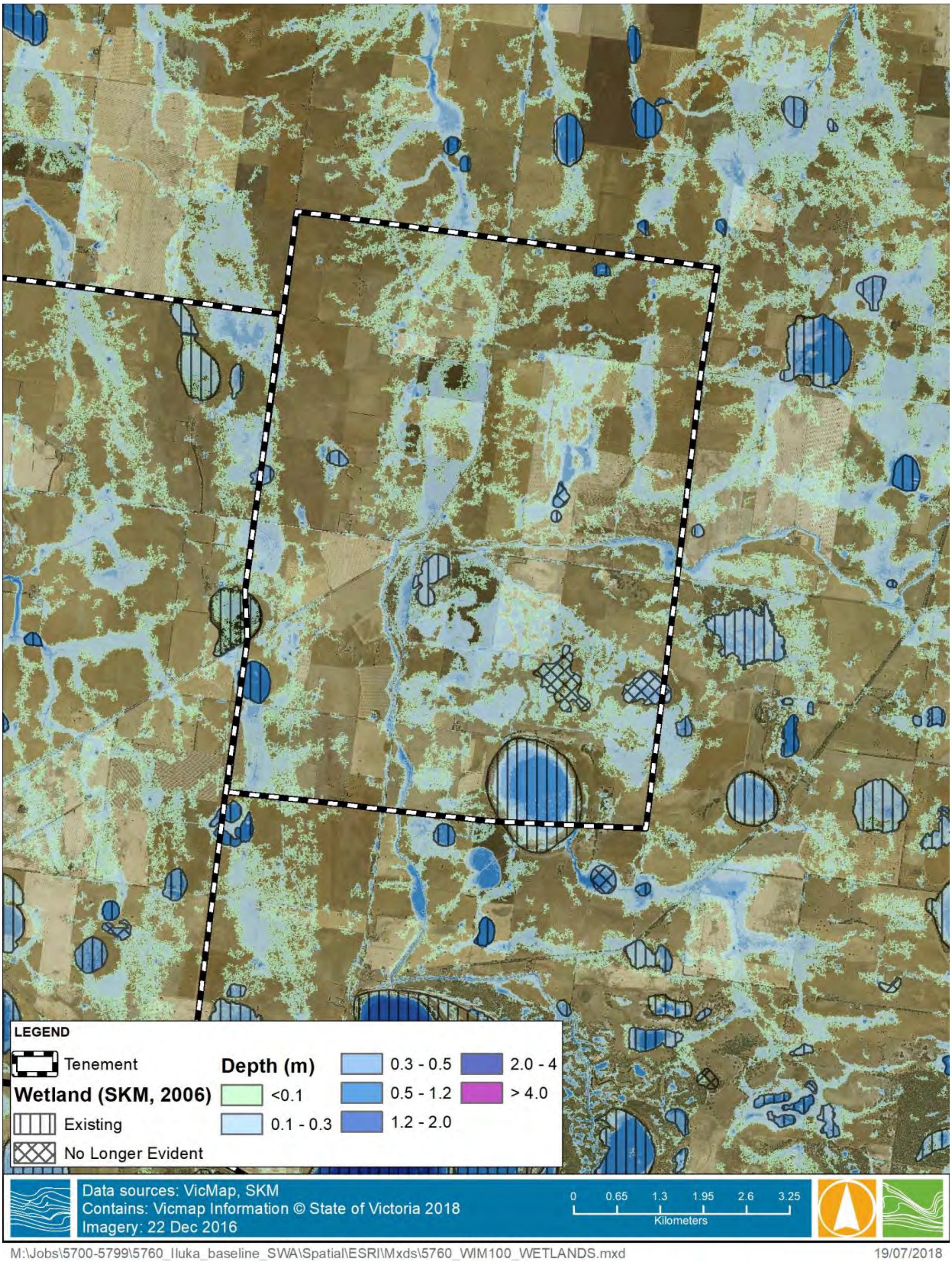

FIGURE 6-6 SKM 2006 WETLANDS LAYER

6.2.2 December 2016 Inundation Verification

Aerial imagery captured during December 2016 was used to verify the 1% AEP hydraulic model results to provide a comparison to observed inundation in the absence of calibration data. This cannot be considered a formal calibration but gives guidance to how well the topographic data is performing in the model. While the December 2016 rainfall alone was not very significant (around a 50% AEP), the months preceding and including December 2016 provided much higher than average rainfall totals (around 98th percentile[14]) which caused water to pool in lower areas for some time and it is on the observed data available. The 1% AEP event was used in the comparison because of its significance in the planning and design process. Additional to water visibly pooling in the December 2016 aerial imagery, different coloration of the crop or pasture foliage can be observed, particularly immediately north of Red Gum Swamp on what was the former extent of Jallumba Marsh. A comparison of the December 2016 imagery and the 1% AEP results is shown in Figure 6-7. The 2016 imagery is underneath the floods mapping, however even with very transparent thematic mapping it is difficult to see the similarities due to the consistent overlap, it should be noted the model results are of a single rainfall event, while the aerial imagery shows inundation and crop damage due to sustained longer term rainfall which may have resulted in a larger volume of water stored in wetlands and depressions. This difference is evident in Red Gum Swamp, where the flood inundation extent does not completely match the inundation imagery.

[14] Water Technology, 2016 - Douglas Mine Surface Water Management Plan. Commissioned by Iluka Resources

