



Western Sydney Airport

Construction Plan – Stage 1 Development
October 2021



**Western
Sydney
Airport**

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Position	Name	Signature	Date
Asset Management General Manager	S.Grant		26/10/2021

Glossary and Definitions

Table 1: Acronyms and Definitions

Item	Definition
ACM	Asbestos Containing Material
AEPR	Airports (Environment Protection) Regulations 1997
AGL	Aeronautical Ground Lighting
AHD	Australian Height Datum
Airport Lease	An airport lease for the Airport granted under section 13 of the Airports Act
Airport Plan	Means the airport plan for the Airport Site as determined by the Infrastructure Minister under section 96B of the Airports Act in July 2020 as varied from time to time in accordance with the Airports Act.
Airport Site	The site for Sydney West Airport as defined by the Airports Act.
Airports Act	Airports Act 1996 (Cth)
Ancillary Developments	An 'ancillary development' as set out in section 96L of the Airports Act
Approved Plan	Means a plan approved in accordance with the Conditions of Approval
ARFFS	Airport Rescue and Fire Fighting Service
ASS	Acid Sulphate Soil
ATC	Air Traffic Control
AWS	Automatic Weather Station
BBM	Bituminous Bound Material
BoM	Bureau of Meteorology
CAP	Construction Area Plan
CEMP	Means a Construction Environmental Management Plan (CEMP) required under a condition in Section 3.10.2 of the Airport Plan
Condition	A condition set out in Part 3 of the Airport Plan in accordance with section 96C of the Airports Act
Construction Impact Zone (CIZ)	The part or parts of the Airport Site or an Associated Site on which Main Construction Works are planned to occur, as detailed in the Construction Plan approved in accordance with Condition 1.
Construction Period	Means the period from date of commencement of Main Construction Works in any part of the Airport Site until the date of commencement of Airport Operations.
CSEP	The Community and Stakeholder Engagement Plan (CSEP) required under Condition 15 in Section 3.10.2 of the Airport Plan
CSR	Combined Services Route
DICL	Ductile Iron Concrete Lined
DAWE	Department of Agriculture, Water and Environment
DPI	Department of Primary Industries (including Agriculture NSW, Fisheries NSW and NSW Office of Water)

Item	Definition
EC	Environmental Conservation
ECM	Environmental Control Map
Ecological sustainable development	Using, conserving and enhancing the community's resources so that the ecological processes on which life depends are maintained and the total quality of life now and in the future, can be increased (Council of Australian Governments, 1992).
EEW	Early earthworks
Environment Minister	The Minister responsible for the EPBC Act.
EIS	The Environmental Impact Statement (EIS) prepared in relation to the Airport under the EPBC Act
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EPA	NSW Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Cth)
ERSED	Erosion and Sediment
ESA	Environmentally Sensitive Area
ESCP	Erosion and Sediment Control Plan
EWMS	Environmental Work Method Statement
FASL	Final Airport Site Layout
FDA	Full Depth Asphalt
FOC	Fibre Optic Cable
GBAS	Ground Based Augmentation System
Infrastructure Minister	The Minister responsible for the Airports Act from time to time
ISO 14001	AS/NZS ISO 14001:2016 Environmental management systems
LDP	Land Disturbance Permit
Main Construction Works	Substantial physical works on a particular part of the Airport Site (including large scale vegetation clearance, bulk earthworks and the carrying out of other physical works, and the erection of buildings and structures) described in Part 3 of the Airport Plan, other than TransGrid Relocation Works or Preparatory Activities.
MEP	Mechanical electrical plumbing
Non-conformance	Failure to conform to the requirements of the Airport Plan including approved plans.
PCC	Portland Cement Concrete
PESCP	Progressive Erosion and Sediment Control Plan
PPE	Personal Protective Equipment
Preparatory Activities	Preparatory Activities, as defined in the Airport Plan, mean the following: <ul style="list-style-type: none"> day to day site and property management activities;

Item	Definition
	<ul style="list-style-type: none"> • site investigations, surveys (including dilapidation surveys), monitoring, and related works (e.g. geotechnical or other investigative drilling, excavation, or salvage); • establishing construction work sites, site offices, plant and equipment, and related site mobilisation activities (including access points, access tracks and other minor access works, and safety and security measures such as fencing but excluding bulk earthworks); • enabling preparatory activities such as: <ol style="list-style-type: none"> a. demolition or relocation of existing structures (including buildings, services, utilities and roads); b. the disinterment of human remains located in grave sites identified in the European and other heritage technical report in volume 4 of the EIS; and c. application of environmental impact mitigation measures; and • any other activities which an Approver determines are Preparatory Activities for this definition
Project, the	Western Sydney Airport – Stage 1 Development
RAP	WSA Co Limited Western Sydney Airport Remediation Action Plan prepared by GHD dated February 2018
RMS	NSW Roads and Maritime Services
SEMF	Site Environmental Management Framework
SES Officer	An SES employee under the Public Service Act 1999 (Cth)
Stage 1 Development	The Airport development described in Part 3 of the Airport Plan and the Airport CIZ.
SWMS	Safe Work Method Statement
Terminal and Specialty Services Works	Terminal and Specialty Services (TSS) Works, inclusive of; <ul style="list-style-type: none"> • Domestic and International Passenger Terminal (MAP10) • Fixed Link Bridges • Airside Apron • Landside Carparks and Landscaping • Aviation Fuel Lines and Ring Main Reticulation • TER – Technical Equipment Rooms
TNR	The Northern Road
VMS	Variable Message Boards
WSI	Western Sydney International (Nancy Bird Walton) Airport. The Airport. Note: Under the Act the Airport is referred to as Sydney West Airport
WSA	WSA Co Limited (ACN 618 989 272), the entity responsible for constructing and operating the Airport in accordance with the Airport Plan. For the purposes of the Airports Act 1996 (Cth), WSA is the “airport-lessee company” for WSI

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1 Introduction

This Construction Plan (CP) has been prepared by WSA in support of the Stage 1 Development of the Western Sydney International (Nancy-Bird Walton) Airport (WSI) and outlines a range of safety, health, traffic and environmental considerations. The purpose of this CP is to comply with Condition 1 of the Airport Plan, which is the authorising document for the Stage 1 Development determined by the Infrastructure Minister in July 2020 (refer to Appendix 1 with regards to the compliance of this Construction Plan with the relevant conditions of the Airport Plan). As outlined in section 3.10.2 of the Airport Plan, *“The Site Occupier must not commence Main Construction Works until a Construction Plan for the Airport Site and Associated Sites has been prepared and approved in accordance with this condition.”* This document sets out:

- The program and timetable for carrying out the Stage 1 Development;
- Details of the construction methodology to be used for carrying out the stage 1 Development;
- Any proposal to phase commencement of Main Construction Works in different parts of the Airport Site or Associated Sites at different times;
- Details, not inconsistent with the Land Use Plan in Part 2 of the Airport Plan, of the size and location of the parts of the Airport Site or an Associated Site on which Main Construction Works are planned to occur; and
- Seeks to avoid or minimise, to the extent reasonably practicable, impacts on parts of the Airport Site that have important biodiversity values that are outside of the indicative Construction Impact Zone (CIZ).

Western Sydney Airport and its contractors are committed to engaging with the local community, Penrith and Liverpool Councils, NSW and Commonwealth Government agencies, and other stakeholders as the WSI is delivered. The Community and Stakeholder Engagement Plan (CSEP) outlines WSA’s commitment to engaging with community stakeholders in an open, inclusive, accessible and timely manner throughout the planning and delivery of this project. The Site Environmental Management Framework (SEMF) (refer Appendix 2) forms part of the Construction Plan and is WSA’s overarching environmental management document to support the implementation of the nine CEMPs and associated sub plans.

The Main Construction Works will be completed in phases and this CP will be updated to reflect tasks associated with the different phases. The detailed construction methodology associated with Material Importation; Experience Centre and Site Office; Bulk Earthworks and Terminal and Specialty Services Works (TSS) phases of the project is covered in Section 6 of this document. In accordance with Condition 41 of the Airport Plan, updates to the CP will be submitted to the appropriate regulatory authority for approval.

2 Background

In April 2014 the Australian Government announced that the Commonwealth-owned land at Badgerys Creek would be the site for a second Sydney Airport. The Badgerys Creek airport site was selected following extensive studies completed over a number of decades. The Commonwealth will invest \$5.3 billion for the construction of WSI.

In December 2016, the Minister for Urban Infrastructure determined the Airport Plan which sets the environmental and planning authorisation for the development of Stage 1 of the WSI. In May 2017, the Government announced that it would establish WSA to develop and operate the airport. WSA is responsible for constructing and operating WSI in accordance with the Airport Plan. The Airport Plan has since been varied (the report date is now July 2020). WSA Limited is wholly owned by the Commonwealth. Further details regarding WSA, including details in relation to the chairman and board, can be found online at the WSA website <https://westernsydney.com.au/>.

An Environmental Impact Statement (EIS) was prepared in accordance with the Commonwealth Environmental Protection and Biodiversity Conservation (EPBC) Act and Airports Act. The EIS considered potential impacts during construction activities and operation of the Stage 1 Development and long-term development of the proposed airport.

2.1 Stage 1 Development

The WSI is expected to be developed in stages to match demand and include planning for services and amenities that are easily expandable over time, providing scalable capacity for aircraft, passengers, cargo and vehicle movements.

Stage 1 will include major site preparation, removing or relocating infrastructure from the site and earthworks to prepare the Airport Site, establishing the Airport with a single 3.7-kilometre runway located in the north-western portion of the Airport Site, a terminal and other support facilities to provide for an initial operational capacity of approximately 10 million regional, domestic and international passengers per year (MAP), growing to 82 MAP as well as freight traffic 2063 .

The scope of works for the Stage 1 Development is defined in the Airport Plan and will generally include the investigation, design, construction and commissioning of:

- Bulk earthworks to move and redistribute 26 million cubic metres of material on the Airport Site;
- A single 3.7-kilometre runway;
- Aprons, taxiways and other airside pavements;
- A multi-user terminal;
- Appropriate airport and aviation support facilities;
- Experience Centre and Site Office;
- Drainage and utilities infrastructure; and
- Car parking, on-site roads and other appropriate landside facilities.

Construction of the Stage 1 Development represents a major greenfield development with complex delivery using multiple contractors working across a range of specialist services. The area that will be directly impacted by construction (the CIZ) covers approximately 1,199 hectares.

Construction activities for the Stage 1 Development will involve:

- Site preparation activities including the clearing and earthworks elements of the Main Construction Works. The earthworks will include relocation of around 1.9 million cubic metres of topsoil and 26 million cubic metres of subsoil and rock to create a level site for the Stage 1 Development;
- Aviation infrastructure activities such as construction of the runway, taxiways, apron areas, internal road network, the terminal complex, Ground Based Augmentation System (GBAS) facility, freight, cargo and maintenance facilities and a fuel farm; and

- Site commissioning activities at the completion of the aviation infrastructure activities, involving testing and commissioning of all facilities in readiness for the operation of the proposed airport.

Further, a range of existing infrastructure located on the Airport Site is incompatible with the proposed airport and will need to be removed and/or relocated. These assets include a section of The Northern Road (TNR), a TransGrid 330 kV transmission line, telecommunication and electricity distribution lines and water mains, as well as existing dams.

The area to the south of the Bulk Earthworks construction area (Figure 2) is reserved for the long-term development of the airport, including the second runway and other associated infrastructure to allow the airport to grow beyond 37 MAP. In the short term this area may be used for purposes that are consistent with the Airport Plan.

2.2 Activity Location

The WSI will be developed on around 1,800 hectares of Commonwealth-owned land at Badgerys Creek in Western Sydney (Airport Site). The Airport Site is approximately 50 kilometres from Sydney's central business district. Figure 1 shows the location of the Airport Site.

The Airport Site is bounded by Elizabeth Drive to the north, Willowdene Avenue to the south, Luddenham and Adams Road to the west and Badgerys Creek to the east. The existing terrain is made up of undulating topography, and substantial earthworks are required to create a level surface to allow construction of the runway, taxiways and support services.



Figure 1: Airport Site Location (Commonwealth, 2016)

2.3 Phasing of Works

Sequencing of the Main Construction Works will allow construction packages to be performed concurrently, resulting in schedule benefits for the project. Major phases of construction activities for the Stage 1 Development are described in detail in the following sections. Table 2 provides a list of construction packages, projected construction start date or status, and a rough estimate of the earthworks volume for packages with significant earthworks scope. Cut and fill volumes are not provided for the other packages as earthworks quantities are minimal.

Table 2: Phasing of Works

Construction Package	Area (ha.)	Projected Construction Start / Status	Approximate cut (million cubic metres bulked)	Approximate fill (million cubic metres solid)
Preparatory Activities	-	In progress		
Early Earthworks (EEW)	120	Completed	1.67	1.77
Experience Centre and Site Office (EC/SO)	3.2	Completed	-	-
Material Importation	12.5	in progress	-	2.2
Bulk Earthworks (BEC)	1,199	in progress	24.4	26.6
Airside Civil and Pavement		July 2022	-	-
Terminal and Specialty Services Works		November 2021		0.3
Landside Civil & Buildings		November 2022	-	-

* cut/fill balance numbers shown are high-level estimates and will be refined further as design evolves

The earthworks quantities shown in Table 2 and used throughout the Construction Plan provide the best estimate available based on current surveys and geotechnical data. This may be subject to change pending conditions encountered during the earthworks. Earthworks design will be developed to achieve a neutral cut-fill balance. This approach is consistent with the EIS. For more information about management of bulk earthworks, refer to section 6.6.

Figure 2 below shows the indicative split between some of the Stage 1 Development construction packages described in Table 2. This split will be refined over time as the design evolves. Refer to Section 5 for more detailed illustrations of the Experience Centre and Site Office Works, Bulk Earthworks and Terminal and Specialty Services package construction footprints. The Early Earthworks area once completed was handed over to the Bulk Earthworks Contractor except for the realigned section of Badgerys Creek Road. Similarly, once the Bulk Earthworks Contractor has completed works in the terminal area, this area will be handed over to the Terminal and Specialty Services Works contractor.

The packages have been phased to reduce the cumulative impacts of the airport development on the surrounding community (and, the road network). Strategies to lower the overall construction peak (such as early stockpiling of construction materials, and the construction of multiple auxiliary access and egress points to reduce pressure on key intersections within the local roads network) have been developed to further reduce impacts.

Coordination of transport infrastructure within the airport development with other projects in the vicinity of the airport is carried out by the Western Sydney Transport and Roads Hub (the Hub). The Hub is a collaborative organisation led at an executive level by Transport for New South Wales, and engaging with, Western Sydney Airport, Sydney Metro and Liverpool City Council to ensure that cumulative effects of other projects are minimised.



Approvals of all road alterations, closures, and road occupancy will be coordinated through the Hub along with coordination of Traffic and Transport Liaison Group meetings allowing stakeholder consultation to be as seamless as possible.

Full details of traffic and access arrangements can be found in the Traffic and Access Construction Environmental Management Plan.

For other cumulative impacts please refer to the relevant CEMPs.

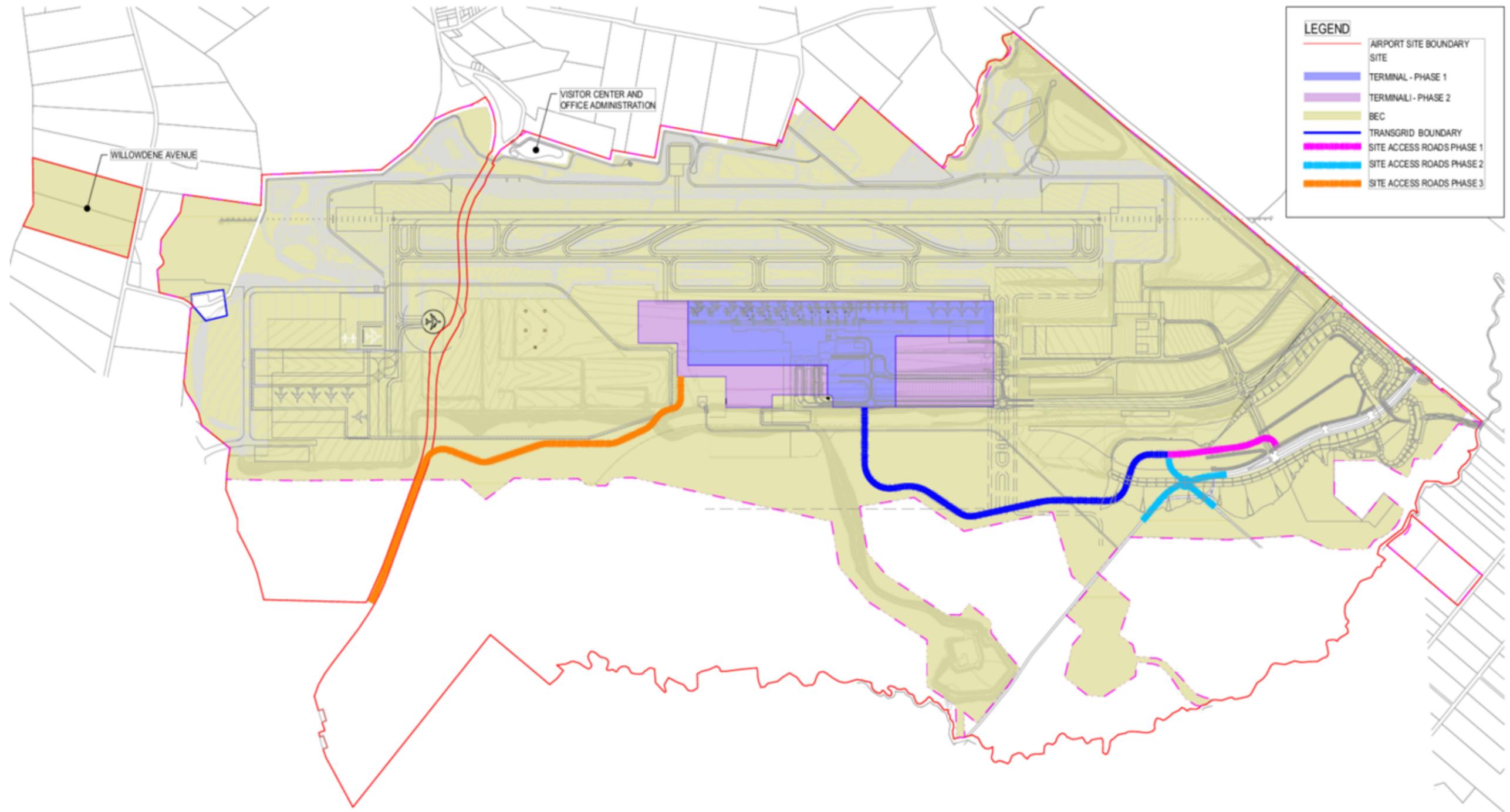


Figure 2: Indicative Construction Areas Stage 1 Development

2.3.1 TransGrid Relocation Works

The Main Construction Works are defined as “substantial physical works on a particular part of the Airport Site described in Part 3 of the Airport Plan, other than TransGrid Relocation Works or Preparatory Activities.” The TransGrid Relocation Works were authorised by the Airport Plan determined on 5 December 2016, following finalisation of the WSA Project EIS (dated September 2016). The Relocation Works were completed in 2019. Further detail about this activity can be found in the TransGrid Relocation Plan available on TransGrid’s website.

