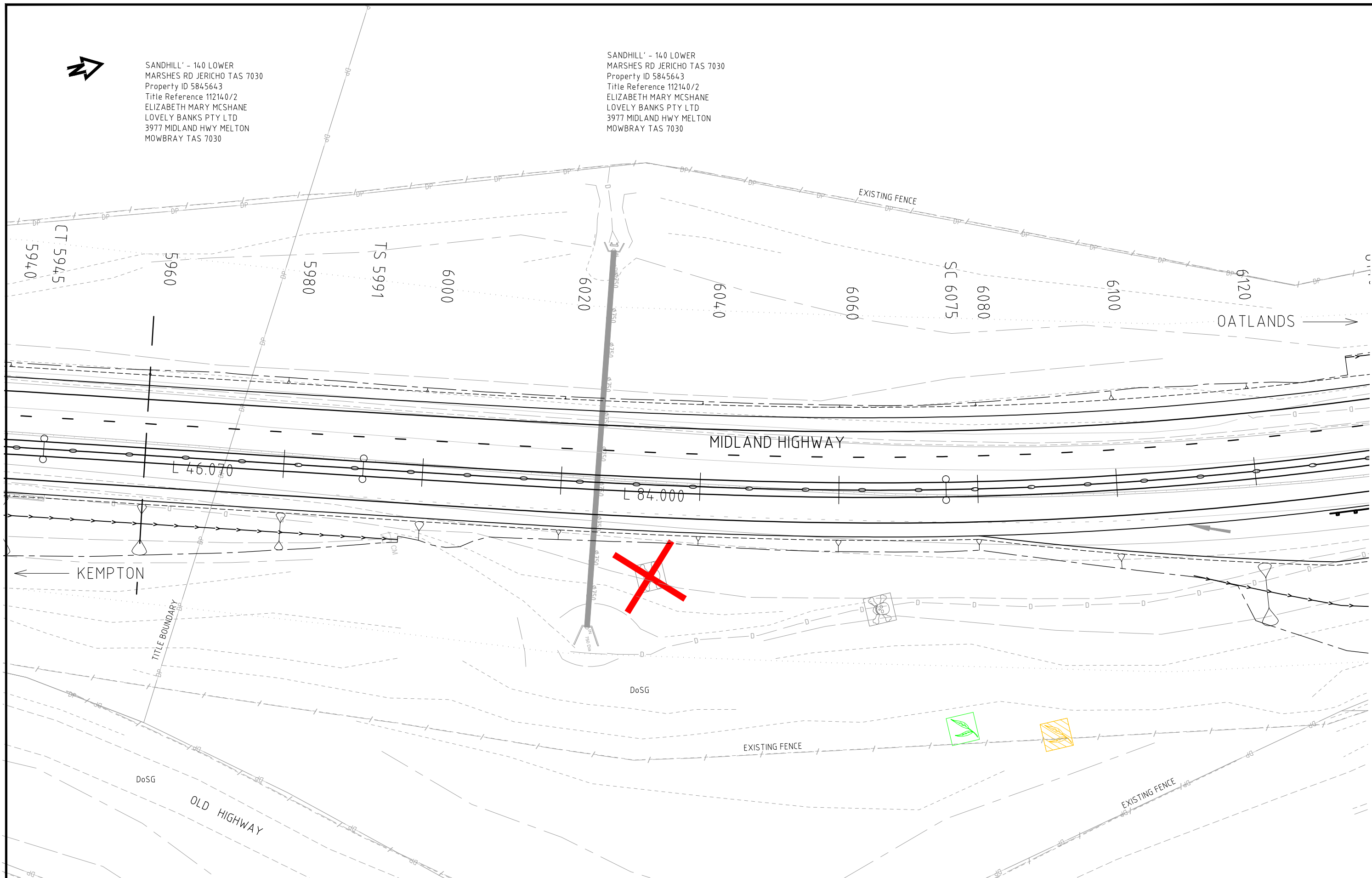
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 SPRING HILL UPGRADE
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 SHEET 11

