



**Little National Hotel
42 Honeysuckle Drive Newcastle**

**CONSTRUCTION & ENVIRONMENTAL MANAGEMENT
PLAN**

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Issue No.	2.0	Date: 09/05/2019

DOCUMENT CONTROLS

Business Name:	BLOC Constructions (NSW) Pty Ltd ACN: 626 902 967		
Client:	Doma Holdings (Honeysuckle) Pty Ltd		
Project Title:	Little National Hotel - 42 Honeysuckle Drive, Newcastle		
Document Title:	Construction Environment Management Plan (CEMP)		
Project No.	1714	Issue: 2.0	Date: 09/05/19
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(Name)	(Signature)	(Date)	

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1. INTRODUCTION

This Construction & Environmental Management Plan ('CEMP') outlines the strategy, methods and controls for the management and delivery of the Little National Apartments project situated at 42 Honeysuckle Drive, Newcastle.

The aim of the CEMP is to ensure that appropriate measures have been considered for site management and operation during all phases of the construction process in a manner that respects adjoining owner's property rights, maintains public safety, minimises disruption to pedestrians and vehicular traffic within this locality and protects services.

2. SCOPE OF WORKS

The project is located at 42 Honeysuckle Drive, Newcastle, and the scope is to construct a mixed use development comprising one 9 storey building, including above ground carpark, commercial/retail space on the ground floor, 60 serviced apartments, 152 hotel rooms and new footpaths and landscaping.

The site is bounded to the north by a public pedestrian path / cycleway and grass verge, to the East by the Hunter Water Corporation building, to the west by a vacant lot of land that is currently owned by the Hunter Development Corporation, and to the south by light rail corridor which is currently under construction.

3. WORKS PROGRAM

The works program for the project is detailed in Attachment A. The works program will be updated progressively and records kept in project files onsite and electronically.

4. HOURS OF WORK

Approved working hours are 7am to 6pm Monday to Friday and 8am to 1pm on Saturdays. No work may be carried out on Sundays or Public Holidays.

Activities may be undertaken outside these hours if required:-

- (a) By the Police or a public authority for the delivery of vehicles, plant or materials; or,
- (b) In an emergency to avoid the loss of life, damage to property or to prevent environmental harm.

Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:-

- (a) 9:00am to 12:00pm Monday to Friday,
- (b) 2:00pm to 5:00pm Monday to Friday, and,
- (c) 9:00am to 12:00pm Saturday.

5. PROJECT TEAM CONTACT NUMBERS

Contact details are included in Attachment B. Nominated Project Manager and Site Manager are contactable 24 hours.

6. CONSTRUCTION SITE LAYOUT

Refer to Attachment C for the site layout. The layout details the site office, storage areas, staff amenities, crane/pump location and access/egress from the site.

A temporary fence with lockable gates will be placed on the boundaries of the property to prevent unauthorised access into the construction site. Emergency contact numbers will be displayed on the main gate entrance.

7. CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

A Construction Noise & Vibration Management Plan has been prepared for the project and can be found at Attachment D. The control of noise at the source is the first and preferred method of noise control that will be employed, second to noise path mitigation by means of barriers (Jersey Kerbs and screens).

8. DUST MANAGEMENT PLAN

Water trucks or sprinkler devices will be provided during construction as required to suppress dust. Once cut/fill operations have been finalised all disturbed areas that are not being worked on will be re-vegetated as soon as practical. Shake down grids will be provided at temporary vehicle crossings consisting of crushed gravel to minimise dust being carried out of site. Rubbish will be removed from site via skip bins to minimise dust from rubbish chutes and be covered to EPA standards.

9. USE OF HOARDINGS AND SCAFFOLD

Refer Attachment E for scaffold and hoarding plans. The 42 Honeysuckle project will employ the use of scaffold and hoardings throughout the construction process as a means of access, fall protection and protection of falling objects from above.

Perimeter scaffold will be erected with one level of steel boards to be placed at floor levels or at 2.0 metre increments with one level of brick guards and uni-mesh screens for external protection. In addition a perimeter screen system to a height of 13 metres to protect three floors plus hand rail will also be employed. Scaffold and hoardings will be erected to comply with AS1576 and AS4576. Steel traffic screens on top of temporary traffic jersey kerbs will also be in place to protect pedestrians.

10. WAY FINDING SIGNAGE

The Temporary Traffic Management Plan indicating way finding signage to be used on the project. The signage clearly indicates positioning of way finding signage for vehicular traffic, pedestrians, bicycle riders and construction workers around the site.

Internally signage will be provided in the form of reflective flagging to exit routes with marked exit signage to evacuation routes.

11. EROSION AND SEDIMENT CONTROL PLAN

Refer Attachment F for Erosion and Sediment Control Plan. All work is to be carried out in accordance with relevant ordinances and regulations; in particular the requirements of Landcoms managing urban stormwater, soils and construction (The 'Blue Book').

In accordance with the plan, sediment protection filters on all new and existing stormwater inlet pits will be protected with either mesh and gravel inlet filter detail SD6-11 or the geotextile inlet filter detail SD6-12 of The 'Blue Book'.

All required sediment fencing in accordance with detail SD6-8 of The 'Blue Book' will be installed as directed by the Superintendent. Sediment fencing around individual building zones/areas will be installed as required throughout construction. All trenching including all service trenches and swale excavation will be side-cast to the high side and closed at the end of each day's work.

Suitable protection will be provided to all vegetation that shall be retained as per architect's plans for trees to be kept. All vegetation to be removed shall be mulched on site and spread/stockpiled as directed by the Superintendent. Strip topsoil in areas designated for stripping and stockpiled for re-use as required. Any surplus material will be removed from site and disposed out in accordance with EPA guidelines.

All material stockpiles will be constructed and maintained in accordance with detail SD4-1 of The 'Blue Book' including to the high side and sediment fences to the low side. Stockpiles not to exceed 2.0m high and to provide wind and rain erosion protection as required in accordance with the "Blue Book".

Water trucks or sprinkler devices will be provided during construction as required to suppress dust. Once cut/fill operations have been finalised all disturbed areas that are not being worked on will be re-vegetated as soon as practical.

A detailed written record will be kept on site and in electronic form for all erosion and sediment controls during the construction period. Records will be updated daily and will include the details on the condition of controls and any/all maintenance, cleaning and breaches. A copy of the records will be available on site for inspection for the principal certifying authority and the superintendent during normal working hours.

12. AIR QUALITY MANAGEMENT PLAN

Water trucks or sprinkler devices will be provided during construction as required to suppress dust to provide suitable air quality. Once cut/fill operations have been finalised all disturbed areas that are not being worked on will be re-vegetated as soon as practical. Shake down grids will be provided at temporary vehicle crossings consisting of crushed gravel to minimise dust being carried out of site. Rubbish will be removed from site via skip bins to minimise dust from rubbish chutes and be covered to EPA standards.

13. WATER QUALITY MANAGEMENT PLAN

The new carpark and building footings sit above the water table and as such de-watering activities are not anticipated for this project. Appropriate licences and approvals will be in place if required for de-watering activities and will be in accordance with the De-Watering Management Plan which can be found at Attachment G.

14. ACOUSTIC MANAGEMENT TREATMENT

Refer to Construction Noise and Vibration Management Plan (Appendix D)

15. COMMUNICATIONS MANAGEMENT

A Community Communication Strategy ('CCS') has been prepared to provide mechanisms to facilitate communication between the developer, the contractor and the community. The CCS can be found at Attachment H.

16. TRAFFIC MANAGEMENT PLAN (INCLUSIVE OF PEDESTRIANS)

Pedestrians and traffic management is required to safely manage vehicles, cyclists and pedestrians around the site throughout construction. A Licence Area has been negotiated with Hunter Development Corporation for land on the adjoining parcel of land at Lot 1 (D.P. 1236735) along Honeysuckle Drive to provide an area for temporary site accommodation and lay down area for plant and materials.

A Work Zone will be created along the Honeysuckle Drive frontage to the site and this will be the primary material delivery and construction plant zone throughout the delivery of the works. Trucks will enter and exit this work zone in a forward-facing direction and will be under the management of Traffic Controllers as required and in accordance with the Traffic Management Plan ('TMP'). Until this Work Zone is established, which will occur around August 2018, the compound to the right hand side (under Licence) of the site will be utilised for all plant and material deliveries to the site. The main point of access for vehicles will be provided off Honeysuckle Drive allowing for Left in and left out movements only.

To maintain pedestrian and vehicular safety during construction, the approved TMP will be adhered to at all times. See Attachment I.

- Pedestrian's pathways will be kept free of obstructions or debris from construction works. The TMP has outlined the proposed paths of travel for pedestrians around the site.
- All loading and unloading of excavated or building materials is to be undertaken on-site, or within the nominated construction zones as detailed in the TMP.
- The construction zone on Honeysuckle Drive allows for one-way traffic movements only and will be used for material delivery to the site. It will be controlled with gates to stop un-authorised use, with delivery drivers providing advance warning of their approach to the site by phone. These deliveries will continue to occur during concrete pours and the separation of these two activities will allow for significant time saving for the project and improved safety for the construction zone on Honeysuckle Drive. The intended one-way operation of the construction zone on Honeysuckle Drive means that vehicles should not have to reverse in or out of this zone. If this is required, this will be undertaken with the use of appropriate traffic control measures including Stop / Go operation of traffic.
- Occupancy of any part of footpath or road (other than the item detailed in the previous point), including construction and/or restoration of footpath/verge and/or kerb and gutter, during construction of the development will require a Road Occupancy Permit from Council.

17. WASTE MANAGEMENT

Waste avoidance is a priority on this project, followed by reuse of waste products, and then recycling, with disposal of waste as a last resort.

The following control measures will be adopted to minimise and manage waste in the project:

- Wastes will be stored in a manner that does not pose harm to the environment.
- Skip bins will be provided to contain waste materials and spoil.
- Any contaminated soil will be classified and disposed of to legally operated waste management facility/ies.

- Materials will be segregated where possible, for reuse or recycling and will not be mixed with other waste.
- Spoil material that cannot be reused on site, will be disposed to an appropriate waste management facility.
- Vehicles used for transportation will be securely covered to prevent waste spillage during removal.
- Storage containers will be secured on vehicles.
- Only compatible wastes will be transported together.
- Recyclable waste will be taken to recycle centres.
- Waste will be disposed to licensed waste management centres.
- Sewer connect type toilets serviced by a licensed contractor will be provided on the construction site.

18. STAGING OF WORKS

The project will be undertaken in one single stage with an expected timeframe of 22 months from date of commencement on site. There is no simultaneous construction with other projects in the immediate Honeysuckle precinct that will affect the works of this project.

19. CUMULATIVE IMPACT OF CONSTRUCTION ACTIVITIES

The CEMP for the proposed development at 42 Honeysuckle Drive, Newcastle, sets out the broad and preliminary parameters for the management of the site throughout the course of construction. It addresses various aspects of the construction which will need to be properly managed and details various measures to be implemented, to minimise the impact of the works on the environment, minimise disturbance to nearby pedestrians/ residents and ensure the works are undertaken in a safe manner.

This CEMP addresses general site management and safety, traffic, noise and vibration, waste, hazardous and contaminated material, dust, soil and water management. These items are the responsibility of BLOC to implement this CEMP to ensure it is appropriate during construction. Provided this is done adequately, the cumulative impact of the construction activities should be relatively low.

20. MEETINGS

Schedule of Project Meetings (refer to following page)

Type of Meeting	Stakeholders	Purpose of Meeting	Responsibility for Meeting Minutes	Responsibility for Distribution of Minutes	Allocation of Tasks Arising from Meeting	Frequency of Meeting
Client Meetings	Client & RCC	Deals with project specific issues.	Client	Client	Project Manager	Monthly
Project Control Group (PCG)	Major stakeholders in the project.	Deals with big picture project issues	Client	Client	Project Manager to prepare a Project Report for submission to the PCG meeting.	Monthly
Subcontractor Meetings	Project Manager, Foreman, Site Manager and subcontractors.	Safety, Quality, Environment, Industrial Relations incl. Code Compliance, Programme, General business, Actions	Site Manager	Cadet	Site Manager	Fortnightly / Weekly
Site Coordination Meetings	Site Manager, Site Foremen, and leading hand.	Discuss site issues and to plan the day's/week's activities	White board.	White board.	Site Manager	Daily / weekly
Design Meetings	Design Manager, Project Manager, Client and consultants /subcontractors.	Design issues, WHS Issues (Construction Process & Maintainability), Programme, General business	Design Manager.	Design Manager.	Design Manager / Project Manager.	Weekly
Project team Meetings	Weekly meetings between the project team to discuss safety, quality, environmental, programming, letting and buildability, contractor issues relating to their work practices and working environment Ref Meeting template From 13.9					
Tool Box Meetings	Refer to the section 3, Work Health & Safety.					

ATTACHMENT A WORKS PROGRAM

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float		2018	2019	2020	2021
1	42 HONEYSUCKLE DRIVE, NEWCASTLE	538 days	Fri 22/06/18	Fri 9/10/20		0 days		NEWCASTLE			
2	PROJECT MILESTONES	538 days	Fri 22/06/18	Fri 9/10/20		0 days		MILESTONES			
3	Obtain DA Approval	0 days	Fri 22/06/18	Fri 22/06/18		204 days		22/06	Obtain DA Approval		
4	Commence On-Site Construction	0 days	Mon 20/08/18	Mon 20/08/18	33FS+4 days,3	463 days		20/08	Commence On-Site Construction		
5	Structural Concreting Works Complete	0 days	Mon 2/03/20	Mon 2/03/20	621	76 days				2/03	Structural Concreting Works Complete
6	Building Energized	0 days	Mon 4/05/20	Mon 4/05/20	763	72 days				4/05	Building Energized
7	Builders Lift Available	0 days	Tue 12/05/20	Tue 12/05/20	1178	101 days				12/05	Builders Lift Available
8	Practical Completion	0 days	Fri 9/10/20	Fri 9/10/20	1210,1211	0 days				9/10	Practical Completion
9	EARLY WORKS - OFF-SITE	162 days	Fri 22/06/18	Wed 20/02/19		215 days		CS - OFF-SITE	162 days		
10	Design Development	162 days	Fri 22/06/18	Wed 20/02/19		215 days		Development	162 days		
11	Architecture	46 days	Fri 22/06/18	Fri 24/08/18		231 days		Architecture	46 days		
12	Complete 30% Design Development Drawings - Arch	17 days	Fri 22/06/18	Mon 16/07/18	3	231 days		17 days	Complete 30% Design Development Drawings - Arch		
13	Complete 50% DD Drawings/Details - Arch	14 days	Tue 17/07/18	Fri 3/08/18	12	231 days		14 days	Complete 50% DD Drawings/Details - Arch		
14	Complete 80% DD Drawings/Details - Arch	15 days	Mon 6/08/18	Fri 24/08/18	13	224 days		15 days	Complete 80% DD Drawings/Details - Arch		
15	Structure	62 days	Fri 22/06/18	Mon 17/09/18		215 days		Structure	62 days		
16	Complete 30% Design Development Drawings - Str	17 days	Fri 22/06/18	Mon 16/07/18	3	215 days		17 days	Complete 30% Design Development Drawings - Str		
17	Complete 50% DD Drawings/Details - Str	30 days	Tue 17/07/18	Mon 27/08/18	16	215 days		30 days	Complete 50% DD Drawings/Details - Str		
18	Complete 80% DD Drawings/Details - Str	15 days	Tue 28/08/18	Mon 17/09/18	17	408 days		15 days	Complete 80% DD Drawings/Details - Str		
19	Services	52 days	Fri 22/06/18	Mon 3/09/18		225 days		Services	52 days		
20	Complete 30% Design Development Drawings - Services	17 days	Fri 22/06/18	Mon 16/07/18	3	225 days		17 days	Complete 30% Design Development Drawings - Services		
21	Complete 50% DD Drawings/Details - Services	20 days	Tue 17/07/18	Mon 13/08/18	20	225 days		20 days	Complete 50% DD Drawings/Details - Services		
22	Complete 80% DD Drawings/Details - Services	15 days	Tue 14/08/18	Mon 3/09/18	21	418 days		15 days	Complete 80% DD Drawings/Details - Services		
23	"For Construction " Drawing	115 days	Tue 28/08/18	Wed 20/02/19		408 days		Construction " Drawing	115 days		
24	IFC Drgs - Architecture	100 days	Tue 18/09/18	Wed 20/02/19	18,14,22	408 days		100 days	IFC Drgs - Architecture		
25	IFC Drgs - Structure	100 days	Tue 28/08/18	Wed 30/01/19	13,17,21	423 days		100 days	IFC Drgs - Structure		
26	IFC Drgs - Services	100 days	Tue 28/08/18	Wed 30/01/19	13,21,17	423 days		100 days	IFC Drgs - Services		
27	Building Approval Documentation	70 days	Mon 30/07/18	Fri 9/11/18		369 days		Building Approval Documentation	70 days		
28	Consultants Prepare and Submit Building Approval Documentations	60 days	Mon 30/07/18	Thu 25/10/18		369 days		Consultants Prepare and Submit Building Approval Documentations	60 days		
29	Prepare / and Submit Stage 1 Building Approval Documentations - Foundations/Stormwater services/ GF Slab	10 days	Mon 30/07/18	Mon 13/08/18	13FF,17SS+9 days,21FF	463 days		10 days	Prepare / and Submit Stage 1 Building Approval Documentations - Foundations/Stormwater services/ GF Slab		
30	Prepare / and Submit Stage 2 Building Approval Documentations - Remaining Structure /Services etc.	20 days	Tue 14/08/18	Tue 11/09/18	29	473 days		20 days	Prepare / and Submit Stage 2 Building Approval Documentations - Remaining Structure /Services etc.		
31	Prepare / and Submit Stage 3 Building Approval Documentations - Arch / façade / Services etc.	40 days	Tue 28/08/18	Thu 25/10/18	13,17,21	349 days		40 days	Prepare / and Submit Stage 3 Building Approval Documentations - Arch / façade / Services etc.		
32	Authority / Bldg. Certifier review and Approve Building Approval	60 days	Tue 14/08/18	Fri 9/11/18		399 days		Authority / Bldg. Certifier review and Approve Building Approval	60 days		
33	Approval to Stage1 Building Approval - Foundations/Stormwater services/GF Slab	1 day	Tue 14/08/18	Tue 14/08/18	29	463 days		1 day	Approval to Stage1 Building Approval - Foundations/Stormwater services/GF Slab		
34	Approval to Stage2 Building Approval - Remaining Structure / Services	10 days	Wed 12/09/18	Tue 25/09/18	30	473 days		10 days	Approval to Stage2 Building Approval - Remaining Structure / Services		
35	Approval to Stage3 Building Approval - Arch/ Façade / Services etc.	10 days	Fri 26/10/18	Fri 9/11/18	31	349 days		10 days	Approval to Stage3 Building Approval - Arch/ Façade / Services etc.		
36	Authority Approvals	25 days	Fri 22/06/18	Fri 27/07/18		474 days		Authority Approvals	25 days		
37	Approval Process for Traffic Management Plan	25 days	Fri 22/06/18	Fri 27/07/18	3	474 days		25 days	Approval Process for Traffic Management Plan		
38	Approval Process for Construction Management Plan	25 days	Fri 22/06/18	Fri 27/07/18	3	474 days		25 days	Approval Process for Construction Management Plan		
39	All Authority Approvals Obtained	0 days	Fri 27/07/18	Fri 27/07/18	37,38	474 days		27/07	All Authority Approvals Obtained		
40	AMENDED DESIGN PROGRAMME - ARCHITECTURE	81 days	Mon 7/01/19	Fri 3/05/19		131 days		DESIGN PROGRAMME - ARCHITECTURE	81 days		
41	Swimming Pool Design Programme (Draft)	69 days	Mon 7/01/19	Fri 12/04/19		225 days		Swimming Pool Design Programme (Draft)	69 days		
42	Phase 1 Concept Design	15 days	Mon 7/01/19	Fri 25/01/19		225 days		15 days	Phase 1 Concept Design		
43	Phase 2 NOD Documentation	14 days	Tue 29/01/19	Fri 15/02/19	42	225 days		14 days	Phase 2 NOD Documentation		
44	Phase 3 Design Development	20 days	Mon 11/02/19	Fri 8/03/19	43FS-1 wk	225 days		20 days	Phase 3 Design Development		
45	Phase 4 Update Construction Documentation	30 days	Mon 4/03/19	Fri 12/04/19	44FS-5 days	371 days		30 days	Phase 4 Update Construction Documentation		
46	Serviced Apartment Design Programme (Draft)	81 days	Mon 7/01/19	Fri 3/05/19		131 days		Serviced Apartment Design Programme (Draft)	81 days		
47	Phase 1 Concept Design	19 days	Mon 7/01/19	Fri 1/02/19		131 days		19 days	Phase 1 Concept Design		
48	Phase 2 Development Approval	19 days	Tue 29/01/19	Fri 22/02/19	47FS-4 days	131 days		19 days	Phase 2 Development Approval		
49	Phase 3 Design Development	30 days	Mon 11/02/19	Fri 22/03/19	48FS-2 wks	131 days		30 days	Phase 3 Design Development		
50	Phase 4 Update Construction Documentation	37 days	Mon 11/03/19	Fri 3/05/19	49FS-2 wks	359 days		37 days	Phase 4 Update Construction Documentation		
51	Amended Structural Design	25 days	Mon 11/03/19	Fri 12/04/19		151 days		Amended Structural Design	25 days		
52	Amended Structural Design - Swimming Pool	15 days	Mon 11/03/19	Fri 29/03/19	44	341 days		15 days	Amended Structural Design - Swimming Pool		
53	Amended Structural Design - Serviced Apartments	15 days	Mon 25/03/19	Fri 12/04/19	49	141 days		15 days	Amended Structural Design - Serviced Apartments		
54	Amended Services Design	30 days	Mon 11/03/19	Tue 23/04/19		225 days		Amended Services Design	30 days		

Task	Milestone	Project Summary	Critical Task	Critical Split
Split	Summary	Deadline	Critical	Progress

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

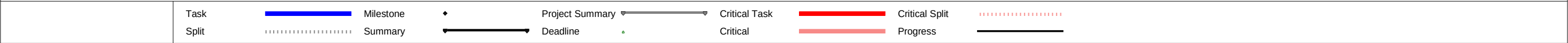
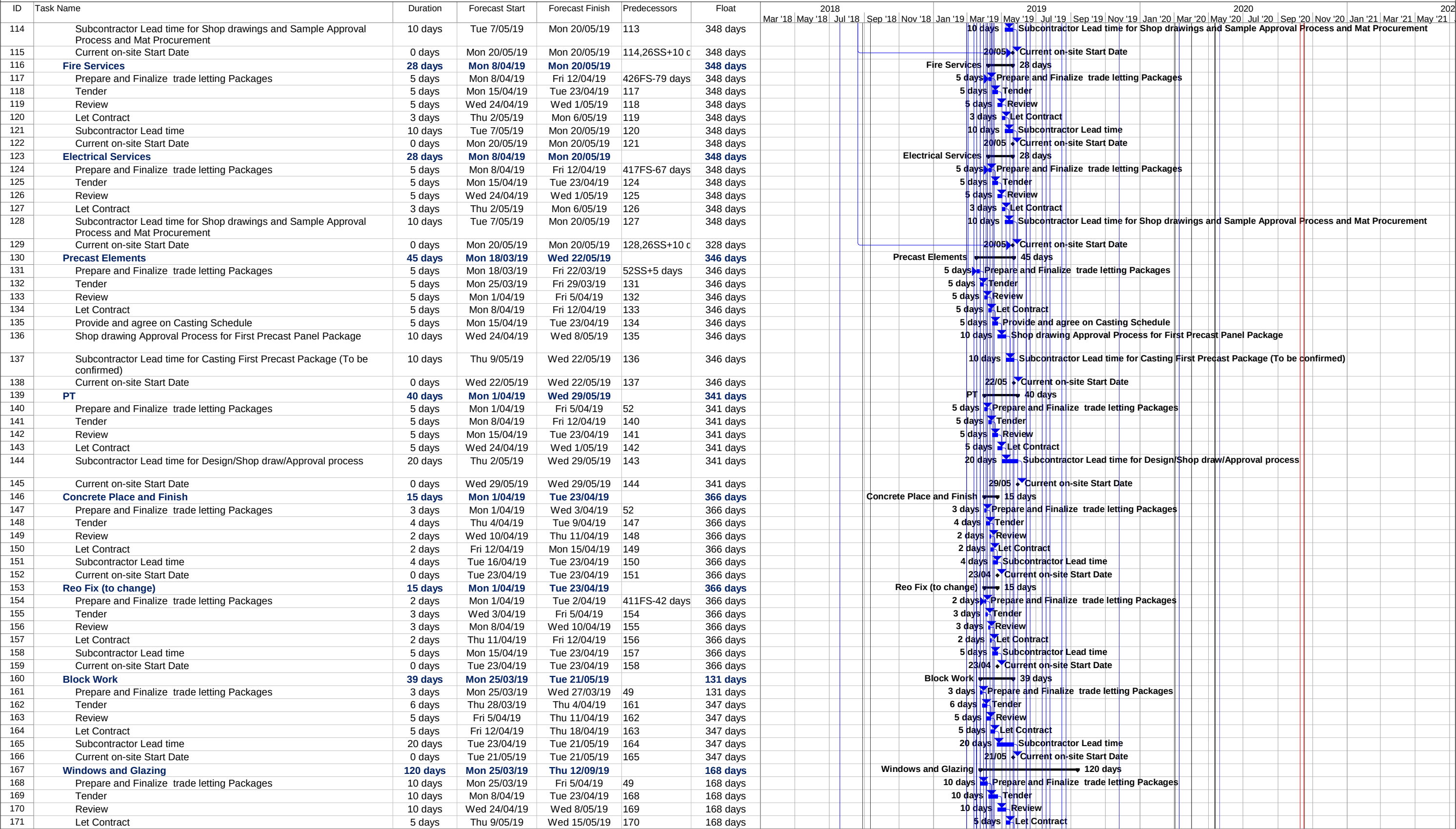
ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018							2019						2020				2021		
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
55	Amended Services Design -Swimming Pool	20 days	Mon 11/03/19	Fri 5/04/19	44	225 days																				
56	Amended Services Design - Serviced Apartments	20 days	Mon 25/03/19	Tue 23/04/19	49	366 days																				
57	KEY PROCUREMENT PACKAGES AND TRADE PROCUREMENT UPDATED AS PER AMENDED DESIGN	352 days	Tue 31/07/18	Wed 8/01/20		191 days																				
58	Bulk and Detail Excavation	22 days	Fri 3/08/18	Mon 3/09/18		491 days																				
59	Prepare and Finalize trade letting Packages	2 days	Fri 3/08/18	Mon 6/08/18	395FS-22 days	491 days																				
60	Tender	5 days	Tue 7/08/18	Mon 13/08/18	59	491 days																				
61	Review	5 days	Tue 14/08/18	Mon 20/08/18	60	491 days																				
62	Let Contract	5 days	Tue 21/08/18	Mon 27/08/18	61	491 days																				
63	Subcontractor Lead time	5 days	Tue 28/08/18	Mon 3/09/18	62	491 days																				
64	Current on-site Start Date	0 days	Mon 3/09/18	Mon 3/09/18	63	491 days																				
65	Piling	36 days	Tue 31/07/18	Tue 18/09/18		507 days																				
66	Prepare and Finalize trade letting Packages	5 days	Tue 31/07/18	Mon 6/08/18	17SS+10 days	507 days																				
67	Tender	10 days	Tue 7/08/18	Mon 20/08/18	66	507 days																				
68	Review	6 days	Tue 21/08/18	Tue 28/08/18	67	507 days																				
69	Let Contract	5 days	Wed 29/08/18	Tue 4/09/18	68	507 days																				
70	Subcontractor Lead time for Redesign /Approval / Procurement	10 days	Wed 5/09/18	Tue 18/09/18	69	507 days																				
71	Current on-site Start Date	0 days	Tue 18/09/18	Tue 18/09/18	70	507 days																				
72	Lift Services	178 days	Tue 28/08/18	Fri 24/05/19		212 days																				
73	Prepare and Finalize trade letting Packages	5 days	Tue 28/08/18	Mon 3/09/18	13,17,21	215 days																				
74	Tender	10 days	Tue 4/09/18	Mon 17/09/18	73	215 days																				
75	Review	10 days	Tue 18/09/18	Tue 2/10/18	74	215 days																				
76	Let Contract	5 days	Wed 3/10/18	Tue 9/10/18	75	215 days																				
77	Shop drawing Approval Process	20 days	Wed 10/10/18	Tue 6/11/18	76	215 days																				
78	Pay deposit and Confirm order for Equipment's	5 days	Tue 7/11/18	Tue 13/11/18	77	215 days																				
79	Overseas Manufacturing and Delivery Lead time	120 days	Wed 14/11/18	Mon 20/05/19	78	215 days																				

Task		Milestone		Project Summary		Critical Task		Critical Split	
Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks



42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
172	Windows/Curtain wall - Concept Drawing Approval Process	10 days	Thu 16/05/19	Wed 29/05/19	171	168 days																				
173	Shop drawing Approval Process	30 days	Thu 6/06/19	Thu 18/07/19	174	168 days																				
174	Prepare and Approve Cast In Drawings	5 days	Thu 30/05/19	Wed 5/06/19	172	168 days																				
175	Subcontractor Lead time for Procurement of cast ins	15 days	Thu 6/06/19	Thu 27/06/19	174	321 days																				
176	Cast In/s Required at Site	0 days	Thu 27/06/19	Thu 27/06/19	175	321 days																				
177	Subcontractor Lead time for Procurement /Fabrication and delivery of Windows/CW (TBC)	40 days	Fri 19/07/19	Thu 12/09/19	173	168 days																				
178	Current on-site Start Date to install windows/ CW	0 days	Thu 12/09/19	Thu 12/09/19	177	168 days																				
179	Ceramic Tile (Supply and Install), Vinyl Flooring	110 days	Thu 28/03/19	Thu 12/09/19		124 days																				
180	Prepare and Finalize trade letting Packages	5 days	Thu 28/03/19	Wed 3/04/19	49,161	124 days																				
181	Tender	20 days	Thu 4/04/19	Wed 8/05/19	180	250 days																				
182	Review	20 days	Thu 9/05/19	Thu 6/06/19	181	250 days																				
183	Let Contract	5 days	Fri 7/06/19	Mon 17/06/19	182	250 days																				
184	Subcontractor Lead time for Procurement (TBC)	60 days	Tue 18/06/19	Thu 12/09/19	183	250 days																				
185	Current on-site Start Date	0 days	Thu 12/09/19	Thu 12/09/19	184	250 days																				
186	Door Hardware	68 days	Thu 4/04/19	Sat 20/07/19		124 days																				
187	Prepare and Finalize trade letting Packages	5 days	Thu 4/04/19	Wed 10/04/19	49,180	124 days																				
188	Tender	10 days	Thu 11/04/19	Wed 1/05/19	187	290 days																				
189	Review	5 days	Thu 2/05/19	Wed 8/05/19	188	290 days																				
190	Let Contract	5 days	Thu 9/05/19	Wed 15/05/19	189	290 days																				
191	Subcontractor Lead time	40 days	Thu 16/05/19	Tue 16/07/19	190	290 days																				
192	Current on-site Start Date	0 days	Sat 20/07/19	Sat 20/07/19	191	287 days																				
193	Louvers	110 days	Mon 8/04/19	Thu 12/09/19		183 days																				
194	Prepare and Finalize trade letting Packages	5 days	Mon 8/04/19	Fri 12/04/19	168	183 days																				
195	Tender	15 days	Mon 15/04/19	Wed 8/05/19	194	183 days																				
196	Review	10 days	Thu 9/05/19	Wed 22/05/19	195	183 days																				
197	Let Contract	5 days	Thu 23/05/19	Wed 29/05/19	196	183 days																				
198	Subcontractor Lead time	75 days	Thu 30/05/19	Thu 12/09/19	197	183 days																				
199	Current on-site Start Date	0 days	Thu 12/09/19	Thu 12/09/19	198	183 days																				
200	Dry Walls and Ceilings	29 days	Thu 11/04/19	Fri 24/05/19		132 days																				
201	Prepare and Finalize trade letting Packages	5 days	Thu 11/04/19	Wed 17/04/19	49,187	132 days																				
202	Tender	5 days	Thu 18/04/19	Mon 29/04/19	201	344 days																				
203	Review	5 days	Tue 30/04/19	Mon 6/05/19	202	344 days																				
204	Let Contract	5 days	Tue 7/05/19	Mon 13/05/19	203	344 days																				
205	Subcontractor Lead time	9 days	Tue 14/05/19	Fri 24/05/19	204	344 days																				
206	Current on-site Start Date	0 days	Fri 24/05/19	Fri 24/05/19	205	344 days																				
207	Balustrades and Handrail	80 days	Mon 15/04/19	Thu 8/08/19		291 days																				
208	Prepare and Finalize trade letting Packages	5 days	Mon 15/04/19	Tue 23/04/19	194,49	291 days																				
209	Tender	10 days	Wed 24/04/19	Wed 8/05/19	208	291 days																				
210	Review	10 days	Thu 9/05/19	Wed 22/05/19	209	291 days																				
211	Let Contract	5 days	Thu 23/05/19	Wed 29/05/19	210	291 days																				
212	Subcontractor Lead time	50 days	Thu 30/05/19	Thu 8/08/19	211	291 days																				
213	Current on-site Start Date	0 days	Thu 8/08/19	Thu 8/08/19	212	291 days																				
214	Carpentry	60 days	Thu 18/04/19	Tue 23/07/19		124 days																				
215	Prepare and Finalize trade letting Packages	5 days	Thu 18/04/19	Wed 1/05/19	201,49	124 days																				
216	Tender	10 days	Thu 2/05/19	Wed 15/05/19	215	285 days																				
217	Review	5 days	Thu 16/05/19	Thu 23/05/19	216	285 days																				
218	Let Contract	10 days	Fri 24/05/19	Thu 6/06/19	217	285 days																				
219	Subcontractor Lead time	30 days	Fri 7/06/19	Tue 23/07/19	218	285 days																				
220	Current on-site Start Date	0 days	Tue 23/07/19	Tue 23/07/19	219	285 days																				
221	Sanitary ware and White goods	100 days	Thu 18/04/19	Tue 10/09/19		268 days																				
222	Prepare and Finalize trade letting Packages	5 days	Thu 18/04/19	Mon 29/04/19	49,201	268 days																				
223	Tender	20 days	Tue 30/04/19	Mon 27/05/19	222	268 days																				
224	Review	20 days	Tue 28/05/19	Tue 25/06/19	223	268 days																				
225	Let Contract	5 days	Wed 26/06/19	Tue 2/07/19	224	268 days																				
226	Subcontractor Lead time	50 days	Wed 3/07/19	Tue 10/09/19	225	268 days																				
227	Current on-site Start Date	0 days	Tue 10/09/19	Tue 10/09/19	226	268 days																				
228	Shower Screens (Mirrors w/in Joinery)	75 days	Tue 30/04/19	Tue 13/08/19		288 days																				
229	Prepare and Finalize trade letting Packages	5 days	Tue 30/04/19	Mon 6/05/19	222	288 days																				
230	Tender	10 days	Tue 7/05/19	Mon 20/05/19	229	288 days																				
231	Review	5 days	Tue 21/05/19	Mon 27/05/19	230	288 days																				
232	Let Contract	5 days	Tue 28/05/19	Mon 3/06/19	231	288 days																				

Task	Milestone	Project Summary	Critical Task	Critical Split
Split	Summary	Deadline	Critical	Progress

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
233	Subcontractor Lead time	50 days	Tue 4/06/19	Tue 13/08/19	232	288 days																				
234	Current on-site Start Date	0 days	Tue 13/08/19	Tue 13/08/19	233	288 days																				
235	Styrofoam Insulation	50 days	Thu 2/05/19	Thu 11/07/19		130 days																				
236	Prepare and Finalize trade letting Packages	5 days	Thu 2/05/19	Wed 8/05/19	49,215	130 days																				
237	Tender	10 days	Thu 9/05/19	Wed 22/05/19	236	311 days																				
238	Review	10 days	Thu 23/05/19	Wed 5/06/19	237	311 days																				
239	Let Contract	5 days	Thu 6/06/19	Thu 13/06/19	238	311 days																				
240	Subcontractor Lead time	20 days	Fri 14/06/19	Thu 11/07/19	239	311 days																				
241	Current on-site Start Date	0 days	Thu 11/07/19	Thu 11/07/19	240	311 days																				
242	Water Proofing and Membrane	50 days	Thu 9/05/19	Thu 18/07/19		130 days																				
243	Prepare and Finalize trade letting Packages	5 days	Thu 9/05/19	Wed 15/05/19	236,49	130 days																				
244	Tender	10 days	Thu 16/05/19	Wed 29/05/19	243	306 days																				
245	Review	10 days	Thu 30/05/19	Thu 13/06/19	244	306 days																				
246	Let Contract	5 days	Fri 14/06/19	Thu 20/06/19	245	306 days																				
247	Subcontractor Lead time	20 days	Fri 21/06/19	Thu 18/07/19	246	306 days																				
248	Current on-site Start Date	0 days	Thu 18/07/19	Thu 18/07/19	247	306 days																				
249	Door and Frames	70 days	Thu 16/05/19	Thu 22/08/19		130 days																				
250	Prepare and Finalize trade letting Packages	5 days	Thu 16/05/19	Wed 22/05/19	49,243	130 days																				
251	Tender	10 days	Thu 23/05/19	Wed 5/06/19	250	281 days																				
252	Review	10 days	Thu 6/06/19	Thu 20/06/19	251	281 days																				
253	Let Contract	5 days	Fri 21/06/19	Thu 27/06/19	252	281 days																				
254	Subcontractor Lead time	40 days	Fri 28/06/19	Thu 22/08/19	253	281 days																				
255	Current on-site Start Date	0 days	Thu 22/08/19	Thu 22/08/19	254	281 days																				
256	Structural Steel	105 days	Tue 21/05/19	Wed 23/10/19		132 days																				
257	Prepare and Finalize trade letting Packages	5 days	Tue 21/05/19	Mon 27/05/19	53FS+20 days	132 days																				
258	Tender	15 days	Tue 28/05/19	Wed 19/06/19	257	132 days																				
259	Review	10 days	Thu 20/06/19	Wed 3/07/19	258	132 days																				
260	Let Contract	5 days	Thu 4/07/19	Wed 10/07/19	259	132 days																				
261	Subcontractor Lead time for Shop drawing/ Procurement/Fabrication	70 days	Thu 11/07/19	Wed 23/10/19	260	132 days																				
262	Current on-site Start Date	0 days	Wed 23/10/19	Wed 23/10/19	261	132 days																				
263	Render	55 days	Thu 23/05/19	Thu 8/08/19		130 days																				
264	Prepare and Finalize trade letting Packages	5 days	Thu 23/05/19	Wed 29/05/19	49,250	130 days																				
265	Tender	10 days	Thu 30/05/19	Thu 13/06/19	264	291 days																				
266	Review	10 days	Fri 14/06/19	Thu 27/06/19	265	291 days																				
267	Let Contract	10 days	Thu 28/06/19	Thu 11/07/19	266	291 days																				
268	Subcontractor Lead time	20 days	Fri 12/07/19	Thu 8/08/19	267	291 days																				
269	Current on-site Start Date	0 days	Thu 8/08/19	Thu 8/08/19	268	291 days																				
270	Metal Roofing	95 days	Tue 28/05/19	Wed 9/10/19		152 days																				
271	Prepare and Finalize trade letting Packages	5 days	Tue 28/05/19	Mon 3/06/19	257	152 days																				
272	Tender	15 days	Tue 4/06/19	Tue 25/06/19	271	152 days																				
273	Review	10 days	Wed 26/06/19	Tue 9/07/19	272	152 days																				
274	Let Contract	5 days	Wed 10/07/19	Tue 16/07/19	273	152 days																				
275	Subcontractor Lead time for Shop drawing/ Procurement/Fabrication	60 days	Wed 17/07/19	Wed 9/10/19	274	152 days																				
276	Current on-site Start Date	0 days	Wed 9/10/19	Wed 9/10/19	275	152 days																				
277	Painting (internal and External)	65 days	Thu 30/05/19	Thu 29/08/19		130 days																				
278	Prepare and Finalize trade letting Packages	10 days	Thu 30/05/19	Thu 13/06/19	49,264	130 days																				
279	Tender	10 days	Fri 14/06/19	Thu 27/06/19	278	276 days																				
280	Review	10 days	Fri 28/06/19	Thu 11/07/19	279	276 days																				
281	Let Contract	10 days	Fri 12/07/19	Thu 25/07/19	280	276 days																				
282	Subcontractor Lead time	25 days	Fri 26/07/19	Thu 29/08/19	281	276 days																				
283	Current on-site Start Date	0 days	Thu 29/08/19	Thu 29/08/19	282	276 days																				
284	Timber flooring	90 days	Fri 14/06/19	Fri 18/10/19		130 days																				
285	Prepare and Finalize trade letting Packages	5 days	Fri 14/06/19	Thu 20/06/19	278,49	130 days																				
286	Tender	20 days	Fri 21/06/19	Thu 18/07/19	285	241 days																				
287	Review	10 days	Fri 19/07/19	Thu 1/08/19	286	241 days																				
288	Let Contract	5 days	Fri 2/08/19	Thu 8/08/19	287	241 days																				
289	Subcontractor Lead time	50 days	Fri 9/08/19	Fri 18/10/19	288	241 days																				
290	Current on-site Start Date	0 days	Fri 18/10/19	Fri 18/10/19	289	241 days																				
291	Carpet	90 days	Fri 14/06/19	Fri 18/10/19		130 days																				
292	Prepare and Finalize trade letting Packages	5 days	Fri 14/06/19	Thu 20/06/19	285SS,49	130 days																				
293	Tender	20 days	Fri 21/06/19	Thu 18/07/19	292	241 days																				

Task		Milestone		Project Summary		Critical Task		Critical Split	
Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8

(14-02-2019)

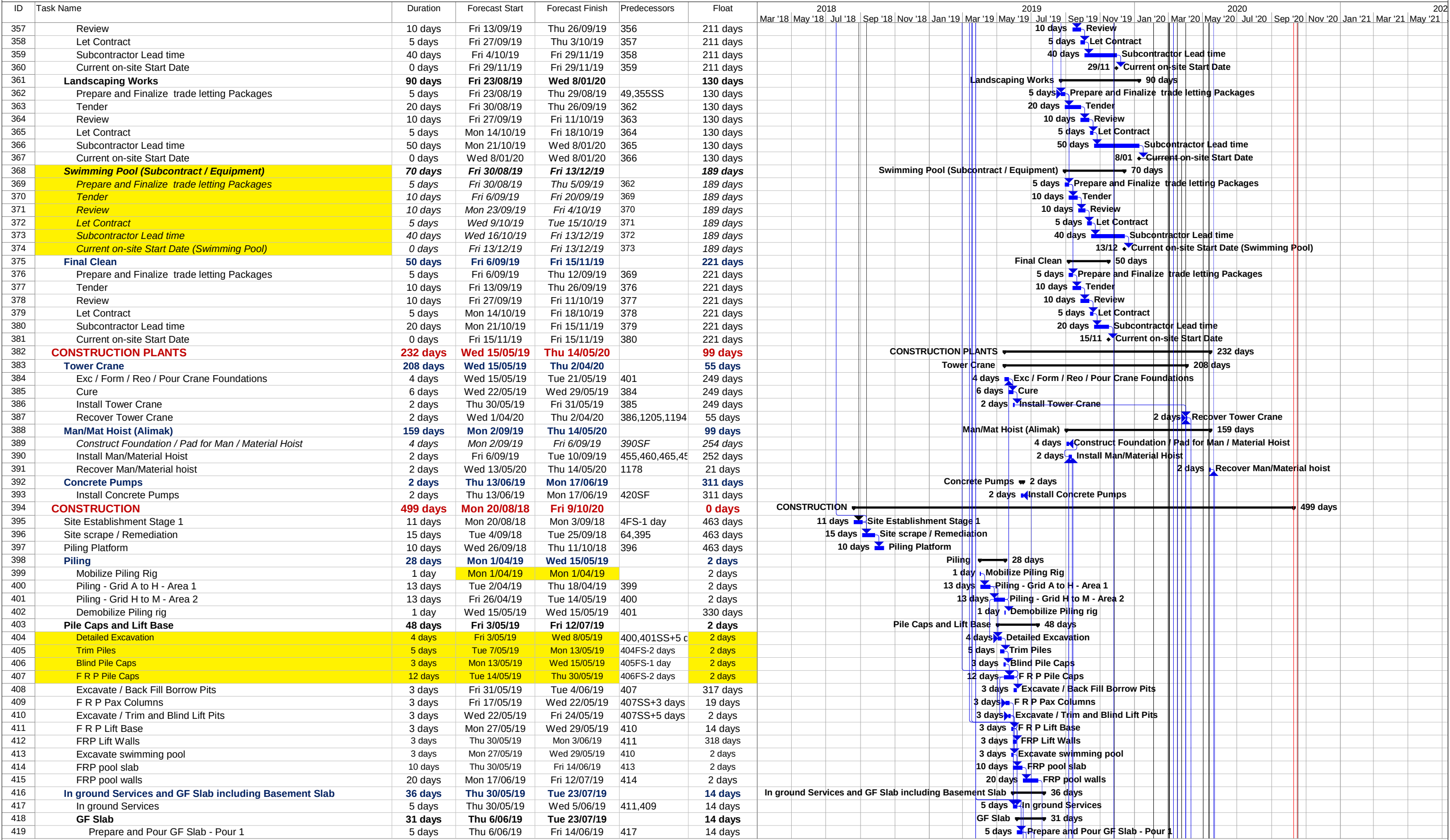
All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018				2019				2020				2021							
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
294	Review	10 days	Fri 19/07/19	Thu 1/08/19	293	241 days																				
295	Let Contract	5 days	Fri 2/08/19	Thu 8/08/19	294	241 days																				
296	Subcontractor Lead time	50 days	Fri 9/08/19	Fri 18/10/19	295	241 days																				
297	Current on-site Start Date	0 days	Fri 18/10/19	Fri 18/10/19	296	241 days																				
298	Joinery	120 days	Fri 21/06/19	Fri 6/12/19		130 days																				
299	Prepare and Finalize trade letting Packages	10 days	Fri 21/06/19	Thu 4/07/19	292,49	130 days																				
300	Tender	20 days	Fri 5/07/19	Thu 1/08/19	299	206 days																				
301	Review	10 days	Fri 2/08/19	Thu 15/08/19	300	206 days																				
302	Let Contract	5 days	Fri 16/08/19	Thu 22/08/19	301	206 days																				
303	Subcontractor Lead time	75 days	Fri 23/08/19	Fri 6/12/19	302	206 days																				
304	Current on-site Start Date	0 days	Fri 6/12/19	Fri 6/12/19	303	206 days																				
305	Stone (Supply and Install)	65 days	Fri 5/07/19	Thu 3/10/19		130 days																				
306	Prepare and Finalize trade letting Packages	5 days	Fri 5/07/19	Thu 11/07/19	299	130 days																				
307	Tender	10 days	Fri 12/07/19	Thu 25/07/19	306	251 days																				
308	Review	5 days	Fri 26/07/19	Thu 1/08/19	307	251 days																				
309	Let Contract	5 days	Fri 2/08/19	Thu 8/08/19	308	251 days																				
310	Subcontractor Lead time	40 days	Fri 9/08/19	Thu 3/10/19	309	251 days																				
311	Current on-site Start Date	0 days	Thu 3/10/19	Thu 3/10/19	310	251 days																				
312	Garage doors, Roller Shutters, Traffic Management Devices	80 days	Fri 12/07/19	Fri 1/11/19		130 days																				
313	Prepare and Finalize trade letting Packages	5 days	Fri 12/07/19	Thu 18/07/19	49,306	130 days																				
314	Tender	20 days	Fri 19/07/19	Thu 15/08/19	313	191 days																				
315	Review	20 days	Fri 16/08/19	Thu 12/09/19	314	191 days																				
316	Let Contract	5 days	Fri 13/09/19	Thu 19/09/19	315	191 days																				
317	Subcontractor Lead time	30 days	Fri 20/09/19	Fri 1/11/19	316	191 days																				
318	Current on-site Start Date	0 days	Fri 1/11/19	Fri 1/11/19	317	191 days																				
319	Metal Work, Bike Racks, Letterboxes, Garbage and Linen Chute	90 days	Fri 19/07/19	Fri 22/11/19		130 days																				
320	Prepare and Finalize trade letting Packages	5 days	Fri 19/07/19	Thu 25/07/19	313,49	130 days																				
321	Tender	20 days	Fri 26/07/19	Thu 22/08/19	320	176 days																				
322	Review	20 days	Fri 23/08/19	Thu 19/09/19	321	176 days																				
323	Let Contract	5 days	Fri 20/09/19	Thu 26/09/19	322	176 days																				
324	Subcontractor Lead time	40 days	Fri 27/09/19	Fri 22/11/19	323	176 days																				
325	Current on-site Start Date	0 days	Fri 22/11/19	Fri 22/11/19	324	176 days																				
326	Tactile, Stair Nosing, Mats	45 days	Fri 26/07/19	Thu 26/09/19		130 days																				
327	Prepare and Finalize trade letting Packages	5 days	Fri 26/07/19	Thu 1/08/19	49,320	130 days																				
328	Tender	10 days	Fri 2/08/19	Thu 15/08/19	327	216 days																				
329	Review	5 days	Fri 16/08/19	Thu 22/08/19	328	216 days																				
330	Let Contract	5 days	Fri 23/08/19	Thu 29/08/19	329	216 days																				
331	Subcontractor Lead time	20 days	Fri 30/08/19	Thu 26/09/19	330	216 days																				
332	Current on-site Start Date	0 days	Thu 26/09/19	Thu 26/09/19	331	216 days																				
333	Gym Equipment	80 days	Fri 2/08/19	Fri 22/11/19		130 days																				
334	Prepare and Finalize trade letting Packages	5 days	Fri 2/08/19	Thu 8/08/19	327	130 days																				
335	Tender	20 days	Fri 9/08/19	Thu 5/09/19	334	216 days																				
336	Review	10 days	Fri 6/09/19	Thu 19/09/19	335	216 days																				
337	Let Contract	5 days	Fri 20/09/19	Thu 26/09/19	336	216 days																				
338	Subcontractor Lead time	40 days	Fri 27/09/19	Fri 22/11/19	337	216 days																				
339	Current on-site Start Date	0 days	Fri 22/11/19	Fri 22/11/19	338	216 days																				
340	Loose Furniture	100 days	Fri 9/08/19	Wed 8/01/20		130 days																				
341	Prepare and Finalize trade letting Packages	5 days	Fri 9/08/19	Thu 15/08/19	334	130 days																				
342	Tender	20 days	Fri 16/08/19	Thu 12/09/19	341	161 days																				
343	Review	20 days	Fri 13/09/19	Fri 11/10/19	342	161 days																				
344	Let Contract	5 days	Mon 14/10/19	Fri 18/10/19	343	161 days																				
345	Subcontractor Lead time	50 days	Mon 21/10/19	Wed 8/01/20	344	161 days																				
346	Current on-site Start Date	0 days	Wed 8/01/20	Wed 8/01/20	345	161 days																				
347	Signage	40 days	Fri 16/08/19	Fri 11/10/19		130 days																				
348	Prepare and Finalize trade letting Packages	5 days	Fri 16/08/19	Thu 22/08/19	49,341	130 days																				
349	Tender	5 days	Fri 23/08/19	Thu 29/08/19	348	206 days																				