2.3.2 Preparatory Activities

Preparatory Activities will be ongoing across the Airport Site throughout the Stage 1 Development. These activities include:

- Spatial Surveys;
- Service Investigations;
- Pre-condition Surveys;
- Traffic Counting;
- Biological Pre-Clearance Surveys;
- Contamination Pre-Clearance Surveys;
- Aboriginal and European Cultural Heritage Survey and Salvage Works including Topsoil Protocol implementation;
- Site Security, including fencing;
- Removal of redundant infrastructure including farm fences, power poles, footings/slabs and rubbish;
- Site compound establishment and access roads and infrastructure;
- Remediation works including establishment of stockpiles;
- Construction of temporary sediment basins associated with site establishment and installation of erosion and sediment controls; and
- Other activities which an Approver determines are Preparatory Activities.

2.3.3 Early Earthworks (EEW)

The EEW package comprises earthworks on a discreet section at the north of the Airport Site, in order to prepare it for commencement of the Bulk Earthworks in that area. These works were completed in December 2020.

2.3.4 Experience Centre and Site Office

WSA has constructed an Experience Centre to engage with the community and provide an identity for the airport early in the planning process. WSA also constructed a site office on the same site, to provide office facilities for WSA staff and consultants for the duration of the airport design and construction period. The works associated with the Experience Centre and Site Office were completed in 2019.

2.3.5 Material importation

As part of the construction of the Stage 1 Development, imported material that satisfies specification for use as sub-base/capping material, as well as the Waste and Resources CEMP requirements, is currently being brought to the airport site and stockpiled within the early earthworks area. The material is required for placement during the development of the site.

2.3.6 Bulk Earthworks

The major earthworks package, the Bulk Earthworks Contract (BEC), will be delivered by the Bulk Earthworks Contractor. Works within these packages will include the following:

- Decontamination of Airport Site;
- Management of asbestos contaminated soils and other contaminated material in accordance with the Remediation Action Plan (2019);
- Bulk Earthworks, including approximately 26 million cubic metres of cut and fill; and
- Trunk drainage infrastructure to safely and efficiently manage rainfall runoff from the developed parts of the Airport Site.

2.3.7 Airside Civil and Pavements

The indicative Airside Civil and Pavement Works scope includes the delivery of:

- Runway construction, which must be 3,700 metres in length with Code F capability;
- Construction of a single full-length parallel taxiway, taxiway system and apron taxi lanes designed to facilitate the safe and efficient movement of aircraft;
- Airside roadways, including perimeter roads, airside roads and other roads required for efficient movement of vehicles and the safe inspection and maintenance of all Airport Site infrastructure;
- Security fencing, including civil works provisioning for services such as CCTV and lighting;
- Aeronautical ground lighting and associated equipment rooms;
- Aircraft isolation pad and engine run-up bay;
- Sitewide high voltage, fibre optic backbone and potable water services; and
- Civil works provisioning for utilities and services required for the operation of the Airport.

2.3.8 Terminal and Specialty Services Works

The Terminal and Specialty Services (TSS) Works scope includes the construction of a multi-storey international and domestic terminal which is integrated with all ground transport and will be located between the Stage 1 runway and future second runway site. Although the Airport Plan allows for a floor area up to 90,000 square metres, the terminal will have approximately 65,000 square metres of floorspace. The construction of the Terminal works will provide for the non-exhaustive listing of items below:

- kiosk, bag drop, security, emigration/immigration (citizen, noncitizen and smart gates), quarantine inspection services, baggage handling facilities, baggage claim (including inbound baggage offload belts), security screening, departure lounges, commercial tenant areas, back of house facilities and car rental facilities;
- capacity for dedicated retail services and currency exchange, including food and beverage services (and the associated infrastructure for storage, back-up facilities, goods delivery access, logistics and security screening); and
- information technology, baggage handling, security and surveillance and all other systems required to effectively support efficient airport processes and operations.

Specialty works include aircraft aprons fixed link bridges, aerobridges, specialist aviation infrastructure/equipment, aviation fuel ring main and technical equipment room buildings not already included in the scope of the Bulk Earthworks or the Airside Civil Works.

2.3.9 Landside Civil & Buildings

The indicative Landside Civil and Buildings scope includes the delivery of:

- The access and internal roads, including their connections to external road networks where applicable;
- Car parks (covered and uncovered – except those included in the Terminal and Specialty Works package);
- connections to external utilities services and their distribution within the airport, including:
 - potable water;
 - wastewater;
 - recycled water; and

- gas.
- Various ancillary facilities:
 - water/wastewater facility;
 - waste disposal facility;
 - airport ground maintenance facility;
 - access control point facility;
 - offices;
 - maintenance facilities and mechanical workshops;
 - flammable and hazardous materials storage area;
 - utilities buildings;
 - Emergency operations centre;
 - Landscaping; and
 - Facility security fencing (where required).

2.5 Airport Site Layout

According to Section 2.4 of the Airport Plan, “Developments on the Airport Site will be permitted only where they meet the planning objectives and permitted uses for each land use zone.”

All proposed uses and construction activities are consistent with the permissible uses indicated in section 2.4 of the Airport Plan.

The rail easement shown in Figure 4 is consistent with section 3.6.6 of the Airport Plan which requires consideration for provision of rail to the Airport Site as part of the Stage 1 Development. The rail stations are shown as reference and will be constructed by Sydney Metro as part of the Stage 1 Development following an approved variation to the Airport Plan.

A significant number of design changes have been made in successive iterations of the Final Airport Site Layout (FASL) since the Indicative Airport Layout, Figure 2 in the Airport Plan. Consistent with the permissible uses indicated in section 2.4 of the Airport Plan, the most recent changes include the following:

- Drainage basin amendments, including the:
 - removal of basin 2 (it is now shown in revised form on the PAL 3 and 4 layouts), as it is not being built as part of Stage 1 Development,
 - increase in size and shape of Basin 3,
 - a smaller footprint being required for the drainage tie-ins for Basins 3 and 6, resulting in a smaller area of EC1 land being required.
- Airfield and airside development amendments including:
 - layout changes to reflect MOS139 amendments, such as the:
 - reduction in the runway width to 45m and provision of shoulders;
 - commensurate reduction in the Runway End Safety Area width; and
 - reduction in the taxiway widths and shoulders.
 - adjustments to the Rapid Exit Taxiway for smoother aircraft manoeuvring,
 - the provision of taxiway loops at the runway ends to improve runway efficiency,
 - apron design amendments to incorporate additional taxiway clearances, ensure operational efficiencies, achieve narrow body equivalent gate requirements and contact stand optimisation, and
 - adjustments to the cargo area to line up with the commercial apron.
 - optimisation of airside perimeter roads and fencing alignment to meet security, maintenance and operational access requirements.
 - minor reconfiguration of the Aviation Rescue and Fire Fighting Service (ARFFS) facilities.
 - repositioning of the new automatic weather station (AWS) to meet Bureau of Meteorology (BoM) requirements (replacing the existing AWS on the south-eastern side of the site).
- Reconfiguration of development blocks, road network and airside/landside access for aviation support activities in the northern part of the site. This includes:
 - a revised main access gate layout and approach,
 - relocation and design of workshops, waste disposal, fuel dispensing and ground maintenance, and related adjustments to the airside/landside boundary and fence to accommodate expanded airside activities, including the shared cargo facilities.
- Terminal and Terminal Precinct amendments such as:
 - progressive design refinements of the gates and apron,
 - altered roads layout and parking provisions, reducing forecast parking numbers to 5,575, with the majority of parking provision to be at grade,
 - refinements to the private and public transport infrastructure in the terminal precinct including the provision of the sub-grade rail station 60m closer to the terminal, and

- relocating commonwealth agency administrative facilities.
- Other landside development amendments including:
 - incorporation of the structure plan for the business park, including the network of streets, blocks, public domain spaces and transport connections including active transport connections,
 - the removal of the diverging diamond interchange within the Business Park, generating a need for an alternative road link between the terminal and Badgerys Creek Rd and earlier utilisation of the bridge south of the Business Park station, and
 - realignment of the corridor for the two rail services (as mentioned) into an underground tunnel just prior to the Crossfield taxiway.
- Relocation of the Commonwealth's standalone dog handling facilities to Pitt Street.
- Offsite upgrades to Adams Road and Anton Road from the realigned TNR (not Elizabeth Drive).
- A signalised connection of the old TNR at the southern end, retaining entry to the site.
- Minor adjustments to the construction impact zone (CIZ) to respond to the above amendments.

Additionally, there have been some land acquisitions and disposals:

- Acquisition by the Commonwealth of additional land, known as the "Leppington Triangle", at the southern end of the site for later development (and not yet included as part of the airport site).
- Minor lot changes to reflect the:
 - acquisition of three easements on land for access to creeks and maintenance, as Ancillary sites under the Airport Plan, and
 - disposal of small parcels of land within the road corridor boundary along Elizabeth Drive in favour of the NSW Government.

Figure 4 shows the FASL, as approved in November 2020, with proposed land uses and construction activities.

ASL LEGEND

■ PASSENGER TERMINAL	■ RUNWAY	■ AREA REQUIRED UNDER EASEMENT	— ROADS
■ MULTI-PURPOSE / PLAZA / CTC	■ TAXIWAY	■ PROPOSED OFF-SITE EASEMENT	— CURRENT INFRASTRUCTURE
■ COMMERCIAL PARK / PARKING	■ TAXILANE	■ SITE BOUNDARY	— SYDNEY METRO - WESTERN SYDNEY AIRPORT RAIL (ABOVE GROUND)
■ RAIL STATION	■ APRON	■ PERIMETER FENCE	— SYDNEY METRO - WESTERN SYDNEY AIRPORT RAIL (BELOW GROUND)
■ CARGO	✈ AIRCRAFT STANDS	■ AIRSIDE FENCE	— HIAL
■ AIRCRAFT MAINTENANCE / MRO	■ CONSTRUCTION IMPACT ZONE	■ RESA	
■ AIR TRAFFIC CONTROL TOWER	■ DETENTION BASIN	■ ACQUIRED BY COMMONWEALTH FOR INCLUSION IN THE AIRPORT SITE	
■ FUEL FARM	■ BIO-RETENTION BASIN	■ PROPOSED COMMONWEALTH DISPOSAL (ELIZABETH DRIVE)	
■ SUPPORT FACILITIES / MIXED-USE AVIATION	■ PROPOSED COMMONWEALTH DISPOSAL (ELIZABETH DRIVE)	■ EC1 ENVIRONMENTAL ZONE	
		■ GLIDE PATH CRITICAL AREA	

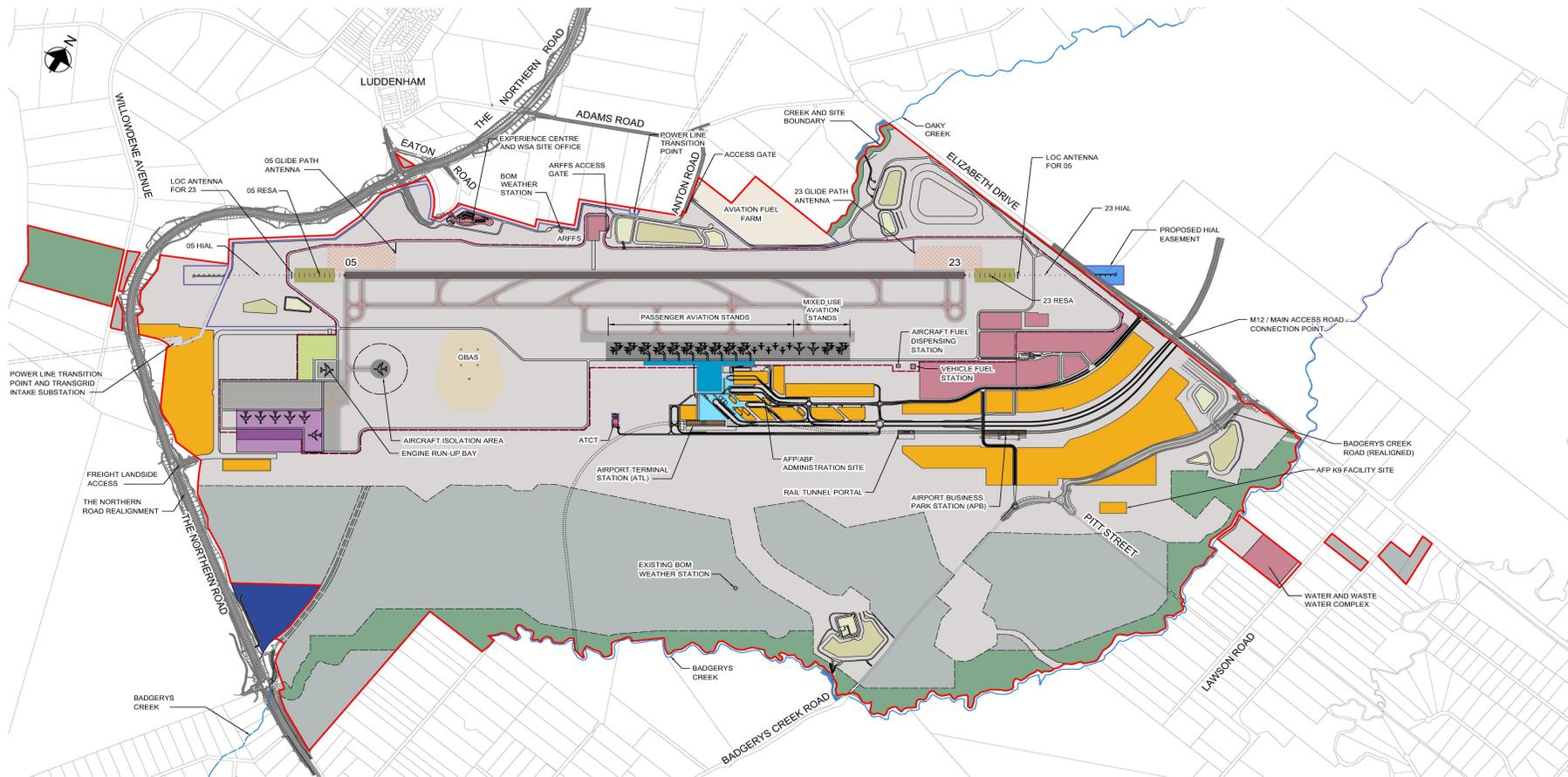


Figure 4: Final Airport Site Layout (FASL) – as approved November 2020

Table 3 compares the Airport Plan land use zone objectives and permissible uses to proposed facilities.

Table 3: Airport Site Layout/Land Use Plan Comparison

Land use zone	Objectives	Permissible uses
<p>AD1: Aviation Activity</p>	<ul style="list-style-type: none"> • provide for safe, secure and efficient airfield operations, including aircraft take-off, landing and taxiing; • provide for aviation activities and aviation support facilities; and • facilitate compatible and ancillary functions within the zone, provided that development does not render the land unfit for aviation activities. 	<ul style="list-style-type: none"> • Aviation activity • Detention basin • Earthworks* • Environmental protection works • Extractive industry* • Liquid fuel depot and distribution facility • Navigational aids • Public administration facility • Public utility undertaking • Road • Signage (other than an advertisement) • Telecommunications facility • Temporary structure • Works depot*
<p>AD2: Terminal and Support Services</p>	<ul style="list-style-type: none"> • facilitate development of a contemporary passenger terminal and related facilities for the handling, transfer and processing of passengers that is capable of meeting the standards expected by international, domestic and regional travellers, as well as supporting the needs of the Airport's workforce; • enable future expansion of the Airport's operations, including associated aviation facilities; • encourage airport and aviation-related employment opportunities; • facilitate compatible and ancillary functions within the zone, provided that development does not render the land unfit for aviation activities; and • provide for aviation activities and support facilities. 	<ul style="list-style-type: none"> • Amusement centre • Animal boarding • Aviation activity • Aviation support facility • Business premises • Car park and parking spaces • Childcare centre ** • Convenience store • Detention basin • Earthworks* • Environmental protection works • Extractive industry* • Food and drink premises • Freight handling and transport facility • Hotel or motel accommodation • Kiosks • Liquid fuel depot and distribution facility • Markets • Navigational aids • Office premises • Passenger transport facility • Public utility undertaking • Public administration facility • Road • Shop • Signage • Telecommunications facility • Temporary structure • Terminal • Transfer corridor • Vehicle hire premises

Land use zone	Objectives	Permissible uses
<p>AD3: Aviation Logistics and Support</p>	<ul style="list-style-type: none"> • facilitate the development of freight services and airport logistics (and ancillary office space); • ensure development is compatible, where practicable, with surrounding land uses in this area; and • facilitate compatible and ancillary functions within the zone, provided that development does not render the land unfit for aviation activities. 	<ul style="list-style-type: none"> • Works depot* • Animal boarding • Aviation activity • Aviation support facility • Business premises • Car park and parking spaces • Detention basin • Earthworks • Environmental protection works • Extractive industry* • Food and drink premises • Freight handling and transport facility • Light industry • Liquid fuel depot and distribution facility • Navigational aids • Office premises • Passenger transport facility • Public administration facility • Public utility undertaking • Retail - low intensity • Road • Signage • Telecommunications facility • Temporary structure • Transport depot • Works depot*
<p>AD4: Aviation Reservation</p>	<ul style="list-style-type: none"> • coordinate the orderly and economic use and development of land until such time as it is required for aviation activities or aviation support facilities; • integrate compatible aviation, business and industrial activities in accessible locations; • encourage appropriate employment opportunities in accessible locations; and • ensure that development will not render the land unfit for aviation activities or aviation support facilities when it is required for these purposes. 	<ul style="list-style-type: none"> • Agriculture • Animal boarding • Aviation activity • Aviation support facility • Car park and parking spaces • Detention basin • Earthworks* • Environmental protection works • Extractive industry* • Navigational aids • Passenger transport facility • Public utility undertaking • Public administration facility • Retail - low intensity • Road • Shop • Signage • Telecommunications facility • Temporary structure • Terminal • Waste or resource management facility • Works depot*