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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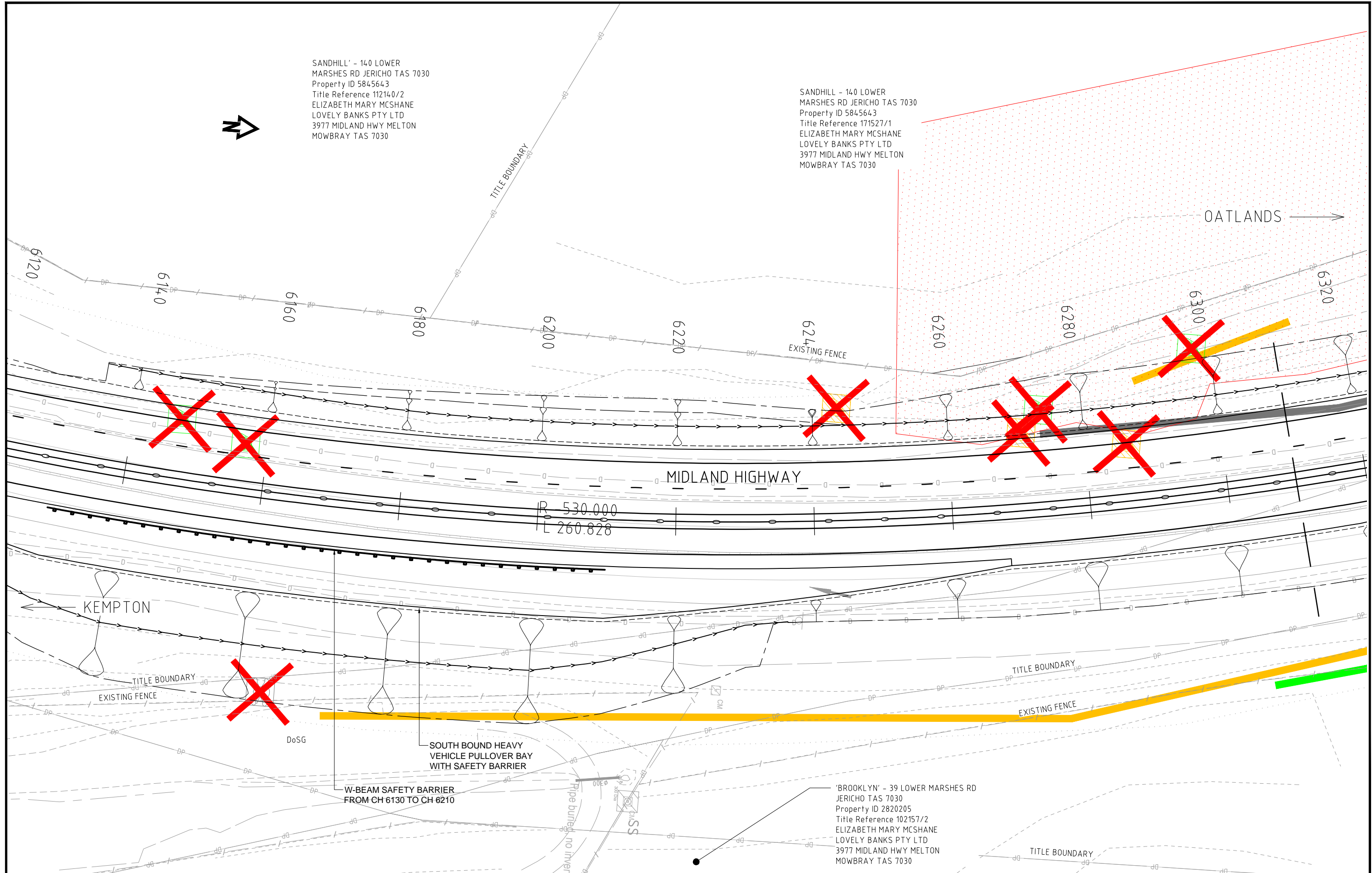
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 SHEET 12

