ATTACHMENT 12 - APPLICANT SURFACE WATER ASSESSMENT

Report

17 June 2025

To	Jenny Moro	**Contact No.**	+61 8 6222 8925
Copy to	Ashley Simpson,	**Email**	**Shafiqul.Alam@ghd.com**
From	Shafiqul Alam, Bas Wijers	**Project No.**	12662247
Project Name	Welshpool Concrete Redesign Surface Water Assessment		
Subject	Welshpool Concrete Redesign Surface Water Assessment-Stormwater Assessment for DWER Works Approval Application		

Dear Jenny,

GHD has completed a stormwater assessment to support the Works Approval application of Holcim (Australia) Pty Ltd for the Welshpool Concrete Plant redevelopment works. This letter details the approach and outcomes of our assessment.

1. Introduction

Holcim is proceeding with a new Development Application and Works Approval Application with a different plant layout to what was previously approved in 2021 for the Welshpool Concrete Plant at No. 12 (Lot310) Cohn Street, Welshpool. It will now be the replacement site for the Holcim East Perth Concrete site. The new plant will result in an increase in throughput to the order of 300,000 m^3/annum. The development of the proposed layout plant will have implications for surface water management at the site. Redevelopment of the existing plant site will necessitate adaptations to the onsite stormwater management and use. GHD has undertaken a stormwater assessment to assist in conceptual design of the stormwater management requirements for the proposed redevelopment.

1.1 Purpose and scope

The main purpose of this stormwater assessment is to support and inform Holcim (Australia) Pty Ltd's Works Approval application to the Department of Water and Environmental Regulation (DWER) for the plant redevelopment works. The assessment scope is as follows:

– Delineation and classification of stormwater catchments in accordance with the following:
  - Clean areas — Areas on the site where stormwater runoff is unlikely to become contaminated with concrete related pollutants, such as sand, cement, admixtures, wastewater, etc.;
  - Contaminated areas — Areas of the site where stormwater runoff is likely to become contaminated with pollutants that may have a cementitious component resulting in high pH and/or high sediment load wastewater; and
  - Dirty areas — Areas of the site where stormwater runoff is likely to become contaminated with pollutants associated with sand and aggregate storage.
– Conceptual design of:
  - First flush water management systems for contaminated catchment areas; and
  - Sedimentation basins for dirty catchment areas.

1.2 Limitations

This report has been prepared by GHD for Holcim (Australia) Pty Ltd and may only be used and relied on by Holcim (Australia) Pty Ltd for the purpose agreed between GHD and Holcim (Australia) Pty Ltd as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Holcim (Australia) Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Holcim (Australia) Pty Ltd and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

2. Stormwater catchments

Stormwater catchments have been delineated in accordance with the classifications defined in Holcim (Australia) Pty Ltd's (2013) *Stormwater Management Design Principles for Concrete & Humes Plants*. The catchment extents and details are shown in Figure 1 and Table 1 respectively.

Table 1 Stormwater catchment details

Catchment Name	Area (m^2)	Classification	Drainage Outlet	Potential contaminant sources
CC1	404	Contaminated	Wedge Pit 2	Reverse-on slump stands.
CC2	548	Contaminated	Wedge Pit 4	Cementitious silos, admix/cement tanker unloading area, batch office & special products dosing and CO_2 doser.
CC3	555	Contaminated	Wedge Pit 5	Washout area.
DC1	2262	Dirty	Wedge Pit 1 -> Drainage Basin	Live aggregate storage bins, aggregate dump bins and aggregate conveyor
DC2	157	Dirty	Wedge Pit 3 -> Drainage Basin	Live aggregate storage bins and aggregate conveyor.
Soakage	5790	Clean	Pit and pipe -> Underground Infiltration Storage	Car and agitator parking bays and other areas that produce clean catchment runoff.
Total	9,715			

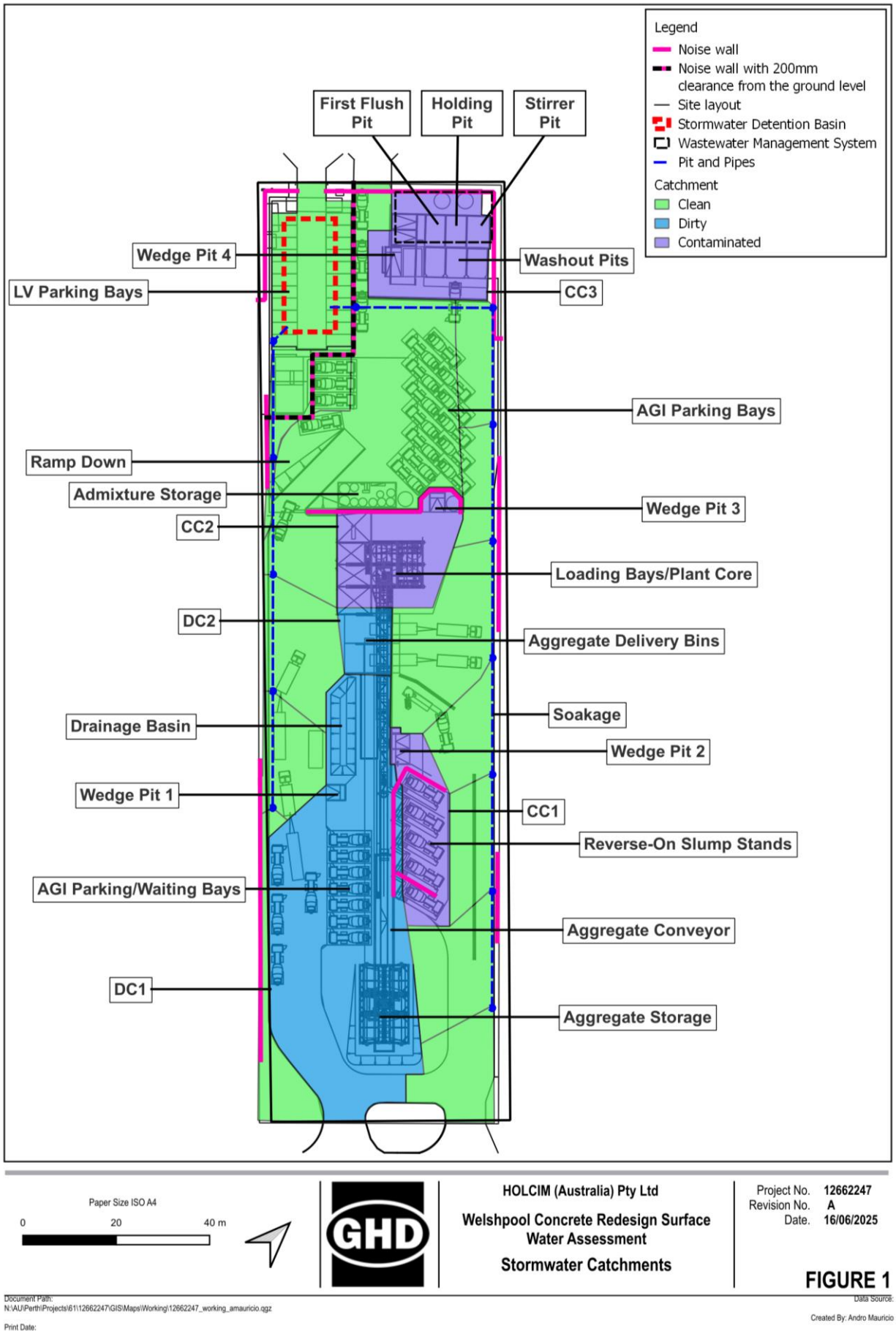


Figure 1 Stormwater catchments

3. Sediment control requirements

Holcim (Australia) Pty Ltd's (2013) *Stormwater Management Design Principles for Concrete & Humes Plants* dictates sediment control in dirty areas only. This has been allowed for in the plant redevelopment plans through the provision of wedge pits in contaminated and dirty catchments.

Sizing of wedge pit surface areas was carried out following the design procedure for detention systems given in the *Stormwater Management Manual for Western Australia* (DWER, 2022). The following assumptions were adopted in sizing of the pit areas (only):

- Design storm requirement of 1 exceedance per year (1 EY), which is equivalent to the 1-year Average Recurrent Interval (ARI) and consistent with the DWER water sensitive urban design guidelines;
- Minimum catchment time of concentration of 5 minutes;
- Hydrological initial loss of 1 mm and no continuing losses, which is representative of a fully paved catchment surface;
- Median sediment particle size of 0.6 mm based on sand samples collected from the Gosnells quarry on 6 April 2021 (associated particle size distribution provided in Attachment 2); and
- Wedge pit hydraulic efficiency of 0.76, which is reflective of good hydrodynamic conditions for stormwater treatment.

The required wedge pit surface area is given through the curve presented in Figure 2. The target sediment removal rate should ideally be informed by DWER through the Works Approval requirements but expected to be no less than 80% given the urbanised catchment the site is located within. Table 2 summarises the required storage dimensions for the proposed wedge pits for varying sediment removal rates (SRR).

