

NHVR Compliance Guide

**Understanding PBS Vehicle Approval
Documents**

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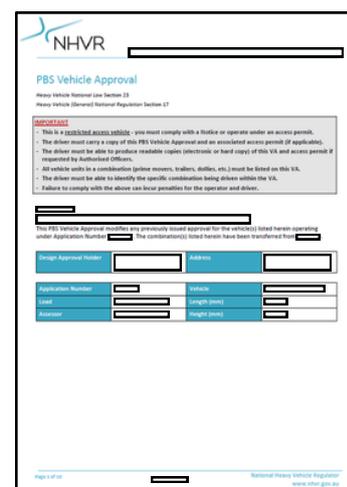
PBS Approval Document

PBS (Performance-Based Standards) approval means that a heavy vehicle has been designed and built to meet strict safety and infrastructure performance standards, enabling it to access higher productivity and safer outcome through innovative designs, rather than just relying on conventional mass and dimension rules.

However, a PBS approval does not mean that a driver is given full access to the road. They are still required to comply with a notice of operate under an access permit. If a vehicle is considered restricted, the following will show up on their PBS approval:

IMPORTANT

- This is a restricted access vehicle - you must comply with a Notice of operate under an access permit.
- The driver must carry a copy of this PBS Vehicle Approval and an associated access permit (if applicable).
- The driver must be able to produce readable copies (electronic or hard copy) of this VA and access permit if requested by Authorised Officers.
- All vehicle units in a combination (prime movers, trailers, dollies, etc.) must be listed on this VA.
- The driver must be able to identify the specific combination being driven within the VA.
- Failure to comply with the above can incur penalties for the operator and driver.



Design Approval Holder: To become PBS approved, vehicles will first need PBS Design Approval (DA). The Design Approval Holder (DAH) is the entity or person who holds the approved PBS design approval.

Design Approval Holder		Address	
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Application Number		Vehicle	
Load		Length (mm)	
Assessor		Height (mm)	

Application number - a unique identifier assigned to a specific permit application.

Load - refers to any cargo, material, or item being transported on a heavy vehicle

Assessor - the name of the person who conducted the PBS assessment

Vehicle - the type of vehicle that is being assessed (e.g. 3-axle truck, 4-axle dog)

Length - length of the vehicle

Height - height of the vehicle

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VIN Tables

VIN Tables list specific vehicles identified by their Vehicle Identification Number (VIN).

Truck 1	Make	GCM (t)
00000000000000000000	VOL	70

VIN - Vehicle Identification Number (VIN)

Make - The brand or manufacturer of the vehicle

Trailer 1	ATM (t)
00000000000000000000	35

Aggregate Trailer Mass (ATM) - the maximum loaded weight of a trailer when it is unhitched from the towing vehicle and rests on its own landing gear or stand.

Trailer Sets

Trailer Sets apply to multi-trailer combinations such as A-Double, B-Double and Road Train, as well as select Truck and Dog combinations where a dog trailer consists of two separate vehicle units – a dolly and semi-trailer. They indicate which individual trailers and dollies are compatible for use together as a Trailer Set.

The following is an example of an A-Double Trailer Set:

Trailer Sets			
Trailer Set 1	Lead Trailer 1	Dolly 1	Rear Trailer 1
Trailer Set 2	Lead Trailer 2	Dolly 2	Rear Trailer 2

Combination Matrix

A Combination Matrix is a visual representation showing compatibility between hauling units (Prime Mover or Truck) and trailing units (Trailer or Trailer Sets) that have been approved to operate together as a combination.

	Trailer Set 1	Trailer 1
Prime Mover 1	1. Drawing Number 2. DA Dimension Set 3. Mass Table Number/s	Dwg_001 Variant 1 Table 1
Truck 1		

Drawing Number - the as-built drawing number that shows the specific combination.

Dimension Set - serves as an identifier for the dimension set specified in the corresponding PBS Design Approval.

Mass Table Number/s - reference numbers for the mass table associated with the combination.

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Combination Matrix Continued...

If a combination is marked as "NA" in the Combination Matrix, it signifies that the hauling unit and the corresponding trailing unit cannot be used together. Such combinations are not approved and must not be used.

So Prime Mover 1 can be used with Trailer Set 1 but **cannot** be used with Trailer Set 2.

	Trailer Set 1	Trailer Set 2
Prime Mover 1	Drawing 1 Dimension Set 2 Table 1, 2	NA
Prime Mover 2	Drawing 2 Dimension Set 2 Table 1, 2	Drawing 3 Dimension Set 2 Table 1, 2

Mass Tables

The mass tables on the PBS Vehicle Approval contains:

- Level of PBS approval (e.g. Level 2)
- Mass limits under different mass schemes including total combination mass and axle group mass
- Bridge assessment requirement (e.g. Tier 1)

Vehicles must **not** exceed figures specified in mass tables. The figures in the tables are the maximum masses which the combination on the VA complies with PBS standards.

Table 1
Truck 1 and Trailer 1

Mass Limits	Level 1	Axle Group Masses	Level 1
			GML
GML (t)	50.5	Steer (t)	6.5
CML (t)	NA	Drive (t)	16.5
HML (t)	NA	Trailer Front (t)	13.75
Bridge Assessment	Tier 1	Trailer Rear (t)	13.75

Table 1 outlines the GML for the truck and trailer combination, including axle group limits, under Level 1 PBS approval. If you are carrying a smaller load and can comply with these reduced limits, you may operate under Level 1, which provides access to a wider road network.

Table 2
Truck 1 and Trailer 1

Mass Limits	Level 2	Axle Group Masses	Level 2		
			GML	CML	HML
GML (t)	56.0	Steer (t)	6.5	6.5	6.5
CML (t)	57.5	Drive (t)	16.5	17.0	17.0
HML (t)	57.5	Trailer Front (t)	16.5	17.0	17.0
Bridge Assessment	Tier 1	Trailer Rear (t)	16.5	17.0	17.0

Alternatively, Table 2 shows the combination under Level 2 PBS approval, allowing higher mass limits but with more restricted network access (likely requiring extra documentation, such as access permits or compliance with a Gazette Notice).

In all cases, vehicles must not exceed the limits shown in the tables.

Mass Tables Continued...

PBS “Level”

PBS vehicles are classified into four levels (1–4). Approval at a given level may allow operation on networks of that level or higher, subject to Road Manager approval (via an access permit) or Gazette Notice conditions.

Level	Length	Network
Level 1	20M	General Access
Level 2	30M	26M B-double network
Level 3	36.5M	36.5M Type I Road Train network
Level 4	53.5M	53.5M Type II Road Train network

Bridge assessment “Tiers”

To ensure continued infrastructure protection, all PBS vehicles are assessed against the PBS bridge formulae and structured into 3 tiers (1-3). The bridge assessment on the VA is indicative only, an actual bridge assessment will be determined by the responsible Road Manager if the vehicle requires an access permit in addition to the VA.

- **Tier 1** - bridge formulae which limits the mass between any extreme axles of any two axle groups. Failure to comply with Tier 1 formulae require a Tier 2 or 3 bridge assessment.
- **Tier 2** - Maximum Effect Relative to Reference Vehicle (MERRV), used to demonstrate that the maximum bridge effects of the vehicle do not exceed those caused by a reference vehicle. This check must be performed by a qualified engineer.
- **Tier 3** - Requires detailed individual bridge assessment using the actual bridge’s data. Must be organised by the Road Manager and may be outsourced, though it may cause a significant cost and extended period of time to complete.

Some VAs specify a combination of bridge assessment types, i.e. ‘Tier 2/3’ meaning that the most appropriate type of bridge assessment is to be determined by the responsible Road Manager during the access permit application process.

Operating Conditions

Operating conditions are the specific rules and requirements that a vehicle must follow whenever it is used on the road. These conditions are not optional and must be complied with at all times. They are designed to ensure both road safety and protection of infrastructure.

Typically, operating conditions set out limits such as the overall vehicle mass, axle group mass limits and requirements, maximum allowable payload heights, and restrictions that apply when operating under different PBS levels.

PBS Payload Heights and Types

The maximum Payload Heights (PH) a PBS combination is permitted to carry under PBS approval are laid out under Operating Condition 4 of the PBS Vehicle Approval. These PH are first stipulated in the PBS Design Approval under which a specific combination is approved and issued an approval allowing the vehicle and trailer to be loaded whilst maintaining PBS standards.

The type of payload and its height can impact a vehicles Centre of Gravity (CoG) and it's rollover stability. The Static Rollover Threshold (SRT) is a PBS safety standard designed to mitigate the risk of rollovers.

Different payload types result in different CoG, affecting a vehicles SRT. As a result, different payload types have different maximum heights. Payload types include:

- **Heaped Payload** - load is piled up above the main part of the load in a peak shape (e.g. sand or gravel)
- **Water Level Payload** - the material is levelled off, resembling the flat surface of water.
- **Uniform Density** - have mass equally distributed throughout the volume of the load space (e.g. boxed ceramic tiles or canned drinks)
- **Mixed Freight** - heavy items placed on the bottom and lighter items on the top

In addition to payload types, the maximum allowable PH can also vary based on the following factors:

- Suspension Type
- Total Combined Mass (TCM)
- Tyres
- Level of PBS Approval

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PBS Payload Heights and Types Continued...

PH's are measured in metres from the ground to the top of the load and all vehicles must remain in compliance with the maximum PH's laid out in Operating Condition 4. The example below shows a Truck and Dog PH Table.

	Truck	Trailer
Variant 2	3.230	3.290

NOTE: The PH in VA Operating Condition 4 may not match the bin's top edge, as it reflects limits from the PBS Design Approval. Operators must load according to bin dimensions to ensure safe, compliant use.

In the left example below, different payload height limits apply to combinations approved under 'Dimension Set 1' and 'Dimension Set 2'. Specific combinations approved under these dimension sets are specified in the Combination Matrix.

Vehicles will also experience changes in their PH tables based on payload type and mass and their PBS level approvals, as shown in the right table below.

	Truck		Trailer	
	Heaped payload	Water Level Payload	Heaped payload	Water Level Payload
Dimension Set 1	4.000	3.800	4.000	3.800
Dimension Set 2	3.900	3.700	3.900	3.700

Level 2	Heaped payload	Water level payload
Lead Trailer	3.460	3.260
Rear Trailer	3.850	3.650

Level 3	Heaped payload	Water level payload
Lead Trailer	3.460	3.260
Rear Trailer	3.600	3.400

Exemptions

PBS exemptions allow vehicles to deviate from standards where there is no added safety or infrastructure risk, often for prototypes or experimental designs. They are requested during design approval and granted by the NHVR only in rare cases after thorough assessment.

Exemption tables in VA documents may look like the following:

Exemptions	
ADR	NA
HV(MDL)NR	Schedule 6, Section 3 (Length – General)
HV(VS)NR	NA

ADR - Australian Design Rules

HV(MDL)NR - Heavy Vehicle (Mass, Dimension and Loading) National Regulation

HV(VS)NR - Heavy Vehicle (Vehicle Standards) National Regulation

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Glossary



Access Permit – a formal authorisation that allows a specific heavy vehicle, or a fleet of vehicles, to use the road system, potentially with conditions, for a defined period.

ADR – Australian Design Rules – national vehicle standards for vehicle safety, anti-theft and emissions.

Application number – a unique identifier assigned to a specific permit application.

Assessor – the name of the person who conducted the PBS assessment.

ATM – Aggregate Trailer Mass – the maximum loaded weight of a trailer when it is unhitched from the towing vehicle and rests on its own landing gear or stand.

CML – Concessional Mass Limits – allows operators accredited under the National Heavy Vehicle Accreditation Scheme (NHVAS) to utilise mass limits above the national general limits.

CoG – Centre of Gravity

DA – PBS Design Approval – confirms vehicle design meets all PBS standards and is approved for build or modification.

DAH – Design Approval Holder – the entity or person who holds the approved PBS design approval.

Dimension Set – serves as an identifier for the dimension set specified in the corresponding PBS Design Approval.

Drawing Number – the as-built drawing number that shows the specific combination of a vehicle on a VA.

GCM – Gross Combined Mass – maximum weight of the tow vehicle and trailer (including load, passengers, fuel etc).

GML – General Mass Limits – the basic mass limits that apply to all heavy vehicles. The GML includes limits for individual axles, axle groups, and axle spacings.

GVM – Gross Vehicle Mass – maximum weight of a vehicle when fully loaded (including load, passengers, fuel etc).

Gazette notice – a formal declaration that grants heavy vehicles either access to a specified road network or exempts them from certain standard requirements (like mass or dimension limits).

HML – Higher Mass Limits – provides increased productivity by allowing particular vehicles to access additional mass entitlements, subject to conditions.

HV(MDL)NR – Heavy Vehicle (Mass, Dimension and Loading) National Regulation

HV(VS)NR – Heavy Vehicle (Vehicle Standards) National Regulation

Height – height of the vehicle.

Length – length of the vehicle.

Load – refers to any cargo, material, or item being transported on a heavy vehicle.

NHVAS – National Heavy Vehicle Accreditation Scheme

NHVL – National Heavy Vehicle Law

NHVR – National Heavy Vehicle Regulator – Australia's regulator for heavy vehicles.

PBS – Performance Based Standards – program that assesses heavy vehicles on performance and safety outcomes rather than dimensions and mass alone.

PH – Payload Height – the measurement from the ground to the top of the load, such as containers or other cargo.

SRT – Static Rollover Threshold – a PBS safety standard designed to mitigate rollover risk.

VA – Vehicle Approval – a document issued to a heavy vehicle that has been built to meet the PBS scheme's design specifications.

Vehicle – the type of vehicle being assessed (e.g., 3-axle truck, 4-axle dog).

VIN – Vehicle Identification Number

	Description	Maximum Length (metres)	Maximum Regulatory Mass under GML (tonnes)	Maximum Regulatory Mass under CML (tonnes)	Maximum Regulatory Mass under HML (tonnes)
1. COMMON RIGID TRUCKS - GENERAL ACCESS					
(a) (b) (c) (d) (e)	2 Axle Rigid Truck 3 Axle	≤ 12.5	15.0	CML does not apply	-
	Rigid Truck 4 Axle Rigid	≤ 12.5	22.5	23.0	-
	Truck 4 Axle Twinsteer	≤ 12.5	26.0	27.0	-
	Rigid Truck 5 Axle	≤ 12.5	26.5	27.0	-
	Twinsteer Rigid Truck	≤ 12.5	30.0	31.0	-
2. COMMON SEMITRAILER COMBINATIONS - GENERAL ACCESS					
(a)	3 Axle Semitrailer	≤ 19.0	24.0	-	-
(b)	4 Axle Semitrailer	≤ 19.0	31.5	32.0	32.0
(c)	5 Axle Semitrailer	≤ 19.0	35.0	36.0	37.5
(d)	5 Axle Semitrailer	≤ 19.0	39.0	40.0	40.0
(e)	6 Axle Semitrailer	≤ 19.0	42.5	43.5	45.5
3. COMMON RIGID TRUCK AND TRAILER COMBINATIONS (General access when complying with prescribed mass and dimension requirements)					
(a)	2 Axle Truck and 2 Axle Dog Trailer	≤ 19.0	30.0	-	-
(b)	2 Axle Truck and 2 Axle Pig Trailer 3	≤ 19.0	30.0	CML does not apply	-
(c)	Axle Truck and 2 Axle Dog Trailer 3	≤ 19.0	40.5	41.0	-
(d)	Axle Truck and 2 Axle Pig Trailer 3	≤ 19.0	37.5	CML does not apply	-
(e)	Axle Truck and 3 Axle Dog Trailer 3	≤ 19.0	42.5	43.5	-
(f)	Axle Truck and 3 Axle Pig Trailer 3	≤ 19.0	40.5	CML does not apply	-
(g)	Axle Truck and 4 Axle Dog Trailer 4	≤ 19.0	42.5	43.5	-
(h)	Axle Truck and 3 Axle Dog Trailer 4	≤ 19.0	42.5	43.5	-
(i)	Axle Truck and 4 Axle Dog Trailer	≤ 19.0	42.5	43.5	-
4. COMMON B-DOUBLE COMBINATIONS - CLASS 2					
(a)	7 Axle B-double	≤ 19.0	55.5	57.0	57.0
(b)	8 Axle B-double	≤ 26.0	59.0	61.0	62.5
(c)	8 Axle B-double	≤ 26.0	59.0	61.0	62.5
(d)	9 Axle B-double	≤ 26.0	62.5	64.5	68.0
5. COMMON TYPE 1 ROAD TRAINS - CLASS 2					
(a)	9 Axle A-double	≤ 36.5	72.0	74.0	74.0
(b)	11 Axle A-double	≤ 36.5	79.0	81.0	85.0
(c)	12 Axle A-double	≤ 36.5	82.5	84.5	90.5
(d)	12 Axle Modular B-triple	≤ 35.0	82.5	84.5	90.5
(e)	12 Axle B-triple	≤ 36.5	82.5	84.5	90.5
(f)	14 Axle AB-triple	≤ 36.5	99.0	101.0	107.5
(g)	15 Axle AB-triple	≤ 36.5	102.5	104.5	113.0
(h)	11 Axle Rigid Truck and 2 Dog Trailers	≤ 36.5	88.5	90.5	91.0
6. COMMON TYPE 2 ROAD TRAINS - CLASS 2					
(a)	16 Axle A-triple	≤ 53.5	115.5	117.5	124.5
(b)	18 Axle A-triple	≤ 53.5	122.5	124.5	135.5
(c)	15 Axle AB-triple	≤ 44.0 – Classified by the NHVR as Type 1 when L ≤ 36.5m	102.5	104.5	113.0
(d)	13 Axle Rigid Truck and 2 Dog Trailers	≤ 47.5 – Classified by the NHVR as Type 1 when L ≤ 36.5m	95.5	97.5	102.0
(e)	17 Axle BAB-Quad	≤ 53.5	119.0	121.0	130.0
(f)	18 Axle BAB-Quad	≤ 53.5	122.5	124.5	135.5
(g)	17 Axle ABB-Quad	≤ 53.5	119.0	121.0	130.0
(h)	18 Axle ABB-Quad	≤ 53.5	122.5	124.5	135.5