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks



42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8

(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
420	Prepare and Pour GF Slab - Pour 2	5 days	Mon 17/06/19	Fri 21/06/19	417,419FF+5 d	98 days																				
421	Prepare and Pour GF Slab - Pour 3	6 days	Tue 16/07/19	Tue 23/07/19	415	2 days																				
422	Prepare and Pour GF Slab - Ramps	3 days	Mon 24/06/19	Wed 26/06/19	420	113 days																				
423	Suspended Slab	162 days	Mon 17/06/19	Wed 26/02/20		14 days																				
424	Level 1 Slab	42 days	Mon 17/06/19	Thu 15/08/19		14 days																				
425	Level 1 slab Pour 1 (SSL 5770 - 811 Sq. m)	14 days	Mon 17/06/19	Thu 4/07/19		14 days																				
426	Form Deck	6 days	Mon 17/06/19	Mon 24/06/19	419	14 days																				
427	FRP Walls and Precast	3 days	Tue 25/06/19	Thu 27/06/19	426	14 days																				
428	Reo PT and Services	4 days	Fri 28/06/19	Wed 3/07/19	427	14 days																				
429	Pour Level1 slab - Pour 1	1 day	Thu 4/07/19	Thu 4/07/19	428	14 days																				
430	Level 1 slab Pour 2 (SSL 6920 - 947 Sq. m)	14 days	Mon 24/06/19	Thu 11/07/19		98 days																				
431	Form Deck	6 days	Mon 24/06/19	Mon 1/07/19	420	98 days																				
432	FRP Walls and Precast	3 days	Tue 2/07/19	Thu 4/07/19	431	98 days																				
433	Reo PT and Services	4 days	Fri 5/07/19	Wed 10/07/19	432	98 days																				
434	Pour Level1 slab - Pour 2	1 day	Thu 11/07/19	Thu 11/07/19	433	98 days																				
435	Level 1 slab Pour 3 (SSL 6920 -1227 sq. m)	15 days	Wed 24/07/19	Wed 14/08/19		2 days																				
436	Form Deck	7 days	Wed 24/07/19	Thu 1/08/19	421	2 days																				
437	FRP Walls and Precast	3 days	Fri 2/08/19	Tue 6/08/19	436	2 days																				
438	Reo PT and Services	4 days	Wed 7/08/19	Tue 13/08/19	437	2 days																				
439	Pour Level1 slab - Pour 3	1 day	Wed 14/08/19	Wed 14/08/19	438	2 days																				
440	Level 1 slab Pour 4 - Ramps	28 days	Fri 5/07/19	Thu 15/08/19		86 days																				
441	Form Deck	2 days	Fri 5/07/19	Mon 8/07/19	422,429	107 days																				
442	FRP Walls and Precast	2 days	Tue 9/07/19	Wed 10/07/19	441	107 days																				
443	Reo PT and Services	2 days	Thu 11/07/19	Fri 12/07/19	442	107 days																				
444	Pour Level 1 slab - Ramps	1 day	Thu 15/08/19	Thu 15/08/19	443,439	86 days																				
445	Level 2 Slab	43 days	Fri 5/07/19	Thu 5/09/19		14 days																				
446	Level 2 slab Pour 1 (SSL 8520 - 811 Sq. m)	14 days	Fri 5/07/19	Thu 25/07/19		14 days																				
447	Form Deck	6 days	Fri 5/07/19	Fri 12/07/19	429	14 days																				
448	FRP Walls and Precast	3 days	Tue 16/07/19	Thu 18/07/19	447	14 days																				
449	Reo PT and Services	4 days	Fri 19/07/19	Wed 24/07/19	448	14 days																				
450	Pour Level 2 slab - Pour 1	1 day	Thu 25/07/19	Thu 25/07/19	449	14 days																				
451	Level 2 slab Pour 2 (SSL 10020 - 947 Sq. m)	14 days	Fri 12/07/19	Thu 1/08/19		98 days																				
452	Form Deck	6 days	Fri 12/07/19	Mon 22/07/19	434	98 days																				
453	FRP Walls and Precast	3 days	Tue 23/07/19	Thu 25/07/19	452	98 days																				
454	Reo PT and Services	4 days	Fri 26/07/19	Wed 31/07/19	453	98 days																				
455	Pour Level 2 slab - Pour 2	1 day	Thu 1/08/19	Thu 1/08/19	454	98 days																				
456	Level 2 slab Pour 3 (SSL 10020 -1227 sq. m)	15 days	Thu 15/08/19	Wed 4/09/19		2 days																				
457	Form Deck	7 days	Thu 15/08/19	Fri 23/08/19	439	2 days																				
458	FRP Walls and Precast	3 days	Mon 26/08/19	Wed 28/08/19	457	2 days																				
459	Reo PT and Services	4 days	Thu 29/08/19	Tue 3/09/19	458	2 days																				
460	Pour Level 2 slab - Pour 3	1 day	Wed 4/09/19	Wed 4/09/19	459	2 days																				
461	Level 2 slab Pour 4 - Ramps	9 days	Mon 26/08/19	Thu 5/09/19		78 days																				
462	Form Deck	2 days	Mon 26/08/19	Tue 27/08/19	444,457	80 days																				
463	FRP Walls and Precast	2 days	Wed 28/08/19	Thu 29/08/19	462	80 days																				
464	Reo PT and Services	2 days	Fri 30/08/19	Mon 2/09/19	463	80 days																				
465	Pour Level 2 slab - Ramps	1 day	Thu 5/09/19	Thu 5/09/19	464,460	78 days																				
466	Level 3 Slab	44 days	Fri 26/07/19	Fri 27/09/19		14 days																				
467	Level 3 slab Pour 1 (SSL 11370 - 811 Sq. m)	14 days	Fri 26/07/19	Thu 15/08/19		14 days																				
468	Form Deck	6 days	Fri 26/07/19	Fri 2/08/19	450	14 days																				
469	FRP Walls and Precast	3 days	Mon 5/08/19	Wed 7/08/19	468	14 days																				
470	Reo PT and Services	4 days	Thu 8/08/19	Wed 14/08/19	469	14 days																				
471	Pour Level 3 slab - Pour 1	1 day	Thu 15/08/19	Thu 15/08/19	470	14 days																				
472	Level 3 slab Pour 2 (SSL 13120 - 947 Sq. m)	14 days	Fri 2/08/19	Thu 22/08/19		98 days																				
473	Form Deck	6 days	Fri 2/08/19	Fri 9/08/19	455	98 days																				
474	FRP Walls and Precast	3 days	Tue 13/08/19	Thu 15/08/19	473	98 days																				
475	Reo PT and Services	4 days	Fri 16/08/19	Wed 21/08/19	474	98 days																				
476	Pour Level 3 slab - Pour 2	1 day	Thu 22/08/19	Thu 22/08/19	475	98 days																				
477	Level 3 slab Pour 3 (SSL 10020 -1227 sq. m)	15 days	Thu 5/09/19	Thu 26/09/19		2 days																				
478	Form Deck	7 days	Thu 5/09/19	Mon 16/09/19	460	2 days																				
479	FRP Walls and Precast	3 days	Tue 17/09/19	Thu 19/09/19	478	2 days																				
480	Reo PT and Services	4 days	Fri 20/09/19	Wed 25/09/19	479	2 days																				
481	Pour Level 3 slab - Pour 3	1 day	Thu 26/09/19	Thu 26/09/19	480	2 days																				
482	Level 3 slab Pour 4 - Ramps	9 days	Tue 17/09/19	Fri 27/09/19		70 days																				

Task

Split

Milestone

Summary

Project Summary

Deadline

Critical Task

Critical

Critical Split

Progress

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
483	Form Deck	2 days	Tue 17/09/19	Wed 18/09/19	465,478	72 days																				
484	FRP Walls and Precast	2 days	Thu 19/09/19	Fri 20/09/19	483	72 days																				
485	Reo PT and Services	2 days	Mon 23/09/19	Tue 24/09/19	484	72 days																				
486	Pour Level 3 slab - Ramps	1 day	Fri 27/09/19	Fri 27/09/19	485,481	70 days																				
487	Level 4 Slab	45 days	Fri 16/08/19	Tue 22/10/19		14 days																				
488	Level 4 slab Pour 1 (SSL 14220 - 811 Sq. m)	14 days	Fri 16/08/19	Wed 4/09/19		14 days																				
489	Form Deck	6 days	Fri 16/08/19	Fri 23/08/19	471	14 days																				
490	FRP Walls and Precast	3 days	Mon 26/08/19	Wed 28/08/19	489	14 days																				
491	Reo PT and Services	4 days	Thu 29/08/19	Tue 3/09/19	490	14 days																				
492	Pour Level 4 slab - Pour 1	1 day	Wed 4/09/19	Wed 4/09/19	491	14 days																				
493	Level 4 slab Pour 2 (SSL 16220 - 947 Sq. m)	14 days	Fri 23/08/19	Thu 12/09/19		98 days																				
494	Form Deck	6 days	Fri 23/08/19	Fri 30/08/19	476	98 days																				
495	FRP Walls and Precast	3 days	Mon 2/09/19	Wed 4/09/19	494	98 days																				
496	Reo PT and Services	4 days	Thu 5/09/19	Wed 11/09/19	495	98 days																				
497	Pour Level 4 slab - Pour 2	1 day	Thu 12/09/19	Thu 12/09/19	496	98 days																				
498	Level 4 slab Pour 3 (SSL 16220 -1227 sq. m)	15 days	Fri 27/09/19	Mon 21/10/19		2 days																				
499	Form Deck	7 days	Fri 27/09/19	Wed 9/10/19	481	2 days																				
500	FRP Walls and Precast	3 days	Thu 10/10/19	Mon 14/10/19	499	2 days																				
501	Reo PT and Services	4 days	Tue 15/10/19	Fri 18/10/19	500	2 days																				
502	Pour Level 4 slab - Pour 3	1 day	Mon 21/10/19	Mon 21/10/19	501	2 days																				
503	Level 4 slab Pour 4 - Ramps	9 days	Thu 10/10/19	Tue 22/10/19		68 days																				
504	Form Deck	2 days	Thu 10/10/19	Fri 11/10/19	499,486	70 days																				
505	FRP Walls and Precast	2 days	Mon 14/10/19	Tue 15/10/19	504	70 days																				
506	Reo PT and Services	2 days	Wed 16/10/19	Thu 17/10/19	505	70 days																				
507	Pour Level 4 slab - Ramps	1 day	Tue 22/10/19	Tue 22/10/19	502,506	68 days																				
508	Level 5 Parking Slab	14 days	Thu 5/09/19	Wed 25/09/19		14 days																				
509	Level 5 Parking Slab (SSL 16970 - 866 Sq. m)	14 days	Thu 5/09/19	Wed 25/09/19		14 days																				
510	Form Deck	6 days	Thu 5/09/19	Fri 13/09/19	492	14 days																				
511	FRP Walls and Precast	3 days	Mon 16/09/19	Wed 18/09/19	510	14 days																				
512	Reo PT and Services	4 days	Thu 19/09/19	Tue 24/09/19	511	14 days																				
513	Pour Level 5 Parking slab	1 day	Wed 25/09/19	Wed 25/09/19	512	14 days																				
514	Level 5 Slab	31 days	Thu 26/09/19	Tue 12/11/19		14 days																				
515	Level 5 slab Pour 1 (SSL 20220 / 20145 - 926 Sq. m)	14 days	Tue 22/10/19	Mon 11/11/19		52 days																				
516	Form Deck	6 days	Tue 22/10/19	Tue 29/10/19	502	52 days																				
517	FRP Walls and Precast	3 days	Wed 30/10/19	Fri 1/11/19	516	52 days																				
518	Reo PT and Services	4 days	Tue 5/11/19	Fri 8/11/19	517	52 days																				
519	Pour Level 5 slab - Pour 1	1 day	Mon 11/11/19	Mon 11/11/19	518	52 days																				
520	Level 5 slab Pour 2 (SSL 20220 / 20145 - 1022 Sq. m)	15 days	Thu 26/09/19	Fri 18/10/19		14 days																				
521	Form Deck	7 days	Thu 26/09/19	Fri 4/10/19	513	14 days																				
522	FRP Walls and Precast	3 days	Wed 9/10/19	Fri 11/10/19	521	14 days																				
523	Reo PT and Services	4 days	Mon 14/10/19	Thu 17/10/19	522	14 days																				
524	Pour Level 5 slab - Pour 1	1 day	Fri 18/10/19	Fri 18/10/19	523	14 days																				
525	Level 5 slab Pour 3 (SSL 20220 / 20145 - 1225 Sq. m)	15 days	Tue 22/10/19	Tue 12/11/19		2 days																				
526	Form Deck	7 days	Tue 22/10/19	Wed 30/10/19	502,513	2 days																				
527	FRP Walls and Precast	3 days	Thu 31/10/19	Tue 5/11/19	526	2 days																				
528	Reo PT and Services	4 days	Wed 6/11/19	Mon 11/11/19	527	2 days																				
529	Pour Level 5 slab - Pour 2	1 day	Tue 12/11/19	Tue 12/11/19	528	2 days																				
530	Level 6 Slab	30 days	Mon 21/10/19	Wed 4/12/19		2 days																				
531	Level 6 slab Pour 1 (SSL 23370 / 23295 - 791 Sq. m) - Pink and Blue	14 days	Mon 21/10/19	Fri 8/11/19		14 days																				
532	Form Deck	6 days	Mon 21/10/19	Mon 28/10/19	524	14 days																				
533	FRP Walls and Precast	3 days	Tue 29/10/19	Thu 31/10/19	532	14 days																				
534	Reo PT and Services	4 days	Fri 1/11/19	Thu 7/11/19	533	14 days																				
535	Pour Level 6 slab - Pour 1	1 day	Fri 8/11/19	Fri 8/11/19	534	14 days																				
536	Level 6 slab Pour 2 (SSL 23395 / 23370 - 968 Sq. m) - Green and yellow	14 days	Wed 13/11/19	Wed 4/12/19		2 days																				
537	Form Deck	6 days	Wed 13/11/19	Wed 20/11/19	529	2 days																				
538	FRP Walls and Precast	3 days	Thu 21/11/19	Mon 25/11/19	537	2 days																				
539	Reo PT and Services	4 days	Tue 26/11/19	Fri 29/11/19	538	2 days																				
540	Pour Level 6 slab - Pour 2	1 day	Wed 4/12/19	Wed 4/12/19	539	2 days																				
541	Level 7 Slab	30 days	Mon 11/11/19	Tue 7/01/20		2 days																				
542	Level 7 slab Pour 1 (SSL 26445 / 26520 - 791 Sq. m)	14 days	Mon 11/11/19	Thu 28/11/19		14 days																				
543	Form Deck	6 days	Mon 11/11/19	Mon 18/11/19	535	14 days																				

Task		Milestone		Project Summary		Critical Task		Critical Split	
Split		Summary		Deadline		Critical		Progress	

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

[illegible]

Task		Milestone		Project Summary		Critical Task		Critical Split	
Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
606	FS and C - Level 7 Pour 1	7 days	Thu 28/11/19	Sun 1/12/19	546	225.88 days																				
607	FS and C - Level 7 Pour 2	7 days	Tue 7/01/20	Fri 10/01/20	551	105.88 days																				
608	Level 8 Slab	18 days	Fri 20/12/19	Sat 1/02/20		17 days																				
609	FS and C - Level 8 Pour 1	7 days	Fri 20/12/19	Mon 23/12/19	557	198.88 days																				
610	FS and C - Level 8 Pour 2	7 days	Wed 29/01/20	Sat 1/02/20	562	78.88 days																				
611	Level 09 Slab (Roof Slab)	18 days	Thu 23/01/20	Sat 22/02/20		0 days																				
612	FS and C - Level 9 Pour 1	7 days	Thu 23/01/20	Sun 26/01/20	568	72.88 days																				
613	FS and C - Level 9 Pour 2	7 days	Wed 19/02/20	Sat 22/02/20	573	6.88 days																				
614	Metal Decking over Concrete Roof	16 days	Tue 3/03/20	Tue 24/03/20		55 days																				
615	Metal Decking Over Pour 1 (Approx. 1045 m2)	8 days	Tue 3/03/20	Thu 12/03/20	276,262,621	55 days																				
616	Metal Decking Over Pour 2 (Approx. 1020 m2)	8 days	Fri 13/03/20	Tue 24/03/20	615	55 days																				
617	Plant roof Slab	12 days	Mon 24/02/20	Tue 10/03/20		21 days																				
618	Install Precast Wall for Stair and Lift core Precast Walls/ Columns	1 day	Mon 24/02/20	Mon 24/02/20	613,612	21 days																				
619	Formwork to the slab	2 days	Tue 25/02/20	Wed 26/02/20	618	21 days																				
620	Reo / PT	2 days	Thu 27/02/20	Fri 28/02/20	619	21 days																				
621	Pour Concrete - Plant roof Slab	1 day	Mon 2/03/20	Mon 2/03/20	620	21 days																				
622	Cure (7 day)	5 days	Tue 3/03/20	Mon 9/03/20	621	56 days																				
623	Strip formwork - Plant roof Slab	1 day	Tue 10/03/20	Tue 10/03/20	622	82 days																				
624	Strip form work and Back Prop if Required	125 days	Mon 19/08/19	Thu 5/03/20		101 days																				
625	SFBP - Level 01 Slab	32 days	Mon 19/08/19	Wed 2/10/19		101 days																				
626	Strip formwork - Slab Level 01 - Pour 1	3 days	Mon 19/08/19	Wed 21/08/19	578,588	265 days																				
627	Strip formwork - Slab Level 01 - Pour 2	3 days	Mon 26/08/19	Wed 28/08/19	579,589	260 days																				
628	Strip formwork - Slab Level 01 - Pour 3	3 days	Mon 30/09/19	Wed 2/10/19	590,580	236 days																				
629	Strip formwork - Slab Level 01 - Pour 4	3 days	Mon 30/09/19	Wed 2/10/19	581,591	72 days																				
630	SFBP - Level 02 Slab	34 days	Tue 10/09/19	Tue 29/10/19		102 days																				
631	Strip formwork - Slab Level 02 - Pour 1	3 days	Tue 10/09/19	Thu 12/09/19	593,583	250 days																				
632	Strip formwork - Slab Level 02 - Pour 2	3 days	Mon 16/09/19	Wed 18/09/19	594,584	98 days																				
633	Strip formwork - Slab Level 02 - Pour 3	3 days	Thu 24/10/19	Mon 28/10/19	595,585	72 days																				
634	Strip formwork - Slab Level 02 - Pour 4	3 days	Fri 25/10/19	Tue 29/10/19	586,596	219 days																				
635	SFBP - Level 03 Slab	37 days	Mon 30/09/19	Fri 22/11/19		88 days																				
636	Strip formwork - Slab Level 03 - Pour 1	3 days	Mon 30/09/19	Wed 2/10/19	588,597	88 days																				
637	Strip formwork - Slab Level 03 - Pour 2	3 days	Thu 14/11/19	Mon 18/11/19	599,589,519,60	58 days																				
638	Strip formwork - Slab Level 03 - Pour 3	3 days	Fri 15/11/19	Tue 19/11/19	590,599,600,60	57 days																				
639	Strip formwork - Slab Level 03 - Pour 4	3 days	Wed 20/11/19	Fri 22/11/19	591,638	108 days																				
640	SFBP - Level 04 Slab	12 days	Mon 9/12/19	Tue 7/01/20		37 days																				
641	Strip formwork - Slab Level 04 - Pour 1	3 days	Mon 9/12/19	Wed 11/12/19	603,604,593	37 days																				
642	Strip formwork - Slab Level 04 - Pour 2	3 days	Thu 12/12/19	Mon 16/12/19	603,604,596,64	37 days																				
643	Strip formwork - Slab Level 04 - Pour 3	3 days	Tue 17/12/19	Thu 19/12/19	604,594,603,64	37 days																				
644	Strip formwork - Slab Level 04 - Pour 4	3 days	Fri 20/12/19	Tue 7/01/20	604,595,603,64	91 days																				
645	SFBP - Level 5 Parking Slab	3 days	Fri 10/01/20	Tue 14/01/20		86 days																				
646	Strip formwork - Slab Level 05 - Parking	3 days	Fri 10/01/20	Tue 14/01/20	606,597,607	86 days																				
647	SFBP - Level 05 Slab	9 days	Fri 10/01/20	Wed 22/01/20		23 days																				
648	Strip formwork - Slab Level 05 R - Pour 1	3 days	Fri 10/01/20	Tue 14/01/20	599,606,607	23 days																				
649	Strip formwork - Slab Level 05 R - Pour 2	3 days	Wed 15/01/20	Fri 17/01/20	648,600	23 days																				
650	Strip formwork - Slab Level 05 R - Pour 3	3 days	Mon 20/01/20	Wed 22/01/20	649,601	23 days																				
651	SFBP - Level 06 Slab	21 days	Mon 6/01/20	Wed 5/02/20		20 days																				
652	Strip formwork - Slab Level 06 - Pour 1	3 days	Mon 6/01/20	Wed 8/01/20	603,609	35 days																				
653	Strip formwork - Slab Level 06 - Pour 2	3 days	Mon 3/02/20	Wed 5/02/20	604,652,610	20 days																				
654	SFBP - Level 07 Slab	20 days	Wed 29/01/20	Wed 26/02/20		0 days																				
655	Strip formwork - Slab Level 07 - Pour 1	3 days	Wed 29/01/20	Fri 31/01/20	606,612	14 days																				
656	Strip formwork - Slab Level 07 - Pour 2	3 days	Mon 24/02/20	Wed 26/02/20	607,613,655	0 days																				
657	SFBP - Level 08 Slab	20 days	Mon 3/02/20	Mon 2/03/20		0 days																				
658	Strip formwork - Slab Level 08 - Pour 1	3 days	Mon 3/02/20	Wed 5/02/20	655,609	17 days																				
659	Strip formwork - Slab Level 08 - Pour 2	3 days	Thu 27/02/20	Mon 2/03/20	656,610	0 days																				
660	SFBP - Level 09 Roof Slab	20 days	Thu 6/02/20	Thu 5/03/20		0 days																				
661	Strip formwork - Slab Level 09 - Pour 1	3 days	Thu 6/02/20	Mon 10/02/20	612,658	17 days																				
662	Strip formwork - Slab Level 09 - Pour 2	3 days	Tue 3/03/20	Thu 5/03/20	613,659	0 days																				
663	Fit out	246 days	Thu 19/09/19	Fri 9/10/20		0 days																				
664	Façade	72 days	Mon 25/11/19	Tue 24/03/20		89 days																				
665	Façade Level 01	12 days	Mon 25/11/19	Thu 12/12/19		108 days																				
666	Set out	1 day	Mon 25/11/19	Mon 25/11/19	636,638,637,63	108 days																				
667	Bracket	3 days	Tue 26/11/19	Thu 28/11/19	666,178	108 days																				

Task	Milestone	Project Summary	Critical Task	Critical Split	
Split	Summary	Deadline	Critical	Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8

(14-02-2019)

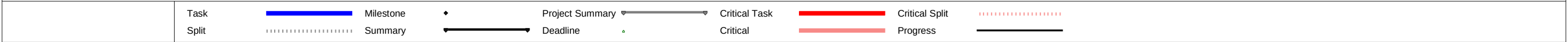
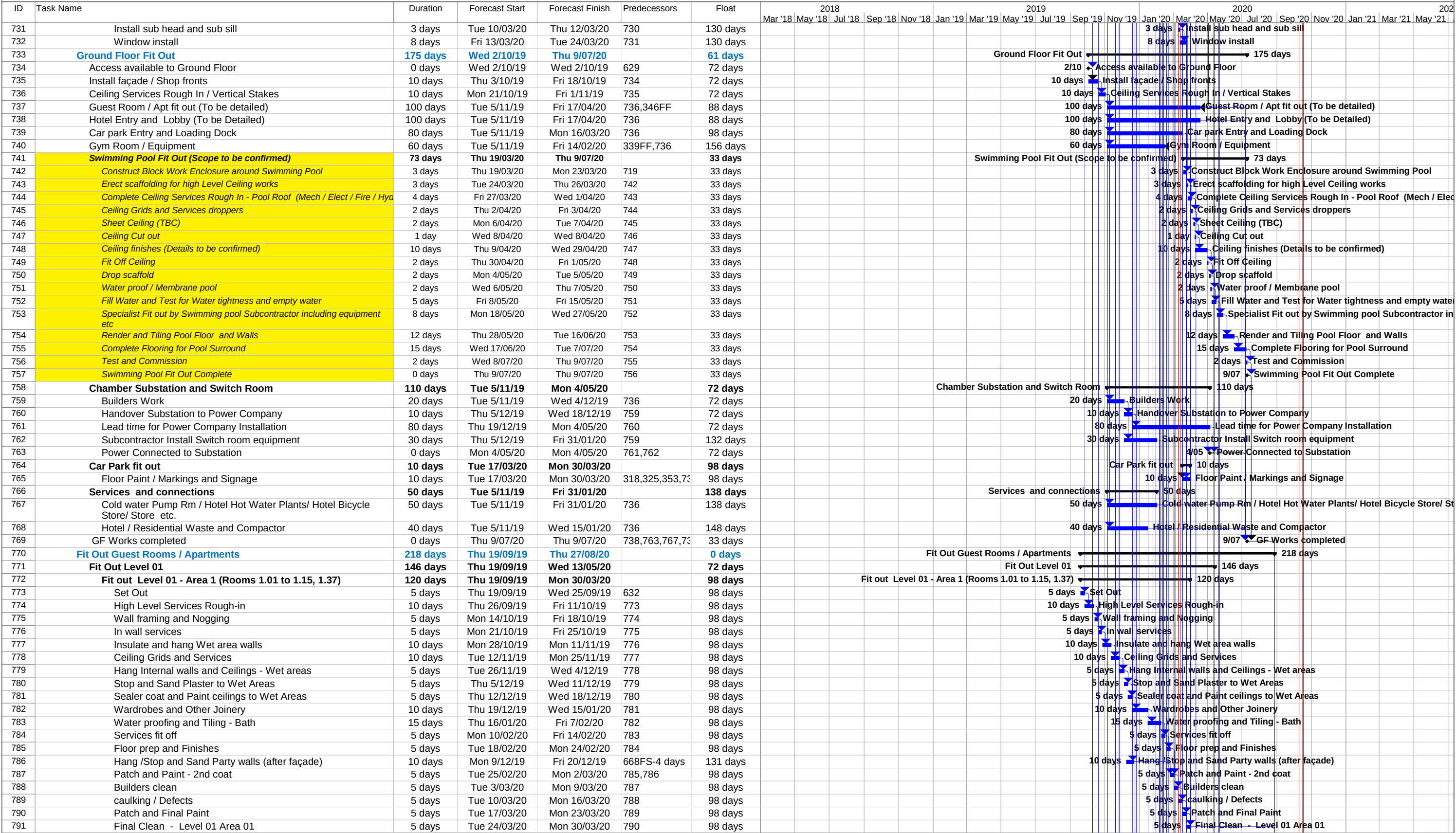
All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
668	Install Curtain Walls - Level 01	8 days	Fri 29/11/19	Thu 12/12/19	667	127 days	Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
669	Façade Level 02	12 days	Wed 15/01/20	Mon 3/02/20		86 days																				
670	Set out	1 day	Wed 15/01/20	Wed 15/01/20	646,642,643,64	86 days																				
671	Bracket	3 days	Thu 16/01/20	Mon 20/01/20	670,667	86 days																				
672	Install Curtain Walls - Level 02	8 days	Tue 21/01/20	Mon 3/02/20	671	86 days																				
673	Façade Level 03	14 days	Thu 23/01/20	Thu 13/02/20		86 days																				
674	Set out	1 day	Thu 23/01/20	Thu 23/01/20	670,648,649,65	88 days																				
675	Bracket	3 days	Fri 24/01/20	Thu 30/01/20	671,674	88 days																				
676	Install Curtain Walls - Level 03	8 days	Tue 4/02/20	Thu 13/02/20	672,199,675	86 days																				
677	Façade Level 04	14 days	Thu 6/02/20	Wed 26/02/20		86 days																				
678	Set out	1 day	Thu 6/02/20	Thu 6/02/20	674,653,652	88 days																				
679	Bracket	3 days	Fri 7/02/20	Tue 11/02/20	675,678	88 days																				
680	Install Curtain Walls - Level 04	8 days	Fri 14/02/20	Wed 26/02/20	679,676	86 days																				
681	Façade Level 05	30 days	Thu 9/01/20	Mon 24/02/20		151 days																				
682	Façade Level 05 - Area 1 (East Wing)	12 days	Thu 9/01/20	Fri 24/01/20		169 days																				
683	Set out	1 day	Thu 9/01/20	Thu 9/01/20	652	169 days																				
684	Install sub head and subskill	3 days	Fri 10/01/20	Tue 14/01/20	683	169 days																				
685	Window install	8 days	Wed 15/01/20	Fri 24/01/20	684	169 days																				
686	Façade Level 05 - Area 2 (North Wing)	12 days	Thu 6/02/20	Mon 24/02/20		151 days																				
687	Set out	1 day	Thu 6/02/20	Thu 6/02/20	653	151 days																				
688	Install sub head and sub sill	3 days	Fri 7/02/20	Tue 11/02/20	687	151 days																				
689	Window install	8 days	Wed 12/02/20	Mon 24/02/20	688	151 days																				
690	Façade Level 05 - Area 3 (West Wing)	12 days	Thu 6/02/20	Mon 24/02/20		151 days																				
691	Set out	1 day	Thu 6/02/20	Thu 6/02/20	653	151 days																				
692	Install sub head and sub sill	3 days	Fri 7/02/20	Tue 11/02/20	691	151 days																				
693	Window install	8 days	Wed 12/02/20	Mon 24/02/20	692	151 days																				
694	Façade Level 06	29 days	Mon 3/02/20	Fri 13/03/20		137 days																				
695	Façade Level 06 - Area 1 (East Wing)	12 days	Mon 3/02/20	Wed 19/02/20		154 days																				
696	Set out	1 day	Mon 3/02/20	Mon 3/02/20	655	154 days																				
697	Install sub head and sub sill	3 days	Tue 4/02/20	Thu 6/02/20	696	154 days																				
698	Window install	8 days	Fri 7/02/20	Wed 19/02/20	697	154 days																				
699	Façade Level 06 - Area 2 (North Wing)	12 days	Thu 27/02/20	Fri 13/03/20		137 days																				
700	Set out	1 day	Thu 27/02/20	Thu 27/02/20	656	137 days																				
701	Install sub head and sub sill	3 days	Fri 28/02/20	Tue 3/03/20	700	137 days																				
702	Window install	8 days	Wed 4/03/20	Fri 13/03/20	701	137 days																				
703	Façade Level 06 - Area 3 (West Wing)	12 days	Thu 27/02/20	Fri 13/03/20		137 days																				
704	Set out	1 day	Thu 27/02/20	Thu 27/02/20	656	137 days																				
705	Install sub head and sub sill	3 days	Fri 28/02/20	Tue 3/03/20	704	137 days																				
706	Window install	8 days	Wed 4/03/20	Fri 13/03/20	705	137 days																				
707	Façade Level 07	29 days	Thu 6/02/20	Wed 18/03/20		50 days																				
708	Façade Level 07 - Area 1 (East Wing)	12 days	Thu 6/02/20	Mon 24/02/20		151 days																				
709	Set out	1 day	Thu 6/02/20	Thu 6/02/20	658	151 days																				
710	Install sub head and sub sill	3 days	Fri 7/02/20	Tue 11/02/20	709	151 days																				
711	Window install	8 days	Wed 12/02/20	Mon 24/02/20	710	151 days																				
712	Façade Level 07 - Area 2 (North Wing)	12 days	Tue 3/03/20	Wed 18/03/20		134 days																				
713	Set out	1 day	Tue 3/03/20	Tue 3/03/20	659	134 days																				
714	Install sub head and sub sill	3 days	Wed 4/03/20	Fri 6/03/20	713	134 days																				
715	Window install	8 days	Mon 9/03/20	Wed 18/03/20	714	134 days																				
716	Façade Level 07 - Area 3 (West Wing)	12 days	Tue 3/03/20	Wed 18/03/20		33 days																				
717	Set out	1 day	Tue 3/03/20	Tue 3/03/20	659	33 days																				
718	Install sub head and sub sill	3 days	Wed 4/03/20	Fri 6/03/20	717	33 days																				
719	Window install	8 days	Mon 9/03/20	Wed 18/03/20	718	33 days																				
720	Façade Level 08	30 days	Tue 11/02/20	Tue 24/03/20		130 days																				
721	Façade Level 08 - Area 1 (East Wing)	12 days	Tue 11/02/20	Thu 27/02/20		140 days																				
722																										

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks



Date Revised: 28/02/2019

Date Statused :

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2019.02.28 Revised Contract Programme with GF pool+Gym and L5toL8 Apt changes

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018				2019				2020				2021							
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20		Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21
792	Fit out Level 01 - Area 2 (Rooms 1.16 to 1.36)	120 days	Tue 29/10/19	Wed 13/05/20		72 days																				
793	Set Out	5 days	Tue 29/10/19	Tue 5/11/19	633	72 days																				
794	High Level Services Rough-in	10 days	Wed 6/11/19	Tue 19/11/19	793	72 days																				
795	Wall framing and Nogging	5 days	Wed 20/11/19	Tue 26/11/19	794	72 days																				
796	In wall services	5 days	Wed 27/11/19	Thu 5/12/19	795	72 days																				
797	Insulate and hang Wet area walls	10 days	Fri 6/12/19	Thu 19/12/19	796	72 days																				
798	Ceiling Grids and Services	10 days	Fri 20/12/19	Thu 16/01/20	797	72 days																				
799	Hang Internal walls and Ceilings - Wet areas	5 days	Fri 17/01/20	Thu 23/01/20	798	72 days																				
800	Stop and Sand Plaster to Wet Areas	5 days	Fri 24/01/20	Mon 3/02/20	799	72 days																				
801	Sealer coat and Paint ceilings to Wet Areas	5 days	Tue 4/02/20	Mon 10/02/20	800	72 days																				
802	Wardrobes and Other Joinery	10 days	Tue 11/02/20	Tue 25/02/20	801	72 days																				
803	Water proofing and Tiling - Bath	15 days	Wed 26/02/20	Tue 17/03/20	802	72 days																				
804	Services fit off	5 days	Wed 18/03/20	Tue 24/03/20	803	72 days																				
805	Floor prep and Finishes	5 days	Wed 25/03/20	Tue 31/03/20	804	72 days																				
806	Hang /Stop and Sand Party walls (after façade)	10 days	Fri 13/12/19	Thu 9/01/20	668	127 days																				
807	Patch and Paint - 2nd coat	5 days	Wed 1/04/20	Tue 7/04/20	806,805	72 days																				
808	Builders clean	5 days	Wed 8/04/20	Mon 20/04/20	807	72 days																				
809	caulking / Defects	5 days	Tue 21/04/20	Tue 28/04/20	808	72 days																				
810	Patch and Final Paint	5 days	Wed 29/04/20	Tue 5/05/20	809	72 days																				
811	Final Clean - Level 01 Area 02	5 days	Wed 6/05/20	Wed 13/05/20	810	72 days																				
812	Fit Out Level 02	121 days	Tue 19/11/19	Wed 3/06/20		57 days																				
813	Fit out Level 02 - Area 1 (Rooms 2.01 to 2.15;2.37)	120 days	Tue 19/11/19	Tue 2/06/20		58 days																				
814	Set Out	5 days	Tue 19/11/19	Mon 25/11/19	636,637	58 days																				
815	High Level Services Rough-in	10 days	Tue 26/11/19	Wed 11/12/19	814	58 days																				
816	Wall framing and Nogging	5 days	Thu 12/12/19	Wed 18/12/19	815	58 days																				
817	In wall services	5 days	Thu 19/12/19	Wed 8/01/20	816	58 days																				
818	Insulate and hang Wet area walls	10 days	Thu 9/01/20	Wed 22/01/20	817	58 days																				
819	Ceiling Grids and Services	10 days	Thu 23/01/20	Fri 7/02/20	818	58 days																				
820	Hang Internal walls and Ceilings - Wet areas	5 days	Mon 10/02/20	Fri 14/02/20	819	58 days																				
821	Stop and Sand Plaster to Wet Areas	5 days	Tue 18/02/20	Mon 24/02/20	820	58 days																				
822	Sealer coat and Paint ceilings to Wet Areas	5 days	Tue 25/02/20	Mon 2/03/20	821	58 days																				
823	Wardrobes and Other Joinery	10 days	Tue 3/03/20	Mon 16/03/20	822	58 days																				
824	Water proofing and Tiling - Bath	15 days	Tue 17/03/20	Mon 6/04/20	823	58 days																				
825	Services fit off	5 days	Tue 7/04/20	Fri 17/04/20	824	58 days																				
826	Floor prep and Finishes	5 days	Mon 20/04/20	Fri 24/04/20	825	58 days																				
827	Hang /Stop and Sand Party walls (after façade)	10 days	Wed 29/01/20	Tue 11/02/20	672FS-4 days	106 days																				
828	Patch and Paint - 2nd coat	5 days	Tue 28/04/20	Mon 4/05/20	826,827	58 days																				
829	Builders clean	5 days	Tue 5/05/20	Tue 12/05/20	828	58 days																				
830	caulking / Defects	5 days	Wed 13/05/20	Tue 19/05/20	829	58 days																				
831	Patch and Final Paint	5 days	Wed 20/05/20	Tue 26/05/20	830	58 days																				
832	Final Clean - Level 02 Area 01	5 days	Wed 27/05/20	Tue 2/06/20	831	58 days																				
833	Fit out Level 02 - Area 2 (Rooms 2.16 to2.36)	120 days	Wed 20/11/19	Wed 3/06/20		57 days																				
834	Set Out	5 days	Wed 20/11/19	Tue 26/11/19	636,638	57 days																				
835	High Level Services Rough-in	10 days	Wed 27/11/19	Thu 12/12/19	834	57 days																				
836	Wall framing and Nogging	5 days	Fri 13/12/19	Thu 19/12/19	835	57 days																				
837	In wall services	5 days	Fri 20/12/19	Thu 9/01/20	836	57 days																				
838	Insulate and hang Wet area walls	10 days	Fri 10/01/20	Thu 23/01/20	837	57 days																				
839	Ceiling Grids and Services	10 days	Fri 24/01/20	Mon 10/02/20	838	57 days																				
840	Hang Internal walls and Ceilings - Wet areas	5 days	Tue 11/02/20	Tue 18/02/20	839	57 days																				
841	Stop and Sand Plaster to Wet Areas	5 days	Wed 19/02/20	Tue 25/02/20	840	57 days																				
842	Sealer coat and Paint ceilings to Wet Areas	5 days	Wed 26/02/20	Tue 3/03/20	841	57 days																				
843	Wardrobes and Other Joinery	10 days	Wed 4/03/20	Tue 17/03/20	842	57 days																				
844	Water proofing and Tiling - Bath	15 days	Wed 18/03/20	Tue 7/04/20	843	57 days																				
845	Services fit off	5 days	Wed 8/04/20	Mon 20/04/20	844	57 days																				
846	Floor prep and Finishes	5 days	Tue 21/04/20	Tue 28/04/20	845	57 days																				
847	Hang /Stop and Sand Party walls (after façade)	10 days	Tue 4/02/20	Tue 18/02/20	672	102 days																				
848	Patch and Paint - 2nd coat	5 days	Wed 29/04/20	Tue 5/05/20	847,846	57 days																				
849	Builders clean	5 days	Wed 6/05/20	Wed 13/05/20	848	57 days																				
850	caulking / Defects	5 days	Thu 14/05/20	Wed 20/05/20	849	57 days																				
851	Patch and Final Paint	5 days	Thu 21/05/20	Wed 27/05/20	850	57 days																				
852	Final Clean - Level 02 Area 02	5 days																								