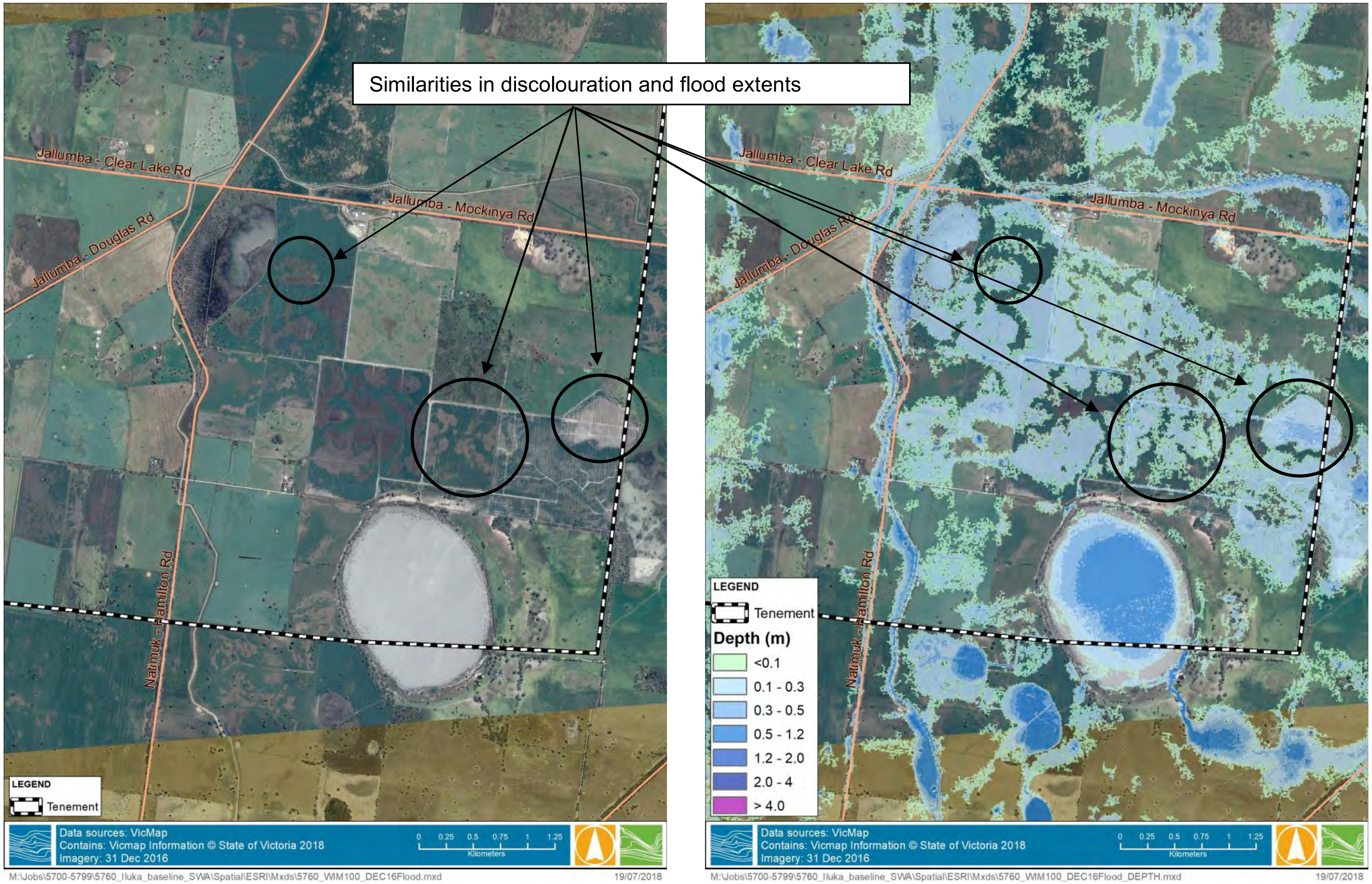

FIGURE 6-7 DECEMBER 2016 FLOODING

6.3 Flow Rates

Flow rates were reported at the northern and eastern boundaries of the WIM100 project area for the 1% AEP event to determine the peak flow rate of water exiting the site. The WIM100 straddles three separate local catchment areas, and therefore has minimal flow across the central region of the site. Figure 6-8 outlines the discharge across the northern site boundary (Location 5, Figure 6-10) for three event durations, while Figure 6-9 outlines the discharge across the eastern boundary (Location 4, Figure 6-10) for the three event durations.

WIM100 contains three different sub-catchments (discussed further in Section 0). The largest sub-catchment discharges to the north and east, with minimal flows being discharged across the southern and western boundaries of the tenement. Print output locations were determined based on major flow paths across each boundary, and therefore do not extend the entire length.

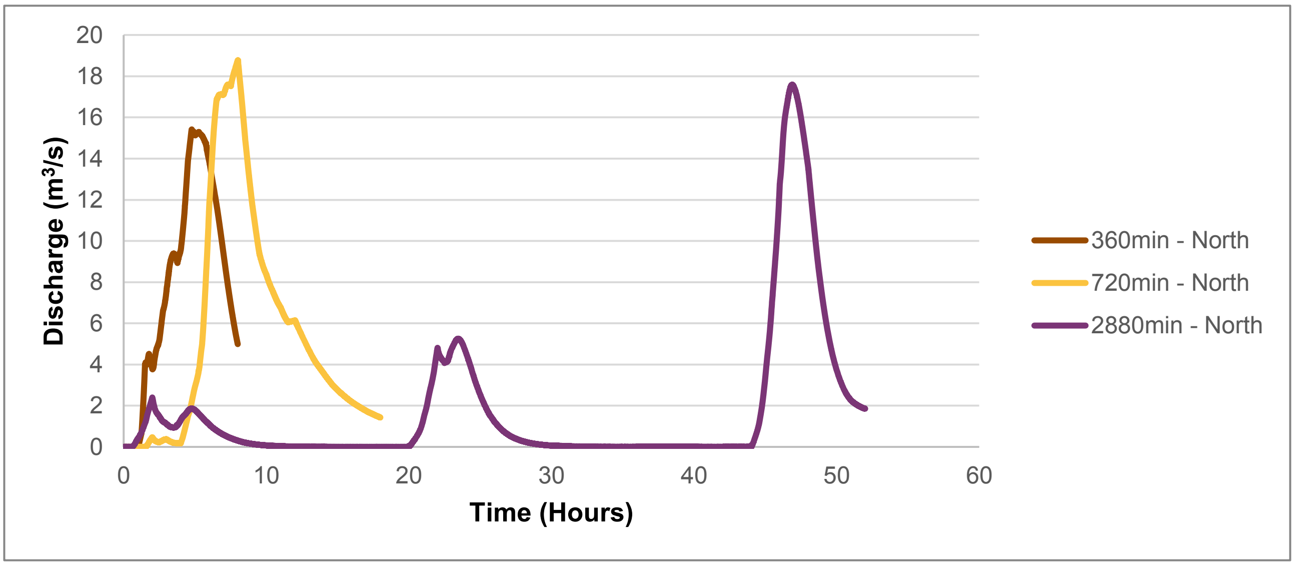

FIGURE 6-8 DISCHARGE RATE ALONG NORTHERN BOUNDARY (1% AEP)

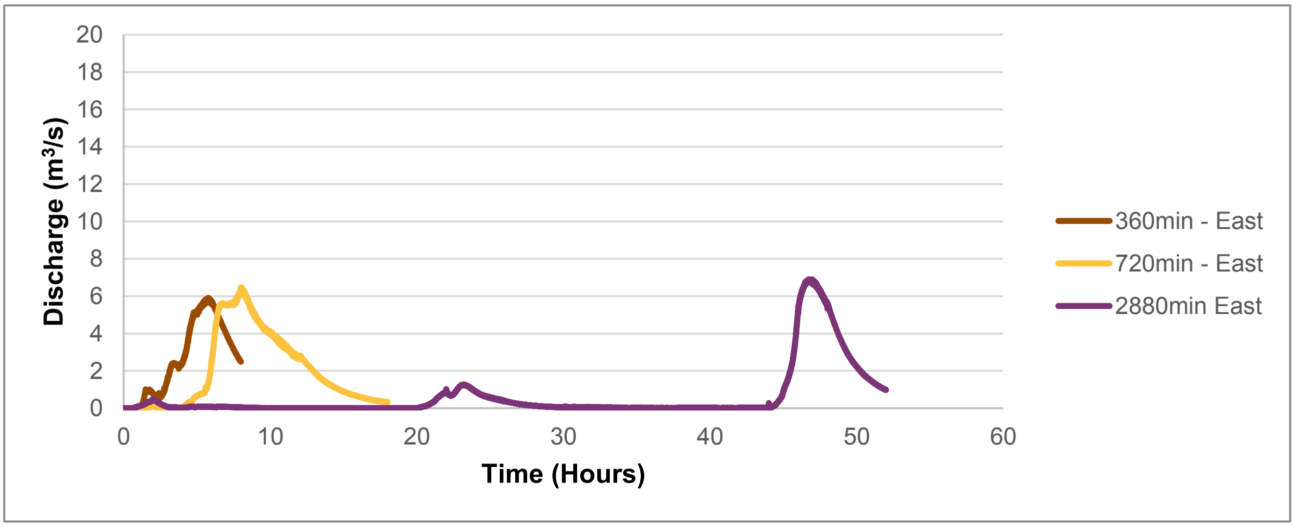

FIGURE 6-9 DISCHARGE RATE ALONG EASTERN BOUNDARY (1% AEP)

Table 6-2 outlines the peak flow rates for each event duration across all AEPs at the northern and eastern boundaries as defined in Figure 6-10. as yellow lines corresponding to boundary 4 and 5.

TABLE 6-2 PEAK FLOW RATES FOR MODELLED STORM DURATIONS

	Flow (m^3/s)					
Storm Duration	**360 min**		**720 min**		**2880 min**	
Boundary (Print Location)	**North (5)**	**East (4)**	**North (5)**	**East (4)**	**North (5)**	**East (4)**
1% AEP	15.41	5.9	18.77	6.47	17.59	6.9
2% AEP	10.72	3.6	13.17	3.78	11.866	0.28
5% AEP	6.1	1.34	5.04	0.56	1.4	0.045
10% AEP	2.63	0.33	1.77	0.22	0.38	0.02
20% AEP	0.86	0.17	2.1	0.31	0.08	0.016

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FIGURE 6-10 HYDROGRAPH PRINT LOCATIONS

6.4 Mapping and Inundation Description

A full set of mapped results including depth, velocity, water surface elevation and hazard can be found in Appendix A. Figure 6-11 and Figure 6-12 and outline the 1% AEP depths and velocities across the WIM100 project area respectively, these results are used for discussion within this report.