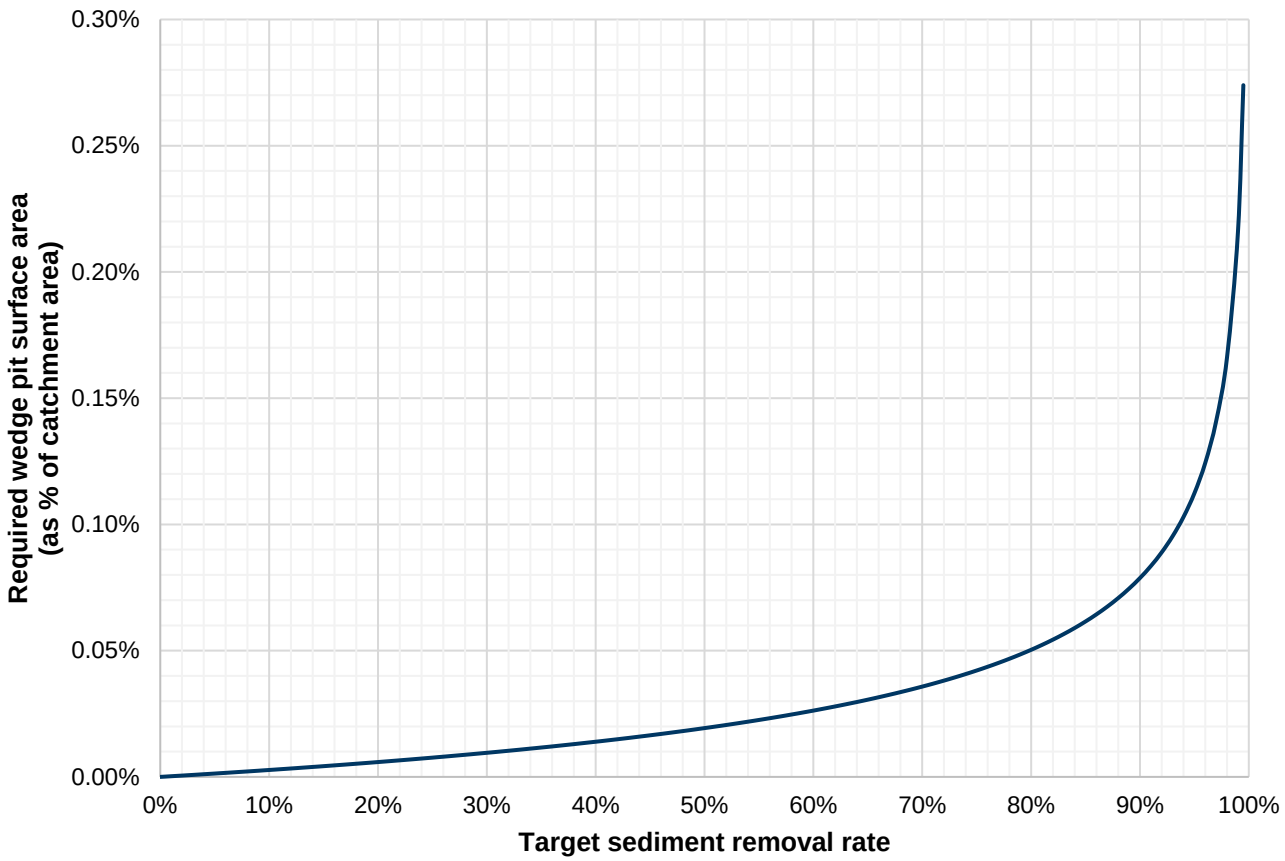


Figure 2 *Required wedge pit surface area*

Table 2 Required wedge pit storage dimensions

Storage	Minimum required surface area (m^2)				
	80% SRR	85% SRR	90% SRR	95% SRR	99% SRR
Wedge Pit 1	1.13	1.36	1.81	2.49	4.98
Wedge Pit 2	0.20	0.24	0.32	0.44	0.89
Wedge Pit 3	0.27	0.33	0.44	0.60	1.21
Wedge Pit 4	0.28	0.33	0.44	0.61	1.22
Total	1.88	2.26	3.01	4.14	8.3

4. Runoff containment requirements for the contaminated catchments

The proposed water management system (WMS), which comprises the first flush, holding and stirrer pits, are required to store a first flush runoff volume for at least the first 20 mm of rainfall that falls onto contaminated areas, in accordance with the *Stormwater Management Design Principles for Concrete & Humes Plants* (Holcim, 2013).

Each pit in the WMS has a design capacity of 50 kL, which (in total) have more than sufficient capacity to cover the total first flush runoff (of 30.1 kL as estimated in Table 3) from the contaminated catchments. In contrast, Clause 26 in *Water quality protection note 68: Mechanical equipment wash down* (DoW, 2013) recommends that "*sediment traps, de-emulsification basins and water treatment vessels should have an impervious lining and minimum freeboard to contain wash-water and any captured stormwater from a minimum two-year return frequency, 24-hour storm*". It is noted that a two-year return frequency storm event as per the superseded Australian Rainfall & Runoff (ARR) guidelines (ARR, 1987) is equivalent to 1 in 2 AEP (Annual Exceedance Probability) or 50% AEP storm event as per the latest ARR guidelines (Ball et al, 2019). As per the latest ARR 2019 guidelines, 1 in 2 AEP, 24-hour storm event is equivalent to a rainfall depth of 57.4 mm (see Attachment 3). The estimated pit storage requirement is 86.4 kL (see Table 3) as per the above-mentioned Clause 26 (DoW, 2013). The total capacity of first flush pit and holding pit is 100 kL (50kL + 50kL), which is sufficient to manage the required 86.4 kL volume of contaminated runoff. The runoff generated from the contaminated catchments will be directed to the respective wedge pits. The runoff generated from contaminated catchments will be directed to the respective wedge pits. The captured runoff will then be pumped into the first flush pit, ensuring that the 1 in 2 AEP, 24-hour storm runoff is diverted for treatment via the first flush pit, holding pit, and stirrer pit. This process effectively manages and treats the contaminated runoff from both the first flush event and the 1 in 2 AEP, 24-hour storm event, meeting the criteria set by DoW (2013) and Holcim (2013).

Table 3 Required pit storage dimensions to manage runoffs coming from the contaminated catchments

Storage	Contaminated Catchment Area (m^2)	First Flush Runoff Volume (kL)	1 in 2 AEP, 24-hour Storm Runoff Volume (kL)
Wedge Pit 2	404	8.0	23.2
Wedge Pit 3	548	10.9	31.4
Wedge Pit 5	555	11.1	31.8
Total	1,506	30.1	86.4

5. Soakage requirements

The stormwater runoff containment policy (Policy 203) of the Town of Victoria Park (2023) stipulates that *"where there is concern regarding the pollution of the stormwater generated on such a property, the stormwater must be adequately treated and retained on site"*. It is anticipated that the retention requirement is applicable to the events up to and including the 1% AEP. The existing drainage infrastructure onsite does not fulfill the requirements of Policy 203 and will require significant augmentations in order to obtain development approval.

5.1 Infiltration storage sizing

To prevent offsite stormwater discharge, an onsite infiltration storage will be required. Holcim has proposed installing an infiltration storage system underneath the LV Parking Bays (see Figure 1). The consultations between representatives from Holcim and the Town in July 2021 indicated that the infiltration storage may be sized up to the 10% AEP storm event. In events up to the 1% AEP, stormwater in excess of the storage capacity is allowed to flood the site provided that adequate freeboard to the onsite finished flood levels is achieved (GHD, 2021).

In this study, an infiltration storge system is designed based on a DRIANS modelling exercise where the modelling indicates that the inundation from a 1%AEP storm event would be retained within the site and no offsite discharge would be generated to impact the nearby properties.

5.2 Drainage modelling

A DRAINS stormwater model was configured for the site drainage system following the procedures of ARR 2019 guidelines (Ball et al, 2019).

5.2.1 Model compilation

The total site was delineated into three types of catchments and the entire site was considered as impervious following a conservative approach. The classification of catchments was based on the criteria mentioned in Table 2 and catchment sizes are mentioned in Table 4. Key information inputs to the DRAINS model were:

- Design Rainfall Data was sourced from Bureau of Meteorology website (BOM, 2016). This rainfall was used in accordance with ARR 2019 Version 4.1 methodologies and was based on Intensity Frequency Duration (IFD) Deign Rainfall Depth (mm) issued on 16th May 2025, for the requested coordinates: Latitude -31.988, Longitude 115.92.
- Impervious area initial loss of 1 mm and continuing loss of 0 mm/hr were adopted for impervious area for Clean Catchment and Dirty Catchment.
- An initial loss of 57.4 mm and continuing loss of 0 mm/hr was considered for the Contaminated Catchment. The Section 4 describes that the contaminated catchment runoff will be directed to the first flush pit and the holding pit. Those pits are required to have the total holing capacity of runoff generated from a 2-year ARI (Annual Recurrence Interval), 24-hour duration storm event as per the water quality protection note 68 (DOW, 2013). A rainfall of 57.4 mm is generated from this storm event and those pits combined capacity is higher than runoff generated from this event.
- There is no pervious area was considered in the modelling exercise adopting a conservative approach.
- A retardance coefficient of 0.01 considered for the impervious areas.
- The sizes of catchments are provided in Table 4.
- The hydrological parameters considered for the DRAINS model are shown in Table 5.
- A Humes SingleTrap® system is considered for the underground storage solution proposed underneath the LV Parking Bays as shown in Figure 1. The considered dimension of SingleTrap system is 2.35 m wide, 4.0 m long and 1.5 m height.
- The modelling considered 30x SingleTrap units assuming an arrangement of 5x unit widths and 6x unit lengths. The structure leg height is considered to be 1.5 m.
- The layout of the developed DRAINS model is provided in Figure 3.

The storage dimensions provided above should be considered indicative only and may be altered to suite future revisions of the site layout. It should also be noted that that the storage size is sensitive to the latent infiltration conditions. An infiltration rate of 5 m/day is adopted in this study following the past stormwater assessment report (GHD, 2021). An onsite infiltration testing is recommended to inform future design stages. In addition, the site should be graded to direct overland runoff from the upper catchment toward the LV Parking Bays area, where the underground storage tank is proposed. To support proper drainage in this area, the noise wall along the eastern and southern boundaries of the LV Parking Bays (see Figure 1) should maintain a minimum clearance of 200 mm from ground level. This will help ensure free-draining conditions are maintained around the proposed infrastructure.

Table 4 Catchment Areas considered in DRAINS modelling

Catchment	Area (m^2)
Contaminated Catchment	1507
Dirty Catchment	2419
Clean Catchment	5790

Table 5 Hydrological parameters used in DRAINS modelling for the infiltration storage system design

Item	Parameter	Unit	Value Adopted	Justification
Contaminated Catchment	Initial loss	mm	57.4	First 57.4mm rainfall-runoff will be captured by the first flush pit and holding pit located in the WMS.
Dirty Catchment	Initial loss	mm	1	Recommended value for impervious area
Clean Catchment	Initial loss	mm	1	Recommended value for impervious area
Sub-catchment area	Area	ha	Varies	As per Figure 1
	Sub-catchment slope	%	Varies	Varies based on site topography
Contaminated Catchment, Dirty Catchment and Clean Catchment	Impervious area	%	100	Value determined conservatively
	Continuing loss	mm/h	0	Recommended value for impervious area
	Retardance coefficient n*	-	0.013	Recommended value for impervious area

