



Pre-Construction Minor Works Approval Form

Minor Works are defined as any low impact activities that are undertaken prior to the commencement of 'construction' as defined in the project's applicable planning approval. However if Minor Works affect or potentially affect heritage items, threatened species, populations or endangered ecological communities, these works are defined as 'construction' unless otherwise determined by the applicable planning authority.

Minor Works approvals do not remove any obligation to comply with the project's applicable planning approval conditions (including requirements prior to 'any works' commencing) or obtain any other applicable permits, licenses or approvals as necessary.

This application and all supporting information must be submitted to TfNSW/the Environmental Representative as one (1) PDF file at least 10 business days prior to the commencement of the proposed Minor Works.

Part 1: Application	
Contractor:	Laing O'Rourke
Project:	Sydney Metro City and Southwest - Northern Corridor Works Project
Application Title: (e.g. Smith St trenching works)	Mid-Week 38 to Midweek 43 Portion 7a Works: March 23rd – April 30th 2018 Vegetation removal at footings locations in Frank Channon Walk Footings installation in Frank Channon Walk
Application Number:	NCW-012
Application Date:	Revision 1 – 01/03/2018 Revision 2 – 13/03/2018 Revision 3 – 19/03/2018
Planning Approval:	SSI 15_7400
Minor Works Categories: <ul style="list-style-type: none"> Highlight as applicable. If Items 4, 8 or 11 are applicable, this form must be endorsed by an Environmental Representative. 	<ol style="list-style-type: none"> Survey, survey facilitation and investigations works (including road and building dilapidation survey works, drilling and excavation). Treatment of contaminated sites. Establishment of ancillary facilities (excluding demolition), including construction of ancillary facility access roads and providing facility utilities. Operation of ancillary facilities that have minimal impact on the environment and community. Minor clearing and relocation of vegetation (including native). Installation of mitigation measures, including erosion and sediment controls, temporary exclusion fencing for sensitive areas and acoustic treatments. Property acquisition adjustment works, including installation of property fencing and utility relocation and adjustments to properties. Utility relocation and connections. Maintenance of existing buildings and structures. Archaeological testing under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010) or archaeological monitoring undertaken in association with other Minor Works to ensure there is no impact on heritage items. Any other activities that have minimal environmental impact, including construction of minor access roads, temporary relocation of pedestrian and cycle paths and the provision of property access.
Planning Authority Determination: Will the proposed works affect or have the potential to affect heritage items, threatened species,	No. The proposed works do not have potential to impact on heritage items, threatened species, populations or endangered ecological communities.



populations or endangered ecological communities?

Part 2: Details

Describe the proposed Minor Works:

Including work methodologies, site location(s) and site description(s) (e.g. landscape type, waterways, etc.).

Standard Construction Hour Works - Midweek 38 to Midweek 43 (23/03/2018 – 30/04/2018): 0700–1800 Monday to Friday & 0800-1300 Saturdays

A number of low minor work activities will be undertaken during standard work hours in preparation for the commencement of the construction phase.

The work activities include;

The scope of work is to be carried out within Frank Channon Walk (FCW) between Nelson Street and Ellis Street Chatswood. All works will be conducted during standard construction hours between Midweek 38 to midweek 43 (March 23rd – April 30th):

Additionally traffic and pedestrian control is to be applied to the streets surrounding FCW which will be applied as per the plans in Refer to Appendix 2. These controls will form part of the strategy to provide two shared path routes around FCW due to its closure.

Traffic control will be in place on Ellis Street to facilitate access to Frank Channon Walk only.

Activity 1 – Implementation of traffic and pedestrian control

These activities are minor in nature and comply with Minor Works Category 11 as defined in Section 11. Refer to Appendix 2 for further detail on the traffic/pedestrian control plan.

- Erect IVMS and corflute signage around FCW
- Implementation of additional signage and controls for pedestrian path around FCW as per the control plan
- Implementation of temporary fencing and barriers for the closure of FCW

Plant and equipment:

- 3 x light commercial vehicles
- General hand tools

Activity 2 – Vegetation removal at footings locations:

These activities are minor in nature and comply with Minor Works Category 5 as defined in Section 1. The site would be accessed via Ellis Street Chatswood. For location of the works refer to Appendix 1.

- Laing O'Rourke will undertake minor vegetation removal of approximately 15 trees and shrubs at specific footing locations along FCW in preparation for the install of footing at these locations. Refer to ECM for locations
- The Tree Impact Assessment Report for Chatswood to Sydenham reference numbers for trees to be removed are; 50119, 50121, 50122, 50123, 50124, 50125, 50127, 50128, 50131, 50132, 50138, 50141. Note that the reference number 50141 refers to a group of 4 trees.
- Vegetation would be removed from an embankment at each footing location. The vegetation has subject to an ecological assessment to assess the potential impacts of the proposed works on flora and fauna.
- Vegetation within the subject site was found to consist of Urban Native/ Exotic Vegetation. The area contains only planted species and does not comprise remnant native vegetation due to the species composition and their location within an artificial embankment constructed along the railway corridor.
- The vegetation removal contractor will progressively remove vegetation at each location, applying erosion and sediment controls before moving to the next location.
- A wood chipper, excavator and truck positioned in FCW will be used to mulch the vegetation
- The waste will be taken offsite and disposed of at a licensed waste facility

**Plant and equipment:**

- Chainsaws
- Tipper truck
- Wood chipper
- Bobcat
- 5t Excavator

Activity 3 – Footings installation:

These activities are minor in nature and comply with Minor Works Category 11 as defined in Section 11. The site would be accessed via Ellis Street Chatswood. Footings works will be conducted within FCW at **11+310DS, 11+335DS, 11+374DS, 11+339DS, 11+426DS, 11+450DS & Anchor**. For location of the each footing refer to Appendix 1.

- The 6T excavator will excavate down and box out each footing location.
- 16T excavators will auger 1200 & 900 diameter piles 8 meters from the surface or until bedrock is encountered.
- Formwork to be constructed around footing location
- 16T excavator will lift prefabricated pile reinforcement and pile cap shutters into place.
- Concrete to be poured at footing location cured and finished
- Footing location to be back filled and reinstated

Note: Concrete to be placed at each location via line pump situated in UP cess access track. It is not feasible for the concrete wash to be transported back to the concrete depot due to the possibility of it drying out and damaging the vehicles.

Plant and equipment:

- 1 x16 Rubber tyred excavator
- 1 x Hydrema's
- Bobcat
- Dump Truck
- Concrete boom pump
- 1 x Concrete truck
- Blowtorch and welding equipment to fix steel
- General hand tools (survey equipment) – post completion
- 1 x Multi Crane
- 1 x Impact wrench

Note that the above listed plant would not be operating in the same location at the same time.

General Notes:

Works locations and traffic control plans has also been included in Appendix 1.

Two car spaces will be temporarily occupied a 2-4 Ellis Street as identified within the Road Occupancy Licence (ROL).

Deliveries will occur across the site, to work fronts and ancillary facilities as appropriate for the particular construction material

Note that any deliveries of materials will be conducted in normal construction working hours to minimise disruption to residential related to vehicle movements.

Approval Process

These works were approved under the Construction Traffic Management Plan (CTMP) approval process as stipulated within the Conditions of Approval and CEMF. Additional Consultation was undertaken for the closure of Frank Channon Walk. The details of this process are as follows;



	<ul style="list-style-type: none"> i) A CTMP was produced for the Portion 7 works and was provided to Sydney Metro, Willoughby City Council (WCC), Roads and Maritime Service (RMS), the Traffic Control Group (TCG) and the Sydney Coordination Office (SCO) for review. ii) The requirement for the closure of Frank Channon Walk for a period of 5 weeks was identified. The TCG requested that an assessment on the impacts to pedestrians and cyclists who use the walk to be undertaken and included within the CTMP for approval. (This was included within Appendix F). iii) Sydney Metro, Willoughby Council and Laing O'Rourke undertook consultation with local cyclist and pedestrian groups to gain feedback on the proposed closure of Frank Channon Walk and the proposed alternative route for cyclists and pedestrians. iv) Feedback was incorporated into Appendix F of the CTMP. The CTMP was then provided to WCC, TCG and SCO for consultation. v) Following this review RMS has provided approval vi) The plan will be submitted to the Department of Planning and Environment (DPE) for final approval.
<p>Planned Commencement Date:</p>	<p>23 March 2018</p>
<p>Local Sensitivities: Describe the presence (if any) of local sensitive environmental areas and community receptors.</p>	<p>The closure of Frank Channon Walk is likely to impact on local residents and others using the path for access around Chatswood and Artarmon. Laing O'Rourke has assessed these impacts under Appendix F of the Construction Traffic Management Plan (CTMP). Laing O'Rourke, Sydney Metro and Willoughby City Council have partnered to undertake consultation with relevant community groups (i.e. cyclists and pedestrians) to limit impacts associated with the works. Feedback from consultation has been incorporated into Appendix F of the CTMP. It was agreed that a shared path arrangement on Ellis Street, Pacific Highway & Gordon Avenue and Albert Avenue, Orchard Road & Nelson Street would be provided during the works.</p> <p>The community will be notified of the works through a number of means, including:</p> <ul style="list-style-type: none"> - Sydney Metro Website - Advertisements within local newspapers - Letterbox notifications - Door knocks/individual briefings <p>Community – Residents at Nelson St, Ellis St and Gordon Ave will all have direct line of site to the works.</p> <p>Residents within Artarmon and Chatswood will be impacted by the closure of FCW with alternate routes provided approximately 500m and 760m in length.</p> <p>Bicycle Groups – It is also noted that a number of bicycle groups are to be affected (Bike North and Bike NSW) of which have been consulted.</p> <p>Site access to FCW would be via the access point at the end of Ellis Street.</p>
<p>Part 3: Environmental Risk Assessment and Management</p>	
<p>Prepare an Environmental Risk Assessment (in accordance with the <i>Sydney Metro Risk Management Standard</i>) and an Environmental Control Map for the proposed Minor Works and attach as Appendix 1.</p> <p>If an Environmental Risk Assessment and/or an Environmental Control Map for the proposed Minor Works is/are already contained in existing documentation, attach the relevant section(s) as Appendix 1.</p>	
<p>Documentation: List any existing documents (including those referenced above) that the proposed Minor Works will be undertaken in accordance with and attach as Appendix 2 (e.g. plans, procedures, procedures, etc.).</p>	<ul style="list-style-type: none"> - Sydney Metro Construction Environmental Management Framework - Sydney Metro City and Southwest, Chatswood to Sydenham, Planning approval SSI 15_7400 - Environmental Control Map - EPL 12208 - NCW CTMP – Appendix F - Consistency Assessment – Closure of Frank Channon Walk (Rev03 approved 5/03/2018)
<p>Part 4: Workforce Notification</p>	



(Uncontrolled when printed)

<p>How will the environmental and community risks and associated mitigation measures of the proposed Minor Works be communicated to the contractor's workforce?</p>	<p>All workers will undertake NCW Project specific induction. In addition, there will be a pre-start briefing undertaken by the worksite manager at the start of shift for all work groups. This will detail the environmental and community risks and mitigation measures.</p>
<p>Part 5: Community Consultation</p>	
<p>What community consultation has been undertaken already?</p>	<p>The Traffic Control Group (Roads and Maritime Services, Sydney Coordination Office, Willoughby City Council, Centre for Road Safety) has been consulted on a number of occasions seeking approval to the proposal to close FCW. Relevant community stakeholders (Bike North, Bike NSW), businesses (Bowls Club Chatswood Bowls Club) Chatswood Rugby Club and residents have been notified and/or consulted to discuss preferred options for closure.</p>
<p>What community consultation is planned to be undertaken?</p>	<p>A work specific notification will be distributed a minimum of 7 days prior to the work commencing. Advanced signage will be placed on the two routes around FCW. An advertisement will be placed in the local newspaper. A work specific notification, including alternative bicycle and pedestrian routes, will be available on the website. Directly impacted properties will be door knocked, including the Chatswood Bowling Club and Chatswood Croquet Club Pedestrian Management Personnel will be in place to direct pedestrians for peak periods.</p>
<p>If drafted already, attach applicable Community Notification as Appendix 3.</p>	


Part 6: Contact Details

Nominate contractor's project manager, environmental and communications contact(s).

Name:	Tony Deacy	Position:	Project Manager	Phone:	0467 762 987
	Chris Standing		Environmental Manager		0431 338 578
	Helena Johansson		Communications and Stakeholders Manager (Sydney Metro)		0466 545 189

Part 7: Signature

This signature acknowledges that the proposed Minor Works will be undertaken in accordance with this application, have minimal environmental impact and are not defined as 'construction' in accordance with the applicable planning approval.

Name:	Chris Standing		
Signature:		Date:	19/03/18



Determination Page

(TfNSW/Environmental Representative Use Only)

12. Endorsement/Approval

These signatures represent formal endorsement/approval for the proposed Minor Works to commence in accordance with this application and the applicable planning approval requirements (subject to any determination from the applicable planning authority as may be required by the planning approval conditions).

	TfNSW Principal Manager, Communication & Engagement – Endorsement (required for all applications)	TfNSW Principal Manager, Sustainability, Environment & Planning – Approval (required for all applications)	Environmental Representative – Endorsement (required as necessary in accordance with the applicable planning approval, optional for all other circumstances)
Signature:			
Name:	Helena Johansson	FIL CERONE	Erran Woodward
Date:	20/3/18	21/3/18	20/03/18
Comments:	<p>Note some minor clarifications in Part 5: Community Consultation</p> <p>If stray cat/s are caught, comms manager needs to be informed to contact the Cat Protection Society of NSW for rehoming of cats.</p>		Supporting letter attached as Appendix 4 if necessary.
Conditions:			<p>Supporting letter attached as Appendix 4 if necessary.</p> <p>Works can not commence prior to approval of the Construction Traffic Management Plan by RMS.</p>
<input checked="" type="checkbox"/>	Approved (by TfNSW)		
<input type="checkbox"/>	Endorsed (by Environmental Representative)		
<input type="checkbox"/>	Rejected		



Appendix 1: Environmental Risk Assessment and Environmental Control Map.