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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SANDHILL - 140 LOWER
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'BROOKLYN' - 39 LOWER MARSHES RD
 JERICHO TAS 7030
 Property ID 2820205
 Title Reference 102157/2
 ELIZABETH MARY MCSHANE
 LOVELY BANKS PTY LTD
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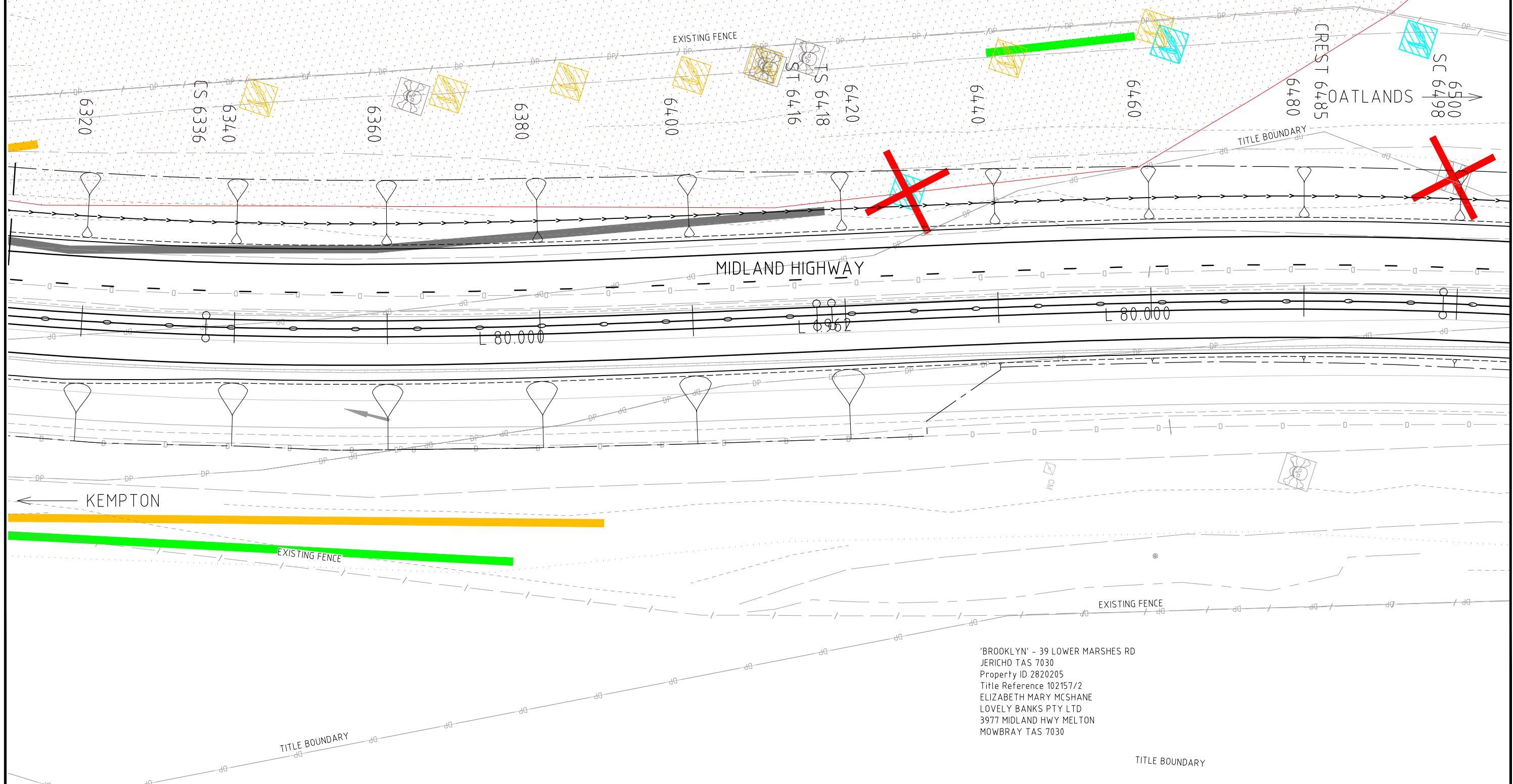
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 13