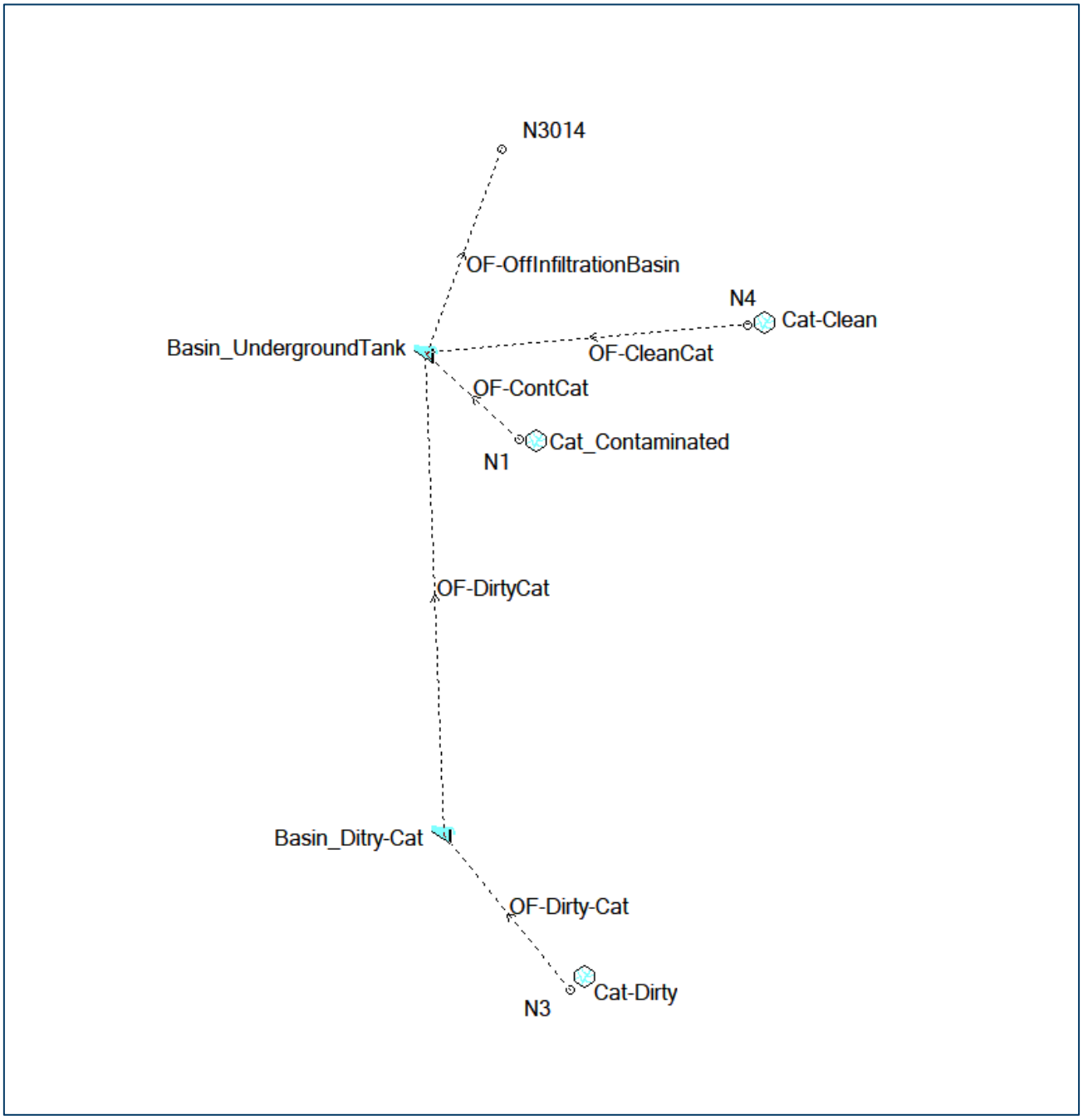


Figure 3 *DRIANS model layout*

5.2.2 Catchment modelling results

The results of the catchment drainage modelling for the proposed development are presented in Table 6. The design incorporates up to 423 cubic meters of storage, ensuring protection against inundation from storm events up to and including those with a 1% AEP. The results demonstrate that runoff generated under the proposed development conditions can be effectively managed within the storage system, ensuring a minimum 0.25-meter freeboard and preventing site inundation. This ensures the underground storage system has sufficient capacity to contain and control the 1% AEP flood within the site, in compliance with Policy 203 of the Town of Victoria Park (2023).

Table 6 Proposed drainage layout modelling results

AEP Event	Overflow from the Underground Storage System (SingleTrap) to the LV Parking Bays (m^3/s)	Critical Storm Event for Peak Water Level	Overflow Volume (kL)	Maximum Flood Level in the Underground Storage System (mAHD)	Available freeboard in the Underground Storage System (m)
10%	0.0	3 hr Storm 3	0.0	14.94	1.06
2%	0.0	6 hr Storm 8	0.0	15.40	0.60
1%	0.0	6 hr Storm 8	0.0	15.75	0.25

5.3 Stormwater recycling

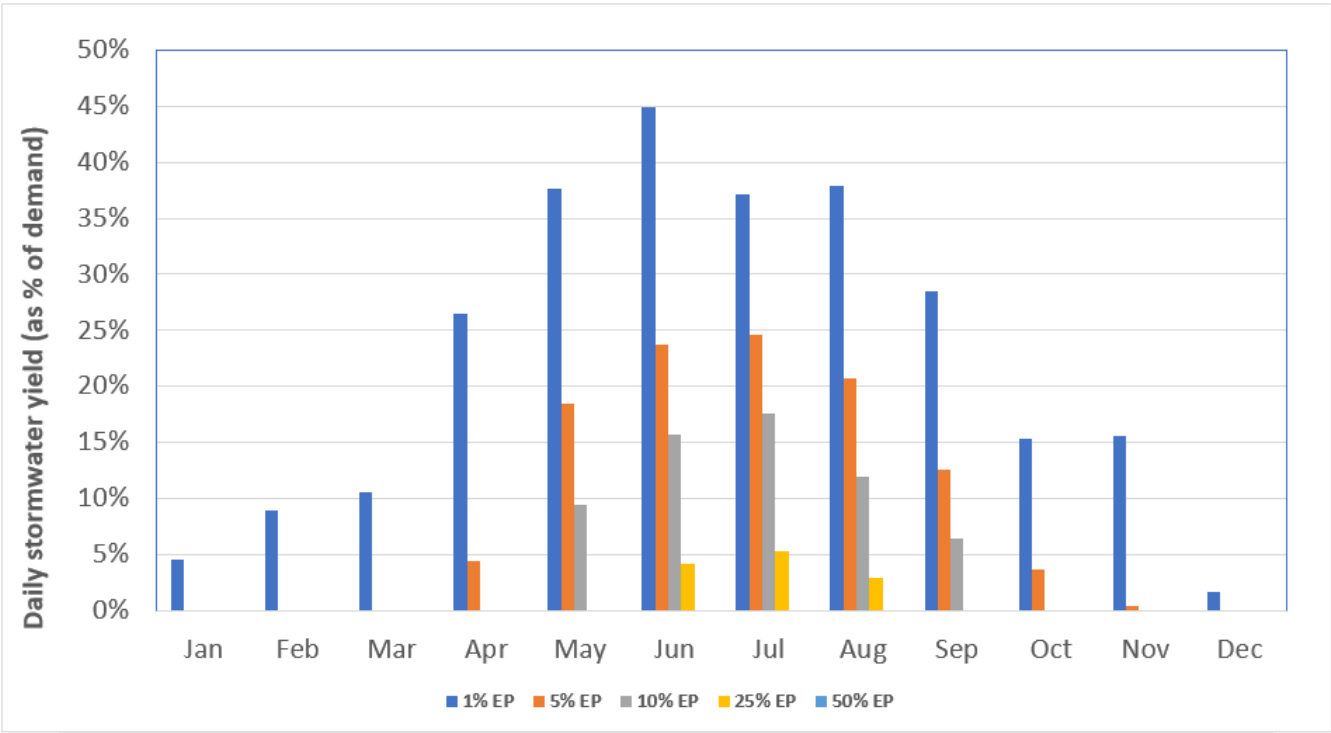
Stormwater collected in the underground storage system can be recycled to feed onsite operations that don not require potable water to enhance water management outcomes. These operations including batching, slumping, agitator washout and stockpile dust suppression, with a combined annual water demand equivalent to an amount of 50 ML (as informed by Holcim on 14 May 2021 and 19 May 2025). As per the previous communication with Holcim, no seasonal variation and main production occurring from Monday to Saturday only, the daily water demand will be constant about 160 kL/day during a production day.

A simple daily water balance model was developed to estimate the potential stormwater yield from the proposed infiltration storage system at the LV Parking Bays. The following information and assumptions were adopted into the water balance model:

– Daily rainfall and evaporation variables were sourced from the Perth Airport weather station (station no. 9021), which is the nearest station with more than 100 years of climate records available;
– Only climate records (from 1971 to 2024) over the last 54-years were used for the drying climate within this period; and
– The volume of runoff that can be accommodated in the holding pit and first flush pit together generated from the 50% AEP, 24-hour duration rainfall depth (57.4 mm) is assumed lost and non-recoverable in the water balance calculations;
– Runoff in excess of the volume generated from the 50% AEP, 24-hour duration will bypass the WMS and flow directly into the infiltration storage;
– The maximum infiltration that may occur in a day is 632 kL/day according to the storage sizing exercise in Section 5.1 of the previous stormwater assessment report developed by GHD (2021). This infiltration rate deemed to be conservative which was calculated based on the modelling exercise undertaken (GHD, 2021) using PCSump.

The water balance results are presented in Figure 4 for varying exceedance probabilities (EP). These plots inform the probability of stormwater yield and/or LV Parking Bays flooding occurring in a given day of the month. For example, the water balance projects a 1-in-20 change (or 5% probability) that stormwater yield in any given day in May would equal to or exceed 18% of the daily process water demand.

Figure 4 shows that stormwater yield from the proposed storage is very low, with less than 50% probability of harvesting any stormwater in any given day of the year. Even at the overly optimistic 99th percentile level, only about 38-45% of process water demands can be fulfilled by stormwater in winter (from June to August).



Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1% EP	5%	9%	11%	27%	38%	45%	37%	38%	29%	15%	16%	2%
5% EP	-	-	-	4%	18%	24%	25%	21%	13%	4%	0%	0%
10% EP	-	-	-	-	9%	16%	18%	12%	6%	0%	0%	0%
25% EP	-	-	-	-	-	4%	5%	3%	0%	0%	0%	0%
50% EP	-	-	-	-	-	0%	0%	0%	0%	0%	0%	0%

Figure 4 ***Predicted stormwater yield from the proposed infiltration storage system***

6. Concluding remarks

GHD has completed a stormwater assessment for the Development Application and Works Approval application of Holcim (Australia) Pty Ltd for the Welshpool Concrete Plant redevelopment, confirming that all stormwaters can be retained, disposed of, and/or recycled on-site in compliance with DWER and Town of Victoria Park requirements.