	Task		Milestone		Project Summary		Critical Task		Critical Split	
	Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021					
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20		Sep '20	Nov '20	Jan '21	Mar '21	May '21
855	Set Out	5 days	Tue 17/12/19	Mon 6/01/20	642	40 days												5 days	Set Out								
856	High Level Services Rough-in	10 days	Tue 7/01/20	Mon 20/01/20	855	40 days												10 days	High Level Services Rough-in								
857	Wall framing and Nogging	5 days	Tue 21/01/20	Wed 29/01/20	856	40 days												5 days	Wall framing and Nogging								
858	In wall services	5 days	Thu 30/01/20	Wed 5/02/20	857	40 days												5 days	In wall services								
859	Insulate and hang Wet area walls	10 days	Thu 6/02/20	Thu 20/02/20	858	40 days												10 days	Insulate and hang Wet area walls								
860	Ceiling Grids and Services	10 days	Fri 21/02/20	Thu 5/03/20	859	40 days												10 days	Ceiling Grids and Services								
861	Hang Internal walls and Ceilings - Wet areas	5 days	Fri 6/03/20	Thu 12/03/20	860	40 days												5 days	Hang Internal walls and Ceilings - Wet areas								
862	Stop and Sand Plaster to Wet Areas	5 days	Fri 13/03/20	Thu 19/03/20	861	40 days												5 days	Stop and Sand Plaster to Wet Areas								
863	Sealer coat and Paint ceilings to Wet Areas	5 days	Fri 20/03/20	Thu 26/03/20	862	40 days												5 days	Sealer coat and Paint ceilings to Wet Areas								
864	Wardrobes and Other Joinery	10 days	Fri 27/03/20	Thu 9/04/20	863	40 days												10 days	Wardrobes and Other Joinery								
865	Water proofing and Tiling - Bath	15 days	Thu 16/04/20	Thu 7/05/20	864	40 days												15 days	Water proofing and Tiling - Bath								
866	Services fit off	5 days	Fri 8/05/20	Fri 15/05/20	865	40 days												5 days	Services fit off								
867	Floor prep and Finishes	5 days	Mon 18/05/20	Fri 22/05/20	866	40 days												5 days	Floor prep and Finishes								
868	Hang /Stop and Sand Party walls (after façade)	10 days	Mon 10/02/20	Mon 24/02/20	676FS-4 days	98 days												10 days	Hang /Stop and Sand Party walls (after façade)								
869	Patch and Paint - 2nd coat	5 days	Mon 25/05/20	Fri 29/05/20	867,868	40 days												5 days	Patch and Paint - 2nd coat								
870	Builders clean	5 days	Mon 1/06/20	Fri 5/06/20	869	40 days												5 days	Builders clean								
871	caulking / Defects	5 days	Wed 10/06/20	Tue 16/06/20	870	40 days												5 days	caulking / Defects								
872	Patch and Final Paint	5 days	Wed 17/06/20	Tue 23/06/20	871	40 days												5 days	Patch and Final Paint								
873	Final Clean - Level 03 Area 01	5 days	Wed 24/06/20	Tue 30/06/20	872	40 days												5 days	Final Clean - Level 03 Area 01								
874	Fit out Level 03 - Area 2 (Rooms 3.16 to 3.36)	120 days	Fri 20/12/19	Fri 3/07/20		37 days												Fit out Level 03 - Area 2 (Rooms 3.16 to 3.36) 120 days									
875	Set Out	5 days	Fri 20/12/19	Thu 9/01/20	643	37 days												5 days	Set Out								
876	High Level Services Rough-in	10 days	Fri 10/01/20	Thu 23/01/20	875	37 days												10 days	High Level Services Rough-in								
877	Wall framing and Nogging	5 days	Fri 24/01/20	Mon 3/02/20	876	37 days												5 days	Wall framing and Nogging								
878	In wall services	5 days	Tue 4/02/20	Mon 10/02/20	877	37 days												5 days	In wall services								
879	Insulate and hang Wet area walls	10 days	Tue 11/02/20	Tue 25/02/20	878	37 days												10 days	Insulate and hang Wet area walls								
880	Ceiling Grids and Services	10 days	Wed 26/02/20	Tue 10/03/20	879	37 days												10 days	Ceiling Grids and Services								
881	Hang Internal walls and Ceilings - Wet areas	5 days	Wed 11/03/20	Tue 17/03/20	880	37 days												5 days	Hang Internal walls and Ceilings - Wet areas								
882	Stop and Sand Plaster to Wet Areas	5 days	Wed 18/03/20	Tue 24/03/20	881	37 days												5 days	Stop and Sand Plaster to Wet Areas								
883	Sealer coat and Paint ceilings to Wet Areas	5 days	Wed 25/03/20	Tue 31/03/20	882	37 days												5 days	Sealer coat and Paint ceilings to Wet Areas								
884	Wardrobes and Other Joinery	10 days	Wed 1/04/20	Mon 20/04/20	883	37 days												10 days	Wardrobes and Other Joinery								
885	Water proofing and Tiling - Bath	15 days	Tue 21/04/20	Wed 13/05/20	884	37 days												15 days	Water proofing and Tiling - Bath								
886	Services fit off	5 days	Thu 14/05/20	Wed 20/05/20	885	37 days												5 days	Services fit off								
887	Floor prep and Finishes	5 days	Thu 21/05/20	Wed 27/05/20	886	37 days												5 days	Floor prep and Finishes								
888	Hang /Stop and Sand Party walls (after façade)	10 days	Fri 14/02/20	Fri 28/02/20	676	94 days												10 days	Hang /Stop and Sand Party walls (after façade)								
889	Patch and Paint - 2nd coat	5 days	Thu 28/05/20	Wed 3/06/20	888,887	37 days												5 days	Patch and Paint - 2nd coat								
890	Builders clean	5 days	Thu 4/06/20	Fri 12/06/20	889	37 days												5 days	Builders clean								
891	caulking / Defects	5 days	Mon 15/06/20	Fri 19/06/20	890	37 days												5 days	caulking / Defects								
892	Patch and Final Paint	5 days	Mon 22/06/20	Fri 26/06/20	891	37 days												5 days	Patch and Final Paint								
893	Final Clean - Level 03 Area 02	5 days	Mon 29/06/20	Fri 3/07/20	892	37 days												5 days	Final Clean - Level 03 Area 02								
894	Fit Out Level 04	123 days	Mon 20/01/20	Fri 24/07/20		23 days												Fit Out Level 04 123 days									
895	Fit out Level 04 - Area 1 (Rooms 4.01 to 4.15; 4.37)	120 days	Thu 23/01/20	Fri 24/07/20		23 days												Fit out Level 04 - Area 1 (Rooms 4.01 to 4.15; 4.37) 120 days									
896	Set Out	5 days	Thu 23/01/20	Fri 31/01/20	650	23 days												5 days	Set Out								
897	High Level Services Rough-in	10 days	Mon 3/02/20	Fri 14/02/20	896	23 days												10 days	High Level Services Rough-in								
898	Wall framing and Nogging	5 days	Tue 18/02/20	Mon 24/02/20	897	23 days												5 days	Wall framing and Nogging								
899	In wall services	5 days	Tue 25/02/20	Mon 2/03/20	898	23 days												5 days	In wall services								
900	Insulate and hang Wet area walls	10 days	Tue 3/03/20	Mon 16/03/20	899	23 days												10 days	Insulate and hang Wet area walls								
901	Ceiling Grids and Services	10 days	Tue 17/03/20	Mon 30/03/20	900	23 days												10 days	Ceiling Grids and Services								
902	Hang Internal walls and Ceilings - Wet areas	5 days	Tue 31/03/20	Mon 6/04/20	901	23 days												5 days	Hang Internal walls and Ceilings - Wet areas								
903	Stop and Sand Plaster to Wet Areas	5 days	Tue 7/04/20	Fri 17/04/20	902	23 days												5 days	Stop and Sand Plaster to Wet Areas								
904	Sealer coat and Paint ceilings to Wet Areas	5 days	Mon 20/04/20	Fri 24/04/20	903	23 days												5 days	Sealer coat and Paint ceilings to Wet Areas								
905	Wardrobes and Other Joinery	10 days	Tue 28/04/20	Tue 12/05/20	904	23 days												10 days	Wardrobes and Other Joinery								
906	Water proofing and Tiling - Bath	15 days	Wed 13/05/20	Tue 2/06/20	905	23 days		</																			

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CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021					
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20		Sep '20	Nov '20	Jan '21	Mar '21	May '21
918	Wall framing and Nogging	5 days	Wed 12/02/20	Wed 19/02/20	917	26 days													5 days	Wall framing and Nogging							
919	In wall services	5 days	Thu 20/02/20	Wed 26/02/20	918	26 days													5 days	In wall services							
920	Insulate and hang Wet area walls	10 days	Thu 27/02/20	Wed 11/03/20	919	26 days													10 days	Insulate and hang Wet area walls							
921	Ceiling Grids and Services	10 days	Thu 12/03/20	Wed 25/03/20	920	26 days													10 days	Ceiling Grids and Services							
922	Hang Internal walls and Ceilings - Wet areas	5 days	Thu 26/03/20	Wed 1/04/20	921	26 days													5 days	Hang Internal walls and Ceilings - Wet areas							
923	Stop and Sand Plaster to Wet Areas	5 days	Thu 2/04/20	Wed 8/04/20	922	26 days													5 days	Stop and Sand Plaster to Wet Areas							
924	Sealer coat and Paint ceilings to Wet Areas	5 days	Thu 9/04/20	Tue 21/04/20	923	26 days													5 days	Sealer coat and Paint ceilings to Wet Areas							
925	Wardrobes and Other Joinery	10 days	Wed 22/04/20	Wed 6/05/20	924	26 days													10 days	Wardrobes and Other Joinery							
926	Water proofing and Tiling - Bath	15 days	Thu 7/05/20	Thu 28/05/20	925	26 days													15 days	Water proofing and Tiling - Bath							
927	Services fit off	5 days	Fri 29/05/20	Thu 4/06/20	926	26 days													5 days	Services fit off							
928	Floor prep and Finishes	5 days	Fri 5/06/20	Mon 15/06/20	927	26 days													5 days	Floor prep and Finishes							
929	Hang /Stop and Sand Party walls (after façade)	10 days	Thu 27/02/20	Wed 11/03/20	680	86 days													10 days	Hang /Stop and Sand Party walls (after façade)							
930	Patch and Paint - 2nd coat	5 days	Tue 16/06/20	Mon 22/06/20	929,928	26 days													5 days	Patch and Paint - 2nd coat							
931	Builders clean	5 days	Tue 23/06/20	Mon 29/06/20	930	26 days													5 days	Builders clean							
932	caulking / Defects	5 days	Tue 30/06/20	Mon 6/07/20	931	26 days													5 days	caulking / Defects							
933	Patch and Final Paint	5 days	Tue 7/07/20	Tue 14/07/20	932	26 days													5 days	Patch and Final Paint							
934	Final Clean - Level 04 Area 02	5 days	Wed 15/07/20	Tue 21/07/20	933	26 days													5 days	Final Clean - Level 04 Area 02							
935	Fit Out Level 05	133 days	Thu 9/01/20	Wed 29/07/20		20 days													Fit Out Level 05 133 days								
936	Fit out Level 05 - Area 1 (East 4 Apartments)	115 days	Thu 9/01/20	Thu 2/07/20		38 days													Fit out Level 05 - Area 1 (East 4 Apartments) 115 days								
937	Set Out	5 days	Thu 9/01/20	Wed 15/01/20	652	38 days													5 days	Set Out							
938	High Level Services Rough-in	5 days	Thu 16/01/20	Wed 22/01/20	937	38 days													5 days	High Level Services Rough-in							
939	Wall framing and Nogging	5 days	Thu 23/01/20	Fri 31/01/20	938	38 days													5 days	Wall framing and Nogging							
940	In wall services	5 days	Mon 3/02/20	Fri 7/02/20	939	38 days													5 days	In wall services							
941	Ceiling Grids and Services	10 days	Mon 10/02/20	Mon 24/02/20	940	38 days													10 days	Ceiling Grids and Services							
942	Sheet internal partitions and ceilings	5 days	Tue 25/02/20	Mon 2/03/20	941	38 days													5 days	Sheet internal partitions and ceilings							
943	Set and sand wall and ceilings	5 days	Tue 3/03/20	Mon 9/03/20	942	38 days													5 days	Set and sand wall and ceilings							
944	Sealer coat walls and ceilings	5 days	Tue 10/03/20	Mon 16/03/20	943	38 days													5 days	Sealer coat walls and ceilings							
945	Waterproofing and tiling to wet areas	15 days	Tue 17/03/20	Mon 6/04/20	944	38 days													15 days	Waterproofing and tiling to wet areas							
946	Joinery, wardrobes, shower screens	15 days	Tue 31/03/20	Fri 24/04/20	945FS-5 days	38 days													15 days	Joinery, wardrobes, shower screens							
947	Patch and Paint - Final paint coat	5 days	Tue 28/04/20	Mon 4/05/20	946	38 days													5 days	Patch and Paint - Final paint coat							
948	Services and carpentry fit off	5 days	Tue 5/05/20	Tue 12/05/20	947	38 days													5 days	Services and carpentry fit off							
949	Floor prep	5 days	Wed 13/05/20	Tue 19/05/20	948	38 days													5 days	Floor prep							
950	Floor Finishes	10 days	Wed 20/05/20	Tue 2/06/20	949	38 days													10 days	Floor Finishes							
951	First stage clean	5 days	Wed 3/06/20	Thu 11/06/20	950	38 days													5 days	First stage clean							
952	Defect list/rectification	10 days	Fri 12/06/20	Thu 25/06/20	951	38 days													10 days	Defect list/rectification							
953	Final Clean - Level 05 Area 01	5 days	Fri 26/06/20	Thu 2/07/20	952	38 days													5 days	Final Clean - Level 05 Area 01							
954	Fit out Level 05 - Area 2 (North 4 Apartments)	115 days	Thu 6/02/20	Wed 29/07/20		20 days													Fit out Level 05 - Area 2 (North 4 Apartments) 115 days								
955	Set Out	5 days	Thu 6/02/20	Wed 12/02/20	653,652	20 days													5 days	Set Out							
956	High Level Services Rough-in	5 days	Thu 13/02/20	Thu 20/02/20	955	20 days													5 days	High Level Services Rough-in							
957	Wall framing and Nogging	5 days	Fri 21/02/20	Thu 27/02/20	956	20 days													5 days	Wall framing and Nogging							
958	In wall services	5 days	Fri 28/02/20	Thu 5/03/20	957	20 days													5 days	In wall services							
959	Ceiling Grids and Services	10 days	Fri 6/03/20	Thu 19/03/20	958	20 days													10 days	Ceiling Grids and Services							
960	Sheet internal partitions and ceilings	5 days	Fri 20/03/20	Thu 26/03/20	959	20 days													5 days	Sheet internal partitions and ceilings							
961	Set and sand wall and ceilings	5 days	Fri 27/03/20	Thu 2/04/20	960	20 days													5 days	Set and sand wall and ceilings							
962	Sealer coat walls and ceilings	5 days	Fri 3/04/20	Thu 9/04/20	961	20 days													5 days	Sealer coat walls and ceilings							
963	Waterproofing and tiling to wet areas	15 days	Thu 16/04/20	Thu 7/05/20	962	20 days													15 days	Waterproofing and tiling to wet areas							
964	Joinery, wardrobes, shower screens	15 days	Fri 1/05/20	Fri 22/05/20	963FS-5 days	20 days													15 days	Joinery, wardrobes, shower screens							
965	Patch and Paint - Final paint coat	5 days	Mon 25/05/20	Fri 29/05/20	964	20 days													5 days	Patch and Paint - Final paint coat							
966	Services and carpentry fit off	5 days	Mon 1/06/20	Fri 5/06/20	965	20 days													5 days	Services and carpentry fit off							
967	Floor prep	5 days	Wed 10/06/20	Tue 16/06/20	966	20 days													5 days	Floor prep							
968	Floor Finishes	10 days	Wed 17/06/20	Tue 30/06/20	967	20 days													10 days	Floor Finishes							
969	First stage clean	5 days	Wed 1/07/20	Tue 7/07/20	968	20 days													5 days	First stage clean							
970	Defect list/rectification	10 days	Wed 8/07/20	Wed 22/07/20	969	20 days													10 days	Defect list/rectification							

	Task		Milestone	◆	Project Summary		Critical Task		Critical Split	
	Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20		Sep '20	Nov '20	Jan '21	Mar '21
981	Waterproofing and tiling to wet areas	15 days	Thu 16/04/20	Thu 7/05/20	980	20 days													15 days	Waterproofing and tiling to wet areas						
982	Joinery, wardrobes, shower screens	15 days	Fri 1/05/20	Fri 22/05/20	981FS-5 days	20 days													15 days	Joinery, wardrobes, shower screens						
983	Patch and Paint - Final paint coat	5 days	Mon 25/05/20	Fri 29/05/20	982	20 days													5 days	Patch and Paint - Final paint coat						
984	Services and carpentry fit off	5 days	Mon 1/06/20	Fri 5/06/20	983	20 days													5 days	Services and carpentry fit off						
985	Floor prep	5 days	Wed 10/06/20	Tue 16/06/20	984	20 days													5 days	Floor prep						
986	Floor Finishes	10 days	Wed 17/06/20	Tue 30/06/20	985	20 days													10 days	Floor Finishes						
987	First stage clean	5 days	Wed 1/07/20	Tue 7/07/20	986	20 days													5 days	First stage clean						
988	Defect list/rectification	10 days	Wed 8/07/20	Wed 22/07/20	987	20 days													10 days	Defect list/rectification						
989	Final Clean - Level 05 Area 03	5 days	Thu 23/07/20	Wed 29/07/20	988	20 days													5 days	Final Clean - Level 05 Area 03						
990	Fit Out Level 06	132 days	Mon 3/02/20	Wed 19/08/20		6 days													Fit Out Level 06	132 days						
991	Fit out Level 06 - Area 1 (East - 4 Apartments)	115 days	Mon 3/02/20	Fri 24/07/20		23 days													Fit out Level 06 - Area 1 (East - 4 Apartments)	115 days						
992	Set Out	5 days	Mon 3/02/20	Fri 7/02/20	655	23 days													5 days	Set Out						
993	High Level Services Rough-in	5 days	Mon 10/02/20	Fri 14/02/20	992	23 days													5 days	High Level Services Rough-in						
994	Wall framing and Nogging	5 days	Tue 18/02/20	Mon 24/02/20	993	23 days													5 days	Wall framing and Nogging						
995	In wall services	5 days	Tue 25/02/20	Mon 2/03/20	994	23 days													5 days	In wall services						
996	Ceiling Grids and Services	10 days	Tue 3/03/20	Mon 16/03/20	995	23 days													10 days	Ceiling Grids and Services						
997	Sheet internal partitions and ceilings	5 days	Tue 17/03/20	Mon 23/03/20	996	23 days													5 days	Sheet internal partitions and ceilings						
998	Set and sand wall and ceilings	5 days	Tue 24/03/20	Mon 30/03/20	997	23 days													5 days	Set and sand wall and ceilings						
999	Sealer coat walls and ceilings	5 days	Tue 31/03/20	Mon 6/04/20	998	23 days													5 days	Sealer coat walls and ceilings						
1000	Waterproofing and tiling to wet areas	15 days	Tue 7/04/20	Mon 4/05/20	999	23 days													15 days	Waterproofing and tiling to wet areas						
1001	Joinery, wardrobes, shower screens	15 days	Tue 28/04/20	Tue 19/05/20	1000FS-5 days	23 days													15 days	Joinery, wardrobes, shower screens						
1002	Patch and Paint - Final paint coat	5 days	Wed 20/05/20	Tue 26/05/20	1001	23 days													5 days	Patch and Paint - Final paint coat						
1003	Services and carpentry fit off	5 days	Wed 27/05/20	Tue 2/06/20	1002	23 days													5 days	Services and carpentry fit off						
1004	Floor prep	5 days	Wed 3/06/20	Thu 11/06/20	1003	23 days													5 days	Floor prep						
1005	Floor Finishes	10 days	Fri 12/06/20	Thu 25/06/20	1004	23 days													10 days	Floor Finishes						
1006	First stage clean	5 days	Fri 26/06/20	Thu 2/07/20	1005	23 days													5 days	First stage clean						
1007	Defect list/rectification	10 days	Fri 3/07/20	Fri 17/07/20	1006	23 days													10 days	Defect list/rectification						
1008	Final Clean - Level 06 Area 01	5 days	Mon 20/07/20	Fri 24/07/20	1007	23 days													5 days	Final Clean - Level 06 Area 01						
1009	Fit out Level 06 - Area 2 (North - 4 Apartments)	115 days	Thu 27/02/20	Wed 19/08/20		6 days													Fit out Level 06 - Area 2 (North - 4 Apartments)	115 days						
1010	Set Out	5 days	Thu 27/02/20	Wed 4/03/20	656	6 days													5 days	Set Out						
1011	High Level Services Rough-in	5 days	Thu 5/03/20	Wed 11/03/20	1010	6 days													5 days	High Level Services Rough-in						
1012	Wall framing and Nogging	5 days	Thu 12/03/20	Wed 18/03/20	1011	6 days													5 days	Wall framing and Nogging						
1013	In wall services	5 days	Thu 19/03/20	Wed 25/03/20	1012	6 days													5 days	In wall services						
1014	Ceiling Grids and Services	10 days	Thu 26/03/20	Wed 8/04/20	1013	6 days													10 days	Ceiling Grids and Services						
1015	Sheet internal partitions and ceilings	5 days	Thu 9/04/20	Tue 21/04/20	1014	6 days													5 days	Sheet internal partitions and ceilings						
1016	Set and sand wall and ceilings	5 days	Wed 22/04/20	Wed 29/04/20	1015	6 days													5 days	Set and sand wall and ceilings						
1017	Sealer coat walls and ceilings	5 days	Thu 30/04/20	Wed 6/05/20	1016	6 days													5 days	Sealer coat walls and ceilings						
1018	Waterproofing and tiling to wet areas	15 days	Thu 7/05/20	Thu 28/05/20	1017	6 days													15 days	Waterproofing and tiling to wet areas						
1019	Joinery, wardrobes, shower screens	15 days	Fri 22/05/20	Mon 15/06/20	1018FS-5 days	6 days													15 days	Joinery, wardrobes, shower screens						
1020	Patch and Paint - Final paint coat	5 days	Tue 16/06/20	Mon 22/06/20	1019	6 days													5 days	Patch and Paint - Final paint coat						
1021	Services and carpentry fit off	5 days	Tue 23/06/20	Mon 29/06/20	1020	6 days													5 days	Services and carpentry fit off						
1022	Floor prep	5 days	Tue 30/06/20	Mon 6/07/20	1021	6 days													5 days	Floor prep						
1023	Floor Finishes	10 days	Tue 7/07/20	Tue 21/07/20	1022	6 days													10 days	Floor Finishes						
1024	First stage clean	5 days	Wed 22/07/20	Tue 28/07/20	1023	6 days													5 days	First stage clean						
1025	Defect list/rectification	10 days	Wed 29/07/20	Wed 12/08/20	1024	6 days													10 days	Defect list/rectification						
1026	Final Clean - Level 06 Area 02	5 days	Thu 13/08/20	Wed 19/08/20	1025	6 days													5 days	Final Clean - Level 06 Area 02						
1027	Fit out Level 06 - Area 3 (West - 7 Apartments)	115 days	Thu 27/02/20	Wed 19/08/20		6 days													Fit out Level 06 - Area 3 (West - 7 Apartments)	115 days						
1028	Set Out	5 days	Thu 27/02/20	Wed 4/03/20	656	6 days													5 days	Set Out						
1029	High Level Services Rough-in	5 days	Thu 5/03/20	Wed 11/03/20	1028	6 days													5 days	High Level Services Rough-in						
1030	Wall framing and Nogging	5 days	Thu 12/03/20	Wed 18/03/20	1029	6 days													5 days	Wall framing and Nogging						
1031	In wall services	5 days	Thu 19/03/20	Wed 25/03/20	1030	6 days													5 days	In wall services						
1032	Ceiling Grids and Services	10 days	Thu 26/03/20	Wed 8/04/20	1031	6 days													10 days	Ceiling Grids and Services						
1033	Sheet internal partitions and ceilings	5 days	Thu 9/04/20	Tue 21/04/20	1032	6 days													5 days	Sheet internal partitions and ceilings						
1034																										

	Task		Milestone		Project Summary		Critical Task		Critical Split	
	Split		Summary		Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
1044	Final Clean - Level 06 Area 03	5 days	Thu 13/08/20	Wed 19/08/20	1043	6 days																				
1045	Fit Out Level 07	132 days	Thu 6/02/20	Mon 24/08/20		3 days																				
1046	Fit out Level 07 - Area 1 (East - 4 Apartments)	115 days	Thu 6/02/20	Wed 29/07/20		20 days																				
1047	Set Out	5 days	Thu 6/02/20	Wed 12/02/20	658	20 days																				
1048	High Level Services Rough-in	5 days	Thu 13/02/20	Thu 20/02/20	1047	20 days																				
1049	Wall framing and Nogging	5 days	Fri 21/02/20	Thu 27/02/20	1048	20 days																				
1050	In wall services	5 days	Fri 28/02/20	Thu 5/03/20	1049	20 days																				
1051	Ceiling Grids and Services	10 days	Fri 6/03/20	Thu 19/03/20	1050	20 days																				
1052	Sheet internal partitions and ceilings	5 days	Fri 20/03/20	Thu 26/03/20	1051	20 days																				
1053	Set and sand wall and ceilings	5 days	Fri 27/03/20	Thu 2/04/20	1052	20 days																				
1054	Sealer coat walls and ceilings	5 days	Fri 3/04/20	Thu 9/04/20	1053	20 days																				
1055	Waterproofing and tiling to wet areas	15 days	Thu 16/04/20	Thu 7/05/20	1054	20 days																				
1056	Joinery, wardrobes, shower screens	15 days	Fri 1/05/20	Fri 22/05/20	1055FS-5 days	20 days																				
1057	Patch and Paint - Final paint coat	5 days	Mon 25/05/20	Fri 29/05/20	1056	20 days																				
1058	Services and carpentry fit off	5 days	Mon 1/06/20	Fri 5/06/20	1057	20 days																				
1059	Floor prep	5 days	Wed 10/06/20	Tue 16/06/20	1058	20 days																				
1060	Floor Finishes	10 days	Wed 17/06/20	Tue 30/06/20	1059	20 days																				
1061	First stage clean	5 days	Wed 1/07/20	Tue 7/07/20	1060	20 days																				
1062	Defect list/rectification	10 days	Wed 8/07/20	Wed 22/07/20	1061	20 days																				
1063	Final Clean - Level 07 Area 01	5 days	Thu 23/07/20	Wed 29/07/20	1062	20 days																				
1064	Fit out Level 07 - Area 2 (North - 4 Apartments)	115 days	Tue 3/03/20	Mon 24/08/20		3 days																				
1065	Set Out	5 days	Tue 3/03/20	Mon 9/03/20	659	3 days																				
1066	High Level Services Rough-in	5 days	Tue 10/03/20	Mon 16/03/20	1065	3 days																				
1067	Wall framing and Nogging	5 days	Tue 17/03/20	Mon 23/03/20	1066	3 days																				
1068	In wall services	5 days	Tue 24/03/20	Mon 30/03/20	1067	3 days																				
1069	Ceiling Grids and Services	10 days	Tue 31/03/20	Fri 17/04/20	1068	3 days																				
1070	Sheet internal partitions and ceilings	5 days	Mon 20/04/20	Fri 24/04/20	1069	3 days																				
1071	Set and sand wall and ceilings	5 days	Tue 28/04/20	Mon 4/05/20	1070	3 days																				
1072	Sealer coat walls and ceilings	5 days	Tue 5/05/20	Tue 12/05/20	1071	3 days																				
1073	Waterproofing and tiling to wet areas	15 days	Wed 13/05/20	Tue 2/06/20	1072	3 days																				
1074	Joinery, wardrobes, shower screens	15 days	Wed 27/05/20	Thu 18/06/20	1073FS-5 days	3 days																				
1075	Patch and Paint - Final paint coat	5 days	Fri 19/06/20	Thu 25/06/20	1074	3 days																				
1076	Services and carpentry fit off	5 days	Fri 26/06/20	Thu 2/07/20	1075	3 days																				
1077	Floor prep	5 days	Fri 3/07/20	Thu 9/07/20	1076	3 days																				
1078	Floor Finishes	10 days	Fri 10/07/20	Fri 24/07/20	1077	3 days																				
1079	First stage clean	5 days	Mon 27/07/20	Fri 31/07/20	1078	3 days																				
1080	Defect list/rectification	10 days	Mon 3/08/20	Mon 17/08/20	1079	3 days																				
1081	Final Clean - Level 07 Area 02	5 days	Tue 18/08/20	Mon 24/08/20	1080	3 days																				
1082	Fit out Level 07 - Area 3 (West - 4 Apartments)	115 days	Tue 3/03/20	Mon 24/08/20		3 days																				
1083	Set Out	5 days	Tue 3/03/20	Mon 9/03/20	659	3 days																				
1084	High Level Services Rough-in	5 days	Tue 10/03/20	Mon 16/03/20	1083	3 days																				
1085	Wall framing and Nogging	5 days	Tue 17/03/20	Mon 23/03/20	1084	3 days																				
1086	In wall services	5 days	Tue 24/03/20	Mon 30/03/20	1085	3 days																				
1087	Ceiling Grids and Services	10 days	Tue 31/03/20	Fri 17/04/20	1086	3 days																				
1088	Sheet internal partitions and ceilings	5 days	Mon 20/04/20	Fri 24/04/20	1087	3 days																				
1089	Set and sand wall and ceilings	5 days	Tue 28/04/20	Mon 4/05/20	1088	3 days																				
1090	Sealer coat walls and ceilings	5 days	Tue 5/05/20	Tue 12/05/20	1089	3 days																				
1091	Waterproofing and tiling to wet areas	15 days	Wed 13/05/20	Tue 2/06/20	1090	3 days																				
1092	Joinery, wardrobes, shower screens	15 days	Wed 27/05/20	Thu 18/06/20	1091FS-5 days	3 days																				
1093	Patch and Paint - Final paint coat	5 days	Fri 19/06/20	Thu 25/06/20	1092	3 days																				
1094	Services and carpentry fit off	5 days	Fri 26/06/20	Thu 2/07/20	1093	3 days																				
1095	Floor prep	5 days	Fri 3/07/20	Thu 9/07/20	1094	3 days																				
1096	Floor Finishes	10 days	Fri 10/07/20	Fri 24/07/20	1095	3 days																				
1097	First stage clean	5 days	Mon 27/07/20	Fri 31/07/20	1096	3 days																				
1098	Defect list/rectification	10 days	Mon 3/08/20	Mon 17/08/20	1097	3 days																				
1099	Final Clean - Level 07 Area 03	5 days	Tue 18/08/20	Mon 24/08/20	1098	3 days																				
1100	Fit Out Level 08	132 days	Tue 11/02/20	Thu 27/08/20		0 days																				
1101	Fit out Level 08 - Area 1 (North - 4 Apartments)	115 days	Tue 11/02/20	Mon 3/08/20		17 days																				
1102	Set Out	5 days	Tue 11/02/20	Tue 18/02/20	661	17 days																				
1103	High Level Services Rough-in	5 days	Wed 19/02/20	Tue 25/02/20	1102	17 days																				
1104	Wall framing and Nogging	5 days	Wed 26/02/20	Tue 3/03/20	1103	17 days																				
1105	In wall services	5 days	Wed 4/03/20	Tue 10/03/20	1104	17 days																				
1106	Ceiling Grids and Services	10 days	Wed 11/03/20	Tue 24/03/20	1105	17 days																				

	Task		Milestone	◆	Project Summary		Critical Task		Critical Split	
	Split		Summary	◆	Deadline		Critical		Progress	

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					2021			
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20		Sep '20	Nov '20	
1107	Sheet internal partitions and ceilings	5 days	Wed 25/03/20	Tue 31/03/20	1106	17 days																			
1108	Set and sand wall and ceilings	5 days	Wed 1/04/20	Tue 7/04/20	1107	17 days																			
1109	Sealer coat walls and ceilings	5 days	Wed 8/04/20	Mon 20/04/20	1108	17 days																			
1110	Waterproofing and tiling to wet areas	15 days	Tue 21/04/20	Wed 13/05/20	1109	17 days																			
1111	Joinery, wardrobes, shower screens	15 days	Wed 6/05/20	Wed 27/05/20	1110FS-5 days	17 days																			
1112	Patch and Paint - Final paint coat	5 days	Thu 28/05/20	Wed 3/06/20	1111	17 days																			
1113	Services and carpentry fit off	5 days	Thu 4/06/20	Fri 12/06/20	1112	17 days																			
1114	Floor prep	5 days	Mon 15/06/20	Fri 19/06/20	1113	17 days																			
1115	Floor Finishes	10 days	Mon 22/06/20	Fri 3/07/20	1114	17 days																			
1116	First stage clean	5 days	Mon 6/07/20	Fri 10/07/20	1115	17 days																			
1117	Defect list/rectification	10 days	Tue 14/07/20	Mon 27/07/20	1116	17 days																			
1118	Final Clean - Level 08 Area 01	5 days	Tue 28/07/20	Mon 3/08/20	1117	17 days																			
1119	Fit out Level 08 - Area 2 (North - 4 Apartments)	115 days	Fri 6/03/20	Thu 27/08/20		0 days																			
1120	Set Out	5 days	Fri 6/03/20	Thu 12/03/20	662	0 days																			
1121	High Level Services Rough-in	5 days	Fri 13/03/20	Thu 19/03/20	1120	0 days																			
1122	Wall framing and Nogging	5 days	Fri 20/03/20	Thu 26/03/20	1121	0 days																			
1123	In wall services	5 days	Fri 27/03/20	Thu 2/04/20	1122	0 days																			
1124	Ceiling Grids and Services	10 days	Fri 3/04/20	Wed 22/04/20	1123	0 days																			
1125	Sheet internal partitions and ceilings	5 days	Thu 23/04/20	Thu 30/04/20	1124	0 days																			
1126	Set and sand wall and ceilings	5 days	Fri 1/05/20	Thu 7/05/20	1125	0 days																			
1127	Sealer coat walls and ceilings	5 days	Fri 8/05/20	Fri 15/05/20	1126	0 days																			
1128	Waterproofing and tiling to wet areas	15 days	Mon 18/05/20	Fri 5/06/20	1127	0 days																			
1129	Joinery, wardrobes, shower screens	15 days	Mon 1/06/20	Tue 23/06/20	1128FS-5 days	0 days																			
1130	Patch and Paint - Final paint coat	5 days	Wed 24/06/20	Tue 30/06/20	1129	0 days																			
1131	Services and carpentry fit off	5 days	Wed 1/07/20	Tue 7/07/20	1130	0 days																			
1132	Floor prep	5 days	Wed 8/07/20	Wed 15/07/20	1131	0 days																			
1133	Floor Finishes	10 days	Thu 16/07/20	Wed 29/07/20	1132	0 days																			
1134	First stage clean	5 days	Thu 30/07/20	Wed 5/08/20	1133	0 days																			
1135	Defect list/rectification	10 days	Thu 6/08/20	Thu 20/08/20	1134	0 days																			
1136	Final Clean - Level 08 Area 02	5 days	Fri 21/08/20	Thu 27/08/20	1135	0 days																			
1137	Fit out Level 08 - Area 3 (West - 4 Apartments)	115 days	Fri 6/03/20	Thu 27/08/20		0 days																			
1138	Set Out	5 days	Fri 6/03/20	Thu 12/03/20	662	0 days																			
1139	High Level Services Rough-in	5 days	Fri 13/03/20	Thu 19/03/20	1138	0 days																			
1140	Wall framing and Nogging	5 days	Fri 20/03/20	Thu 26/03/20	1139	0 days																			
1141	In wall services	5 days	Fri 27/03/20	Thu 2/04/20	1140	0 days																			
1142	Ceiling Grids and Services	10 days	Fri 3/04/20	Wed 22/04/20	1141	0 days																			
1143	Sheet internal partitions and ceilings	5 days	Thu 23/04/20	Thu 30/04/20	1142	0 days																			
1144	Set and sand wall and ceilings	5 days	Fri 1/05/20	Thu 7/05/20	1143	0 days																			
1145	Sealer coat walls and ceilings	5 days	Fri 8/05/20	Fri 15/05/20	1144	0 days																			
1146	Waterproofing and tiling to wet areas	15 days	Mon 18/05/20	Fri 5/06/20	1145	0 days																			
1147	Joinery, wardrobes, shower screens	15 days	Mon 1/06/20	Tue 23/06/20	1146FS-5 days	0 days																			
1148	Patch and Paint - Final paint coat	5 days	Wed 24/06/20	Tue 30/06/20	1147	0 days																			
1149	Services and carpentry fit off	5 days	Wed 1/07/20	Tue 7/07/20	1148	0 days																			
1150	Floor prep	5 days	Wed 8/07/20	Wed 15/07/20	1149	0 days																			
1151	Floor Finishes	10 days	Thu 16/07/20	Wed 29/07/20	1150	0 days																			
1152	First stage clean	5 days	Thu 30/07/20	Wed 5/08/20	1151	0 days																			
1153	Defect list/rectification	10 days	Thu 6/08/20	Thu 20/08/20	1152	0 days																			
1154	Final Clean - Level 08 Area 03	5 days	Fri 21/08/20	Thu 27/08/20	1153	0 days																			
1155	Fit out Level7/8 "Loft Apartments - 6 Nos)	115 days	Fri 6/03/20	Thu 27/08/20		0 days																			
1156	Set Out	5 days	Fri 6/03/20	Thu 12/03/20	662	0 days																			
1157	High Level Services Rough-in	5 days	Fri 13/03/20	Thu 19/03/20	1156	0 days																			
1158	Wall framing and Nogging	5 days	Fri 20/03/20	Thu 26/03/20	1157	0 days																			
1159	In wall services	5 days	Fri 27/03/20	Thu 2/04/20	1158	0 days																			
1160	Ceiling Grids and Services	10 days	Fri 3/04/20	Wed 22/04/20	1159	0 days																			
1161	Sheet internal partitions and ceilings	5 days	Thu 23/04/20	Thu 30/04/20	1160	0 days																			
1162	Set and sand wall and ceilings	5 days	Fri 1/05/20	Thu 7/05/20	1161	0 days																			
1163	Sealer coat walls and ceilings	5 days	Fri 8/05/20	Fri 15/05/20	1162	0 days																			
1164	Waterproofing and tiling to wet areas	15 days	Mon 18/05/20	Fri 5/06/20	1163	0 days																			
1165	Joinery, wardrobes, shower screens	15 days	Mon 1/06/20	Tue 23/06/20	1164FS-5 days	0 days																			
1166	Patch and Paint - Final paint coat	5 days	Wed 24/06/20	Tue 30/06/20	1165	0 days																			
1167	Services and carpentry fit off	5 days	Wed 1/07/20	Tue 7/07/20	1166	0 days																			
1168	Floor prep	5 days	Wed 8/07/20	Wed 15/07/20	1167	0 days																			
1169	Floor Finishes	10 days	Thu 16/07/20	Wed 29/07/20	1168	0 days																			

Task	Milestone	Project Summary	Critical Task	Critical Split
Split	Summary	Deadline	Critical	Progress

42 HONEYSUCKLE DRIVE, NEWCASTLE

CONTRACT PROGRAMME RESET FOR SWIMMING POOL + GYM GROUND FLOOR AND 60 SERVICED APARTMENTS INCLUDING 6 DOUBLE STOREY 'LOFT STYLE' APARTMENTS ON LEVELS 5 TO 8
(14-02-2019)

All Tasks

ID	Task Name	Duration	Forecast Start	Forecast Finish	Predecessors	Float	2018					2019					2020					202				
							Mar '18	May '18	Jul '18	Sep '18	Nov '18	Jan '19	Mar '19	May '19	Jul '19	Sep '19	Nov '19	Jan '20	Mar '20	May '20	Jul '20	Sep '20	Nov '20	Jan '21	Mar '21	May '21
1170	First stage clean	5 days	Thu 30/07/20	Wed 5/08/20	1169	0 days																				
1171	Defect list/rectification	10 days	Thu 6/08/20	Thu 20/08/20	1170	0 days																				
1172	Final Clean - Loft Apartments - West L7/L8	5 days	Fri 21/08/20	Thu 27/08/20	1171	0 days																				
1173	Lift Installation	103 days	Tue 3/03/20	Wed 5/08/20		21 days																				
1174	Lifts R1/R2 (MRL Lifts - Access Basement to Level 08)	103 days	Tue 3/03/20	Wed 5/08/20		21 days																				
1175	Builders Work for Lift Shaft	3 days	Tue 3/03/20	Thu 5/03/20	621,80	21 days																				
1176	Handover Lift Shaft to Lift Company	1 day	Fri 6/03/20	Fri 6/03/20	1175	21 days																				
1177	Install Lifts R1 and R 2	40 days	Mon 9/03/20	Fri 8/05/20	1176	21 days																				
1178	Handover as Builders Lift	1 day	Tue 12/05/20	Tue 12/05/20	1177	21 days																				
1179	Handback lift to lift company for Final fit out	1 day	Wed 29/07/20	Wed 29/07/20	1178,1190	37 days																				
1180	Handover Lifts R1/R2 as Permanent Lifts	5 days	Thu 30/07/20	Wed 5/08/20	1179	37 days																				
1181	Lifts H1 and H2 (Access up to Level 04)	28 days	Tue 5/05/20	Tue 16/06/20		72 days																				
1182	Builders Work for Lift Shaft	2 days	Tue 5/05/20	Wed 6/05/20	6	72 days																				
1183	Handover Lift shaft to Lift Company	1 day	Thu 7/05/20	Thu 7/05/20	1182	72 days																				
1184	Install and Commission Lifts P1 and P2 _with Final fit off	25 days	Fri 8/05/20	Tue 16/06/20	1183	72 days																				
1185	Lifts P (Access up to Level 03)	28 days	Tue 5/05/20	Tue 16/06/20		72 days																				
1186	Builders Work for Lift Shaft	2 days	Tue 5/05/20	Wed 6/05/20	6	72 days																				
1187	Handover Lift shaft to Lift Company	1 day	Thu 7/05/20	Thu 7/05/20	1186	72 days																				
1188	Install and Commission Lifts P1 and P2 _with Final fit off	25 days	Fri 8/05/20	Tue 16/06/20	1187	72 days																				
1189	Scar Works (Due to Man / Material Hoist)	50 days	Fri 15/05/20	Tue 28/07/20		21 days																				
1190	Complete Scar Fit out works (depends upon location of Hoist)	50 days	Fri 15/05/20	Tue 28/07/20	391	21 days																				
1191	Roof and Plants	110 days	Mon 21/10/19	Fri 17/04/20		88 days																				
1192	Plants at Level 05 Parking	30 days	Mon 21/10/19	Wed 4/12/19		126 days																				
1193	Water Proof Level 5 Parking	15 days	Mon 21/10/19	Mon 11/11/19	513FS+15 days	126 days																				
1194	Land and Install Plants at Level 5 (Stair press/relief/etc.	15 days	Tue 12/11/19	Wed 4/12/19	1193	126 days																				
1195	Plants at Level 09	25 days	Tue 10/03/20	Fri 17/04/20		56 days																				
1196	Construct Plant Platforms (if required)	5 days	Tue 10/03/20	Mon 16/03/20	622	56 days																				
1197	Water Proof	5 days	Tue 17/03/20	Mon 23/03/20	1196	56 days																				
1198	Install Plants and Commission - Level 09	15 days	Tue 24/03/20	Fri 17/04/20	1197	88 days																				
1199	Install PV Cells over Metal Deck	5 days	Wed 25/03/20	Tue 31/03/20	1197,615,616	55 days																				
1200	Landscaping and Communal Area Works	153 days	Thu 3/10/19	Fri 5/06/20		55 days																				
1201	Level 05 Residential - Communal and Landscaping Works (To be Detailed)	30 days	Wed 25/03/20	Wed 13/05/20	615,616,623,36	72 days																				
1202	Level 4 - Gym	30 days	Wed 25/03/20	Wed 13/05/20	1201SS	72 days																				
1203	Level 2 - F and B (To be detailed)	60 days	Wed 20/11/19	Tue 3/03/20	638	117 days																				
1204	Level 1 Lounge	60 days	Tue 29/10/19	Mon 10/02/20	633	132 days																				
1205	Install canopy	30 days	Thu 3/10/19	Mon 18/11/19	734	136 days																				
1206	GF Landscaping Works	40 days	Fri 3/04/20	Fri 5/06/20	1205,387	55 days																				
1207	Final Services and Commissioning	27 days	Fri 28/08/20	Thu 8/10/20		0 days																				
1208	Stair Pressurization and Final Commissioning	10 days	Fri 28/08/20	Thu 10/09/20	953,791,1194,1	0 days																				
1209	Fire Inspection and Approval Period (2 weeks)	12 days	Fri 11/09/20	Tue 29/09/20	1208	0 days																				
1210	Obtain C of O	5 days	Wed 30/09/20	Thu 8/10/20	1184,1209,118	0 days																				
1211	Practical Completion	0 days	Fri 9/10/20	Fri 9/10/20	1210FS+1 day	0 days																				

Task	Milestone	Project Summary	Critical Task	Critical Split
Split	Summary	Deadline	Critical	Progress

ATTACHMENT B PROJECT CONTACT NUMBERS

CONTACT NAME	ROLE	PHONE NUMBER
Rino Colaci	Project Manager	0467 677 163
Scott Owen	Site Manager	0467 677 611
Zach Douglas	Site Safety Coordinator	0430 654 609
Elliott Scifleet	Project Engineer	0422 458 132
Michelle Whitfield	Cadet	0467 677 376

ATTACHMENT C SITE PLAN

Check all dimensions and site conditions prior to commencement of any work, the purchase or ordering of any materials, fittings, plant, services or equipment and the preparation of shop drawings and or the fabrication of any components.

Do not scale drawings - refer to figured dimensions only. Any discrepancies shall immediately be referred to the architect for clarification.

All drawings may not be reproduced or distributed without prior permission from the architect.

Overall Parking Schedule		
Comments		Subtotal
Accessible Hotel and Public	8	
Accessible Residential	4	
Hotel and Public	121	
Residential	90	
Retail	2	
Visitor	12	
Total Amount	237	

Ground Floor - Carspaces		
Comments		Subtotal
Hotel and Public	24	
Retail	2	
Total Amount	26	

Ground Floor - Motorbikes		
Motorbikes		Subtotal
	1	
Total Amount	1	

Ground Floor - Bicycles		
Comments		Subtotal
Service Apartments - Floor Mount	15	
Service Apartments - Visitor Floor Rail	22	
Total Amount	37	

Legend - General Arrangement Plans

XX-XX	Refer to A20.1 for Materials and Products schedule for code references.
DX-XX	Door Code #
W-XX	Window Code #
---	Property Boundary
---	Penetration Void Zone
---	TGS's
---	Feature Wall - Ventilated (GF Level Only)
---	Planting Zone - Refer to L/Arch Documents
FFL XX-XX	Finished Floor Level
SSL XX-XX	Structural Slab Level
RL XX-XX	Relative Level

NOTE:
Typical ceiling heights:
-Bedrooms, kitchen and living areas: 2.7m clear
-Vest areas: 2.4m clear
-Bulkhead locations below above heights to be confirmed
Refer to AD.05-series for Wall Types
Refer to AD.30 and AD.31-series for Window and Door Types

EXTERIOR DRAINAGE UNDER REVIEW
Hydraulic/Civil input required:
-Ramp landing

Revision Notes:
1. Rooms layouts updated.
2. 'Gear Garage' added. Bike store it replaces moved adjacent primary bike store.
3. Hotel entry lobby (from carpark) rearranged to suit column location.
4. Chute layout revised to suit compactor as per waste consultant's advice.