Results show the 1% AEP event does not produce major external overland flow paths through the WIM100 project area, with most inundation caused by relatively minor overland flow or a series of discontinuous depressions. The mean depth across the WIM100 project area is 0.16 m with higher depths of inundation within the various wetlands across the site.

The largest area of inundation occurs in the south eastern part of the project area, north of Red Gum Swamp. This large and flat area is part of the former extent of Jallumba Marsh prior to agricultural drainage works. A series of depressions are present resulting in a limited ability for surface water to drain. This is reinforced by the September 2016 aerial imagery which shows a large proportion of crop damage in these areas. Shallow overland flow occurs in a generally south to north direction with roads and constructed channels acting as hydraulic barriers, directing flow or causing it to pool in localised areas. This is largely apparent across the western side of Natimuk - Hamilton Road and southern side of the Rocklands/Toolondo Channel.

Water enters the WIM100 project area from the southern boundary, all remaining inundation is produced by rainfall directly onto the site. Flow exits the site to the north and east, contributing to various downstream wetlands. There is a ridge preventing flow from flowing to the west, with the section of the Toolondo Transfer Channel south of the Jallumba-Clear Lake Road located immediately east of this ridge .

Figure 6-11 has several of the key hydraulic features highlighted and numbered as follows.

1. Water exits the WIM100 to the north connecting to downstream wetlands
2. Water exits the WIM100 project area to the east, connecting to downstream wetlands
3. Water enters the site at the southern boundary though the channel network from Lake Toolondo
4. Water enters the site at the southern boundary through overland flow paths. This flow is captured by various wetlands.
5. Water is restricted by the channel network, and flows west to east, exiting the model at the eastern boundary.
6. A rise along the Western boundary restricts flow. Therefore, no water enters from west to east

Designated wetlands across the site are outlined in Figure 6-6, the Wimmera wetland network is complex, with many wetlands being interconnected in a wetland chain typical of the South West Wimmera Wetland System[15].

[15] Wimmera Catchment Management Authority (March 2011) - Wimmera Wetlands Asset Strategy

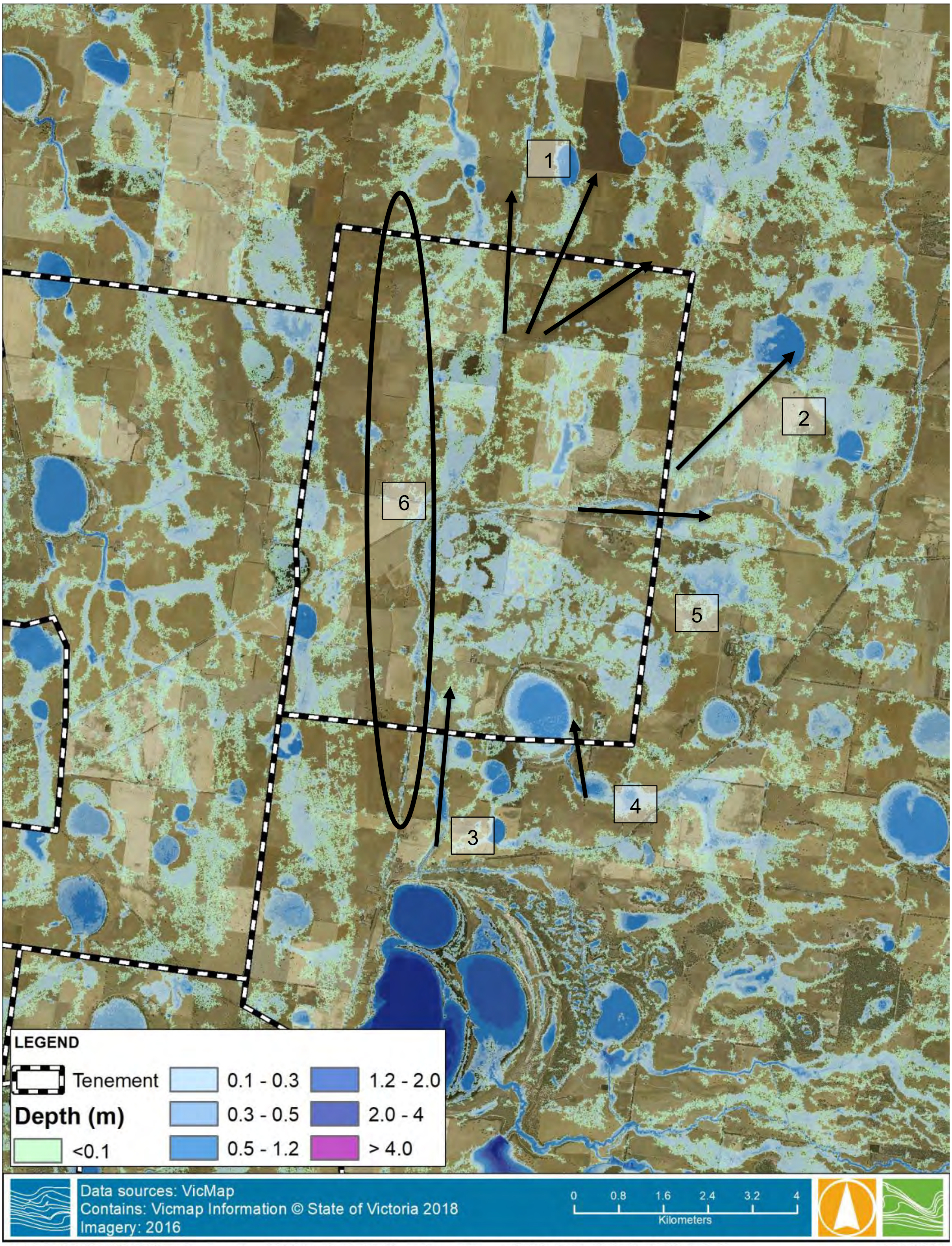

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FIGURE 6-11 1% AEP DEPTH WIM100