GHD would like to thank Holcim (Australia) Pty Ltd for the opportunity to undertake this work and trusts that the assessment above meets your purposes. Please do not hesitate to contact the undersigned should you have any questions or require further information on the assessment.

Regards

Shafiqul Alam
Senior Water Resources Engineer

08 6222 8925
Shafiqul.Alam@ghd.com

Bas Wijers
Technical Director / Team Lead – Water Resources

08 6222 8947
bas.wijers@ghd.com

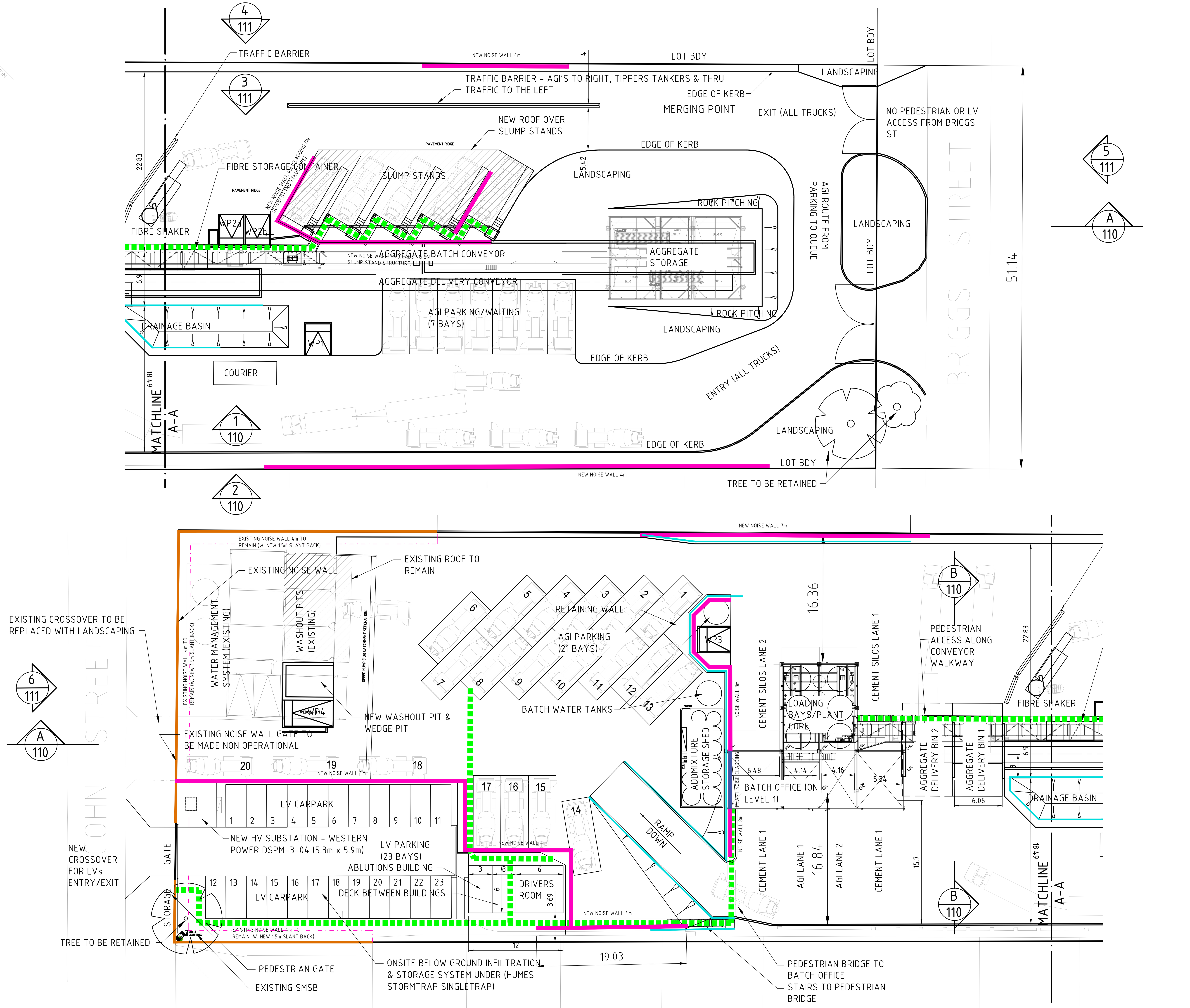
7. References

1. Australian Rainfall & Runoff (ARR) 1987, *A Guide to Flood Estimation.* Volume I. Institution of Engineers, Australia.
2. Ball et al. 2019, *Australian Rainfall and Runoff: A Guide to Flood Estimation,* Commonwealth of Australia (Geoscience Australia).
3. BOM 2016. *DESIGN Rainfall Data System (2016)*

   Rainfall IFD Data System: Water Information: Bureau of Meteorology, Accessed on 16th May, 2025.
4. DWER 2022, *Stormwater Management Manual for Western Australia – Chapter 9: Structural controls*, Department of Water and Environmental Regulation, Joondalup, WA.
5. DoW 2013, *Water quality protection note 68: Mechanical equipment wash down*, September 2013, Department of Water, Perth, WA.
6. GHD 2021, *Welshpool Concrete Plant Redevelopment – Stormwater for DWER Works Approval Application.* A report developed for Holcim (Australia) Pty Ltd to support the development approval application.
7. Holcim 2013, Stormwater Management Design Principles for Concrete & Humes Plants, Attachment 4.10B, September 2013.
8. Town of Victoria Park 2023, *Policy 203 Stormwater runoff containment*, Version 7, 18 August 2023.

Attachment 1

Concept redevelopment plan



CONCRETE PLANT OPERATIONS METHODOLOGY

1. ALL TRUCK TRAFFIC ENTERS AND EXITS BRIGGS ST, ALL LVs ENTER AND EXIT COHN ST
2. TIPPER TRUCKS DELIVER AGGREGATES TO AGGREGATE DELIVERY BIN. AGGREGATES ARE CONVEYOR TRANSFERRED TO THE AGGREGATE STORAGE TOWER (4 X 300T & 2 X 150T APPROX).
3. AGGREGATES ARE WEIGHED UP IN THE AGGREGATE WEIGH HOPPERS UNDER THE AGGREGATE TOWER PER AGI LOAD (2 - 10m3), AND ARE TRANSFERRED TO THE AGGREGATE HOLDING HOPPER IN THE PLANT CORE, AND GRAVITY DISCHARGED INTO THE AGITATOR TRUCK.
4. CEMENT TANKERS DELIVER CEMENTITIOUS PRODUCTS VIA PNEUMATIC TRANSFER WITHIN CEMENT LANE 1 AND 2. CEMENTITIOUS IS WEIGHED UP PER BATCH IN ONE OF TWO CEMENT WEIGH HOPPERS, AND GRAVITY DISCHARGED INTO THE AGITATOR TRUCK.
5. WATER AND ADMIXTURES ARE WEIGHED UP INSIDE THE PLANT CORE AND DISCHARGED TO THE AGITATOR TRUCK IN THE LOADING BAY/PLANT CORE
6. AGITATORS ONCE LOADED WILL EXIT THE NORTH SIDE OF THE LOADING BAY AND PROCEED TO THE SLUMP STAND WHERE THEY WILL MIX AND CHECK THE CONCRETE SLUMP FOR APPROX 5MINS, AND THEN LEAVE THE SITE FOR THE DELIVERY ADDRESS.

LEGEND

- HIGH PH WATER CATCHMENT
- DIRTY WATER CATCHMENT
- CLEAN WATER CATCHMENT
- PEDESTRIAN PATH - ON GROUND
- PEDESTRIAN PATH - OVERHEAD
- NOISE WALL (NEW)
- NOISE WALL (EXISTING)
- RETAINING WALL

USED ON

UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER } A.S.1100 PART 201
2. INTERPRET GEOMETRIC TOLERANCES AS PER
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES - DIMENSIONAL:

MACHINING	500mm & BELOW ±0.25mm;	ABOVE 500mm ± 0.50mm
STRUCTURAL	150mm & BELOW ±1.00mm;	ABOVE 150mm ± 1.50mm
CASTINGS	300mm & BELOW ±1.50mm;	ABOVE 300mm ± 3.00mm
ANGULAR: + 1/2°		

REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD
A	AS	- ISSUED FOR DA CONSULTANTS		10/6/25	

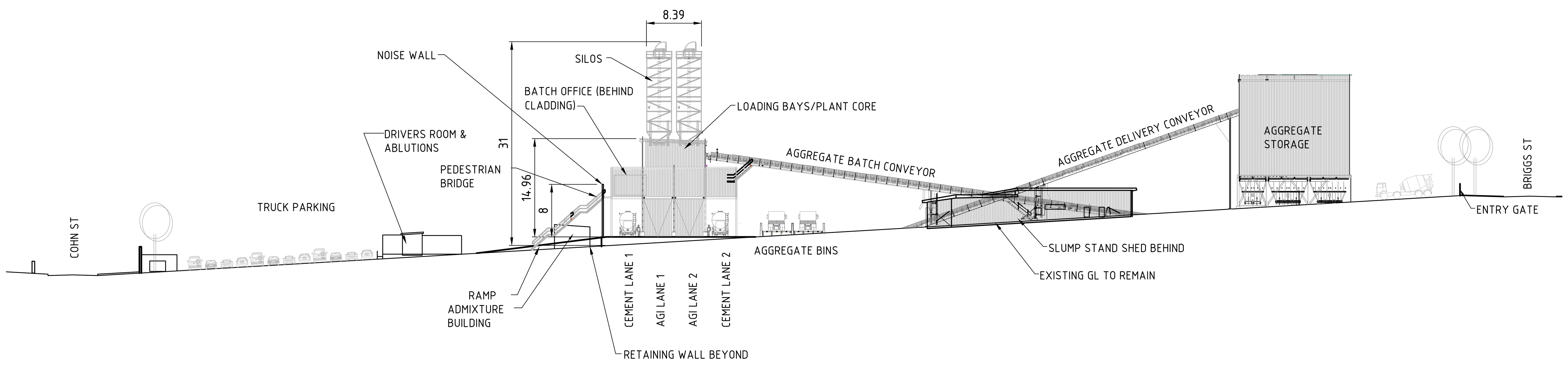
HOLCIM — Holcim Australia & New Zealand (HANZ) OPERATIONS & ENGINEERING