Typical Cloud - Recorded change	
Revised Cloud - Design under review as noted	

15	27/03/19	ISSUED FOR COORDINATION	JT	DE
14	22/03/19	ISSUED FOR COORDINATION	JT	DE
13	04/03/19	ISSUED FOR DA MODIFICATION	BS	DOAA
12	05/12/18	ISSUED FOR COORDINATION	JT	DE
11	24/01/18	ISSUED FOR COORDINATION	JT	DE
10	16/01/18	ISSUED FOR INFORMATION	JT	DE
9	12/06/18	ISSUED FOR COORDINATION	JT	DE
8	27/06/18	ISSUED FOR 10% TENDER	CQ	DE
7	09/06/18	ISSUED FOR 10% TENDER	CQ	DE
6	11/07/18	ISSUED FOR 30% TENDER	CQ	DE

Revision	Date	Description	Author	Checked
----------	------	-------------	--------	---------

42 Honeysuckle Drive
42 Honeysuckle Drive,
Newcastle

General Arrangement Plan
Ground Floor Plan

Status	CONSTRUCTION DOCUMENTATION		
Scale	1:100	@ A0	
Drawn	Author	Checked	Checker
Project No.	s12109		
Pick Date	27/03/2019 11:46:55 AM		
Pick File	42HONEYSUCKLEDRIVE_ARCH		
Drawing no.	AD.03.101	Revision	15

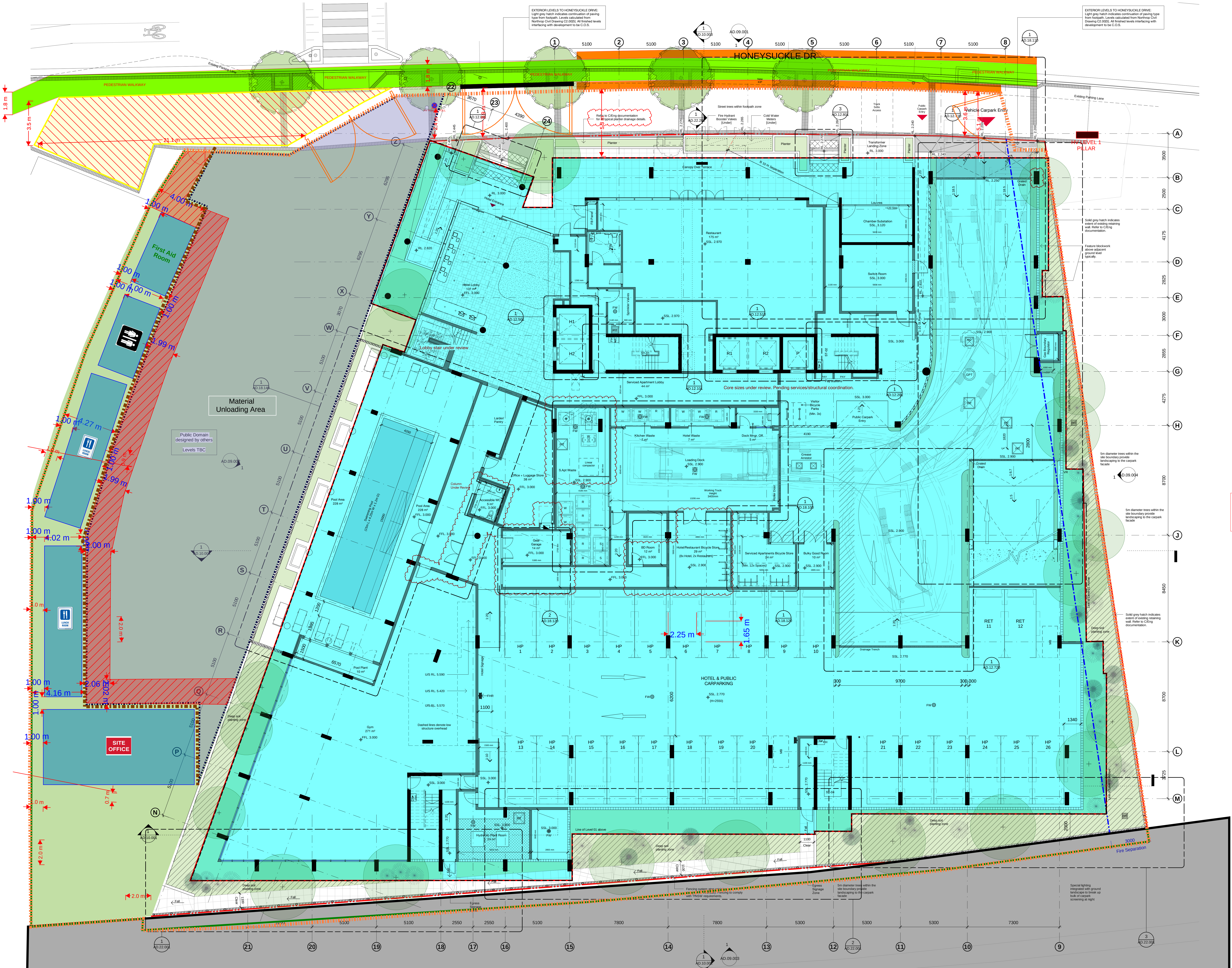
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Bates Smart Pty Ltd ABN 70 004 999 400

NOT FOR CONSTRUCTION

BATESSMART



Light Rail
Corridor

ATTACHMENT D CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

Construction Noise & Vibration Management Plan Mixed-Use Development 42 Honeysuckle Drive Newcastle NSW

July 2018

Prepared for BLOC Pty Ltd
Report No. 18-2220-R1

Building Acoustics - Council/EPA Submissions - Modelling - Compliance - Certification

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EXECUTIVE SUMMARY

Reverb Acoustics has been commissioned to prepare a noise and vibration management plan for the proposed mixed-use development at 42 Honeysuckle Drive, Newcastle. The proposed work will include earthworks, boring of piles, pouring of concrete and erection of structures.

The purpose of this assessment is to determine the noise impact construction activities will have upon nearby neighbours and to recommend practical and cost effective noise control options, where required.

Construction noise and vibration impacts are predicted in **Section 7** where suggested noise reduction measures are recommended for work close to neighbouring buildings in **Section 8**. The majority of potential noise impacts can be overcome by managing and co-ordinating noisy activities during less sensitive time periods and by providing an easily accessible complaints hotline to all concerned parties.

Simultaneous ground vibration monitoring is required when any vibration producing activity is conducted within the safe working distance noted in Table 7. It is also recommended that noise and vibration monitoring should be conducted for any activity identified by the construction/environmental manager that is not specifically mentioned within this report.

Noise control strategies are offered for consideration during the construction project. Suggested strategies include substituting noisy activities with quieter alternatives, requisite time periods for noisy activities, sensible equipment selection, etc.

Subject to noise control recommendations discussed in this report, this assessment has shown that construction of the development should result in only short-term periods of high noise for nearby neighbours, and we therefore recommend that works should proceed.

1 INTRODUCTION

Reverb Acoustics has been commissioned to prepare a Construction Noise and Vibration Management Plan for a proposed mixed-use development at 42 Honeysuckle Drive, Newcastle. Construction activities include some bulk earthworks, followed by boring of piles, pouring of concrete and erection of the structure. No pile driving, ripping, etc, will occur on the site. Early earthworks are expected for a week or two, with a total project duration of more than 26 weeks

The Assessment was requested by BLOC Pty Ltd to satisfy Condition C12 of Development Consent, which requires preparation of a Construction Noise and Vibration Management Plan and to form part of the Construction Environmental Management Plan for construction activities.

2 TECHNICAL REFERENCE / DOCUMENTS

Beranek, L.L and Istvan, L.V. (1992). *Noise and Vibration Control Engineering*. John Wiley and Sons, Inc.

Bies, D.A. and Hansen, C.H. (1996). *Engineering Noise Control: Theory and Practice*. London, E & F.N. Spon.

Hassall, J.R. and Zaveri, K. (1988) *Brüel & Kjaer – Acoustic Noise Measurements*. Denmark, K. Larson and Son.

Harris, C.M. (ed) (1957). *Handbook of Noise Control*. New York, McGraw-Hill.

Peterson, A.P.G. (1980). *Handbook of Noise Measurement*. Massachusetts, Genrad Inc.

Sharland, I. (1998). *Woods Practical Guide to Noise Control*. England, Woods Acoustics

NSW Environment Protection Authority (2009). *Interim Construction Noise Guideline*.

Department of Environment, Climate Change and Water's (2006). *Assessing Vibration: A Technical Guideline*

Renzo Tonin & Associates (9 November 2017). *42 Honeysuckle Drive Newcastle. Acoustic Assessment for Development Application*.

Plans supplied by Bates Smart. Note that variations from design supplied to us may affect the acoustic recommendations.

A Glossary of commonly used acoustical terms is presented in Appendix A to aid the reader in understanding the Report.

3 DESCRIPTION OF PROPOSAL

Anticipated works include bulk earthworks, followed by pouring of concrete and erection of structures.

Initial bulk earthworks are expected to employ an excavator and up to 1-2 trucks. Machines will generally be confined to a small work area as work progresses through each stage of the project. Excavated and filled areas will be balanced, ensuring little or no material will need to be transported from the site. Any material that must be ferried from the site will occur in registered single steer trucks. Anticipated construction hours are 7am to 6pm Monday to Friday and 8am to 1pm on Saturday, with no construction permitted on Sundays or public holidays. Nearest receivers are labelled on Figure 1 below:

Figure 1: Site Plan



4 EXISTING ACOUSTIC ENVIRONMENT

Long-term background noise level measurements were conducted by Renzo Tonin & Associates as part of the Noise Impact Assessment for the site. The following background noise levels were determined as part of the assessment:

Day	52dB(A),L90	7am-6pm
Evening	52dB(A),L90	6pm-10pm
Night	46dB(A),L90	10pm-7am

5 ASSESSMENT CRITERIA

5.1 Construction Noise – Residential Receivers

Various authorities have set maximum limits on allowable levels of construction noise in different situations. Arguably the most universally acceptable criteria, and those which will be used in this Report, are taken from the NSW Environment Protection Authority's (EPA's) Interim NSW Construction Noise Guideline (ICNG). Since the project involves a significant period of construction activity, a "quantitative assessment" is required, i.e. comparison of predicted construction noise levels with relevant criteria. For assessment of noise impacts at residential receivers Table 3 of the ICNG is reproduced below in Table 1:

Table 1: - Table 3 of ICNG Showing Relevant Criteria at Residences

Time of Day	Management Level Leq (15min)	How to Apply
Recommended Standard Hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or Public holidays	Noise affected RBL +10dB(A) i.e. 62dB(A) day	- The noise affected level represents the point above which there may be some community reaction to noise. - Where the predicted or measured LAEQ (15min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to minimise noise. - The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details
	Highly noise affected 75dB(A)	- The highly noise affected level represents the point above which there may be strong community reaction to noise. - Where noise is above this level, the proponent should consider very carefully if there is any other feasible and reasonable way to reduce noise to below this level. - If no quieter work method is feasible and reasonable, and the works proceed, the proponent should communicate with the impacted residents by clearly explaining duration and noise level of the works, and by describing any respite periods that will be provided.
Outside recommended Standard hours	Noise affected RBL +5dB(A)	- A strong justification would typically be required for works outside the recommended standard hours. - Proponent should apply all feasible and reasonable work practices to meet the noise affected level. - Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community. - For guidance on negotiating agreements see Section 7.2.2

Section 4.2 of the ICNG also specifies the following external noise level limits for commercial and industrial premises.

Industrial premises	75dB(A), Leq (15 min)
Offices, retail outlets	70dB(A), Leq (15 min)

Construction will only occur during standard construction hours, i.e. 7am to 6pm Monday to Friday and 8am to 1pm on Saturday, with no construction permitted on Sundays or public holidays. Table 2 relevant for potentially affected existing receivers (also see Figure 1).

Table 2: Criteria Summary

Assessment Location	Standard Construction Hours		Outside Standard Hours
	Noise Affected	Highly Noise Affected	
R3 – Residential Dev'p	62	75	57/51 #
R1,R2 – Commercial Dev'p	70	75	70

#Evening and night periods.

5.2 Construction Vibration

Personal Comfort

The majority of maximum limits on allowable ground and building vibration in different circumstances and situations are directed at personal comfort rather than building damage. This usually leads, in virtually every situation, to people who interpret the effects of a vibration to ultimately determine its acceptability. The ICNG recommends that the EPA guideline, *Assessing Vibration: A Technical Guideline (2006)*, should be used for assessing construction vibration. Limits set out in the Guideline are for vibration in buildings, and are directed at personal comfort for continuous, impulsive and intermittent vibrations. Table 3 shows the Vibration Dose Values for intermittent vibration activities such as pile driving and use of vibrating rollers etc, taken from Table 2.4 of the Guideline, above which various degrees of adverse comment may be expected.

**Table 3: Acceptable Vibration Dose Values (m/s^{1.75})
Above which Degrees of Adverse Comment are Possible**

Location	Day (7am-10pm)		Night (10pm-7am)	
	Preferred	Maximum	Preferred	Maximum
Critical areas #	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Hospital operating theatres, precision laboratories, etc.

Building Safety:

Other criteria specifically dealing with Building Safety Criteria include Australian Standard AS2187.2-1993, dealing specifically with blasting vibration, specifies a maximum peak particle velocity of 10mm/sec for houses and a preferred limit of 5mm/sec where site specific studies have not been undertaken.

German Standard DIN 4150 - 1986, Part 3 Page 2, specifies a maximum vibration velocity of 5 to 15 mm/sec in the foundations for dwellings and 3 to 8 mm/sec for historical and sensitive buildings, for the range 10 to 50Hz. British Standard BS 7385 Part 2, specifies a maximum vibration velocity of 15mm/sec at 4Hz increasing to 20mm/sec at 15Hz increasing to 50mm/sec at 40Hz and above, measured at the base of the building.

Additionally, The Australian and New Zealand Environment Conservation Council (ANZECC) guideline "*Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration*" limit peak particle velocities from blasting to below 5mm/sec at residential receivers, with a long term regulatory goal of 2mm/sec.

The above listed criteria vary from 3mm/sec up to 15mm/sec, therefore, the more conservative limit of **3mm/sec** will be adopted for the purposes of Building Safety Criteria. It should be acknowledged, however, that intermittent ground vibration velocities at 5mm/sec are generally considered the threshold at which architectural (cosmetic) damage to normal dwellings may occur and velocities at 10mm/sec should not cause any significant structural damage, with the exception of the most fragile and brittle of buildings.

REVERB ACOUSTICS

6 METHODOLOGY

Future noise and vibration sources on the site cannot be measured at this time, consequently noise and vibration levels produced by plant and machinery to be used on the site have been sourced from manufacturers' data and/or our library of technical data, which has been accumulated from measurements taken in many similar situations on other sites for others.

All noise level measurements were taken with a Svan 912A Sound & Vibration Analyser. This instrument has the capability to measure steady, fluctuating, intermittent and/or impulsive sound, and to compute and display percentile noise levels for the measuring period. A calibration signal was used to align the instrument train prior to measuring and checked at the conclusion. Difference in the two measurements was less than 0.5dB. Each measurement was taken over a representative time period to include all aspects of machine/process operation, including additional start-up noise where applicable. Sound measurements were generally made around all sides of each machine, to enable the acoustic sound power (dB re 1pW) to be calculated. The sound power level is then theoretically propagated to the receiver, with allowances made for spherical spreading.

Atmospheric absorption, directivity and ground absorption have been ignored in the calculations. As a result, predicted received noise levels are expected to slightly overstate actual received levels, thus providing a measure of conservatism. Addition of the received Sound Pressure Level (SPL) for each of the individual operating sources gives the total SPL at each receiver, which is then compared to the criteria. Where noise impacts above the criterion are identified, suitable noise control measures are implemented and reassessed to demonstrate satisfactory received noise levels.

Typical vibration levels for construction activities were measured at other sites for various ground types and situations primarily using a Vibroch V801 Seismograph coupled to a triaxial geophone. A sandbag was placed over the geophone or it was glued to the surface location during each measurement to ensure elevated readings were not recorded due to bouncing and movement, which may occur at higher vibration amplitudes. The unit is capable of measuring and storing peak Z-axis vibration velocities, as well as vibration in three directions simultaneously and gives peak velocity and acceleration on the x, y and z axes.

This theoretical assessment is based on a worst-case scenario, where all plant items are operating simultaneously in locations most exposed to the receiver. In reality, most plant will be located in shielded areas, so actual received noise is expected to be less than the predictions shown in this report, or at worst equal to the predicted noise levels for only part of the time.

7 ANALYSIS AND DISCUSSION

7.1 Predicted Noise levels - Construction Plant and Equipment

Received noise produced by anticipated construction activities is shown in Table 4 below, for a variety of distances to a typical receiver, with no noise barriers or acoustic shielding in place and with each item of plant operating at full power. Entries in bold type highlight exceedances of the day Highly Noise Affected criteria of **75dB(A),Leq**.

Table 4: Predicted Plant Item Noise Levels, dB(A)Leq

Plant/Activity	(Lw)	Distance to Residence			
		40m	80m	100m	200m
Tower crane	(104)	64	58	56	50
Hammering	(98)	58	52	50	44
Angle grinder	(106)	66	60	58	52
Air wrench (silenced)	(98)	58	52	50	44
Compactor	(111)	71	65	63	57
Road truck	(104)	64	58	56	50
Grader	(102)	62	56	54	48
Air compressor	(98)	58	52	50	44
Concrete Agitator	(112)	72	66	64	58
Concrete Pump	(110)	70	64	62	56
Pile boring machine	(112)	72	66	64	58
Excavator	(104)	64	58	56	50

7.2 Predicted Noise Impacts

Residential apartments are within 40-50 metres of the site and some construction activities are expected to exceed the criteria, particularly mobile plant. Noise levels above 70dB(A) are possible at closest locations, and community reaction is possible. The ICNG recommends that as a first course of action, consideration should be given as to whether any alternate feasible or reasonable method of construction is possible. Consultation with the construction contractor confirms that due to the nature of ground conditions there are no quieter alternates available. The ICNG further recommends that when alternate feasible and reasonable options have been considered the proponent then should communicate with the impacted residents by clearly explaining the duration and noise level of the works, and any respite periods that will be provided. These strategies will be discussed in more detail in Section 8.

When pile boring occurs noise levels in the order of 69-72dB(A) are possible at nearest locations, which we acknowledge is high. To reduce noise levels any appreciable amount a physical barrier would be required to intercept the line of site between the source and receivers. We suggest that temporary acoustic barriers between the source and receiver. Placing shipping containers or similar moveable barriers adjacent to a rig is another practical method of noise control. Note that barriers will not be required in situations where intervening structures provide acoustic barriers between the source and receiver. The above strategies may reduce noise levels at residential locations by up to 10dB(A),

It should be noted that calculations are based on plant items operating in exposed locations and at full power, with no allowances made for intervening topography or shielding provided by intervening structures. Cumulative impacts, from several machines operating simultaneously, may be reduced when machines are operating in shielded areas not wholly visible to receivers. In saying this, if two or more machines were to operate simultaneously on the site, received noise levels would be raised and higher exceedances may occur.

Initial earthworks are expected to employ an excavator, and 1-2 dump trucks. The combined acoustic power level of these machines, assuming normal contractor's machines up to 10 years old in reasonably good condition, is expected to be in the range 100 to 104B(A),Leq. However, the machines will typically be spread over the site, and noise at any receiver is typically dominated by the few closest machines, such as an excavator loading a truck, while a second truck reverses into position to be loaded by an excavator. With a combined acoustic power level of 102 dB(A) for 3 typical machines operating at full power, above 60dB(A) is expected at the closest residence during peak activity.

Constructing temporary barriers of plywood, excess fill, etc, at least 2m high, at the perimeter of the construction site (or at least adjacent to noisy plant items) may be considered for mitigating some of the construction noise at nearest receivers. These barriers will offer the additional benefit of securing the site from unwanted visitors. With barriers in place, worst case construction will reduce by up to 10dB(A), although, as previously stated, these noise levels are expected to occur for a relatively short time and reduce as work progresses to a new area.

It should be acknowledged that construction activities that produce higher noise for a shorter period are often more desirable than alternate construction techniques that produce lower noise for a much longer period. This combined with noise control strategies discussed in Section 8 will ensure that minimum disruption occurs.

7.3 Predicted Vibration Impacts

Occupants of nearby buildings may also have concerns about ground vibration levels from vibrating machinery (excavators, compactors, etc). Ground vibration measurements carried out previously, on other sites, can be used to indicate the likely range of vibration levels produced by construction activities. Previous results do not necessarily apply to this site without considering influencing factors such as ground resonant frequency, energy produced, etc. Table 5 lists the results of previous vibration measurements, with each measurement corrected to a standard distance of 20m to represent nearest residential receivers.

Table 5: Average Maximum Ground Vibration Measurement Results, mm/s Peak.

Ground Type	Measured Distance to Vibration mm/sec	Minimum 40m to Receiver mm/sec
Excavator on clay soil	80m, 0.012	0.14
Excavator on dry alluvial soil	15m, 0.23	0.16
Excavator on wet alluvial soil	10m, 0.52	0.28
Road truck on potholes	10m, 0.15-2.7	0.1-1.2
Compactor on clay	40m, 0.20	0.20

Measured at construction sites in Newcastle CBD.

Table 5 shows a variety of vibration levels mainly due to differences in ground conditions from one site to the next. The Table shows a marked difference between clay and dry ground, with low resulting vibration, and water saturated ground with vibration levels an order of magnitude higher. Results from measurements on wet alluvial or clay soil are likely to apply to the site.

Since vibration varies over time for each process the EPA Guideline recommends that the following formula be used to estimate the vibration dose at the receiver location:

Equation 1:
$$eVDV = 1.4 \times a \times t^{0.25}$$

where: k is nominally 1.4 for crest factors below 6 a_{rms} = weighted rms accel (m/s²)
 t = total cumulative time (seconds) of the vibration event(s)

The following estimated vibration doses are expected at nearest receivers:

	eVDV
Excavator	0.18
Compactor	0.24

Based on the above results, adverse comment is possible, particularly when earthworks take place. We therefore recommend that these activities are not carried out unless simultaneous attended vibration monitoring is conducted when within safe working distances noted in Table 7. As previously stated, in many cases higher levels of vibration (and noise) are preferable that occur for only a short period of time than processes producing lower amplitudes for a much longer time period.

The effect of vibration in a building is observed in two ways, namely, it is felt by the occupant, or it causes physical damage to the structure. Subjective detection can be one of direct perception from rattling of windows and ornaments, or dislodgement of hanging pictures and other loose objects. The second is structural damage which may be either architectural (or cosmetic) such as plaster cracking, movement or dislodgement of wall tiles, cracked glass etc, or major such as cracking walls, complete falls of ceilings, etc, which is generally considered to impair the function or use of the dwelling. Vibration can be felt at levels well below those considered to cause structural damage. Complaints from occupiers are usually due to the belief that if vibration can be felt then it is likely to cause damage. Slamming of doors or footfall within a building can produce vibration levels above those produced by construction activities.

Any future structural damage, whether cosmetic or major, which may occur to any building will only be a result of natural causes such as differential settlement of foundations (particularly if on poorly compacted fill), expansion and contraction cycles due to changes in temperature, shrinkage due to drying out of timber framing and pre-stressed areas of the building. Obvious structural damage from any of these sources can usually be identified with the particular cause. Generally, one particular source is not the cause of damage to a structure, but rather a combination of two or more.

Vibration levels are unlikely to cause direct failure, and it is considered the main action is triggering cracks in materials already subjected to stress or natural forces, however, as previously mentioned, this may also arise from internal forces such as slamming of doors. In our experience, vibration will only begin to trigger "natural cracking" at levels above 1mm/sec. Findings by the Road Research Laboratory in the early 1970's, reproduced in Table 6, gives an indication of the effects from varying magnitudes of vibration.

Table 6: Reaction of People and Damage to Buildings

Peak Vel (mm/s)	Human Reaction	Effect on Buildings
0 to 0.15	Imperceptible by people – no intrusion	Highly unlikely to cause damage
0.15 to 0.3	Threshold of perception – possibility of intrusion	Highly unlikely to cause damage
2.0	Vibrations perceptible	Recommended upper level of vibration for historical buildings
2.5	Level at which vibration becomes annoying	Very little risk of damage
5	Annoying to occupants	Threshold at which the risk of damage to houses is possible
10 to 15	Vibrations considered unpleasant and unacceptable	Will cause cosmetic damage and possibly structural damage

Construction noise and vibration strategies are discussed in detail in Section 8.

8 CONSTRUCTION NOISE & VIBRATION CONTROL STRATEGIES

8.1 Noise & Vibration Monitoring Program

We recommend that attended noise and vibration should be carried out at commencement of each process/activity that has the potential to produce excessive noise and/or vibration. Attended monitoring offers the advantage of immediate identification of noise or vibration exceedances at the receiver and ameliorative action required to minimise the duration of exposure. Unattended long-term monitoring only identifies a problem at a later date and is not recommended. Table 7 should be used as a guide for the construction team to consider and follow. When the nominated activity occurs within the safe working distance, attended vibration monitoring should be conducted at the relevant receiver type. It is usual practice to conduct attended noise monitoring in conjunction with vibration monitoring, as activities that produce high vibration amplitudes also regularly produce high levels of noise.

Table 7: Vibration Monitoring Program - Minimum Distance when Monitoring is Required

Activity/Process	Receiver Type	Distance to Receiver (m)
Tracked machine	Heritage structure	40
	Residential building	20
	Commercial	10
Pile boring	Heritage structure	40
	Residential building	20
	Commercial	10
Crane	Heritage structure	20
	Residential building	10
	Commercial	5
Concrete pours	Heritage structure	20
	Residential building	10
	Commercial	5
Truck movements	Heritage structure	20
	Residential building	10
	Commercial	5

Note: Attended vibration monitoring should also be conducted for other activities identified by the contractor that have the potential to create vibration, not noted in the above Table.

8.2 Vibration Management Strategies

In addition to vibration monitoring, the following management strategies should also be considered:

Dilapidation Survey: We understand that this has been done as part of the management process.

Monitoring Changes in Building: Use of callipers, tell tales, etc, prior to commencement of major vibration generating works.

Underpinning, Reinforcement, Bracing, etc: Additional structural support to adjoining buildings, excavations, etc.

8.3 Equipment Selection

All combustion engine plant, such as generators, compressors and welders, should be carefully checked to ensure they produce minimal noise, with particular attention to residential grade exhaust silencers and shielding around motors.

Trucks and other machines should not be left idling unnecessarily, particularly when close to residences. Machines found to produce excessive noise compared to industry best practice should be removed from the site or stood down until repairs or modifications can be made. Framing guns and impact wrenches should be used sparingly, particularly in elevated locations, with assembly of modules on the ground preferred.

Table 8 shows some common construction equipment, together with noise control options and possible alternatives.

Table 8 - Noise Control, Common Noise Sources

Equipment / Process	Noise Source	Noise Control	Possible Alternatives
Compressor Generator	Engine	Fit residential muffler. Acoustic enclosure.	Electric in preference to petrol/diesel. Plant to be Located outside building Centralised system.
	Casing	Shielding around motor.	
Concrete breaking Drilling Core Holing	Hand piece	Fit silencer, reduces noise but not efficiency Enclosure / Screening	Use rotary drill or thermic lance (used to burn holes in and cut concrete) Laser cutting technology
	Bit	Dampened bit to eliminate ringing. Once surface broken, noise reduces. Enclosure / Screening.	
	Air line	Seal air leaks, lag joints	
	Motor	Fit residential mufflers.	
Drop/Circular saw Brick saw	Vibration of blade/product.	Use sharp saws. Dampen blade. Clamp product.	Use handsaws where possible. Retro-fitting.
Hammering	Impact on nail		Screws
Brick bolster	Impact on brick	Rubber matting under brick	Shielded area.
Rotary drills Boring	Drive motor and bit.	Acoustic screens and enclosures	Thermic lance Laser cutting technology.
Explosive tools (i.e. ramset gun)	Cartridge explosion	Use silenced gun	Drill fixing.
Material handling	Material impact	Cushioning by placing mattresses, foam, waffle matting on floor. Acoustic screening.	
Waste disposal	Dropping material in bin, trolley wheels.	Internally line bins/chutes with insertion rubber, conveyor belting, or similar.	
Dozer, Excavator, Truck, Grader, Crane	Engine, track noise	Residential mufflers, shielding around engine, rubber tyred machinery.	
Pile driving/boring	Hammer impact engine	Shipping containers between pile & receiver	Manual boring techniques

Note: Generally, noise reductions of 7-10dB will be achieved with the use of barriers, 15-30dB by enclosures, 5-10dB from silencers and up to 20-25dB by substitution with an alternate process.

8.4 Acoustic Barriers/Screening

To minimise noise impacts during construction, early work should concentrate on grading and levelling the areas closest to buildings. In the event of complaints arising from occupants of nearby buildings, we offer the following additional strategies for consideration:

- Place acoustic enclosures or screens directly adjacent to stationary noise sources such as compressors, generators, drill rigs, etc.
- Temporary barriers of plywood, excess fill, etc, at least 2m high, at the perimeter of the construction site

8.5 Consultation/Complaints Handling Procedure

The construction contractor should analyse proposed noise control strategies in consultation with the Acoustic Consultant as part of project pre-planning. This will identify potential noise problems and eliminate them in the planning phase prior to site works commencing.

Occupants of nearby buildings should be notified of the intended construction timetable and kept up to date as work progresses, particularly as work changes from one set of machines and processes to another. In particular, occupants should understand how long they will be exposed to each source of noise and be given the opportunity to inspect plans of the completed development. Encouraging resident understanding and "participation" gives the local community a sense of ownership in the development and promotes a good working relationship with construction staff. Programming noisy activities (such as sheet piling) outside critical times for court buildings should be arranged.

We recommend that construction noise management strategies should be implemented to ensure disruption to the occupants of nearby buildings is kept to a minimum. Noise control strategies include co-ordination between the construction team and building occupants to ensure the timetable for noisy activities does not coincide with sensitive activities.

The site manager/environmental officer and construction contractor should take responsibility and be available to consult with community representatives, perhaps only during working hours. Response to complaints or comments should be made in a timely manner and action reported to the concerned party.

All staff and employees directly involved with the construction project should receive informal training with regard to noise control procedures. Additional ongoing on the job environmental training should be incorporated with the introduction of any new process or procedure. This training should flow down contractually to all sub contractors.

8.6 Risk Assessment

A risk assessment should be undertaken for all noisy activities and at the change of each process. This will help identify the degree of noise and/or vibration impact at nearby receivers and ameliorative action necessary. A sample Risk Assessment Check Sheet is included in Appendix B as a guide.

9 CONCLUSION

During construction the total impact at each receiver is related to the received noise level and the duration of excessive noise. Generally, construction noise will comply with the criteria, however, during major construction activities some exceedances are expected to occur. However, nearby neighbours should accept some periods of high noise, considering the relatively short-term nature of louder construction activities.

To reduce the impact in the area during construction, we recommend that louder construction activities, should be completed with the minimum of undue delay. In any case, all reasonable attempts should be made to complete significant noisy activities within as short a time as possible.

As previously stated, construction activities that produce higher noise for a shorter period are often more desirable than alternate construction techniques that produce lower noise for a much longer period

Construction activities should generally be restricted to the nominated hours. If construction does occur outside the standard hours, it is vital that the local community be informed of the construction timetable with letter drops, meetings, etc.

Significant variation in measured vibration levels may occur due to site specific conditions such as the ground resonant frequency, driving frequency of equipment and energy of the associated process. Therefore, a regular noise and vibration monitoring program should be implemented, as described in Table 7. This program will verify our predictions and in the event that complaints may arise, enable strategies to be implemented, where required.

To minimise the chances of disruption to neighbours from excessive vibration (i.e. during site preparation, pile boring, etc), activities should not occur within the distances nominated in Table 7, unless simultaneous vibration and noise monitoring is carried out. Similarly, two compactors should not be operated in tandem over any part of the site, unless simultaneous attended vibration monitoring is conducted at the nearest receiver(s). Where practicable, required compaction should be achieved by heavy non-vibrating equipment.

We conclude, with a high degree of confidence, that vibration levels at the predicted magnitudes will not cause direct structural damage to any building. We suspect any damage that may occur to nearby buildings during construction activities would be the result of natural forces, as discussed in the previous section. It should be noted, however, that vibration may be noticed at times while a person is standing or seated quietly. Other noticeable indicators are rattling of window frames and ornaments, and visible movement of hanging pictures, etc.

Subject to recommendations discussed within this report, this assessment has shown construction activities will result in only short periods of excessive noise in the surrounding area. Therefore, with the proposed noise control and management measures incorporated into construction of the site, we see no acoustic reason why the proposal should not proceed.

Steve Brady M.A.S.A. A.A.A.S.
Principal Consultant

APPENDIX A

Definition of Acoustic Terms

Definition of Acoustic Terms

Term	Definition
dB(A)	A unit of measurement in decibels (A), of sound pressure level which has its frequency characteristics modified by a filter ("A-weighted") so as to more closely approximate the frequency response of the human ear.
ABL	<i>Assessment Background Level</i> – A single figure representing each individual assessment period (day, evening, night). Determined as the L90 of the L90's for each separate period.
RBL	<i>Rating Background Level</i> – The overall single figure background level for each assessment period (day, evening, night) over the entire monitoring period.
Leq	Equivalent Continuous Noise Level - which, lasting for as long as a given noise event has the same amount of acoustic energy as the given event.
L90	The noise level which is equalled or exceeded for 90% of the measurement period. An indicator of the mean minimum noise level, and is used in Australia as the descriptor for background or ambient noise (usually in dBA).
L10	The noise level which is equalled or exceeded for 10% of the measurement period. L ₁₀ is an indicator of the mean maximum noise level, and is generally used in Australia as the descriptor for intrusive noise (usually in dBA).

APPENDIX B

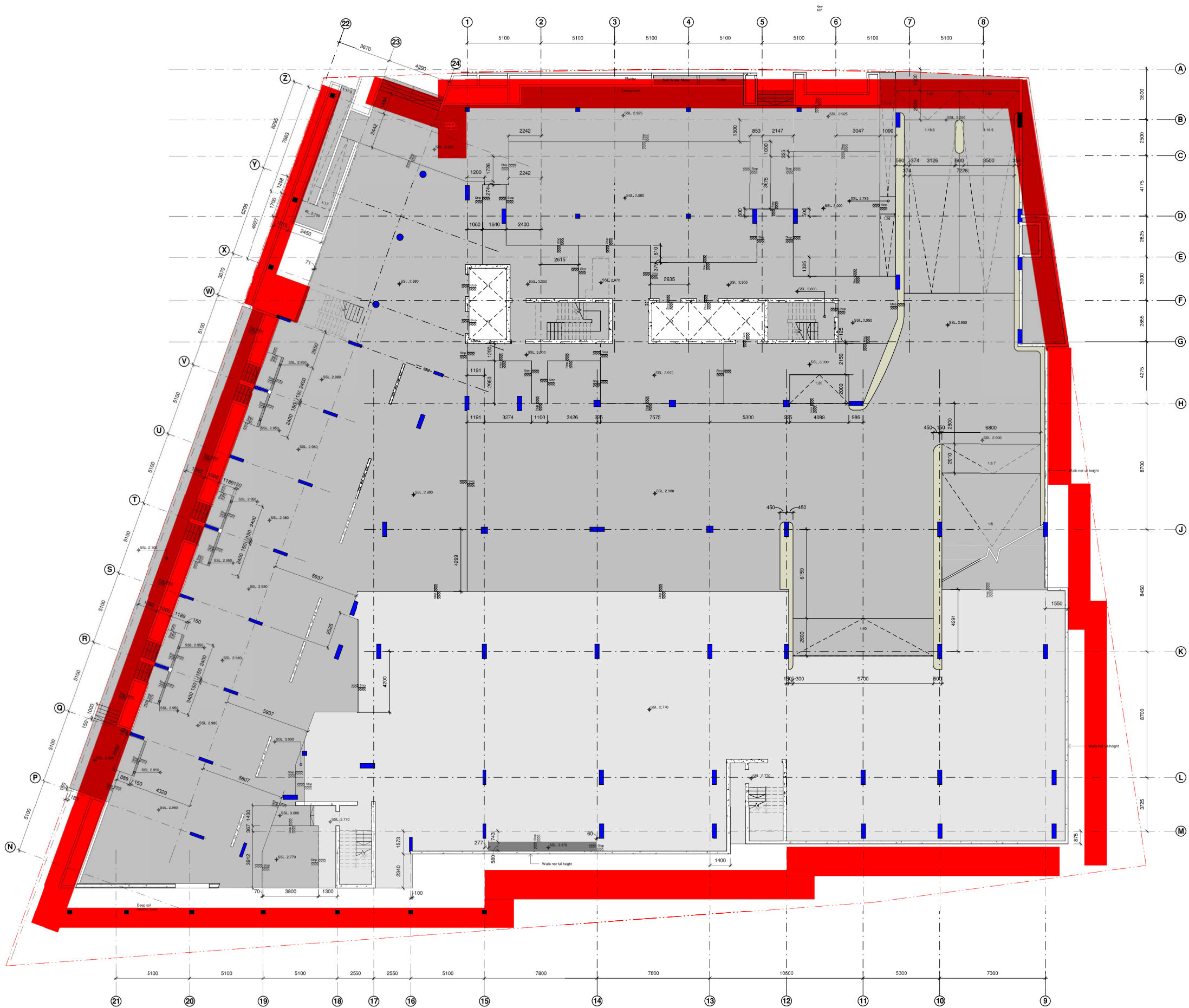
Risk Assessment Checklist

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ATTACHMENT E PROPOSED SCAFFOLD PLAN

Legend

- Residential Facade Fins - Precast Concrete
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1 Plan
Ground Floor
1 : 100