Land use zone	Objectives	Permissible uses
<p>BD1: Business Development</p>	<ul style="list-style-type: none"> • enable a mix of business, retail and industrial uses in locations that are close to and that support the functioning of the Airport; • integrate suitable and compatible land uses in accessible locations so as to maximise public transport patronage and encourage cycling; • encourage employment opportunities and promote businesses along main roads; • enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of the local workforce; and • maximise, where possible, the use of existing access and egress points. 	<ul style="list-style-type: none"> • Agriculture • Animal boarding • Aviation activity • Aviation educational facility • Aviation support facility • Business premises • Car park and parking spaces • Childcare centre** • Detention basin • Earthworks* • Environmental protection works • Extractive industry* • Freight handling and transport facility • Hotel or motel accommodation • Medical Light Industry centre • Navigational aids • Office premises • Passenger transport facility • Public administration facility • Public utility undertaking • Recreation facility (indoor) • Retail premises • Road • Service station • Shop • Signage • Telecommunications facility • Temporary structure • Vehicle hire premises • Warehouse and distribution centre • Works depot*
<p>BD2: Business Development (Reservation)</p>	<ul style="list-style-type: none"> • enable a mix of business, retail and industrial uses in locations that are close to and that support the functioning of the Airport; • integrate suitable and compatible land uses in accessible locations so as to maximise public transport patronage and encourage cycling; • encourage employment opportunities and promote businesses along main roads; • enable a limited range of other land uses that will provide facilities and services to meet the day-to-day needs of local workforce; and • maximise, where possible, the use of existing access and egress points. 	<ul style="list-style-type: none"> • Agriculture • Animal boarding • Aviation activity • Aviation educational facility • Aviation support facility • Business premises • Car park and parking spaces • Childcare centre** • Detention basin • Earthworks* • Environmental protection works • Extractive industry* • Freight handling and transport facility • Hotel or motel accommodation • Light Industry • Medical centre • Navigational aids • Office premises • Passenger transport facility • Public administration facility • Public utility undertaking

Land use zone	Objectives	Permissible uses
		<ul style="list-style-type: none"> • Recreation facility (indoor) • Retail premises • Road • Service station • Shop • Signage • Telecommunications facility • Temporary structure • Vehicle hire premises • Warehouse and distribution centre • Works depot*
<p>EC1: Environmental Conservation</p>	<ul style="list-style-type: none"> • protect the ecological and scenic values of the waterways in this area; • maintain the health and natural flows of the waterway; • enhance, restore and protect the cultural heritage values of the land; • enhance, restore and protect local biota and the ecosystems and habitats of native species; • provide for the effective management of remnant native vegetation, including native vegetation regeneration and revegetation, noxious and environmental weed eradication, and bush fire hazard reduction; • enable the land to be used as passive open space in a manner that is not inconsistent with the protection of its natural and cultural heritage values; and • manage development to minimise impacts that could destroy, degrade, damage or otherwise have an adverse effect on natural and cultural heritage values. 	<ul style="list-style-type: none"> • Environmental protection works • Heritage conservation works • Public utility undertaking

* permissible to the extent that the use relates to the construction, development or operation of the Airport Site as an airport

** A child care centre is not authorised by Part 3 of the Airport Plan and, as a sensitive development (as defined in section 71A of the Airports Act), must comply with section 89A of the Act, which requires approval from the Infrastructure Minister for the preparation of a draft MDP for the sensitive development before the MDP can be prepared.

2.5.1 Construction Impact Zone

The Construction Impact Zone (CIZ) is defined within the Airport Plan as the “part or parts of the Airport Site or an Associated Site on which Main Construction Works are planned to occur.”

The development of the CIZ involved assessment of the likely construction area required for the Main Construction Works. This is based around the bulk earthworks footprint required to construct a level platform for development of the airport and extended along flow paths to the detention basins located on the eastern half of the site.

Airport design development and refinement since the publication of the Airport Plan in 2016 (the Airport Plan has now been varied (current version July 2020) has necessitated changes to the CIZ shown on the Airport Site Layout provided as Figure 5 within this Construction Plan. The majority of the changes

are associated with design development of the detention basins, changes to easements within the Airport site boundary and constructability provisioning. Revision of the CIZ due to detailed design of basin outlets has resulted in a minor reduction of 0.1 ha, with a corresponding reduction in the amount of disturbance to native vegetation. The current area of the CIZ is now calculated as 1119.0 ha, with disturbance to 358.99 ha of native vegetation. Changes to the CIZ have been assessed and will not result in any additional impacts on biodiversity values and the impact of other changes have been reduced as far as possible.

Works may be carried out outside the CIZ provided they are of a nature supported by the Airport Plan and has been assessed to be consistent with the EIS and the CEMP's for example environmental management works.

The approved CIZ is shown in Figure 5 and has been optimized to minimise environmental impacts wherever possible and all potential impacts are in accordance with the EIS assessment.

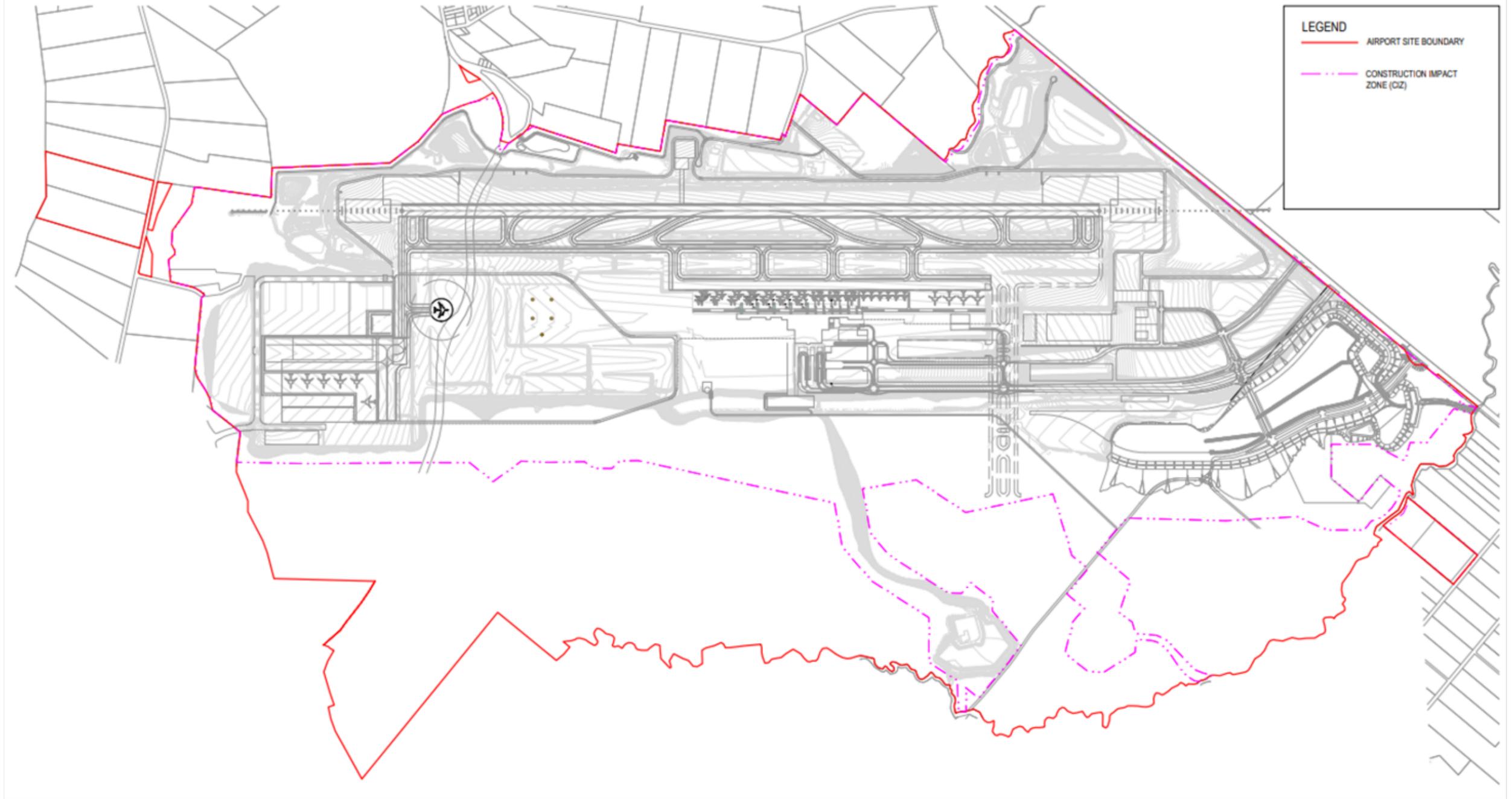


Figure 5: WSA Construction Impact Zone

3 Site Management

3.1 Management Structure

WSA's Delivery Team will manage a series of contractors in the delivery of the WSI. Detailed roles for team members are described in Section 3.1.1.

3.1.1 Roles and Responsibilities

The roles and responsibilities for WSA Delivery Team members are defined in Table 4.

Table 4: Personnel Roles and Responsibilities

Organisation	Role	Responsibilities
WSA Delivery Team	Construction Manager	<ul style="list-style-type: none"> Development, management and implementation of this Construction Plan. Overall delivery of stage 1 of the project consistent with the Airport Plan, Airport Deed and all supporting documentation and regulations. Management, coordination and control of contractors delivering stage 1 of the project.
	Safety and Health Manager	<ul style="list-style-type: none"> Safety performance for the Stage 1 Development Development, management and implementation of an effective work health and safety system. Monitoring, assurance and compliance of the Stage 1 Development with all relevant legislation Monitoring and assurance of contractors' performance and ensure compliance with the work health and safety system
	Environment Manager	<ul style="list-style-type: none"> Development, management and implementation of CEMP's Environmental monitoring, assurance and compliance for the Stage 1 Development
	Sustainability Manager	<ul style="list-style-type: none"> Development, management and implementation of the Sustainability Plan Sustainability monitoring, assurance and compliance for the Stage 1 Development
	Community and Stakeholder Manager	<ul style="list-style-type: none"> Communication, liaison and consultation with all stakeholders Development, management and implementation of the community and stakeholder management plan
	Design/Engineering Manager	<ul style="list-style-type: none"> Design development of Stage 1 of the project consistent with the Airport Plan, Airport Deed and all supporting documentation and regulations. Management, coordination and control of contractors designing Stage 1 of the project.
	Package Managers	<ul style="list-style-type: none"> Management, coordination and control of individual work packages within Stage 1 Development
	Interface Managers	<ul style="list-style-type: none"> Coordination of any interfaces between multiple Contractors on the Airport Site Coordination of any interfaces between external stakeholders and Contractors on the Airport Site.
	Superintendents	<ul style="list-style-type: none"> Execution of the works in accordance with the construction plan, CEMP's and sub-plans
Contractor	Project Manager	<ul style="list-style-type: none"> Execution of the works in accordance with the construction plan, CEMP's and sub-plans
	Safety Manager	<ul style="list-style-type: none"> Consult, coordinate and cooperate delivery partner and other contractors Management and implementation of contractor's safety systems
	Environment Manager	<ul style="list-style-type: none"> Day to day management and implementation of an effective environmental management system Consult, coordinate and cooperate delivery partner and other contractors
	Superintendents	<ul style="list-style-type: none"> Execution of the works in accordance with the construction plan, CEMP's and sub-plans

3.2 Construction hours

The EIS and the NSW Environmental Protection Authority (EPA) Interim Construction Noise Guideline (DECC 2009a) both list standard construction hours as Monday to Friday 7am – 6pm and Saturday from 8am – 1pm. The NSW guidelines identify a number of categories of works that might be undertaken outside the recommended hours, including:

- deliveries of oversized plant or structures;
- public infrastructure works that shorten the length of the project and are supported by the affected community; and
- works where a proponent demonstrates and justifies a need to operate outside the recommended standard construction hours.

Other activities that WSA may undertake outside these standard construction hours include:

- works to existing services (if shutdowns are required);
- deliveries of oversized loads;
- catch-up works if works are delayed by unforeseen circumstances;
- responsive activities to protect people, property and the environment in the event of an emergency such as a fire or structural failure; and
- other activities undertaken in accordance with relevant noise guidelines, or which have no material noise or other impacts on residences.

Where works are required outside of standard construction hours approval will be requested from the WSA Environment Manager in accordance with the Noise and Vibration Construction Environmental Management Plan (CEMP).

Importation and stockpiling of suitable construction material continues to progress. This activity commenced prior to the commencement of the Bulk Earthworks. WSA plans to allow heavy and light vehicle movements to and from site to occur outside standard work hours, in accordance with the WSA Traffic and Access CEMP, in order to reduce congestion for other users during the day. Where activities will occur outside of standard construction hours an Out of Hours Work Permit will be issued to the Contractor by the WSA Environment Team in accordance with the Noise and Vibration CEMP.

Construction phases may require the delivery of materials and stockpiling activities to occur on a 24-hour basis. The Bulk Earthworks, Terminal and Specialty Services Works and Airside Civil and Pavements construction packages are expected to trigger this requirement. Where construction works will be executed outside of standard construction hours an Out of Hours Work Permit to Operate will be obtained by the Contractor.

Refer to the Noise and Vibration CEMP which satisfies the requirements of section 3.10.2(6) of the Airport Plan and focuses on how mitigation measures identified in Table 28-2 and Table 28-3 in Chapter 28 of the EIS, including community notifications and noise monitoring requirements, are addressed.

3.3 Health and Safety Management

WSA is focused on cultivating and implementing the Zero Harm philosophy throughout the workforce which will result in eliminating or reducing harm to the environment, workers or others affected by the works, and inspiring exceptional health and safety performance. This objective can be achieved if WSA and its partners:

- ensure that safety is a core value;
- aspire to provide their people, contractors, stakeholders and members of the public with the highest level of safety protection;

- demonstrate visible safety leadership and inspire their people, contractors and stakeholders to value exceptional health and safety performance;
- lead an environment of trust and transparency;
- promote safety innovation and recognise exceptional health and safety performance; and
- monitor, review and achieve continual improvement in health and safety performance.

WSA requires exceptional health and safety management and expects that all health and safety risks are identified and subsequently eliminated or satisfactorily controlled. WSA also expects the development and implementation of safety initiatives to drive continuous improvement of safety performance throughout delivery.

3.4 Health and Safety Considerations

High risk activities during construction will be managed in accordance with the project Health and Safety Management Plan. Health and Safety must be the primary consideration in all construction activities throughout Stage 1 Development. Construction activities that present a particular health and safety risks include:

- Working in and around mobile plant;
- Working at heights;
- Working near live traffic;
- Working with live services;
- Mobile cranes and lifting operations;
- Electrical work;
- Excavation and trenching;
- Working with temporary works
- Working in or near confined space
- Working with stored energy sources i.e. on or near pressurised gas, fuel and refrigerant lines; and
- Tilt-up or precast concrete.

All works will be carried out in accordance with WSA's Critical Risk Protocols.

3.5 Health and Safety Risk Methodology

Risk workshops have been conducted to identify and assess the risk profile of the project activities. Risk controls and the process of monitoring of these controls have been agreed at the workshops and the cascade of risk controls will be included in contract documents. This cascade allows for the definition of minimum standards above the legislative requirements with the controls based on lessons learned from previous projects.

Contractors will be evaluated and selected against set criteria, including their ability to commit to adopting the defined risk controls, to allow for the implementation of standards aimed at exceptional health and safety performance.

Contractors will be required to conduct scope of work risk analyses prior to commencement of construction activities on site. The risk controls from these analyses form the basis of eliminating or mitigating the risks associated with a particular work scope and define the cascade of control to the lower level risk management processes applied to job and task assessments.

Throughout all stages of the risk management process the hierarchy of controls of elimination, substitution, isolation, engineering, administration and personal protective equipment will be applied. The priority of control application will be through the higher levels of control before the lower levels are considered.

Reviews of risk registers will be completed when construction schedules, activities, legislation or standards change.

The Contractor must hold further separate workshops on a monthly basis, which will include representatives of WSA, to address different trades / phases / work areas or processes not covered during the earlier risk assessment workshops, prior to the commencement of the relevant activity, phase or section of work. The Contractor must also hold risk workshops throughout the project to address newly incorporated work methods/processes or project-specific work methods/processes.

The Contractor must update the WHS risk register based on the outcomes of the additional WHS risk workshops and update the WHS management plan based on any changes to the WHS risk register.

The Contractor must establish a WHS review group to meet at least once a month and at any other time at the request of WSA's Representative.

3.6 Traffic and Access

Construction of WSI will generate additional traffic on the regional and local road network. All construction traffic and access will be managed in accordance with the WSA Traffic and Access CEMP and as such, the impact to the local road networks will be minimised. Key activities that will require management strategies will be, materials deliveries, oversize deliveries, workforce access and egress and coordination with other local infrastructure projects.

For further detail, refer to the WSA Traffic and Access CEMP which satisfies the requirements of section 3.10.2(9) of the Airport Plan and focuses on how mitigation measures identified in Table 28-8 and Table 28-9 in Chapter 28 of the EIS are addressed. Refer to Figure 6 which shows the major access routes to the Airport Site.