DSN. —
DWN. AS 14.01.25
CKD. —
APP. —
JSA No
SCALE 1:250

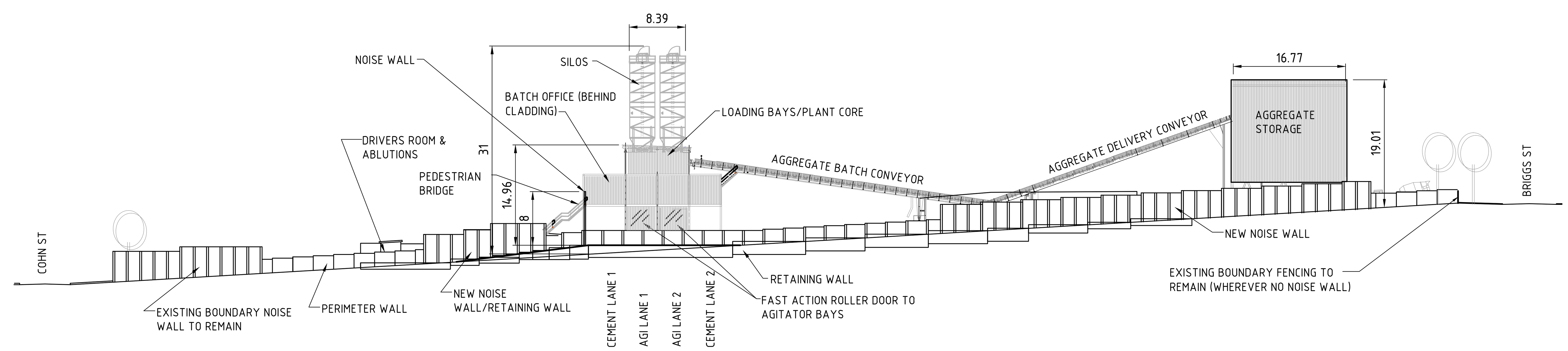
WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

GENERAL ARRANGEMENT

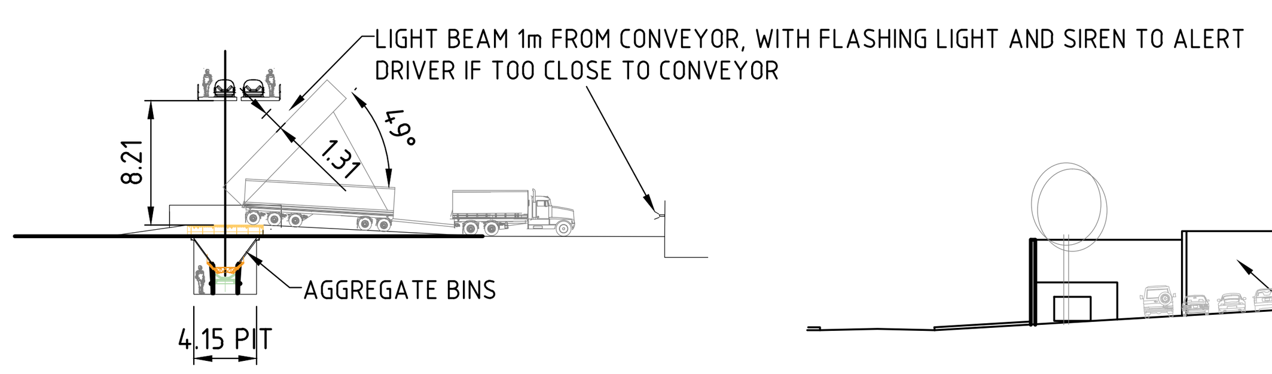
SIZE A1 — DRG. NO. HOL-691-100 — REV B



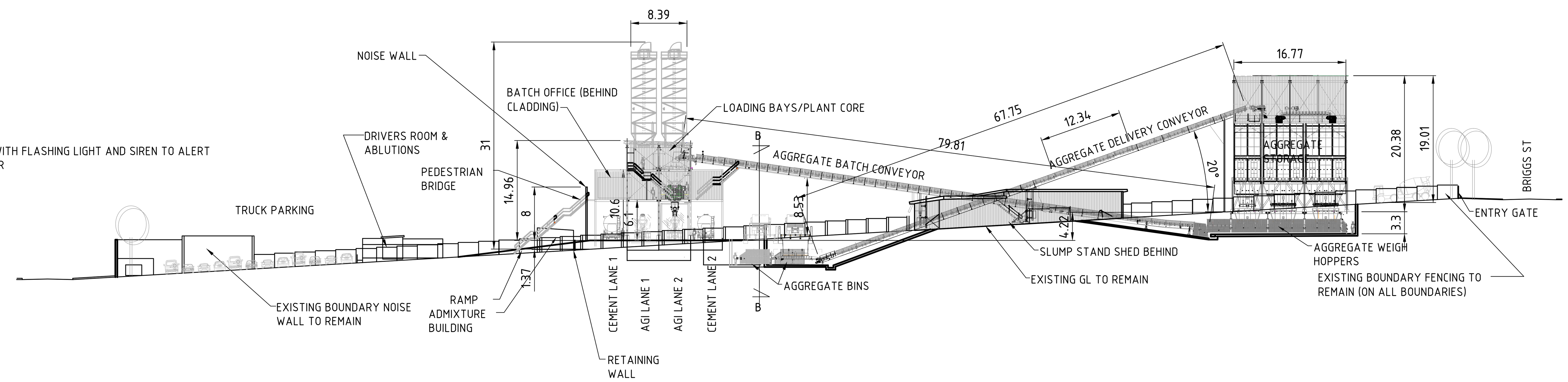
ELEVATION 1
SCALE 1:500



ELEVATION 2
SCALE 1:500

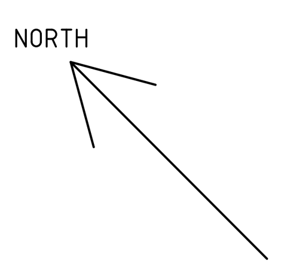


SECTION B-B
SCALE 1:500



SECTION A-A
SCALE 1:500

CONCEPT PLAN ONLY
SUBJECT TO DESIGN DEVELOPMENT



USED ON

UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER
2. INTERPRET GEOMETRIC TOLERANCES AS PER } A.S.1100 PART 201
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES – DIMENSIONAL:

MACHINING 500mm & BELOW ±0.25mm; ABOVE 500mm ± 0.50mm
STRUCTURAL 150mm & BELOW ±1.00mm; ABOVE 150mm ± 1.50mm
CASTINGS 300mm & BELOW ±1.50mm; ABOVE 300mm ± 3.00mm
ANGULAR: + 1/2°

REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD
B	AS	ISSUED FOR DA	AS	12/6/25	
A	AS	- ISSUED FOR DA CONSULTANTS		10/6/25	

HOLCIM
Holcim Australia & New Zealand (HANZ)
OPERATIONS & ENGINEERING

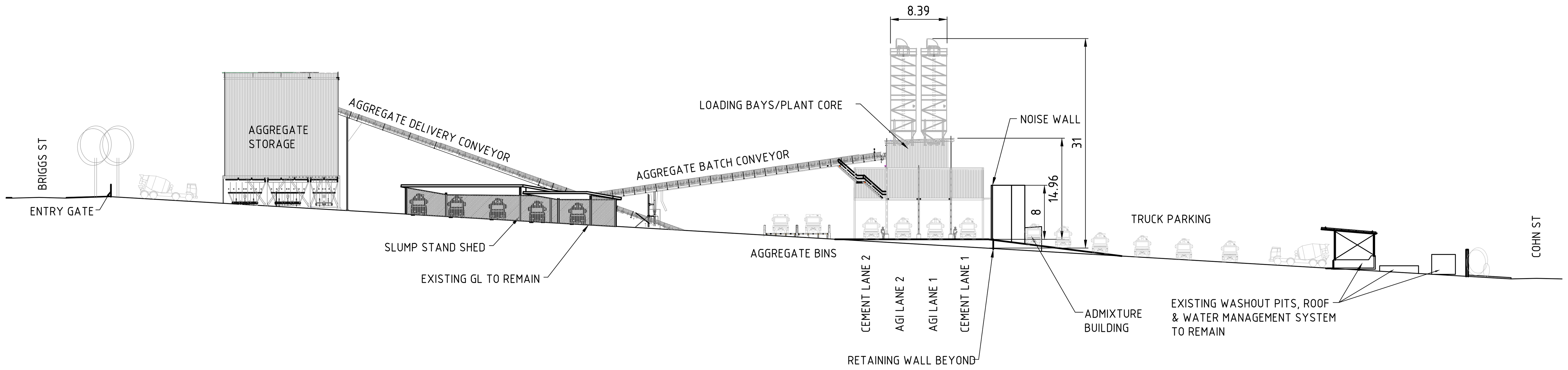
Holcim (Australia) Pty Ltd ABN 87 099 732 297