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Ground Floor

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Revision	1

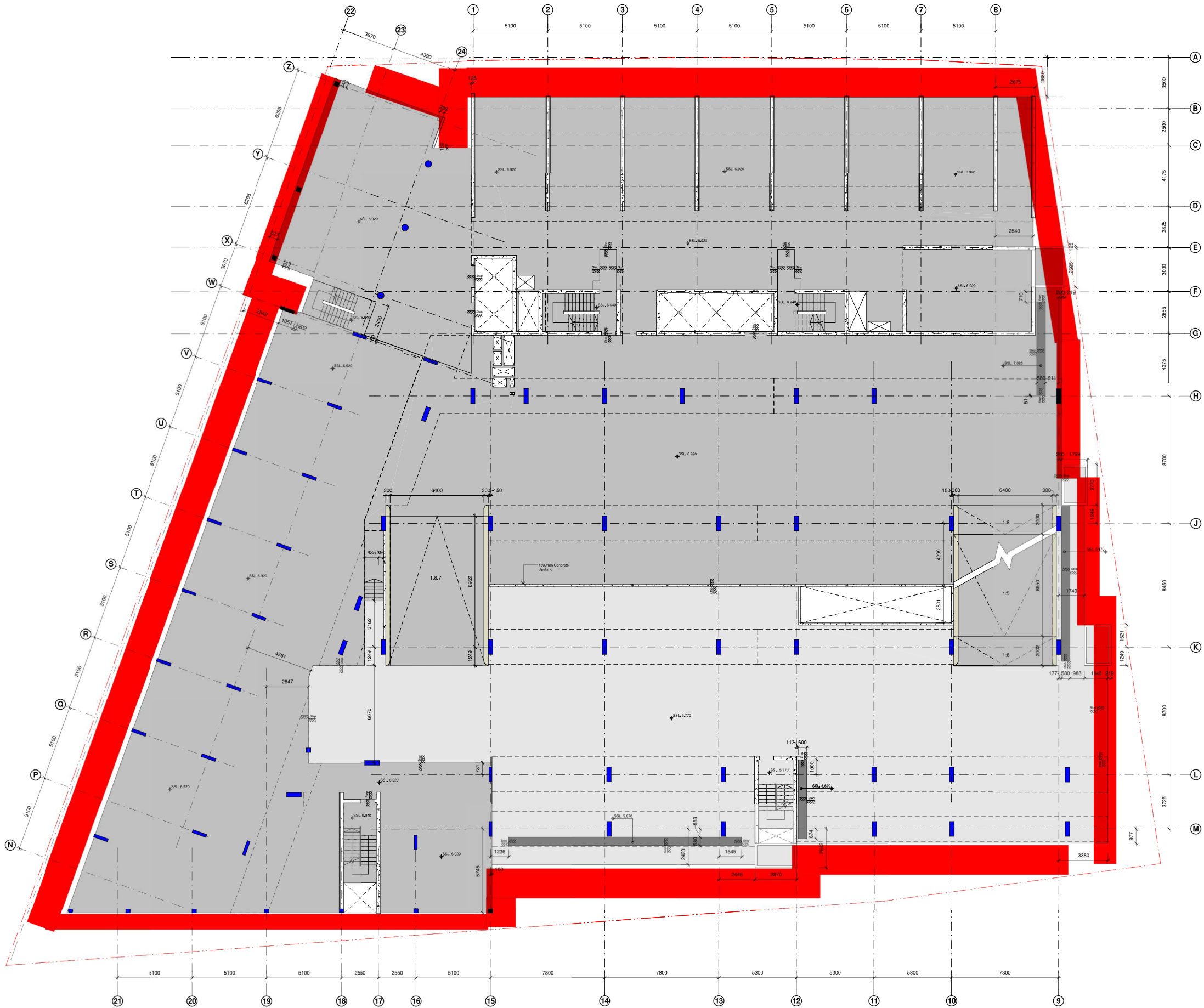
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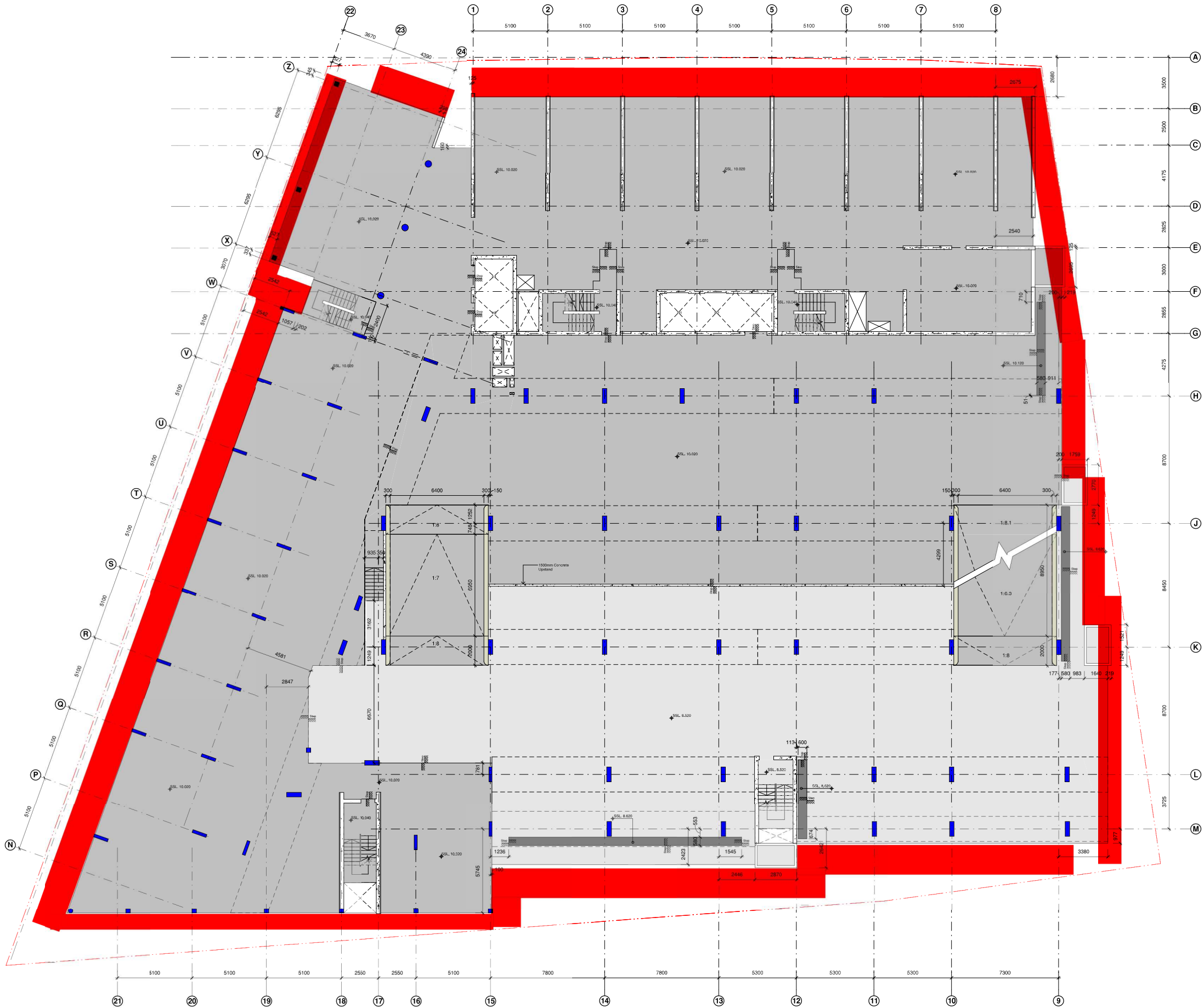
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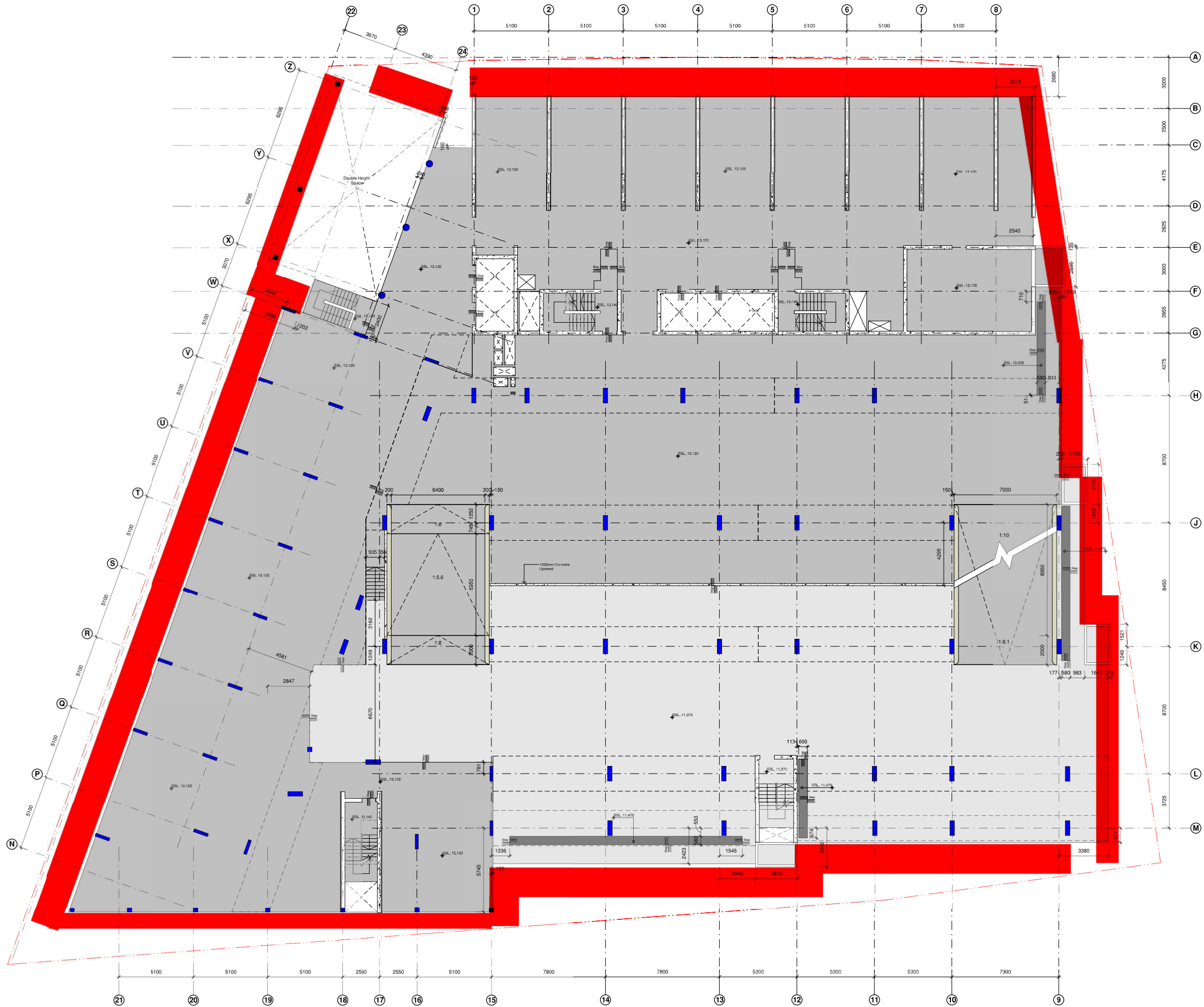
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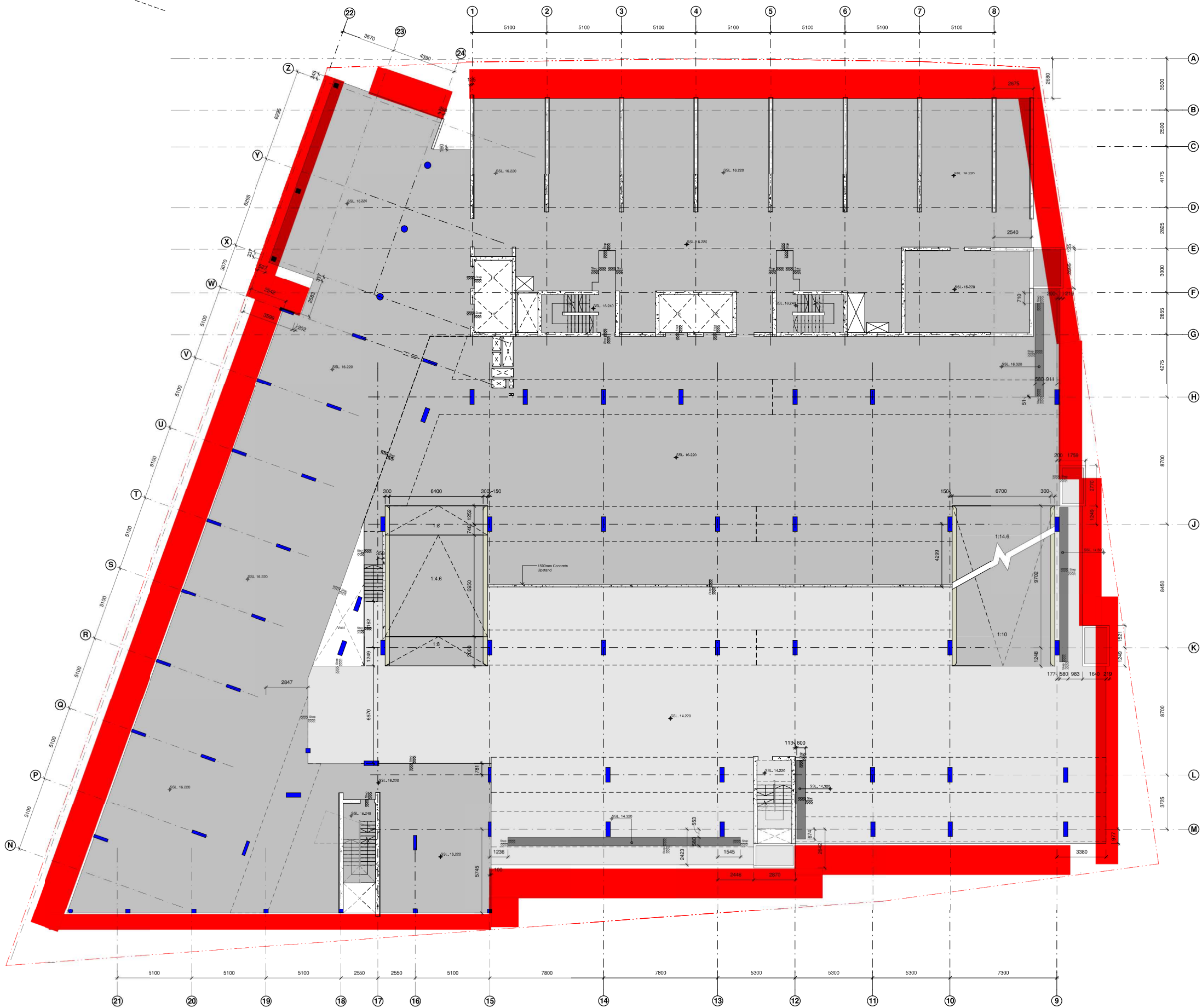
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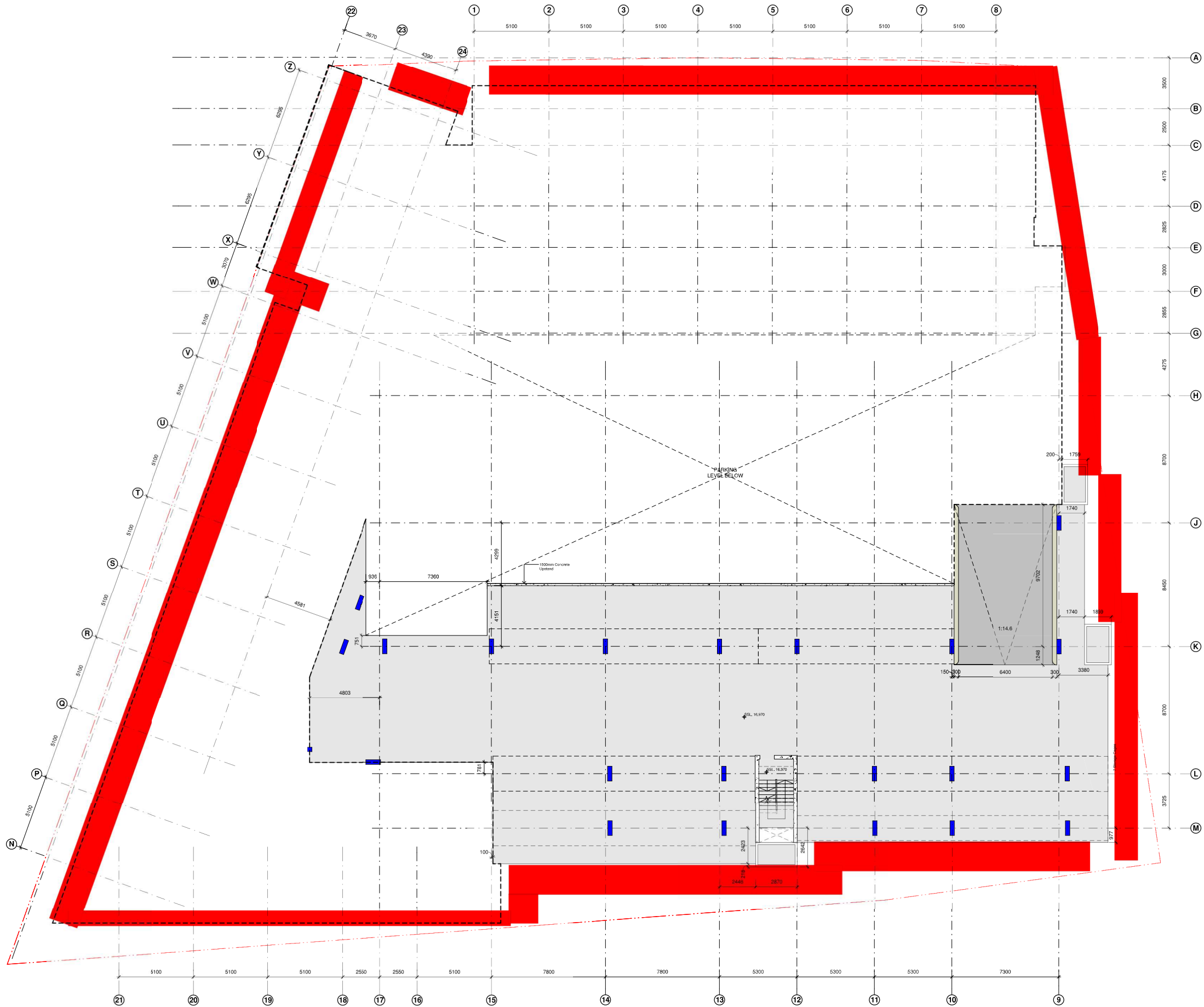
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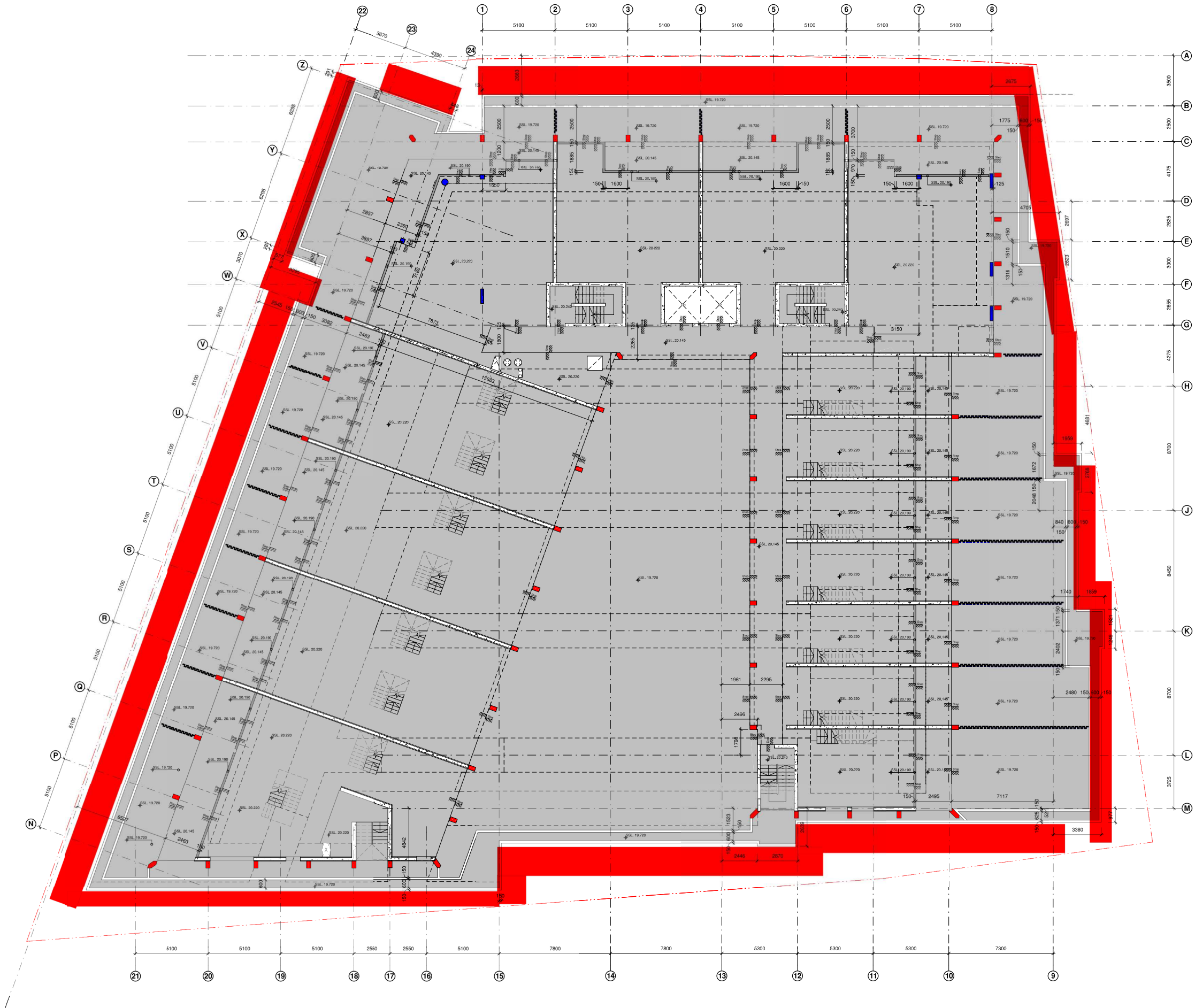
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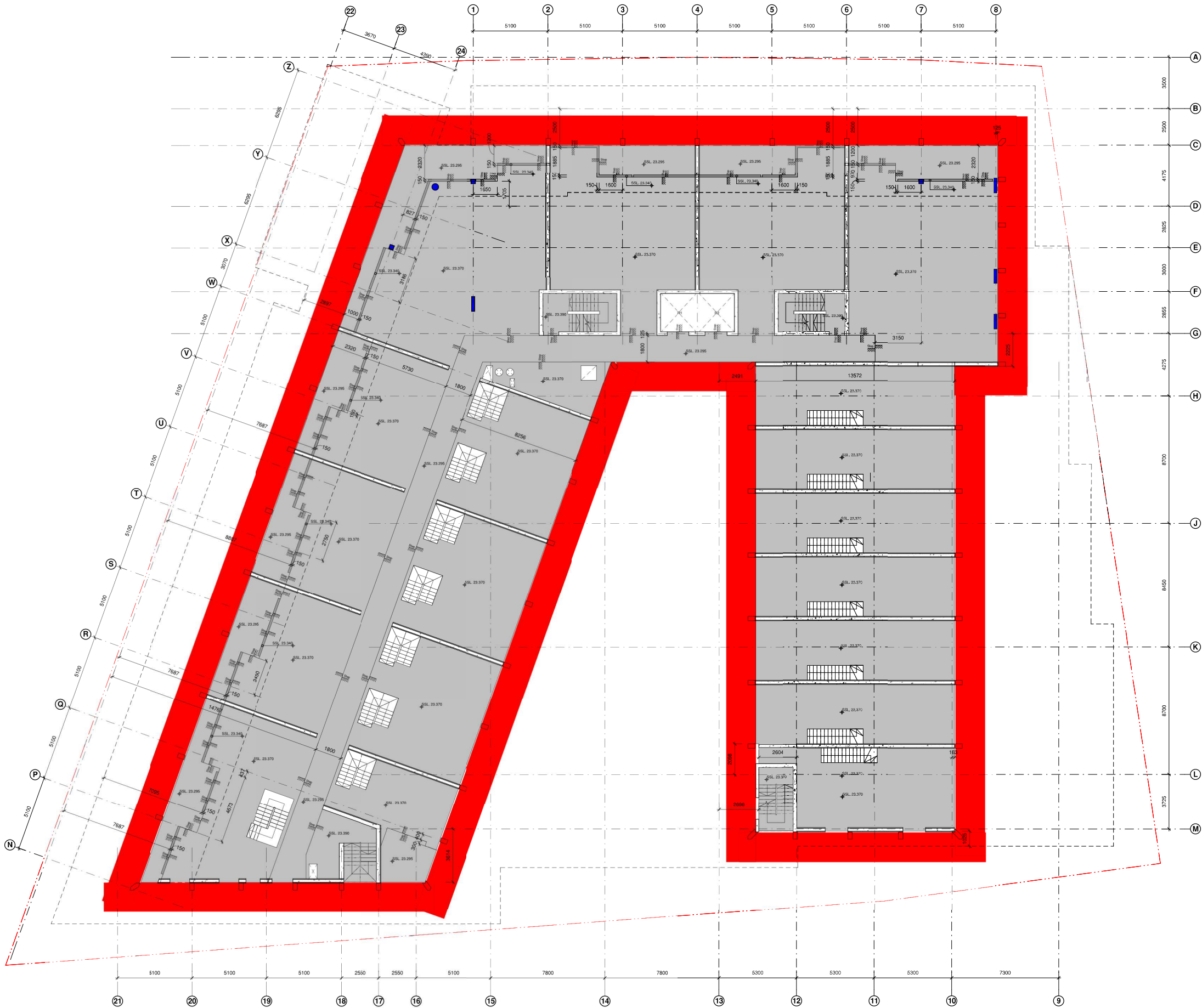
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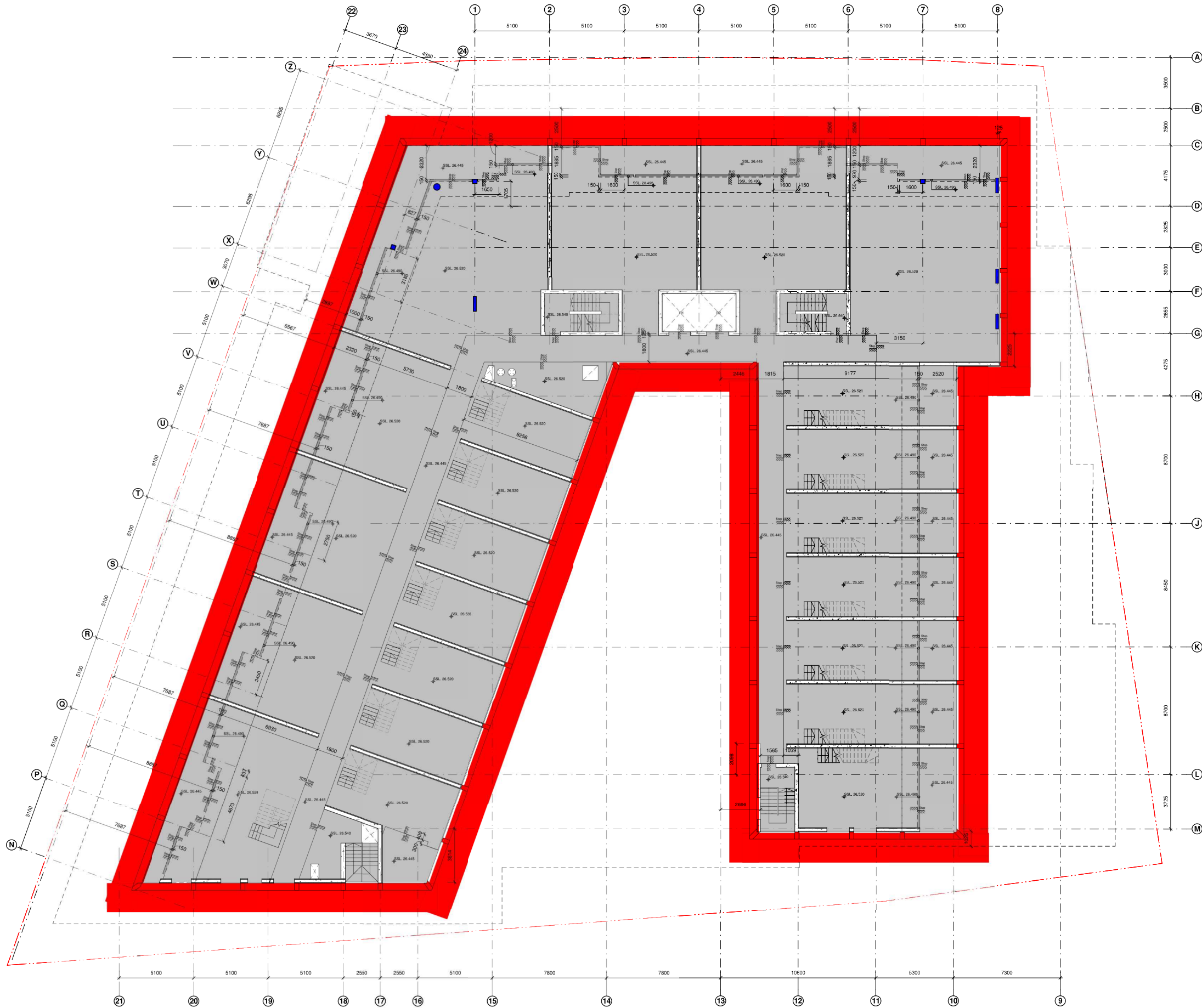
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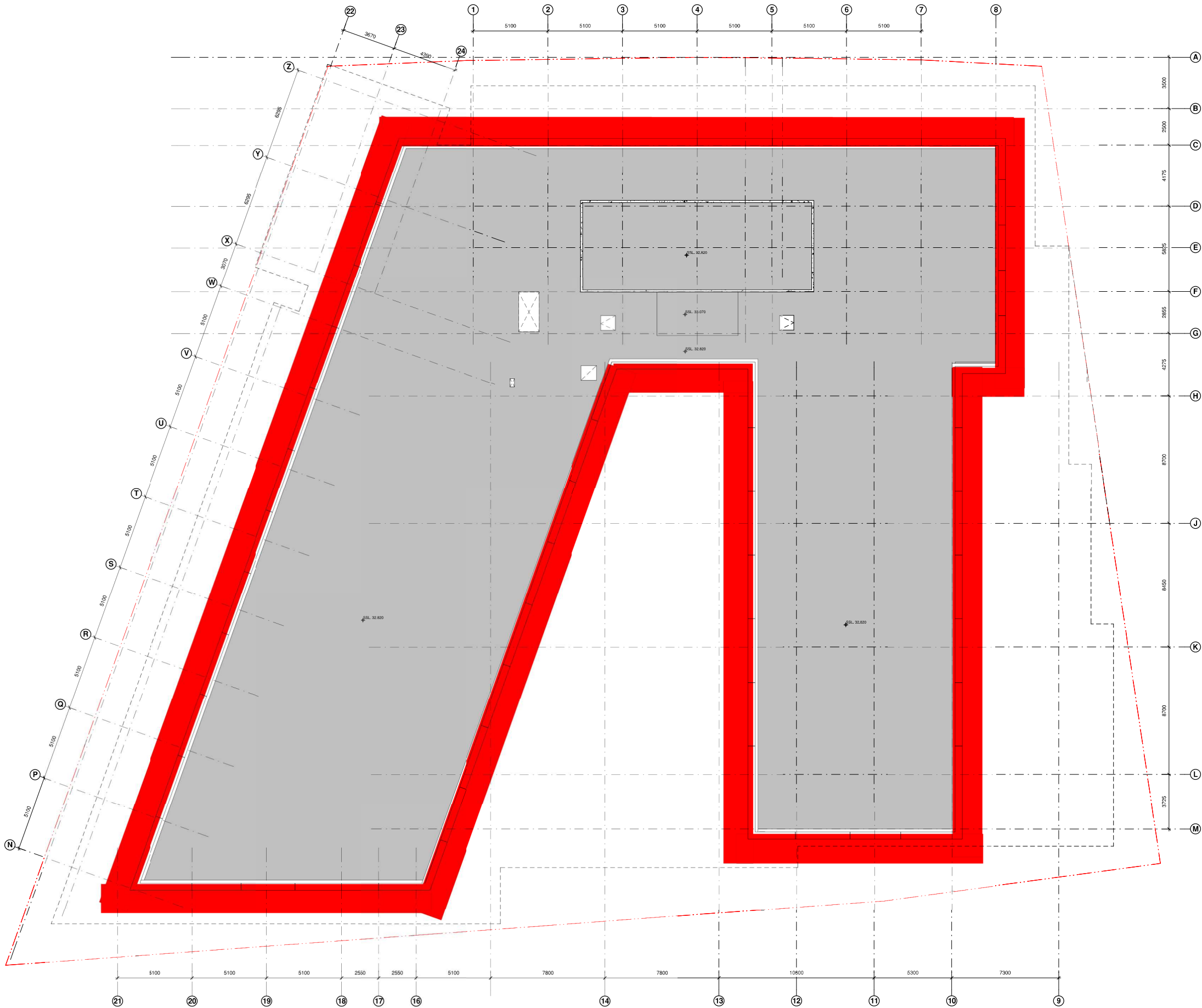
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Level 09 Roof

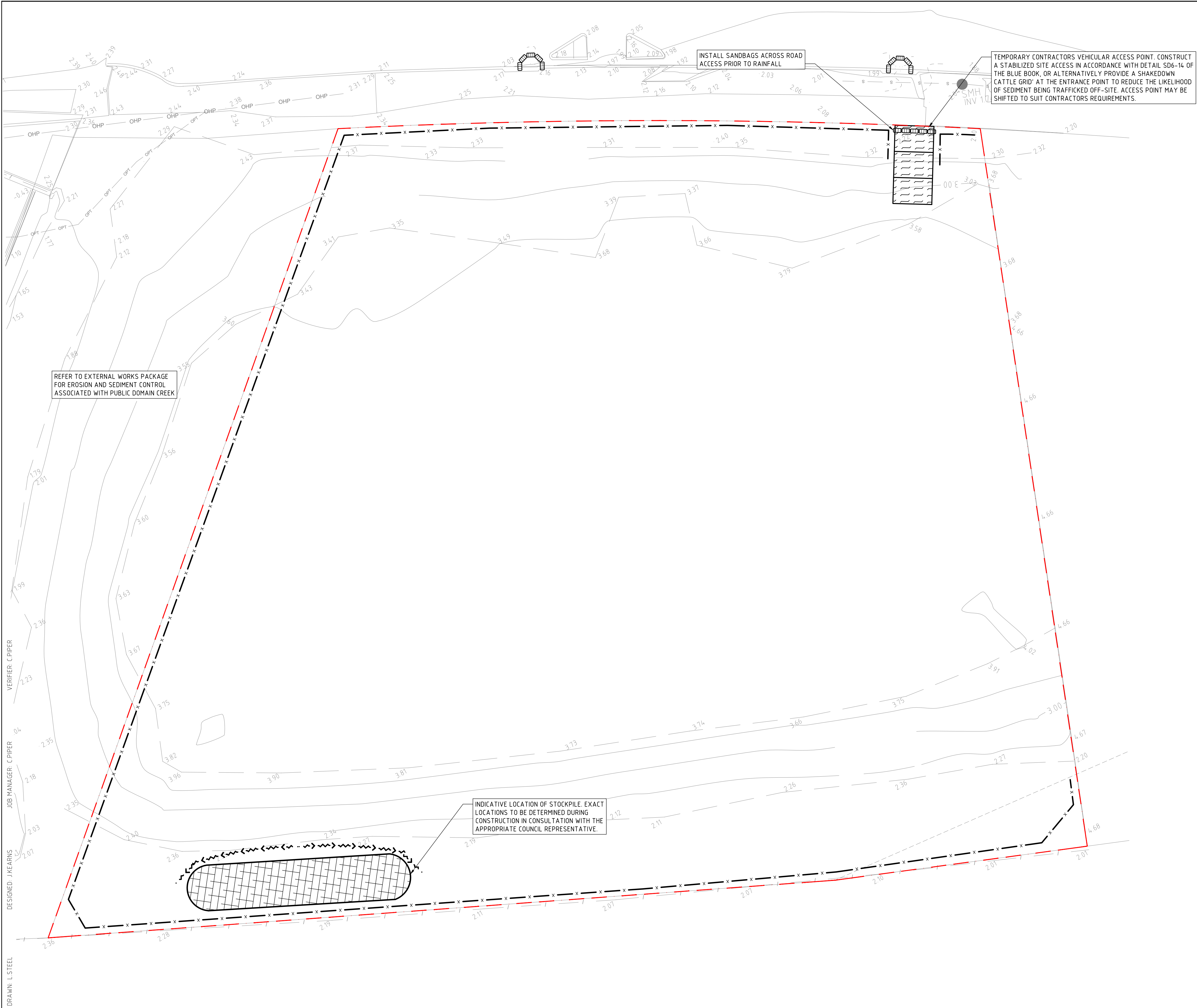
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ATTACHMENT F EROSION AND SEDIMENT CONTROL PLAN



LEGEND

- DENOTES SITE BOUNDARY.
- x - x - DENOTES SEDIMENT FENCE IN ACCORDANCE WITH DETAIL ON DRAWING CC-02-C2.1
- ~ ~ ~ - DENOTES EARTH BANK IN ACCORDANCE WITH DETAIL ON DRAWING CC-02-C2.1
- [Hatched Box] DENOTES STABILISED SITE ACCESS IN ACCORDANCE WITH DETAIL ON DRAWING CC-02-C2.1
- [Hatched Circle] DENOTES PROPOSED STOCKPILE LOCATION IN ACCORDANCE WITH DETAIL ON DRAWING CC-02-C2.1
- [Sandbag Symbol] DENOTES SANDBAG OR GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL, PLACED IN INVERT OF GUTTER IN ACCORDANCE WITH DETAIL ON DRAWING CC-02-C2.1

EROSION AND SEDIMENT CONTROL NOTES

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS. NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION (THE 'BLUE BOOK').
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE.
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
14. UNDERTAKE ROUTINE STREET SWEEPING OF EXTERNAL PUBLIC ROADS AS REQUIRED TO KEEP SURFACES FREE OF SEDIMENT TRACKED BY VEHICLE MOVEMENTS EXITING THE SITE.

CONSTRUCTION SEQUENCE

1. INSTALL SEDIMENT FENCING AND CUT DRAINS TO MEET THE REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLAN AND THE CITY OF NEWCASTLE COUNCIL'S REQUIREMENTS.
2. CONSTRUCT STABILISED SITE ACCESS.
3. INSTALL SEDIMENT CONTROL PROTECTION MEASURES AT NATURAL AND MAN-MADE DRAINAGE STRUCTURES. MAINTAIN UNTIL ALL THE DISTURBED AREAS ARE STABILISED.
4. CLEAR AND STRIP THE WORK AREAS. MINIMISE THE DAMAGE TO GRASS AND LOW GROUND COVER OF NON-DISTURBED AREAS.
5. UNDERTAKE BULK EARTHWORKS AND INSTALLATION OF SERVICES, DRAINAGE AND ROAD INFRASTRUCTURE.
6. ANY DISTURBED AREAS, OTHER THAN ROAD PAVEMENT AREAS, SHALL BE COVERED WITH SITE TOPSOIL AND SEEDED WITHIN 7 DAYS OF COMPLETION OF BULK LEVELS.
7. APPLY PERMANENT STABILISATION TO SITE (LANDSCAPING) AND TEMPORARY STABILISATION TO TEMPORARY BATTERS BETWEEN VARIOUS STAGES OF WORKS.
8. REMOVAL OF ALL EROSION AND SEDIMENT CONTROLS ONCE SITE CONSIDERED STABLE (i.e. > 70% GROUND COVER).

NOTE

1. THE CONTRACTOR SHALL PROVIDE BARRIER/PERSON PROOF FENCE TO THE SITE/THEIR COMPOUND TO ENSURE THE SITE IS MADE SAFE TO THE PUBLIC FOR THE DURATION OF CONSTRUCTION.
2. THE SEDIMENT AND EROSION CONTROL MEASURES SHOWN ON THIS PLAN ARE GENERAL SITE MEASURES. ADDITIONAL MEASURES MAY BE REQUIRED AROUND INDIVIDUAL BUILDING ZONES DEPENDENT ON THE SEQUENCE OF CONSTRUCTION.
3. THE CONTRACTOR SHALL REMOVE AND RELOCATE ALL EXISTING STOCK PILES.

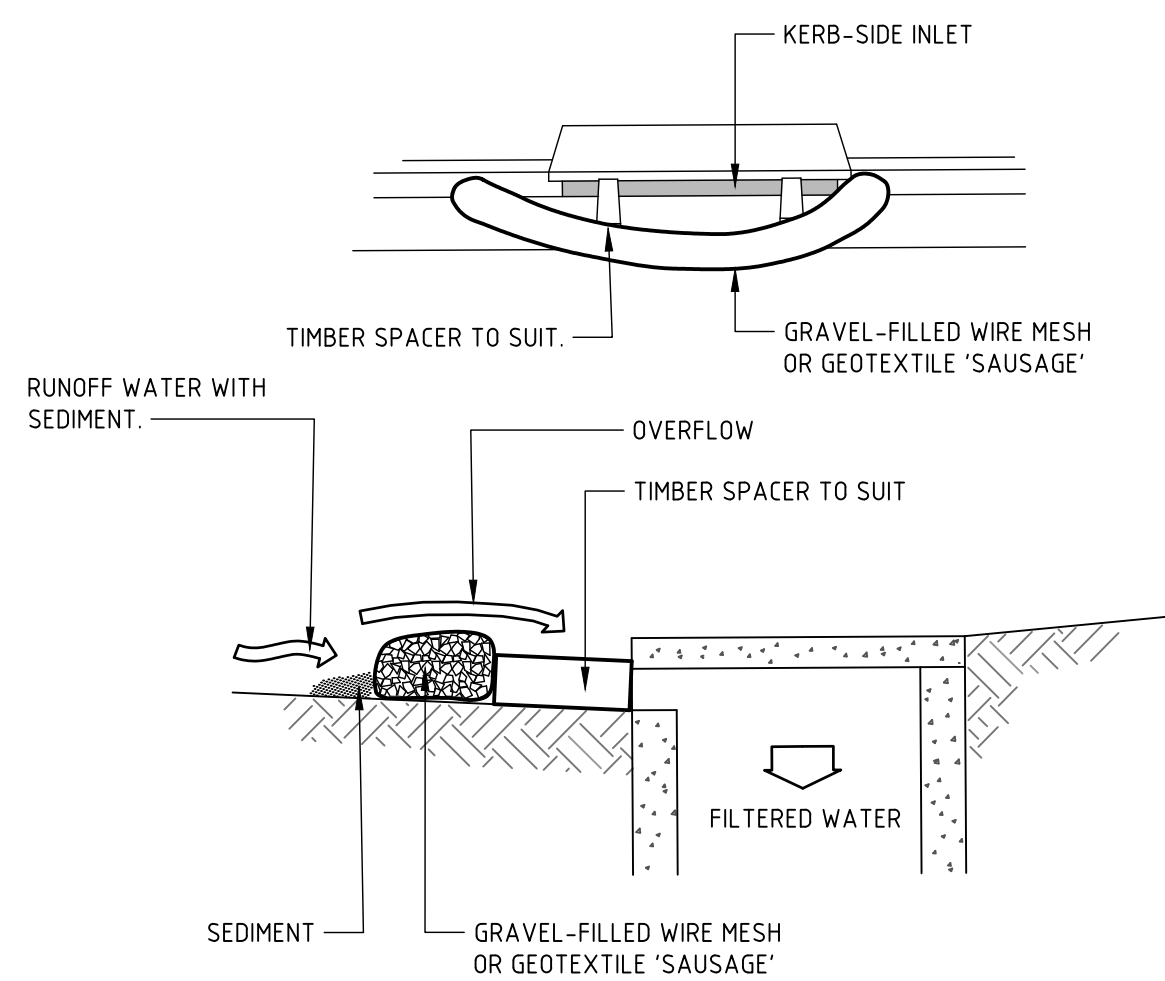
ISSUED FOR APPROVAL

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER
1	50% ISSUE FOR REVIEW	LS	CP	JK	18.07.18	DOMAGROUP	BATESSMART	PROPOSED DEVELOPMENT 42 HONEYSUCKLE DRIVE, NEWCASTLE N.S.W. 2300	EROSION AND SEDIMENT CONTROL PLAN	NL171278
A	ISSUED FOR CONSTRUCTION CERTIFICATE APPROVAL	LS	CS	RJ	17.08.18					
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.	DRAWING NUMBER CC-02-C2.0	REVISION A	DRAWING SHEET SIZE = A1

THE SITE IS LOCATED WITHIN THE HAMILTON SOIL LANDSCAPE AND PRIMARILY CONSISTS OF TYPE F SEDIMENT, WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C13 OF THE "BLUE BOOK").

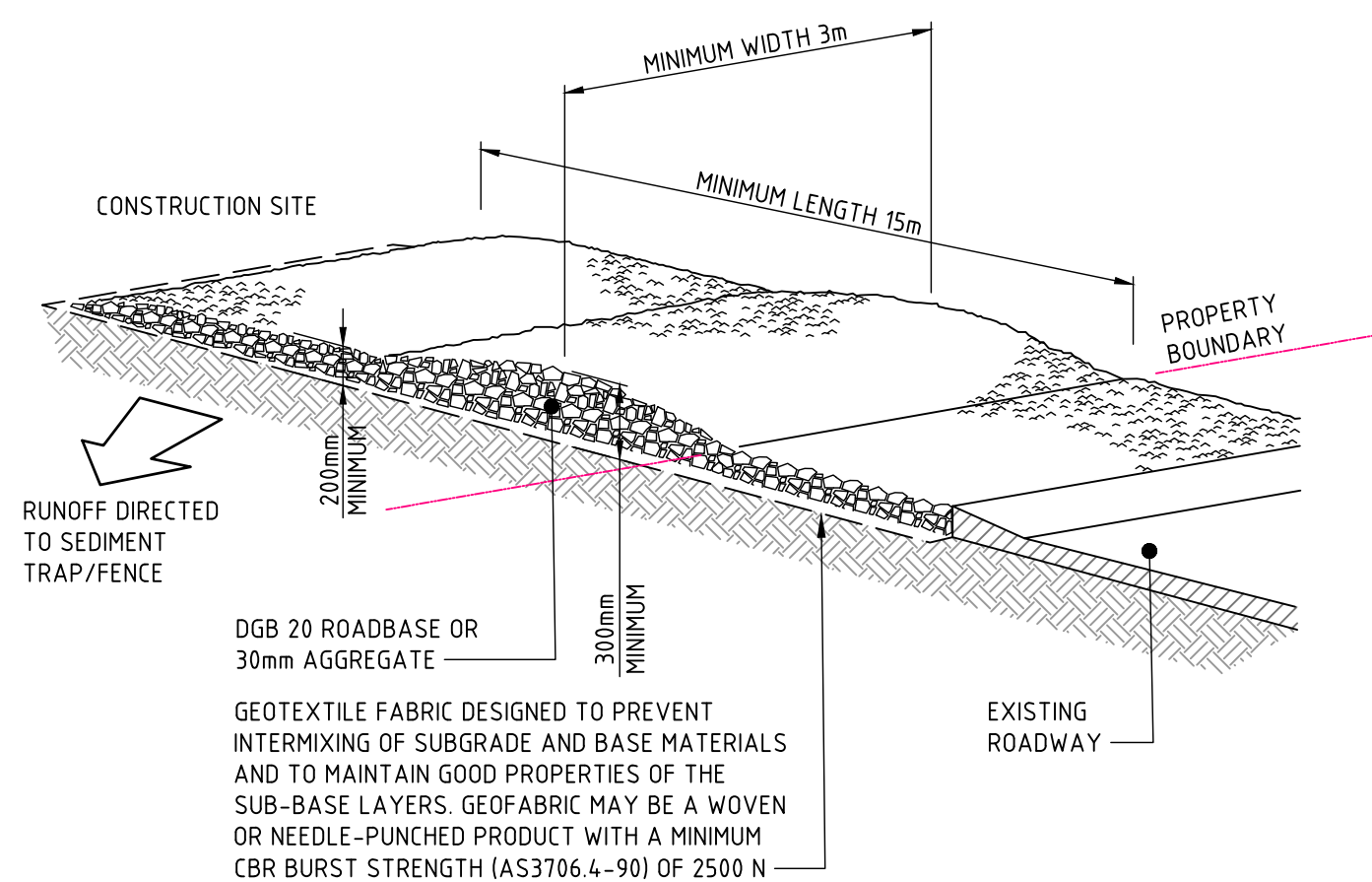
SITE PARAMETERS	
CONSTRAINT	STAGE 2 VALUES
SEDIMENT TYPE	F (FINE SOILS)
SOIL HYDROLOGY GROUP	A
K = SOIL ERODIBILITY (K-FACTOR)	0.016
R = RAINFALL EROSIVITY (R-FACTOR)	2590
S = 2 YEAR, 6 HOUR STORM INTENSITY	10.9mm/hr
LS = SLOPE LENGTH/GRADE	0.36 (60m SLOPE @ 2% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	19
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW
DISTURBANCE AREA	0.38ha
SOIL LOSS	6m ³ /yr

SOIL LOSS IS LESS THEN $150\text{m}^3/\text{yr}$. THEREFORE BASIN IS NOT REQUIRED.



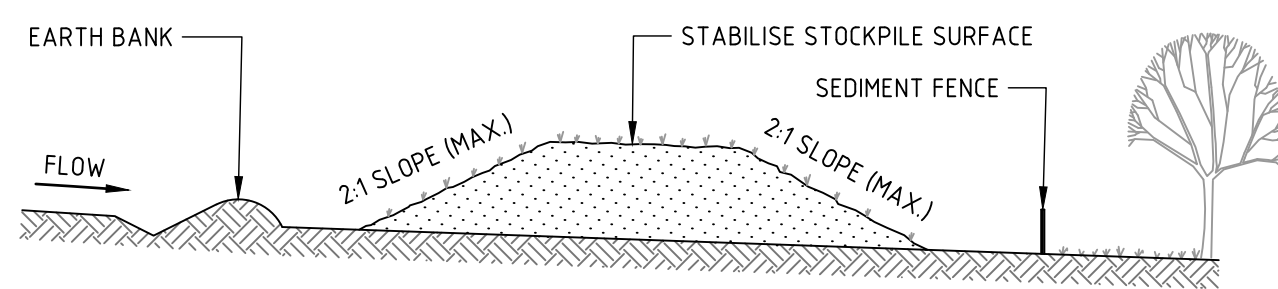
NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN



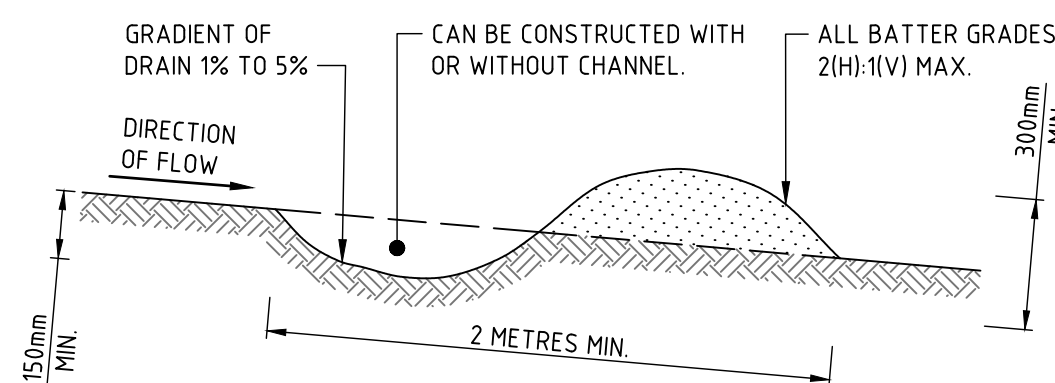
1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

MESH AND GRAVEL INLET FILTER (SD 6-11)

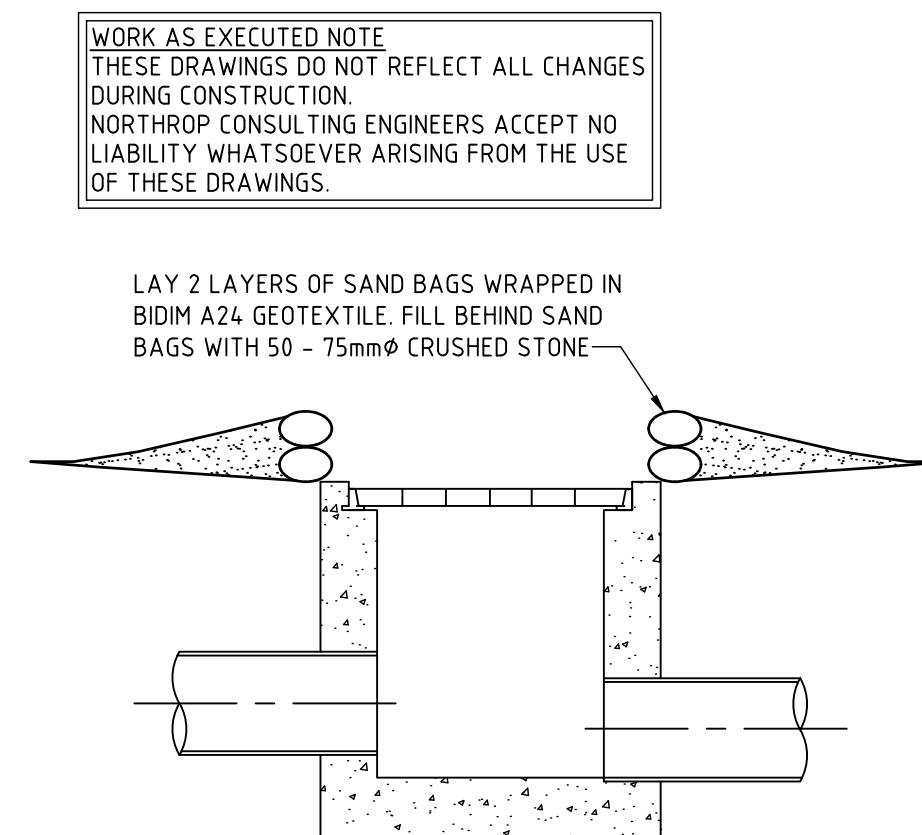


1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

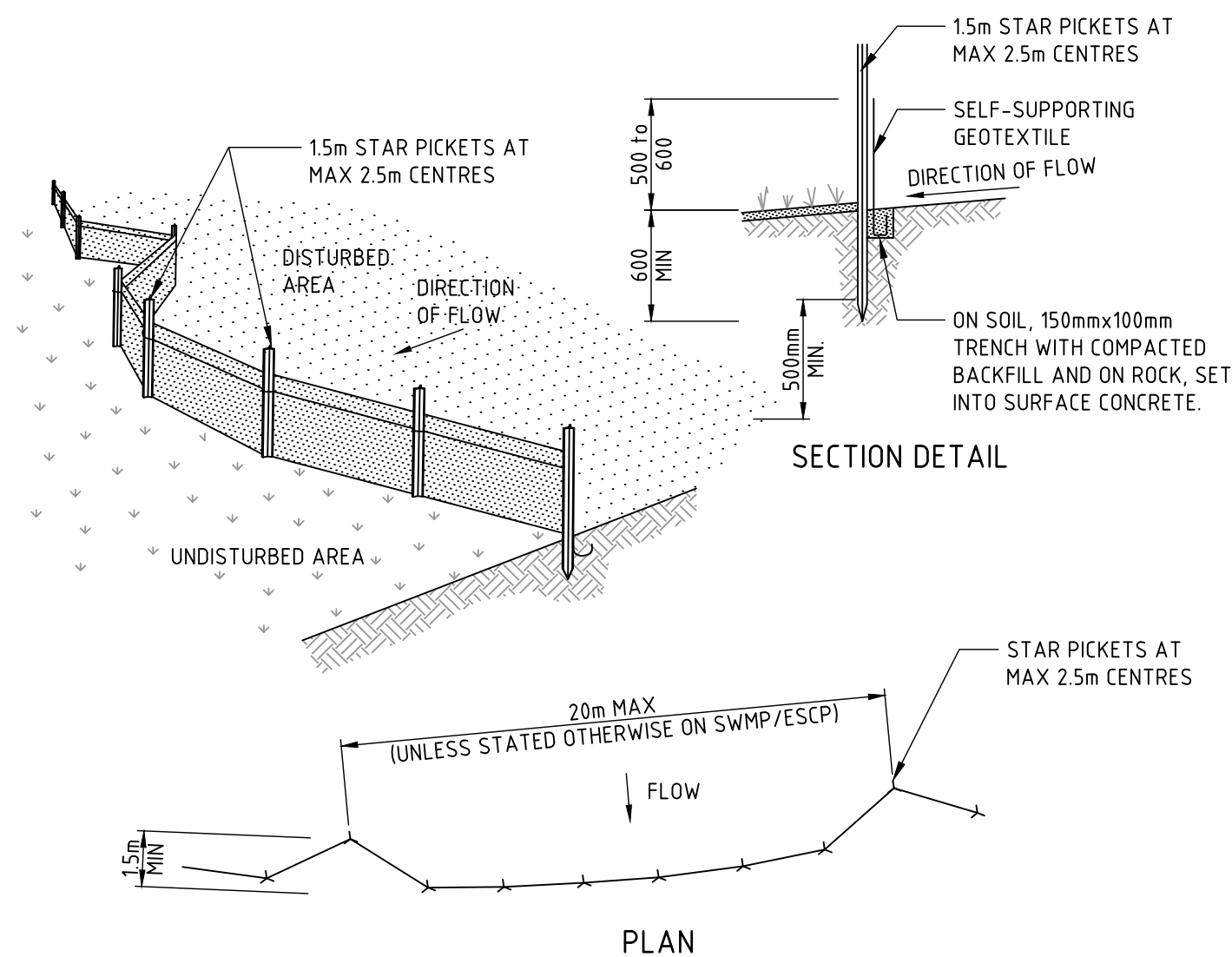
1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.



NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.



INSTALL PIT PROTECTION TO ALL
NEW & EXISTING STORMWATER PITS.



1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

ISSUED FOR APPROVAL

REVISION		DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	 ALL SETOUT TO ARCHITECT'S DRAWINGS, DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. DETAILS 1:10 	PROJECT	DRAWING TITLE	JOB NUMBER
1	50% ISSUE FOR REVIEW		LS	CP	JK	18.07.18			 Newcastle Suite 4, 215 Pacific Hwy, Charlestown NSW 2200 P.O. Box 180, Charlestown NSW 2200 Ph (02) 4943 1777 Fax (02) 4943 1577 Email northrop@northrop.com.au ABN 81 094 433 100	PROPOSED DEVELOPMENT 42 HONEYSUCKLE DRIVE, NEWCASTLE N.S.W. 2300	EROSION AND SEDIMENT CONTROL DETAILS	NL171278
A	ISSUED FOR CONSTRUCTION CERTIFICATE APPROVAL		LS	CS	RJ	17.08.18						DRAWING NUMBER CC-02-C2.1
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VERIFIER: C. PIPER

JOB MANAGER: C. PIPER

DESIGNED: J. KEARNS

DRAWN: L. STEEL

ATTACHMENT G DEWATERING MANAGEMENT PLAN



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Dewatering Management Plan

Proposed Hotel and Serviced Apartment Development:

Lot 22 on DP1072217, 42 Honeysuckle Drive, Newcastle, New South Wales

August 2018

Prepared for:

Doma Holdings (Honeysuckle) Pty Ltd
c/ BLOC Pty Ltd

Report details

Project ref: ADG898.18

Project Manager: Michael Campbell

Report title: Dewatering Management Plan
Proposed Mixed Use Building Development:
Lot 22 on DP1072217, 42 Honeysuckle Drive, Newcastle, New South Wales

Version: Rev 1.0

Author: Victoria Nokela

Reviewer: Michael Campbell

Client/s: Doma Holdings (Honeysuckle) Pty Ltd
c/ BLOC Pty Ltd

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Distribution date: 6 August 2018

Distributed to: BLOC Pty Ltd

Copies: 1 PDF

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1 Introduction

ADG Consulting (ADG) was engaged by Doma Holdings (Honeysuckle) Pty Ltd (Doma) care of BLOC Pty Ltd (BLOC) to prepare a Dewatering Management Plan (DMP), including water quality management strategy and groundwater monitoring and management planning for the proposed mixed-use building development within property described as Lot 22 on DP1072217, situated at 42 Honeysuckle Drive, Newcastle, New South Wales. The proposed scope of work was detailed in ADG's revised fee proposal dated 6 July 2018, and Doma's acceptance of the engagement was confirmed on 9 July 2018.

It is understood that the DMP is required for submission to Newcastle City Council (NCC), Water NSW (formerly Department of Primary Industries (DPI) Office of Water) and/or the Department of Industry (Water) to comply with conditions of the development application consent, obtain relevant approvals and dewatering licence to enable dewatering of the site to proceed (if required).

This DMP is required to address the following conditions of the Development Approval (DA Consent SSD 8440, dated 22 June 2018), as provided to ADG by BLOC:

- **C16.** *Prior to construction works commencing the developer is to submit a de-watering management plan to the Department of Industry – Water. The plan is to be prepared by an appropriately qualified environmental consultant and demonstrate that water pollution will not occur because of dewatering activities. Should the use of stormwater infrastructure of Newcastle City Council be proposed for dewatering purposes, dewatering is not to commence until Council is notified and agreement is provided such that Council can confirm it is satisfied with the proposed impacts and reduced capacity upon its stormwater assets during dewatering activities.*
- **C17.** *Prior to construction works commencing the developer is to prepare a groundwater management and monitoring plan. The plan is to be prepared by an appropriately qualified environmental consultant in consultation with the Department of Industry – Water.*
- **C12 (b).** *[i.e. Provide – as part of the project Construction Environmental Management Plan – CEMP:] A water management strategy, detailing mosquito management, erosion and sediment control, management of soil stockpiles, control and management of surface water, groundwater and process water. Procedures should also be included to ensure that all roads adjacent to the site are kept free and clear from mud and sediment, will also be addressed in this report in a relevant section.*

A cross-reference table outlining how and where each of the above condition elements is addressed in this report or other project documentation is provided in Table 1.

Table 1 Relevant conditions cross-reference table - DA Consent SSD8440 issued 22 June 2018

Condition & element	How addressed	Where addressed
Condition C16: DE-WATERING MANAGEMENT PLAN		
<i>Dewatering Management Plan to be submitted to the Department of Industry – Water.</i>	This Report prepared for submission to relevant regulatory agencies.	This DMP Report.
<i>Demonstrate that water pollution will not occur because of dewatering activities.</i>	All dewatering activities necessary for construction will be managed and monitored in accordance with this DMP. Extracted groundwater will be treated onsite with available treatment technologies (including contingency measures, as required) and its suitability for offsite discharge to the receiving environment confirmed prior to commencement of any discharge/release offsite. Treated extracted groundwater discharge, receiving water and background waters will be subject to ongoing regular (weekly) monitoring	<i>Treatment</i> – DMP Section Groundwater treatment6.4. <i>Water Quality Objectives</i> – DMP Section 5. <i>Monitoring</i> – DMP Section 6.5. <i>Reporting</i> – DMP Section 6.7. <i>Contingencies</i> – DMP Section 6.8.

Condition & element	How addressed	Where addressed
	and comparative reporting against receiving waterway water quality objectives for the duration of dewatering at the site, which will enable the prevention of potentially significant environmental impacts.	
<i>Use of NCC stormwater infrastructure for dewatering discharges not to commence without notification and agreement with NCC.</i>	Noted. Dewatering may not be required, however if dewatering is required extraction rates/quantities and duration are expected to be minimal given the proposed development levels which are above the known standing groundwater levels underlying the site.	DMP Sections 1.3 & 4.3.
Condition C17: GROUNDWATER MANAGEMENT AND MONITORING PLAN		
<i>Prior to construction, prepare a groundwater management and monitoring plan.</i>	Groundwater levels will be monitored prior to and during any dewatering for construction. Untreated groundwater will be sampled and analysed prior to commencement of dewatering, and periodically thereafter, if required.	Level monitoring – DMP Section 6.5.4. Quality monitoring – DMP Section 6.5.2.
<i>Plan to be prepared by an appropriately qualified environmental consultant in consultation with the Department of Industry – Water.</i>	ADG is an appropriately qualified environmental consultancy for the preparation of groundwater monitoring and management planning, with extensive experience in groundwater monitoring, management and dewatering compliance assessment. This DMP has been prepared for submission to the Department of Industry – Water and will be revised if and as required following review and assessment.	This DMP Report.
Condition C12 (b): CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN [part only]		
<i>Water management strategy detailing:</i>		
- <i>Mosquito management</i>	Breeding habitat for mosquitos and biting midges will be minimised by prevention of ponding water and/or siltation of drains. The site will be monitored weekly for such habitat. Personnel will be informed of potential and/or known mosquito problems and will be educated to implement effective personal control measures, as required.	DMP Section 9.4
- <i>Erosion & sediment control</i>	Erosion and sediment control devices will be installed and maintained as required prior to and during construction. Refer also to erosion and sediment control plan developed by others.	DMP Section 7. See also: Northrop Consulting Engineers: Erosion and Sediment Details, drawing ref's: NL171278-CC-02-C2.0-Rev1, NL171278-CC-02-C2.1-Rev1.
- <i>Management of soil stockpiles</i>	- <i>Stockpiles of excavated material must not exceed 4</i>	DMP Section 7.

Condition & element	How addressed	Where addressed
	<i>metres in height, preferably less than 2.</i> - <i>Stockpiles of excavated material must be constructed and maintained to prevent cross contamination.</i> - <i>Suitable erosion and sediment controls must be in place for stockpiles at all times.</i>	See also: Northrop Consulting Engineers: Erosion and Sediment Details, drawing ref's: NL171278-CC-02-C2.0-Rev1, NL171278-CC-02-C2.1-Rev1.
- <i>Control and management of surface water</i>	Refer to Stormwater Management Report and Stormwater Plans prepared by others.	DMP Section 7. See also: Stormwater Management report and Stormwater plans prepared by Northrop Consulting Engineers, job no. NL171278 Dwg Nos C01DA-C07DA Rev B dated 24 April 2018.
- <i>Control and management of groundwater</i>	This DMP Report.	This DMP Report.
- <i>Control and management of process water</i>	Refer stormwater and utility service plans prepared by others.	Stormwater Management report and Stormwater plans prepared by Northrop Consulting Engineers, job no. NL171278 Dwg Nos C01DA-C07DA Rev B dated 24 April 2018.
<i>Include procedures to ensure adjacent roads kept free and clear of mud and sediment.</i>	Prior to the commencement of work, suitable measures are to be implemented to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the Site. It is an offence to allow, permit or cause materials to pollute or be placed in a position from which they may pollute waters. Refer also to erosion and sediment control plan developed by others.	DMP Section 7. See also: Northrop Consulting Engineers: Erosion and Sediment Details, drawing ref's: NL171278-CC-02-C2.0-Rev1, NL171278-CC-02-C2.1-Rev1.

1.1 Proposed development

The proposed development comprises the construction of a nine-storey mixed-use building, comprising four-storeys of above ground parking and hotel rooms and an additional four-storeys of serviced apartment development. No basement levels have been proposed, however deeper localised excavations will be required to enable the construction of five to six lift overrun pits.

ADG understands that the ground floor level is proposed at approximately RL2.5 (AHD) to RL3.0 (approximately 0.5 m to 1.5 m below existing site levels) which is marginally above existing street levels (i.e. no basement proposed). The far southern part of the site will require filling by up to 0.5 m to reach the bulk earthworks pad level. Localised deeper excavations will be required for the five lift pits (assume approximate invert level of RL1.5).

1.2 Relevant guidelines

The DMP was prepared with reference to the following documents:

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (ANZECC/ARMCANZ). 2000.
- *Contaminated Sites: Guidelines for the Assessment and Management of Groundwater Contamination*. Department of Environment and Conservation (DEC). 2007.
- *Guidelines for Managing Risks in Recreational Water*. Australian Government, National Health and Medical Research Council (NHMRC). 2008.

1.3 Relevant legislation

The *Protection of the Environment Operations (POEO) Act 1997*, and associated schedules and regulations are relevant to dewatering at the site. The objectives of the Act include to protect, restore, and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development.

The Act includes the requirements not to pollute waters, to prevent or minimise air pollution, to maintain and operate plant in a proper and efficient condition/manner and to deal with materials in a proper and efficient manner to minimise noise impacts, and to minimise and manage wastes. The Act also requires notification to the EPA when a pollution incident occurs that causes or threatens material harm to the environment.

The *Environmental Planning and Assessment Act 1979*, and the *Water Management Act 2000* are also key environmental and planning legislation to manage groundwater resources in New South Wales.

Should dewatering be necessary to enable construction, the extent and duration of any proposed dewatering is of a limited nature (limited to construction of lift overrun pits/excavations only), and therefore dewatering to enable construction is not expected to exceed the trigger criteria requiring application to Water NSW for a groundwater abstraction/dewatering licence under the *Water Act 1912* or *Water Management Act 2000* the relevant trigger criteria being three (3) Megalitres per annum. However, approval from NCC for discharge of extracted groundwater into the NCC stormwater network will be required to lawfully discharge offsite, in accordance with DA Consent SSD 8440 Condition C16.

1.4 DMP objectives

The objectives of the DMP are to:

- Describe the dewatering methodology, groundwater treatment, monitoring and reporting procedures to be employed at the site during dewatering activities.
- Provide effective management procedures to prevent environmental harm resulting from the discharge of extracted groundwater from the site.

1.5 Scope of work

To achieve the investigation objectives, the following scope of work was undertaken:

- A desktop study including:
 1. Review of the development proposal and proposed shoring/dewatering designs.
 2. Review of geology and soil maps for the area.
 3. Search of groundwater bores licensed by Water NSW within a 500m radius of the site.
 4. Review of relevant existing reports and analytical data.
 5. Review of current aerial photographs of the site and surrounds.
- The preparation of this Dewatering Management Plan for submission to the Newcastle City Council, Water NSW and/or the Department of Industry (Water).

2 Site characteristics

2.1 Property description

The site is described as Lot 22 on DP1072217 and is situated at 42 Honeysuckle Drive, Newcastle, New South Wales. The lot has an area of approximately 3,728m² and is approximately trapezoidal in shape. The site is bounded by Honeysuckle Drive to the north and the Great Northern Railway Corridor (recently decommissioned train line) to the south. The site has been unoccupied/vacant since before 2007.

The site location is shown in Figure 1, Appendix A.

2.2 Surrounding environment

The surrounding environment and land use are described briefly in Table 2.

Table 2 Surrounding land use and environment

Direction	Environment
North	Honeysuckle Drive, then Commercial development and associated carparking, then the Hunter River
South	Great Northern Railway Corridor (decommissioned railway)
East	Industrial/commercial development
West	Cottage Creek, then Industrial/commercial development

2.3 Topography

The site surroundings are considered to be generally level. The site is currently vacant, grassed and contains mounded fill material as evident by a batter edge which slopes toward the south and south west boundaries of the site. Surface elevations range from approximately 3.8m AHD to 2.1m AHD (DP 2017a). A review of the historical aerial imagery for the area indicates that the site has been vacant since before 2007.

2.4 Geology & soils

The geology at the site is mapped at 1:250,000 as Quaternary Aged Alluvium (Qa), typically comprising gravel, sand, silty clay and 'waterloo rock' marine and freshwater deposits (NSW Government, Dept of Planning and Environment 1966).

The Acid Sulfate Soil (ASS) Risk Mapping (Edition Three) 1:25,000 Lower Hunter River Catchment, categorises the site as 'High Probability' (NSW Government, Dept of Environment and Climate Change, 2008). The map indicates that the environmental conditions have been suitable for the formation of acid sulfate soil materials. Acid sulfate soils materials are widespread and sporadic and maybe buried by alluvium or windblown sediments.

Additionally, the map categories the site as 'disturbed terrain' as the natural soils within this area have been overlayed by manmade fill materials or bitumen at various depths as remnants from historical uses or for commercial development.

2.5 Hydrogeology

A search of licensed groundwater bores undertaken by ADG (Water NSW, accessed on 19 July 2018) identified six licensed bores within a 500m radius of the site. Four of the identified groundwater bores, GW062106, GW057894, GW053243 and GW200855, are no longer actively licensed (either cancelled or

lapsed). The relevant information from the bore-card reports is displayed in Table 3 below. The bore search results and bore-card reports are provided at Appendix B.

Table 3 Summary of licenced groundwater bore information

Bore ID	Location from site	Status/type	Stratigraphy details	Aquifer details	SWL (mbgl)	Yields (L/seconds)	Water quality
GW201710	Approx. 350m SW	Active/monitoring bore	Refer to Appendix B	Unknown	-	-	941 mg/L
GW201711	Approx. 300m SW	Active/monitoring bore	Refer to Appendix B	Unknown	-	-	5,337 mg/L
GW062106	Approx. 400m S	Cancelled	-	Unknown	-	-	-
GW053243	Approx. 435m S	Lapsed/ industrial recreational use	-	Unknown	-	-	-
GW057894	Approx. 440m SW	Cancelled	-	Unknown	-	-	-
GW200855	Approx. 450m SW	Cancelled	Refer to Appendix B	Unknown	-	-	-

Based on the local mapped geology and topography, the permeability of the soils and proximity to the Hunter River, groundwater within the site is likely to be tidally influenced. The inferred groundwater flow at the site is to the North (Hunter River) and north-west (Cottage Creek). Given the location (south-west) of the closest active groundwater bore (300m) impacts on local groundwater users is considered unlikely.

3 Previous Investigations

This DMP is based on site specific information sourced from the following documentation provided to ADG by BLOC:

- *Contamination and Acid Sulfate Soil Assessment, Proposed Mixed use Development, 42 Honeysuckle Drive, Newcastle, Ref 91181.00.R.002.Rev0.* Douglas Partners Pty Ltd. October 2017a.
- *Geotechnical Investigation, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.001.Rev0.* Douglas Partners Pty Ltd. October 2017b.
- *Acid Sulfate Soil Management Plan, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.003.Rev0.* Douglas Partners Pty Ltd. November 2017.
- *Remediation Action Plan, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.004.Rev0.* Douglas Partners Pty Ltd. April 2018.

It is understood that mine subsidence investigations and associated modelling has been completed by others and as such has not been commented on in this report.

A brief discussion of relevant soil and groundwater conditions encountered during the previous investigations is provided below.

3.1 Contamination and Acid Sulfate Soil Assessment (Douglas Partners Pty Ltd 2017a)

A contamination and acid sulfate soil assessment was undertaken on the site by DP in October 2017. As part of the assessment, a review of previous investigations undertaken on the site was carried out by DP. The report findings as summarised by DP have been provided below along with additional relevant information from DP's investigation on the site. DP mentions that an additional investigation was carried out on the site by Parsons Brinckerhoff (PB) in 2003, however that report was not made available for review by DP or ADG. The findings of additional investigations carried out by DP in 2001, 2003, 2008 and 2009 have also been summarised by DP (not provided to ADG for further review or assessment) and are briefly outlined below:

Environmental Site Audit Report (Environ Australia Pty Ltd 2004)

A Site Audit Report and Site Audit Statement was prepared by Environ in September 2004, prior to the commencement of remediation works and found that the site was suitable for commercial/industrial use subject to capping with suitable materials (i.e. cleans soils or concrete building slab). Additional recommendations regarding groundwater were that it is not abstracted for use.

Implementation of Remedial Action Plan & Site Management Plan (RCA Australia Pty Ltd 2004)

Site Investigations were undertaken by RCA on the site and adjacent lots (21 and 23) in October 2004. Fill materials were identified to contain concentrations of Polycyclic Aromatic Hydrocarbons (PAHs), Benzo(a)pyrene (B(a)P) and Total Petroleum Hydrocarbons (TPHs) above the relevant NEPM (1999) commercial/industrial Health Investigation Levels (HILS) guideline values. RCA reported ten distinct layers of fill material types within the subsurface profile generally comprising silty sands, sandy silts and clays with rubble, shell, gravel, coal, ash, plastics, metals, sandstone, claystone, gravel coated coal tar and slag. Exceedances for the above analytes were detected from 0.0m to 2.2m in depth and ranged from 322 mg/kg to 243,177 mg/kg for PAHs, 22 mg/kg to 10,400 mg/kg for B(a)P and 252,200 mg/kg for TPHs.

A limited groundwater investigation was also undertaken as part of the Remedial Action plan (RAP) implementation. Three monitoring wells (BH1 to BH3) were installed and sampled and the reported groundwater levels ranged from 3.4m to 3.7m in depth below ground level. The analytical results reported heavy metals (arsenic – As and zinc – Zn) and PAHs (Anthracene and Fluoranthene) concentrations above the relevant ANZECC/ARMCANZ (2000) guidelines within BH2 located up gradient on the boundary, which were likely attributable to site contamination. Elevated heavy metal concentrations were also detected in BH1 and BH3 (situated down-gradient on the site) however RCA notes that these concentrations should be considered typical of regional groundwater conditions.

Environmental Site Assessment (PPK Environment and Infrastructure 2002)

An environmental site assessment was undertaken on the site and adjacent lots (21 and 23) by PPK in 2002. Fill materials identified to 3.5m in depth were reported to contain detectable concentrations of PAHs, B(a)P and TPHs above the relevant commercial/industrial land use guidelines.

A limited groundwater investigation was also undertaken on the site with the installation of one groundwater monitoring well. Groundwater was generally encountered at around 3.5m below ground level, and an inferred groundwater direction was determined to be toward the Harbour (north of the site). Samples analysed reported heavy metal concentrations (cobalt – Co, copper – Cu, and Zn), Fluoranthene (PAHs) and PAH concentrations above the relevant ANZECC/ARMCANZ (2000) guidelines. DP concluded that PAH detections were in association with previous and adjacent railway use of the site.

Waste Classification Assessment (Douglas Partners Pty Ltd 2008)

The assessment identified elevated PAHs and B(a)P concentrations above the Inert, Solid and Industrial Waste classifications criteria (NSW EPA 1999) (no longer relevant). DP observed nine distinct layers during the subsurface investigation which typically comprised sandy filling (Layers 1 to 7) with underlying natural alluvial sand and clays (Layers 8 and 9), with a number of discontinuous layers. The DP (2008) waste classification report further indicated that a disused underground electrical service bisects the site and was observed to exit the south-western corner of the site. A cable conduit which may contain bonded asbestos material was observed together with the cables, indicating the potential for asbestos containing material (ACM) to be present at the site. It was concluded by DP that:

- Direct disposal of all fill materials as 'Solid Waste' to an appropriately licensed facility was necessary.
- The site has been subject to remediation works comprising the excavation and off-site disposal of heavy metal and PAH impacted soils.
- The site is considered to be suitable for commercial / industrial landuse, subject to capping and no abstraction of groundwater for use, as indicated in the associated site Audit. However the results of previous testing indicated that contaminant concentrations were generally within the health-based investigation levels (HIL B & HSL B, ASC NEPM) for commercial/industrial land use.
- Further investigations were recommended to confirm soil contamination, acid sulphate soil and geotechnical conditions. Subject to favourable results from the additional investigations and a successful RRE application, DP considered that it is likely that inspections and testing will also be required during site excavations if beneficial off-site use is considered, subject to regulatory approvals.

3.1.1 Soils

DP describes the 2017 site-specific assessment to have involved the drilling of four boreholes (Bores 201 to 204) to between 6.0m to 6.2m below ground level, which was carried out in conjunction with the DP Geotechnical investigation – refer Section 3.2. DP 2017a describes the following general material profile descriptions:

FILLING: Encountered in all bores from the surface to 2.9 m / 3.4 m depth and generally comprised silty sands and sands with variable inclusions, including sandstone cobbles/boulders, gravels, ash, coal, shells and bricks.

SAND: Encountered in all bores beneath filling at depths of 2.9 m to 3.4 m to termination at depths of 6.0 m to 6.2 m and generally comprised brown to dark grey sands with some silt and trace gravel in some bores and trace to some shells. Clayey sand was encountered in Bores 201 to 203 from depths of 3.2 m / 4.4 m to depths of 3.6 m / 4.7 m (< 1m in thickness).

Additional investigations from DP in 2014 were used to compliment the 2017a soil investigation contaminant data. A summary of the results are as follows:

- The majority of results are within the NEPM 2013 health-based investigation levels/screening levels for residential land use with minimal access to soil (HIL B/HSL B) with the exception of the following:

- Elevated B(a)P in the majority of samples tested from Layer 1 and several samples from Layer 5.
- Elevated TRH (C6-C10) in one sample from Layer 1. It is noted that the PQL for the majority of samples tested was above the SAC, however, given the laboratory testing preceded the introduction of the NEPM 2013 guidelines and the introduction of F1 (TRH C6-C10), the F1 values presented in the table are a summation of TRH C6-C9 and C10-C14 concentrations and are therefore likely to overestimate the true F1 concentrations.
- Elevated TRH (>C10-C16)-Naphthalene (F2) in the majority of samples from Layer 1 and Layer 5, although as per F1 values the F2 values presented are likely to be overestimated.
- The majority of results were within the NEPM 2013 Ecological investigation levels/screening levels (EIL/ESL) for residential landuse with the exception of elevated metals (namely copper, nickel and zinc), F2-Naphthalene and B(a)P in the majority of Layer 1 samples and to a lesser extent in Layers 3, 4 and 5.
- Asbestos was not identified above the laboratory reporting limits within the soil samples analysed. However, a bonded fibro sheeting fragment was observed at the ground surface (SF205) and was confirmed to contain asbestos (i.e. ACM).

3.1.2 Groundwater

DP 2017a describes that free groundwater was encountered in the bores at depths ranging from 2.4 m to 3.0 m depth during drilling, also noting that groundwater levels are affected by factors such as climatic conditions soil permeability and tidal fluctuations and will therefore vary with time. Monitoring wells were established in three of the four investigative boreholes, which were subject to field analysis only.

The results of groundwater field testing indicated the following:

- Standing groundwater levels approximated 0.3 to 0.4 m AHD
- Groundwater is slightly basic to neutral (i.e. pH 7.2 to 7.7)
- Groundwater is fresh (i.e. EC 0.36 to 0.66 mS/cm)
- Oxidative to Reducing conditions were encountered (i.e. Redox potential -150 to 20)
- Generally a moderate oxygen content (i.e. DO 5.0 to 6.8 ppm) although this would be influenced by the development method (Waterra footvalves – presumably manually operated)
- The results of PID screening on groundwater headspace suggest the absence of gross volatile hydrocarbon impacts (i.e. <1 ppm)
- Floating product was not detected visually or by the interface meter (i.e. <1 mm).

3.2 Geotechnical Investigation (Douglas Partners Pty Ltd 2017b)

A geotechnical investigation was undertaken at the site in October 2017 by Douglas Partners Pty Ltd (DP). The relevant information has been discussed in the following sections.

3.2.1 Soils

A total of eight cone penetration tests (CPTs 305, 305, 306, 307, 308, 309A, 310A and 311) and four piezo-cone penetration tests (CPTu 301A, 302, 303B and 304A) were advanced to depths between approximately 15.0m and 30.0m below ground level. The field investigation also included the drilling of four boreholes (Bores 201 to 204) to approximately 6.0m in depth. It should be noted that the reported combined total sample frequency of sixteen (16) is greater than the EPA NSW recommended eleven (11) for a 0.4-hectare site.

Fill material typically comprising sand and silty sands of loose to medium density were generally encountered to approximately 4.04m in depth. Shallow fill material encountered typically comprised bitumen pavement, rubble and brown gravelly sand to depths between 0.28m and 2.45m. Anthropogenic inclusions such as slag, concrete, terracotta, concrete, brick, steel, coal, porcelain, glass, plastic, potential ACM were generally encountered in all boreholes. Underlying deeper fill, typically comprised yellow-brown and yellow-grey sand, silty sand and gravelly sand to between 1.10m and 3.60m in depth and included natural materials such as shell, which DP has indicated may be a result of hydraulic filling on the site. Natural material encountered comprised yellow-brown-grey sands to between 1.9m and 3.0m in depth.

DP notes that although anthropogenic materials were identified in the shallow subsurface material (fill profile), there were no obvious indications of gross contamination such as discoloured / stained soils or odours and photo-ionisation detector (PID) readings reported concentrations of <1ppm in all samples. Acid sulfate screening tests were undertaken by DP on a total of 35 soil samples for pH in water (pH_F), and pH following oxidation with hydrogen peroxide (pH_{FOX}) with reference to Acid Sulphate Soil Management Advisory Committee guidelines. Detailed acid sulphate soil tests (i.e. chromium suite) were undertaken on seven selected soil samples following the screening tests. The results of screening tests indicated that the majority of natural soil samples (19 of 21 samples) and two of the lower fill materials tested exhibited a pH drop equal to or greater than one unit. In addition, 20 of the 35 samples tested also exhibited a soil pH following oxidation below 3.5. The results of detailed laboratory testing indicate the natural sands/clayey sands and silt sand fill below approximately RL0.2 are potential acid sulfate soils (PASS) with existing and potential acidity values above the Queensland Acid Sulphate Soil Investigation Team (QASSIT) action criteria for disturbance of less than and greater than 1000 tonnes of material for sand and clay materials. DP recommended that an Acid Sulfate Soil Management Plan (ASSMP) be prepared to manage any ASS that may be disturbed during the basement excavations and dewatering on the site (DP 2017a). An ASSMP was subsequently put together by DP in November 2017. Refer to the ASSMP report for site specific details.

3.2.2 Groundwater

Refer to Section 3.1.2 for discussion regarding the groundwater investigation carried out during the related contamination and acid sulfate soils assessment.

4 Dewatering methodology

Dewatering of the site is not expected to be required, therefore no information regarding dewatering methodology has been provided to ADG at this time for preparation of this report. The information provided in the following sections, will be used in the event that shallow groundwater is encountered, and dewatering is required to enable the construction of deeper structural elements in dry conditions.

4.1 Excavation and shoring

The proposed lift overrun pit excavations will extend to between 1.2 and 1.5m below existing ground levels, which correspond to a maximum elevation of 1.5m AHD. Excavation perimeters are planned to be stabilised by the construction of batter slopes (1V:1H) during construction. Surrounding areas will be backfilled at completion.

4.2 Groundwater extraction

It is understood that, if required, dewatering will be undertaken using either a number of deep wells with submersible pumps, or a series of 40mm diameter PVC spears installed at 1.5m intervals around the external perimeter of each localised excavation. Excavations are generally required to be dewatered to a minimum of 1.0m below the deepest point of excavation to allow construction to be undertaken in dry conditions. The water table is therefore not expected to need to be lowered, given recently recorded standing groundwater levels of RL0.3 to RL0.4 (m AHD).

Temporary dewatering, if required, will be necessary throughout the inground construction phase, which is expected to require dewatering for approximately 1 – 2 weeks.

4.3 Extraction/discharge rates and volume

A dewatering extraction rate and volume of extracted groundwater is unable to accurately estimated at this time. If dewatering is required, the proposed shoring and dewatering methodology should be made available to ADG to enable these calculations to be carried out. Additionally, a discharge flow rate meter should be installed on the outlet of the treatment train.

4.4 Salt water intrusion and groundwater dependent ecosystems

The closest marine water body is Cottage Creek and is situated approximately 20m to the west of the site. Salt water intrusion is considered likely however this is highly dependent on the duration of dewatering activity. No groundwater dependent ecosystems have been identified within the predicted radius of influence.

4.5 Impacts on groundwater users and adjacent structures

Records for a total of six licensed groundwater bores, located within 500m of the site have been obtained from Water NSW, four of which are no longer current. No impacts on local licensed groundwater users is anticipated.

The relevant information from the bore-card reports is displayed in Table 3.

4.6 Groundwater treatment

All extracted groundwater will be treated on-site using available technologies prior to discharge to the stormwater network. The following treatment measures will be adopted, as a minimum, and will be installed and operational prior to the commencement of dewatering:

1. A groundwater pH buffering treatment system (primary treatment); and
2. A sedimentation tank to provide additional residence time and sedimentation (secondary treatment).

Details of the proposed treatment systems, methodologies and contingencies are provided in Section 6 of this report.

4.7 Reinjection wells

Reinjection of extracted groundwater is not proposed at the site, although will be considered if in-situ oxidation of PASS or unacceptable consolidation of surrounding soils is identified during dewatering operations.

4.8 Discharge of extracted groundwater

The extracted groundwater will be pumped via the groundwater treatment systems to the local stormwater network within the site, on Honeysuckle Drive, or via temporary overland pipework to Cottage Creek (to be confirmed). It is expected that the stormwater network discharges to the Hunter River 80m to the north of the site, via local stormwater infrastructure. Refer to Figure 1, Appendix A.

A dewatering groundwater licence is generally not required for minor temporary dewatering activities estimated to be less than 3 megalitres in a year (3ML/yr). If dewatering is required, a flow rate meter must be installed on the outlet of the treatment train to monitor water abstraction rates. In the event, that dewatering is required, and that the groundwater extraction rate exceeds this threshold, WaterNSW must be contacted and a licence must be obtained under Part 5 of the Water Act 1912. It should be noted that obtaining this licence can take up to eight weeks based on ADG's experience in NSW. If a licence is obtained, the license must be closed-out upon the completion of dewatering activities on the site in accordance with any conditions of the licence.

Prior to commencement of any dewatering to local stormwater infrastructure, written approval to carry out dewatering operations will need to be sought from Newcastle City Council's Environmental Health Officer, General Manager or delegate (as applicable).

ADG conducted a search of the list of NSW contaminated sites notified to the EPA as of 19 July 2018 under the *Contaminated Land management Act 1997*, and notes the site is not currently listed and therefore dewatering discharges during construction on the site need not be notified to NSW EPA. Nonetheless, dewatering discharges will require appropriate management and monitoring as detailed in this DMP.

5 Water quality objectives

5.1 Receiving environment

It is proposed to discharge extracted groundwater either to the stormwater network on Honeysuckle Drive or to a stormwater gully pit within the site. The local stormwater network terminates in the Hunter River to the north of the site. The waterway in this location is a well-flushed, estuarine (marine) environment connected to the Pacific Ocean approximately 3kms to the east of the site. The following section establishes water quality objectives (WQOs) to ensure that the environmental values of the receiving waters are protected and maintained.

5.2 Development of water quality objectives

In the absence of published criteria for discharge of extracted groundwater from the site, WQOs have been developed to support and protect the designated environmental values (EVs) for the receiving environment. The WQOs have been developed with reference to the following guideline documents:

- *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ 2000). The selected trigger values apply to moderately disturbed systems to provide a 95% level of species protection for marine and mid-estuarine waters.
- *Guidelines for Managing Risks in Recreational Water*. NHMRC. 2008.

ANZECC/ARMCANZ (2000) stresses that the aquatic ecosystem guideline values are triggers to further action, and are inherently conservative, and that the response to non-compliance should match the magnitude and impacts (if any) of the exceedance.

Section 5 (Guidelines for recreational water quality and aesthetics) of the ANZECC/ARMCANZ (2000) Guidelines (per section 5.2 thereof) was superseded by the Guidelines for Managing Risks in Recreational Water in 2008 (NHMRC, 2008). Therefore, a reference to the ANZECC/ARMCANZ (2000) Guidelines is by association and extension a reference to the current 2008 NHMRC Guidelines. The 2008 NHMRC Guidelines contain no criteria for aluminium, and only includes an aesthetic criterion for iron – noting this is an aesthetic criterion derived from the Australian Drinking Water Guidelines on the basis of ingesting 2L of the recreational water solution per day. ANZECC/ARMCANZ (2000) Section 5.2.3.3, notes that as a general guideline, under Toxic Chemicals, ‘Higher concentrations of toxicants may be tolerated occasionally if it assumed that no person will ingest more than a maximum of 100 mL water during a normal swimming session (NHMRC 1990) compared with 2L/d for potable water’, and Section 3.1.1.3, under Risk based approach of the guidelines, ‘The guideline trigger values are based on bioavailable concentrations, and hence are relatively conservative when compared with total concentrations in the field, so the use of the decision frameworks will increase guideline concentrations in most cases’. Therefore, any chemical toxicant trigger values would require reassessment and likely increase upwards of any ANZECC/ARMCANZ (2000) Guideline trigger values due to the slightly to moderately disturbed nature (and thereby reduced sensitivity) of the receiving waters.

5.3 Proposed water quality objectives

The proposed water quality objectives that have been developed for the discharge of extracted groundwater from the site are provided in the Tables below. All water discharged from the site must comply with the discharge criteria provided in Table 4 and the additional parameters (heavy metals, volatiles and PAHs) criteria provided in Table 5. Additionally, the receiving water quality within a 20m radius of the discharge point (the receiving waters mixing zone) shall comply with the receiving water criteria provided in Table 5. Receiving waters data will be assessed against background monitoring data if non-compliant results are obtained at the receiving waters monitoring location.

The discharge criteria adopted is considered to be achievable in the absence of activity-specific (dewatering) criteria for the discharge of extracted groundwater to a waterway in NSW. A baseline monitoring event as described in Section 6.5 will be undertaken prior to the commencement of dewatering to ensure that the environmental values of this part of the Hunter River are protected and maintained. Additionally, the Hunter River in this location is considered to be extremely well flushed. With regards to the adopted receiving waters water quality objectives and as mentioned above, ANZECC/ARMCANZ (2000) stresses that the guideline advocates a risk-based approach and that the trigger values provided are conservative and precautionary triggers to further action, and that the

response to any non-compliance should match the magnitude and impacts (if any) of any exceedance in the receiving waterway.

Table 4 Discharge criteria

Parameter	Criteria
<i>Physico-chemical</i>	
pH (pH units)	6.5 – 8.5 ¹
Dissolved oxygen (% saturation)	>80 ¹
Turbidity (NTU)	<50 ¹
Suspended solids (mg/L)	<50 ^{1, 2}
Litter	No visible litter released

Table notes:

1. Commonly recognised discharge criteria throughout NSW and QLD.
2. QWQG 2009 (2013) Refer to Table 8.2.1. Summary of design objectives for management of stormwater quality and flow – construction phase of development in Queensland (in the absence of objectives for construction in NSW).

Table 5 Receiving waters criteria

Parameter	Criteria
<i>Physico-chemical</i>	
pH (pH units)	7.0 – 8.5 ^{1#}
Dissolved oxygen (% saturation)	85 – 110 ^{1#}
Turbidity (NTU)	10 ^{1#}
<i>Dissolved metals (µg/L)</i>	
Aluminium	No relevant criterion available
Arsenic	2.3 ^{1*}
Cadmium	5.5 ¹
Chromium	4.4 ¹
Copper	1.3 ¹
Lead	4.4 ¹
Nickel	70 ¹
Zinc	15 ¹
Iron	No relevant criterion available
Mercury	0.4 ¹
<i>Volatile organics (µg/L)</i>	
Volatile TRHs C6-C10	No ecological criteria for TRHs in water: analysis for toxicants (BTEX & PAHs) required if above LOR
Semi volatile TRHs C10-C40	
Benzene	700 ¹
Toluene	180 ^{1*^}
Ethylbenzene	5 ^{1*}
meta-¶-Xylene	75 ^{1*^}
Ortho-Xylene	350 ^{1^}
<i>Polycyclic aromatic hydrocarbons (µg/L)</i>	
Naphthalene	70 ¹
Phenanthrene	2.0 ^{1*}
Anthracene	0.4 ^{1*}

Parameter	Criteria
Fluoranthene	1.4 ^{1*}
Benzo(a)pyrene	0.2 ^{1*}

Table notes:

1. ANZECC/ARMCANZ (2000). Marine water trigger values for 95% species protection.

Default trigger values for physical and chemical stressors for south-east Australia for slightly disturbed ecosystems, refer Table 3.3.2 and Table 3.3.3. Based on estuarine and marine receiving environment (Hunter River).

*= Insufficient data to derive a reliable trigger value. Low reliability value adopted (refer ANZECC/ARMCANZ (2000) Section 8.3.7.

^= freshwater low reliability trigger adopted for marine waters.

6 Water quality management

6.1 Responsibility

The Site Manager is responsible for implementing the water quality management procedures described in this DMP.

6.2 Operational policy

To prevent impacts on the receiving waters by effectively treating all extracted groundwater prior to discharge from the site.

6.3 Performance criteria

The performance criteria for the discharge of extracted groundwater are the water quality objectives provided in Table 4 and Table 5 in Section 5 of this report. Both the discharge and receiving waters (within a 20m radius of the discharge point) will be assessed against the WQOs to ensure that the environmental values of the receiving waters are maintained. Receiving waters data will also be assessed against background monitoring data if non-compliant results are obtained in the receiving waters monitoring location.

6.4 Implementation strategy

All extracted groundwater will be treated on-site using available technologies prior to discharge to the stormwater network. The treatment systems described in Section 6.4.1 will be adopted, installed and operational prior to the commencement of dewatering.

6.4.1 Groundwater treatment systems

Primary treatment

Groundwater treatment system/s will be installed to provide primary treatment of the extracted groundwater. The system/s should provide the following capabilities:

1. Automated in-line chemical dosing systems for the addition of pH buffering solutions and coagulants
2. A filtration system to reduce fine particulates, if required
3. Emergency response alarms for non-routine situations.

The size of the treatment unit will depend on available area onsite, estimated extraction rate and retention time required for pH correction prior to secondary treatment using a sedimentation tank.

Secondary treatment

Sedimentation tank/s will be utilised to provide the necessary residence time for secondary treatment of abstracted groundwater prior to discharge to the stormwater system. The following suitably sized treatment systems could be utilised:

- 1x Large volume sedimentation tank (approximately 23 kL each)
- 2x Lamella plate clarifiers (approximately 5.5 kL each).

6.4.2 Hydrocarbon treatment

A Sedi-Sparger (air-sparger) treatment system will be installed to remove detectable concentrations of TRHs. The system is custom designed for:

1. The removal of solids via sedimentation
2. The separation of light non-aqueous phase liquids (LNAPLs) e.g. diesel or motor spirit from water in a similar way to a triple interceptor
3. The skimming of separated LNAPLs from the top of the water surface via gravity or pumping into appropriately rated storage vessels
4. The stripping of volatile organic compounds (VOCs) from contaminated water.

The system injects pressurised air into the bottom of the tank causing VOCs in the liquid phase to be transferred to the vapour phase. VOC bubbles are then separated from the water and vapours are treated

using carbon adsorption. This process may be repeated if required, resulting in a significant reduction in volatile contaminants in the water. The process also causes oxygen enrichment which assists in the breakdown of hydrocarbons and the oxidation and precipitation of metals.

6.4.3 Activated carbon filtration

Activated carbon filtration will be adopted if detectable organic contaminant concentrations are identified during pre-discharge monitoring, or at any time during regular monitoring of discharges. Activated carbon filtration operates by the adsorption of organic compounds onto the surface of the filter media, with a broad-spectrum adsorptive capacity which is capable of retaining most organic molecules

6.4.4 Dewatering strategy

The Site Manager, Dewatering Contractor and Environmental Consultant must formulate a dewatering strategy to ensure that the dewatering treatment system is sufficient to meet the requirements of the project and that the necessary equipment can be accommodated within the site prior to the commencement of dewatering.

6.4.5 Initial pump-out

Prior to discharge of any extracted groundwater to the stormwater network, the following pre-dewatering procedure will be undertaken:

- The excavation will be excavated down to the standing groundwater level.
- The initial dewatering discharge will be directed (via the treatment systems) into the excavation and allowed to infiltrate/recharge the aquifer. This process will provide initial clarification of the extracted groundwater as disturbed sediment loads are typically reduced following the initial pump-out.
- Samples of the treated groundwater will be recovered and analysed for the relevant parameters detailed in Table 4 and Table 5.
- The extracted groundwater will be directed to the stormwater network following confirmation that the water quality complies with the discharge criteria and that approval to discharge has been obtained from the relevant authority.

6.5 Monitoring

6.5.1 Visual monitoring

Visual inspections of the site and dewatering equipment shall be undertaken daily by the Site Manager to identify the following:

- Quantity of chemical product within the dosing system
- Effective operation of all dewatering treatment equipment
- Short circuiting of water around baffles and any filter media in sediment tanks
- Visible hydrocarbon sheens and odours
- Green blue or extremely clear water indicating high levels of dissolved aluminium.

The Site Manager must keep a daily record of flow rates and extraction volumes for submission to Water NSW / DPI Office of Water following the completion of dewatering activities at the site, should it be required. Flow rates and extraction volumes will be measured using a calibrated flow meter installed on the dewatering treatment system.

6.5.2 Water quality monitoring

Water quality monitoring will be undertaken for the duration of dewatering activities at the site. The monitoring will include analysis of the extracted groundwater, treated discharge water and off-site monitoring in the receiving waters (in the mixing zone within a 20m radius of the discharge point). Background water quality monitoring of field parameters will also be conducted during each sampling event. The background samples will be recovered from the Hunter River, approximately 200m to 300m to the east or west of the discharge point (tide dependent). In the event that access to the receiving waters and/or background waters is not available then the receiving waters criteria will be used for comparison against the discharge sample data. The monitoring locations are shown in Figure 1, Appendix A.

Water quality monitoring will be undertaken for the duration of dewatering activities at the site.

Monitoring will be undertaken at the following frequencies:

- Daily monitoring of field parameters (pH, electrical conductivity, dissolved oxygen, temperature and turbidity) in the treated discharge water. Daily monitoring will be undertaken by a suitably trained site employee under the supervision of the Site Manager.
- Weekly monitoring of field parameters (pH, electrical conductivity, dissolved oxygen, temperature and turbidity) in the treated discharge water, receiving waters and background waters by Environmental Consultant.
- Weekly laboratory analysis of treated discharge water and receiving waters for suspended solids and dissolved 0.45µm filterable metals (aluminium, arsenic, cadmium, chromium, copper, iron, lead, nickel, zinc and mercury) by Environmental Consultant.
- Weekly laboratory analysis of treated discharge water will be undertaken for total recoverable hydrocarbons (TRHs), benzene, toluene, ethylbenzene and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) during the initial rounds of monitoring by Environmental Consultant. Approval from the relevant authority (EPA) should be obtained to discontinue or reduce (i.e. monthly) the analytical frequency of these parameters if no detectable concentrations are reported for three consecutive weeks.
- Pre-discharge/initial monitoring of field parameters (pH, electrical conductivity, dissolved oxygen and oxidation-reduction potential) in the extracted groundwater (prior to treatment) to assess changes in groundwater chemistry associated with PASS oxidation (sampled by Environmental Consultant).
- Pre-discharge/initial laboratory analysis of extracted groundwater (prior to treatment) for suspended solids, dissolved 0.45µm filterable metals (aluminium, arsenic, cadmium, chromium, copper, iron, lead, nickel, zinc and mercury) and for soluble sulfate and chloride to assess changes in groundwater chemistry associated with PASS oxidation (sampled by Environmental Consultant).

All samples will be recovered by a suitably qualified Environmental Scientist and submitted to a National Association of Testing Authorities (NATA) accredited laboratory for analysis.

Following the receipt of pre-discharge sample results, the results will be reviewed and forwarded to the relevant authority (EPA) to obtain approval to commence offsite discharge. Pre-approval on a fast turn-around-time (TAT) will be requested (48 to 72 hours) from a NATA accredited laboratory, with sufficient notification from BLOC on an anticipated commencement date for the dewatering.

6.5.3 Discharge volumes

A daily record of discharge rates and total volumes must be recorded from the dewatering flow meter/s. The monitoring will be undertaken by a suitably trained site employee under the supervision of the Site Manager.

6.5.4 Groundwater level monitoring

Groundwater levels outside of the dewatering extent should be monitored for the duration of dewatering activities to identify potential impacts associated with drawdown beyond the site boundaries. Monitoring should be undertaken at daily intervals or as required (in accordance with the conditions of any Dewatering Licence issued for the site) for the duration of dewatering by the Site Manager at proposed monitoring well location/s. The results should be reviewed by a suitably qualified and experienced hydrogeologist engaged by the Site Manager. These results must be submitted to Water NSW upon completion of the project.