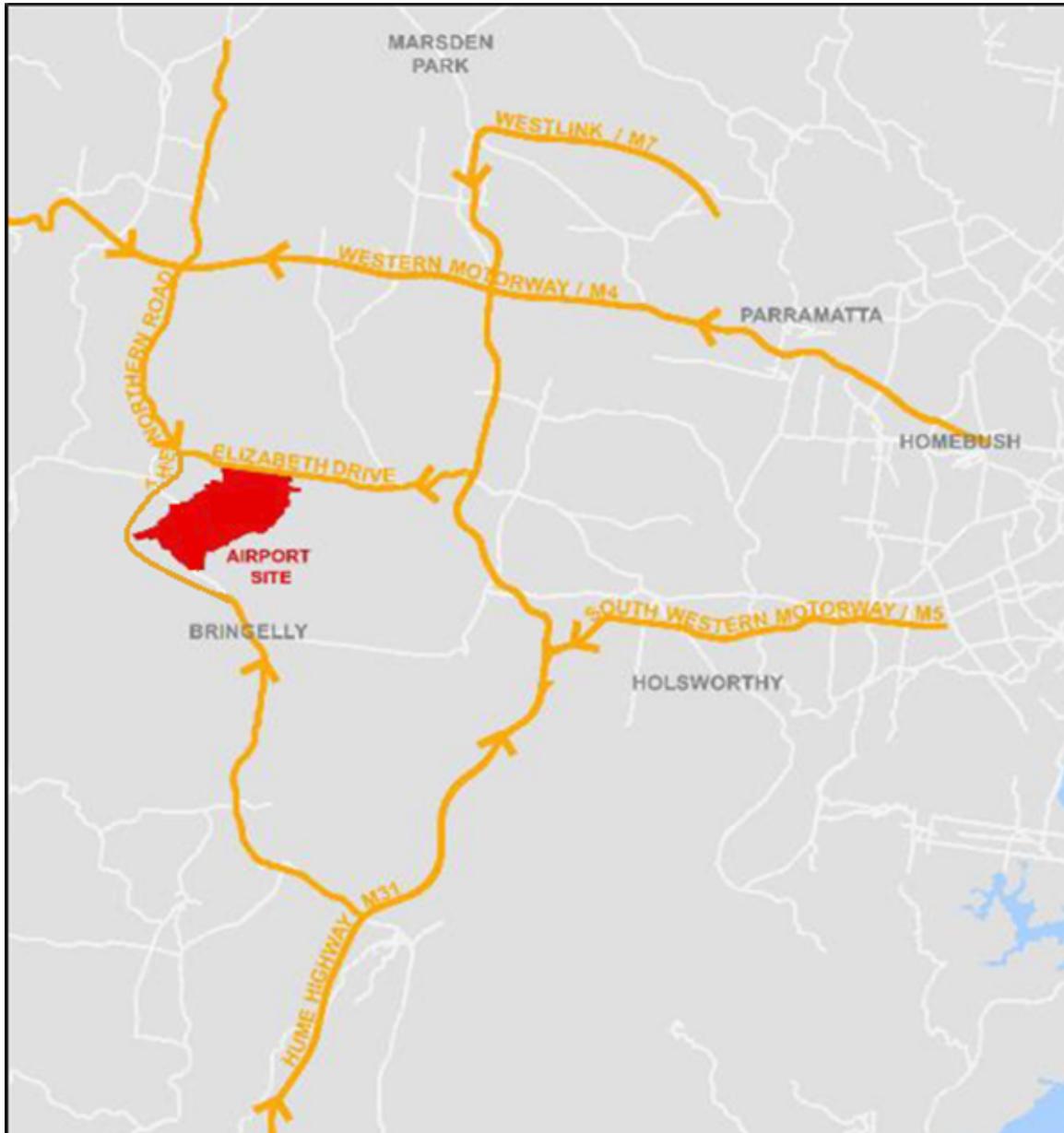


Figure 6: Major Access Routes to the Airport Site

3.6.1 Western Sydney Infrastructure Plan

There are a number of currently planned road upgrades in Western Sydney that will improve access to the airport and overall transport availability in the region. These are being undertaken by TfNSW under the Western Sydney Infrastructure Plan as shown in Figure 7. The key upgrades in relation to the Airport Site include:

- The Northern Road, Stages 1 – 6 including realignment around the airport site; and
- The M12 Motorway, including Elizabeth Drive overpass at the entrance.

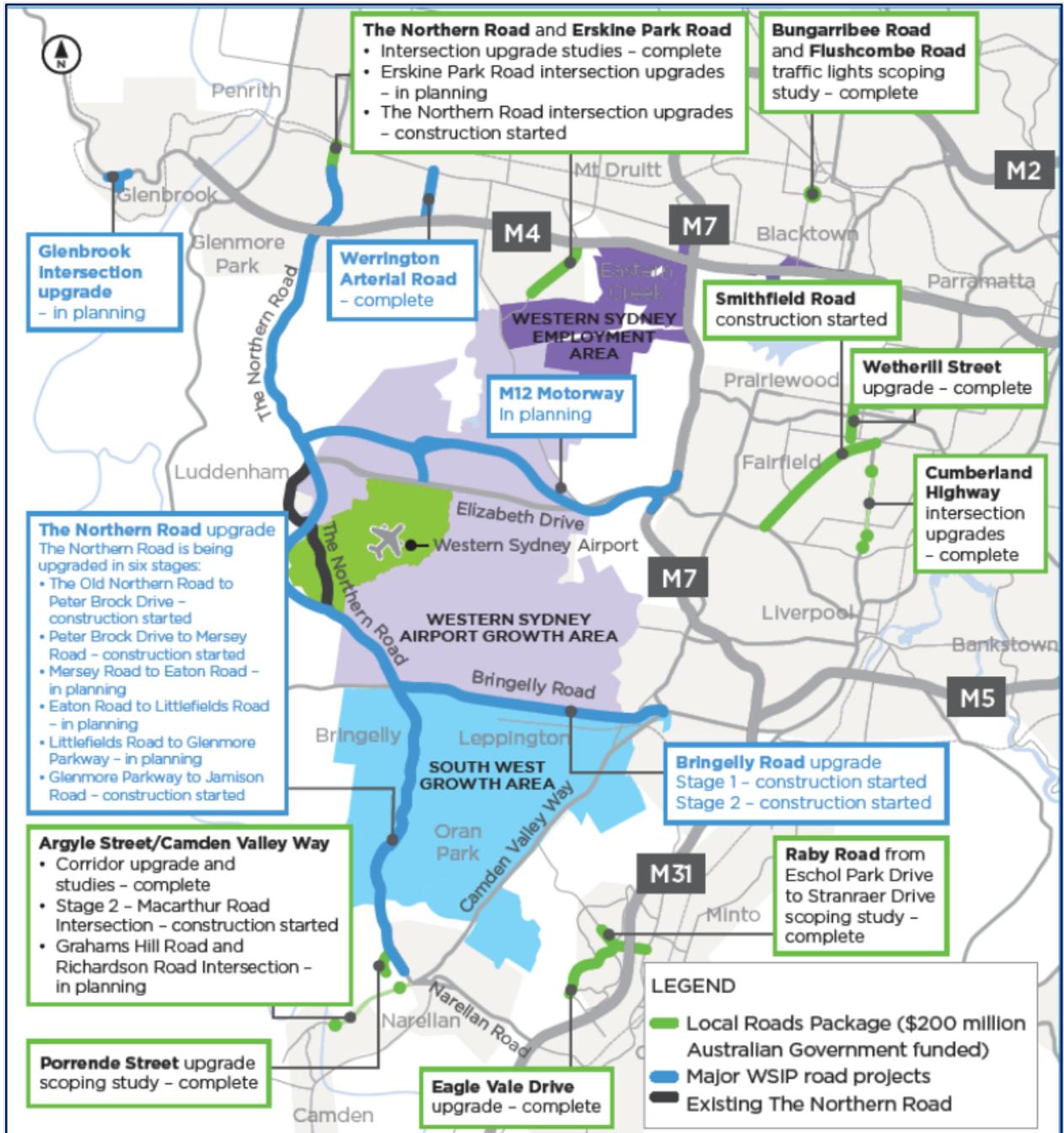


Figure 7: Western Sydney Infrastructure Plan Map (Commonwealth, 2018)

3.6.2 Existing Road Network

The existing road network can be categorised into four main groups:

- **Arterial Roads:** controlled by TfNSW, they typically exhibit no limit in flow and are designed to carry vehicles long distances between regional centres;
- **Sub-Arterial Roads:** can be managed either by council or by TfNSW under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day. Their aim is to carry through-traffic between specific areas in a sub region, or provide connectivity from arterial road routes (regional links);

- Collector Roads: provide connectivity between local sites and the arterial road network, and typically carry between 2,000 and 10,000 vehicles per day; and
- Local Roads: provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

Badgerys Creek Road is a collector road which connects TNR to Elizabeth Drive. Few residences are located along the road with most residents away from the site and closer to the TNR. Temporary short term (~56 hours) closure of Badgerys Creek Road was required to complete the Early Earthworks roadworks and tie-into the existing road network.

Elizabeth Drive is an arterial road which also connects to the TNR, further north from Badgerys Creek Road. Elizabeth Drive also has a speed limit of 80km/hr and is an undivided road with one lane in each direction.

The TNR upgrade is approximately 30km long, with a four lane divided road with central median (allowing for future widening to six lanes, if required) and will have a speed limit of 80km/hour. The upgrade is part of the Australian and NSW government's' commitment to fostering growth in Western Sydney. Upgrades between the Old Northern Road, Narellan and Elizabeth Drive, Luddenham have now been completed, with the newest section between Eaton Road and Elizabeth Drive opened to traffic on 13 December 2020. TfNSW is continuing work on the final upgrades to The TNR to the north.

As many of the roads leading to the site are arterial roads, the site is well suited to handle the additional traffic which will be generated by the project. The largest impact will be on Badgerys Creek Road which is a collector road with lower volumes of traffic than Elizabeth Drive and TNR.

As part of the Stage 4 TNR works realigning the road around the airport, TfNSW constructed a short stub with a signalised intersection as the future Freight Landside Access connection shown in Figure 4.

3.6.3 Site Access

Access to the site will be controlled to protect the general public from exposure to the inherent hazards of a construction site. Security guards stationed at the main entry points to the site will provide access control and ensure that all those entering the site have completed required inductions and are wearing the appropriate personal protective equipment (PPE) for work on a construction site.

Figure 8 shows the planned site entry points and approximate timing, entry point restrictions and locations of major site features in relation to access points.

Most deliveries are expected to come from north of the site via Elizabeth Drive. WSA is working closely with TfNSW on coordination of construction activities and program delivery, as well as the final alignment of M12 and Elizabeth Drive, with safety and efficiency as key considerations. Wider concerns are raised within the TfNSW-WSI Hub. Coordination for temporary and permanent construction works is ongoing.

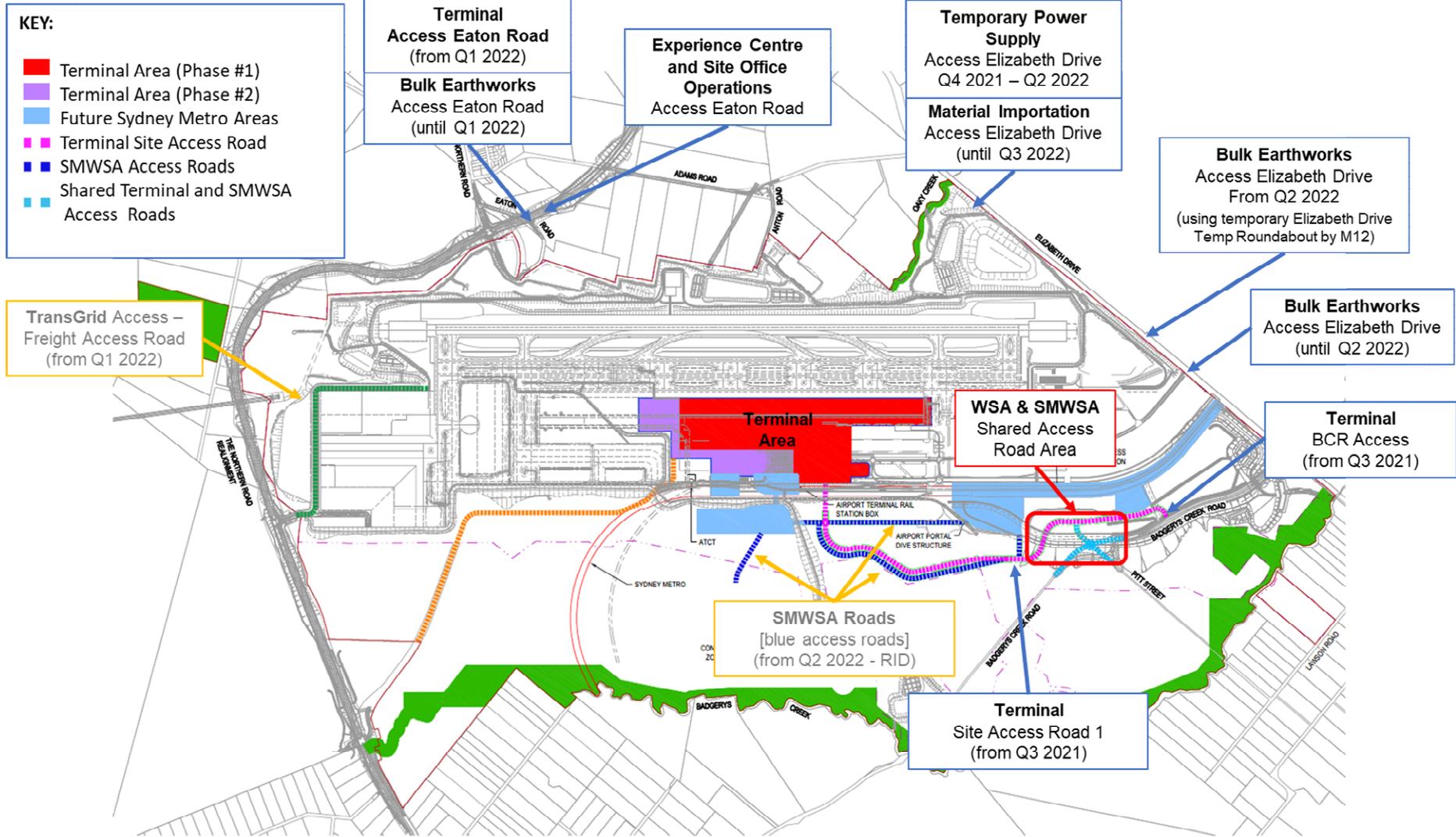


Figure 8: Site Access

3.6.4 Construction Traffic Impacts

During construction, the general public will be subject to multiple impacts inherent to construction of large civil works projects. WSA and its contractors will use the CSEP and relevant CEMPs to minimise impacts to stakeholders and the general public. Table 5 below lists impact, associated concern and relevant plan or CEMP which addresses mitigation measures consistent with the EIS and Airport Plan recommendations.

Table 5: Traffic Impacts

Impact	Concerns	Relevant Plan/CEMP
Construction Traffic	Increase in traffic volume due to work force	<ul style="list-style-type: none"> • Traffic and Access CEMP • Community and Stakeholder Engagement Plan
Heavy Haulage	Heavy haul equipment to and from the site.	<ul style="list-style-type: none"> • Traffic and Access CEMP • Waste and Resources CEMP • Community and Stakeholder Engagement Plan
Bulk Earthworks	<p>Access to public roads for decontamination, bulk earthworks, topsoil stripping and associated work by large bulk earth working equipment</p> <p>Blasting works</p>	<ul style="list-style-type: none"> • Traffic and Access CEMP • Noise and Vibration CEMP • Community and Stakeholder Engagement Plan
Noise	Construction noise	<ul style="list-style-type: none"> • Noise and Vibration CEMP • Community and Stakeholder Engagement Plan
Dust	Dust generated during construction works.	<ul style="list-style-type: none"> • Air Quality CEMP • Soil and Water CEMP • Community and Stakeholder Engagement Plan
Property Access	Road closures and temporary detours could impact those living in the area.	<ul style="list-style-type: none"> • Community and Stakeholder Engagement Plan • Traffic and Access CEMP
Deliveries	Material deliveries may be outside of standard work hours	<ul style="list-style-type: none"> • Noise and Vibration CEMP • Traffic and Access CEMP • Waste and Material CEMP • Community and Stakeholder Engagement Plan
Parking	Parking of construction vehicles on roadways while waiting to access the site may inconvenience the general public.	<ul style="list-style-type: none"> • Community and Stakeholder Engagement Plan

3.7 Construction Vehicles

Vehicles utilised in the construction of the Stage 1 Development will consist of a combination of light and heavy vehicles and construction machinery. Definitions and expected utilisations of these vehicle types are provided below. Further details of construction vehicles are provided in the Traffic and Access CEMP which satisfies the requirements of section 3.10.2(9) of the Airport Plan.

3.8 Light Vehicles

Light vehicles are generally defined as cars, utility vehicles and some commercial vehicles with a gross vehicle mass of less than 4.5 tonnes.

Daily light vehicle trips will be carried out primarily by the construction workforce. Most light vehicles will arrive on site prior to 7am outside of the AM peak and begin exiting the site at around 4pm each day until 7pm. The number of light vehicles entering and leaving the Airport Site is estimated to increase steadily from around 30 during the early stages to a peak of around 1000 light vehicles during the Main Construction Works. As nearby arterial roads already have traffic volumes which are well in excess of construction traffic, it is expected that this will have a negligible impact on those roads. It is also expected that typical traffic levels on local roads will not be exceeded (see Section 3.4.2).

3.9 Heavy Vehicles

Heavy vehicles are defined under the Heavy Vehicle National Law 2013 (NSW) as large vehicles with a gross vehicle mass or aggregate trailer mass of more than 4.5 tonnes. Heavy vehicles including trucks and semi-trailers will be required for the delivery of equipment and construction materials, including pavement materials for the runway, taxiways, aprons, roads and carparks which are expected to be imported from predominantly outside of the Airport Site.

Heavy vehicle movements are estimated to increase from 200 vehicle movements per day during the early stages to around 400 vehicle movements per day during Main Construction Works.

Substantial volumes of gravel will be required for the base and sub-base material, while large volumes of asphalt and concrete materials will be used for surfacing. Concrete will also be a major construction material for structures (buildings). WSA envisages that most gravels will be sourced from other major Sydney infrastructure projects, reducing the need for landfill sites to be used from within the Sydney Basin, and lowering the truck kilometres required within the wider road network.

Asphalt batch plants will be established on site which will require raw materials including aggregate, sand, crusher dust, lime filler and bitumen. Aggregate will be imported to the Airport Site from the same quarries supplying the gravel. Concrete batching plants will also be established on site to supply concrete. Raw materials delivered to the concrete batch plant will consist of cement, fly ash, aggregate, sand and admixture.

General building materials such as structural steel, roofing materials, flooring materials and furniture will likely be supplied from various sources within Greater Sydney.

3.10 Construction Machinery

A range of construction machinery will be used at the Airport Site. This includes, but is not limited to the following:

- Dozers;
- Pad foot rollers;
- Scrapers;
- Loaders;
- Excavators;
- Gravel pavers;
- Water carts;
- Asphalt pavers;
- Graders;
- Elevated work platforms;
- Compactors;



- Concrete placer spreaders;
- Multi-tyre rollers;
- Concrete slip form pavers;
- Smooth and tandem drum rollers;
- Concrete texture cure machines;
- Dump trucks;
- Mobile crane;
- Backhoe; and
- Piling rig.

4 Environmental Management

4.1 WSA Site Environmental Management Framework

The SEMF (included as Appendix 2 to this Plan), describes a systematic approach to manage and control environmental risks associated with the Stage 1 construction works. It identifies environmental requirements applicable to the various construction activities to ensure environmental impacts are minimised and legislative and other obligations are fulfilled.

In addition, nine Construction Environmental Management Plans (CEMPs), a Sustainability Plan and a Community and Stakeholder Engagement Plan (CSEP) have been prepared to support the SEMF. The CEMPs identify requirements and processes applicable to specific environmental impacts or aspects (e.g. air quality, biodiversity and noise) of the proposed construction activities and address Airport Plan conditions and mitigation measures, controls and monitoring requirements defined in the Environmental Impact Statement (EIS). The structure of the SEMF and its interaction with corresponding management plans is shown below. The CEMPs like the CP are living documents and will be updated per Condition 41 of the Airport Plan to address differences in environmental risk between construction activities, packages and phases.

The structure of the environmental management system for the Stage 1 Development is shown in Figure 9.