DSN.	—	—
DWN.	AS	14.01.25
CKD.	—	—
APP.	—	—
JSA No		
SCALE	1:500	

WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

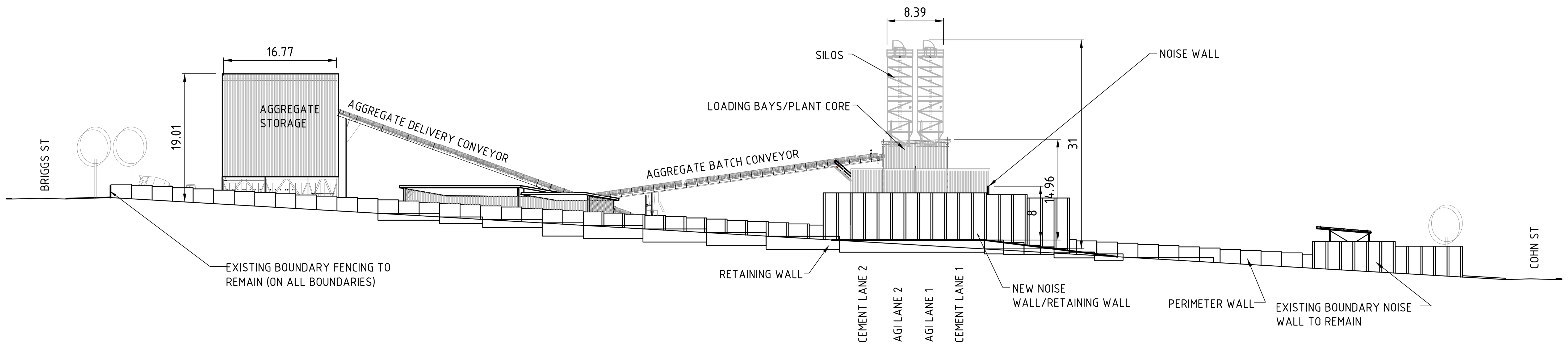
ELEVATIONS & SECTIONS

SIZE A1 | DRG. NO. HOL-691-110 | REV B



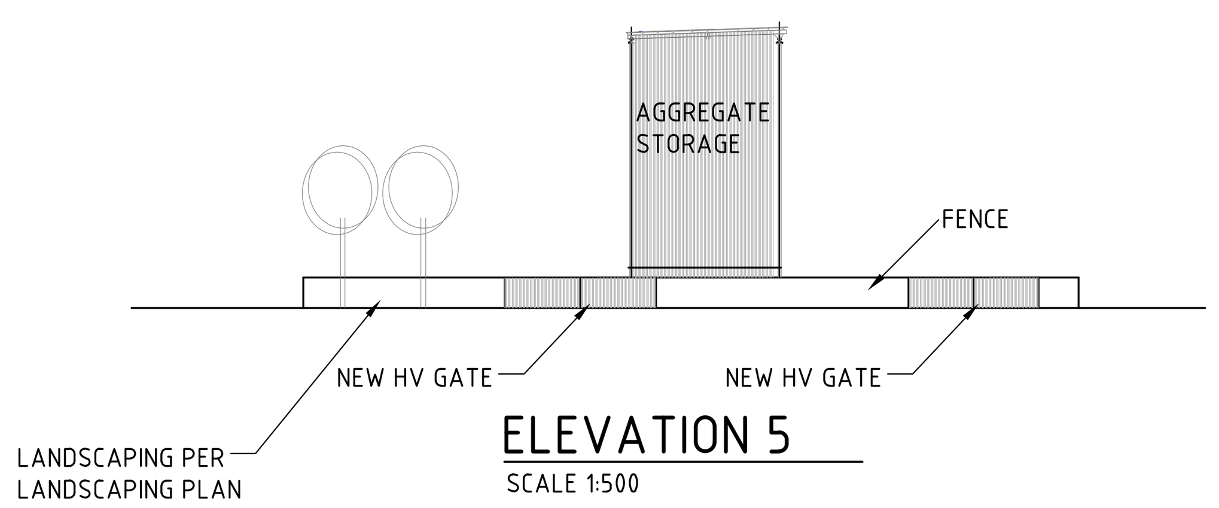
ELEVATION 3

SCALE 1:500



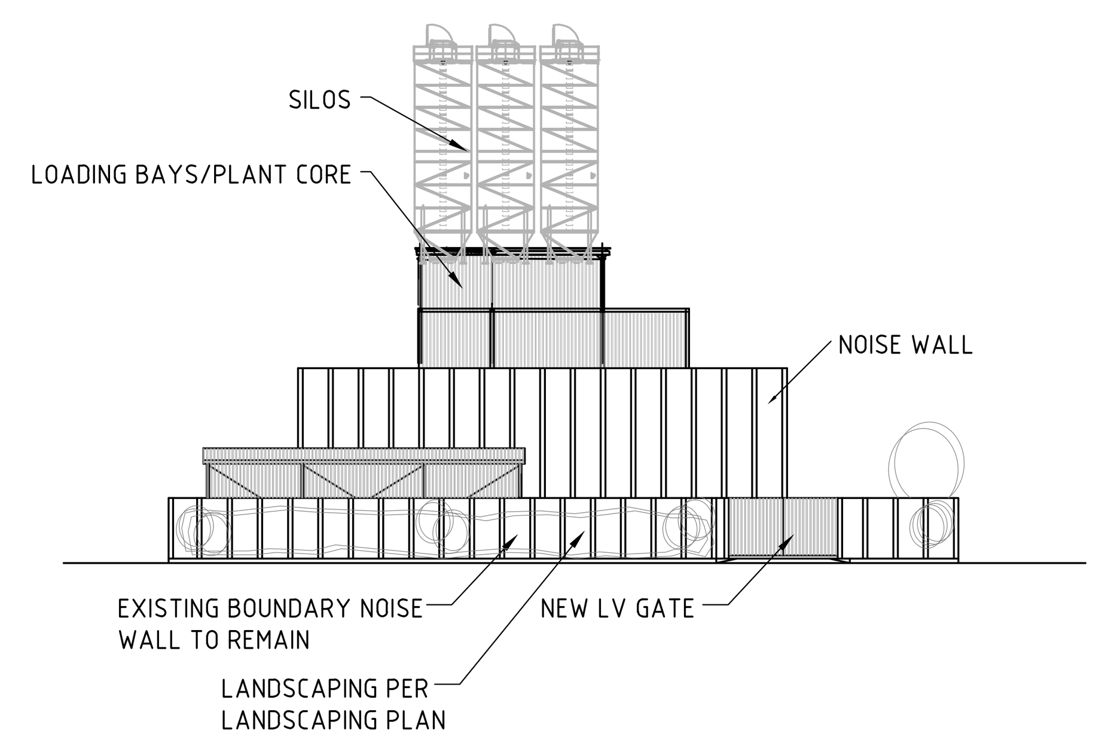
ELEVATION 4

SCALE 1:500



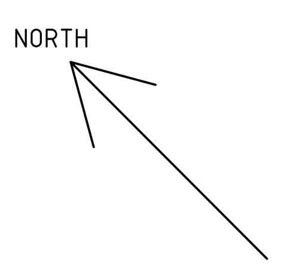
ELEVATION 5

SCALE 1:500
(BRIGGS STREET)



ELEVATION 6

SCALE 1:500
(COHN STREET)



USED ON

UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER } A.S.1100 PART 201
2. INTERPRET GEOMETRIC TOLERANCES AS PER } A.S.1100 PART 201
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER } A.S.1100 PART 201
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES – DIMENSIONAL:

MACHINING 500mm & BELOW ±0.25mm; ABOVE 500mm ± 0.50mm
STRUCTURAL 150mm & BELOW ±1.00mm; ABOVE 150mm ± 1.50mm
CASTINGS 300mm & BELOW ±1.50mm; ABOVE 300mm ± 3.00mm
ANGULAR: + 1/2°

REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD
B	AS	ISSUED FOR DA	AS	12/6/25	
A	AS -	ISSUED FOR DA CONSULTANTS		10/6/25	

HOLCIM — Holcim Australia & New Zealand (HANZ) OPERATIONS & ENGINEERING

Holcim (Australia) Pty Ltd ABN 87 099 732 297

DSN.	—	—
DWN.	AS	14.01.25
CKD.	—	—
APP.	—	—
JSA No	—	
SCALE	1:500	

WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

ELEVATIONS

SIZE A1 | DRG. NO. HOL-691-111 | REV B

UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER } A.S.1100 PART 201
2. INTERPRET GEOMETRIC TOLERANCES AS PER } A.S.1100 PART 201
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER } A.S.1100 PART 201
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES – DIMENSIONAL:

MACHINING	500mm & BELOW ±0.25mm;	ABOVE 500mm ± 0.50mm
STRUCTURAL	150mm & BELOW ±1.00mm;	ABOVE 150mm ± 1.50mm
CASTINGS	300mm & BELOW ±1.50mm;	ABOVE 300mm ± 3.00mm
ANGULAR: + 1/2°		

REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD
B	AS	ISSUED FOR DA	AS	12/6/25	
A	AS	- ISSUED FOR DA CONSULTANTS		10/6/25	

USED ON

HOLCIM — Holcim Australia & New Zealand (HANZ) OPERATIONS & ENGINEERING

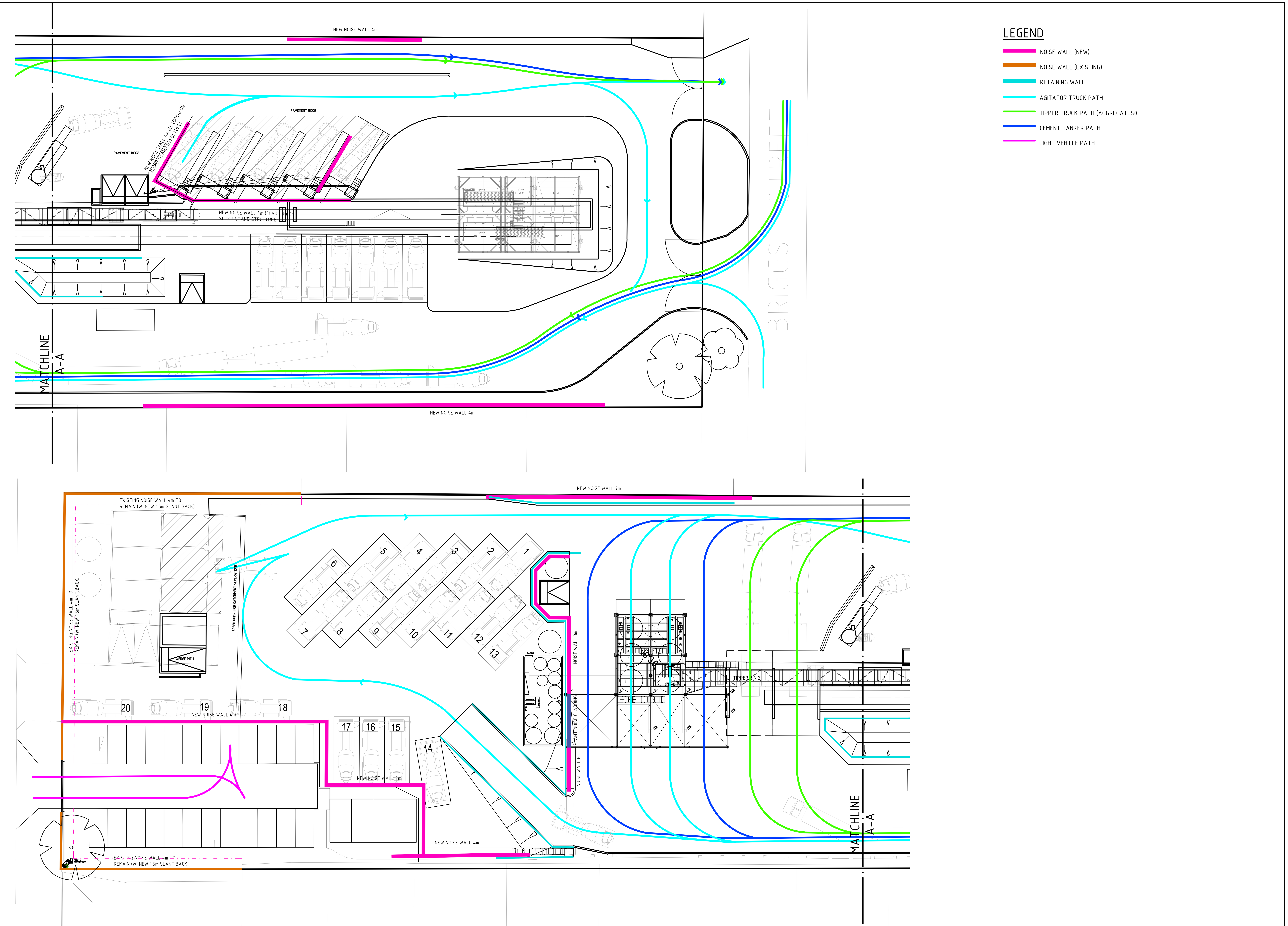
Holcim (Australia) Pty Ltd ABN 87 099 732 297