Risk Assessment Rankings: >17 = Extreme 10 - 16 = High 5 - 9 = Medium 1 - 4 = Low

Issues or activities that represent an Extreme risk after the application of control measures are not to be undertaken

Aspect	Potential Environmental Impact	Initial Risk Rating			Control Measures	Residual Risk Rating		
		P X	C =	Risk		P X	C =	Risk
Approvals and Licensing								
Not identifying appropriate approvals / licenses required or proceeding without them.	Works delayed, infringements, prosecution and reputational loss.	P	3	M	Planning approval has been granted for the Sydney Metro - Chatswood to Sydenham works (SSD 15_7400). Consistency assessment TfNSW 30 – Additional closure of Frank Channon Walk at Chatswood NCW CTMP (Appendix F) to be endorsed by WCC and SCO, then approved by RMS. This minor works application is being completed to ensure appropriate documentation is completed to manage environmental risk of the project. Only works with minimal impact are being undertaken.	U	1	L
Noise								
Noise from Standard Construction Hours works	Disturbance to residents or neighbouring businesses. Potential for complaints.	P	3	M	Control measures as per Community Consultation Strategy (CCS) are to be implemented. Consult with the community in relation to upcoming activities that may result in concern (completed by Sydney Metro). Wood chipper would be used for three hours with a one hour break as respite. Works to be undertaken during normal construction hours only.	U	3	M



Vibration								
Vibration intensive activities undertaken on the site in proximity to sensitive heritage structures and community.	Damage to listed heritage items. Disruption, annoyance and nuisance to residents. Potential damage to adjacent residential and commercial residences and structures. Disruption to businesses as a result of vibration nuisance	U	4	M	No vibration intensive works to be undertaken. There are no sensitive receivers within the safe working limits of the works. Environmental Manager to inspect works. Consult with potentially affected parties prior to commencement of works for any activities that may create vibration impacts caused by the works (if construction methodology was to change in a way that could generate vibration). No heritage structures within close proximity of proposed minor works. Works to be undertaken during normal construction hours only.	R	3	M
Water Quality, Erosion & Sedimentation								
Sediment laden runoff from investigation works leaving site.	Degradation of local watercourses. Increased turbidity in local water ways resulting in impact on aquatic life. Fines for sediment escaping site.	U	3	M	Control measures as per Environmental Control Map (ECM) and the Erosion and Sediment Control Plan (ESCP). Existing stormwater drainage points and swales identified on ESCP with controls in place. No material to be stockpiled within FCW. Only the nominated stockpile area within the rail corridor to be used. Stockpiled materials are to be covered when not in use. Drains to be covered. All vehicle wheels to be clean prior to exiting site.	R	3	L
Non-compliant water from investigation works discharged from site	Non-compliant water entering stormwater system waterways (i.e. polluting - not compliant with discharge criteria).	P	3	M	No water discharge anticipated for minor works. Erosion and Sediment Controls to be maintained for the duration of works.	U	2	L



					If water discharge is required, Sydney Metro Water Discharge or Reuse Approval form to be utilised. Form to be approved by LORAC Environmental Manager prior to discharge.			
Ground water	Ground water entering excavations Without appropriate safeguards onsite could lead to ground water contamination	U	2	L	No excavation to be undertaken during these works that are predicted to impact groundwater. Note: Groundwater levels are predicted to be 10-30 meters below ground level. Sydney Metro EIS – Groundwater and geology, Chapter 17.	R	1	L
Waste								
Waste disposal during works.	Incorrect disposal of waste, further costs incurred for classifications and disposal, fines may be issued.	P	2	M	Waste will be transferred to licenced waste facility only. Ensure accurate waste records are retained. Removal of wastes from the site would only be undertaken by a licensed contractor as required by the POEO Act and with appropriate approvals, if required, for contaminated materials, etc. All material that requires off-site disposal to be appropriately classified against the NSW EPA Waste Classification Guidelines (2014).	R	2	L
Contamination								
Potential for discovery of unexpected contaminated spoil during investigation works involving excavation and drilling.	Health effects resulting from airborne contamination, e.g. asbestos. Complaints received from odours.	P	3	M	If contaminated soil is encountered, all works are to stop in the vicinity of the find and investigations commence. Occupational hygienist in attendance on site. Induct personnel on location, type, nature and concentration of contaminants on site if found.	U	2	L
Hazardous Materials								
Storage of hazardous substances, leaking plant and	Localised ground contamination / pollution of stormwater and requiring	U	3	M	No fuels or hazardous materials to be stored on site for minor works.	R	3	L



equipment and spillage from refuelling.	clean-up and/or receiving fines. Risk of igniting volatile substances.				Spill kits to be onsite when using plant/equipment. No major servicing of equipment to be undertaken onsite. Pre-mobilisation checks on all plant/equipment to come to site, including check of fuel and hydraulic leaks.			
Biodiversity								
Vegetation trimming / clearing required outside approved work area.	Unauthorised works / removal of vegetation outside defined work area, possibility of removing threatened species, fines incurred.	R	3	L	Vegetation will only be removed if it has been appropriately assessed within the relevant revision of the approved Tree Report. No vegetation to be removed outside of the approved work area. All vegetation removal will be subject to a Vegetation Removal and Trimming Permit and or Minor Works Application	R	1	L
Clearing and grubbing of vegetation within work site.	Erosion of soils, uncontrolled runoff, sediment deposited into surrounding vegetated areas and watercourses, and invasion of weeds. Wrong vegetation removed. Potential for injury to native fauna.	R	3	L	Vegetation will only be removed if it has been appropriately assessed within the relevant revision of the approved Tree Report. All vegetation removal will be subject to a Vegetation Removal and Trimming Permit All vegetation removal will be subject to the conditions of the ecology report: - Avoid damage to adjoining vegetation - Ensure erosion and sediment controls are in place and maintained - Segregate weeds and dispose of separately from other vegetative waste. The works will be monitored and inspected for the presence of any additional flora/fauna. If identified works will stop with an ecologist engaged to reinspect the area.	R	1	L



					<p>The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation.</p> <p>Note: The subject area falls outside of the scope of the current Tree Report and as such has been subjected to a third part ecology assessment.</p>			
Air Quality								
General works	Dust activity in close proximity to residential and commercial premises, complaints received.	U	3	M	<p>No dust generation is expected during these works. Works will be monitored on an on-going basis, and where dust generation is identified a water cart will be called upon.</p> <p>Operators of plant and vehicles are to drive to conditions.</p> <p>Spoil stockpiles to be covered to prevent wind erosion and dust.</p>	R	2	L
Exhaust from plant and equipment.	Emissions resulting in air pollution.	U	3	M	<p>Well maintained plant/ equipment and pre-start checks and servicing.</p> <p>Non-complaint vehicles removed from site / repaired.</p>	R	2	L
Heritage								
Unexpected heritage items encountered.	Work delays, additional studies, approvals required, damage to heritage item.	P	3	M	<p>General inductions on heritage management 'stop-works' protocol. If suspected heritage item encountered. Works to stop immediately and Environmental Manager contacted.</p> <p>Unexpected finds of heritage items must be reported to LOR Environmental Manager and Sydney Metro. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works.</p> <p>The site is to be isolated and investigated by a heritage consultant.</p>	U	2	M



					Approval to proceed required prior to re-commencing works. Label any known heritage items on Environmental Control Maps.			
Flora & Fauna								
Removal of flora without approval.	Failure to identify flora prior to removal.	R	3	L	Vegetation will only be removed if it has been appropriately assessed within the relevant revision of the approved Tree Report. All vegetation removal will be subject to a Vegetation Removal and Trimming Permit and the conditions of the Ecology Report: All vegetation removal will be subject to the conditions of the ecology report: - Avoid damage to adjoining vegetation - Ensure erosion and sediment controls are in place and maintained - Segregate weeds and dispose of separately from other vegetative waste. The local WIRES group and / or veterinarian would be contacted if any fauna are injured on site or require capture and / or relocation.	R	1	L
Traffic and Pedestrians								
Loss of on-street car parking in adjacent residential streets and commercial areas during investigation works.	Loss of parking availability to adjacent residential and commercial properties could result in community complaints.	P	3	M	Community notifications including notifications, advertising, signage and door knocks will be undertaken. Works will occur in accordance with the Traffic Control Plan, approved by Willoughby City Council, as included on page 28 of this document. Site vehicles shall be parked within FCW and not affect public parking area.	U	3	L



					<p>Temporary lane closure of Drake Street and Hopetoun Ave required for deliveries.</p> <p>All vehicles, including heavy vehicles, will access the work area via Ellis Street as assessed within the “Closure of Frank Channon Walk” Consistency Assessment.</p> <p>Traffic Control on Ellis Street for access to FCW, no lane closure required.</p> <p>Consultation undertaken with Bike Groups (Bike North and Bike NSW), WCC, RMS, SCO</p> <p>CTMP Appendix F to be endorsed by SCO and approved by RMS prior to commencement of works</p>			
<p>Management of heavy vehicles / access routes.</p>	<p>Complaints from sensitive receivers due to increased level and frequency of noise.</p>	P	4	M	<p>All vehicles, including heavy vehicles, will access the work area via Ellis Street as assessed within the “Closure of Frank Channon Walk” Consistency Assessment.</p> <p>Deliveries of plant and materials shall be undertaken outside of peak periods where possible.</p> <p>Site vehicles shall be parked within the rail corridor and not affect public parking areas.</p> <p>Scheduled road movements shall be minimised where possible.</p> <p>Works will occur in accordance with the Traffic Control Plan, approved by Willoughby City Council, as included on page 28 of this document.</p> <p>Oversized deliveries would be undertaken in accordance with the requirements of NSW Police or Roads and Maritime Services.</p> <p>Heavy vehicle access routes given to contractors/suppliers/deliveries.</p> <p>Community notifications including notifications, advertising, signage and door knocks will be undertaken.</p>	U	3	L



					<p>Pedestrian management with traffic controller in place where required.</p> <p>Consultation undertaken with Bike Groups (Bike North and Bike NSW), WCC, RMS, SCO</p> <p>CTMP Appendix F to be endorsed by SCO and approved by RMS prior to commencement of works</p>			
Truck deliveries out of normal working hours (un-approved).	Noise impact to community / potential complaints.	P	3	M	<p>Induction on approved working hours for deliveries only within standard construction hours.</p> <p>Communication of delivery times to suppliers only within standard construction hours.</p> <p>Community Notifications on project activities occurring locally.</p> <p>Approved traffic/access routes.</p> <p>Planning and staging of works within standard construction hours only.</p> <p>Consultation undertaken with Bike Groups (Bike North and Bike NSW), WCC, RMS, SCO</p> <p>CTMP Appendix F to be endorsed by SCO and approved by RMS prior to commencement of works</p>	U	3	M
Removal of access through Frank Channon Walk	Loss of access for pedestrians and cyclists	L	2	M	<p>Consultation undertaken with Bike Groups (Bike North and Bike NSW), WCC, RMS, SCO</p> <p>Alternative shared paths/access routes have been identified and advertised</p> <p>Appropriate signage and traffic control (including at pinch points, signage for speed limits and wayfinding)</p> <p>Line marking</p> <p>CTMP Appendix F to be endorsed by SCO and approved by RMS prior to commencement of works</p>	U	2	L

Resources and Energy Use



Energy consumption by plant and equipment.	Inappropriate energy use, waste of energy resources, energy wastage costs, increased greenhouse gas emissions.	U	2	L	No idling of plant equipment where possible onsite. Equipment / plant equipment inspections must be undertaken prior to use on site.	R	2	L
Resource usage (e.g. building materials, water, fuels, packaging), waste generation and disposal	Depletion of resources due to wastage (e.g. wastage of water / no recycling, poor management of procurement, ineffective removal of off-cuts, waste, i.e. no recycling).	U	2	L	Only sufficient materials to complete the works will be procured.	U	2	L

For each identified issue, consider the ‘maximum credible’ (not absolute worst case) risk that could result with **minimal or no controls** other than existing and using normal work practices.

Note: Any one of the listed consequences must result in the use of the applicable consequence grading.



<u>Probability:</u>		<u>Consequence:</u>	
5 = Certain 4 = Likely 3 = Possible 2 = Unlikely 1 = Rare		5 = Severe 4 = Major 3 = Moderate 2 = Minor 1= Incidental	
1- 4 Acceptable 5 - 9 Acceptable with control measures 10 - 16 Requires the implementation of best practice 17 and Above = UNACCEPTABLE			

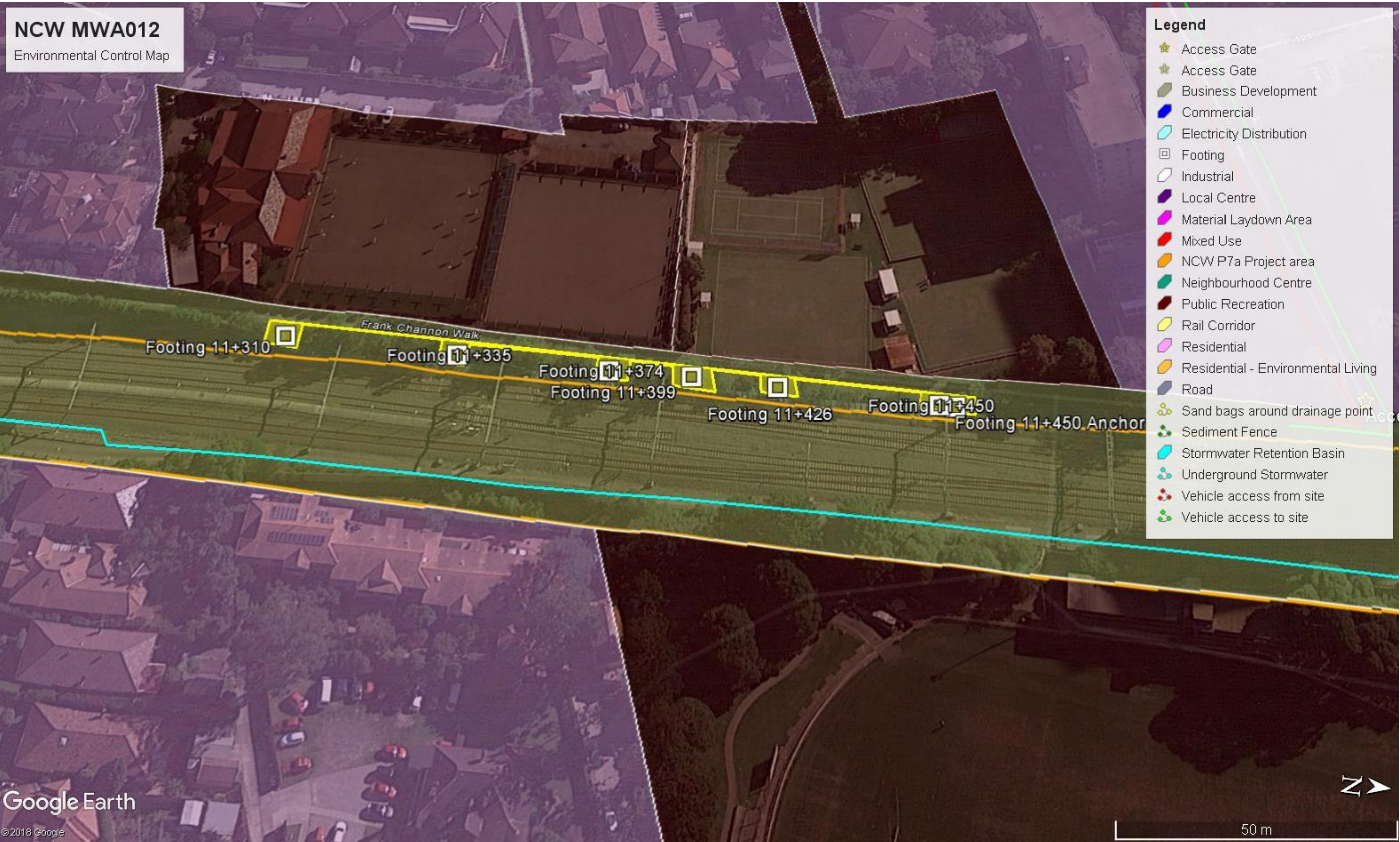
5	Certain	<ul style="list-style-type: none"> Common or repeating occurrence Consequence can reasonably be expected to occur in life of Project. 	5	Severe	<ul style="list-style-type: none"> Major pollution incident causing significant and widespread damage or potential to health or the environment Persistent reduction in ecosystem function and value. Ongoing disruption and loss of protected species. Major prosecution likely, outcome in excess of \$500,000
4	Likely	<ul style="list-style-type: none"> Known to have occurred / “has happened” Conditions may allow the consequence to occur on the Project during its lifetime The event has occurred within the Business Unit within the previous 5 years. 	4	Major	<ul style="list-style-type: none"> Significant widespread and persistent changes to habitat, species or environmental media Significant pollution incident causing damage or potential damage to health or the environment external to the site. Potential for prosecution. Potential outcome between \$50,000 - \$500,000 Numerous substantial complaints Actual material environmental harm
3	Possible	<ul style="list-style-type: none"> Could occur / “heard of it happening” Exceptional conditions may allow consequences to occur on the Project, or has occurred nationally within the Australian Business. 	3	Moderate	<ul style="list-style-type: none"> Localised irreversible habitat loss or effects on habitat, species or environmental media Reportable incident to the relevant environmental regulator or other authority. Demonstrated breach of legislative, licence or guideline requirements. Likely infringement notice or fine, potential for prosecution up to \$50,000. Will cause complaints.
2	Unlikely	<ul style="list-style-type: none"> Not likely to occur Reasonable to expect that the consequence will not occur on the Project. Has occurred in industry but not in Business Unit. 	2	Minor	<ul style="list-style-type: none"> Localised degradation of habitat or short term impacts to habitat, species or environmental media. Pollution incident that marginally exceeds licence conditions or guidelines for acceptable pollution. Fine unlikely. Potential for complaints.