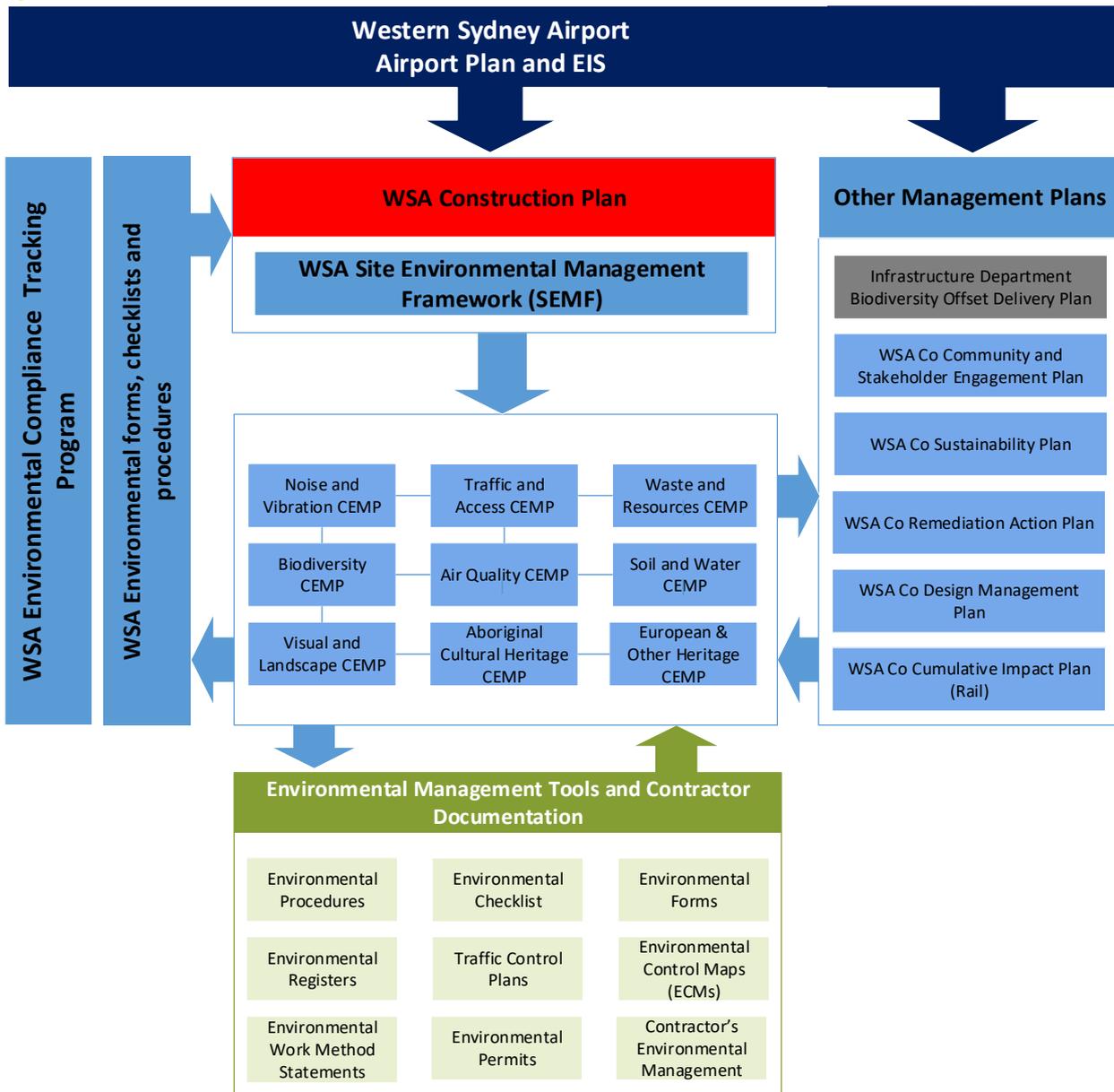


Figure 9: Environmental Management System structure

4.2 SEMF & CEMP focus areas

The following environmental and heritage focus areas have been identified in relation to the construction phase:

- Site discharges during demolition and excavation works;
- Potential effects of noise and vibration on sensitive receptors;
- Potential surface and ground water contamination;
- Exposure to asbestos and hydrocarbon contaminated soils;
- Potential for water discharge and/or spills from worksites to result in pollution of adjacent waterways;
- Potential for impacts to Badgerys and Oaky Creeks and associated Environmental Conservation Zone (ECZ);
- Potential for impacts to Duncans Creek

- Potential construction traffic impacts on local roads surrounding construction worksites, particularly during peak periods;
- Potential for discovery of previously unidentified contaminated soils;
- Potential for discovery of previously unidentified, endangered flora and fauna;
- Potential impacts on vegetation retained within construction worksites and indirect impacts on surrounding vegetation, threatened flora and fauna species;
- Potential for diminishing air quality through site works and dust generation;
- Potential for fauna to be injured during vegetation clearing works; and
- Potential for discovery of previously unidentified Aboriginal or historic heritage relics.

The SEMF addresses these and other environmental concerns through the CEMPs and other documents. A summary of CEMPs, appendices and other related documents is included below.

- Community and Stakeholder Engagement Plan
- Noise and Vibration CEMP
 - Out of hours works procedure
 - Out of hours works permit
- Traffic and Access CEMP
- Soil and Water CEMP
 - Erosion and sediment control plan
 - Emergency spill response procedure
 - Unexpected contaminated find protocol
 - Soil and water monitoring and inspection
 - Groundwater quality criteria
- Waste and Resources CEMP
 - Spill Prevention Plan
 - Hazardous Material Management.
- Biodiversity CEMP
 - Vegetation Management Plan
 - Biodiversity Management Protocols
 - Weed and Disease Management Plan
 - Bushfire Management Plan
 - Threatened Flora Salvage and Translocation Plan
 - Unexpected Finds Protocol – Threatened Flora and Fauna
- Air Quality CEMP
 - Dust Management, vehicle and equipment emissions plan
 - Sensitive receptors
- Visual and Landscape CEMP
 - Beaufort Wind Scale
- Aboriginal Cultural Heritage CEMP
 - Topsoil Management Protocol
 - Aboriginal Stakeholder Consultation and Engagement Plan
 - Survey and Salvage Plan and Addendum

- Oral History Plan
- Identifying Aboriginal objects and site types
- European and Other Heritage CEMP
- Other Supporting Documents
 - Biodiversity Offset Delivery Plan
 - Remediation Action Plan
 - Cemeteries Relocation Management

4.2.1 Quality, process control and audit

Monitoring, inspection, auditing and reporting will be undertaken on a regular basis to measure environmental management program effectiveness and facilitate continuous improvement of environmental controls and implementation of the SEMF, associated CEMPs, and to address approval requirements. If a deficiency is detected, the appropriate corrective action will be taken to resolve the issue. Monitoring requirements specific to particular aspects (i.e. biodiversity, soil and water, air quality etc) are included in the relevant CEMPs.

4.2.2 Specific construction measures

The Airport Plan imposes strict environmental standards and implements mitigation measures identified in the EIS. Refer to CEMPs described previously for detailed Airport Plan Conditions and associated mitigation measures.

5 Construction Activities

The details for the construction activities occurring on site and covered by this Construction Plan are detailed in the following sections. This includes, Preparatory Activities, Construction Water, establishment of Main Access to the project, Material Importation, the remaining works associated Bulk Earthworks phase, and the Terminal and Specialty Services Works.

Figure 2 shows the location of where the work is occurring in geographically different portions of the Airport Site.

5.1 Preparatory Activities

Preparatory activities will be ongoing across the Airport Site throughout the Stage 1 Development. The works will be managed in accordance with the Preparatory Activities Plan which is prepared by the relevant Contractor and approved by WSA Environment Manager. The activities must be consistent with the Airport Plan definition for Preparatory Activities, refer to SEMF Section 3.9. Refer to Table 6 for details of proposed activities and indicative timing.

If an Approver determines an activity is a Preparatory Activity for paragraph (e) of the definition of 'Preparatory Activities' as per the Airport Plan and requires that a plan be prepared and submitted, WSA will prepare the necessary plan for consideration and approval in accordance with Condition 5 (2) of the Airport Plan. Any Preparatory Activities must not be carried out inconsistently with the approved CEMPs.

A summary of the construction staging for the Preparatory Activities is provided below in Table 6.

Table 6: Construction staging – Preparatory Activities

Construction staging	Indicative Timing
Preparatory Works	
Spatial Survey Service Investigations Pre-condition Surveys Traffic Counting Biological Pre-Clearance Surveys Contamination Pre-Clearance Surveys Aboriginal and European Cultural Heritage Survey and Salvage Works including Topsoil Protocol implementation Site Security including fencing Removal of redundant infrastructure including farm fences, power poles, footings/slabs and rubbish Site compound establishment and roundabout construction Remediation works including establishment of stockpiles Construction of temporary sediment basins and installation of erosion and sediment controls Other activities which an Approver determines are Preparatory Activities.	Aug 2018 – 2026

5.2 Construction Water

Water will be sourced through access to existing water supply pipelines and from stormwater runoff captured in sediment dams or farm dams at the Airport Site or procured from alternate sources. The bulk of water will be provided from existing dams initially through captured surface runoff.

New swales and detention basins will be delivered through the Bulk Earthworks Contract to allow retention of water for use in the Terminal and Specialty Services Works, Airside Civil and Pavements, and Landside Civil and Building packages.

Surface water (farm dams and sediment basins) will be used to capture run off for construction water. A Sydney Water recycled water supply pipeline is being established along Pitt St (expected to be operational Q4 2021), which will supply recycled water to Basin #1 for construction use.

An option also exists for the BEC contractor to extract and utilise nearby quarry water until December 2022 in accordance with the terms of the agreement between CSR and WSA.

5.3 Establishment of main access points

The main access points for the project are as follows:

- Bulk Earthworks – main access via Elizabeth Drive approximately 500m west of the Badgerys Creek Road intersection with Elizabeth Drive.
- Terminal – access via New Badgerys Creek Road initially from a “left in / left out” intersection and then from a revised roundabout along new Badgerys Creek Road. An alternate access point will be constructed from the old The Northern Road southern access to the south of the site. Alternate access points including Eaton Road for the fuel ring main reticulation
- Airside Civil and Pavements – access via The Northern Road at the “Freight Access Road” intersection. Alternate access points including Eaton Road, Anton Road and Epic Mine around the northern areas of the site.

Any access point that needs to be installed on an existing RMS road will be done in consultation with RMS and approvals gained prior to the access works commencing. Other internal site access roads will be gravel pavement maintained by grader and non-potable water cart and may be bitumen sealed to reduce the maintenance and dust generation.

The Traffic and Access CEMP provides details of measures implemented to minimise disruption of local road networks.

5.4 Construction Facilities

Construction of the airport facilities (for example, the terminal complex, air traffic control facility, freight and maintenance facilities, perimeter intrusion detection system, fuel farm, meteorological facility, navigation aids, substation, etc.) would generally involve the following stages:

- foundations and floor slabs, structural framing and intermediate floors (if required);
- roofing;
- exterior wall systems;
- mechanical electrical plumbing (MEP)
- vertical circulation;
- automated systems and security systems (if required);
- internal fit out; and
- commissioning.

Detailed design of the proposed airport facilities would be carried out in accordance with the requirements set out in the Part 3 of the Airport Plan.

5.5 Material Importation

5.5.1 General

Material importation commenced in May 2019, refer to Table 7 for staging. Material will be imported to the site from other Sydney infrastructure sites as contemplated by the EIS. This work activity commenced in May 2019 and will ensure that valuable Sydney sandstone will be re-used in pavement construction

potentially saving millions of tonnes of quarry won materials while diverting material from landfill sites in the Sydney area.

Table 7: Construction staging – Material importation

Construction staging	Indicative Timing
Material importation	
Haulage of sub-base and capping material to site	May 2019 – June 2022

Initially, approximately 2.3 million cubic metres of sandstone will be imported through to the end of 2021 for the bulk earthworks. Additional sandstone will be delivered to site in support of the future works in 2022. It is expected that the stockpiled material will be used during pavement construction starting in mid-2022 and completing by December 2023.

To make the most of opportunities to use suitable material generated from other major infrastructure projects in Sydney, importation will occur both during standard hours and outside standard construction hours. As such, the process outlined in Section 10 of the Noise and Vibration CEMP for assessment and management of these works has been applied. The approximate stockpile location is shown in Figure 10.



Figure 10: Stockpile location plan

Imported material management is included in Section 6.7 of the Waste and Resources CEMP. Any type of imported material will be classified in accordance to the POEO Act and NSW EPA waste classification guidelines and Airport Environmental Protection Regulations.

5.5.2 Stockpile Operation

While the site will receive spoil on a 24 hr a day basis most other activities will follow normal site working hours. Key operating risks will be mitigated as per Table 8.

Plant used to build and manage the stockpile will be of a similar nature to the following:

- CAT D6 Bulldozer
- CAT 816K/*26K Compactor
- CAT 533 Smooth Drum Roller
- Water Cart
- CAT 14M Motor Grader
- CAT 330 Excavator

It is envisaged that stockpile management will take place during normal working hours.

Table 8: Key operating risk and management measure

Risk Category	Description	Mitigation
Noise	Excessive Noise being transmitted to sensitive receptors	<ul style="list-style-type: none"> ▪ Stage stockpile construction to create a noise attenuation bund ▪ Stockpile shaping and compaction activities to be carried out during normal working hours only ▪ Reversing manoeuvres to be limited by layout design ▪ Vehicles to be fitted with “white noise” type reversing alarms ▪ Vehicles fitted with GPS monitoring system to ensure only agreed routes are used ▪ Lights sets to be super silenced or battery powered ▪ Noise monitoring to be carried out to ensure effectiveness of controls ▪ Material selected is from a Tunnel Boring Machine, requiring no further treatment or processing on site ▪ Dust created by the placement and compaction processes necessary to produce a well-constructed stockpile will be managed in accordance with the Air Quality CEMP and as detailed in the relevant sections below. ▪ Complaints will be addressed in accordance with the CSEP
Light Spill	Excessive light spill from night operations	<ul style="list-style-type: none"> ▪ Lighting layout to be designed to direct light away from sensitive receptors ▪ Lighting only to be used when deliveries are taking place ▪ Monitoring to be put in place to ensure controls are effective
Water Pollution	Run off from stockpile causes pollution of local watercourse	<ul style="list-style-type: none"> ▪ Mitigation measures will be put in place in accordance with the Water and Soils CEMP. ▪ Monitoring and Inspection will be carried out in accordance with the Water and Soils CEMP. ▪ Only material which meets the requirements outlined in the RAP as suitable material will be imported. ▪ Spills control and reporting procedures to be in place prior to operation of the stockpile commences ▪ Erosion and sediment control measures to be compliant with “<i>Managing Urban Stormwater: Soils and Construction Vol 1, 4th Edition Landcom 2004</i>”
Traffic	Increased traffic volumes	<ul style="list-style-type: none"> ▪ Consultation and coordination with key stakeholder such as LCC, TfNSW and Liverpool and Penrith City Councils. ▪ 24 hour a day operation will reduce traffic peaks ▪ Stockpiling during 2019 to 2021 will reduce peak traffic during 2022 and 2023 which is likely to be the peak construction period in the vicinity of WSI ▪ Overall traffic in the wider Sydney area will be reduced as tunnel spoil would otherwise go to landfill while the requirement for sub-base material would have been satisfied by trucking material from quarries.
Material Contamination	Transfer of material contaminated at source	<ul style="list-style-type: none"> ▪ Contractual mechanisms in place to ensure that all material is suitably inspected, tested and certified prior to leaving site ▪ GPS trackers used to ensure that no vehicles can be “diverted” en-route ▪ Visual inspection of material prior to incorporation into the stockpile ▪ Further testing will be carried out as appropriate to validate the material
Dust	Dust generated during placement	<ul style="list-style-type: none"> ▪ Mitigation measures will be put in place as per the Air Quality CEMP ▪ Monitoring and inspection will be undertaken in accordance with the Air Quality CEMP ▪ During placement and compaction of material into the stockpile dust will be managed by watercart ▪ Material selected to require no further processing ▪ Haul roads to be polymer sealed to reduce dust and water requirement
Dust	Dust generated from wind interaction with stockpile	<ul style="list-style-type: none"> ▪ Mitigation measures will be put in place as per the Air Quality CEMP ▪ Monitoring and inspection will be undertaken in accordance with the Air Quality CEMP

Risk Category	Description	Mitigation
		<ul style="list-style-type: none"> Additional studies and monitoring was carried out during EEW and further data collected during BEC, to ensure risk management measures regarding silica dust are successful.

5.5.3 Traffic Volumes

Sub-base material will be imported to the site on a 24 hour 7 days per week basis as contemplated by the EIS with daily traffic movements as per Section 6.1.3 of the Traffic and Access CEMP .

Material will be delivered to site using tipper truck and trailer combinations (truck and dog) typically capable of carrying 33t of spoil each. The main delivery route will be via the motorway network to the M7/Elizabeth Drive intersection and to site via Elizabeth Drive.

Traffic will be planned, monitored and managed in accordance with the Traffic and Access CEMP.

5.6 Bulk Earthworks

The Bulk Earthworks construction site is the area of the airport site within the overall CIZ which will involve the earthworks associated to complete the Stage 1 airport side to final bulk earthwork levels. This site area comprises of approximately 1,199 ha of land and in excess of 26 million cubic metres of cut to fill earthworks. The area impacted by the Bulk Earthworks is shown in Figure 2.

The works have been divided in separable portions to enable a staged handover of the site to facilitate future packages of work.

These portions are:

- Separable portion 1A –Bulk Earthworks platform for first part of the terminal, GTC and main access road
- Separable portion 1B – Bulk Earthworks platform for second part of the terminal
- Separable Portion 2 – Pavement Areas, including runway, taxiways and aprons
- Separable Portion 3 – Railway Easement
- Separable Portion 4 – Remainder of site.

5.6.1 Bulk Earthworks Construction Staging

The Bulk Earthworks construction staging and indicative timing is outlined in Table 9.