DSN. —— ——
DWN. AS 14.01.25
CKD. —— ——
APP. —— ——
JSA No ——
SCALE 1:250

WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

DRAINAGE PLAN

SIZE A1 | DRG. NO. HOL-691-102 | REV B



UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER } A.S.1100 PART 201
2. INTERPRET GEOMETRIC TOLERANCES AS PER } A.S.1100 PART 201
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER } A.S.1100 PART 201
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES – DIMENSIONAL:

MACHINING	500mm & BELOW ±0.25mm;	ABOVE 500mm ± 0.50mm
STRUCTURAL	150mm & BELOW ±1.00mm;	ABOVE 150mm ± 1.50mm
CASTINGS	300mm & BELOW ±1.50mm;	ABOVE 300mm ± 3.00mm

ANGULAR: + 1/2°

USED ON

REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD
B	AS	ISSUED FOR DA	AS	12/6/25	
A	AS	- ISSUED FOR DA CONSULTANTS		10/6/25	

HOLCIM — Holcim Australia & New Zealand (HANZ) OPERATIONS & ENGINEERING

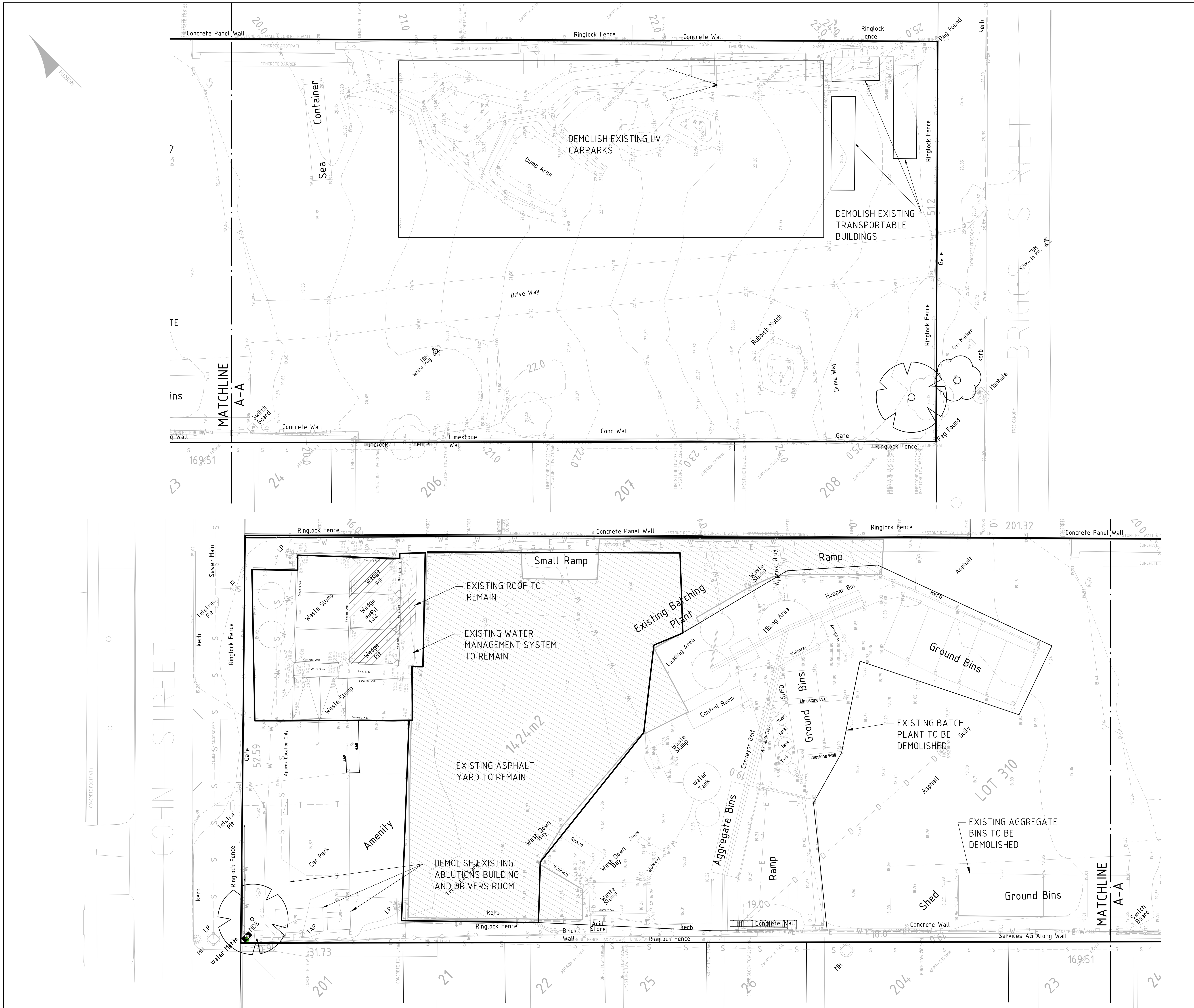
Holcim (Australia) Pty Ltd ABN 87 099 732 297

DSN.	—	—
DWN.	AS	14.01.25
CKD.	—	—
APP.	—	—
JSA No	—	
SCALE	1:250	

WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

TRAFFIC AND NOISE WALL PLAN

SIZE A1 | DRG. NO. HOL-691-101 | REV B



DEMOLISH EXISTING LV CARPARKS
DEMOLISH EXISTING TRANSPORTABLE BUILDINGS
BRIGGS STREET
MATCHLINE A-A
Container
Sea
Dump Area
Drive Way
Rubbish Mulch
Concrete Panel Wall
Ringlock Fence
Concrete Wall
Conc Wall
Limestone Wall
Gate
Peg Found
Gas Marker
Manhole
Switch Board
Small Ramp
Ramp
EXISTING ROOF TO REMAIN
EXISTING WATER MANAGEMENT SYSTEM TO REMAIN
Existing Batching Plant
EXISTING ASPHALT YARD TO REMAIN
1424m2
Ground Bins
Control Room
Loading Area
Mixing Area
Hopper Bin
EXISTING BATCH PLANT TO BE DEMOLISHED
Conveyor Belt
Aggregate Bins
Water Tank
Wash Down Bay
LOT 310
EXISTING AGGREGATE BINS TO BE DEMOLISHED
Shed
Amenity
Car Park
DEMOLISH EXISTING ABLUTIONS BUILDING AND DRIVERS ROOM
COHN STREET
Acid Store
Brick Wall
Services AG Along Wall
Water Meter
MDB

B	AS	ISSUED FOR DA	AS	12/6/25	
A	AS	ISSUED FOR DA CONSULTANTS		10/6/25	
REV		DETAILS OF ALTERATIONS	DWN	DATE	CKD

USED ON

UNLESS OTHERWISE SPECIFIED

1. INTERPRET DIMENSIONAL TOLERANCES AS PER } A.S.1100 PART 201
2. INTERPRET GEOMETRIC TOLERANCES AS PER } A.S.1100 PART 201
3. FOR DEFINITION OF MACHINING SYMBOLS AS PER } A.S.1100 PART 201
4. FOR DEFINITION OF WELDING SYMBOLS TO A.S. 1101.3
5. TOLERANCES — DIMENSIONAL:

MACHINING 500mm & BELOW ±0.25mm; ABOVE 500mm ± 0.50mm
STRUCTURAL 150mm & BELOW ±1.00mm; ABOVE 150mm ± 1.50mm
CASTINGS 300mm & BELOW ±1.50mm; ABOVE 300mm ± 3.00mm
ANGULAR: + 1/2°

HOLCIM

Holcim Australia & New Zealand (HANZ)
OPERATIONS & ENGINEERING

Holcim (Australia) Pty Ltd ABN 87 099 732 297

DSN.
DWN. AS 14.01.25
CKD.
APP.
JSA No

WELSHPOOL CONCRETE PLANT
PLANT UPGRADE
CONCEPT PLANNING

DEMOLITION PLAN

SCALE 1:250 | SIZE A1 | DRG. NO. HOL-691-103 | REV B

Attachment 2

Particle size distribution report

Construction Sciences

Construction Sciences Pty Ltd
ABN: 74 128 806 735

Address:
Lot 1, Cockram Road,
Martin WA 6110

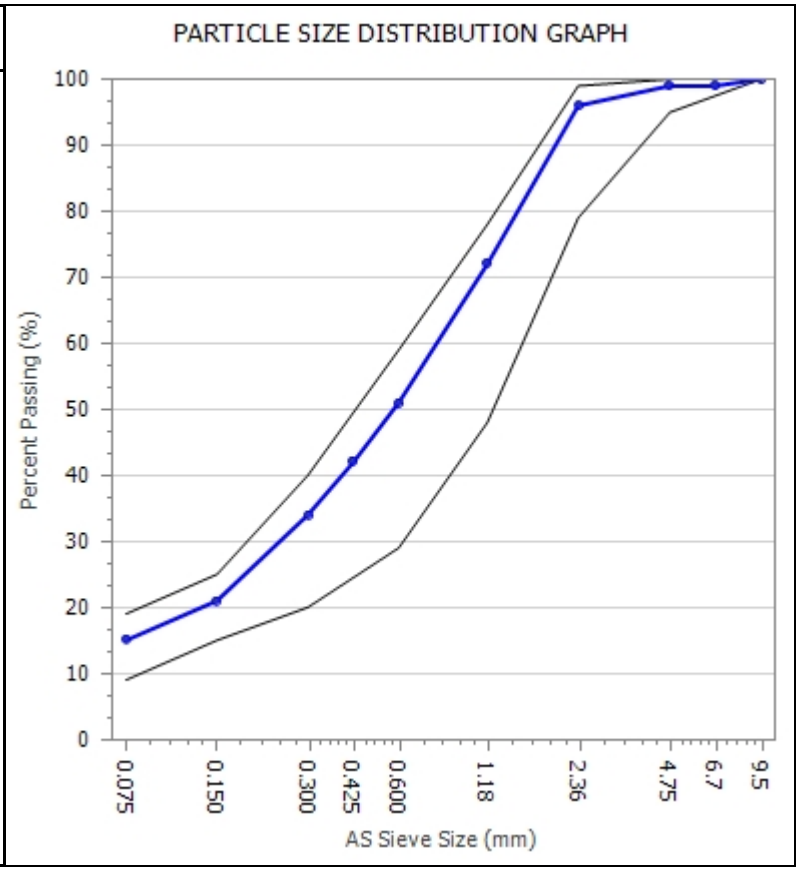
Laboratory: Gosnells Laboratory

PARTICLE SIZE DISTRIBUTION REPORT

Client:	Holcim Australia Pty Ltd	Report Number:	398/R/113523-1
Client Address:	PO Box 1513, Milton	Project Number:	398/P/26
Project:	Quality Control	Lot Number:	L21_13
Location:	Cockram Road, Martin WA	Internal Test Request:	398/T/48585
Supplied To:	Holcim	Client Reference/s:	
Area Description:		Report Date / Page:	7/04/2021 Page 1 of 1