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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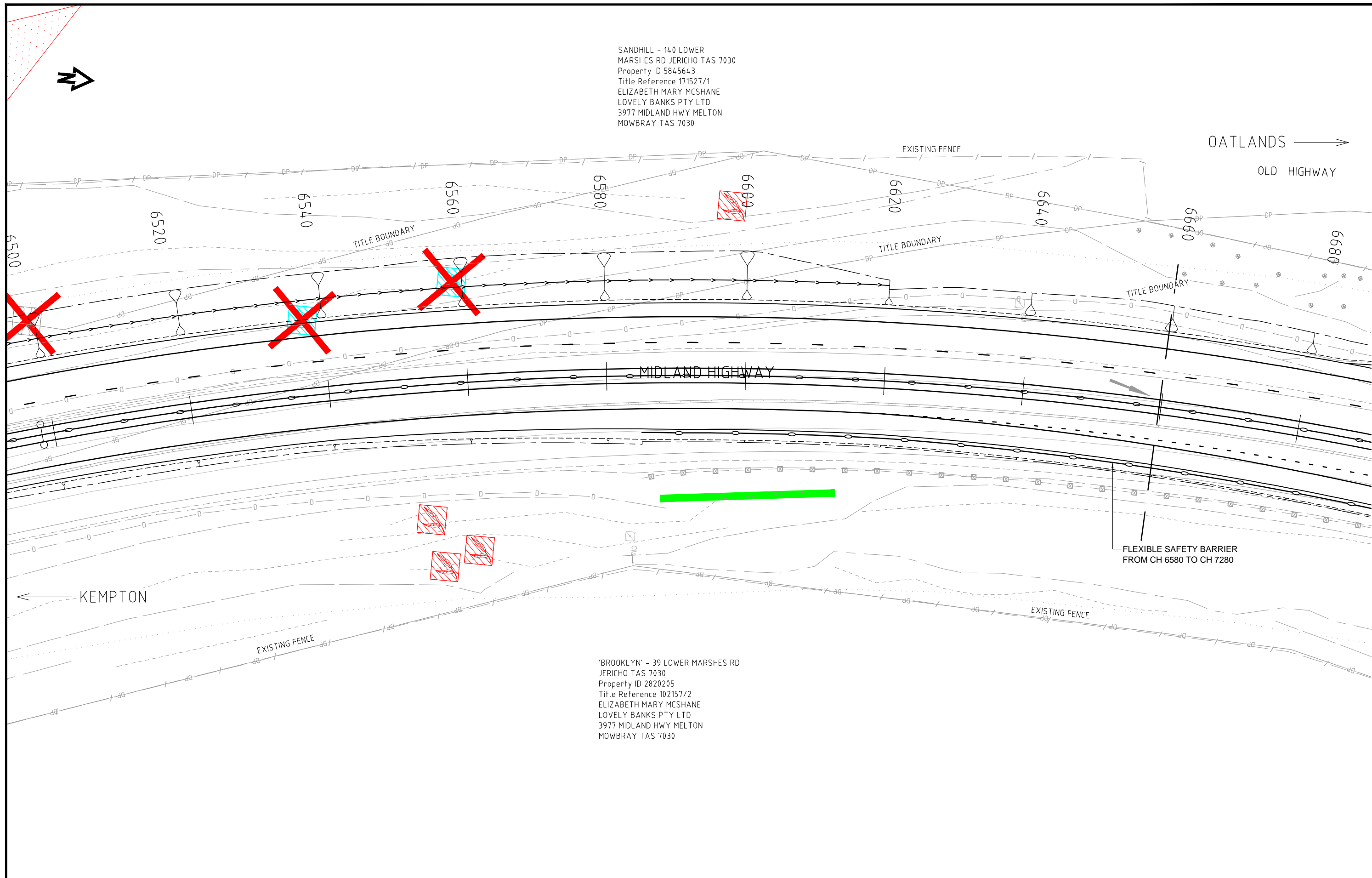
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 14

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REGISTRATION NUMBER			REVISION
SKT-0011			P1



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 MOWBRAY TAS 7030

OATLANDS →
 OLD HIGHWAY

← KEMPTON

FLEXIBLE SAFETY BARRIER
 FROM CH 6580 TO CH 7280

P1	ISSUED FOR DEVELOPMENT APPROVAL	19/05/2017
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
 DEVELOPMENT APPLICATION
 GENERAL ARRANGEMENT
 SHEET 15

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SKT-0011			



SANDHILL - 140 LOWER MARSHES RD JERICO TAS 7030
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OLD HIGHWAY

'BROOKLYN' - 39 LOWER MARSHES RD
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 Property ID 2820205
 Title Reference 102157/2
 ELIZABETH MARY MCSHANE
 LOVELY BANKS PTY LTD
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 MOWBRAY TAS 7030