Table 9: Bulk Earthworks Indicative Construction Schedule

Bulk Earthworks Construction staging	Indicative Timing
Stage 1 - Preparatory Activities <ul style="list-style-type: none"> ▪ Spatial Survey ▪ Service Investigations ▪ Pre-condition Surveys ▪ Traffic Counting ▪ Biological Pre-Clearance Surveys ▪ Contamination Pre-Clearance Surveys ▪ Aboriginal and European Cultural Heritage Survey and Salvage Works including Topsoil Protocol implementation ▪ Site Security, including fencing ▪ Removal of redundant infrastructure including farm fences, power poles, footings/slabs and rubbish ▪ Site compound establishment 	Completed

Bulk Earthworks Construction staging	Indicative Timing
<ul style="list-style-type: none"> ▪ Remediation works including establishment of stockpiles ▪ Construction of temporary sediment basins and installation of erosion and sediment controls ▪ Other activities which an Approver determines are Preparatory Activities 	
<p>Stage 2 – Bulk Earthworks</p> <p>Involves construction of permanent earthworks to finished surface levels</p> <ul style="list-style-type: none"> ▪ Site clearance of trees, shrubs, fences and any other man-made structures ▪ Implementation of the RAP, including remediation of site from existing contaminants and rubbish. ▪ Stripping of topsoil to stockpile for future use in finishing works. ▪ Earthworks to subgrade level for main runway ▪ Earthworks to subgrade level for the rapid exit taxiways, main taxi ways and aircraft aprons ▪ Earthworks to finished surface levels for fuel farm facility ▪ Earthworks to finished surface level for future cargo terminal ▪ Earthworks to finished surface levels for GTC area ▪ Earthworks to finished surface level for main terminal building ▪ Earthworks to nominal subgrade level for main access road and services corridor ▪ Construction of temporary sediment basins and installation of erosion and sediment controls 	<p>Jan 2020 – May 2022</p>
<p>Stage 3 - Drainage</p> <ul style="list-style-type: none"> ▪ Installation of permanent sedimentation, retention and bioretention basins ▪ Excavation of permanent open drain swales ▪ Construction of trunk drainage pipes and culverts, including headwalls, drainage pits and outlet scour protection 	<p>Jun 2020 - Nov 2021</p>
<p>Stage 4 – Finishing Works</p> <ul style="list-style-type: none"> ▪ One coat seal to subgrade level of runway, taxiways and apron subgrade levels for erosion protection ▪ Respreading of topsoil to the batters, verges and unpaved areas of the Airport site ▪ Seeding and planting of permanent vegetation to the re topsoiled areas. 	<p>Aug 2020 – Sept 2022</p>

5.6.2 Site Establishment, Pre-Construction Activities and Temporary Works

BEC completed setting up an initial site facility off the existing Badgerys Creek Road adjacent to the existing Early Earthworks site facilities in 2020.

Pre-Construction activities and temporary works included the following:

- Initial Site facilities establishment
- Cultural heritage survey and salvage
- Contaminated material survey
- Biodiversity pre-clearance and threatened species survey
- Geotechnical Investigations
- Initial access roads
- Demolition works
- Erosion and sedimentation controls

5.6.3 Remediation

Contaminated areas identified during preparation of the EIS and other recent site assessments were decontaminated and verified as remediated prior to commencement of bulk earthworks. Following identification and classification of any Asbestos Containing Material (ACM), the material was remediated in accordance with the recommendations of the Remediation Action Plan (RAP). Prior to any remediation works a safe work method statement (SWMS) was prepared and approved. As the works are validated, the site will transition to a Long-Term Environmental Management Plan, which is discussed further in the relevant CEMPs.

5.6.4 Environmental Conservation Zone and Heritage Salvage

In accordance with the initial survey salvage plan and EIS recommendations, prior to commencement of construction, areas of known Aboriginal artefacts have been identified. Approximately 166 sites have been identified within the Bulk Earthworks footprint. Prior to the commencement of earthworks, the requirements of the Aboriginal Cultural Heritage CEMP were implemented. All known European and other Heritage requirements have been implemented. The Aboriginal Cultural Heritage; and European and Other Heritage CEMPs provide detail on the Unexpected Finds Procedure to be followed in the event new items of heritage importance are discovered during construction execution.

Areas of known Aboriginal, cultural, European and Other Heritage were clearly demarcated in the field and access restricted. No-go signage will be clearly installed on fences. A permit to enter no-go areas was issued by WSA to the relevant contractor or employee.

The Environmental Conservation Zone (ECZ) was fenced to prevent access to this area. A permit to enter was issued by the WSA Environment Manager.

5.6.5 Survey and Utility Potholing

As part of the site establishment works, survey control points were established. Existing utility information from “Dial Before You Dig” was also confirmed by potholing using non-destructive digging and manual excavation, as necessary. Where existing underground utilities may be impacted by construction vehicular traffic, temporary protection such as steel plates at surface level were used to minimise any impact.

5.6.6 Clearing, Grubbing and ERSED Controls

Vegetation requiring removal during Bulk Earthworks is predominantly large scattered mature trees and ground cover. As prescribed by the Biodiversity CEMP, prior to clearing and grubbing activities, a pre-clearance survey was undertaken by ecologists. The aim of these surveys is to identify any habitat features that may harbour fauna, as well as identify threatened species that can be relocated prior to construction activities. The Biodiversity CEMP provides detailed information on pre-clearance survey requirements.

5.6.7 Rehabilitation

Topsoil that was previously stripped from the site have been spread to areas nominated for landscaping and/or grassing. The topsoil is transported by scrapers and spread by dozers or graders to the nominated depth. Seeding and/or planting occurs after the spreading of topsoil. Environmental controls relevant to this work are described in the Soil and Water CEMP and ongoing erosion sediment control plans

Topsoiling and seeding have been undertaken as soon as practicable after completion of the bulk earthworks, to assist with erosion and sedimentation control.

The management of weeds and associated protocols during topsoil stripping and subsequent stockpiling is described in the WSA Biodiversity CEMP.

5.6.8 Earthworks and Demolition

There is approximately 26 million cubic metres of earthworks required as part of the scope of works. The earthworks design has resulted, in general, a balanced earthwork cut to fill, which will be confirmed upon final design. In the case that cut/fill balance cannot be reached using materials available on site, material was sourced from other infrastructure projects from within the Sydney basin. Testing will ensure fill meets the design requirements for the project and satisfies the requirements of the RAP.

5.6.9 Spoil

All unsuitable material (including materials which may be moisture affected) was stockpiled on site. The material dried out, and where required, treated with other general fill for backfill into the main embankments. The details, including temporary and permanent stockpile locations and management measures (e.g. soil and water, dust etc), were detailed on an ECM. Control measures were consistent with the relevant CEMP's for example run off will be controlled in accordance with the Soil and Water CEMP.

5.6.10 Materials and Waste Management

Four strategies are used for managing spoil on the project with a view to minimise the amount of generated spoil material. The four methods include Waste avoidance, re-use onsite, re-use offsite and disposal. The Waste and Resources CEMP provides detailed guidance on procedures to be implemented during construction execution and meets the conditions set out in the Airport Plan.

- Waste Avoidance: Minimise excavation activities – reduce earthworks for drainage and pavements. Onsite classification of natural materials from other waste streams;
- Re-use on site: Where possible, the reuse of excavated materials within the project site is maximised. This will reduce the need to import material onto the site, reduces the need for finding off-site re-use or disposal locations and the associated materials handling and transport issues, reduces fuel use and minimises the project footprint;
- Re-use off site: Beneficial re-uses such as concrete and asphalt recycling, rehabilitating borrow pits, embankment widening/flattening, re-shaping engineered fill, acoustic and visual mound construction, council developments; and
- Disposal: When all other strategies have been exhausted, off-site disposal is the last and least preferable management option to be considered. At all times, offsite disposal must be to a facility licenced to receive the material in accordance with the EPA's guidelines.

5.6.11 Drainage Works

Final stormwater management at the Airport Site will involve a series of grassed swales to convey runoff from the developed areas within the Airport Site, and a series of bio-retention and flood detention basins to manage flow quality and quantity prior to discharge to the receiving waters.

It is expected that five detention basins with capacities of between 39,000 and 140,000 kilolitres will be established on the periphery of the Airport Site as part of the Stage 1 Development. Each basin will incorporate a smaller forebay area for the provision of a bio-retention system for the treatment of low flows prior to discharge to the environment. The locations of the basins have been selected to allow discharge points consistent with existing drainage lines and the basins will be sized to manage post-development flows to maintain predevelopment levels.

Flow control structures and scour protection are to be installed where required at discharge points and other areas of high velocity flows to mitigate erosion. A smaller bio-retention basin with no allowance for flood storage is also anticipated in the north-western corner of the site draining to Duncan's Creek. The precise location and dimensions of the basins were confirmed as part of detailed design of the earthworks and drainage solution.

The basins and their associated drains were constructed early in the indicative construction schedule to direct runoff for treatment before discharge from the Airport Site. The basin forebay could include provision for flocculant to assist with settling of dispersive sediments, improving water quality before discharge to receiving waters. Depending on final earthworks levels, some amendment to the inlet structures may be required to divert runoff into the ponds at the completion of the earthworks. Installation of pipe and/or box culverts will occur progressively as the earthworks are completed. Environmental controls relevant to this work are described in the Soil and Water CEMP and ongoing erosion sediment control plans.

Due to the requirement for the drainage to fit in with earthworks progression, it may be necessary for the drainage crew to demobilise and remobilise to the Airport Site at various times during the bulk earthworks.

Materials such as precast concrete products (for example, pipes, box culverts and headwalls) as well as bedding sand and any select backfill were delivered to the Airport Site progressively, as required, consistent with Noise and Vibration CEMP. Where possible, the materials will be delivered directly to their final position. If this is not possible, they will be delivered to the laydown area and then moved at an appropriate time to their final position using onsite cranes and heavy vehicles.

The Bulk earthworks scope includes the construction of a trunk drainage system that will facilitate the conveyance of stormwater runoff from the future buildings, paved and unpaved areas to the various discharge points into the existing Badgerys, Oaky and Duncans Creeks. The new drainage infrastructure consists of precast concrete pits, pipes and box culverts and open drains. These drainage lines will initially discharge into detention basins, bio retention basins before being discharged into the existing watercourses adjacent to the airport site. WSA has an ongoing water quality monitoring program for on and off site receiving water locations. An operational environmental management plan will also be produced to define an operational water quality testing regime. The operational trunk drainage system including all basins has been designed for the 100 year storm event.

All planned drainage works are consistent with permissible land uses outlined on the Airport Plan.

5.6.12 Utilities and Service Works

There were temporary utilities installed around the Contractor site facilities. These utilities included power and communications. Wastewater and potable water was trucked to and from the site facilities dependent upon the availability of existing connections for these services.

The Bulk Earthworks Contractor scope will include the removal of all the redundant utilities. These utilities include:

- Sydney Water supply
- Telstra communications
- Endeavour Energy overhead power lines

It is highly likely that disused, unchartered or unknown underground, redundant services were uncovered during earthworks operations due to the previous infrastructure that existed inside the construction works area. If uncovered, these services will be confirmed as redundant and removed as part of the works.

5.7 Terminal and Specialty Services Works

The Terminal and Specialty Services Works construction site is located centrally to the CIZ, with interfaces with the adjoining Stage 1 delivery of the Bulk Earthworks, Airside Civil and Pavements, Landside Civil and Buildings and Sydney Metro Station construction works.

The Terminal and Specialty Services Works scope includes the delivery of a multi-storey international and domestic terminal, which is integrated with all ground transport and will be located between the Stage 1 runway and future second runway site.

The Terminal complex will have approximately 96,425 square metres of floorspace and will include:

- Kiosk, bag drop, security, emigration/immigration (citizen, noncitizen and smart gates), quarantine inspection services, baggage handling facilities, baggage claim (including inbound baggage offload belts), security screening, departure lounges, commercial tenant areas, back of house facilities and car rental facilities;
- Capacity for dedicated retail services and currency exchange, including food and beverage services (and the associated infrastructure for storage, back-up facilities, goods delivery access, logistics and security screening); and
- Information technology, baggage handling, security and surveillance and all other systems required to effectively support efficient airport processes and operations.

Specialty works are divided into two categories, generally as airside and landside elements.

- Airside construction elements include apron areas, fixed link bridges, aerobridges, aviation fuel ring mains, specialist aviation infrastructure and equipment.
- Landside construction elements include internal roads, carparks, landscaping areas and TER buildings.

The area impacted by the Terminal and Specialty Services Works is shown in Figure 11.

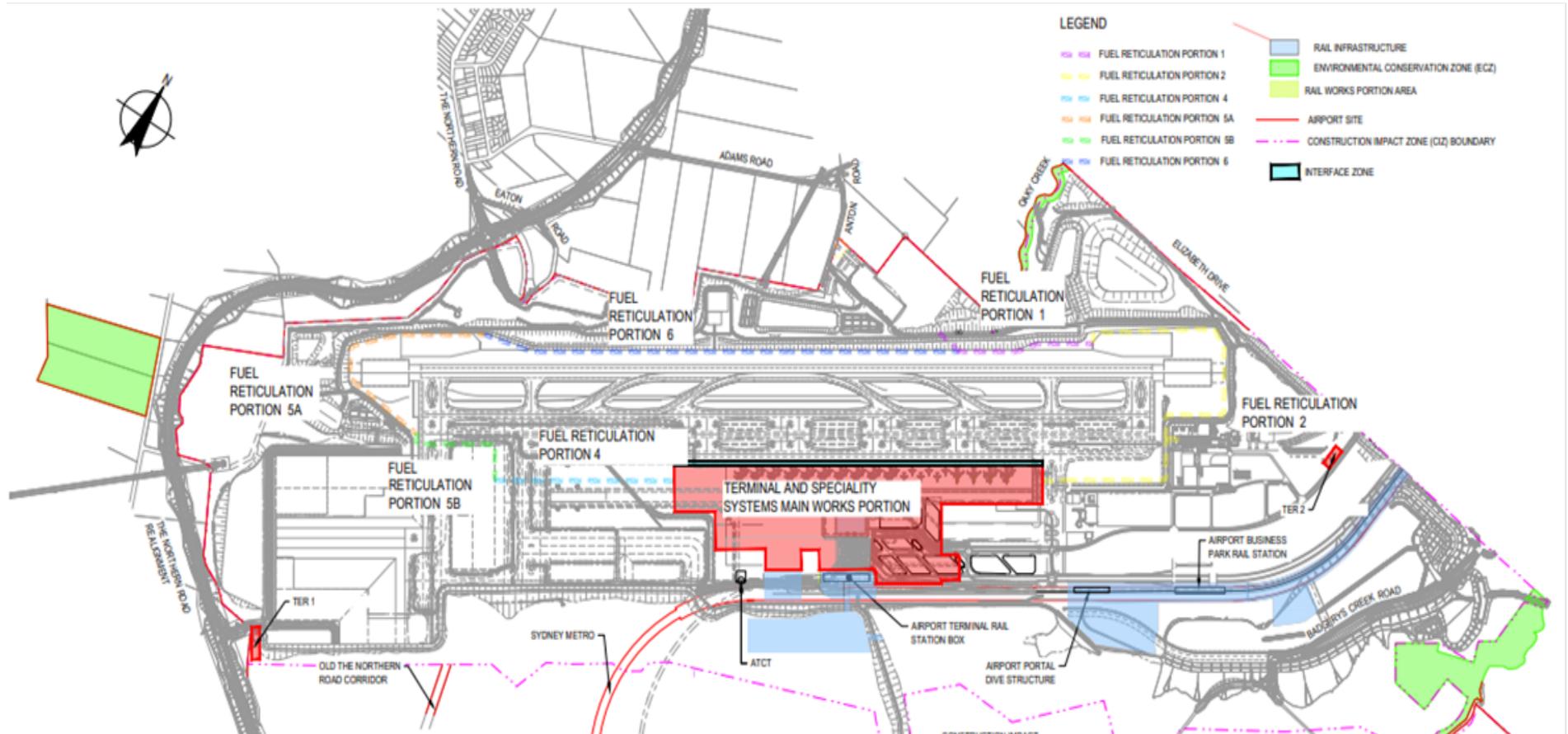


Figure 11: Terminal and Speciality Services Works Construction Zone

5.7.1 Terminal and Specialty Services Works Construction Staging

The Terminal and Specialty Services Works consist of four distinct workforce areas as outlined in Table 10.

Table 10: Terminal and Specialty Services Works Indicative Construction Schedule

Terminal and Specialty Services Works Construction Staging	Indicative Timing
Stage 1 - Preparatory Activities <ul style="list-style-type: none"> ▪ Site investigations ▪ Surveys (including dilapidation and topographical features survey) ▪ Geotechnical investigations and testing ▪ Temporary Access Ramp ▪ Temporary access/egress roads ▪ Temporary car parking ▪ Establishing construction work sites, site offices, first aid facilities, amenities, accommodation and related site mobilisation activities ▪ Establishing temporary services to enable construction activities and site amenities ▪ Site fencing, safety and security provisions, boom gates, access and egress points ▪ Sediment and erosion control measures 	Q3 2021 – Q4 2021
Stage 2 – Terminal Construction <ul style="list-style-type: none"> ▪ Bulk fill to Terminal Basement ▪ Foundation piling ▪ Detailed excavation, trenching and reticulation for in-ground services and tanks ▪ Formwork, reinforcement and concrete placement for suspended slab on grade ▪ Formwork, reinforcement and concrete placement for basement retaining walls. ▪ Precast for basement retaining walls ▪ Establish self-climbing jump-form for vertical core construction. ▪ Formwork, reinforcement and concrete placement for core and column construction. ▪ Formwork, reinforcement, PT and concrete placement for suspended slabs ▪ Structural steel composite structure for suspended slabs ▪ Erection of structural steel roof and fixed link bridges ▪ Façade cladding and glazing ▪ Roof insulation and sheeting ▪ Internal services rough-in and reticulation ▪ Internal finishes and fit out ▪ Baggage handling system ▪ Specialist services and Technology ▪ Testing and commissioning 	Q4 2021 – Q2 2024
Stage 3 – Airside Specialty Works <ul style="list-style-type: none"> ▪ Trenching and reticulation for in-ground services ▪ Apron concrete pavement construction ▪ Aviation infrastructure, aerobridges and utilities ▪ Aviation fuel ring main reticulation 	Q4 2021 – Q4 2023
Stage 4 – Landside Specialty Works <ul style="list-style-type: none"> ▪ Trenching and reticulation for in-ground services ▪ Internal road pavements and carparks ▪ Earthworks to finished surface levels ▪ Soft and Hard landscaping ▪ Covered walkways 	Q2 2022 – Q2 2024

5.7.2 Preparatory Activities

Upon handover of the site, the Terminal and Specialty Services Works contractor will undertake pre-construction preparatory activities and temporary works including the following:

- Survey and Geotechnical Investigations
- Establish Site Accommodation and Amenities
- Establish Temporary Vehicular and Pedestrian Access Roads
- Establish Temporary Site Services
- Sediment and Erosion Control Measures

Survey and Geotechnical Investigations

Specialist consultants will be engaged to carry out investigation and validation of the existing site conditions.

A Dilapidation Survey will photographically record the status of the TSS affected road network prior to construction. These will capture the existing condition of The Northern Road, Badgerys Creek Road and Elizabeth Drive within the immediate vicinity of the site.

A registered Land Surveyor will record the existing site topography and in-ground services prior to construction. This survey will be performed in a grid pattern and will indicate the surface levels, features and landforms as completed by the BEC. In ground services identification will be carried out by means of services scanning, reviewing of “dial before you dig” and previous contractor documentation, if applicable as it is not anticipated that there is any live in ground services. Minimal services infrastructure are to be encountered, generally only stormwater pits and pipework as installed prior by the BEC contractor.

The Surveyor will also establish the project coordinate controls and provide boundary definition, setouts, gridlines, benchmark datum points and all other necessary survey information as required to complete the works.