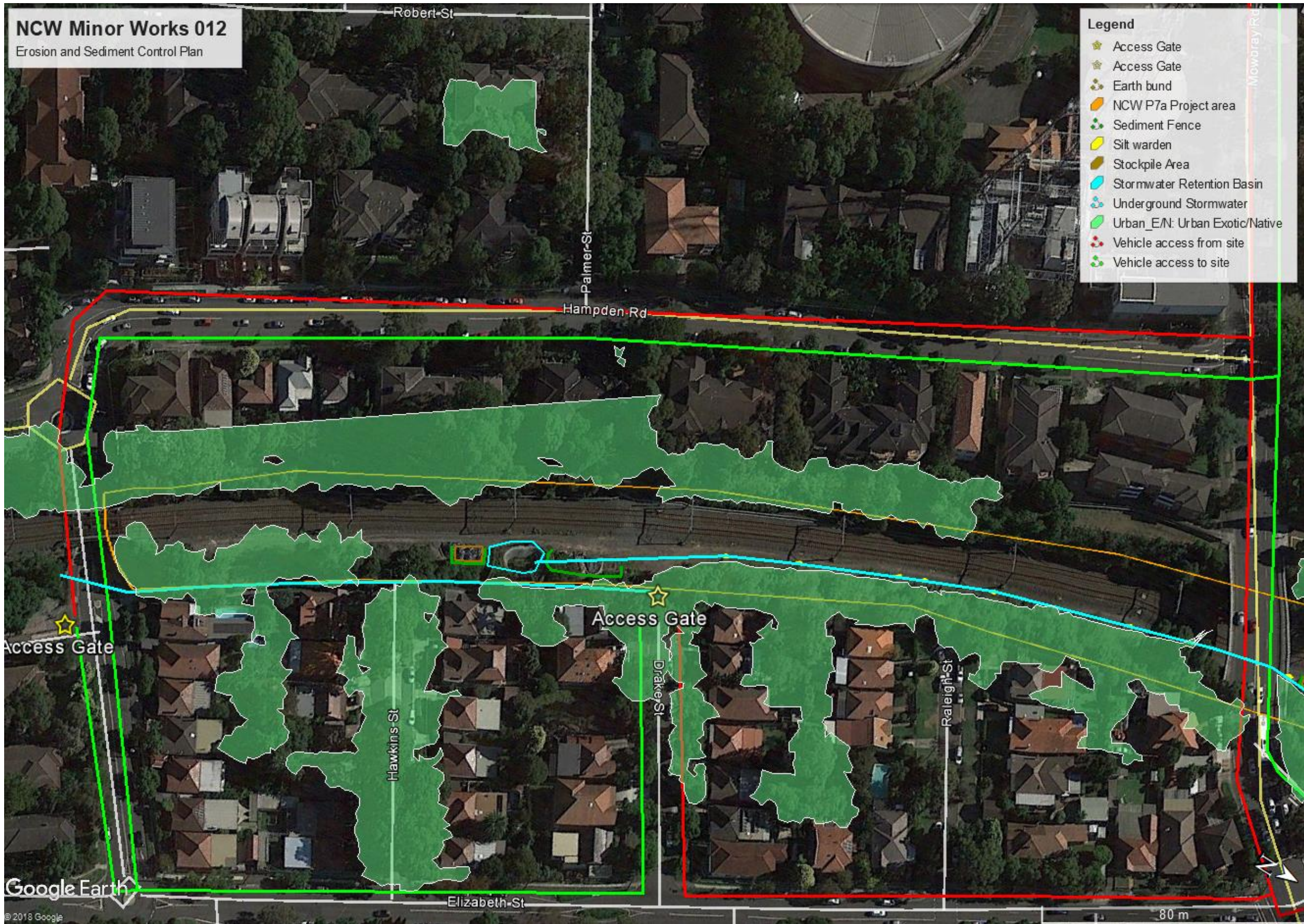
1	Rare	<ul style="list-style-type: none"> – Practically impossible – Not known to have occurred in industry or unheard of. 	1	Incidental	<ul style="list-style-type: none"> – Localised or short term effects on habitat, species or environmental media. – Fully contained on site and can be fully remediated. Little potential for fine or complaints. – Insignificant or trivial incident 	
Probability ▶		CERTAIN	LIKELY	POSSIBLE	UNLIKELY	RARE
▼ Consequence		5	4	3	2	1
5 – Severe		25	20	15	10	5
4 – Major		20	16	12	8	4
3 – Moderate		15	12	9	6	3
2 – Minor		10	8	6	4	2
1 – Incidental		5	4	3	2	1

Environmental Control Map



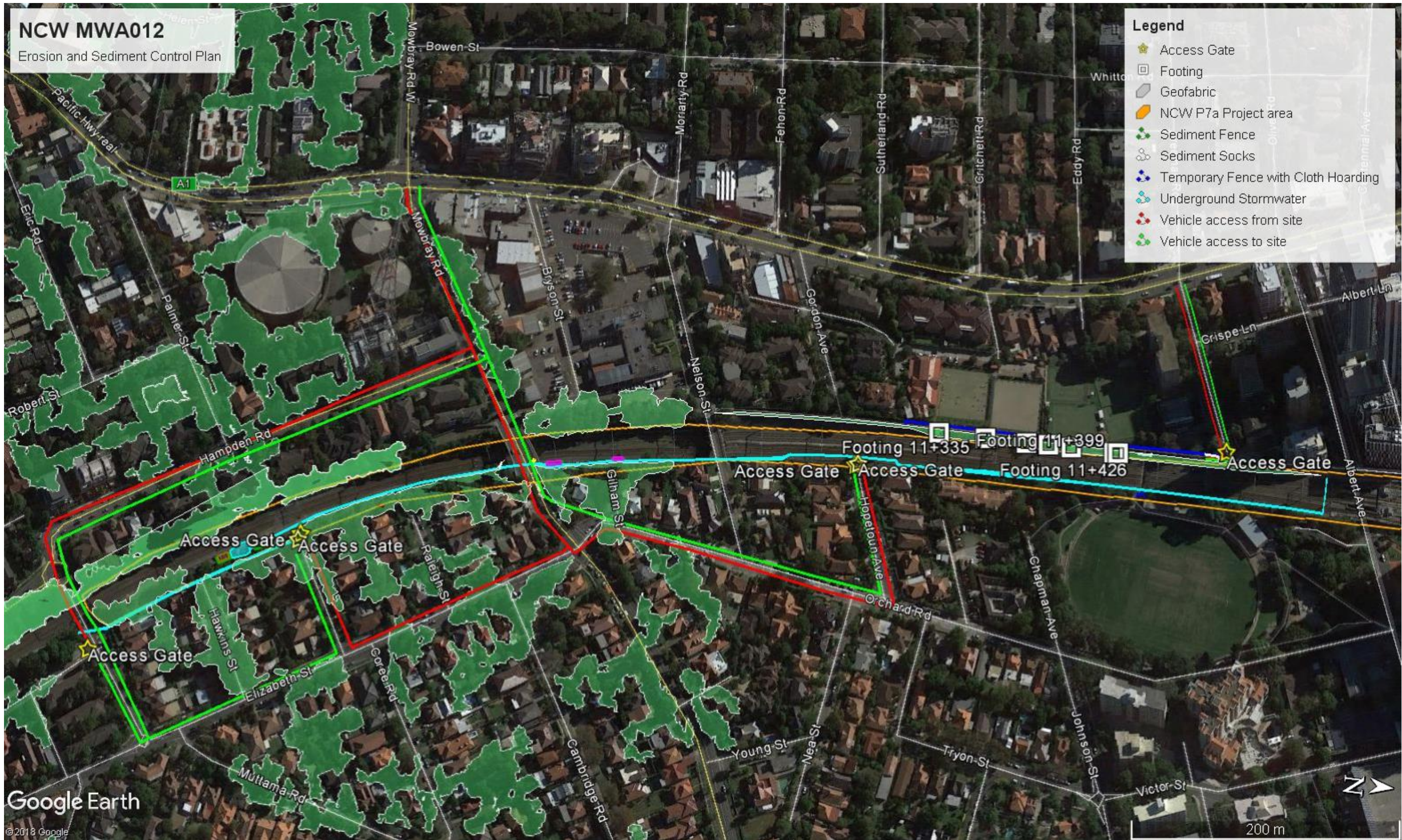














Environmental Control Map – Frank Channon Walk Works		
ID	Environmental Aspect	Description
1	Project	<ul style="list-style-type: none"> This ECM applies to Pre-Construction Minor Works 009 for Portion 7a delivered under Northern Corridor Works (Enabling works for Sydney Metro City and Southwest, Chatswood to Sydenham).
2	Site Access	<ul style="list-style-type: none"> Site access will be from existing Hopetoun Ave and Drake St rail corridor access gate.
3	Program of works	<ul style="list-style-type: none"> Works will occur during Standard Construction Hours from 5/03/2018 to 04/05/2018 between 0700-1800 Mon-Fri and 0800-1300 Sat.
4	General	<ul style="list-style-type: none"> The team will be trained on this ECM, general environmental issues, and location of sensitive areas Works will be subject to inspections by the ER, Sydney Metro Environment and Planning Manager and LOR Environmental Manager. This ECM will be displayed on site sheds. The Drake Street endorsed ECM will be used for the Drake Street minor ancillary facility
5	Contamination	<ul style="list-style-type: none"> Unexpected contamination finds will be managed onsite by occupational hygienist in attendance. All waste to be classified prior to disposal.
6	Air Quality	<ul style="list-style-type: none"> No air quality related issues are expected to be encountered. Stockpiles would be maintained and contained appropriately, which could include covering or regular watering to minimise dust Haul roads will be maintained using dust suppression regularly, particularly in hot and windy conditions
7	Waste	<ul style="list-style-type: none"> All waste will be transferred to bins located at Drake Street Minor Ancillary Facility and transported to a licenced waste facility. All spoil to be stockpiled within the rail corridor. Waste spoil will be tested in accordance with the NSW EPA Waste Classification Guidelines and will be disposed of to a licenced waste facility. Waste vegetation will be disposed of at a licenced waste facility.
8	Soils and water	<ul style="list-style-type: none"> No soil and water related issues are expected to be encountered. No material to be stockpiled within FCW. Only the nominated stockpile area within the rail corridor to be used. Spoil will be transferred to the corridor in trucks from FCW. Stockpiles will be covered when not in use Stormwater drains will be protected Concrete washout will occur at the concrete depot located in Artarmon on Reserve Road. A concrete washout bin will be provided for the line pump, to located at least 20m from the nearest water body, where possible. Existing erosion and sediment controls are in place across the site and are to be maintained for the duration of the works.
9	Heritage	<ul style="list-style-type: none"> Unexpected finds of heritage items must be reported to LOR Environmental Manager and Sydney Metro. The site is to be isolated and investigated by a heritage consultant. Approval to proceed required prior to re-commencing works. If suspected heritage item encountered. Works to stop immediately and Environmental Manager contacted.
10	Noise and Vibration	<ul style="list-style-type: none"> All works will be completed in compliance with Sydney Metro CEMF, SSD 15_7400 Planning Approval, Construction Noise Strategy and EPL 12208 requirements. All plant will have non-tonal alarms. Community notifications will be drafted and sent to Sydney Metro Community Liaison team separately.
11	Traffic and Transport	<ul style="list-style-type: none"> Access to the site will be from existing access gates at Brand Street, Hopetoun Ave and Drake St All delivery drivers will be given an induction showing the approved traffic/access/haulage routes as identified in the EIS prior to accessing site. All Site vehicles shall be parked within the rail corridor and not affect public parking area. Additional traffic controls will be implemented in accordance with TCP(s) as approved by Willoughby City Council. Temporary lane closures on Drake Street and Hopetoun Ave may be required to allow trucks to exit the site. All closures are expected to be for minor durations (less than 5 minutes). Any closure will be managed in accordance with the TCP. All vehicles to enter rail corridor immediately on arrival to gate Plant and vehicles engines to be switched off when not in use, with engine idling minimised as much as possible. Two parking spaces will be temporarily removed at 2-4 Ellis Street, Chatswood as per the Road Occupancy Licence Works to be undertaken in accordance with CTMP Appendix F to be endorsed by SCO and approved by RMS prior to commencement of works.
12	Utilities	<ul style="list-style-type: none"> Any impacts to utilities will be reported to site HSE Manager, supervisors, Sydney Trains and Sydney Metro.
13	Biodiversity	<ul style="list-style-type: none"> If any vegetation outside of the scope of the ecology report and other than grass and weeds needs to be trimmed or removed, further assessment would be undertaken and approval sought from Sydney Metro prior to trimming or removal. If threatened flora or fauna species are identified on site, work in the vicinity of these species would stop immediately. A spotter/catcher would be engaged to survey the site and advise on species management.



		<ul style="list-style-type: none"> • Stockpiles, plant, equipment and materials will be located on existing cleared areas, away from the drip zone of trees and native vegetation. • Weeds encountered during vegetation removal will be stockpiled separately and disposed of accordingly to avoid contamination. • Soil and vegetation that could contain weed material should be removed from machinery prior to any movements off site.
14	Chemical, fuel storage and use	<ul style="list-style-type: none"> • No fuels and chemicals are expected to be brought to site as part of these works. All plant and equipment will be checked daily to ensure there is no leaking oil, fuel or other liquids.
15	Imported materials	<ul style="list-style-type: none"> • Materials to be delivered during standard construction hours. • Materials to be stockpiled in a bunded area and covered (Drake Street) when not in use. • All materials imported will have a classification certificate and be 'clean' material.
16	No-go zones	<ul style="list-style-type: none"> • Activities will be restricted to the rail corridor. • Any activities outside the NCW site boundary will undergo a review for potential environmental impacts and require approval from Sydney Metro.