OATLANDS →

EXISTING 900 DIA CULVERT TO BE EXTENDED

W-BEAM SAFETY BARRIER FROM CH 6740 TO CH 6825

NORTHBOUND HEAVY VEHICLE PULLOVER BAY WITH SAFETY BARRIER

FLEXIBLE SAFETY BARRIER FROM CH 6765 TO CH 6873

EXISTING FENCE

MIDLAND HIGHWAY

R 510.000
 L 600.558

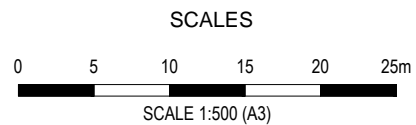
FLEXIBLE SAFETY BARRIER FROM CH 6580 TO CH 7280

EXISTING FENCE

← KEMPTON

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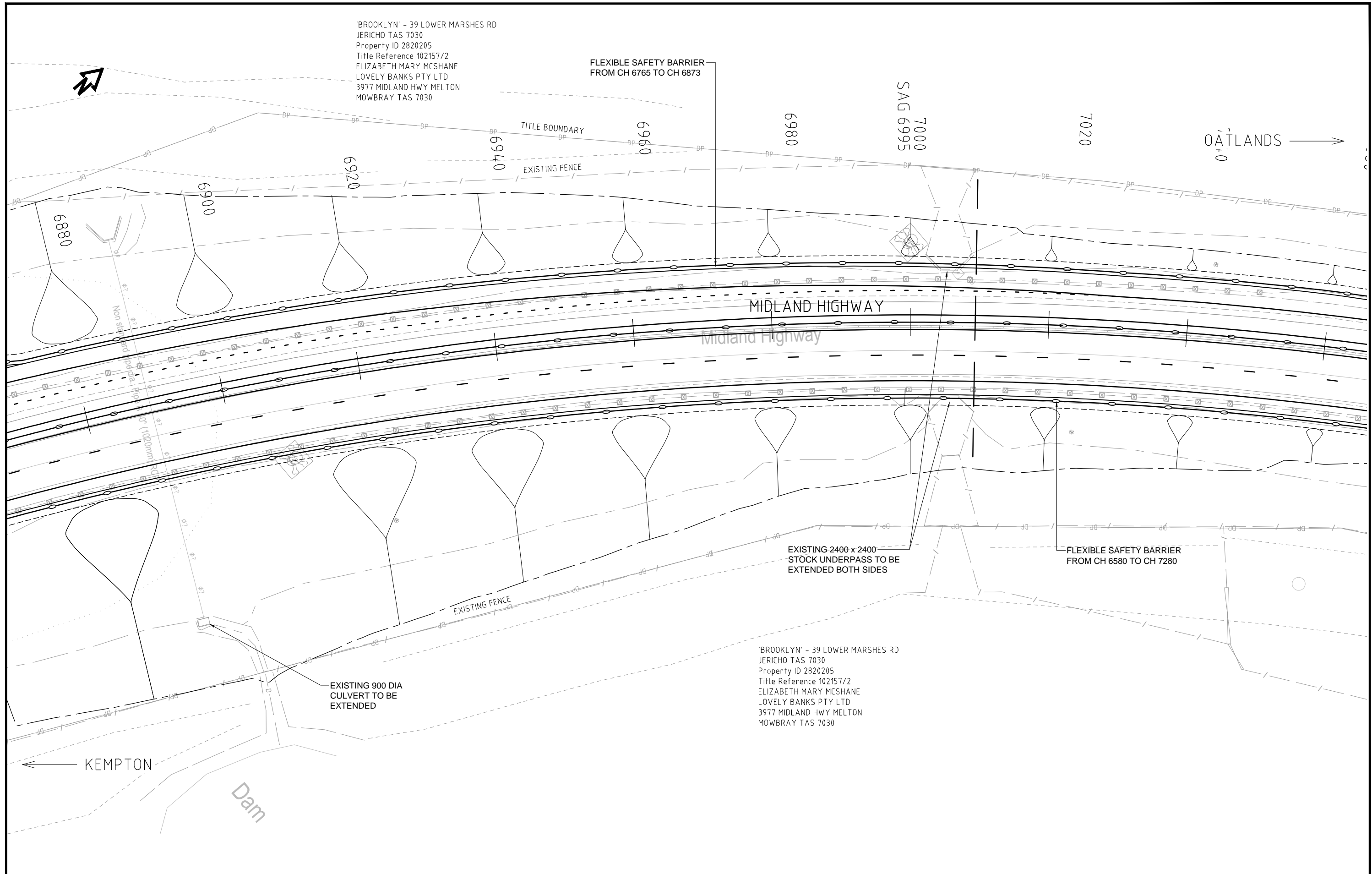
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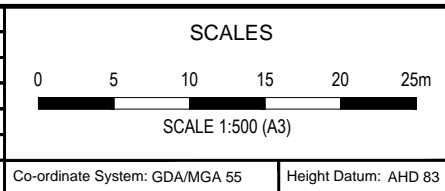
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 SHEET 16