At least one semi-permanent monitoring well is recommended to be installed (preferably 3 wells spaced equidistantly around the site), outside the dewatering extent prior to the commencement of dewatering on the site. Monitoring wells must be surveyed by a registered surveyor including elevation in metres AHD to an accuracy of not less than +/- 5mm to enable accurate groundwater level gauging and comparison with other monitoring wells on the site and/or in the locality. Baseline groundwater levels should be determined from 3 consecutive weeks of level monitoring prior to commencement of dewatering operations.

Appropriate actions will be identified by a geotechnical engineer and taken if significant drawdown is identified to be occurring at the site boundary (i.e. >0.5m drawdown from pre-dewatering levels at the site boundary). For example, one such action could be the reinjection of groundwater external to the basement excavation where drawdown outside the basement perimeter becomes significantly reduced from average pre-construction levels, as determined by the geotechnical engineer.

6.5.5 Monitoring responsibilities

The persons responsible for undertaking the compliance monitoring described in Section 6.5.2 above are shown in Table 6.

Note: It is recommended that the Environmental Consultant be a third-party (not an employee of the dewatering contractor) to ensure the objectivity, robustness and reliability of all water quality monitoring data collection and reporting.

Table 6 Monitoring Responsibilities

Activity	Frequency	Responsibility	Person
Monitoring of field parameters in discharge water	Daily	BLOC Pty Ltd	Site Manager
Monitoring of field parameters in discharge water, receiving waters and background waters	Weekly	Environmental Consultant	Environmental Consultant
Laboratory analysis of samples recovered from discharge water and receiving waters	Weekly	Environmental Consultant	Environmental Consultant
Monitoring of field parameters in extracted groundwater (pre-treated)	Initially, then as required	Environmental Consultant	Environmental Consultant
Laboratory analysis of samples recovered from extracted groundwater (pre-treated)	Initially, then as required	Environmental Consultant	Environmental Consultant
Groundwater level monitoring	Daily	BLOC Pty Ltd	Site Manager
Discharge volume monitoring	Daily	BLOC Pty Ltd	Site Manager

6.6 Maintenance

The groundwater treatment systems must be regularly maintained. Maintenance must include:

- Regular cleaning and or replacement of any filters within the retention tanks, where required to be installed.
- Regular removal of sediment from the retention tanks. The sediment must be either discharged into the excavation pit for dewatering and removal with excavated materials or removed from the site by a licensed liquid waste contractor.
- Regular check of the dosing system and top-up of buffering solutions and flocculants.

6.7 Reporting

Dewatering management procedures and monitoring results will be reviewed by the Environmental Consultant to ensure that the treatment procedures are effective, and that the receiving waters are not being impacted by the discharge.

The following reporting procedures will be adopted:

- A summary report will be prepared upon completion of the initial discharge monitoring. The report will be submitted to the Site Manager, Dewatering Contractor and NCC upon request.
- Weekly Interim Reports will be prepared weekly upon receipt of laboratory data for each round of ongoing compliance monitoring. The interim reports will display all data obtained during the previous monitoring event, and provide comments and recommendations based on the results.

- A Dewatering Compliance Monitoring Report will be prepared following completion of dewatering activities at the site (upon request).

The above reports will be prepared by the Environmental Consultant and provided to the Site Manager, Dewatering Contractor, and Council (if requested) as they become available. The reports will include all water quality results and comparison to the WQOs, corrective actions and recommendations made to the Site Manager and Dewatering Contractor during the monitoring period. The final Dewatering Compliance Report will confirm whether the predicted water quantity and quality objectives were met during the dewatering program.

The Site Manager must keep records of complaints, volumes of chemicals used and treatment methods employed. These records must be available on-site at all times.

6.8 Contingencies

If water quality monitoring indicates ongoing exceedances of the performance criteria and the water quality objectives for the receiving waters cannot be met, then corrective actions will be adopted as necessary. Possible contingency options are:

- Installation of additional sedimentation tanks to provide increased residence time and assist with the retention of suspended solids and precipitated iron hydroxides.
- Installation of additional flocculant and/or coagulant dosing systems to assist in precipitation of suspended sediments and/or heavy metals.
- Install a floating sediment curtain/s around the stormwater termination point in the receiving waterway to prevent unsightly plumes and contain sediment and/or heavy metals for periodic removal (subject to approval by NCC).

7 Erosion & sediment and Stormwater control

7.1 Responsibility

The Site Manager is responsible for ensuring the appropriate implementation and maintenance management of erosion and sediment control devices, stormwater controls and related monitoring and inspections.

7.2 Operational policy

To minimise erosion of soil materials within the site, and to minimise unintended offsite transport of soil materials from the site (either by wind, rainfall, overland flow/runoff or vehicular movements) which may result in sedimentation or turbid plumes with local stormwater infrastructure, the downstream receiving environment and/or material residues on local roadways during construction.

7.3 Performance criteria

The appropriate criteria to measure the implementation and performance of erosion and sediment control devices and stormwater controls at the site are provided below:

- Appropriate erosion and sediment control devices are implemented and maintained throughout the site at all times in accordance with the approved Northrop Consulting Engineers: Erosion and Sediment Details, drawing ref's: NL171278- CC-02-C2.0-Rev1, NL171278- CC-02-C2.1-Rev1, and/or other erosion and sediment control planning documentation approved for the site (as conditioned, superseded and/or amended from time to time).
- No degradation of offsite infrastructure (i.e. stormwater network and/or roadway or foot traffic pavements) or receiving environments due to erosion of materials and subsequent sedimentation or offsite release of waters not meeting the discharge criteria in Table 4.

7.4 Implementation strategy

The following erosion and sediment control practises must be adopted during construction:

- All erosion and sediment control devices must be appropriately installed and maintained in good working order to comply with the performance criteria.
- Non-complying erosion and sediment control devices will be replaced or repaired as necessary.
- The approved Erosion and Sediment Control Plan controls, i.e. sediment and dust control fencing (1.8m high chain wire/temporary fence with fitted dust control mesh/shade cloth) is in place along the boundary prior to commencement of construction to minimise the off-site migration of dust.
- Erosion and sediment control devices will be designed and installed in accordance with the International Erosion Control Association (IECA) 2008 *Best Practice Erosion and Sediment Control*.
- Controls will be installed prior to the commencement of work, to minimise the potential for run-on stormwater flow and the offsite/run-off migration of contaminants off-site.
- Daily site inspections will be undertaken to verify that all sediment and erosion control devices are maintained.
- Sufficient sediment and erosion control supplies will be kept on-site at all times.

Stormwater must be managed on the site as follows:

- Clean stormwater runoff must be diverted around the construction areas using sediment fencing, bunding and/or drains.
- Stormwater collected within disturbed areas will be appropriately managed, and may require testing and treatment prior to discharge from the site.

Dust generation will be minimised as follows:

- The approved Erosion and Sediment Control Plan must be implemented, and additional controls implemented where wind-borne erosion and dust generation is identified as a significant site issue suitable controls are to be implemented (i.e. such as a 1.8m high chain wire/temporary fence with fitted dust control mesh/shade cloth installed along the boundary) to minimise the off-site migration of dust.
- Topsoil stripping and/or removal will be minimised where practicable.

- Soil stockpiles will be covered/mulched/seeded and/or lightly watered to reduce dust generation, as required.
- Exposed excavations and stockpiled material will be lightly watered regularly (i.e. sprayed with water carts, etc.), with increased frequency during periods of high wind.
- All dust creating activities will cease if hourly average wind speeds exceed 10m/second (36km/hr).
- All temporary and/or permanent bunds and reshaped areas will be sealed or revegetated within 10 days after the completion of earthworks or stockpiling (where required).
- Contract staff will be trained to implement dust minimisation measures.
- Daily inspections will be carried out by the Site Manager to verify that dust mitigation measures are being implemented.
- Dust monitoring will be conducted upon receipt of complaints by adjacent residents.
- The site manager will notify Council on receipt of three (3) or more dust complaints in any 24-hour period. Reports will be provided to Council upon request. Complaints by residents will be recorded in a Complaints Register.

7.5 Monitoring

An inspection of the site, onsite erosion and sediment controls and external pavements in proximity of the site access/egress points shall be undertaken daily by the Site Manager to identify the following:

- Material stockpiles, access tracks and/or areas requiring additional erosion and sediment control devices, which shall be installed as soon as practicable in accordance with the approved erosion and sediment control plan (refer Northrop Consulting Engineers documentation, or other ESC planning documentation as adopted/amended from time to time.)
- Faulty or damaged erosion and sediment control devices, which shall be remedied as soon as practicable following identification.

In addition to daily monitoring, event-based monitoring of offsite discharges of intercepted/captured stormwater and/or overland flow will be undertaken by the Site Manager and/or Environmental Consultant. Event-based monitoring will confirm appropriate water quality suitable for offsite discharge in accordance with the adopted discharge criteria contained in Table 4. Water identified as not meeting the discharge criteria in Table 4 will be recirculated onto the site (where reasonably practicable, noting this may not be possible during intense and/or prolonged rainfall events), and additional treatment measures adopted to achieve compliance, which may include pH correction, dosing and settlement of suspended solids using chemical flocculants and coagulants.

7.6 Reporting

Reporting will be undertaken by the Site Manager by recording erosion and sediment control daily inspections, maintenance and new installations on a daily inspection checklist or in the daily site diary.

7.7 Contingencies

If erosion and sediment controls are found to consistently fail to meet the performance criteria, the Site Manager will engage a suitably qualified and experienced consulting engineer for review and audit of the erosion and sediment control plan (as approved and/or modified from time to time).

8 Noise & odour management

8.1 Responsibility

The Site Manager is responsible for ensuring the appropriate management of noise and odour during dewatering operations.

8.2 Operational policy

To minimise noise and odour emissions generated from the site during dewatering.

8.3 Performance criteria

The appropriate criteria to measure the performance of dewatering management at the site are provided below.

- Noise generated by dewatering plant must comply with the requirements of Table 2.2 *Amenity Noise Levels* in the *NSW Noise Policy for Industry* (EPA 2017).
- No degradation of air quality due to fumes or odours emanating from the dewatering process.

8.4 Implementation strategy

Noise and odour emissions will be managed as described in the following sections.

8.4.1 Noise

All dewatering equipment must be operated appropriately and maintained in good working order. All dewatering systems and plant must be fitted with the appropriate noise reduction equipment to comply with the performance criteria. Non-complying dewatering plant will be replaced or repaired as necessary.

The following measures will be adopted to minimise noise related issues:

- Operation of noise-generating plant/equipment during construction works, including the entering and leaving of vehicles, is limited to the following hours in accordance with Condition D3 of the DA, unless otherwise permitted by Council:
 - Monday to Saturday from 7.00am to 6.00pm
 - No work to be carried out on Sundays or Public Holidays
- Machinery will be maintained in good mechanical condition with all mufflers and baffles in proper operating condition according to manufacturer's specifications
- Low noise machinery will be utilised, where available
- High efficiency mufflers will be fitted to machinery if required
- Noisy machinery will be positioned away from neighbouring residences
- The site manager will notify Council on receipt of three (3) or more noise complaints in any 24 hour period. Reports will be provided to Council upon request. Complaints by residents will be recorded in a Complaints Register.

8.4.2 Odour

All dewatering plant must be fitted with the appropriate emission reduction devices. Where practicable, all dewatering plant will be sealed to prevent the release of odours to the atmosphere. Fine mist odour control sprays will be applied to reduce offensive odours if complaints are received from neighbouring residents.

Odours and vapours will be managed in accordance with NEPC (2013) *Schedule B (9) – Guideline on the Protection of Health and the Environment During the Assessment of Site Contamination*. The following measures will be adopted to minimise odour related issues:

- Minimising the exposed surface of the odorous materials at all times.
- Timing excavation activities to minimise off-site nuisance.
- Covering or closely containing odorous materials.
- Use of fine mist sprays and hydrocarbon surfactants, if required.

8.5 Monitoring

An inspection of the site and dewatering equipment shall be undertaken daily by the Site Manager to identify the following:

- Excessive noise being generated by the dewatering systems and plant

- Strong or offensive odours being generated by the dewatering equipment and/or extracted groundwater.

8.6 Reporting

Reporting will be undertaken as described in Section 6.7 of this report.

8.7 Contingencies

If noise levels consistently exceed the performance criteria, temporary acoustic barriers will be constructed around the offending dewatering systems and plant. Odour control sprays will be applied as necessary to mask odour emissions if complaints are received from neighbouring residents. This may include the direct injection of deodorisers to the groundwater treatment system.

9 Operational controls

9.1 Responsibilities

All personnel operating onsite hold a general environmental duty and corresponding obligation for the protection of the environment under the *Protection of the Environment Operations Act 1997* (NSW). In addition, the Site Manager will undertake and/or reasonably delegate the following responsibilities:

- Ensure compliance with all applicable legal and other environmental obligations
- Communicate with all personnel and subcontractors regarding compliance with the EMP and site specific environmental issues, including environmental inductions
- Ensure all project staff are competent to undertake their duties including fulfilment of the general environmental duty, with regard to appropriate education, training and experience
- Ensure the necessary resources and processes are in place for implementation of required environmental controls, and work with relevant consultants and agencies in planning additional controls, as required
- Coordinate implementation of the CEMP and undertake site inspections to monitor effectiveness
- Ensure non-conformances are identified, recorded and reported and notify any activity that has resulted in an environmental incident to NCC
- Drive implementation and documentation of preventative and corrective actions
- Coordinate implementation and maintenance of pollution control measures, which may include but is not limited to:
 - Dust suppression and management – regularity of water carts and installation/maintenance of dust control fence
 - Sediment and erosion control – sediment fences, dust control fence and flocking of retention basin (if required)
 - Noise control – hours of site operation and plant/equipment mufflers/baffles/pre-start checks
- Provide necessary resources for implementation of the CEMP, as required.

9.2 Training, Awareness and Competence

Prior to commencing works at the site, personnel will receive a site induction, including the requirements of the CEMP related environmental management measures.

As a minimum, personnel will be familiar with the various elements of the CEMP, including this DMP, and will be able to understand it. A copy of the approved CEMP will be maintained onsite and will be located in a position accessible to site personnel and contractors. This DMP forms a component the overall CEMP.

Contractors are responsible for ensuring personnel are aware of site environmental management measures and adequate resources and/or materials are available to implement these measures. Additional environmental training will also be provided to specific personnel by site management, if required.

9.3 Waste control

Waste generation will be minimised, and disposal controlled, as follows:

- All surface wastes will be deposited in appropriate waste and/or recycling receptacles awaiting lawful disposal at appropriately licenced landfill facilities.
- Soil stockpiles will be sampled and analysed at the rate of one (1) soil sample per 50 m³, in accordance with the NEPM, with stockpile concentrations (95% UCL of mean) exceeding the NEPM HIL B/HSL B criteria being compared and applied a waste classification in accordance with the NSW Waste Classification Guidelines (NSW EPA, 2014) where the material is unable to be safely utilised as non-surface fill material within non-residential areas of the development, subject to meeting relevant NEPM criteria. Advice regarding disposal will be compiled by a suitably qualified environmental consultant following receipt and assessment of laboratory reporting on final stockpile sampling and analysis results.
- Stockpiled material requiring disposal as a result of relevant NEPM criteria exceedance/s and which have been applied a waste classification will be lawfully disposed at an appropriate licenced landfill facility authorised to receive that classification of waste material. Disposal of stockpiled

material will be limited to that material requiring disposal. Records will be maintained by the Site Manager for all waste material transport and disposal activities.

9.4 Mosquito management

Mosquitoes are not only nuisance biting pests but also have the potential to spread disease causing pathogens such as Ross River virus and Barmah Forest virus (amongst others). However, mosquitoes are also an important component of the wetland ecosystem, providing food for some birds, bats, amphibians, fish and macroinvertebrates. The management and control of mosquitoes is a major concern for local authorities, but strategies should be employed that minimise adverse impact on the environment.

There are many different types of mosquito, each closely associated with particular habitats and representing a range of nuisance and public health risks. Mosquitoes are, however, an integral part of the environment and, regardless of the control strategies implemented, mosquitoes will always be active locally during the warmer months (Living with Mosquitoes in the Lower Hunter & Mid North coast region of NSW, 2nd Edition December 2009).

The NSW coast has experienced rapid population growth in recent years with increasing demand for new residential developments. Conservative estimates predict that the residential population in the Hunter region will exceed 500,000 by 2020 with most being concentrated along the coast in the local government areas of Great Lakes, Port Stephens, Newcastle, Lake Macquarie and Maitland. An increasing concern in coastal NSW is the proximity of new residential and recreational developments to estuarine and brackish water wetlands. Notwithstanding the environmental impacts of adjacent urbanisation on wetlands, as humans are brought closer to mosquito habitats there is a greater likelihood of nuisance biting occurring and health risks increasing.

The container breeding mosquito, *Ae. notoscriptus*, can be a serious pest and is closely associated with water holding containers and shallow ponds in residential areas. The production of mosquitoes can be reduced by emptying, covering or removing all containers (such as cans, old tyres, buckets), filling shallow depressions and ponds with sand to absorb standing water, ensuring tarpaulins or plastic covered stockpiles don't collect water, and ensuring drains are free-draining and free of silt regularly.

Construction should be designed to eliminate (if possible) any standing water impoundment on site and/or the redirection of water flows into potential mosquito breeding areas. Drains should be designed to avoid silt accumulation and be free draining. Exit points from drains into waterways or wetlands should be designed to avoid habitat changes at discharge points such as will occur if organically enriched drainage from soil stockpiles is inappropriately directed into mangrove areas or tea tree wetlands. Misdirected stormwater into these habitats can create new midge and mosquito breeding sites or increase existing breeding by favouring certain aquatic and semi aquatic vegetation species that restrict drainage flow. Silt accumulation at stormwater estuary discharge points, combined with regular low flow water discharge particularly suit biting midge species.

In addition to prevention of ponded water (>5days) and siltation of drains within and adjacent to the site, the following control measures shall be adopted to minimise or prevent insect bites and associated transmission of vector-borne disease:

- Personal protection measures are the first line of defence against mosquito-borne diseases. Strategies to be implemented to avoid and repel mosquitoes and midges include:
 - Personnel will be educated on mosquito and midge problem on-site and educated in management strategies and responsibilities for their own health (through induction, regular communication and posters throughout the construction site).
 - Where practicable, personnel will avoid peak biting times; specifically, at dawn and dusk.
 - Where practicable, personnel will avoid dense vegetation near breeding sites for one or two weeks after the highest astronomical tides of the month or following significant rain.
 - When required, personnel will use mosquito repellents. The main active ingredient in mosquito repellents is N,N-diethyl- 3-methylbenzamide (deet) which has a broad spectrum of effectiveness against a variety of arthropods, including mosquitoes. Repellents have

differing concentrations of deet with the concentration of deet needed depending on the individual.

- The workforce will be notified if there is a mosquito or biting midge problem and individuals will take appropriate personal protection measures.
- The site will be inspected weekly by the Site Manager for all containers, ponded water and vessels capable of holding water (including bunded areas) to prevent water pooling and creation of potential mosquito breeding habitat. These areas will be drained and treated as required.
- On-site ponds/sediment basins will follow design goals to decrease opportunities for mosquitoes to breed. These design features include:
 - Ponds will not be less than 60cm deep.
 - Pond batter slopes will not be greater than 1:6.
 - Pond design will not support rapid growth of emergent aquatic plants or the formulation of vegetation hummocks in periods of low water levels.
 - Basins and swales will be designed to empty in less than seven days to prevent the completion of mosquito breeding cycles.
- Access roads will be fitted with culverts where necessary, in order to prevent water ponding upstream, and thus prevent mosquito breeding.
- All materials taken on or off-site will be inspected for pooled water and drained and treated as required.
- Reinstated sites will be re-contoured to the original surface profiles to prevent ponding.
- Design landscaping and drainage so that no stagnant ponding occurs during and after construction.

9.5 Workplace health and safety

A Workplace Health & Safety (WH&S) Plan must be prepared for the construction activities to be performed on the site where employees may be exposed to toxic or other hazardous compounds and elements. Specific requirements relating to dermal contact and inhalation as well as public safety, vehicle decontamination, protective clothing, equipment and appropriate safety controls must be addressed. Personnel working on the site must read and understand the WH&S Plan. All staff working on the site during construction works must be inducted and sign relevant forms stating that induction has been carried out.

10 Limitations

ADG Consulting (ADG) has prepared this report for BLOC Pty Ltd on behalf of Doma Holdings (Honeysuckle) Pty Ltd in accordance with the agreed scope of work and for the purpose outlined in ADG's Fee Proposal. The services performed by ADG have been conducted in a manner consistent with the normal level of care and expertise exercised by members of the environmental consulting profession. No other warranty or guarantee, expressed or implied, is made as to the professional advice included in this report.

This report is solely for the use of BLOC Pty Ltd and Doma Holdings (Honeysuckle) Pty Ltd, and ADG accepts no responsibility for the use of any part of this report for any other purpose or by third parties, as it may not contain sufficient information for the purposes of other parties or users. This report must only be presented in full, and may not be used for any other objective, except where prior written approval is obtained from ADG. This report does not comment on legal obligations, as legal advice can only be given by qualified legal practitioners.

The information contained in this report is provided to minimise potential impacts on the receiving environment, however implementation of the described management procedures does not guarantee that the objectives will be achieved.

The information contained in this report is considered to be accurate at the date of issue. Subsurface conditions, including contaminant concentrations can change in space and time, either through natural processes or by the accidental or intentional addition of contaminants to a site. Where conditions encountered subsequently at the site are significantly different from those reported herein, ADG must be notified and be provided the opportunity to review the conclusions and recommendations of this report.

11 References

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Douglas Partners Pty Ltd. October 2017b. *Geotechnical Investigation, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.001.Rev0*.

Douglas Partners Pty Ltd. November 2017. *Acid Sulfate Soil Management Plan, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.003.Rev0*.

Douglas Partners Pty Ltd. April 2018. *Remediation Action Plan, Proposed Mixed Use Development, 42 Honeysuckle Drive, Ref 91181.00.R.004.Rev0*.

Appendix A: Figures

Figure 1. Site location and proposed monitoring locations



42 Honeysuckle Drive, Newcastle, New South Wales

Site location and proposed dewatering monitoring locations

Legend



Proposed monitoring locations



Site boundary

BW sampling location (tide dependant)

Option 2: RW sampling location ~20m of stormwater outlet (location TBC)

Site discharge location (TBC)

Option 1: RW sampling location ~20m of stormwater outlet (location TBC)

Appendix B: Groundwater bore search

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State Overview

[State Overview](#)

Rivers and Streams

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Daily River Reports

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[Real Time Data - Major Dams](#)

Groundwater (Telemetered data)

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[Real Time Data - Bores](#)

All Groundwater Site details

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[All Groundwater Map](#)

Meteorology

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[Real Time Data - Weather Stations](#)

Hunter Integrated Telemetry System

[Hunter Integrated Telemetry System](#)

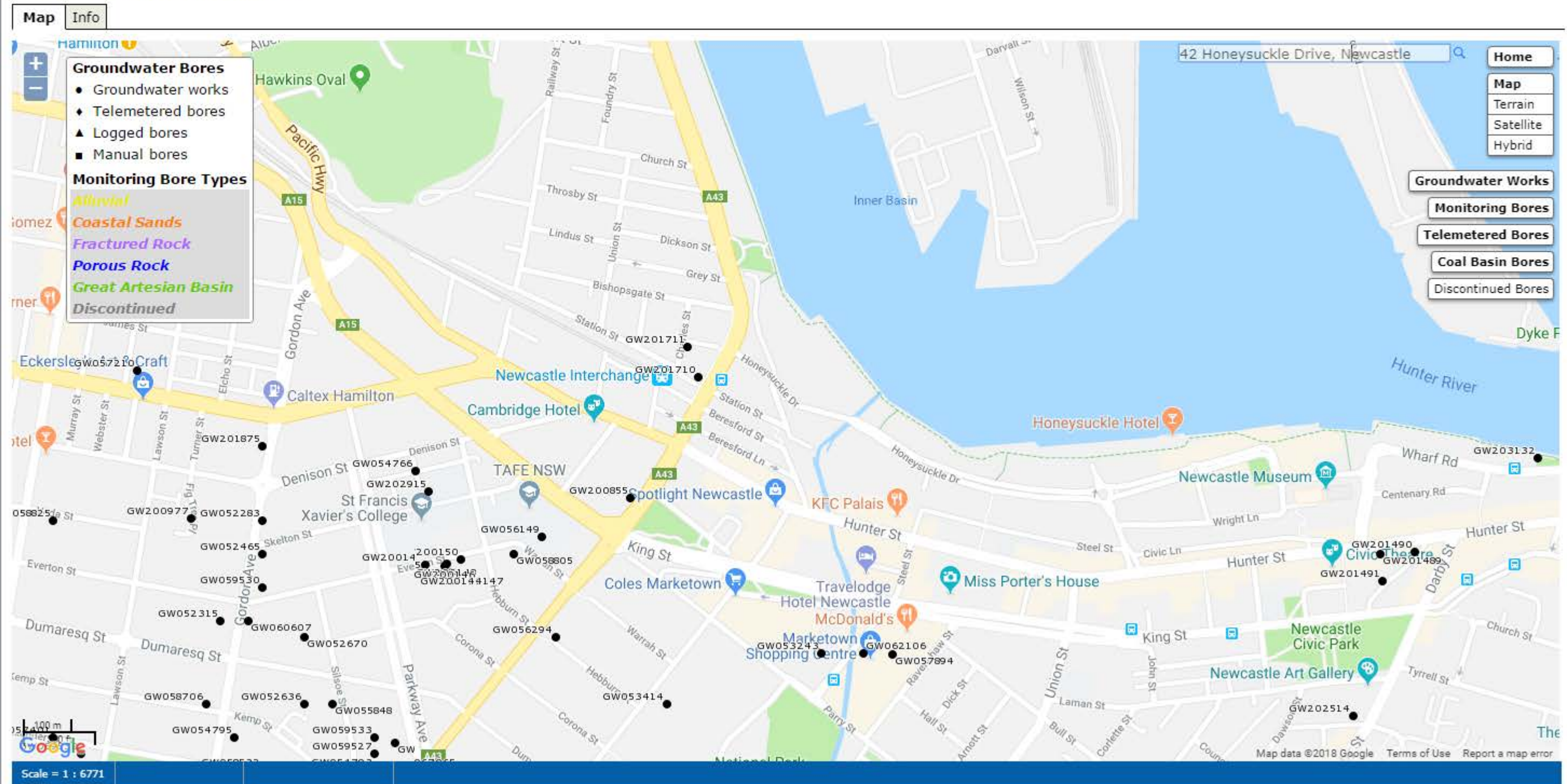
bandwidth ☒ high ☐ low

[glossary and metadata](#)

All Groundwater Site Details

All Groundwater Map

All data times are Eastern Standard Time



NSW Office of Water

Work Summary

GW053243

Licence: 20BL119173

Licence Status: LAPSED

Authorised Purpose(s): INDUSTRIAL

Intended Purpose(s): RECREATION (GROUNDWATER)

Work Type: Spear

Work Status: Supply Obtained

Construct.Method:

Owner Type: Private

Commenced Date:

Completion Date: 01/01/1981

Final Depth:

Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: N/A NSW

Standing Water Level (m):

Salinity Description:

Yield (L/s):

GWMA: -

GW Zone: -

Site Details

Site Chosen By:

County

Form A: NORTH

Licensed: NORTHUMBERLAND

Parish

NORTH.044

NEWCASTLE

Cadastre

L104 (268)

Whole Lot //

Region: 20 - Hunter

CMA Map: 9232-2S

River Basin: 210 - HUNTER RIVER

Grid Zone:

Scale:

Area/District:

Elevation: 0.00 m (A.H.D.)

Northing: 6355938.0

Latitude: 32°55'43.3"S

Elevation (Unknown)

Easting: 384278.0

Longitude: 151°45'44.1"E

Source:

GS Map: -

MGA Zone: 0

Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
------	------	-----------	------	----------	--------	-----------------------	----------------------	----------	---------

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

Remarks

***** End of GW053243 *****

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NSW Office of Water

Work Summary

GW201711

Licence: 20BL172829

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 15/06/2011

Final Depth: 6.00 m
Drilled Depth: 6.00 m

Contractor Name: SGA Environmental

Driller: Dahmon Sorongan

Assistant Driller: David Gouge

Property: N/A 10 DANGAR STREET
WICKHAM 2293

Standing Water Level: 1.260

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: NORTH
Licensed:

Parish
NORTH.44

Cadastre
30//635397

Region: 20 - Hunter

CMA Map: 9232-2S

River Basin: 210 - HUNTER RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6356503.0
Easting: 384023.0

Latitude: 32°55'24.9"S
Longitude: 151°45'34.5"E

GS Map: -

MGA Zone: 0

Coordinate Source: GPS - Global
Positioning System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel
Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	90			Auger - Solid Flight
1		Annulus	Cement Grout	0.00	0.40	90	50		PL:Pour ed/Shovelled
1		Annulus	Bentonite	0.40	1.50	90	50		PL:Pour ed/Shovelled
1		Annulus	Waterworn/Rounded	1.50	6.00	90	50		Graded, PL:Pour ed/Shovelled
1	1	Casing	Pvc Class 12	0.00	2.00	50	44		Seated on Bottom, Other
1	1	Opening	Slots - Diagonal	2.00	4.00	50		1	Casing - Hand Sawn Slot, PVC Class 12, Other, SL: 40.0mm, A: 5.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
1.30	6.00	4.70	Unknown	1.26					5337.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Fill; loose, black/dark grey silty sand, building rubble fragments	Fill	
0.20	0.70	0.50	Sand, silty; loose, light grey	Sand	
0.70	1.10	0.40	Sand, silty; grading to moderately dense, brown	Sand	
1.10	1.25	0.15	Sand, silty; as above, grading to dark brown	Sand	
1.25	1.70	0.45	Sand; dense, light brown, marine deposits	Sand	
1.70	2.50	0.80	Sand, silty; dense, grey	Sand	
2.50	2.60	0.10	Sand, silty; dense, grey, with gravel	Sand	
2.60	3.50	0.90	Sand, silty; dense, brown	Sand	
3.50	6.00	2.50	Sand; moderately dense, grey	Sand	

Remarks

15/06/2011: Form A Remarks:

Nat Carling, 3-May-2012; GPS provided by driller/consultant.

*** End of GW201711 ***

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NSW Office of Water

Work Summary

GW201710

Licence: 20BL172829

Licence Status: ACTIVE

Authorised Purpose(s): MONITORING BORE
Intended Purpose(s): MONITORING BORE

Work Type: Bore

Work Status: Equipped

Construct.Method: Auger - Solid Flight

Owner Type: Private

Commenced Date:
Completion Date: 15/06/2011

Final Depth: 3.50 m
Drilled Depth: 3.50 m

Contractor Name: SGA Environmental

Driller: Dahmon Sorongan

Assistant Driller: David Gouge

Property: N/A 10 DANGAR STREET
WICKHAM 2293

Standing Water Level:

GWMA:
GW Zone:

Salinity:
Yield: 1.190

Site Details

Site Chosen By:

County
Form A: NORTH
Licensed:

Parish
NORTH.44

Cadastre
30//635397

Region: 20 - Hunter

CMA Map: 9232-2S

River Basin: 210 - HUNTER RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation Source: Unknown

Northing: 6356447.0
Easting: 384044.0

Latitude: 32°55'26.7"S
Longitude: 151°45'35.3"E

GS Map: -

MGA Zone: 0

Coordinate Source: GPS - Global
Positioning System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel
Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	3.50	90			Auger - Solid Flight
1		Annulus	Cement Grout	0.00	0.40	90	50		PL:Pour ed/Shovelled
1		Annulus	Bentonite	0.40	1.00	90	50		PL:Pour ed/Shovelled
1		Annulus	Waterworn/Rounded	1.00	3.00	90	50		Graded, PL:Pour ed/Shovelled
1	1	Casing	Pvc Class 12	0.00	1.40	50	44		Seated on Bottom, Other
1	1	Opening	Slots - Diagonal	1.40	3.00	50		1	Casing - Hand Sawn Slot, PVC Class 12, Other, SL: 40.0mm, A: 5.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
1.40	3.50	2.10	Unknown	1.19					941.00

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
0.00	0.20	0.20	Fill; loose yellow, fine sand, some brown sandy clay	Fill	
0.20	0.50	0.30	Fill; soft dark brown/black silty sand, some gravel & ceramic fragments, possible charcoal	Fill	
0.50	0.80	0.30	Sand, loose, brown, minor silt	Sand	
0.80	3.50	2.70	Sand, silty, loose, soft, grey	Sand	

Remarks

15/06/2011: Form A Remarks:
Nat Carling, 3-May-2012; GPS provided by driller/consultant.

*** End of GW201710 ***

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NSW Office of Water

Work Summary

GW200855

Licence: 20BL172387

Licence Status: CANCELLED

Authorised Purpose(s): TEST BORE
Intended Purpose(s): TEST BORE

Work Type: Spear

Work Status: Supply Obtained

Construct.Method: Auger - Hollow Flight

Owner Type: Private

Commenced Date:

Completion Date: 01/06/2010

Final Depth: 6.00 m

Drilled Depth: 6.00 m

Contractor Name:

Driller: Michael James Lindsay

Assistant Driller:

Property: N/A 14 - 16 STEWART AVENUE
NEWCASTLE WEST 2302

Standing Water Level: 1.500

GWMA:
GW Zone:

Salinity:
Yield:

Site Details

Site Chosen By:

County
Form A: NORTH
Licensed:

Parish
NORTH.44

Cadastre
1//861729

Region: 20 - Hunter

CMA Map: 9232-2S

River Basin: 210 - HUNTER RIVER
Area/District:

Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)

Northing: 6356222.0

Latitude: 32°55'34.0"S

Elevation Source: Unknown

Easting: 383920.0

Longitude: 151°45'30.4"E

GS Map: -

MGA Zone: 0

Coordinate Source: GIS - Geographic
Information System

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel
Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	6.00	50			Auger - Hollow Flight
1		Annulus	Waterworn/Rounded	4.00	6.00	50	50		Graded, PL:Poured/Shovelled
1		Backfill	Sand	5.90	6.00	50			
1	1	Casing	Pvc Class 9	0.00	6.00	50			Seated, Glued, S: 5.90-6.00m
1	1	Opening	Slots - Diagonal	4.90	5.90	50		1	Casing - Drilled Holes, PVC Class 9, Other, SL: 25.0mm, A: 25.00mm

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
1.50	6.00	4.50	Unknown	1.50	2.00			01:00:00	

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

0.00	0.50	0.50	Sand, brown	Sand	
0.50	2.00	1.50	Sand, grey	Sand	
2.00	2.50	0.50	Mud, black	Mud	
2.50	2.80	0.30	Mud, grey	Mud	
2.80	3.20	0.40	Sand, grey	Sand	
3.20	3.50	0.30	Mud, grey	Mud	
3.50	4.50	1.00	Sand, grey	Sand	
4.50	4.80	0.30	Mud, grey	Mud	
4.80	6.00	1.20	Sand, grey	Sand	

Remarks

01/06/2010: Form A Remarks:
Nat Carling, 29-Oct-2010: Coordinates based on location map provided with the Form-A.

*** End of GW200855 ***

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW062106

Licence: 20BL119210

Licence Status: CANCELLED

Authorised Purpose(s): INDUSTRIAL,IRRIGATION
Intended Purpose(s): INDUSTRIAL

Work Type: Spear

Work Status:

Construct.Method:

Owner Type: Private

Commenced Date:
Completion Date: 01/01/1980

Final Depth: 6.10 m
Drilled Depth:

Contractor Name:

Driller:

Assistant Driller:

Property: NOT KNOWN 23 STEEL STREET
NEWCASTLE 2300 NSW
GWMA: -
GW Zone: -

Standing Water Level
(m):
Salinity Description:
Yield (L/s):

Site Details

Site Chosen By:

County	Parish	Cadastre
Form A: NORTH	NORTH.044	82
Licensed: NORTHUMBERLAND	NEWCASTLE	Whole Lot 1//1060087

Region: 20 - Hunter
River Basin: 210 - HUNTER RIVER
Area/District:

CMA Map: 9232-2S
Grid Zone:

Scale:

Elevation: 0.00 m (A.H.D.)
Elevation (Unknown)
Source:

Northing: 6355939.0
Easting: 384356.0

Latitude: 32°55'43.3"S
Longitude: 151°45'47.1"E

GS Map: - MGA Zone: 0 Coordinate Source: GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1	1	Casing	P.V.C.	0.00	0.00	40			

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

Remarks

18/08/1988: LOT 82 SECTION B STEEL ST NEWCASTLE

***** End of GW062106 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

NSW Office of Water

Work Summary

GW057894

Licence: 20BL119341 Licence Status: CANCELLED

Authorised Purpose(s): INDUSTRIAL,IRRIGATION
Intended Purpose(s):

Work Type: Spear
Work Status:
Construct.Method:
Owner Type: Private

Commenced Date: Final Depth: 7.60 m
Completion Date: 01/01/1980 Drilled Depth:

Contractor Name:
Driller:
Assistant Driller:

Property: N/A 23 STEEL STREET Standing Water Level 2.000
NEWCASTLE 2300 NSW (m):
GWMA: - Salinity Description:
GW Zone: - Yield (L/s): 0.947

Site Details

Site Chosen By:

County Parish Cadastre
Form A: NORTH NORTH.044 LT PT 8214 SEC B
Licensed: NORTHUMBERLAND NEWCASTLE Whole Lot 1//1060087

Region: 20 - Hunter CMA Map:
River Basin: - Unknown Grid Zone: Scale:

Elevation: 0.00 m (A.H.D.) Northing: 6355939.0 Latitude: 32°55'43.3"S
Elevation Source: Unknown Easting: 384411.0 Longitude: 151°45'49.2"E

GS Map: - MGA Zone: 0 Coordinate Source: Map Interpretation

Construction

Negative depths indicate Above Ground Level; C-Cemented; SL-Slot Length; A-Aperture; GS-Grain Size; Q-Quantity; PL-Placement of Gravel Pack; PC-Pressure Cemented; S-Sump; CE-Centralisers

Hole	Pipe	Component	Type	From (m)	To (m)	Outside Diameter (mm)	Inside Diameter (mm)	Interval	Details
1		Hole	Hole	0.00	7.60	0			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
----------	--------	---------------	----------	------------	------------	-------------	----------------	---------------	-----------------

Geologists Log

Drillers Log

From (m)	To (m)	Thickness (m)	Drillers Description	Geological Material	Comments
----------	--------	---------------	----------------------	---------------------	----------

Remarks

***** End of GW057894 *****

Warning To Clients: This raw data has been supplied to the NSW Office of Water by drillers, licensees and other sources. The NOW does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

ATTACHMENT H COMMUNITY CONSULTATION STRATEGY

Community Communications Strategy

42 Honeysuckle Drive
NEWCASTLE NSW 2300

Prepared by KDC Pty Ltd | July 2018





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Community Communications Strategy

Report Job No. 18284 | Prepared by KDC Pty Ltd | July 2018

Prepared by Samuel Newman

Title Senior Planner, KDC Pty Ltd

Signature 

Date 16th July 2018



KDC Pty Ltd • ABN 61 148 085 492 • www.kdc.com.au
Suite 2B, 25 Bull Street
Newcastle West NSW 2300

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1 Introduction

1.1 Project Background

In June 2018 the Mixed-Use Project was granted consent by the Minister for Planning, subject to conditions (SSD 8440).

The Little National Mixed-Use Project comprises the construction of a nine (9) storey mixed-use building at 42 Honeysuckle Drive, Newcastle. Specifically, the project comprises:

- A ground floor retail premises with kitchen facilities and outdoor dining space;
- Hotel comprising a total of 152 hotel rooms;
- 60 serviced apartments as a part of the hotel including a mix of one, two and three bedroom typologies;
- 234 carparking spaces associated with the uses on site, provided within the building including 25 surplus carparking spaces available for public use.

The construction of the project is proposed to be delivered in accordance with the Construction Management Plan and generally in accordance with the following construction program:

Table 1 - Construction Program

Stage / Activity description	Commencement	Timeline
Carpark to be Closed to the Public and Site Perimeter Fencing Installed.	Mid August 2018	2 weeks
Piling to Commence on Site	Early September 2018	4 to 6 weeks
Excavation	Early September 2018	6 to 8 weeks
Construction of Basement and Sub-Ground Construction Works	November 2018	2 to 4 weeks
Ground Level and Above Construction Work	November 2018	Early 2020
Occupation	Early 2020	

1.2 Project Overview

The site is located on Honeysuckle Drive, which forms part of the Honeysuckle Precinct within the Newcastle City Council local government area (refer to Figure 1). The site is bound by public space on three sides, being Honeysuckle Drive (north), public reserve (west), Light Rail Corridor (south) and private land that supports a three-storey commercial building to the immediate east.

The Honeysuckle Precinct is located within the Newcastle City Centre, to the west of the Newcastle CBD. The precinct has been identified to provide for a variety of high density commercial and mixed-use developments and includes a waterfront promenade and associated public domain improvements.

Surrounding development in the Precinct includes commercial buildings up to seven storeys height located to the east; and typically, residential apartment buildings with ground floor commercial uses to the east.

Refer to Figure 1 below of the Little National Project site.

Figure 1 - Locality Plan



The Little National Mixed-use Project will:

- Provide a building that achieves a standard of architectural design and which will make a positive contribution to Honeysuckle Drive, as well as the wider Newcastle city centre and locality;
- Provide a building that minimises impacts on adjoining and nearby development, as well as the public domain;
- Provide a building that delivers a high level of amenity for future occupants;
- Provide a mix of serviced apartment sizes to cater for a range of customer types and sizes;
- Maintain commercial uses at ground level to activate Honeysuckle Drive and provide services for residents and workers within area; and
- Contribute positively to the ongoing urban renewal of the Honeysuckle Precinct.

2 Community Communications Strategy

2.1 Purpose of the Strategy

This Community Communications Strategy outlines the communication and consultation strategies and procedures to be adopted for the construction phase and first twelve months of occupation of the Little National Mixed-use Project.

This Community Consultation Strategy is required in order to satisfy Condition C7 of the Development Consent (SSD 8840), which states:

COMMUNITY COMMUNICATION STRATEGY

C7. A community Communication Strategy must be prepared to provide mechanisms to facilitate communication between the Applicant, the relevant Council and the community (including adjoining affected landowners and businesses, and others directly impacted by the development), during the design and construction of the development and for a minimum of 12 months following the completion of construction.

The Community Communication Strategy must:

- a) identify people to be consulted during the design and construction phases;**
- b) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development;**
- c) provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development;**
- d) set out procedures and mechanisms:**
 - (i) through which the community can discuss or provide feedback to the Applicant;**
 - (ii) through which the Applicant will respond to enquiries or feedback from the community; and**
 - (iii) to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.**

The Community Communications Strategy must be submitted to the Planning Secretary for approval no later than one month before the commencement of any work.

Work for the purposes of the development must not commence until the Community Communication Strategy has been approved by the Planning Secretary, or within another timeframe agreed with the Planning Secretary.

The Community Communication Strategy, as approved by the Planning Secretary, must be implemented for a minimum of 12 months following the completion of construction.

2.2 Requirements of the Strategy

Table 2 provides an outline of the requirements of the Community Communications Strategy under Condition C7 of the Development Consent for this project, and how they are addressed in this Strategy.

Table 2 – Community Communication Strategy Requirements

Condition C7 Requirements	Response
(a) identify people to be consulted during the design and construction phases	Section 3 of this CCS identifies stakeholders.
(b) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development	Distribution of information regarding the project is outlined in Section 4 of this CCS.
(c) provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development	Face to face communication is outlined in Section 4.4 of this CCS.
(d) set out procedures and mechanisms: i. through which the community can discuss or provide feedback to the Applicant ii. through which the Applicant will respond to enquiries or feedback from the community iii. to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.	Feedback from the community may be received by the Applicant via the mechanisms outlined in Section 4 of this CCS. Responses to the community shall be communicated by the Applicant via the mechanisms outlined in Section 4 of this CCS. Resolution of disputes is outlined in Section 5 of this CCS.

The Strategy must be approved by the Secretary before construction starts.

The Strategy will be maintained and implemented throughout construction of the project and for the first twelve months of occupation of the building.

2.3 Objectives of the Strategy

The community communication objectives for this project are:

- Comply with the relevant conditions of Development Consent.
- Ensure potentially affected stakeholders including residents, property owners, interested stakeholders and the broader community are informed about the project, the construction schedule and the likely impacts.
- Ensure appropriate and direct communication channels with stakeholders who may be affected by the construction work.
- Ensure enquiries and complaints about the work are managed effectively in accordance with the Enquiries and Complaints Management System.

Little National Project Team will ensure that directly affected residents, property owners, interested stakeholders and the broader community are informed before and during the construction work. Mitigation measures to reduce construction impacts will be implemented to minimise potential complaints. A complaints management process will be in place to resolve issues as soon as reasonably possible. This process will be responsive and strive to find solutions wherever feasible. This is discussed further in Section 4.5 of this Strategy.

3 Stakeholders

3.1 Identifying Stakeholders

The following stakeholders have been identified for this project:

Immediate Residential Neighbours

Immediate residential neighbours whom may be affected most during the construction of the project are identified at:

1. 738 Hunter Street (South of the site)
2. 25 Bellevue Street (South-west of the site)

These two residential apartment developments are identified in Figure 2.

Government agencies and other Organisations

Department of Primary Industries

Environmental Protection Authority

Heritage Council of NSW

Newcastle City Council

Office of Environment and Heritage

NSW Office of Water

Hunter Development Corporation

State Emergency Services, Police (Local Area Command), Ambulance, NSW Rural Fire Service

Transport for NSW

Roads & Maritime Services

Astrid, Sydney, NSW

Port Authority of NSW, Newcastle

Interested groups and businesses

Businesses within the surrounding area, identified in Figure 3.

Broader community

Local community within the surrounding area

Travelling public

Pedestrians/ cyclists along foreshore promenade

Registered Stakeholders

Any member of the public may register their interest in the Project via the website (see Section 4.1 of this CCS). These registrations will be entered into a stakeholder database for the Project, utilised for distribution of regular project information, as detailed in the Community Communication Plan at Attachment A.

Figure 2 - Locality Plan Identifying the Immediate Residential Neighbours



Figure 3 - Locality Plan Identifying Stakeholders within the Surrounding Area



3.2 Identifying Key Issues

Key issues associated with the construction work have been identified from the construction management plan. These are summarised in Table 3 below.

Table 3 – Key Issues

Key Issue	Potential Impacts	Mitigation Measures / Communication Strategy
Access to and from the Site	Disruption to Neighbours	• Works to be in accordance with approved hours of work per development consent. • Review site establishment and location of crib sheds to minimise impact to adjoining buildings. • Review material laydown areas. • Provide environmental controls as required.
Carparking for Construction Workers	Disruption to Neighbourhood	• Parking to be discussed during post-tender process with prospective subcontractors to develop strategies early. • Carpooling, use of public transport, or other services to be considered. • Identify possible zones for parking.
Construction Noise	Loss of Amenity	• Construction Noise & Vibration Management Plan to be developed and adopted throughout project lifecycle.
Traffic Management around the Site	Disruption to Neighbourhood	• Construction Traffic and Pedestrian Management Plan to be developed and adopted throughout project lifecycle.