A Geotechnical Consultant will perform onsite investigations and testing for the purpose of validating the performance of BEC installed subgrade conditions. This involves establishing geotechnical rigs and auguring into the subgrade profile. A number of soil samples will be taken to a NATA accredited laboratory for sampling and analysis. The geotechnical results of these validation works will be broadcast to the wider engineering design team to be considered into the final design development for the TSS works.

A copy of these will be submitted to WSA for record keeping.

Site Accommodation and Amenities

Site offices, lunchrooms and amenities have been designed according to the NSW Work Cover Code of Practice titled “Managing the Work Environment and Facilities.”

The layouts and plans for the site amenities have been positioned to minimise the impact on construction and minimise the worker interface with high-risk construction activities. Site accommodation and amenities will increase progressively throughout construction to meet the demands of the site.

Temporary Vehicular and Pedestrian Access Roads

In consistency with the Traffic and Access CEMP, a qualified traffic consultant will be engaged to produce a detailed Construction Pedestrian Traffic Management Plan (CPTMP). The CPTMP will identify the required personnel, traffic controls and signage to manage vehicular and pedestrian traffic movements throughout the works.

Throughout the different construction phases and staging, the CPTMP will be reviewed and updated as required. The CPTMP will be issued to WSA’s representative for records.

Vehicular Access and Parking



Access to and from the site will be conducted in three phases to allow for the various construction interfaces with adjoining BEC and Metro Station works. The three phases are shown in Figure 12 and are as follows:

- Phase 1 between Q3 2021 and Q1 2022
- Phase 2 between Q1 2022 and Q4 2022
- Phase 3 between Q1 2023 and Q4 2024

The first two phases propose a dedicated access via Badgerys Creek Road. To permit construction of the Sydney Metro Western Sydney Airport line, a dedicated Phase 3 access will be provided via The Northern Road. The Phase 1 and 2 construction access will be retained for use by Sydney Metro rail contractors.

Internal site access roads will be gravel pavement and may be bitumen sealed to reduce maintenance and dust generation. Where required, ongoing maintenance will be carried out by grader, non-potable water cart and smooth drum rollers. Speed limits will be established for internal ring roads, to allow for safe vehicular movement around the site.

To minimise parking related impact to the surrounding neighbours, dedicated car parking areas will be provided for construction workers and staff. Car parking will be provided as close as possible to the site amenities, accommodation and facilities to minimise the distance for walking and interface with high-risk construction activities.

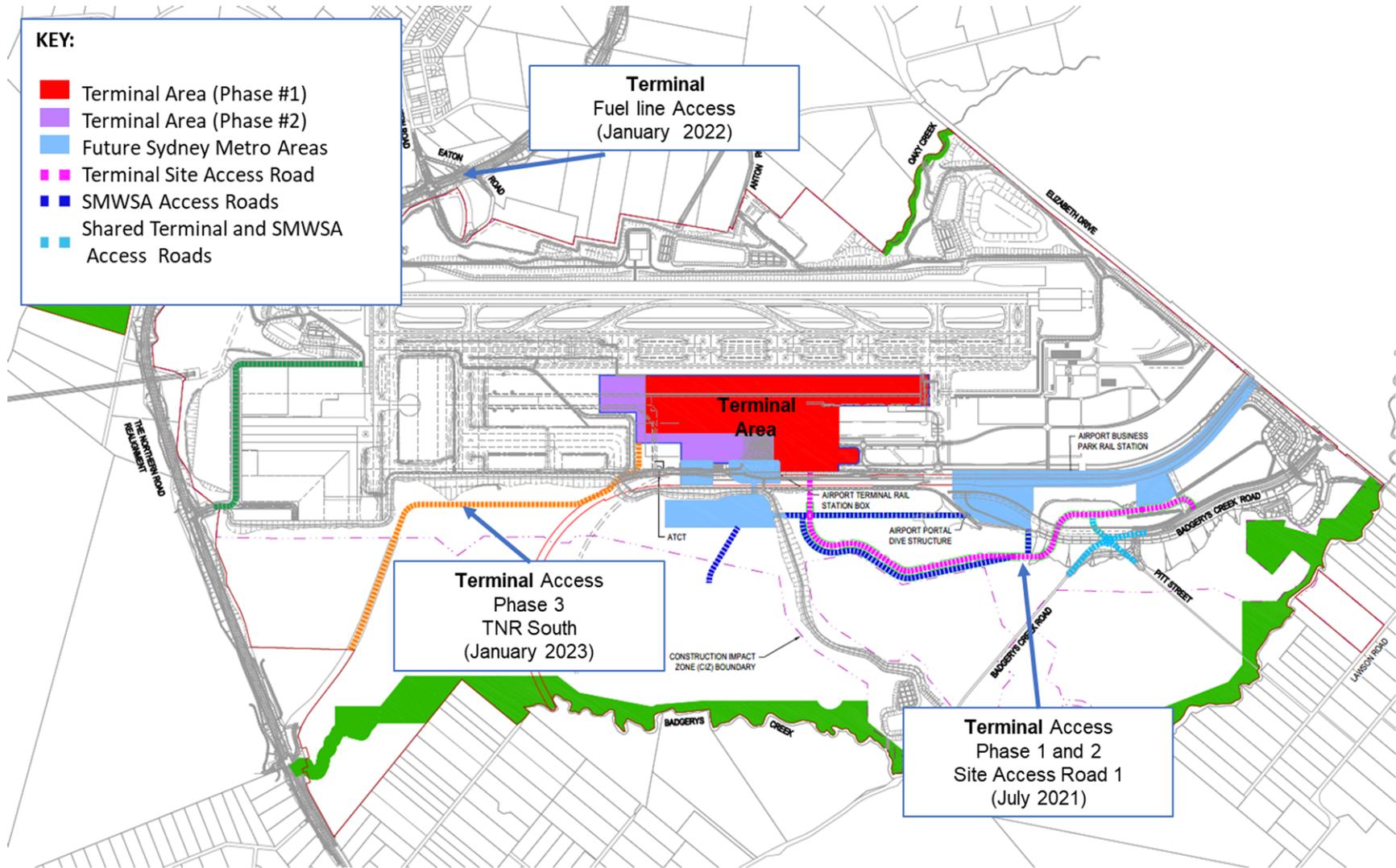


Figure 12: Proposed Terminal and Specialty Services Works Construction Access

Pedestrian Access

The proposed pedestrian access around the site will be designed to minimise contact with vehicles and high-risk construction activities.

Primary thoroughfares will be rigid concrete pavement allowing for safe access, maintain housekeeping, durability and to minimise environmental impact. Wayfinding and safety signage will assist and alert people to safely navigate their way around the site compound.

A variety of hoardings, fencing, crash barriers, etc will be used throughout the project to delineate between pedestrian, vehicular access and varying work faces to provide a safe and secured site. These hoardings will be modified at different phases of the project. Hoarding types consists of but not limited to:

- Chain wire fencing – to delineate construction works zone and prevent unauthorized access
- Temporary fencing – to delineate construction works zone for short-term and interim staging works
- Jersey kerb – where there is a danger of deep excavation or areas adjacent to high traffic volume

All construction vehicles, including concrete agitator trucks, semi-trailers and vehicles involved in construction related activities are to arrive at the site within the approved construction hours. Out-of-hours-works (OOHW) permits are to be applied for through WSA for all out of hours works.

Emergency Access

A site specific Emergency Management Plan will be developed as a supplementary plan to the CPTMP. This plan will identify the emergency protocols and will outline procedures in response to various emergencies. The plan will include emergency egress paths, access routes and assembly areas. Emergency access will be maintained to the following areas at all times:

- First Aid facilities
- Emergency egress paths within the precinct
- Emergency services access to the construction site

Temporary Site Services

During the site establishment preparatory activities period, the project will be established with the required temporary services infrastructure to enable the main construction works to commence and until permanent services are in place and commissioned ready for use.

Water & Fire Services

An adequate water supply and pressure to facilitate the project requirements will be required at all times. Water will be stored in large holding tanks for site offices, amenities, drinking, showers, hose cocks, wash out drums etc. as required. Booster pumps will provide the required pressure to service the site.

Power & Telecommunications

Provision will be made for temporary diesel generator sets housed in acoustically treated enclosures to feed a IP rated main switchboard, the power would then be reticulated around the construction site as required to appropriately IP rated distribution boards. The distribution of feeders would be via both overhead and underground cabling. Temporary power and water connection to public network will also be considered.

With respect to telecommunications, temporary infrastructure will be provided to meet the demands of the project

Sewer

Temporary sewer holding tanks will be sized to accommodate the capacity of the workforce proposed on site. These tanks will be pumped out on a regular basis and treated at an offsite treatment plant. The sewer holding tanks will also be located in appropriate and suitably locations distanced from any potable drinking water infrastructure to minimise any risk of contaminating drinking water in the event of leakages or accidental discharges and to ensure a safe distance is maintained for health considerations. Inground grease arrestors will also be provided to service the onsite canteen and food preparation facilities.

Sediment and Erosion Control

Upon completion of the Bulk Earthworks, the site has been recontoured with the construction of sediment basins and swales, designed for a 80th Percentile 5-Day rain event (27.6mm).

Considering all the requirements in the Soil and Water CEMP, the Terminal and Specialty Services Works will utilise these stormwater swales and sediment basins to manage and minimise site flooding and surface water runoff impacts. Intermediate stormwater and sediment erosion controls will be designed and constructed in accordance with the Blue Book for 1 in 10 year rain event. All rainwater harvested and collected in sediment basins are intended for reuse as dust suppression to the wider site

As the construction of the terminal progresses, connection of temporary drainage services within slabs and from roof structures will mitigate large down pouring of water and allow water to be dispersed in a controlled manner via downpipes and water spreaders into the permanent reticulation.

The sealing and maintenance of all roads around the site will also ensure that access ways are able to be used after rain events upon an initial inspection after major rain events.

5.7.3 Materials Handling Methodology

Construction Materials and Deliveries

Construction materials and deliveries including precast, structural steel, roofing materials, flooring and internal finishes materials will be delivered to the works zone progressively, consistent with the Traffic and Access CEMP, and Noise and Vibration CEMP.

Where possible, the materials are to be delivered directly to their final position. If this is not possible, they are to be delivered to dedicated materials laydown areas and then moved at an appropriate time to their final position using onsite cranes, hoists, lifts and heavy vehicles.

Cranes

A combination of both tower and mobile cranes will be utilised to deliver the Project.

The cranes will be used to handle all materials associated with the construction of the super structure and will assist in the construction of the external envelope, finishes works and plant installation. Cranes will have the ability to set pre-programmed restriction within areas, this special function allows drivers to establish boundaries for the cranes, ensuring that no crane clashes occur whilst lifting.

Cranes will be established between Q4 2021 and Q1 2023.

The position of the Tower Cranes will be generally located to support the construction of the main Terminal building with the necessary penetrations/openings designed to allow the crane through the structure as required. The position also allows that the crane radius to have sufficient coverage of the main terminal structure considering the large footprint of the building, and various liftings and material handling areas. The positions of the cranes have taken into consideration site constraints such as existing in ground conditions, noise and vibration.

The tower cranes will be erected using mobile cranes located within the main Terminal & Specialty Services package site boundary. Traffic impact will be negligible as erection of tower cranes will be undertaken within the site. Lifting studies have been conducted, and erection of the cranes will have dedicated High Risk Workshops prior to works commencing.

The tower crane will be removed using mobile cranes located within the main Terminal & Specialty Services package site boundary. A varying range of mobile crane sizes will be utilised for the construction of the Northern pier and fixed link bridges. For all mobile crane setups, a detailed lifting analysis will be carried out with the objective to ensure safe lifting and handling of materials. The lifting study is to identify the magnitude of loads imposed, the bearing capacity of the supporting ground or structure, and the required controls to be implemented.

Mobile cranes will be used throughout the project for:

- Pier Construction
- Coverage of areas that tower cranes cannot reach
- Coverage of areas where the tower cranes have inadequate capacity
- The erection and dismantling of tower cranes
- Site establishment and decommissioning.

Hoists

Multiple construction hoists will be positioned around the main Terminal structure to provide safe access for both labour and materials to the various construction workfaces from basement to the roof.

The hoists will be sized accordingly to handle all materials including the structure, façade, internal services and finishes works. Hoist locations will be positioned along the façade line, or through internal voids and slab penetrations, whilst providing the least impact to subsequent construction trades.

Hoist masts are typically assembled horizontally on the ground and then lifted in as multiple sections. Hoist cars are then attached to the mast, pulleys and ropes assembled, and then landing platforms and gates configured. Testing, commissioning and a final engineering installation signoff will be required prior to the safe use and operation of the hoists. As the structural slabs progress, additional hoist mast tower sections are craned and bolted into position to allow increased verticality and servicing of the upper terminal levels.

As internal passenger lifts come online, external construction hoists will be decommissioned and dismantled using mobile and tower cranes.

Construction hoists and other lifting equipment will be inspected, maintained and operated in accordance with the manufacturer's instructions, and routinely inspected by engineers to ensure ongoing safe operation.

Concrete Placement Methodology

A concrete batch plant will be established on site to supply concrete for the apron pavements. Raw materials delivered to the concrete batch plant will consist of cement, fly ash, aggregate, sand and admixture. A dedicated waste-water holding tank will be provided for the disposal of batching plant water.

The apron pavement will be constructed using concrete typically placed and compacted either by a slipform concrete paving machine or by traditional formwork and pump placement. The slipform paving machine option will be fed by a material transfer vehicle (typically a covered tipper truck), which in turn is supplied by the above on-site concrete batching plant. The compacted concrete will be finished and sprayed with a curing compound. Joints in the concrete pavement will be formed either by saw cutting the surface after initial setting of the concrete or by crack inducers placed in the pavement lanes, or a combination of both methods. Infill panels and interface concrete pours will be placed by hand using a more traditional approach for concrete placement, finishing and curing.

Local offsite concrete batching plants will provide the concrete supply for all other concrete elements on the project. A combination of mobile boom pumps and static tower booms will be utilised to assist with the placement of concrete for the main terminal complex. Tower and mobile booms will be fed by means of agitator trucks. Dedicated setup locations for the mobile concrete boom pumps will give consideration to site logistics and access to adjoining workfaces. For each mobile boom pump setup, a geotechnical engineer will review the magnitude of loads imposed, the bearing capacity of the supporting ground or structure, and the required controls to be implemented.

Pavement Production Wastewater Management

The onsite batch plant has a specific concrete mix design for the apron pavement that will only be used for the apron works.

Concrete supply for the terminal structure will be serviced by external concrete/batch suppliers.

All water originating from the nominated pavement production zone will be tested and categorised the following categories:

- Alkaline water (High pH) – water that has contacted alkaline materials used in batching or has originated from surface water flow across alkaline areas on-site and has become alkaline. Alkaline areas include those areas used for the handling, storage and mixing of cement, mixers, hoppers, washing/cleaning areas, slurry waste storage areas, first flush collection pits and contaminated water storage areas. All process water is to be considered contaminated water. Contaminated water will be contained and transferred to a holding tank. The holding tank will be sufficiently sized to freeboard the first 30mm of rainfall in a rain event whilst maintaining operational capacity during dry weather. Tank sizing will be calculated following confirmation of batch plant provider, location, layout and subsequent 'contaminated water' catchment area. This design will be based on the rainfall design parameters from the five days, 80% rain event from the Blue Book "Managing Urban Stormwater, Soils and construction." Water from the tank will then be pumped through self-contained mobile treatment equipment which neutralises high pH levels to an acceptable level for re-application.
- Dirty water – water that has contacted particulate materials and contains suspended solids or has originated from dirty areas. Dirty areas include aggregate storage areas which are not affected by any alkaline materials and sediment settling areas. Dirty water will be captured in a holding tank. Terminal will maintain a separate drainage system that allows dirty water to discharge separately. The extent of the areas that generate dirty stormwater will be minimised using natural grades, bunds / rock-checks, coir logs, etc. Dirty water held on-site will be tested and reused whenever possible.
- Clean water – water originating from areas not impacted by alkaline or dirty materials

Water generated from batching/ affected by surface water flow will be in a closed loop and either reused in the batching process or disposed off the WSA site.

5.7.4 Piling and Footings

A piling mat subgrade will be imported, rolled and compacted to provide adequate bearing capacity to support multiple piling rigs to carry out the extensive foundation piling works.

Piles range from 750mm to 1500mm in diameter will be constructed using either a bore pile method or continuous flight auger pile (CFA) method. The technique involves the piling rig drilling into the soil and/or rock to the design depth. Once the design depth and socket has been achieved, the pile will be filled with concrete with the reinforcing steel either placed prior to concrete (Bore) or vibrated and lowered into the wet column of concrete (CFA). Pile risings will be segregated as GSW, and where possible stockpiled for reused as backfill material to the basement retaining walls.

Detailed excavation for core raft footings will be undertaken immediately following the piling works. Core raft footings range from 600mm to 2300mm in depth and will require safe access provisions to be maintained for steelworkers, form workers and concreters. Where required, slope stability of deep excavations through benching, battering or shoring boxes will be implemented.

Upon completion, these piles and footings will provide structural support for the terminal complex, concourse piers, fixed link bridges, aerobridges and ancillary structures.

5.7.5 Cores and Columns

The vertical components from Basement to Roof will be poured upwards and progress prior to the slab construction. This is to allow the structural steel framing for the roof to commence promptly.

The cores will be constructed using a mixture of internal formwork boxes, crane-liftable steel shutters and self-climbing jumpform systems.

For traditional formwork boxes, access will be provided using scaffold for steel reinforcement and concrete placement trades.

Self-climbing jumpform systems will be assembled on grade in a dedicated laydown area prior to being constructed insitu with the tower cranes. Once established, all steel reinforcement will be delivered and craned to the leading deck of the jumpform for installation. Concrete placement will be via the terminal tower booms. Adequate trailing deck and access stairs will be provided to the jumpform in case of emergency.

Columns will be constructed using preformed proprietary shutters, pre-fabricated reinforcement cages, with all works to be carried out using EWPs and tower cranes.

5.7.6 In-Ground Services

As areas become available following the piling works, in ground services will commence with the detailed excavation, trenching and installation of in-ground service pits, tanks, grease arrestors, pipework and conduit reticulation.

Excavators will be utilised for services trenching, with spoil risings reused as services trench backfill or stockpiled and retained for reuse as backfill to the basement retaining walls. Granular aggregate material will also be imported for use as backfill to various services.

Most of the major services are located in the Northern and Southern area of the main terminal building and will require multiple crews for trenching, forming and laying of services.

5.7.7 Suspended Slab on Grade

The Basement suspended slab on ground comprises a 400mm thick flat plate slab supported on piles.

Reactive clay is expected to be encountered onsite, which may lead to heaving and uplift from the soil pressures acting onto the basement slab. Sacrificial formwork in the form of degradable cardboard will be placed beneath the slab. An impermeable membrane layer will then be placed over the cardboard, prior to steel reinforcement being laid, and then traditional formwork edge boards and concrete placement. Joints in the concrete will be formed either by saw cutting the surface after initial setting of the concrete or by installation of proprietary keyed or dowelled joints, or a combination of both methods.