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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SKT-0011			

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 Height Datum: AHD 83



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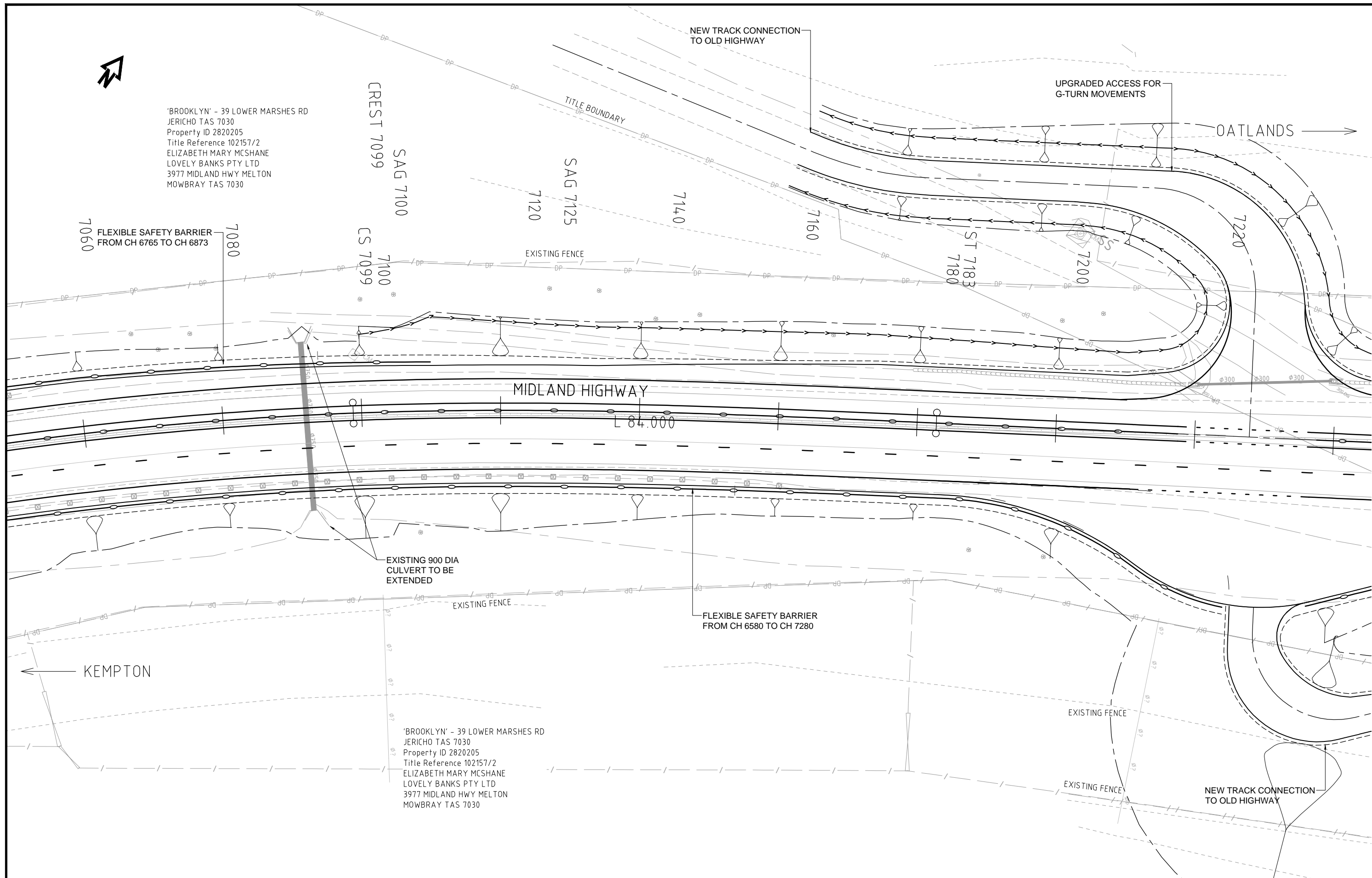
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MIDLAND HIGHWAY (A0087)
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 GENERAL ARRANGEMENT
 SHEET 17