Test Procedures:	AS1141.11.1		
Sample Number	398/S/287283	Sample Location	
Sampling Method	AS1141.3.1 Cl 9.4	Sample Location	
Date Sampled	6/04/2021		
Sampled By	Matthew Fowles		
Date Tested	7/04/2021		
Laboratory Prepared	Washed	Drying Method	Oven
Material Source	Holcim Gosnells Quarry	Material Type	Gosnells Quarry Sand (WGOSQS)

AS Sieve (mm)	Specification Minimum (%)	**Percent Passing (%)**	Specification Maximum (%)
9.5	100	**100**	100
6.7		**99**	
4.75	95	**99**	100
2.36	79	**96**	99
1.18	48	**72**	78
0.600	29	**51**	59
0.425		**42**	
0.300	20	**34**	40
0.150	15	**21**	25
0.075	9	**15**	19



Remarks	Supplement to Simplified Report Number 210407MF0905

Accredited for compliance with ISO/IEC 17025 – Testing

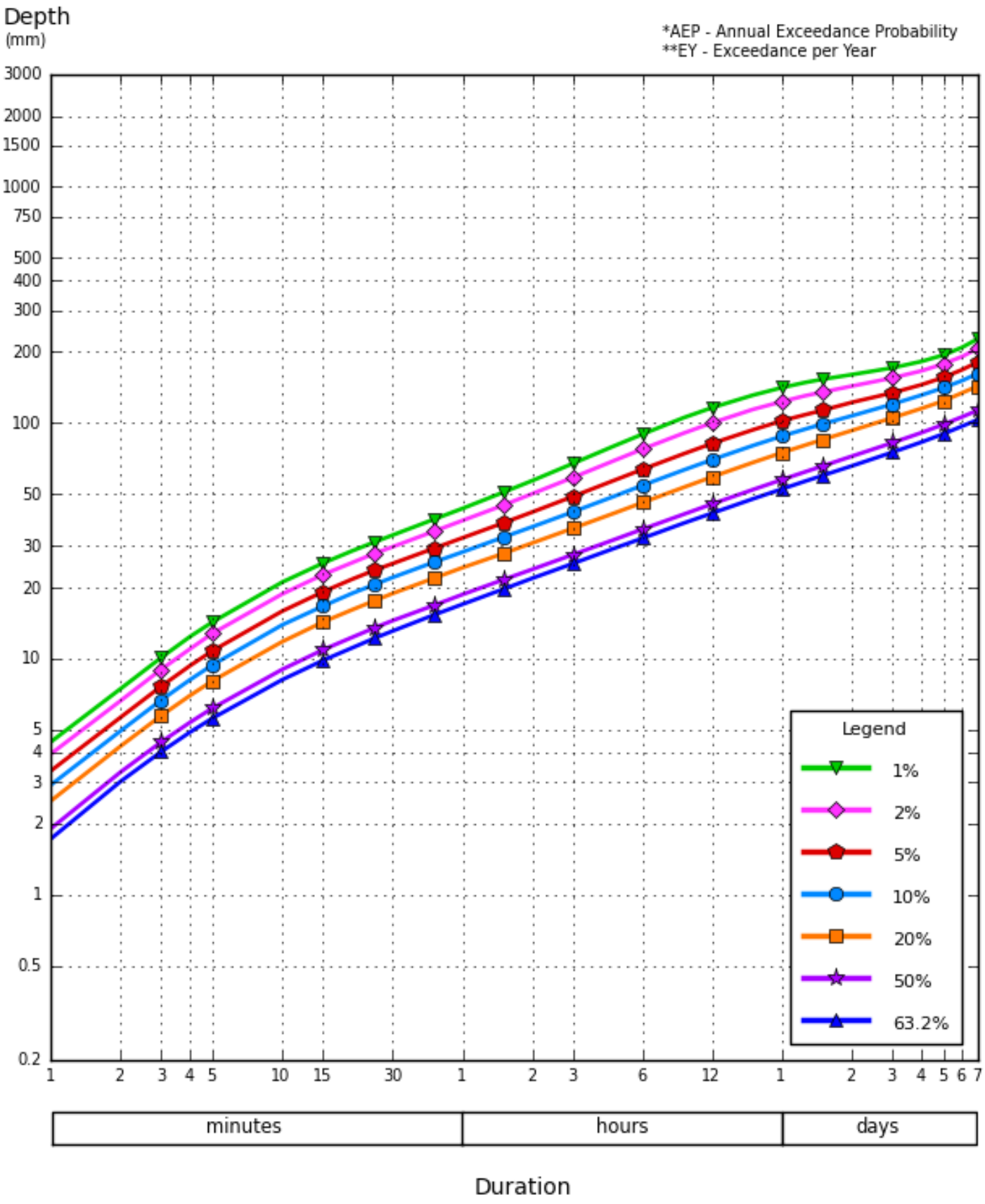
NATA

Accreditation Number: 1986
Corporate Site Number: 398

Approved Signatory: Matthew Fowles
Form ID: W9Rep Rev 2

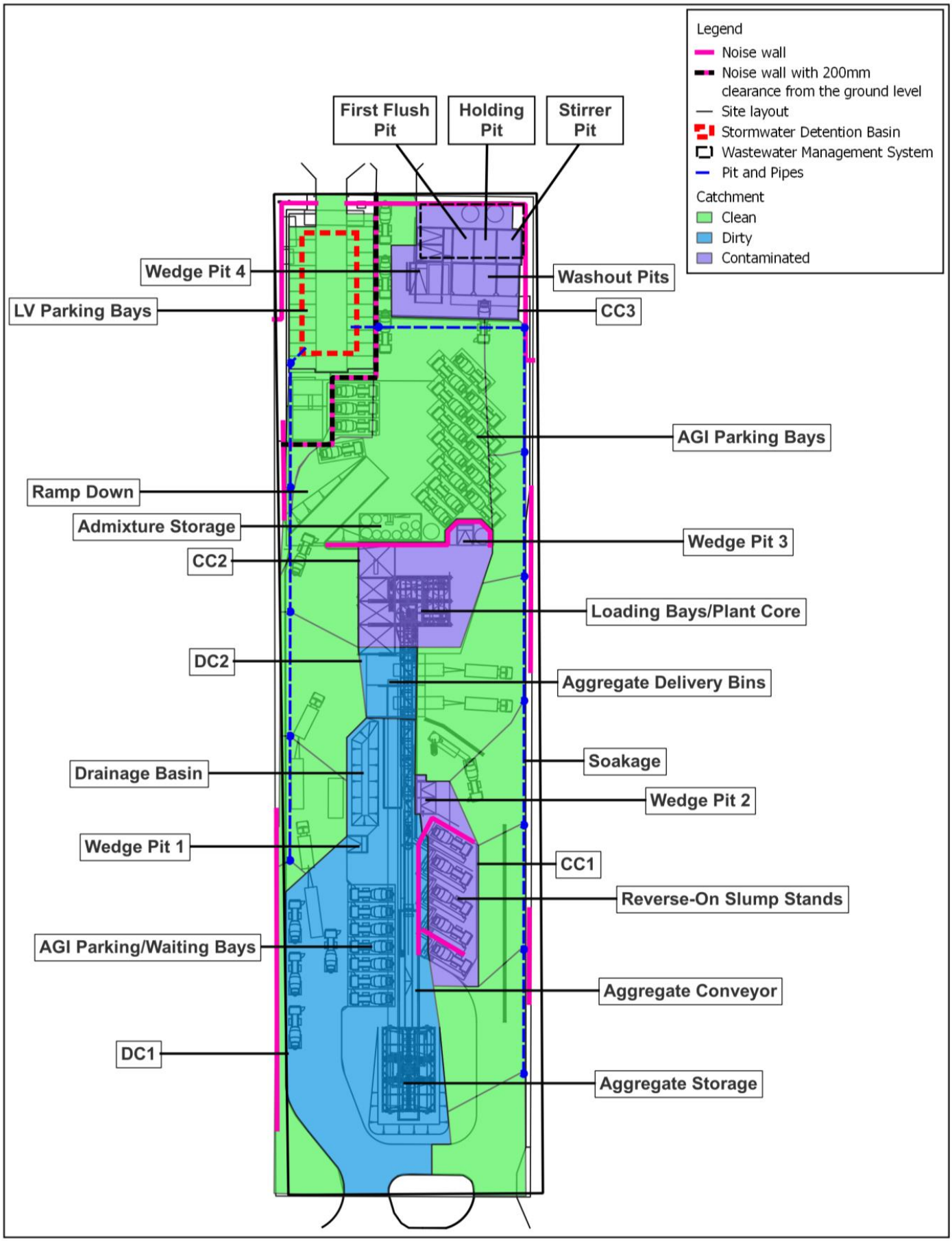
Attachment 3

IFD Design Rainfall Depth (mm)



Attachment 4

Stormwater Catchments



Paper Size ISO A4

0 20 40 m

HOLCIM (Australia) Pty Ltd

Welshpool Concrete Redesign Surface Water Assessment

Stormwater Catchments

Project No. **12662247**
Revision No. **A**
Date. **16/06/2025**

FIGURE 1

Document Path: N:\AU\Perth\Projects\61\12662247\GIS\Maps\Working\12662247_working_amauricio.qgz

Print Date:

Data Source:

Created By: Andro Mauricio