5.7.8 Basement Retaining Walls

The retaining structure located within the terminal basement comprises a combination of insitu and precast concrete wall construction.

Precast panels will have engineered certified lifting lugs, and a detailed lifting study is to be carried out prior to the installation of panels.

In-situ concrete walls vary from 250mm-400mm and will be poured using project specific formwork shutters.

Access to walls will be provided in the form of scaffold and working platforms to allow the safe installation of steel reinforcement, formwork shutters and concrete placement.

5.7.9 Suspended Slabs

A combination of both suspended post-tensioned concrete slabs and structural steel composite concrete slabs will be constructed in a 'bottom up' sequence from the Basement to Level 3.

The main terminal floor plate has been broken down into multiple pour breaks in accordance with the Structural Engineer's temporary movement and construction joint positions. Individual pour breaks will be staggered and edge protection provided to mitigate fall from heights risks.

A specialist formwork engineer will design and certify the construction of temporary formwork decking prior to the installation of steel reinforcement, PT tendons and concrete placement activities.

PT tendons are to be safely tensioned, grouted and sealed in accordance with the Structural Engineers design criteria.

Structural steel structure will be Engineered and safely erected in accordance with the Australian Steel Institute 'Practical Guide to Planning the Safe Erection of Steel Structures.' The purpose of this guide is to define the planning processes and controls necessary to help support best practice outcomes, which mitigate health and safety risks for all stakeholders associated with the erection of steel structures.

During the planning phase, a detailed Erection Sequence Methodology (ESM) is to be developed with the Temporary Works Engineer outlining the sequential erection order of all steel members, indicating all required complex lifting points, temporary propping, bracing and hold points to ensure 'end-of-day' temporary structural stability.

Structural steel will be delivered to site via semi trailers, with steel being neatly packed on open stillages or within closed shipping containers. Stillages or containers will then be unloaded via the site tower cranes for unpacking and sorting in a dedicated laydown area. The ESM will then be followed strictly for the safe erection of structural steel, prior to Structural Engineering signoff.

5.7.10 Structural Steel and Roofing

Construction of the roof involves erection of primary and secondary structural steel framing, installation of the insulated roof build up, roof sheeting, roof access maintenance systems and skylight glazing.

Once post tensioned suspended slabs are completed, the general sequence of activities for the roof construction will be:

- Erect roof steel starting from core for temporary stability;
- Install catwalks;
- Install skylight framing;
- Commence roof panels/sheeting;
- Install skylights, mechanical ventilation and pop up plant;
- Install smoke baffles in ceiling framing; and
- Install feature ceiling.

Structural steel will be safely erected in accordance with the Australian Steel Institute 'Practical Guide to Planning the Safe Erection of Steel Structures.' The purpose of this guide is to define the planning processes and controls necessary to help support best practice outcomes, which mitigate health and safety risks for all stakeholders associated with the erection of steel structures.

During the planning phase, a detailed Erection Sequence Methodology (ESM) is to be developed with the Temporary Works Engineer outlining the sequential erection order of all steel members, indicating

all required complex lifting points, temporary propping, bracing and hold points to ensure 'end-of-day' temporary structural stability.

Structural steel will be delivered to site via semi trailers, with steel being neatly packed on open stillages or within closed shipping containers. Stillages or containers will then be unloaded via the site tower cranes for unpacking and sorting in a dedicated laydown area. The ESM will then be followed strictly for the safe erection of structural steel, prior to Structural Engineering signoff.

Completion of the roof works will assist in providing a watertight building along with the façade installation.

5.7.11 Façade and Cladding

The façade design comprises a combination of glazing, cladding, louvres and precast panels. To ensure the successful completion of a high quality façade, extensive design and coordination workshops will be carried out with the design and construction teams prior to and during installation of the façade.

Installation of the precast panels will be carried out progressively throughout the structure phase as to provide edge protection to the lower floors and limit the impact on the roof installation.

Panelised façade elements will be installed using a combination of mobile cranes, tower cranes and EWP's, with handrails used for edge protection. Dedicated façade work zones will be established once overhead roof installation in the corresponding zone have been completed.

5.7.12 Services and Internal Finishes

Service and internal finishes activities will commence closely after the stripping of formwork and façade installation and will progress 'bottom up' sequence.

The major works involved in services reticulation are the installation, testing and commissioning of:

- Mechanical systems
- Operational lifts servicing Basement to Level 3;
- Multiple escalators and travelators;
- Electrical lighting, data and security systems
- Hydraulic systems
- Wet and dry fire systems
- Specialist aviation systems

The internal finishes works for the project will consist of;

- Sheeted ceilings & feature ceilings
- Internal balustrades and glazing
- Wet area fit out and commissioning;
- Floor finishes such as tiling, carpets and terrazzo flooring
- Joinery units
- Internal painting
- Furniture, fixtures and equipment fitout.

The main terminal ceiling is the unifying design feature and possess a complex challenge to construct. The distinctly wavy ceiling is built using straight slats mounted to continuous curved rails suspended from the roof structure and comprises of smoke baffles, secondary steel framing and services.

The ceiling will be installed in stages following the installation of roof steel, catwalks and external glazing. Due to the location and position of the ceiling, access and construction of the ceiling works will be via scaffold, cherry picker boom lifts and EWP's.

5.7.13 Specialty works - Airside Construction Tasks

The Terminal and Speciality Services - Airside works are generally defined as North of the terminal and pier complex, in particular the Apron pavement and Head of Stand service road.

The underlying subgrade layers have been constructed by the Bulk Earthworks Contractor and generally include for fill areas raised and compacted to achieve the minimum civil and geotechnical criteria for aviation.

Works will commence with trenching for in ground services including the stormwater drainage installation, followed by the subsequent electrical, fibre, data/comms and specialist aviation reticulation.

Significantly, these services also include the trenching and installation of the aviation fuel line ring main. The aviation fuel ring main will be staged progressively into six zone breakups. Upon completion, the fuel main will be tested and commissioned.

The overlying subbase and base apron pavement layers will commence progressively as areas of in-ground works are completed. Construction of the rigid apron concrete paving will be undertaken by a slip-form paving machine (or similar) and serviced by a batch plant to be established at the east of the site as documented in Section 5.5.3.1.4 above. The paving will be appropriately sequenced, generally working in West to East direction and towards the terminal. A portion of pavement between the fixed link bridges and to the terminal (ie. the Terminal Construction Zone) will be programmed until such times as the terminal façade and finishing works are complete, after which a series of traditional formwork and concrete placement pour infills will be undertaken to complete the Airside works.

More broadly, the Airside works will also be sequenced with consideration for the various construction interfaces with the adjacent runway/airside package.

Upon completion of the Apron rigid pavements, specialist aviation plant, equipment and furniture will be installed, tested and commissioned. This includes aviation lighting, Advanced Visual Docking Guidance System (AVDGS), installation of aerobridges, line marking, signage, and the like.

5.7.14 Specialty Works - Landside Construction Tasks

The Terminal and Speciality Services - Landside works are the external works that fall to the East, West and South of the Terminal and Pier complex, and include the following scope elements;

- In-ground services reticulation
- Roads
- Carparks
- Covered walkways
- Soft and hard landscaping

The final reticulation of in-ground services will commence upon receipt of the relevant project approvals and continue progressively with consideration for adjacent construction activities and demobilisation of site provisions.

Final surface levels are to be raised utilising site won material stockpiled by the Bulk Earthworks contractor, and import of suitable soil and topsoil for vegetation, planting and spray grass.

Civil road and carpark asphaltting will be undertaken prior to the hard and soft landscaping of elements. Final restoration and surface treatments will follow to the remainder of site, as temporary construction provisions are decommissioned and demobilised.

5.8 Other Activities on the Airport Site

Prior to any construction taking place, an environmental review will be completed to ensure that the activity is not inconsistent with the CEMP's and that appropriate management measures are implemented.

The environmental review will be approved by the WSA Environment Manager prior to implementation, refer SEMF.

5.8.1 Initiatives outside the CIZ

The development of the Airport Site may require the use of the areas located outside of the CIZ, identified in the Airport Plan Section 2.4.2.4 as the 'Aviation Reservation' (AD4) zone, refer to Figure 4. The non-aviation land uses identified in this zone are permitted in the short to medium term, until the land is required for aviation purposes.

A reticulation system to supply recycled, non-potable, water from the adjacent CSR (PGH Bricks) property to the south of the site has been completed. This installation includes a temporary pipeline to cross the AD4 area into the CIZ at the Basin 2 area south of Badgerys Creek Road (BCR) and then remain within the CIZ to reticulate construction water through the site.

WSA is assessing the following initiatives which would require works to be carried out within the AD4 zone.

- Installation of an access road from the farm dam to the west of the existing TNR alignment to the South of the CIZ, this haul road would allow water carts to use the dams non-potable water supply as construction water.
- Construction of a temp maintenance facility to the west of the existing TNR alignment of the southern edge of the CIZ. This facility would enhance the existing farm infrastructure and access roads to enable commencement of bulk earthworks to the west of the existing TNR prior to the re-alignment of the TNR.

The above initiatives are being developed to reduce overall environmental impact by accessing non-potable and recycled water sources for construction use minimising the use of potable water or by maximising the use of existing infrastructure. Such initiatives are expected to deliver substantial environmental and sustainability benefits while the existing CEMP's provide all safeguards necessary to limit any negative impacts

If any of the activities related to these initiatives involve main construction works, WSA will seek the approval of a variation of this Construction Plan in accordance with Condition 41.

5.8.2 Sydney Metro

As contemplated in the Airport and Rail Integration Deed (RID) and the Airport Plan (September 2021), SMWSA's proposed construction works scheduled in WSA land between Q3 2021 and Q2 2022 will include the following preparatory works:

- Construction of access roads,
- Site establishment and
- Construction utility installations.

Construction works will be planned and coordinated to minimise interfaces, in accordance with governance of the Airport and Rail Integration Deed.

Future Rail Construction Works shall occur within the Airport CIZ and the Rail Development and Rail Construction Works will be undertaken in accordance with the Airport Plan (as varied in relation to the Rail Construction Works), which may include (but will not be limited to) a Rail Construction Plan, Rail CEMPs and other approved plans.

As contemplated in the RID, Sydney Metro will be granted Access Licences to undertake Rail Construction Works in the Airport Site. Access Licences shall provide Sydney Metro with segregated construction areas and access roads. Rail activities within the Licensed Areas are to be undertaken in accordance with the Rail Construction Plan, which shall be consistent with this Construction Plan. Each Access Licence shall prescribe specific handback conditions for each area which Sydney Metro must comply with.

5.8.3 TfNSW M12 Construction and Elizabeth Drive Upgrade

TfNSW M12 works scheduled between Q4 2021 and Q2 2022 in WSA land include the following:

- Stub for connection to the temporary construction access roundabout adjacent to the future North West access road; to be constructed as part of the M12 early works and should occur between Q3 2021 and Q1 2022. The stub would be 3-5m inside the WSA land and would include minor earthworks and pavement works.
- North West Access Road connection to the realigned Elizabeth Drive. M12 will build the earthworks and pavements a few meters inside WSA land.
- Main Access Road (MAR) connection to the M12. M12 will build the earthworks and pavements a few meters inside WSA land.
- North East Intersection. The M12 will connect the new Elizabeth Drive intersection with the new Badgers Creek Road.

Construction works will be planned and coordinated to minimise interfaces, in accordance with governance of the WSA and TfNSW Interface Agreement.

5.8.4 Utilities Works

Utilities works scheduled in WSA land between Q4 2021 and Q2 2022 include the following:

Power Supply - Temporary

- Temporary supply from Elizabeth Drive(ED) to Site Endeavour Energy/Ausconnex Recloser - removal of 10 to 12 existing poles from Elizabeth Drive and installation of new 14 electrical poles on as indicated in Figure 13 below.

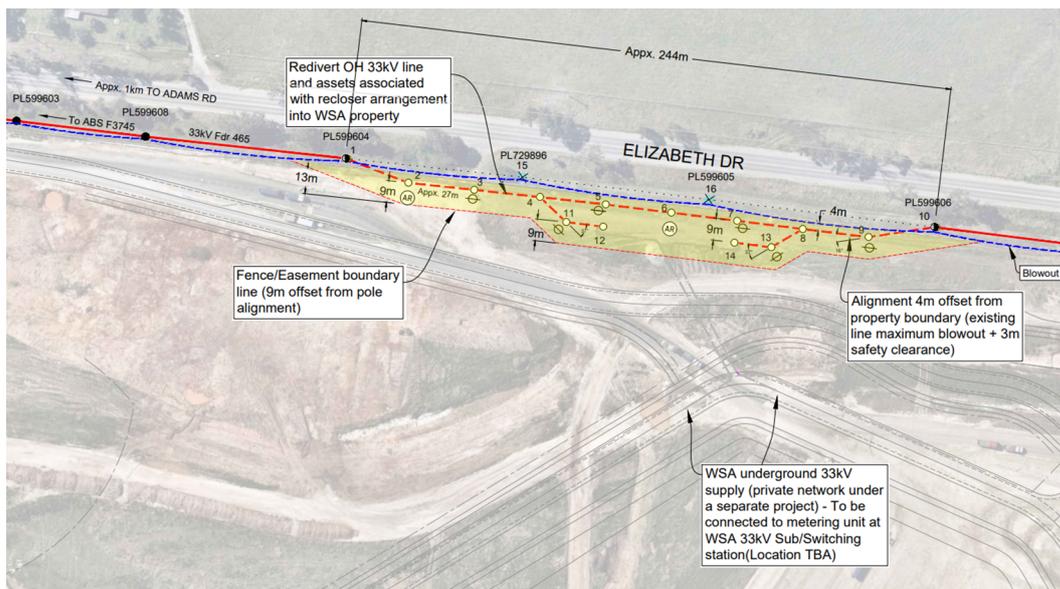


Figure 13: Electrical works in WSA land

Power Supply - Permanent

- Permanent Power supply - a new substation to be installed on WSA land. Energy provider and location of substation to be confirmed in Q4 2021.

Potable Water – Fuel Farm and ARFFS (via Adams and Anton Road)

- Installation of approximately 1050m length of new poly pipe for connection from Elizabeth Drive water main to supply new Fuel Farm and ARFFS facilities as shown in Figure 14. Design is expected to be certified in Q4 2021. Construction will commence after completion of the Elizabeth Drive upgrade works by Sydney Water in early 2022.



Figure 14: Potable Water supply (Blue line)

Potable Water – Water Complex Connection

- The water complex will be the primary incoming supply point for water to the airport. Design and installation of the water supply connection from water main to water complex is pending finalisation of the water complex location (between either Lawson Road or Pitt Street), which will then confirm connection route for potable water supply to the complex. To be confirmed Q4 2021.

Recycled Water

- Installation of 650m length poly pipe and control station at Pitt Street, where Diona completed the recycled water installation as shown in Figure 15 below.

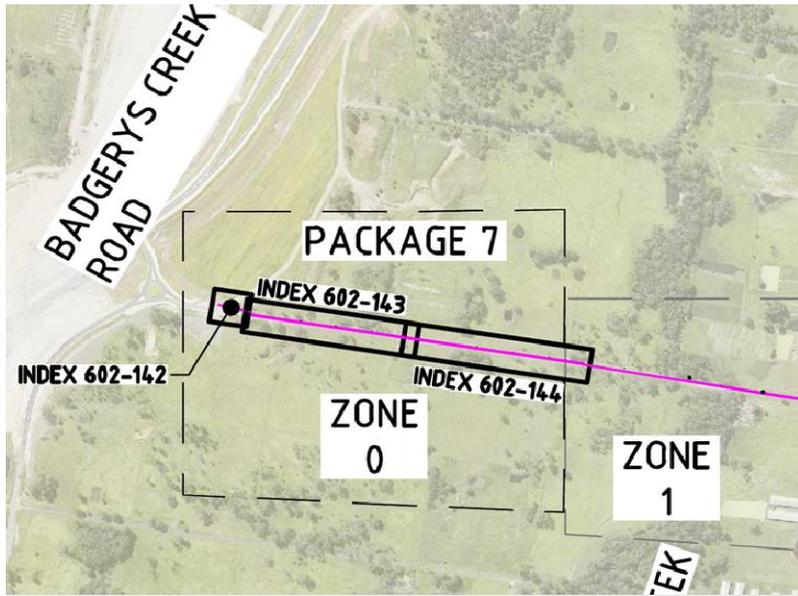


Figure 15: Recycled water pipe at Pitt Street.

Appendix 1

Construction Plan Compliance with Airport Plan

The Construction Plan has been prepared in accordance with the requirements of Condition 1 of the Airport Plan, which is the authorising document for the Stage 1 Development determined by the Minister for Urban Infrastructure in December 2016. As outlined in section 3.11.2 of the Airport Plan, “The Site Occupier must not commence Main Construction Works until a Construction Plan for the Airport Site and Associated Sites has been prepared and approved in accordance with this condition.” A reference guide is provided below of how each element of the legislation has been addressed within this Construction Plan.

Table 11: Compliance of the Construction Plan with the Airport Plan

Requirements under Section 3.11.2, Condition 1 of the Airport Plan	Chapter/section response
(3) The criteria for approval of the Construction Plan are that an Approver is satisfied that the Construction Plan:	
sets out:	
(i) the program and timetable for carrying out the Stage 1 Development;	Section 2.3 Section 5
(ii) details of the construction methodology to be used for carrying out the Stage 1 Development;	Section 5
(iii) any proposal to phase commencement of Main Construction Works in different parts of the Airport Site or Associated Sites at different times; and	Section 2.1
(iv) details, not inconsistent with the Land Use Plan in Part 2 of the Airport Plan, of the size and location of the parts of the Airport Site or an Associated Site on which Main Construction Works are planned to occur; and	Section 2.5
(v) seeks to avoid or minimise, to the extent reasonably practicable, impacts on parts of the Airport Site that have important biodiversity values that are outside of the indicative Construction Impact Zone shown in Figure 2 in Part 2 of the Airport Plan.	Section 2.3 Section 5.8.1
(4) The Site Occupier must ensure that no CEMP is inconsistent with the approved Construction Plan.	Section 4
(5) The approved Construction Plan may provide for Main Construction Works to be carried out in phases that commence at different times for different parts of the Airport Site or an Associated Site. If it does, the Site Occupier may prepare a CEMP in relation to one or more phases, and the criteria for approval of such a CEMP are taken to exclude any matter irrelevant to the phases for which approval is sought. A variation of the CEMP must be submitted for approval in accordance with condition 49 (Variation of Approved Plans) prior to commencement of any new phase.	SEMF Section 3.9

Appendix 2

Site Environmental Management Framework

Refer to the Site Environmental Management Framework - WSA00-WSA-00400-EN-PLN-000011