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REGISTRATION NUMBER SKT-0011			REVISION P1



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FLEXIBLE SAFETY BARRIER
 FROM CH 6765 TO CH 6873

EXISTING 900 DIA
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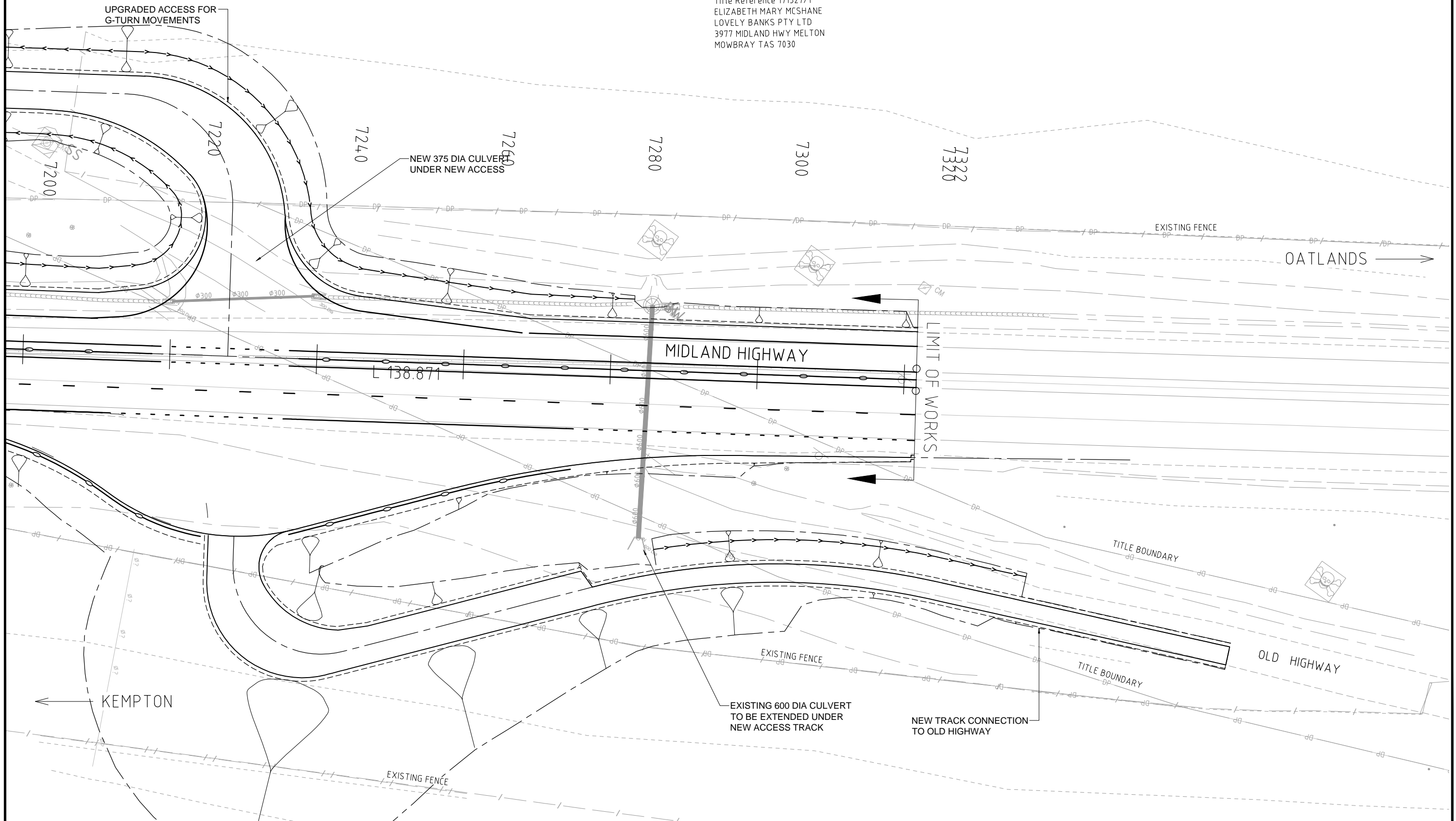
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MIDLAND HIGHWAY (A0087)
 SPRING HILL UPGRADE
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 GENERAL ARRANGEMENT
 SHEET 18