Other issues may be identified by stakeholders throughout the project, as communicated to the Little National Mixed-use Project Team through email, telephone or written correspondence. Such issues will be registered on the Enquiries and Complaints Management Register and managed as outlined in Section 5 of this CCS.

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4 Communication

Little National Mixed-Use Project Team will consult with the directly affected residents, property owners, relevant stakeholders and the broader community before and during construction. A range of activities and tools have been identified below to assist with this effective communication.

A Community Communication Plan has been devised for the Project and is provided at Attachment A.

4.1 Project Contact Details

An email address (admin@bloc.com.au) will be used for this project. These contact details will be included on all notifications, advertisements and the project website.

4.2 Online

4.2.1 Project Website

The primary point of contact and communication for this project will be via the project website.

A dedicated page on the Little National website will be devised for this project. The project page will have relevant documentation available for viewing and will be updated regularly with information about the project's status and will include project contact details. All documents requiring publishing will be uploaded to the page.

Members of the public will be able to register their interest by providing their contact details via the website, which will be added to the stakeholder database for email notifications.

4.2.2 Email Notifications

Email notifications will be distributed as required to those registered on the project's stakeholder database.

These emails will coincide with updates to the project website. Stakeholders can request to be placed on or taken off this list at any time. Direct communication via email on the page will be available for stakeholders with enquiries or complaints.

4.3 Print

4.3.1 Advertisements

A paid advertisement will be placed in the 'Newcastle Herald' to inform the community about the project and will include the projects contact details and website. Local media will also be supplied with information about the projects status at significant stages, as identified in the Community Communication Plan.

A physical sign shall be erected on site prior to commencement and remain on site for the duration of construction, providing the project contact details including the email, telephone and website.

4.3.2 Letterbox Notifications

Householder letters will be used to communicate information about the project before and during construction. Notification letters will be delivered to directly affected residents, property owners and relevant stakeholders. These letters will also be available to the broader community at the display locations and on the project website. (same info on project status as displayed on website). Include contact details (email and website). A sample Notification Letter is provided at Attachment C.

4.4 Face to Face

4.4.1 Project Office

The project office will be the BLOC site office, located on site at 42 Honeysuckle Drive.

4.4.2 Liaison with Stakeholders

The Little National Mixed-Use Project Team will consult directly with affected residents and property owners. This may be in the form of a meeting or phone calls. Meetings will be held as required, and will be notified via the stakeholder management database, project website and letterbox drop.

A list of contacts for the project can be found on the project website in order for all stakeholders to communicate directly with the Little National Mixed-Use Project Team.

In accordance with the Secretary's Environmental Assessment Requirements (SEARS), consultation with various Government agencies was carried out during the development of the State Significant Development (SSD) Environmental Impact Statement (EIS). Therefore, these stakeholders will only be notified in writing prior to commencement of the project. Interest can be registered via the website should more information be desired from an agency.

At each stage of the construction program the Little National Mixed-Use Project Team will review the Stakeholders Database and the Enquiries and Complaints Management Register to determine whether a community meeting should be called. Community meetings shall be advertised on the website, via email notification to the Stakeholders Database and by letterbox drop to the immediate residential neighbours.

Minutes from the meeting shall be posted on the website immediately afterward, detailing any necessary actions and responsibilities.

5 Enquiry and Complaints Management

Little National Mixed-Use Project Community Relations Team will use a Complaints Management Database (refer to Attachment B) before and during construction. This will involve a customer-focused approach to complaints resolutions, taking all measures to resolve complaints as soon as possible. The Complaints Management Database shall be devised and maintained for the duration of the construction and first 12 months of the occupation.

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Attachment A - Community Communication Plan

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Attachment B - Enquiry and Complaints Management System

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Attachment C - Sample Notification Letter

Community Communication Plan

Phase 1 - Prior to Construction Commencing						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders to prevent unexpected disturbance and allow time for stakeholders to prepare and adapt.	Letterbox drop	Letterbox drop notification letter to all businesses and residences in the identified surrounding area <i>(Figure 1).</i>	Businesses and residents within the surrounding area and the direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team to prepare and distribute.	Two weeks prior to commencement on site (anticipated Mid August 2018).	
	Site Advertisement	Erection of a sign on site advising of the commencement date and providing the project contact details.	Local community, travelling public, pedestrians and cyclists.	Little National Mixed-Use Project Team to co-ordinate the installation of the sign.	Two weeks prior to commencement on site (anticipated Mid August 2018).	
	Website Launch	Website setup with project outline, links to relevant project documents, project contact details, registration of interest page, and project status.	All.	Little National Mixed-Use Project Team	Two weeks prior to commencement on site (anticipated Mid August 2018).	
	Written letter	Notification letter sent to those identified stakeholders who are not in the surrounding area.	Government agencies and other organisations.	Little National Mixed-Use Project Team to prepare and post letters.	Two weeks prior to commencement on site (anticipated Mid August 2018).	
	Local Media Advertisement	Advertisement in the Newcastle Herald advising of the upcoming construction to commence on the Little National Mixed-Use Project.	All.	Little National Mixed-Use Project Team to contact media.	Two weeks prior to commencement (anticipated Mid August 2018).	

Phase 2 - Piling						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	Late August 2018	
	Website Update	Update the project status on the website to advise of the excavation and piling works being undertaken.	All.	Little National Mixed-Use Project Team.	Late August 2018	
	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising of the excavation and piling works.	Registered stakeholders.	Little National Mixed-Use Project Team	Late August 2018	
Review: Is a Meeting to be Called?						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Provide an opportunity for issues and concerns to be voiced by stakeholders and facilitate effective, open communication between the Applicant and the stakeholders.	Community Meeting	Meeting to be held at the Project Office or suitable alternate location, facilitated by the Little National Mixed-Use Project Team and attended by any interested stakeholders.	Registered stakeholders, immediate residential neighbours, broader community, interested groups and businesses.	Little National Mixed-Use Project Team		Review in September 2018
	Letterbox drop	Notification of the upcoming meeting to be distributed minimum 7 days prior to meeting date.	Immediate residential neighbours.			

	Website Update	Notification of the upcoming meeting to be notified on the project website.	All.			
	Email	Notification of the upcoming meeting to be emailed minimum 7 days prior to meeting date.	Registered stakeholders.			

Phase 3 - Excavation

Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	August to October 2018 (prior to commencement of stage works 3)	
	Website Update	Update the project status on the website to advise of the excavation and piling works being undertaken.	All.	Little National Mixed-Use Project Team.		
	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising of the excavation and piling works.	Registered stakeholders.	Little National Mixed-Use Project Team		

Phase 4 – Ground level Construction

Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area and give the opportunity for issues to be identified and actioned.	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	September to October 2018 (prior to commencement of stage works 4)	
	Website Update	Update the project status on the website to advise of the	All.	Little National Mixed-Use Project Team.		

		sub-ground construction works being undertaken.				
	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising of the sub-ground construction works.	Registered stakeholders.	Little National Mixed-Use Project Team		

Review: Is a Meeting to be Called?

Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Provide an opportunity for issues and concerns to be voiced by stakeholders and facilitate effective, open communication between the Applicant and the stakeholders.	Community Meeting	Meeting to be held at Project Office or suitable alternate location, facilitated by the Little National Mixed-Use Project Team and attended by any interested stakeholders.	Registered stakeholders, immediate residential neighbours, broader community, interested groups and businesses.	Little National Mixed-Use Project Team		Review in November 2018 and February 2019.
	Letterbox drop	Notification of the upcoming meeting to be distributed minimum 7 days prior to meeting date.	Immediate residential neighbours.			
	Website Update	Notification of the upcoming meeting to be notified on the project website.	All.			
	Email	Notification of the upcoming meeting to be emailed minimum 7 days prior to meeting date.	Registered stakeholders.			

Phase 5 - Construction above Ground						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area and give the opportunity for issues to be identified and actioned.	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	November 2018 - September 2019 (prior to commencement of stage works 5)	
	Website Update	Update the project status on the website to advise of the above-ground construction works being undertaken.	All.	Little National Mixed-Use Project Team.		
	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising of the above-ground construction works.	Registered stakeholders.	Little National Mixed-Use Project Team		
Phase 6 - Internal Finishing and Fitout						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area and give the opportunity for issues to be identified and actioned.	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	July 2019 to February 2020	
	Website Update	Update the project status on the website to advise of the finishing and fitout works being undertaken.	All.	Little National Mixed-Use Project Team.		

	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising of the finishing and fitout works being undertaken.	Registered stakeholders.	Little National Mixed-Use Project Team		
Phase 7 – Post Construction (12 months)						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Inform stakeholders in the surrounding area and give the opportunity for issues to be identified and actioned.	Letterbox drop	Letterbox drop notification letter to the directly affected residential neighbours.	Direct residential neighbours at 738 Hunter Street and 25 Bellevue Street.	Little National Mixed-Use Project Team.	February 2020- January 2021	
	Website Update	Update the project status to reflect completed	All.	Little National Mixed-Use Project Team.		
	Email	Project Update emailed to those registered on the stakeholder database (via the website) advising project completion	Registered stakeholders.	Little National Mixed-Use Project Team		
Review: Is a Meeting to be Called?						
Purpose	Tools	Action	Stakeholders	Responsibility	Date	Comment
Provide an opportunity for issues and concerns to be voiced by stakeholders and facilitate effective, open communication between the Applicant and the stakeholders.	Community Meeting	Meeting to be held at Project Office or suitable alternate location, facilitated by the 738 Hunter Street and 25 Bellevue Street. Project Team and attended by any interested stakeholders.	Registered stakeholders, immediate residential neighbours, broader community, interested groups and businesses.	Little National Mixed-Use Project Team		Review every 3 months during 2019.

	Letterbox drop	Notification of the upcoming meeting to be distributed minimum 7 days prior to meeting date.	Immediate residential neighbours.			
	Website Update	Notification of the upcoming meeting to be notified on the project website.	All.			
	Email	Notification of the upcoming meeting to be emailed minimum 7 days prior to meeting date.	Registered stakeholders.			

Enquiry and Complaints Management

A project information line (TBA), postal address (TBA) and email address (admin@bloc.com.au) will be used for this project. These contact details will be included on all notifications, advertisements and the projects website page.

The Little National Mixed-Use Project Team will be contactable seven days per week on the project information line. If a call cannot be answered directly and is a complaint about work, the call is to be returned as soon as possible. Letters and emails will be acknowledged within 2 business days and responded to within 10 business days.

All issues raised by the stakeholders throughout the project will be recorded in an Enquiries and Complaints Management Register. Details are recorded including name, address and phone contact details of the complainant; nature of the matter; and the response (refer to Figure 1). The Little National Mixed-Use Project Team is responsible for responding to complaints as outlined in the Complaints and Enquiries Handling Protocol in Figure 2 below.

Figure 1 - Sample Enquiries and Complaints Management Register

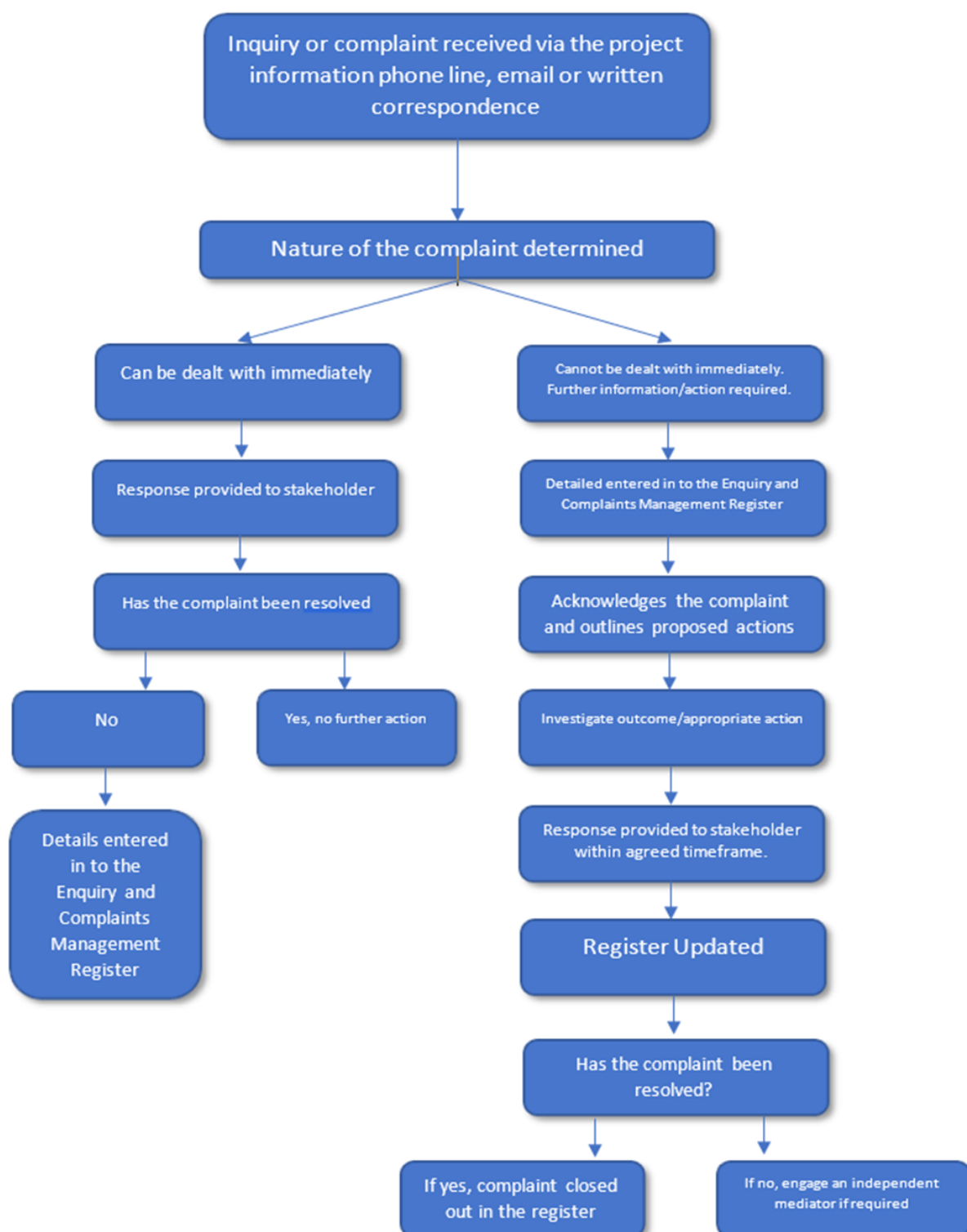
Date	Complainant Contact Details	Nature of Complaint	Description of Complaint	Responsibility	Action / Response	Outcome

Reports can be generated to assist the tracking of the construction issues affecting the community. If complaints are received it will be reported to the Project Manager.

Quarterly reporting of all complaints received and the course of action taken will be provided to the Project Manager, and will assist in determining priority of current and potential future concerns.

The Little National Mixed-Use Project Team will undertake quarterly audits on the complaint management process to assess effectiveness and customer satisfaction levels. If a situation, issue or complaint raised is unable to be resolved by the project team within a reasonable time period, an independent mediator will be engaged. The mediator will be engaged to negotiate the best possible solution for all parties involved. If mediation is required, a brief report will be prepared and provided to the relevant personnel.

Figure 2 – Complaints and Enquiries Handling Protocol



Little National NEWCASTLE



PROJECT OVERVIEW

The Little National Mixed-Use project building reaching **9 storeys** with an internal carpark to service visitors.

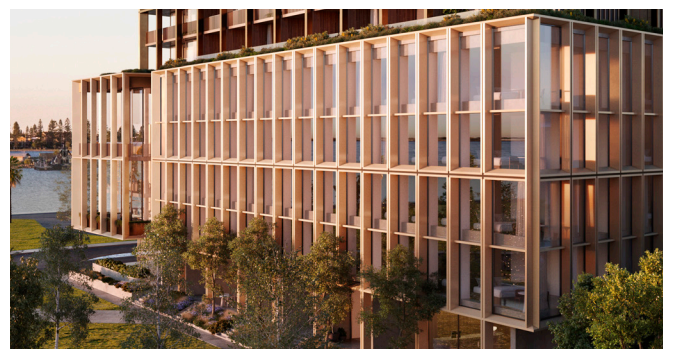
The building will provide **retail and a hotel** which will address to Honeysuckle Drive to the north.

The upper level will consist of **Serviced apartments**.

PROJECT UPDATE

Construction is soon to commence, with preliminary and preparatory work underway behind the scenes and construction programming being devised.

The site shall be fenced for security and public safety before physical works commence on site in August. The construction project is anticipated to take up to 22 months and will be undertaken by **BLOC Constructions**.



The Project Team includes **BLOC Constructions** and **Doma Group Pty Ltd**

For all enquiries regarding the construction project please contact:-

Project Email: admin@bloc.com.au

Project Website: domagroup.com.au/commercial/42-honeysuckle-drive/

Project Telephone: (02) 6260 6362



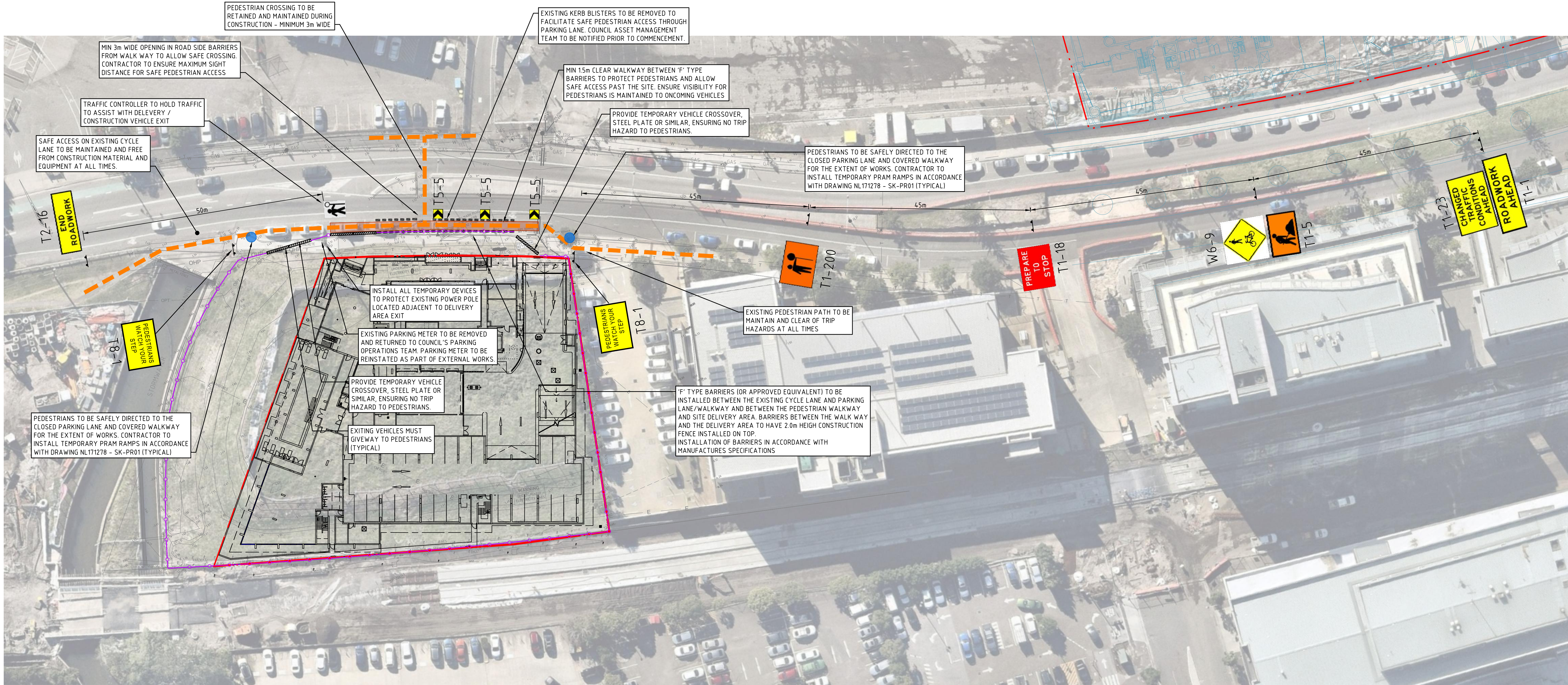
ATTACHMENT I TRAFFIC MANAGEMENT PLAN

VERIFIER: CIPPER

JOB MANAGER: CIPPER

DESIGNED: JKEARNS

DRAWN: L STEEL

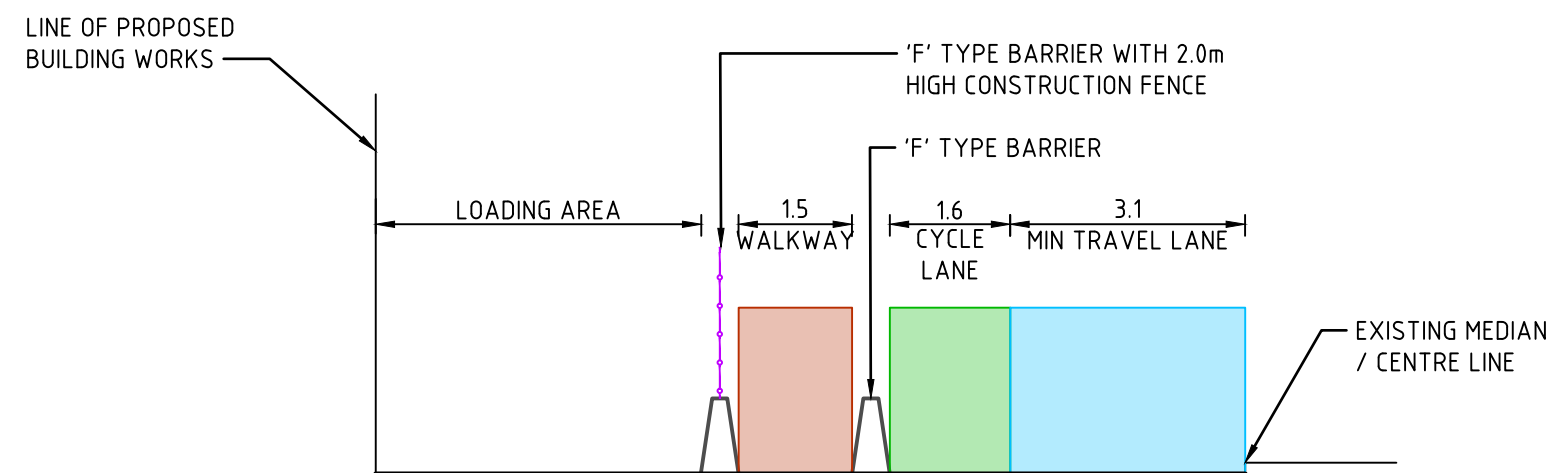


GENERAL TRAFFIC CONTROL NOTES:

- SIGNS & DELINEATORS TO BE POSITIONED IN ACCORDANCE WITH AS1742.3-2009 AND RMS DOCUMENT 'TRAFFIC CONTROL AT WORK SITES'.
- ENSURE SAFE PEDESTRIAN ACCESS PAST AND AROUND THE SITE IS AVAILABLE AT ALL TIMES.
- WORKMEN TO WEAR HIGH VISIBILITY VESTS.
- A MINIMUM 3.1m TRAVEL LANE IS TO BE MAINTAINED ON HONEYSUCKLE DRIVE ADJACENT TO THE 'F' TYPE CONCRETE BARRIERS.
- A MINIMUM 1.6m WIDE CYCLE LANE IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- TRAFFIC CONTROLLER TO HOLD WEST BOUND TRAFFIC ON HONEYSUCKLE DRIVE WHEN REQUIRED TO ASSIST EXISTING DELIVERY / CONSTRUCTION VEHICLES
- 'F' TYPE VEHICLE BARRIERS TO BE INSTALLED USING APPROVED END TERMINALS FOR APPROACHING TRAFFIC IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND RMS SPECIFICATIONS
- T1-200, T1-18 AND T1-5 SIGNS ARE TO BE COVERED OF REMOVED WHEN THERE IS NO TRAFFIC CONTROLLER IN PLACE AND/OR AT THE END OF EACH DAILY ACTIVITY.
- SIGNS & TRAFFIC MANAGEMENT DEVICES ARE TO BE MADE FROM REFLECTIVE MATERIALS.
- NON-REFLECTIVE SIGNS TO HAVE DIAMOND GRADE REFLECTORS ATTACHED.
- NOTIFICATION MUST BE GIVEN TO RESIDENCE AND BUSINESS WHICH REQUIRE ACCESS WITH IN TCP SIGNS OF WORKING TIMES AND ACTIVITIES.
- CONTRACTOR TO COORDINATE THIS TRAFFIC CONTROL PLAN WITH ANY OTHER WORKS IN THE VICINITY TO PREVENT SIGNAGE AND WORKS CONFLICT
- WALKWAY TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MUST MEET THE REQUIREMENTS FOR PUBLIC SAFETY AND WORK PLACE SAFETY LEGISLATION.
- ALL SIGNS REMOVED ARE TO BE RETURNED TO THE COUNCIL WORK DEPOT AND REINSTATED AT COMPLETION.

LEGEND

- DENOTES MIN 1.8m HIGH SECURED CONSTRUCTION FENCE (U.N.O)
- DENOTES 'F' TYPE/JERSEY CONCRETE BARRIER TO AUSTRALIAN AND RMS STANDARDS
- DENOTES ACCESS GATE
- DENOTES TEMPORARY TRAFFIC CONTROL SIGN ERECTED IN ACCORDANCE WITH AS 1742.3 AND RMS DOCUMENT 'TRAFFIC CONTROL AT WORK SITES'
- DENOTES PROPERTY BOUNDARY
- DENOTES 2-WAY PEDESTRIAN PATH TO BE PROTECTED AND MAINTAINED
- DENOTES MIN 1.5m CLEAR WALKWAY FOR SAFE ACCESS OF PEDESTRIANS



TYPICAL SECTION

THIS TEMPORARY TRAFFIC MANAGEMENT PLAN HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE REQUIREMENTS OF THE RMS TCWS MANUAL AND AS1742.3. TRAFFIC CONTROL FOR WORKS ON ROADS.

AUTHOR: JASON KIDD
CERT. No.: 0051912572 (PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN)

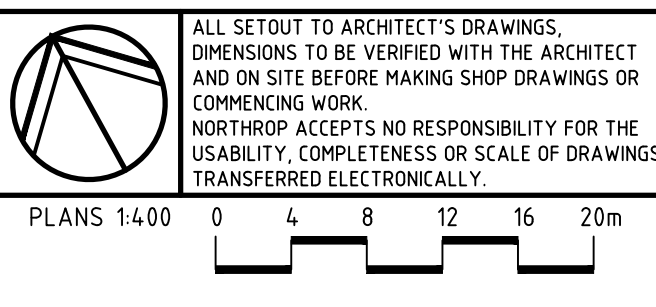
FOR AUTHORISATION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
C	ISSUED FOR CONSTRUCTION CERTIFICATE	LS	JK	JK	30.07.18
D	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	08.08.18
E	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	09.08.18
F	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	27.08.18
G	AMENDED FOR AUTHORISATION	JK	CP	JK	12.02.19
H	AMENDED FOR AUTHORISATION	JK	CP	JK	02.04.19

DOMAGROUP BATESSMART

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CLIENT
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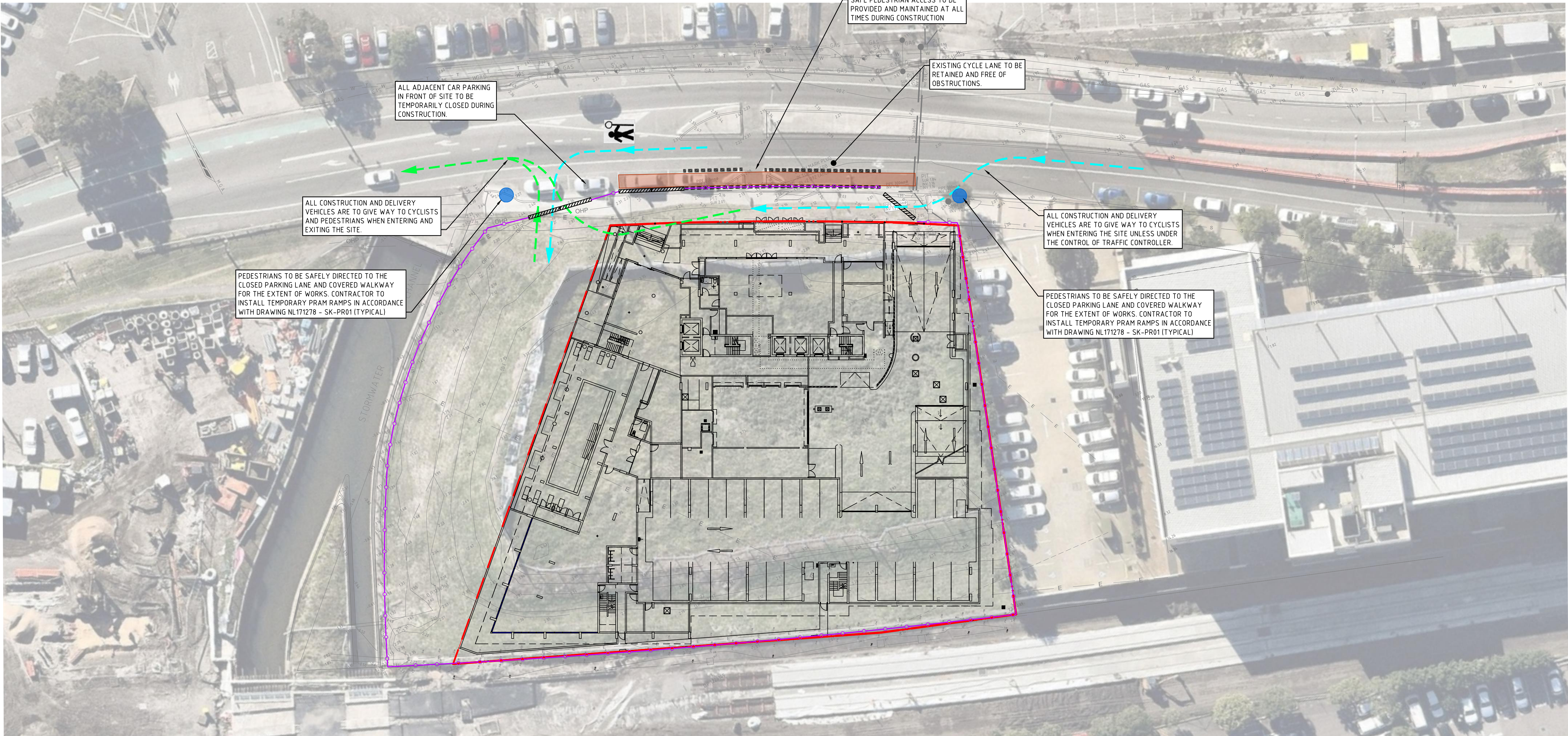


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Email newcastle@northrop.com.au ABN 81 594 433 100

PROJECT
**PROPOSED DEVELOPMENT
42 HONEYSUCKLE DRIVE,
NEWCASTLE N.S.W. 2300**

DRAWING TITLE
**TEMPORARY TRAFFIC
CONTROL PLAN**

JOB NUMBER
NL171278
DRAWING NUMBER
CC-02-C10.0
REVISION
H
DRAWING SHEET SIZE = A1



- GENERAL VEHICLE MOVEMENT NOTES:
- a. DELIVERY AND CONSTRUCTION VEHICLES MUST GIVEWAY TO PEDESTRIANS, CYCLISTS AND PUBLIC VEHICLES WHEN ENTERING OR LEAVING NOMINATED LOADING ZONES UNLESS UNDER THE CONTROL OF TRAFFIC CONTROLLERS.
 - b. WORKMEN TO WEAR HIGH VISIBILITY VESTS WHEN WALKING AROUND DELIVERY VEHICLES AND THE SITE.
 - c. PROHIBIT CONSTRUCTION WORKERS FROM PARKING ON SURROUNDING, ADJACENT AND OPPOSITE SHOULDERS INCLUDING MEDIAN STRIP ON HONEYSUCKLE DRIVE DURING CONSTRUCTION.
 - d. ALL CONSTRUCTION EMPLOYEE VEHICLES TO USE EXISTING ESTABLISHED PARKING FACILITIES.
 - e. CONSTRUCTION VEHICLES (FORK LIFTS, SCISSOR LIFTS ETC) ARE TO BE PARKED ON SITE AWAY FROM PEDESTRIAN TRAFFIC FLOW AT ALL TIMES.
 - f. MINIMISE CONSTRUCTION VEHICLE AND DELIVERY ACTIVITY BETWEEN 8.00am TO 9.30am AND 4.00PM TO 5.30pm MONDAY TO FRIDAY TO AVOID CONFLICT WITH PEAK HOUR TRAFFIC VOLUMES.
 - g. NOTIFICATION MUST BE GIVEN TO RESIDENCE AND BUSINESS WHICH REQUIRE ACCESS WITH IN TCP SIGNS OF WORKING TIMES AND ACTIVITIES.

- LEGEND
- DENOTES MIN 1.8m HIGH SECURED CONSTRUCTION FENCE (U.N.O)
 - DENOTES 'F' TYPE/JERSEY CONCRETE BARRIER TO AUSTRALIAN AND RMS STANDARDS.
 - /// DENOTES ACCESS GATE
 - > DENOTES DELIVERY/CONSTRUCTION VEHICLE ACCESS (UNDER NORMAL ROAD CONDITIONS)
 - < DENOTES DELIVERY/CONSTRUCTION VEHICLE EGRESS (UNDER NORMAL ROAD CONDITIONS)
 - DENOTES PROPERTY BOUNDARY
 - DENOTES MIN 1.5m CLEAR WALKWAY FOR SAFE ACCESS OF PEDESTRIANS

THIS CONSTRUCTION VEHICLE MOVEMENT PLAN HAS BEEN PREPARED GENERALLY IN ACCORDANCE WITH THE REQUIREMENTS OF THE RMS TCWS MANUAL AND AS1742.3. TRAFFIC CONTROL FOR WORKS ON ROADS.

AUTHOR: JASON KIDD
CERT. No.: 0051912572 (PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN)

FOR AUTHORISATION

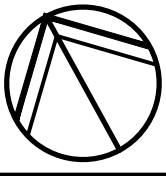
DRAWN: L STEEL
DESIGNED: J KEARNS
JOB MANAGER: C PIPER
VERIFIER: C PIPER

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
A	FOR REVIEW	JK	CP	CP	05.07.18
B	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	26.07.18
C	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	08.08.18
D	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	09.08.18
E	ISSUED FOR CONSTRUCTION CERTIFICATE	JK	CP	JK	12.02.19
F	AMENDED FOR AUTHORISATION	JK	CP	JK	02.04.19

DOMAGROUP BATESSMART

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0 3 6 9 12 15m



PROJECT
PROPOSED DEVELOPMENT
42 HONEYSUCKLE DRIVE,
NEWCASTLE N.S.W. 2300

DRAWING TITLE
CONSTRUCTION VEHICLE
MOVEMENT PLAN

JOB NUMBER NL171278	REVISION F
DRAWING NUMBER CC-02-C10.01	
DRAWING SHEET SIZE = A1	

FORMS

FORM NUMBER	FORM NAME
F01	Toolbox meeting
F02	Weekly Subcontractors Meeting
F03	Incident/Dangerous Occurrence Investigation Report

DAILY PRESTART TOOLBOX



Section A - General Information			
Project:		Pre-Start Location:	
Site Manager:		Day:	
Weather:	Chance of Rain:	Temperature:	Date:
UV Alert:	Amount of Rain:	Wind:	Time:
Hot Works Permit required:		Area:	
Core Hole Permit required:		Area:	

Section B – Works for the Day		
Deliveries	Time	Area
Plant High Risk Task Checklists must be Completed Prior to Works Commencing		
Cranes	Time	Set up Area
Concrete Pump	Time	Set up Area
New Mobile Plant Deliveries	Time	Area
High Risk Activities –		
Clean Up required:		
Environmental Changes:		
Tool Box Talks:	Test & Tag:	Safety Walks:
Request for Information (RFI):		

[illegible]

DAILY PRESTART TOOLBOX



Section D - BLOC Employees Attendance Register

Name	Phone Number	Signature	Work Areas

Section E – Sign off

Conducted by:

Position:

Time Prestart Closed:

Sign:

Return to BLOC Site Safety Coordinator for Filing.

WEEKLY SUBCONTRACTORS MEETING MINUTES

Project No:	Project name:		
Meeting No:	Name of Meeting: Weekly Subcontractors Meeting	Date of meeting:	
Location of meeting:		Minutes recorded by:	

Attendees:

Name	Company	Email	Mobile	Attended

Summary of outstanding action items (all meetings)

	Resp	Due by

RECORD OF DISCUSSIONS / ACTIONS

WH&S			
Item	Discussion / decision	Action by	Due by

Authorities			
Item	Discussion / decision	Action By	Due by

Quality Control			
Item	Discussion / decision	Action by	Due by

Document Control			
Item	Discussion / decision	Action by	Due by

Design			
Item	Discussion / decision	Resp	Due by

WEEKLY SUBCONTRACTORS MEETING MINUTES

	Short Term Construction Program		
Item	Discussion / Decision / Delays	Action By	Due by
	SUBCONTRACTORS / TRADES		
Item	Discussion / decision	Action By	Due by
	New Business		
Item	Discussion / decision	Action By	Due by
	Next Meeting		
Item	Discussion / decision		
	Meeting closed		

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section A – General Information			
Project:		Project No.:	
Date of Incident:	Time:	Date of Notified:	Time:
BLOC Project Manager:		BLOC Site Manager:	
Is this investigation subject to Legal Professional Privilege?	Yes	No	If yes, all correspondence and post incident documentation related to this investigation must be marked “subject to legal privilege”
The Person Completing Sections B, C, D & E Have Undertaken Incident Investigation Training			

Section B – Incident Summary Details & Notifications			
Injury	Property/Equipment Damage	Environmental Damage	Dangerous Occurrence
Process/Task Description			
Exact Location of Incident			
Work being performed by	Company:	Project Manager:	
Supervisor of the work	Name:	Contact Number:	
Injured / Involved Worker Details	Direct Employee	Indirect Employee	Subcontractor
	Name:	Name:	Company Name:
Injured / Involved Worker Details	Direct Employee	Indirect Employee	Subcontractor
	Name:	Name:	Company Name:
Witness to the Incident	Name:	Employer:	Contact No.:
Witness to the Incident	Name:	Employer:	Contact No.:
Part 1 - Property / Equipment Damage (If applicable, briefly describe what property or equipment was damaged - Attach additional pages if required)			
Part 2 - Incident Description (Describe what happened - Facts only. Attach additional pages if required)			

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Part 3 - Immediate Actions Taken *(Provides a brief description of what actions were taken immediately after the incident).*

External Medical Treatment provided?	Yes	No	If yes describe:
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Part 4 - Statutory Notifications

Was the Incident Notifiable?	Yes	No	If yes, who from BLOC notified?
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Notified to	ACT WorkSafe	ACT EPA	NSW WorkCover	NSW EPA	Qld WorkCover	Qld EPA
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Was it an Electrical Safety Incident?	Yes	No	If yes, Notify the Electrical Safety Regulator specific to the jurisdiction.
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How was the Incident Notified?	Telephone	On-line Notification
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Who was contacted?	Name:	Authority:	Contact No.:
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On-line Notification details	Return Email Receipt received by:	Date and Time:
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Who was contacted?	Name:	Authority:	Contact No.:
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On-line Notification details	Return Email Receipt received by:	Date and Time:
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Was a Non-disturbance placed?	Yes	No	If yes, who gave permission to lift the non-disturbance?
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Name:	Authority:	Contact No.:	Date and Time:
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Did the Regulator ask for a copy of the investigation?	Yes	No	If, yes, who?
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Was the Project an OFSC Scheme Project?	Yes	No	If yes, was the OFSC Notified?	Yes	No
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Email sent to:	Date and Time:
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Part 5 - Client & Other Notifications

Name:	Position:	Date and Time:
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Name:	Position:	Date and Time:
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INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section C – Investigation

Part 1 - Investigation Team

BLOC Lead Investigator	Name:	Position:
Investigation Team Members	Name:	Position:
	Name:	Position:
	Name:	Position:

Part 2 - Witness Statements

Have witness statement been received from witnesses to the incident?	Yes	No	If, yes, who provide a statement
Name:	Position:	Name:	Position:
Name:	Position:	Name:	Position:

Part 3 - Identification of Causal Factors

From the causal factors prompts below, identify which factors contributed the incident occurring.

System Factors	Environmental Factors	Plant and Equipment Factors	Human Factors
Risk Register identifies the hazard Safety Standard address the hazard Safe Working System (procedure, SWMS, Permit) Sequencing of work activity Supervision assigned to task Maintenance of equipment/tools Competing work demands Availability of equipment Instruction prior to commencing activity Training/experience of workers Storage/stacking Resource Management Failure to correct hazard	Access/egress Housekeeping Lighting Weather (ice, wind, rain, heat) Work surface Co-located activities Height Noise Dust Materials/substances Fumes	Incorrect equipment, tools, material Design of equipment, tools, material Protective equipment Manual handling Posture Vibration Material Guarding Workplace layout Equipment component failure Maintenance process Equipment modifications Inadequate maintenance	Fatigue Speed hurrying Inexperience Inattention/Lapse of attention Understanding Deviation from agreed safe work method Rule Violation Failure to follow instructions Mistake Mismatch (unable to do it) Language Adverse Mental State Adverse Physiological States Physical Mental Limitations Perceptual error

Part 4 - System Factors (SF) – List the facts contributing to the incident

			Root Cause Analysis	
SF 1			Yes	No
SF 2			Yes	No
SF 3			Yes	No
SF 4			Yes	No
SF 5			Yes	No
SF 6			Yes	No
SF 7			Yes	No
SF 8			Yes	No

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Part 5 - Environmental Factors (EF) – <i>List the facts contributing to the incident</i>		Root Cause Analysis	
EF 1		Yes	No
EF 2		Yes	No
EF 3		Yes	No
EF 4		Yes	No
EF 5		Yes	No
EF 6		Yes	No
EF 7		Yes	No
EF 8		Yes	No
Part 6 - Plant & Equipment Factors (PEF) – <i>List the facts contributing to the incident</i>		Root Cause Analysis	
PEF 1		Yes	No
PEF 2		Yes	No
PEF 3		Yes	No
PEF 4		Yes	No
PEF 5		Yes	No
PEF 6		Yes	No
PEF 7		Yes	No
PEF 8		Yes	No
Part 7 - Human Factors (HF) – <i>List the facts contributing to the incident</i>		Root Cause Analysis	
HF 1		Yes	No
HF 2		Yes	No
HF 3		Yes	No
HF 4		Yes	No
HF 5		Yes	No
HF 6		Yes	No
HF 7		Yes	No
HF 8		Yes	No

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section D – Identification & Analysis of Root Causes		
Part 1 - Instruction <i>The primary purpose of Section D is to identify whether the incident would not have occurred if not for the presence/absence of factors which are identified. From the identified factors listed in Section C, ask “if the condition was the opposite, would the incident have occurred? Where the answer is NO”, the factor is essential in the incident occurring and is to be listed as a root cause. Analyse the root cause and describe why the condition existed e.g. SWMS did not identify the hazard, safe work process identified the hazard and the control but the control was not implemented</i>		
Factor Ref #	Root Cause - 1	Analysis of the Failure - 2 (Identify & list why this factor was present)

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section E – Recommended Corrective & Preventative Actions

Part 1 - Instruction

The purpose of identifying corrective and preventative action is to ensure the BLOC risk management processes are robust and mitigate risk of reoccurrence of the same or similar incidents.

1. From the analyse of failures identified in Section D, list the recommended corrective and preventative actions to be taken to prevent a reoccurrence of the incident.
2. Identify the system or process required to be reviewed or updated to ensure the corrective action is addressed – Hierarchy of Documents – Corporate Risk Register, WSS, Permit, Form, Task SWMS/SOP.
3. Identify the method of ensuring the corrective actions are understood and actioned by the affected parties e.g. Safety Improvement Notice, Contractual Letter, Safety Alert, Safety Communication, Toolbox Talk, Email etc.
4. BLOC Safety Work Group and/or Directors to evaluate the recommended corrective actions and accept or modify the recommended corrective actions were necessary.
5. Assign to BLOC management representative responsible for implementation of the corrective actions.
6. All corrective actions are to be tracked to close by the BLOC Safety Work Group.

Factor Ref #	Corrective & Preventative Actions - 1	System, Process - 2	Communication Requirement - 3	BSWG Evaluation - 4 <i>Accept or Modify</i>	Responsible Person - 5	
					By whom	By when

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section F – Project Management Incident Sign Off

Part 1 - Site Manager – Sign Off

Action	Comment	Initial	Date
What additional monitoring / evaluation (if any) has been taken to prevent a reoccurrence			
Are the corrective actions for the site implemented?			
Additional comments, if any			
Name:	Signature:	Date:	

Part 2 - Project Manager – Sign Off

Action	Comment	Initial	Date
Corrective and preventative actions have been discussed with relevant parties.			
Relevant outcomes of the investigations have been communicated to affected workers and/or subcontractors			
Evidence of implementation available to demonstrate implementation of all site and corporate corrective preventative actions			
Authority Notice – Where any issued by statutory have been closed out.			
Additional comments, if any			
Name:	Signature:	Date:	

INCIDENT/DANGEROUS OCCURENCE INVESTIGATION REPORT



Section G – Incident Final Review & Close Out by Construction Manager – Sign Off

Did the incident require Critical Incident Response as per the Emergency Preparedness & Critical Incident Response Management Plan?	Yes	No
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If yes, document how effective the critical response was based on the following triggers:

#	Part 1 - Critical Incident Responses assessment triggers	Initial
1	Client, Shareholder & Media Management	
2	Internal communication and updating of staff and directly labour	
3	Managing communication with effected subcontractors/workers	
4	Management of WorkSafe / WorkCover and/or Industry Organisations	
5	Legal advice and position considered and taken	
6	Support to affected parties and their families including counselling, financial support etc.	
7	Provision of counselling to effected workers	
8	Business continuity	

Additional Comments:

Record of assessment is to be separate to this report as part of the post incident review and debriefing by the company Directors.

Part 2 - Incident

Action	Comment	Initial
Corrective and preventative action have been reviewed and accepted through the BLOC SWG		
Incident report and corrective actions have been discussed and evidence of the discussion minuted in the SWGM or with Directors?		
Where applicable, Legal advice taken prior to release of information to Statutory Authorities?		
Relevant information has been provided to Statutory Authorities to close out notices and address request for information related to the incident?		
After review of the incident report, required actions and supporting information, can the incident be closed?		
Name:	Signature:	Date: