

BAL-29 REQUIREMENTS

The following is a general guide to of 'CONSTRUCTION FOR BUSHFIRE PRONE AREAS' refer also to AS3959 Sections 3 & 7 prior to commencement of any work to ensure that all building works comply.

NOTE BAL-29 is primarily concerned with protection from ember attack and radiant heat greater than 19 kW/m2 up to and including 29 kW/m2.

All building elements enclosed/ unenclosed subfloor spaces to be made from non-combustible or made with bushfire resisting timbers (see Appendix F below)

All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3 mm where sarking isn't applied over frames.

Vents, Weepholes & Gaps (generally) to ext. walls to be screened with mesh with a max. 2mm aperture, made from corrosion-resistant metal, except when the vents of weepholes are less than 3mm, or are located in an external wall of sub-floor space. (see Clause 6.1)

7.2 SUB-FLOOR SUPPORTS
This standard does not provide construction requirements for subfloor supports where the subfloor space is enclosed with-
a wall that complies with Clause 7.4;
OR a mesh with max. 2mm aperture, made from corrosion-resistant material;
Where subfloor is unenclosed the supports posts, columns, stumps, piers and poles shall be-
of non-combustible material;
OR of bushfire-resisting timber (see Appendix F);
NOTE this requirement above applies to dwelling only not verandas etc. Combustible materials stored in the subfloor space may be ignited by embers and cause an impact to the building

7.3.1 FLOORS
This standard does not provide construction requirements for concrete slabs on ground.

7.3.2 ELEVATED FLOORS
This standard does not provide construction requirements for subfloor supports where the subfloor space is enclosed with-
a wall that complies with Clause 7.4;
OR a mesh with max. 2mm aperture, made from corrosion-resistant material;
Where the subfloor space is unenclosed, the bearers, joists and flooring, less than 400 mm above finished ground level, shall be one of the following:

Materials that comply with the following:
- Bearers and joists shall be-
non-combustible;
OR bushfire-resisting timber (see Appendix F);
- Flooring shall be-
non-combustible;
OR bushfire-resisting timber (see Appendix F);
OR timber (other than bushfire-resisting timber), particleb'd or plywood flooring where the underside is lined with sarking-type material or mineral wool insulation;
OR a system complying with AS 1530.8.1

7.4 EXTERNAL WALLS
Walls shall be one of the following-
Made of non-combustible material;
OR Made of timber or steel framed walls that are sarked on the outside and clad with-
fibre-cement external cladding, a min of 6 mm in thickness;
OR steel sheet; OR bushfire-resisting timber (see Appendix F);

7.5.1 BUSHFIRE SHUTTERS
Where fitted, bushfire shutters shall comply with Clause 3.7 and be made from-
non-combustible material;
OR bushfire-resisting timber (see Appendix F);
Where fitted, screens for windows and doors shall have a mesh, or perforated sheet with a maximum aperture of 2 mm, made from corrosion-resistant steel, bronze or aluminium. Gaps between the perimeter of the screen assembly and the building element to which it is fitted shall not exceed 3 mm.
The frame supporting the mesh or perforated sheet shall be made from-
metal; OR bushfire-resisting timber (see Appendix F).

7.5.2 WINDOWS
Window shall comply with one of the following:
Completely protected by a bushfire shutter that complies with Clause 7.5.1 OR
They shall comply with the following:

Window frames and joinery made from-
AND metal; OR bushfire-resisting timber (see Appendix F);
AND external opening hardware to be metal,
AND glazing shall be toughened glass min 5 mm
AND where glazing is less than 400mm above ground or decks ... shall be screened externally to comply with Clause 7.5.1A
AND operable portions shall be int. or ext. screened to comply with Clause 7.5.1A

7.5.3 & 7.5.4 EXTERNAL DOORS
Doors shall comply with one of the following:
Protected by a bushfire shutter that complies with CL 7.5.1
OR external screen that complies with CL 7.5.1A
OR doors shall be,

- non-combustible; or
- a solid timber door, min 35mm thick for 400mm above threshold; or
- a door, inc. hollow cores, protected by ext. screen that complies with CL 7.5.1A
- fully framed glazed door made from bushfire-resist materials
AND external opening hardware to be metal,
AND glazing shall be toughened glass min 5 mm
AND where glazing is less than 400mm above ground or decks ... shall be screened externally to comply with Clause 7.5.1A
AND metal; OR bushfire-resisting timber (see Appendix F);
AND Doors to be high-fitting with external weather strip at base.