Contact Information

Position	Name	Phone
LOR Project Leader	Tony Deacy	0467 762 987
LOR Construction Manager	Martin O'Brien	0457 560 728
LOR/Sydney Metro Communications Manager	Helena Johansson	0466 545 189
LOR Environment and Sustainability Manager	Chris Standing	0431 338 578
LOR WHS Manager	Clive Hunter	0428 412 130
ER	Erran Woodward	0437 343 178
Sydney Metro Environmental Manager	Andrew Hendy	0475 983 494
Sydney Metro City and Southwest Info Line		1800 019 989
Sydney Trains Info Line		131 500
Environmental Line / Pollution Incident Response Line		131 555
Office of Environment & Heritage Pollution Line		131 555
Emergency		000 or 112 (mobiles)
WIRES		1300 094 737

Standard Working Hours

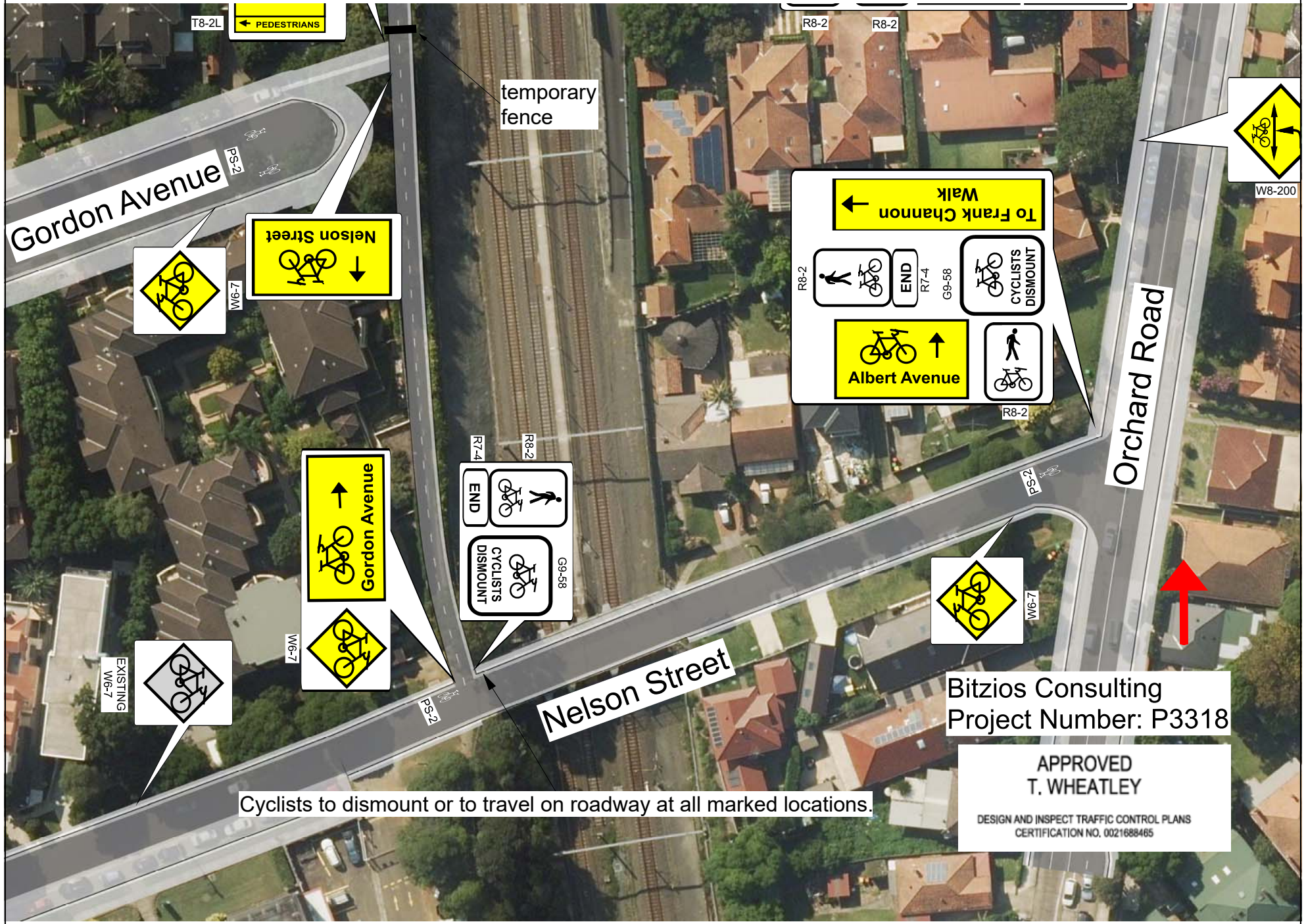
Audible construction works unless otherwise approved by the Environmental Manager will be restricted to:

- **7:00AM to 6:00PM - Monday to Friday**
- **8:00AM to 1:00PM - Saturdays**
- **No work on Sundays or public holidays**

Any works outside of the hours above require OOHW and Sydney Metro and LOR Environmental Manager's Approval

Out-of-Hour Works

Nil.



T8-2L PEDESTRIANS

Gordon Avenue

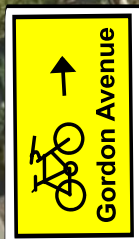
PS-2



W6-7



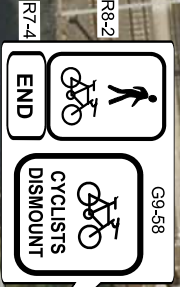
W6-7



EXISTING W6-7



temporary fence

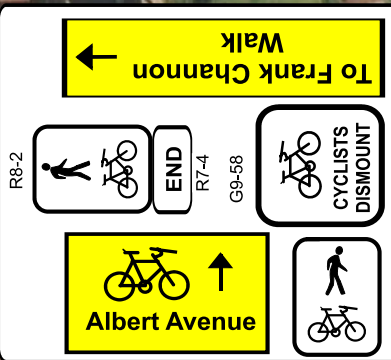


R7-4

R8-2

Nelson Street

PS-2



R8-2

To Frank Channon



Albert Avenue

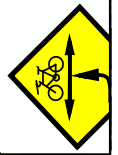


R8-2



W6-7

Orchard Road



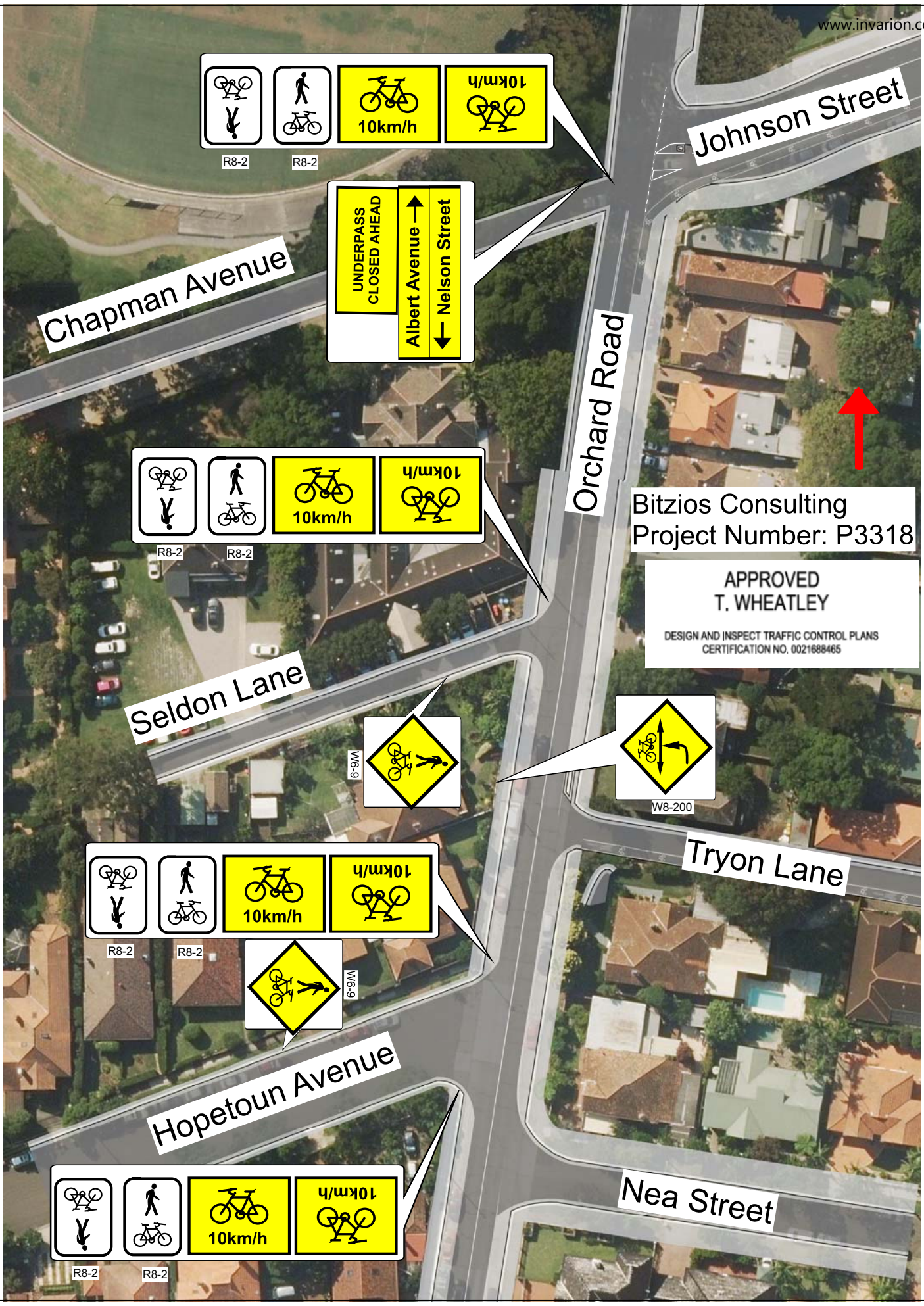
W8-200

Bitzios Consulting
Project Number: P3318

APPROVED
T. WHEATLEY

DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 0021688465





Cyclists to dismount or to travel on roadway at all marked locations.



 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

UNDERPASS
CLOSED AHEAD

Albert Avenue →
← Nelson Street

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

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CERTIFICATION NO. 0021688465

W6-9




W8-200











 R8-2	 R8-2	 10km/h	 10km/h
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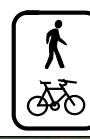

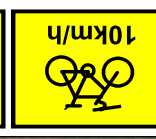
W6-9



 R8-2	 R8-2	 10km/h	 10km/h
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 10km/h	 R8-2	 CYCLISTS DISMOUNT G9-58	 R8-2	 END R7-4
 W6-7				

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

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Albert Avenue

Orchard Road



W6-7

10km/h

R8-2

G9-58

END

R7-4

To Frank Channon Walk

R8-2

R7-4

END

To Orchard Road

R8-2

R8-2

10km/h

10km/h

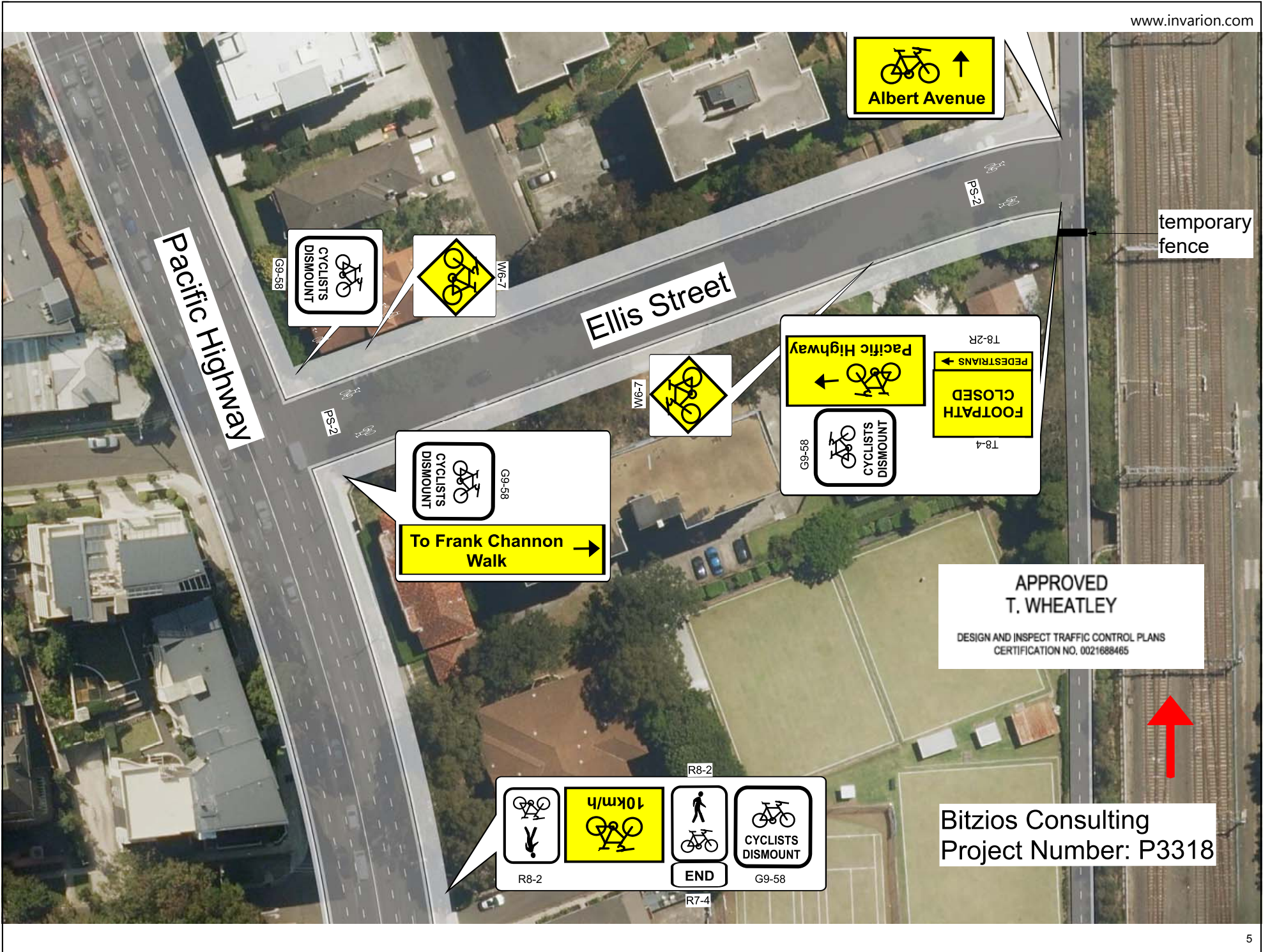
END

G9-58

END

CYCLISTS DISMOUNT

Albert Avenue




Albert Avenue



G9-58

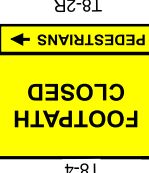

W6-7


Ellis Street

Pacific Highway


temporary fence



Pacific Highway
←
CYCLISTS DISMOUNT
G9-58



PEDESTRIANS ←
FOOTPATH CLOSED
T8-4



G9-58
To Frank Channon Walk →


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CERTIFICATION NO. 0021688465


R8-2


10km/h

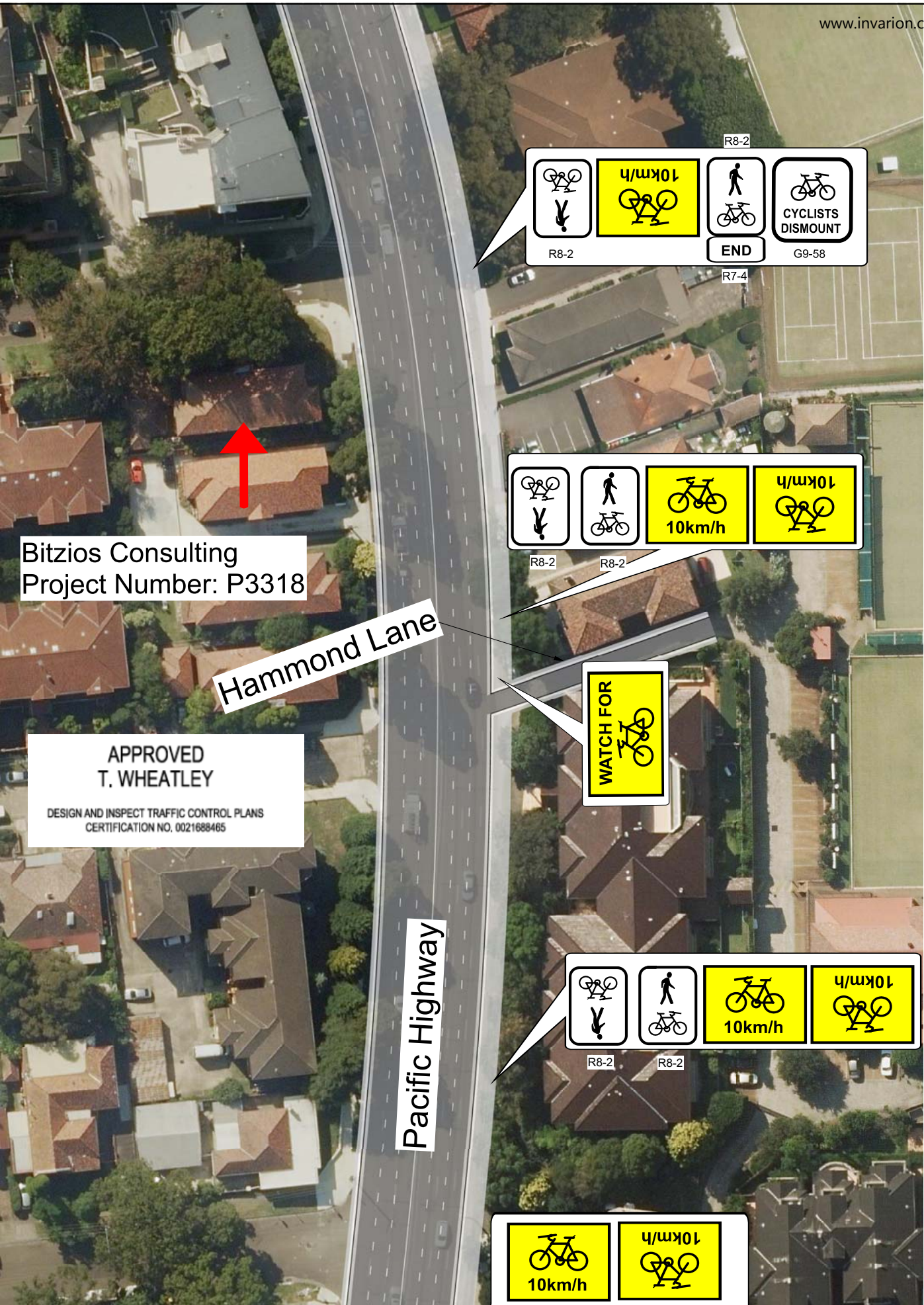

R7-4


END


G9-58

Bitzios Consulting
Project Number: P3318





Bitzios Consulting
Project Number: P3318



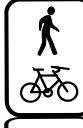

Hammond Lane

APPROVED
T. WHEATLEY

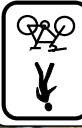
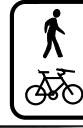


DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 0021688465

Pacific Highway

R8-2

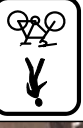



			
R8-2		END	G9-58



R7-4

			
R8-2	R8-2		

WATCH FOR



			
R8-2	R8-2		

	
--	---

Pacific Highway

R8-2 R8-2

10km/h 10km/h

Ellis Street ↑ R7-4 R8-2

R8-2 G9-58

R8-2 R7-4

G9-58

T8-4 T8-2L

Gordon Avenue

Nelson Street ↓ W6-7

W6-7

W6-7

G9-58

Gordon Avenue ↑

R7-4



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Project Number: P3318

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CERTIFICATION NO. 0021688485



Road Occupancy Permit

Not required for these works



Traffic Control Plans

www.invarion.com

Laing O'Rourke

Location - Ellis Street, Chatswood

*** Team leader:**

- Manage overall work area
- Provide relief
- Sign checking
- Communication with client

*** Traffic Controllers:**

- Are to escort pedestrians around work area ensuring safe path
- Are to watch over drive ways & escort vehicles in & out where applicable

*** General Notes:**

- Extra Signs to be installed if required
- Size B signs to be used for advance warning

Frank Channon Walk

FOOT PATH GATE

Foot path Closed

Client: Laing O'Rourke Scope of Works: Construction works Job location: Ellis Street, Chatswood		WORKERS ON FOOT NO GO ZONE - RESTRICTED ZONE - SHARED ZONE - SITE EXIT - SITE ENTRY - EVACUATION POINT -	Implemented By Name - Cert No - Date - Signed -	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Approximate speed of traffic</th> <th>Traffic control at beginning of taper</th> <th>Lateral shift</th> <th>Large taper</th> </tr> </thead> <tbody> <tr> <td>45 or less</td> <td>15</td> <td>0</td> <td>15</td> </tr> <tr> <td>46 - 55</td> <td>15</td> <td>15</td> <td>30</td> </tr> <tr> <td>56 - 65</td> <td>30</td> <td>30</td> <td>60</td> </tr> <tr> <td>66 - 75</td> <td>N/A</td> <td>70</td> <td>115</td> </tr> <tr> <td>76 - 85</td> <td>N/A</td> <td>80</td> <td>130</td> </tr> <tr> <td>86 - 95</td> <td>N/A</td> <td>90</td> <td>145</td> </tr> <tr> <td>96 - 105</td> <td>N/A</td> <td>100</td> <td>160</td> </tr> <tr> <td>106 or greater</td> <td>N/A</td> <td>110</td> <td>180</td> </tr> </tbody> </table>	Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift	Large taper	45 or less	15	0	15	46 - 55	15	15	30	56 - 65	30	30	60	66 - 75	N/A	70	115	76 - 85	N/A	80	130	86 - 95	N/A	90	145	96 - 105	N/A	100	160	106 or greater	N/A	110	180	D = THE SPEED OF TRAFFIC MEASURED IN KM/H SO1M = SO1M EG: 70KM = 70M SO1M = SO1M SO1M = SO1M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL <p>Web: www.odtraffic.com.au Email: sydney@od-group.com.au Phone: 1300 597 622</p>
Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift	Large taper																																						
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106 or greater	N/A	110	180																																						
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Appendix 2: Cover Page

Environmental Management Documentation – CTMP Appendix F

Proposed Closure of Frank Channon Walk

Main North and North Shore Corridor Works Project

Proposed Closure of Frank Channon Walk

Document and revision history

Project Name	Main North and North Shore Corridor Works
Location:	Artarmon / Chatswood
Project Number	K38
Client	Transport for NSW Sydney Metro
LOR Document Number	TBC
Clients Reference Number	TBC

Revision	Date of Issue	Details
00	21 November 2017	Draft for comment
01	24 November 2017	Updated to include comments
02	12 December 2017	Diagram added
03	22 December 2017	Updated schedule
04	28 February 2018	Updated for submission to TCG
05	9 March 2018	Updated following consultation with TCG
06	15 March 2018	Updated for ER comments

Proposed Closure of Frank Channon Walk

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3.	Background and Justification	3
4.	Closure of Frank Channon Walk.....	5
5.	Required Traffic/Pedestrian Control.....	5
6.	Consultation	10
	Appendix A – Construction Schedule	11
	Appendix B – Pedestrian and Cyclist Movements	12
	Appendix C – Footing Locations within FCW.....	13
	Appendix D – FCW Closure temporary structure and advanced signage for Community	16
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	Appendix F – Pedestrian Control Plan	22
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Proposed Closure of Frank Channon Walk

1. Introduction

Laing O'Rourke (LOR) are working with Sydney Metro (SM) to carry out enabling works as part of the Northern Corridor enabling works under the broader Sydney Metro programme of works between Artarmon and Chatswood.

The works encompass alterations to the existing overhead wiring layout to allow the proposed North West Rail Link to reach Chatswood and also takes into account the proposed Metro route to the CBD and beyond via a tunnel portal and dive which will be constructed by the JHG/CPB/Ghella consortium (TSE), essentially between Mowbray Road and Nelson Street rail overbridges.

The works also involve drainage works and attenuation tank works alongside incidental minor works of a civil engineering nature all along the existing rail corridor in the Artarmon to Chatswood area.

2. Frank Channon Walk

Frank Channon walk extends from Nelson Street to Albert Avenue in Chatswood. It is a shared pedestrian and cycle path with an underpass approx. 2/3 way along from Nelson Street that leads to Chapman avenue and Chatswood Oval. The walkway varies from 2.5m to 5.0m width, being greater than 3.0m for the majority of its length.

Pedestrian and cyclist volumes have been sampled by Transport for NSW which identified to be 1160 pedestrians daily and approximately 58 cyclists daily. Refer to the figure included in Appendix B.

Frank Channon Walk is part of Lot 1/DP1059504, which forms part of the Rail Corridor. However, the land is outside the rail corridor boundary fence (in this instance a noise wall) and is open to the public. As such, Willoughby City Council manage the land.

As such any works to be undertaken in this area should seek approval from the land owner (Sydney Trains) in consultation with the land manager (WCC).

3. Background and Justification

Laing O'Rourke have engaged AECOM Consulting Engineers to carry out all design works required under Portion 7A.

AECOM have been guided by the Sydney Metro supplied reference design, excerpts of the reference design depicting the subject area are included within Appendix C. AECOM have endeavored to maintain the alignment and positioning of the OHW reference design where feasible and practicable. During the design process it was found that a number of OHW footings could not be positioned within the rail corridor and that the most appropriate location for these footings was within the Frank Channon Walk garden bed (running north-south along the eastern side of the walk).

Subsequently, LOR has carried out a detailed survey of each affected footing locations – 11+ 310 , 11+335 , 11+ 374 , 11+424 , 11+450 and 11+477. AECOM have issued a draft OHW footing schedule which in section 5 below. It has been confirmed that due to design constraints these footings are unavoidably located within FCW.

Proposed Closure of Frank Channon Walk

Chainage	Structure type	Structure size	Pile Length	Pile diameter
11+477	FSAM	Boxed Fsam 310 UC158	8000	1200
11+450	Portal Leg	300 SHS portal 1 x mast boxed	8000	1200
11+424	Portal Leg	300 SHS Portal	6500	900
11+374	Portal Leg	380 Double Channel	6400	900
11+335	Portal Leg	380 Double Channel	6400	1200
11+310	Mast	HP2 Mast	5800	900

Construction of six footings under discussion would present challenges that would be difficult to overcome during possession working and we have considered using FCW to overcome the access, timing and more importantly safety considerations.

The construction of the piles requires correct plant selection ensuring sufficient torque to extend to the depths and diameters required and as such must be completed by plant operating outside the corridor.

Initial considerations into maintaining the access through FCW and locally manage pedestrians and cyclist the footings construction locations however the footing schedule and type of size of footings therein have precluded that on Health & Safety basis, lifting operations with pile cages varying in size and deep excavations is not an environment of benefit to the public, irrespective of the management protocols in place.

In addition sections of the rail corridor will remain open while construction of these footings locations is completed, this alone significantly restricts any opening of FCW while construction activities are ongoing.

With safety of public and all construction personnel foremost in our planning the closure of FCW has been carefully considered and it is, in our opinion, an unavoidable inconvenience.

Proposed Closure of Frank Channon Walk

4. Closure of Frank Channon Walk

Laing O'Rourke have initiated discussions regarding the closure of FCW on Friday 17th Nov 2017 with further discussions held 21st Nov 2017, and throughout December 2017 with Sydney Metro Environmental and Communications staff.

Further discussions were undertaken with Willoughby City Council on the 19th January 2018 and the 23rd of February 2018 regarding the proposal of the closure of FCW and the associated controls.

The proposal was then raised at the TCG meeting on the 23rd January and the 27th of February prior. This proposal was included as Appendix F within the CTMP and resubmitted to all parties for review. AS such, the approval of this proposal is included in the overall approval of the CTMP.

Please see **Appendix A** for detail on the construction schedule, refer to **Appendix C** for detailed marked up location maps.

A summary of the closure of FCW is shown below:

- 23rd March 2018 – Closure of Frank Channon Walk – between Gordon Ave in the South and Ellis Street to the North and Chapman Ave pedestrian underpass;
- 24th March 2018 – Fencing and barricade erected along closure and pedestrian underpass;
- 24th – 26th March 2018 – De-vegetation (tree removal where appropriate), materials and plant mobilised to site and complete service search
- 3rd – 13th April 2018 – Construction of all footings;
- 13th – 17th April 2018 – Reinstate area, install steelworks to all footings;
- 18th – 26th April 2018 – Install security fencing to completed footings adhering to the standard Sydney Trains details;
- 30th April 2018 – Reopen Frank Channon Walk to pedestrians;

The pedestrian control plan can be found in **Appendix F**

5. Required Traffic/Pedestrian Control

All traffic control and pedestrian control will be applied in accordance with the Construction Traffic Management Plan for Northern Corridor Works.

Specific controls for the closure of FCW are required to maintain pedestrian and cyclist movement from Nelson Street to Albert Avenue. Control measures identified for the closure are provided below with further detail in **Appendix D** and **Appendix F**;

- Licencing where required from WCC and RMS
- Traffic controllers at closure points of FCW and to assist and direct members of the public
- Fencing surrounding FCW
- IVMS positioned at locations along alternate routes
- Corflute and information signage at locations along alternate routes
- Alternative shared path arrangements as per Austroad Guideline 6A
- Wayfinding
- RMS approved signage on routes
- TCP at Ellis St for entrance to FCW

Proposed Closure of Frank Channon Walk

6. Options for Closure of Frank Channon Walk

Option 1:

Preferred option.

Shared paths to be implemented for the duration of the closure of FCW 23rd March to the 26th April. There will be two shared path arrangements as described in **Appendix B**.

This proposal will utilise the existing infrastructure to route pedestrians and cyclists along a shared route. The routes vary in width from 1.5m to 2.5m.

On Gordon Ave, Ellis Street, Nelson Street and Albert Ave cyclist will be directed to either use the road or dismount and walk along the pathway.

Option 2:

This proposal would modify the existing infrastructure to route pedestrians and cyclists along a shared route. In summary this will involve the following;

- Approval from WCC and RMS to alter infrastructure
- Design certification for works
- Loss of parking and lane closure
- Relocation of existing services
- Removal of vegetation
- Construct pathway extension on route
- Line marking on route
- Install additional signage
- Reinstatement of the subject area

For further detail on the extent of the impact this route Option 2, please refer to **Appendix G**.

It is noted that Option 2 is not the preferred option. Only *Option 1* will be implemented.

As previously mentioned that movements of pedestrians and cyclists along FCW is considered to be in the low range, refer Figure 5.4 AustRoad, Road Design Guidelines Part 6A.

It was however suggested at a TCG meeting on the 23rd January that the desirable minimum width should 3.0m for a shared path.

It is noted that any alteration to the existing streetscape including obtaining licencing, design, certification of design, relocation of parking, relocation of existing services, implementation of traffic control, alterations to line marking, construction activities and associated reinstatement would take approximately 18-26 weeks.

Therefore the proposal to utilise existing infrastructure on both routes is far more favourable and does not significantly modify the infrastructure. The approach has far less impact to the local community as it does not require any parking to be occupied during the closure of FCW.

Given the closure of FCW is already causing an impact to the local community, it is suggested that any further impact should be avoided.

Proposed Closure of Frank Channon Walk

7. Proposal to Close Frank Channon Walk

Option 1:

Shared paths will be implemented for the duration of the closure of FCW 23rd March to the 26th April. There will be two shared path arrangements as described in **Appendix B**.

This proposal will utilise the existing infrastructure to route pedestrians and cyclists along a shared route. The routes vary in width from 2.5m to 2.0m.

Route 1:

Detour 550 meters. Closing the footpath from Gordon Ave to Ellis St, pedestrians and cyclists will be diverted via Pacific Highway.

- Cyclists to use the road on Gordon Avenue
- Cyclists to use the road on Ellis Street

Route 2:

Pedestrian Detour 760 meters. Closing the footpath from Gordon Ave to Ellis St, pedestrians and cyclists will be diverted to Orchard Rd via Nelson Street and then onto Albert Ave.

- Cyclists to use the road on Nelson Street
- Cyclists to dismount and walk along Albert Avenue to Frank Channon Walk

A shared path arrangement will be in place for both routes.

Both shared path routes will vary in width from 1.5 meters to 2.5 meters and as such will not strictly meet the minimum requirements specified in the Austroads Guideline 6A. Therefore an exemption to the minimum requirements will be required in order to facilitate the application of a shared path on both routes.

With reference to the AustRoad, Road Design Guidelines Part 6A a 2.5m shared path may be applied for pedestrian movements less than 40 per hour and less than 10 cyclists per hour. A study of the subject area has indicated that pedestrian and cyclist movements per hour at the peak along FCW are as follows.

- 58 Pedestrians
- 3 cyclists (5% of total across 24 hours)

With respect to shared paths a minimum width of 2.0m may be applied on a local path a lesser width may be applied where cyclist volumes and operational speeds will be low – Table 5.3 AustRoad, Road Design Guidelines Part 6A. Furthermore A.2 of the AustRoad, Road Design Guidelines states that a shared path of 2.0m may be acceptable where the path has a very low use at all times and on all days, where significant constraints exist limiting the construction of a wider path.

It is therefore suggested that due to the low volume of cyclists using the route and the low operations speeds, combined with the application of additional RMS approved signage, speed advisory signage, line markings and traffic wardens a shared path of a width of 2.0m - 2.5m is appropriate. In addition both proposed routes are located in highly constrained environments that

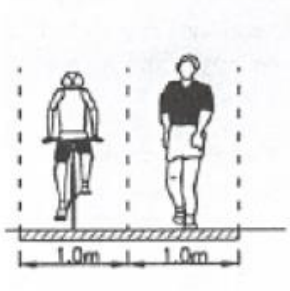
Proposed Closure of Frank Channon Walk

would require significant design and construction/modification of the existing infrastructure to meet the 3.0m requirements for a shared path.

In this case, the most appropriate application of a shared path for Route 1 and Route 2 would be a similar to the shared path in Scenario A, of Figure A2: Shared path operation.

Figure A 2: Shared path operation

Scenario	Overall width of path	Predominant path purpose
A	2.0 m	<p>Typical circumstances of use</p> <p>Local access</p> <ul style="list-style-type: none"> constrained conditions 'tidal' flow low use



Where it identified that a pathway is less than 2.0m the cyclist will be directed onto the road or to dismount. In reference to suggested on road treatments from Willoughby City Council, cyclists will be directed to use the road on Ellis Street, Gordon Avenue and Nelson Street. This will allow for a safe separation of pedestrian and cyclists. Signposting and wayfinding will be provided at each intersection and location where cyclists will be required to route onto these roads from the footpath.

It is also noted that on Albert Avenue the pathway width is also between 1.2 – 1.5 m and the traffic volume is high. As such cyclist will be directed to dismount on the route between Orchard Rd and Frank Channon Walk on Albert Avenue.

The suggested pedestrian control plan can be found in Appendix D. The plan incorporates the following to ensure pedestrians and cyclists can safely travel along both routes. The standard controls for all routes are as follows.

- Appropriate regulatory signage on both routes
- Signage providing notice of pinch points
- Additional RMS advisory signage along both routes
- Speed signage along both routes
- Line markings on both routes
- Wayfinding strategy

As described above, controls in addition to the standard controls specific to local roads on routes 1 and 2 are described in the table below.

Road	Path width	Additional Controls
Nelson Street	1.5 m	Pedestrian to use the footpath Cyclists directed onto the road
Gordon Avenue	1.5 m	Pedestrian to use the footpath Cyclists directed onto the road
Pacific Highway	2.0-2.5 m	Nil
Ellis Street	1.5 m	Pedestrian to use the footpath Cyclists directed onto the road
Albert Avenue	1.5 m	Pedestrian to use the footpath Cyclists to dismount and walk on footpath
Orchard Road	2.0 – 2.2 m	Nil

Proposed Closure of Frank Channon Walk

Conclusion:

The proposal for two shared path routes around FCW are as follows:

- Where paths meets the AustRoad, Road Design Guidelines Part 6A requirements for a very low shared path of 2.0m-2.5m due to the volumes measured and the width of the existing infrastructure (Pacific Highway, Orchard Road)
- Paths less than 2.0 m (Gordon Ave, Ellis Street, Nelson Street and Albert Ave) will see cyclist either utilise the local road or dismount and walk along the footpath. Speed limit signage for cyclists will be installed along the shared path. Cyclists are to be restricted to travelling at 10km/hr.
- The shared path proposal meets the requirements from the Centre for Road Safety with respect to signage, speed limits and wayfinding.
- Community notifications would be implemented in advance of the closure in the form of notifications, advertisements in local newspapers, IVMS and corflute signage on both routes

Proposed Closure of Frank Channon Walk

8. Consultation

Communication with Stakeholders for the closure of FCW has primarily to be through Sydney Metro Delivery Office. This consultation has been undertaken through the Sydney Metro Community Consultation Strategy – Early Works (CCS-EW). This has included notifications detailing of the type and extent of works being undertaken as well as the expected disruption to community in relation to traffic and transport.

Any changes to conditions will be provided to the relevant stakeholders alerts by email, seven days before changes to traffic and access arrangements are made including. The community will be notified of any current and upcoming changes to the traffic conditions that have the potential to impact them, prior to their occurrence. This will be done via community notifications and distributed to directly affected properties within 100 metres of any proposed traffic changes. Notifications to the community will be done for the following:

- Changes to traffic conditions requiring traffic alerts
- Modifications to pedestrian routes, cycle ways and bus stops
- Construction commencement

The changes and scope of work are also communicated through local newspapers covering the geographical area prior to undertaking the closure.

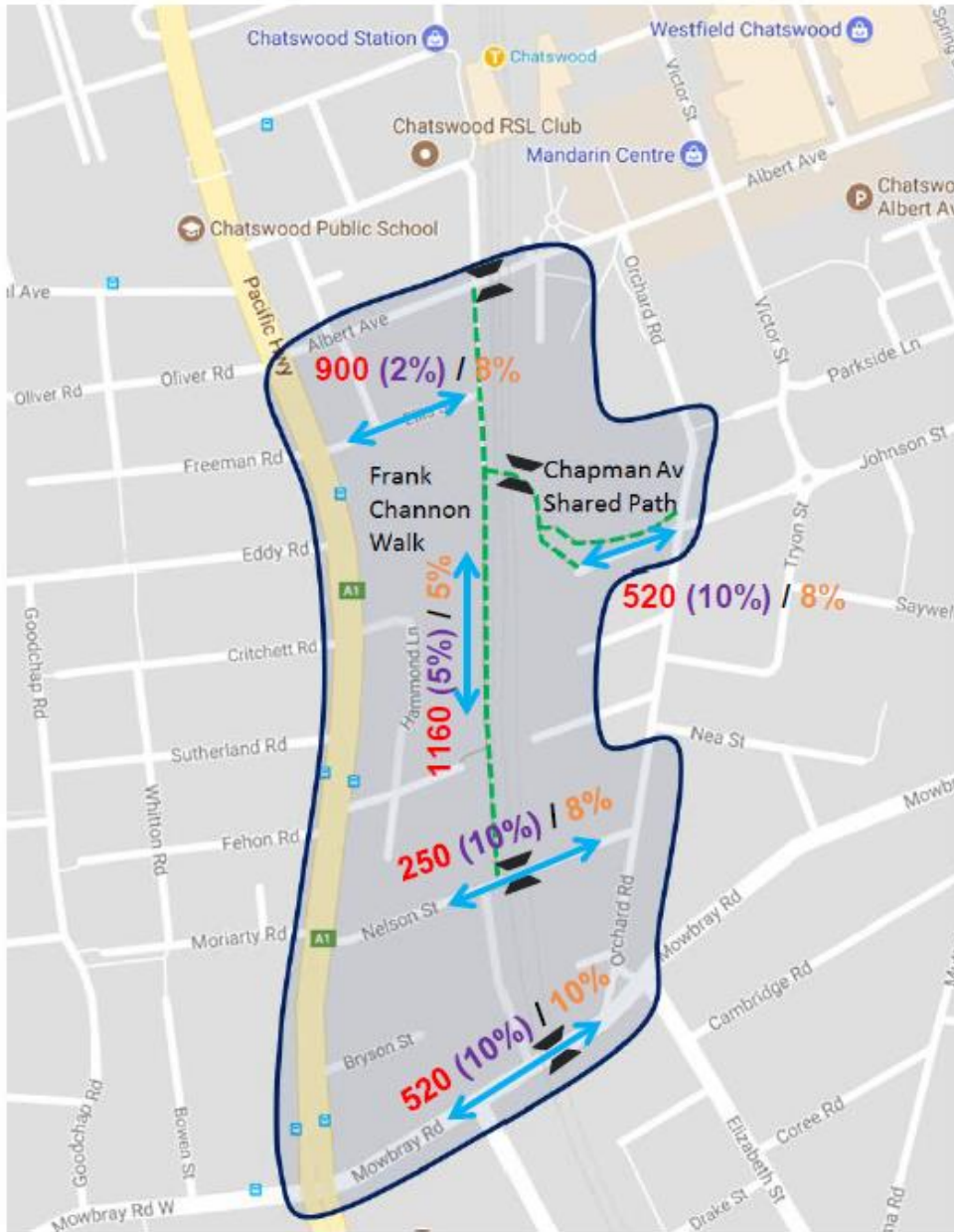
Evidence signage to be provided around the proposed routes can be found in **Appendix D** and of the corflute signage showing the routes in **Appendix E**.

Summary of consultation

Date	Activity
Mid Nov 2017 – 22 Dec 2017	Engagement with Willoughby Council (WCC) and other stakeholders (e.g. Boy Scouts, Bowls Club, rugby club, AFL club, cricket club) to discuss and agree FCW and underpass closure – all WCC closure permits and the like undertaken in this period
19 th January 2018	Meeting with WCC to discuss FCW closure
23 rd January 2018	TCG meeting to raise the proposal to close FCW with RMS, SCO.
23 February 2018	Meeting with WCC, Bicycle NSW and Bike North to discuss FCW closure
27 February 2018	TCG meeting to raise discuss developments on the proposal to close FCW and flag the resubmission of the CTMP with this proposal appended to the plan.
27 February 2018	Consultation with Centre for Road Safety on FCW closure proposal
2 March 2018	Submittal of FCW closure to TCG for comment
9 March 2018	Revision

Proposed Closure of Frank Channon Walk

Appendix B – Pedestrian and Cyclist Movements



Pedestrian and cyclist **Daily (peak hour)/cycle proportion of total**

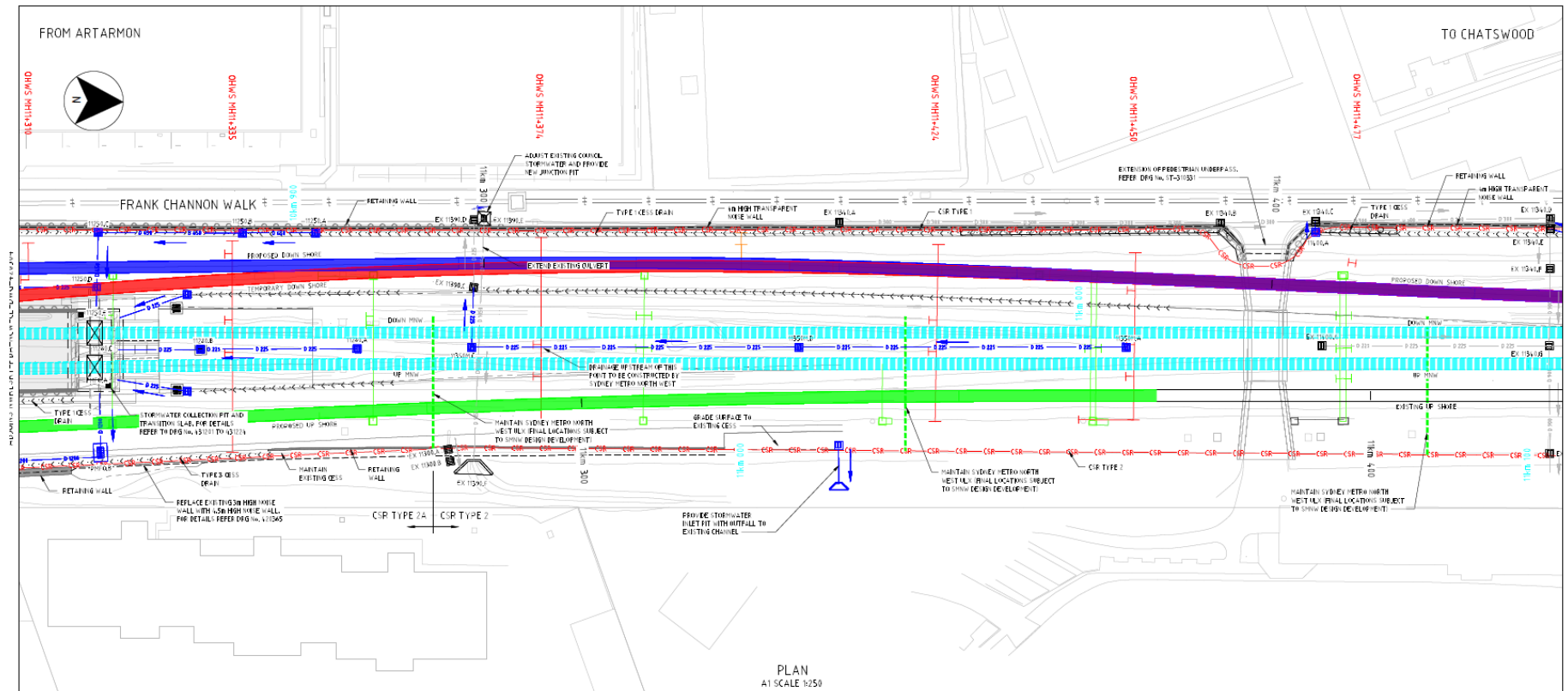
Proposed Closure of Frank Channon Walk

Appendix C – Footing Locations within FCW



Footings located along Frank Channon Walk

Proposed Closure of Frank Channon Walk



Sydney Metro supplied reference design

Proposed Closure of Frank Channon Walk

Appendix D – FCW Closure temporary structure and advanced signage for Community



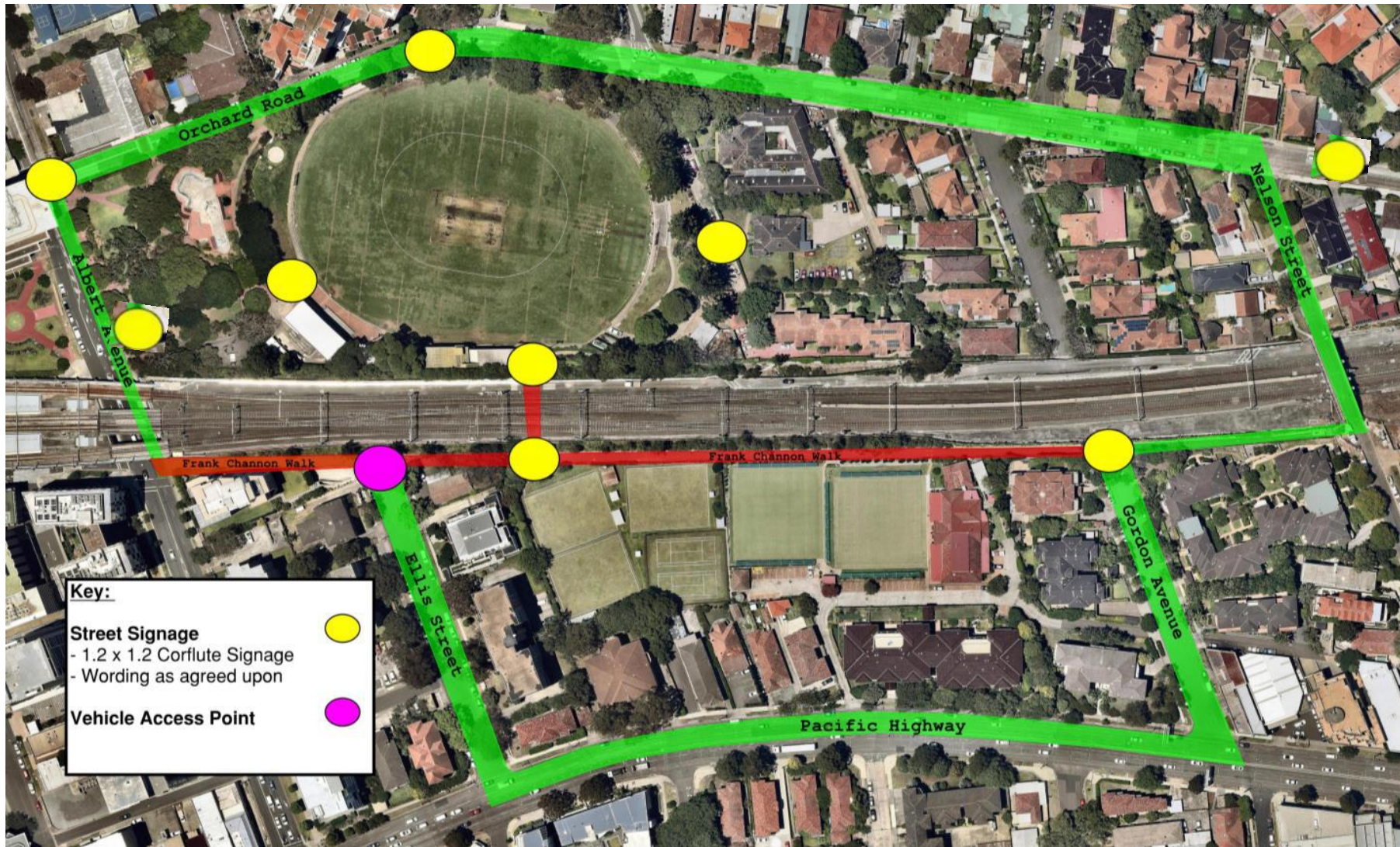
Detour distances

Proposed Closure of Frank Channon Walk



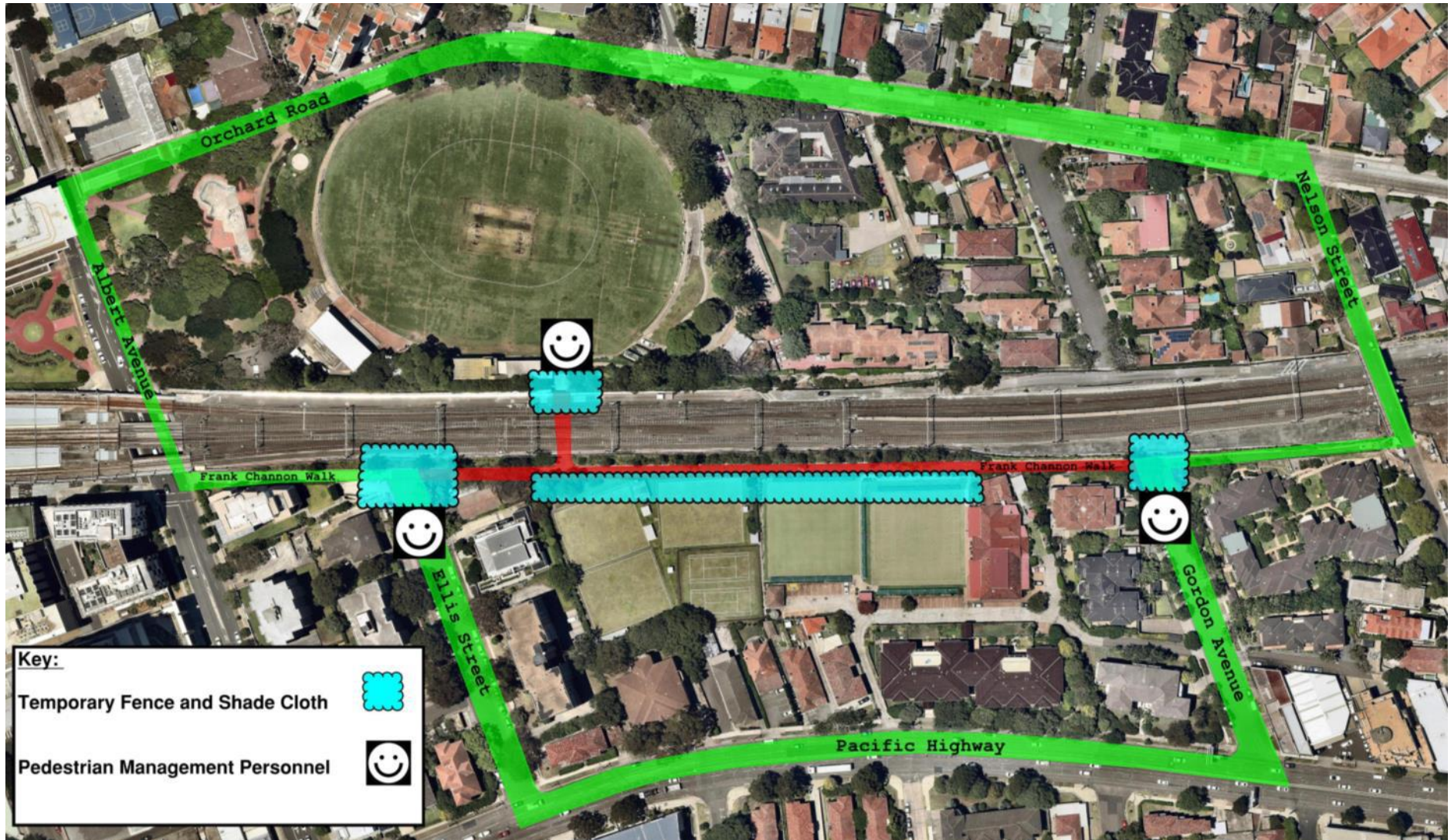
Temporary closure signage

Proposed Closure of Frank Channon Walk



Temporary closure signage and diversions

Proposed Closure of Frank Channon Walk



Traffic management locations (traffic control during closure activities)

Proposed Closure of Frank Channon Walk



Areas of barricading, fencing and shade cloth surrounding walkway

Proposed Closure of Frank Channon Walk

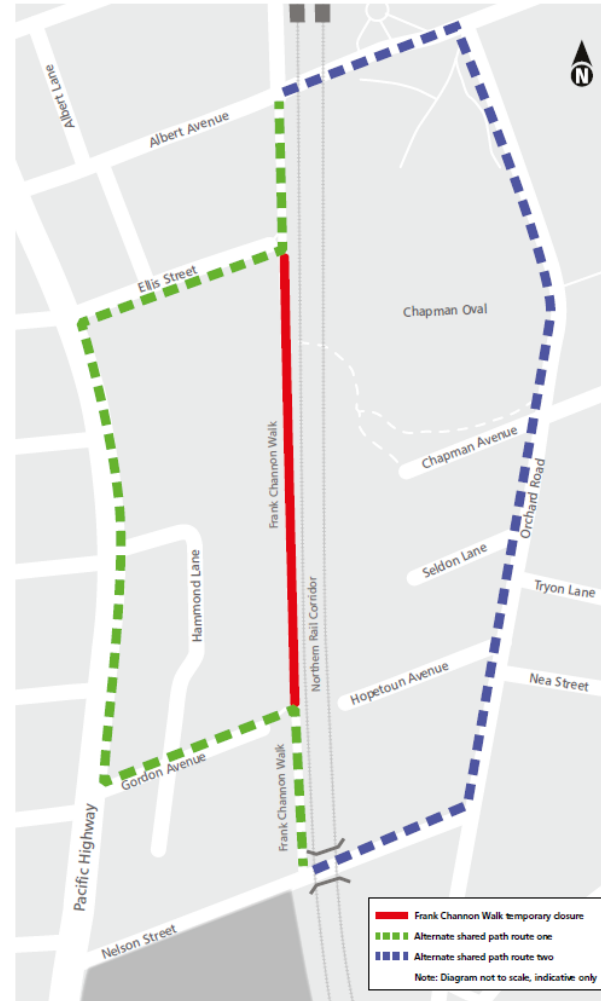
Appendix E – Corflute Signage for Community



Frank Channon Walk TEMPORARY CLOSURE

between Ellis Street and Gordon Avenue
23rd March 2018 to End of April

Thank you for your patience while we carry out this important work.
For more information about the project please contact us at **1800 171 386**,
sydneymetro.info or tunnels@transport.nsw.gov.au.

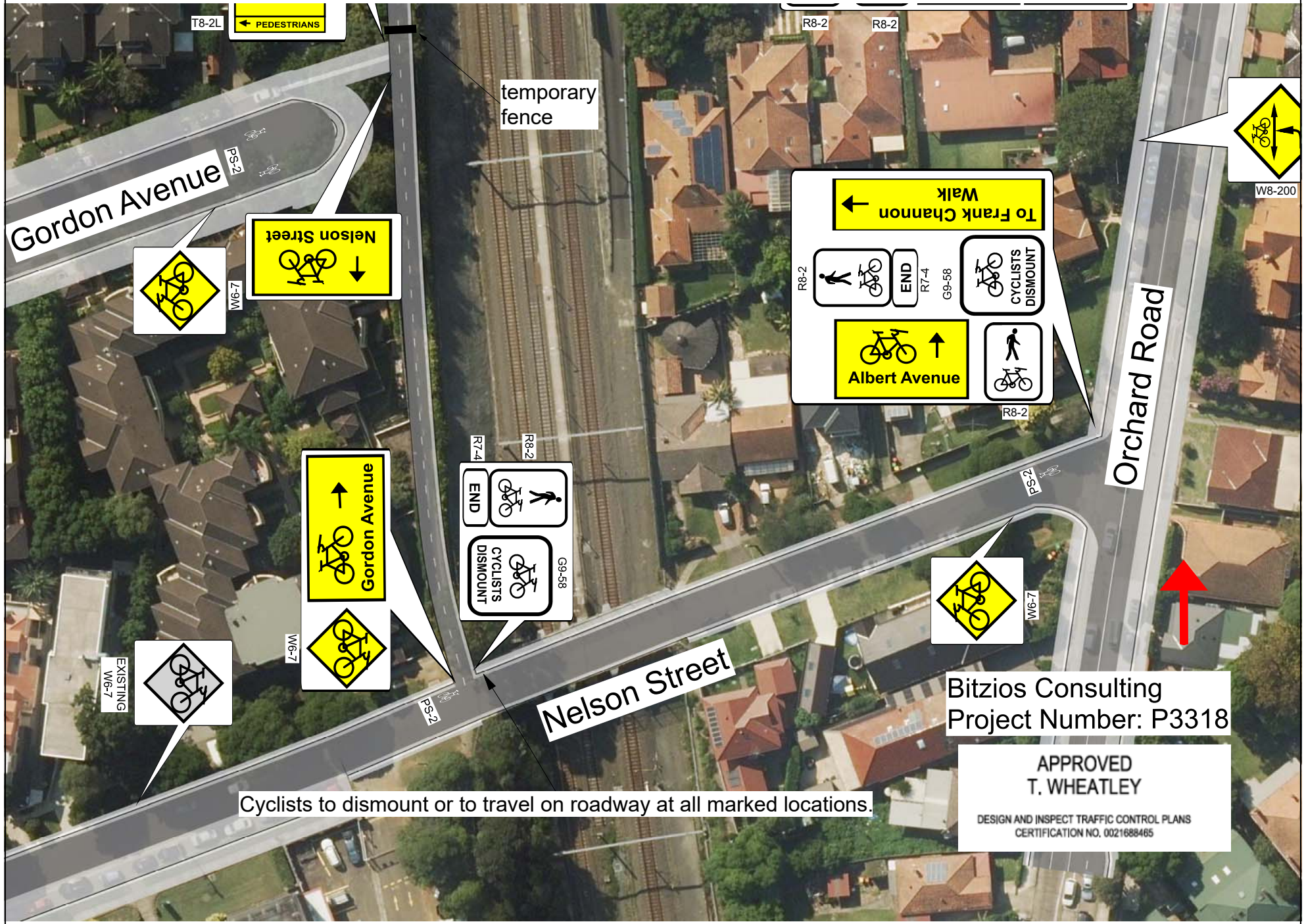


Corflute signage with pedestrian and cyclist routes

Process	Document owner	Step	Gateways	Document type
Enabling Process	Project Team (Delivery)	2257 – HSEQ Compliance	6 – 7	Template (T)

Proposed Closure of Frank Channon Walk

Appendix F – Pedestrian Control Plan



T8-2L PEDESTRIANS

Gordon Avenue

PS-2



W6-7



Nelson Street

temporary fence

R8-2 R8-2

To Frank Channon
←



R8-2

END

R7-4

G9-58

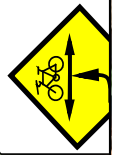


Albert Avenue

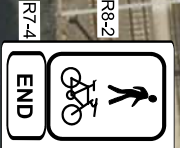


R8-2

Orchard Road



W8-200



R7-4



R8-2



G9-58



Gordon Avenue

W6-7



EXISTING
W6-7



PS-2

Nelson Street



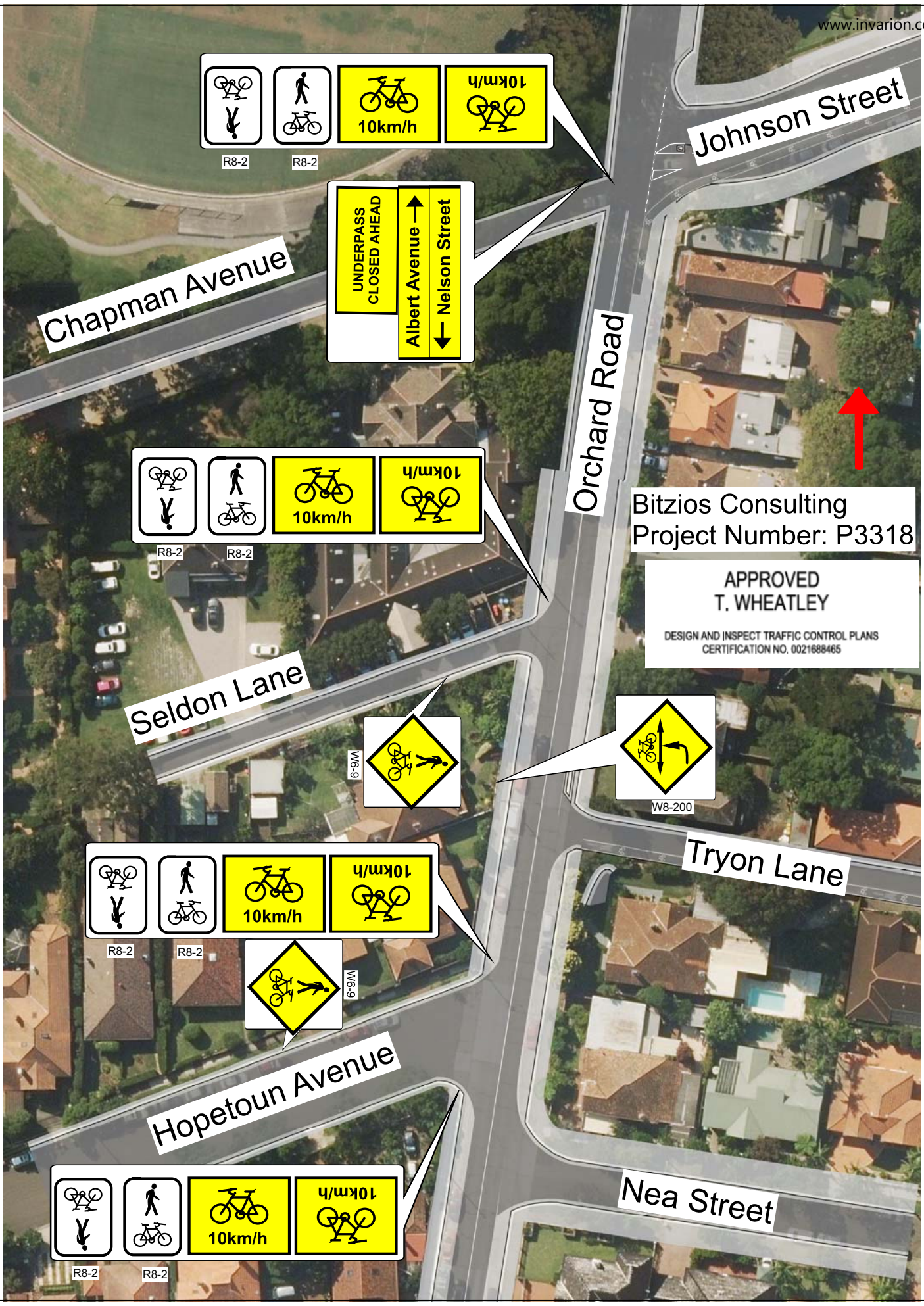
W6-7

Bitzios Consulting
Project Number: P3318

APPROVED
T. WHEATLEY

DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 0021688465





Cyclists to dismount or to travel on roadway at all marked locations.



 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

UNDERPASS
CLOSED AHEAD

Albert Avenue →
← Nelson Street

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

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Project Number: P3318





APPROVED
T. WHEATLEY
DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 0021688465

W6-9







W8-200











 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---





W6-9



 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

 10km/h	 R8-2	 CYCLISTS DISMOUNT G9-58	 R8-2	 END R7-4
 W6-7				

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

 R8-2	 R8-2	 10km/h	 10km/h
---	---	---	---

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Albert Avenue

Orchard Road



PS-2

10km/h

R8-2

G9-58

END

R7-4

W6-7

To Frank Channon Walk

R8-2

G9-58

END

R7-4

To Orchard Road

R8-2

R7-4

END

R8-2

R8-2

10km/h

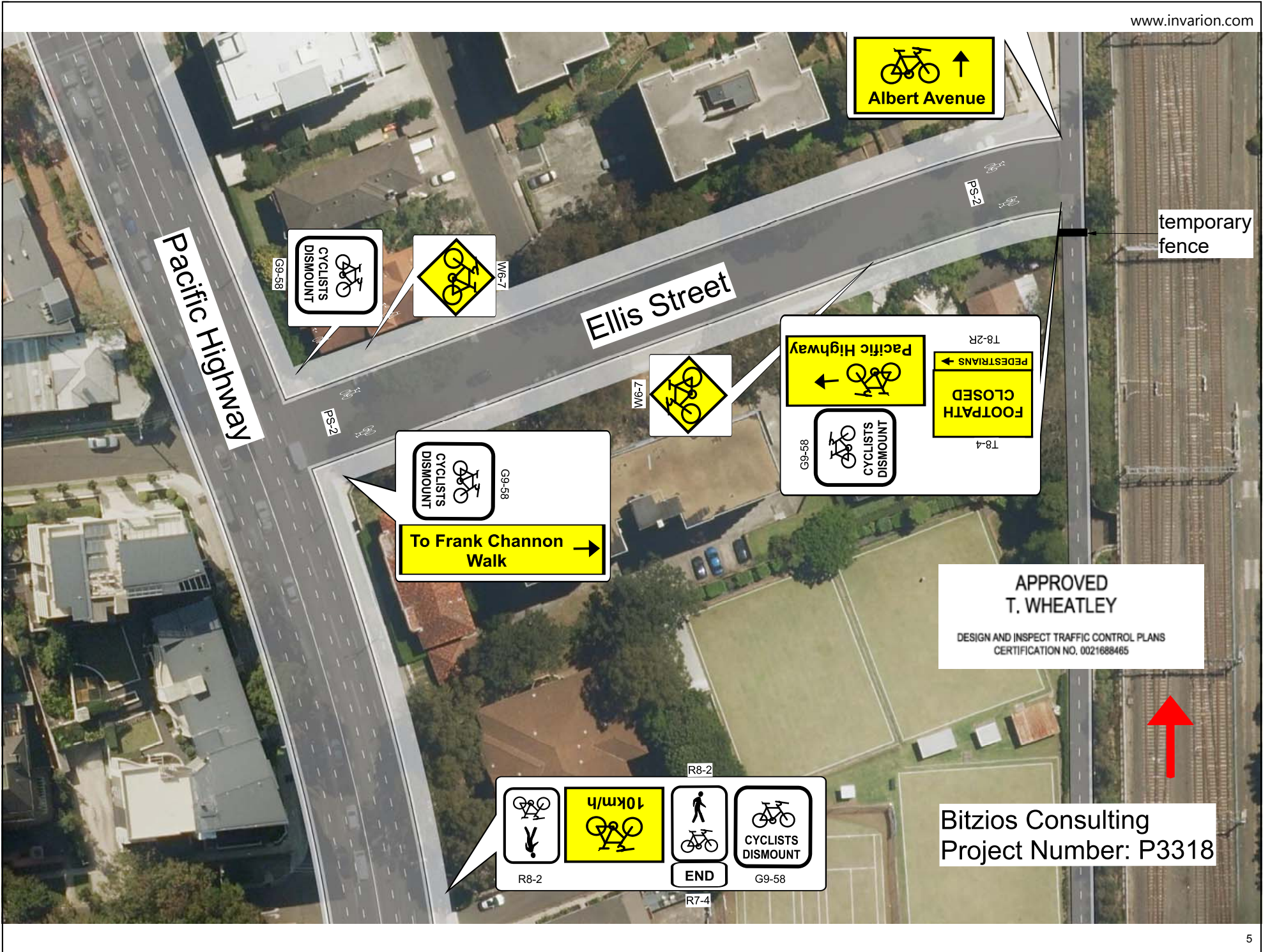
10km/h

G9-58

END

CYCLISTS DISMOUNT

Albert Avenue




Albert Avenue



G9-58


W6-7


Ellis Street

Pacific Highway

temporary fence


Pacific Highway
←
CYCLISTS DISMOUNT
G9-58


PEDESTRIANS
←
FOOTPATH
CLOSED
T8-4


G9-58
To Frank Channon
Walk →

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R8-2

10km/h

R7-4

END

G9-58
CYCLISTS
DISMOUNT



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Hammond Lane

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CERTIFICATION NO. 0021688465

Pacific Highway

R8-2

R8-2		END	G9-58

R7-4

R8-2	R8-2		

WATCH FOR

R8-2	R8-2		

--	--

Pacific Highway

R8-2 R8-2

10km/h 10km/h

Ellis Street ↑ R7-4 R8-2

R8-2 G9-58

R8-2 R7-4

G9-58

T8-4

T8-2L

FOOTPATH CLOSED
← PEDESTRIANS



Bitzios Consulting
Project Number: P3318

APPROVED
T. WHEATLEY

DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 0021688485

Gordon Avenue

W6-7

Nelson Street ↓

W6-7

G9-58

Gordon Avenue ↑

R7-4

END

DISM



Cyclists to dismount or to travel on roadway at all marked locations.

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Project Number: P3318

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T. WHEATLEY
DESIGN AND INSPECT TRAFFIC CONTROL PLANS
CERTIFICATION NO. 00198846

Proposed Closure of Frank Channon Walk

Appendix G – Engineering and construction alternatives to Route 1 and Route 2

NOT PREFERRED

The first shared path route Gordon Ave to Ellis St via Pacific Highway is approximately 2.0-2.5m in width. Modification of this route to meet a minimum of 3.0m would include significant alterations to the footpath on Pacific Highway and traffic control, loss of parking and road occupancy on Gordon Ave, Pacific Highway and Ellis Street.

The second shared path route Nelson Street to Albert Ave via Orchard Rd is approximately 2.0-2.5m in width. Modification of this route to meet a minimum of 3.0m would include significant alterations to the footpath on Nelson Street and Orchard Rd and traffic control, loss of parking and road occupancy on Orchard Rd, Nelson Street and Albert Ave.

Street	Existing Width	Modifications Required
Gordon Avenue	2.0 meters	Cyclist path on Gordon Ave <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Design and certification of design for new cyclist path on Gordon Ave - Loss of parking for cyclist path on Gordon Ave - Line marking for cyclist path - Reinstatement of subject area and removal of traffic control

Proposed Closure of Frank Channon Walk

Street	Existing Width	Modifications Required
Pacific Highway	2.5 meters	<p>Option 1 – Extension of footpath to create shared path of 3.0m</p> <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Undertake consistency assessment with existing planning approval to enable construction works - Design and certification of design for a shared path extending existing path - Loss of parking for construction vehicle access to subject area - Removal of vegetation - Relocation of exiting services - Excavation and construction of pathway - Reinstatement of subject area and removal of traffic control <p>Option 2 – Cyclist path on Pacific Highway</p> <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Design and certification of design for a new cyclist path on Pacific Highway - Loss of parking for cyclist path on Pacific Highway - Line marking for cyclist path - Installation of barriers along Pacific Highway to protect cyclists - Reinstatement of subject area and removal of traffic control
Ellis Street	2.0 meters	<p>Cyclist path on Ellis Street</p> <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Design and certification of design for new cyclist path on Gordon Ave - Loss of parking for construction vehicle access to subject area - Line marking for cyclist path - Reinstatement of subject area and removal of traffic control
Nelson Street	2.0 meters	<p>Cyclist path on Nelson Street</p> <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Design and certification of design for new cyclist path on Nelson Street - Loss of parking for cyclist path on Nelson Street - Line marking for cyclist path - Reinstatement of subject area and removal of traffic control

Proposed Closure of Frank Channon Walk

Street	Existing Width	Modifications Required
Orchard Road	2.0-2.5 meters	Option 1 – Extension of footpath to create shared path of 3.0m <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Undertake consistency assessment with existing planning approval to enable construction works - Design and certification of design for a shared path extending existing path - Loss of parking along Orchard Rd - Relocation of drainage locations on Orchard Rd - Construction of pathway extension - Alterations to line marking on Orchard Rd - Implementation of barriers along Orchard Rd to protect cyclists - Reinstatement of subject area and removal of traffic control
Albert Ave	2.0 meters	Cyclist path on Albert Ave <ul style="list-style-type: none"> - Obtain Willoughby Council approval for alteration of roadway and road occupancy - Design and certification of design for new cyclist path on Gordon Ave - Loss of parking for construction vehicle access to subject area - Line marking for cyclist path - Reinstatement of subject area and removal of traffic control

Proposed Closure of Frank Channon Walk



Gordon Ave alterations

Proposed Closure of Frank Channon Walk



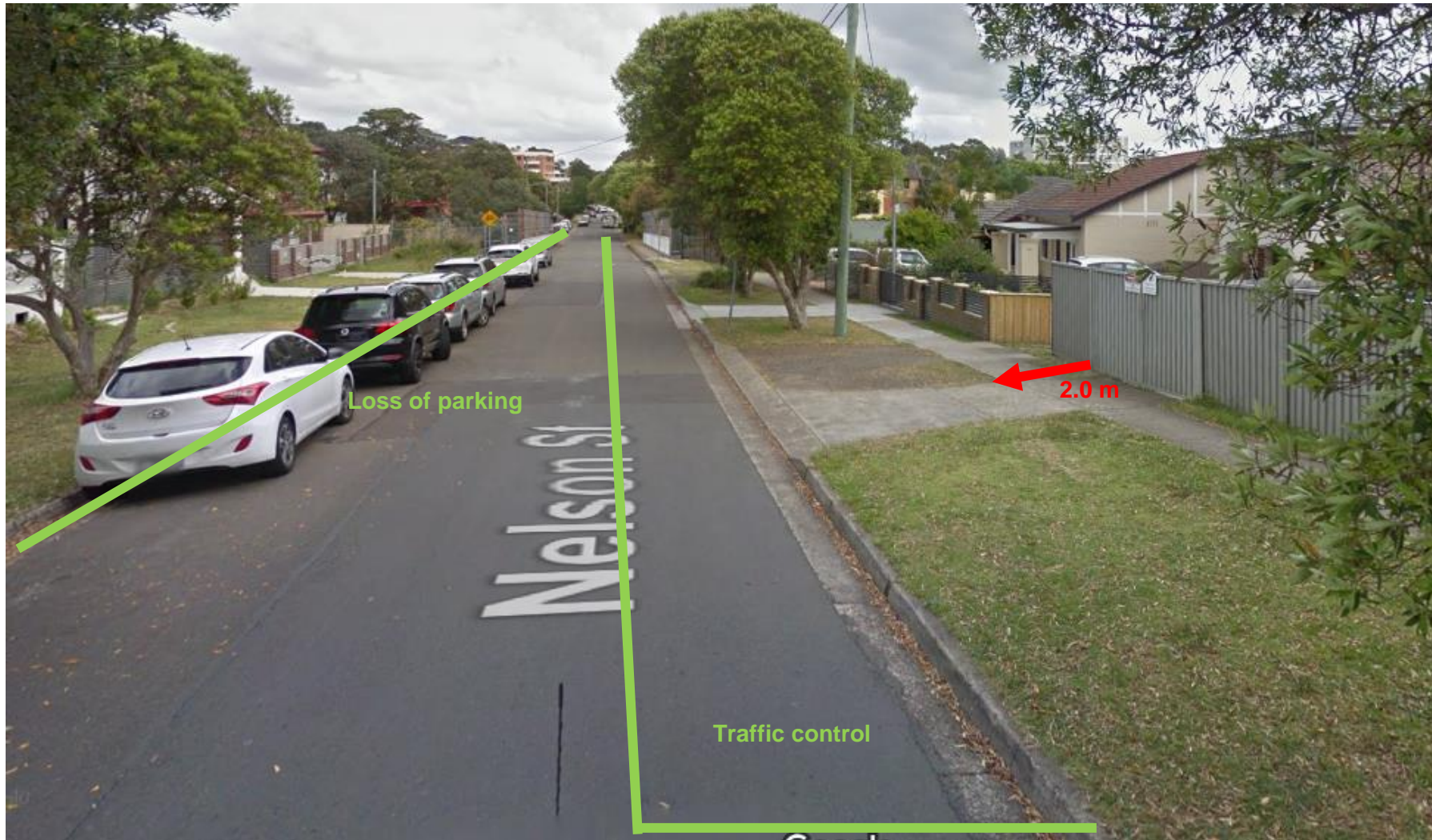
Pacific Hwy alterations

Proposed Closure of Frank Channon Walk



Ellis Street alterations

Proposed Closure of Frank Channon Walk



Nelson Street alterations

Proposed Closure of Frank Channon Walk



Orchard Rd alterations

Proposed Closure of Frank Channon Walk



Albert Ave alterations



Appendix 3: Cover Page

Community Notification - Undertaken by Sydney Metro in conjunction with LOR. Combined letter to be issued which will cover MNNSCW Portion 6 and NCW Portion 7a works.



Appendix 4: Cover Page

Environmental Representative Supporting Letter - Refer to Section 12 Determination Page above