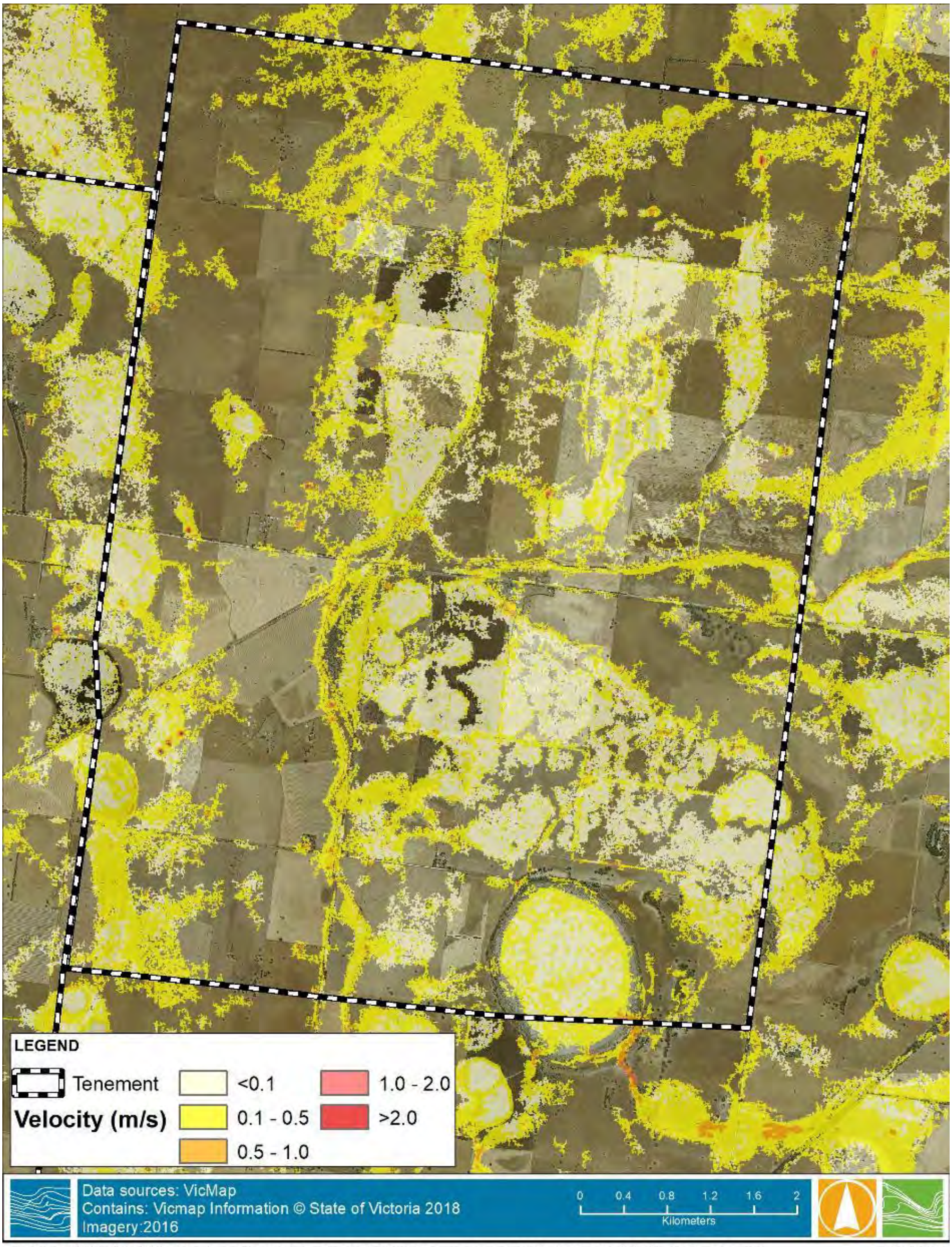

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FIGURE 6-12 1% AEP VELOCITY WIM100

7 HAZARD AND FLOOD RISK

7.1 Flood Hazard

Hazard is generally defined as a source of potential harm or a situation with potential to result in damage or loss. Flood Hazard can be measured as a combination of depth, velocity and the product of depth x velocity (D x V), with thresholds for when harm or damage might occur. Given the relatively flat terrain within the WIM100 area, velocities are generally low and high flood hazard is typically a result of high depths. Figure 7-1 outlines the flood hazard categories outlined in ARR2016[16], the thresholds for the hazard categories are also shown in Table 7-1.

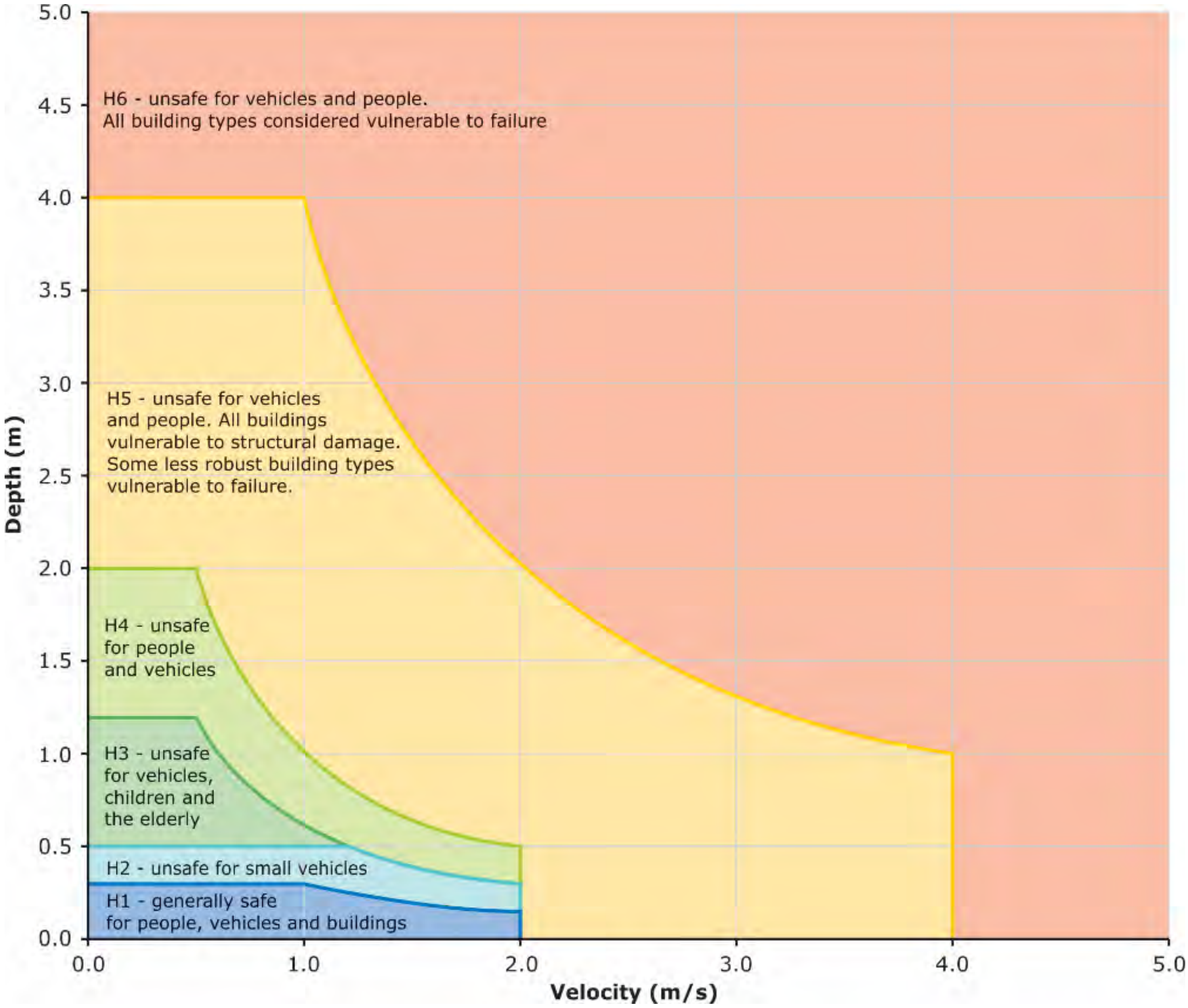

FIGURE 7-1 COMBINED FLOOD HAZARD CURVES

[16] Smith, G and Cox, R 2016, Safety Design Criteria Flood Hydraulics, Book 6, Chapter 7 in Australian Rainfall and Runoff - A Guide to Flood Estimation, Commonwealth of Australia.

TABLE 7-1 VULNERABILITY THRESHOLDS CLASSIFICATION LIMITS

Hazard Vulnerability Classification	Classification Limit (D and V in combination)	Limiting Still Water Depth (D)	Limiting Velocity (V)
H1	D*V ≤ 0.3	0.3	2.0
H2	D*V ≤ 0.6	0.5	2.0
H3	D*V ≤ 0.6	1.2	2.0
H4	D*V ≤ 1.0	2.0	2.0
H5	D*V ≤ 4.0	4.0	4.0
H6	D*V > 4.0	-	-

Figure 7-3 outlines the flood hazard categories across the WIM100 project area, it is apparent most of the site falls within hazard vulnerability class H1. This class is generally safe for people, buildings and vehicles.

There is potential for Flood Hazard in some areas to be increased by potential development of a mineral sands mine due to the likely diversion or capture of water. This should be considered and minimised during potential development of any future mine plan, and assessed as part of an impact assessment.

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FIGURE 7-2 1% AEP HAZARD (V X D) WIM100

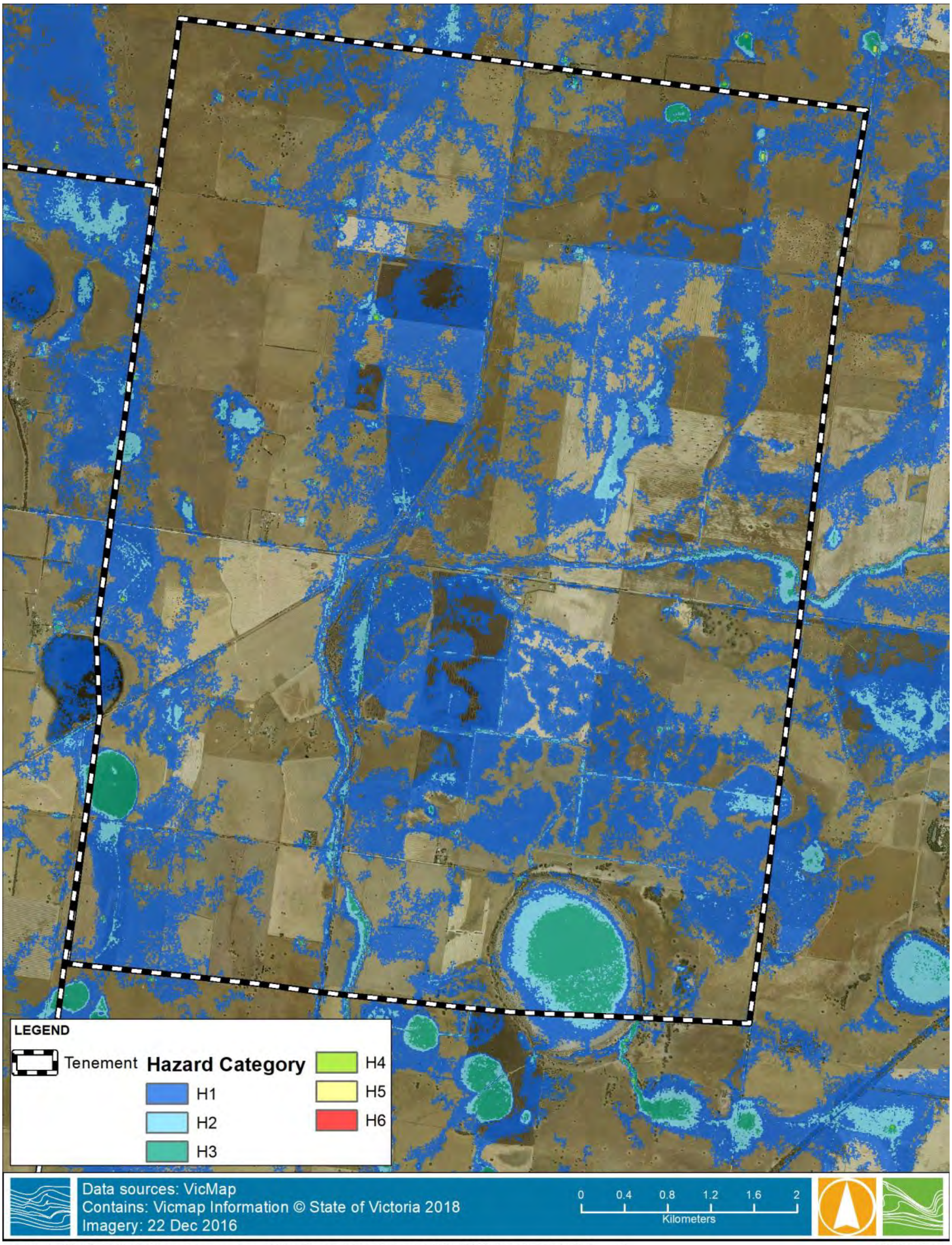

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FIGURE 7-3 1% AEP HAZARD (CATEGORIES) WIM100

7.2 Flood Risk Assessment

A flood risk assessment was developed to identify and mitigate potential risks to potential development of the WIM100 project area. The overall risk assessment was based on AS/NZS ISO 31000:2009 and is shown in . This structure is commonly used across floodplain management in Victoria.

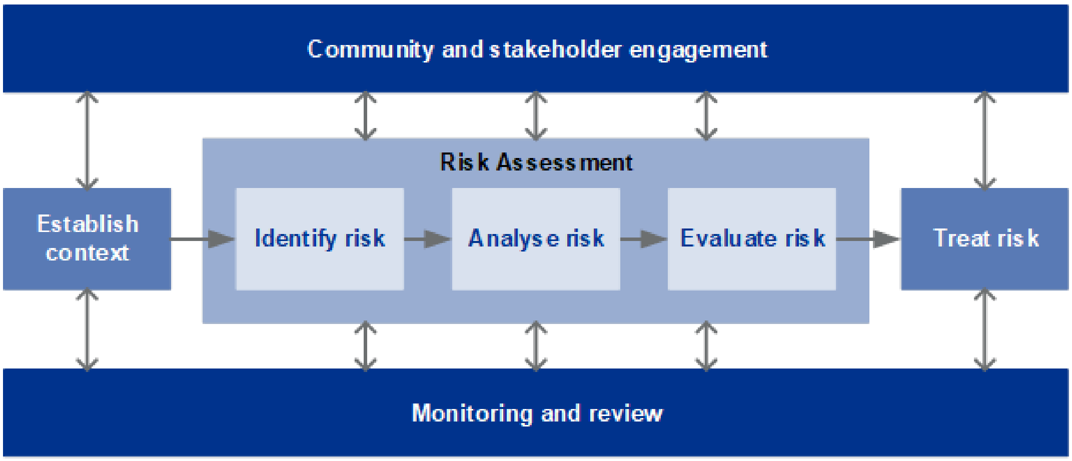

FIGURE 7-4 OVERVIEW OF AS/NZS ISO 3100-2009 RISK PROCESS

The following tasks were undertaken to determine the impact pathways and assess the risks:

- Setting of the context for the risk assessment
- Development of consequence and likelihood frameworks and the risk assessment matrix
- Review of project description and identification of impact assessment pathways by surface water specialists
- Allocation of consequence and likelihood categories and determination of preliminary initial risk
- Identification of environmental performance requirements during the impact assessment
- Revision of the initial risk levels after allowing for implementation of the environmental performance requirements and, in doing so, identifying residual risk levels.

outlines the likelihood rating of an individual risk. outlines the consequence of that risk related to surface water flooding and categorises the risk from very low to very high.

TABLE 7-2 LIKLIHOOD RATING CRITERIA

Level	Description
Rare	The event is very unlikely to occur but may occur in exceptional circumstances.
Unlikely	The event may occur under unusual circumstances but is not expected.
Possible	The event may occur once within a five-year timeframe.
Likely	The event is likely to occur several times within a five-year timeframe.
Almost Certain	The event is almost certain to occur one or more times a year.

TABLE 7-3 CONSEQUENCE RATING CRITERIA – SURFACE WATER (FLOODING)

Level of consequence	Consequence criteria
Negligible	■ No floodplain or overland flow impacts (on or off-site) ■ No over floor flooding ■ No inundation of access / egress routes ■ No disruption to commercial, residential, transportation (e.g. train, major roads, etc.) ■ No failure of infrastructure and delivery services
Minor	■ Maintains compliance with planning approvals. ■ Localised impact upon floodplain or overland flow paths ■ Minor loss of infrastructure and delivery services for less than 6 hours ■ Inundation of access / egress routes but alternate access / egress available. Less than 1-hour closure
Moderate	■ Reaches maximum compliance levels for planning approvals. ■ Significant local impact upon floodplain and overland flow paths ■ Inundation of access / egress routes, alternate access / egress available. Less than 24-hour route closure. ■ Damage to infrastructure requiring repair works to rectify damage resulting in loss of services for less than one week.
Major	■ Long term, recoverable changes in floodplain and overland flow paths, impacts exceed maximum planning approvals compliance levels. ■ Extended significant impact upon floodplain and over land flow paths ■ Inundation of access / egress routes, no alternate access / egress available. Less than 1-week closure. ■ Damage to infrastructure requiring significant works to reconstruct affecting services for up to 3 months.
Severe	■ Irrecoverable damage to floodplain or overland flow paths ■ Damage to infrastructure requiring extensive reconstruction impeding services and/or transportation for at least 3 months

TABLE 7-4 RISK ASSESSMENT MATRIX

		Consequences rating				
		Negligible	Minor	Moderate	Major	Severe
Likelihood rating	Rare	Very low	Very low	Low	Medium	Medium
	Unlikely	Very low	Low	Low	Medium	High
	Possible	Low	Low	Medium	High	High
	Likely	Low	Medium	Medium	High	Very High
	Almost certain	Low	Medium	High	Very High	Very High

outlines the risk assessment associated with the aforementioned methodology. This assessment is not designed to be an exhaustive list, and further risks should be added when they are identified.

TABLE 7-5 RISK REGISTER FOR IMPACT ASSESSMENT

Activity and Impact	Description of Consequences	Initial Risk			Avoidance, Mitigation and Management Measures and Environmental Performance Requirements	Residual Risk		
		C	L	Risk Level		C	L	Risk Level
Modification of drainage pathways due to mine activities	■ Redistribution of flow to surrounding areas, possibly impacting adjacent or nearby properties ■ Restriction of flow causing backwater or pooling, increasing depth hazard ■ Redistribution of flow which could lead to either more flow (flooding, erosion, downstream sedimentation) or less flow (drying) of waterways, wetlands and aquatic ecosystems	Moderate	Possible	Medium	■ Avoid modification of major drainage paths ■ Comply with specific requirements in Works on Waterways permits for any works in vicinity of a designated waterway. ■ Ensure runoff from around work areas is captured in water treatment infrastructure (sedimentation ponds, wetlands etc.). ■ Include appropriately sized culverts or bridges on drainage lines crossed by access roads, as stipulated in Works on Waterways permits. Allow time for assessment by local government and CMA. ■ Ensure that any surface water diversion that are implemented discharge into the natural downstream discharge point as prior to the works.	Moderate	Unlikely	Low
Capture and storage of overland flow for mitigation	■ Possible increase to water levels on adjacent properties ■ Damage to adjacent property	Major	Possible	High	■ Implement protection systems for hazard classes greater than H3 such as physical barriers ■ Comply with specific requirements in Works on Waterways permits for any works in vicinity of a designated waterway. ■ Ensure runoff from around work areas is captured in water treatment infrastructure (sedimentation ponds, wetlands etc.). ■ Comply with specific requirements of CMA floodplain works approval process	Severe	Rare	Low
Discharge of stormwater runoff and other contaminants	■ Degradation of water quality (turbidity, etc) and in-stream habitats within downstream waterways. ■ Sedimentation of downstream waterways, impacting in-stream habitats.	Major	Possible	High	■ Comply with specific requirements of CMA floodplain works approval process ■ Implement appropriate sediment and erosion control measures prior to commencement of ground disturbance works and throughout construction, including diversion of upstream flows around construction zones.	Moderate	Unlikely	Low

Activity and Impact	Description of Consequences	Initial Risk			Avoidance, Mitigation and Management Measures and Environmental Performance Requirements	Residual Risk		
		C	L	Risk Level		C	L	Risk Level
	■ Shallow groundwater may uptake contaminates from stormwater discharge. ■ Discharge may increase depth and velocities in localised areas, causing increased hazard				■ Revegetate disturbed areas as quickly as possible on completion of construction and/or mining. ■ Implement appropriate spill control and bunding measures to control and contain spills; minimise the amount of fuels and chemicals stored on site; implement contingency plans to clean up / manage spills. ■ Develop and maintain a water quality monitoring program that will comply with applicable legislation and guidelines.			
Construction in a flood prone area with flooding of mineral sands mine or other infrastructure.	■ Transport of contaminants offsite in flood waters ■ Damage to infrastructure ■ Mining halted during dewatering and recovery works	Moderate	Possible	Medium	■ Access routes are to be designed to maintain access to mine sites and associated infrastructure with flood depths below 300 mm during construction and maintenance operations. ■ Any infrastructure within the 1% AEP inundation extent is to be designed to withstand potential flooding and would be subject to compliance with the specific requirements of Wimmera CMA's floodplain works approval process. ■ All mine pits and infrastructure located minimum 100 m from designated waterways. ■ Comply with specific requirements of CMA floodplain works approval process. ■ Any infrastructure within the 1% AEP flood extent should be designed to withstand potential flooding.	Moderate	Unlikely	Low

8 SURFACE WATER QUALITY

8.1 Overview and State Environmental Protection Policy

The scope of this assessment included characterisation of the baseline surface water chemistry for the project area with reference to the SEPP (Waters of Victoria – January 2018). The project brief referred to several key water quality indicators and categories, these are outlined in Table 8-1 along with their associated objectives for rivers and streams outlined in the SEPP draft policy for surface waters in lowland river reaches of the Wimmera catchments and the Australian and New Zealand Environment Conservation Council (ANZECC) guidelines for fresh and marine water quality (Toxicant default guideline values for protecting aquatic ecosystems 2018).

TABLE 8-1 SEPP AND ANZECC SURFACE WATER CHEMISTRY OBJECTIVES

Water quality indicator	Physical/Chemical objective
SEPP Waters of Victoria (Draft 2018)	
Salinity (µS/cm@ 25°C)	≤2000
Acidity/alkalinity (pH units)	≤6.8 and ≤7.8 (25th and 75th percentiles)
Total Phosphorus (µg/L)	≤50
Total Nitrogen (µg/L)	≤900
Dissolved oxygen (percent saturation)	≥65 and 110 (25th percentile and maximum)
Turbidity (NTU)	≤40 (75th percentile)
ANZECC (99% level of species protection)	
Ammonia (NH3) (Total) (µg/L)	320
Aluminium (pH >6.5) (µg/L)	27
Arsenic (AsIII) (µg/L)	1
Arsenic (AsV) (µg/L)	0.8
Boron(µg/L)	90
Cadmium (µg/L)	0.6
Chromium (CrVI) (µg/L)	0.01
Copper (µg/L)	1
Cyanide (µg/L)	4
Lead (µg/L)	1
Manganese (µg/L)	1200
Mercury (µg/L)	0.06
Nickel (µg/L)	8
Selenium (µg/L)	5
Silver (µg/L)	0.02
Thallium (µg/L)	0.03

Water quality indicator	Physical/Chemical objective
Uranium (µg/L)	0.5
Zinc (Total) (µg/L)	2.4
Chlorine (µg/L)	0.4

8.2 Preliminary Testing

Iluka has collected a range of water quality sampled from Red Gum Swamp and Jallumba Marsh reserve within the WIM100 project area. Originally two samples were captured on the 27th June 2018 (Red Gum Swamp) and 25th July 2018 (Jallumba Marsh). During the period September 2018 to April 2019 a further seven samples obtained were from the Jallumba Marsh, and a further four samples obtained from Red Gum Swamp.

The results compared to the SEPP and ANZECC objectives are summarised in Table 8-2, the table shows, if the limit was exceeded, how many times and the maximum value captured for each water quality indicator. Comparisons are only made where there are both water quality testing and guideline limits exist. In instances where a comparison can be made, notes in the table highlight why a direct comparison is not possible e.g. Total Phosphorus is listed in the guidelines, but Orthophosphate was tested for, which is an underestimate of Total Phosphorus. In instances where the water quality samples exceed the limit specified, they are highlighted in red. For some indicators the water quality results far exceed the objectives set out in the guidelines. In these instances, it would be impractical for Iluka to meet guideline limits. Matching or bettering background limits would be a more applicable water quality objective.

It should noted the water quality results captured are a preliminary assessment of the water available for testing at the time the samples were taken. Samples were taken from standing water whereas site runoff would be actively flowing.

TABLE 8-2 COMPARISON OF WATER QUALITY RESULTS AND SEPP AND ANZECC OBJECTIVES

Water quality indicator	Physical/Chemical objective		
	SEPP Waters of Victoria (Draft 2018)	Red Gum Swamp 5 samples	Jallumba Marsh Reserve Dam 8 samples
Salinity (µS/cm@ 25°C)	≤2000	1 exceeded, max. 2019	None exceeded, max. 2000
Acidity/alkalinity (pH units)	≥6.8 and ≤7.8 (25th and 75th percentiles)	2 exceeded max. 9.1, min. 6.62.	6 exceeded, max. 8.9, min. 6.51
Total Phosphorus (µg/L)	≤50	1,900 (orthophosphate as P) UNDERESTIMATE as no Particulate P data	300 (orthophosphate as P) UNDERESTIMATE as no Particulate P data
Total Nitrogen (µg/L)	≤900	All exceeded, max. 192 ammonia + nitrite + nitrate nitrogen as N) UNDERESTIMATE as no Org N data	All exceeded, max. 3,840 (ammonia + nitrite + nitrate nitrogen as N) UNDERESTIMATE as no Org N data
Dissolved oxygen (percent saturation)	≥65 and 110 (25th percentile and maximum)	-	-

Water quality indicator	Physical/Chemical objective		
	SEPP Waters of Victoria (Draft 2018)	Red Gum Swamp 5 samples	Jallumba Marsh Reserve Dam 8 samples
Turbidity (NTU)	≤40 (75^{th} percentile)	1400 mg/l (Total dissolved solids)	680 mg/l (Total dissolved solids)

Water quality indicator	ANZECC (99% level of species protection)	Red Gum Swamp (5 samples)	Jallumba Marsh (8 samples)
Ammonia (NH3) (Total) (µg/L)	320	None exceeded, max. 1.9	5 exceeded, max. 3,800
Aluminium (pH >6.5) (µg/L)	27	All exceeded, max. 39,000	All exceeded, max. 11,500
Arsenic (AsIII) (µg/L)	1	All exceeded, max. 95 (as As)	All exceeded, max. 47 (as As)
Arsenic (AsV) (µg/L)	0.8		
Boron (µg/L)	90	All exceeded, max. 800	All exceeded, max. 11,100
Cadmium (µg/L)	0.6	None exceeded, max. 0.3	None exceeded, max.<0.2
Chromium (CrVI) (µg/L)	0.01	All exceeded, max. 250 (as Cr)	All exceeded, max. 14 (as Cr)
Copper (µg/L)	1	All exceeded, max. 72	All exceeded, max.19
Cyanide (µg/L)	4	-	-
Lead (µg/L)	1	All exceeded, max. 98	All exceeded, max.7
Manganese (µg/L)	1200	None exceeded, max. 670	None exceeded, max. 147
Mercury (µg/L)	0.06	None exceeded, max. <0.1	None exceeded, max. <0.1
Nickel (µg/L)	8	All exceeded, max. 110	2 exceeded, max 14
Selenium (µg/L)	5	1 exceeded, max. 24	3 exceeded, max. <1
Silver (µg/L)	0.02	1 exceeded, max. 3	All exceeded, max. 3
Thallium (µg/L)	0.03	None exceeded, max. <1	None exceeded, max. <1
Uranium (µg/L)	0.5	1 exceeded, max. 2	1 exceeded, max. 9
Zinc (Total) (µg/L)	2.4	All exceeded, max. 180	All exceeded, max. 12

The water quality indicators for phosphorus and nitrogen are both likely to be higher than the SEPP Guidelines recommend; these indicators are likely to be high because of the static nature of the sample locations with high organic loads. Aluminium, arsenic, boron, chromium, copper, lead and zinc all exceed the water quality indicator limits set out in the ANZECC Guidelines at both locations. The limit is exceeded for nickel at Red Gum Swamp and ammonia at Jallumba Marsh. The level of exceedance for ammonia is of notable concern due to its toxicity.

The level of exceedance for several of the SEPP and ANZECC water quality objectives within the background water quality samples indicates in direct application of the SEPP and ANZECC site-specific water quality may be too conservative. It may be more appropriate for site specific water quality objectives to be determined where background water quality conditions exceed the relevant water quality guidelines. This is enabled through the SEPP and has been applied to Iluka's Douglas Mine through the Iluka Douglas Mine - Stage 1 Water Quality and Risk Assessment (Jacobs, 2018).

To determine site-specific background water quality objectives for the prospective WIM100 mine site sufficient sampling and analysis should be undertaken to enable statistical analysis. ANZECC recommends the definition of "*trigger values for physical and chemical stressors for condition 2 (Slightly to Moderately Disturbed) ecosystems, in terms of the 80th and/or 20th percentile values obtained from an appropriate reference system*"[17].

It is recommended the current water quality testing parameters be maintained on an ongoing basis.

8.3 Surface water monitoring locations

A range of potential options for surface water monitoring locations is available; however, there were several considerations to their final selection. These are as follows:

- Likelihood of obtaining surface water samples appropriate for baseline characterisation of the catchment
- Accessibility, including:
  - Avoiding damage to public roads during wet conditions (i.e. not reliant on dry weather roads during wet conditions).
  - Avoiding impact to crops and agricultural activities on private land.
  - Gaining land access consent from private landowners to establish and access any proposed monitoring location on their land.

During their exploratory work Iluka have found several unsealed dry weather roads have become inaccessible before surface water flow is occurring.

In consultation with Iluka Resources a list of potential water monitoring sites was developed. Their potential is somewhat dependent on development of the mine and is prospective layout. The locations are listed below and numbered on Figure 8-1, overlaid on the Hazard Categories. A closer perspective of Red Gum Swamp is shown in Figure 8-2 This list is comprehensive and will be refined as mine planning progresses. :

The drains to the north of Red Gum Swamp are not well enough defined to give a definitive description of the flow they carry and a more detailed topographic resolution DEM would be required to represent them adequately.

- Locations 1 and 2 give an indication of water quality into Red Gum Swamp:
  - 1 - A private driveway.
  - 2 - Quick Sinclair Russells Road.
- Location 3 gives an indication of water quality entering WIM100 at Natimuk-Hamilton Road, or Carchap Lane.
- Location 4 shows water quality in Jallumba Marsh Reserve dam (currently sampled).
- Location 5 gives an indication of internal water quality.
- Location 6 is at the northern end of Red Gum Swamp (currently sampled).

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[17] Australian and New Zealand Environment and Conservation Council (2000) - Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Section 3.3.2.4.

- Location 7 is at the culvert under Toolondo Gun Club Road, north east of Red Gum Swamp.
- Location 8 is at the culvert under Nurrabiel Church Road (currently sampled).
- Location 9 and 10 give an indication of water quality leaving WIM100
  - 9 - Rifle Butts Road is a gravel dry weather only.
  - 10 – McNeils Bridge on Tooen East Road is a sealed road.
- Locations 11 and 12 give an indication of water quality leaving WIM100.
  - 11 - Rifle Butts Road is a sealed road.
  - 12 - Alternative location on Horsham-Noradjuha Road sealed road
- Locations 13, 14 and 15 give an indication of water quality leaving WIM100.
  - 13 - Nurrabiel Church Road sealed road.
  - 14 - Alternative location at Darragan Swamp, both further downstream.
  - 15 - gives an indication of water quality leaving WIM100. A short walk from the sealed Jallumba-Mockinya Road.