7.5.5 GARAGE DOORS
Lower portion of doors within 400mm of ground when closed shall be made from non-combustible material, 6mm fibre cement sheet cladding or other bushfire resistant material.
Panel lift. Tilt doors or Side-hung doors shall be fitted weather strips, draught excluders, draught seals or guide tracks as appropriate with a max. gaps of 3mm.
Roller doors to have guide tracks with max. gaps of 3mm with nylon brush in contact with the door.
Ventilation slots not permitted.

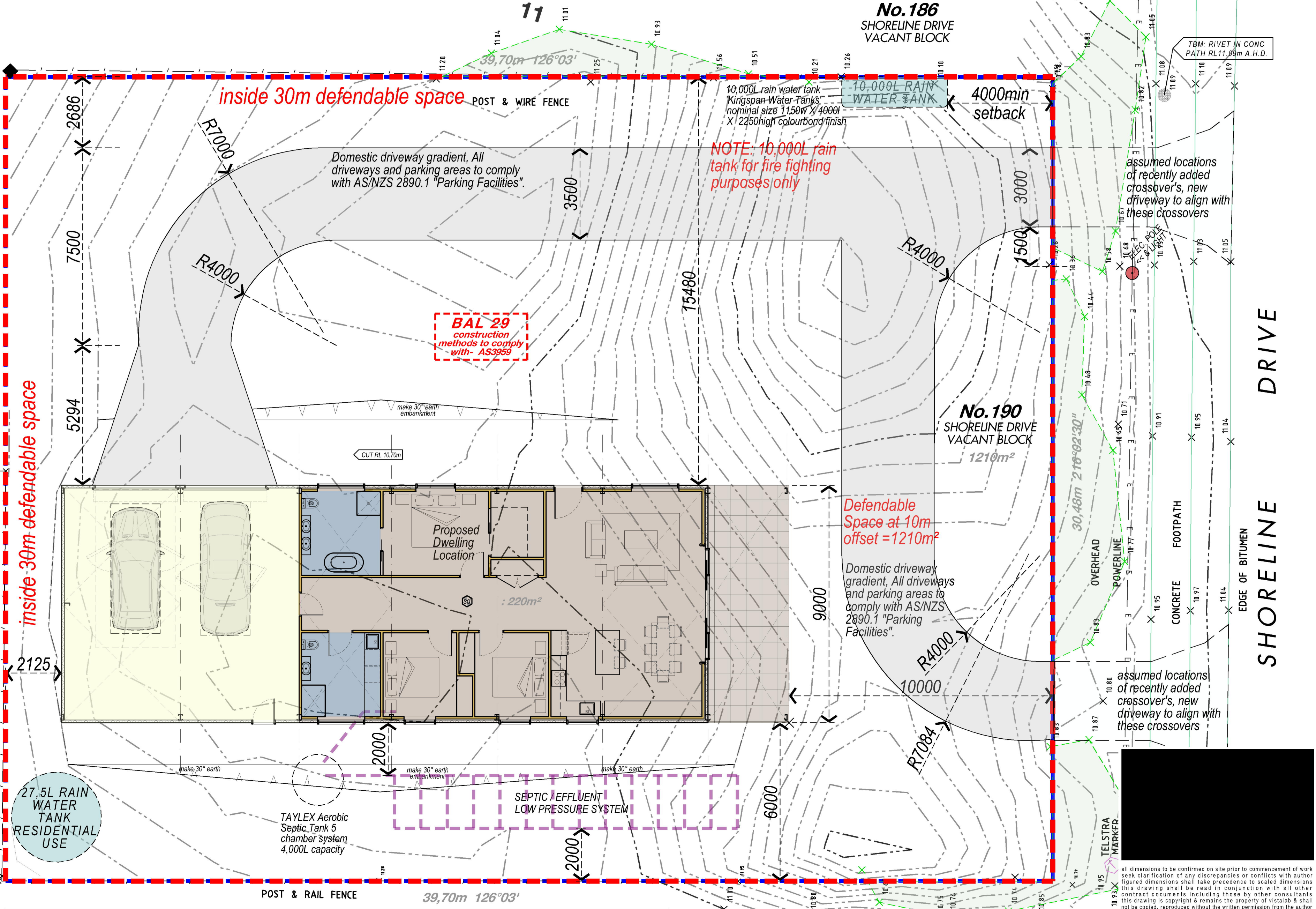
7.6 ROOFS
Non-combustible coverings, Roof / Wall junctions sealed, Openings & pipe work fitted with non-combustible ember guards, Roof fully sarked flammability index not more than 5

7.6.1 VERANDAS, CARPORTS AND AWNING ROOFS
to meet the requirements for the main roof, as spec' in Clause 7.6.1 to 7.6.6, and be separated from main roof by external wall to comply with Clause 7.4, and be non-combustible OR rafters lined with min 6mm FC sheet

7.6.5 ROOF PENETRATIONS
to be sealed to prevent gaps greater than 3mm.
Openings in vented roof lights, roof ventilators or vent pipes shall be fitted with ember guards made from mesh max. aperture 2mm, made from corrosion-resistant material

7.7.1 VERANDAS, DECKS, STEPS, RAMPS AND LANDINGS
Decking shall be laid without spacing between boards
(7.7.1 Spaced decking is nominally spaced at 3 mm (standard industry practice); due seasonal changes in moisture, spacing may range from 9-5 mm during service. The preferred dimension for gaps is 3 mm, studies have shown that gaps at 5 mm spacing afford opportunity for embers to become lodged in between timbers, which may contribute to a fire. Larger gap spacings of 10 mm may preclude this from happening but such a spacing regime may not be practical for a timber deck.
Bushfire-resisting timber is timber that is deemed to be acceptable to withstand exposure up to a BAL-29 condition

Standard trade name: Botanical name:
ASH, SILVERTOP Eucalyptus sieberi
BLACKBUTT Eucalyptus pilularis
GUM, RED, RIVER Eucalyptus camaldulensis
GUM, SPOTTED Corymbia maculata
Corymbia diuturna, Corymbia henryi
IRONBARK, RED Eucalyptus sideroxylon
KWILA (MERBAU) Intsia bijuga
TURPENTINE Syncarpia glomulifera



IMPLEMENTATION OF BUSHFIRE PROTECTION MEASURES

Mandatory Condition
The bushfire protection measures forming part of this permit or shown on the endorsed plans, including those relating to construction standards, defensible space, water supply and access, must be maintained to the satisfaction of the responsible authority on a continuing basis. The condition continues to have force and effect after the development authorised by this permit has been completed

a) Defendable Space
Defendable space is provided for a distance of 4.5 - 14.6m around the building or to the property boundary, whichever is the lesser and managed in accordance with the following:
- Grass must be short cropped and maintained during the declared fire danger period.
- All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
- Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building:
- Plants greater than 10 centimetres in height must not be placed within 3m of a window or glass feature of the building.
- Shrubs must not be located under the canopy of trees.
- Individual and clumps of shrubs must not exceed 5 sq. metres in area and must be separated by at least 5 metres.
- Trees must not overhang or touch any elements of the building.
- The canopy of trees must be separated by at least 2 metres between the lowest tree branches and ground level.
b) Construction Standard
Building designed and constructed to a minimum Bushfire Attack Level of BAL - 29
c) Water Supply
The following requirements apply:
- An effective capacity of 10,000 Litres
- Be stored in an above ground water tank constructed of concrete or metal.
- Have all fixed above ground water pipes and fittings required for firefighting purposes made of corrosion resistant metal.
- Include a separate outlet for occupant use.
- Where a 10,000 litre water supply is required, the following fire authority fittings and access must be provided:
- Be readily identifiable from the building or appropriate identification signage to the satisfaction of the relevant fire authority.
- Be located within 60 metres of the outer edge of the approved building.
- The outlets of the water tank must be within 4 metres of the accessway and unobstructed.
- Incorporate a separate ball or gate valve (British Standard Pipe (BSP) 65 millimetre) and coupling (64 millimetre CFA 3 thread per inch male fitting).
- Any pipework and fittings must be a minimum of 65 millimetres (excluding the CFA coupling).

d) Access
Access Required: No
Yes The following design and construction requirements apply:
- All-weather construction.
- A load limit of at least 15 tonnes.
- Provide a minimum trafficable width of 3.5 metres.
- Be clear of encroachments for at least 0.5 metres on each side and at least 4 metres vertically.
- Curves must have a minimum inner radius of 10 metres.
- The average grade must be no more than 1 in 1 (14.4%) (8.1") with a maximum grade of no more than 1 in 5 (20%) (11.3") for no more than 50 metres.
- Dips must have no more than a 1 in 9 (12.5%) (7.1") entry and exit angle.