CONTRACT No.	DRAWING	PRINTED DATE	SHEET No.
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SKT-0011			



SANDHILL - 140 LOWER MARSHES RD
 JERICO TAS 7030
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MIDLAND HIGHWAY (A0087)
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 SHEET 19

CONTRACT No.	DRAWING IS176800-700-CR-SKT-0011.dwg	PRINTED DATE 16-Jun-17, 3:11 PM	SHEET No. 19
REGISTRATION NUMBER SKT-0011			REVISION P1

Appendix B. P50 / P 90 Cost Estimates

P90 AND P50 COST ESTIMATION FOR:

Project Name

Midland Highway Safety Works Package - Spring Hill

Brief reference number

2220-1-37

Project completion:

State Growth Project Number

048545

Jun-18

Consultant Project number

IS176800

Date

23/06/17

ID	Description	Estimate			
		Unit	Billed Qty	Net Rate	Net amount
1.0	Scoping Phase				
1.1	Consultant project scoping phase activities (project identification, site investigations, preliminary design)	item	1.00	\$ 161,767	\$ 161,767
1.2	State Growth Project Management Scoping phase	item	1.00	\$ 133,618	\$ 133,618
	Subtotal Scoping				\$ 295,385
2.0	Development Phase				
2.1	Project development phase activities (detailed design, Tender documentation)	item	1.00	\$ 377,455	\$ 377,455
2.2	State Growth Project Management Scoping to Development	item	1.00	\$ 133,618	\$ 133,618
	Subtotal Development				\$ 511,074
3.0	Contract Administration and Owners Costs				
3.1	Acquisition, Utilities relocation costs, approval fees	item	1.00	\$ 25,000	\$ 25,000
3.2	State Growth Project Management Delivery Phase cost	item	1.00	\$ 267,236	\$ 267,236
3.3	Contract Admin costs	item	1.00	\$ 250,000	\$ 250,000
3.4	Insurances	%	\$ 7,859,889.25	0.391%	\$ 30,732
	Subtotal Contract Administration				\$ 572,968
	Total Owners Costs				\$ 1,379,427
4.0	Construction				
4.1	PROJECT SPECIFIC ITEMS	item	1.00	\$ 410,300	\$ 410,300
4.2	EARTHWORKS	Item	1.00	\$ 1,658,100	\$ 1,658,100
4.3	DRAINAGE	Item	1.00	\$ 428,026	\$ 428,026
4.4	PAVEMENT	Item	1.00	\$ 3,047,110	\$ 3,047,110
4.5	BITUMINOUS SURFACING	Item	1.00	\$ 935,445	\$ 935,445
4.6	TRAFFIC FACILITIES	Item	1.00	\$ 588,408	\$ 588,408
4.7	LANDSCAPING	Item	1.00	\$ 51,500	\$ 51,500
4.8	MISCELLANEOUS	Item	1.00	\$ 685,000	\$ 685,000
4.9	PRECAST UNITS	Item	1.00	\$ -	\$ -
4.10	PROVISIONAL ITEMS	Item	1.00	\$ 56,000	\$ 56,000
	Total Construction Costs (TCC)				\$ 7,859,889
	Base Estimate (Owners Cost + Construction Cost)				\$ 9,239,316
					P50
	Inherent risk allowance			\$ 294,655	\$ 988,069
	Contingent risk allowance			\$ 866,343	\$ 1,586,579
	Base Estimate + Contingency (Inherent + Contingent)			\$ 10,400,314	\$ 11,813,964
	Escalation (Nominal - applied to base case + contingency)			\$ 193,414	\$ 223,236
	Total contingency % above base estimate + Escalation			13%	28%
	Total Out turn			\$ 10,593,728	\$ 12,037,200