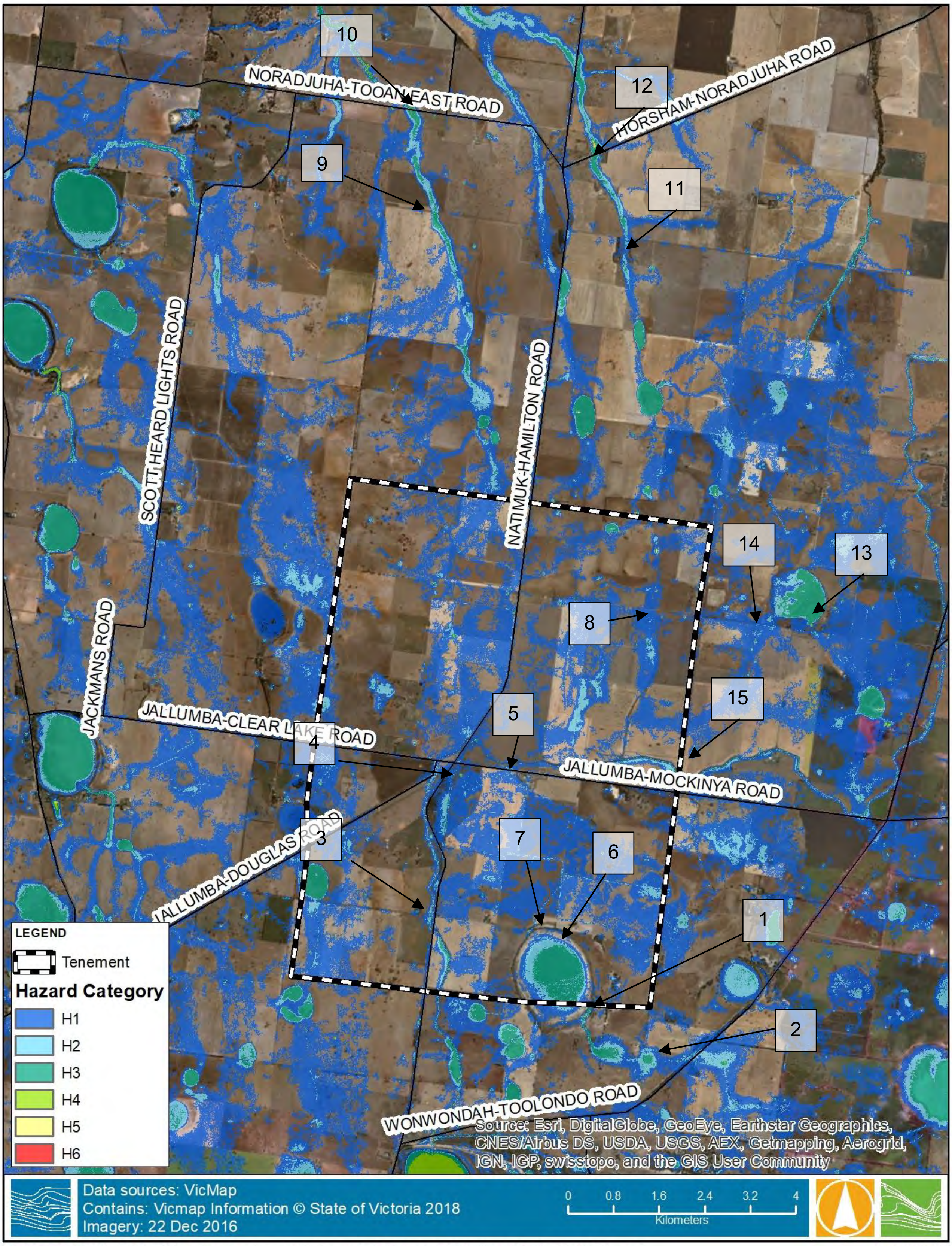

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FIGURE 8-1 POTENTIAL SURFACE WATER MONITORING LOCATIONS

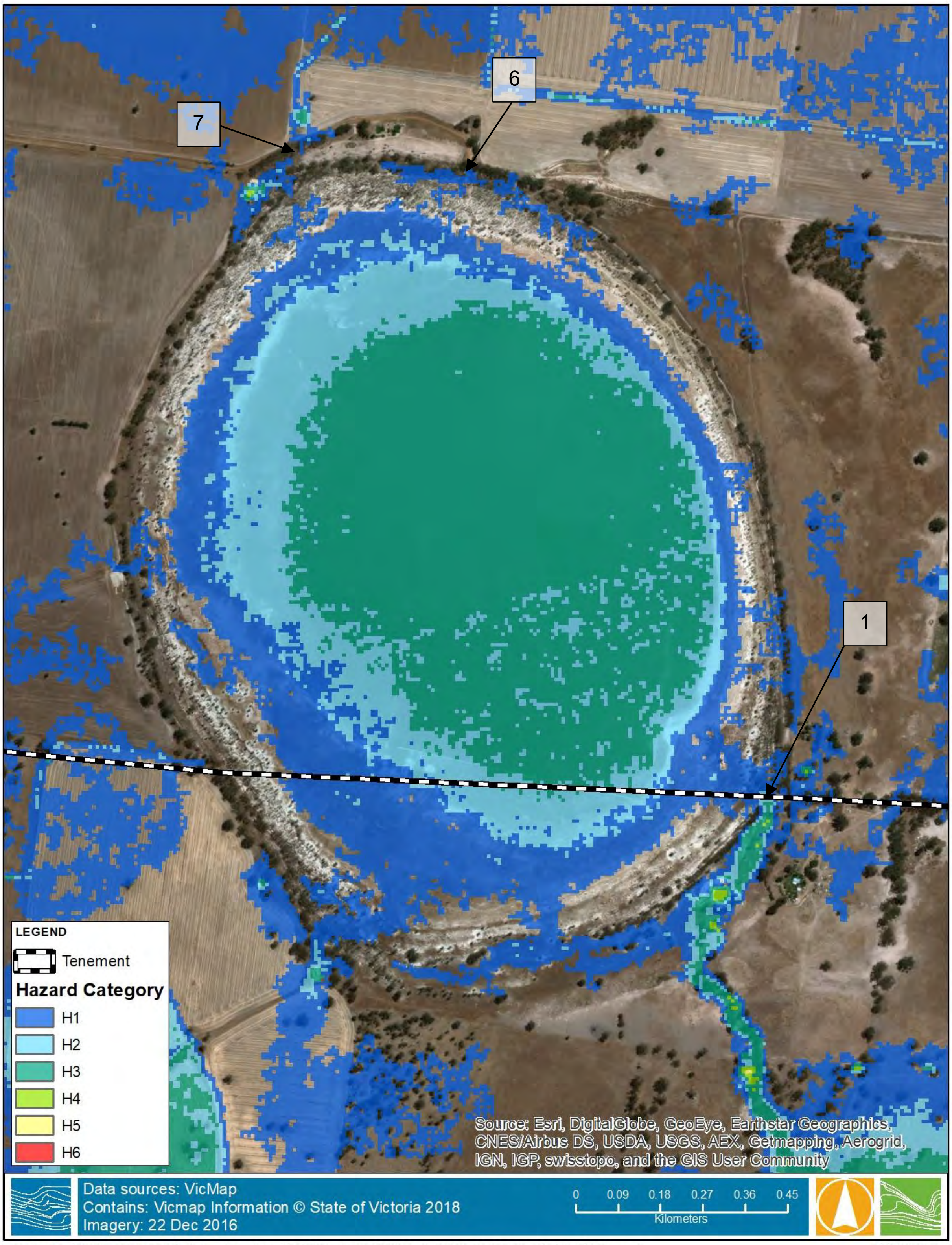

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FIGURE 8-2 RED GUM SWAMP INFLOWS

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APPENDIX A MAPPING

Provided as attachment.

Melbourne

15 Business Park Drive
Notting Hill VIC 3168
Telephone (03) 8526 0800
Fax (03) 9558 9365

Adelaide

1/198 Greenhill Road
Eastwood SA 5063
Telephone (08) 8378 8000
Fax (08) 8357 8988

Geelong

PO Box 436
Geelong VIC 3220
Telephone 0458 015 664

Wangaratta

First Floor, 40 Rowan Street
Wangaratta VIC 3677
Telephone (03) 5721 2650

Brisbane

Level 3, 43 Peel Street
South Brisbane QLD 4101
Telephone (07) 3105 1460
Fax (07) 3846 5144

Perth

Ground Floor
430 Roberts Road
Subiaco WA 6008
Telephone 0438 347 968

Gippsland

154 Macleod Street
Bairnsdale VIC 3875
Telephone (03) 5152 5833

Wimmera

PO Box 584
Stawell VIC 3380
Telephone 0438 510 240

www.watertech.com.au

info@watertech.com.au