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No. 192 SHORELINE DRIVE 1x DWELLING

PROPOSED SITE

dwg scale: 1:100@A2
1:200@A4
plot date: 21 Aug 2026
project date: JULY, '24
no. of dwgs: 04 of 10

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NOTE: slab-on-ground above external surfaces (freeboard) must be not less than 100mm in low rainfall or sandy, well drained areas; 50mm above paved areas sloped away; 150mm in any other case per ABCB HP Part 3.3.3 & NCC Vol.2 H2P1

NOTE: pliable building membrane, sarking-type installed to exterior side of stud frame to comply vapour permeance as outlined in AS4200 & ABCB HP Part 10.8.1 to have a minimum vapour resistance of Class4 passing AS4201

NOTE: finished ground level adjacent to building graded to give a slope not less than 50mm over the first 1m from building as per ABCB HP Fig 3.3.3a

PLAN LEGEND:

- ceiling exhaust fan - must have min flow rate of at least 25L/s to bath or sanitary compartment; and 40L/s to kitchen or laundry, discharged directly or via a shaft or duct to 'OUTDOOR AIR' in accordance with ABCB HP Part 10.8.2 with self-closing damper with 10min run-on timer where no natural ventilation in accordance with 10.6.2 (a)
- smoke detectors interconnected, to be ceiling mounted direct wired to mains power with battery backup located within 1.5m of bedroom doors, to be installed in accordance with ABCB HP Part 9.5.1 & AS3786
- floor waste to wet areas as required, note: builder to install selected floor waste to manufacturers specification
- * distances from toilet pan to door is less than 1.2m door is to open outwards, slide or readily removable from outside per ABCB HP Part 10.4.2
- ceiling propeller sweep fan

BUILDING MATERIALS

and colour scheme of external elements

- external wall cladding on Z purfins with colorbond mono cladding installed to manufacturers specification, internal stud frame for plasterboard
- timber stud wall internal framing plasterboard lined, framing size/thickness to engineers design / or to match existing walls
- roof cladding colorbond corrugated cladding with vapour barrier / underneath and roof insulation as per energy rating requirements

ROOF CLADDING /
CAPPING / FLASHING
+ GUTTERS + FASCIA
+ WINDOWS

colorbond
SURFMIST

DRIVEWAY concrete surface all-weather
sealcoat to surface

AREA ANALYSIS:

SITE AREA	1210m ²
VERANDAH	27.8m ²
GROUND FLOOR	139.5m ²
GARAGE	81m ²
TOTAL FLOOR AREA	220m ² or 23.7sq

SITE COVERAGE TOTAL	247.8m ²
% SITE COVERAGE	26.7%
HARD PAVING (DRIVEWAY)	230m ²
% HARD PAVING	19%
PERMEABILITY	732.2m ²
% PERMEABILITY	60%
PRIVATE OPEN SPACE	750m ²

NOTE: at slab edges, 150mm min. clear from underside of cladding adjacent permeable ground surfaces, or 50mm min. clear from u/side of cladding adjacent impermeable ground surfaces

TERMITE PROTECTION: chemical & physical barriers to comply with AS3660 in the form of termimesh to all new perimeter masonry walls, all concrete slab penetrations to be wrapped, refer also to general notes on cover sheet

NOTE: site shall be adequately fenced off during construction to prevent public access as required by Building Regulation 2018 Part 7 Section 116 Protection of the Public

STEEL NOTE: due to close proximity to bay/surf coast ensure that all steel work, brick cavity ties, steel lintels etc. that are embedded or fixed to masonry be protected in accordance with AS3700 (table 2.2), hot dipped-galvanised, stainless steel or cadmium coated as per ABCB HP Part 6.3.9

NOTE damp proof course and flashings 150mm above adjacent ground or 75mm above finished surface as per ABCB HP Part 5.7.3 & 5.7.4 & ABCB HP Fig 4.2.8 for Vapour barrier and damp-proof location also refer to NCC Part F1D6 & AS2904

GROUND FLOOR

7 STAR ENERGY NOTES:

- RSI ceiling insulation (plus antigrain sarking to underside metal roof)
- R2.5 batt external wall insulation in between studs and a vapour-permeable wgl wrap around studs NOTE (includes existing external walls, subject to RBS discretion)
- R2.5 batt insulation to dwelling walls-adjointing Garage
- R2.5 batt/bulk/blanket sub-floor insulation to existing (installed to manufacturers specifications) NOTE (includes existing sub-floor, subject to RBS discretion)
- All exhaust fans are self-sealing type including (XLL's, range-hoods)
- NOTE (may include existing recessed downlights, subject to RBS discretion)
- All recessed downlights are to be sealed (either by type of fitting or approved cover)
- Downlights to be IC rated (insulation abutted & covered)
- NOTE (may include existing recessed downlights, subject to RBS discretion)
- All external doors, windows, gaps, cracks, plumbing penetrations etc are to be sealed
- All wall vents to be sealed/plastered over NOTE (may include existing recessed downlights, subject to RBS discretion)
- Aluminium window & glass door frames - Double-glaze and/or: Total U-Value: 3.69 SHGC: 0.50 To all new windows and glass doors

WHOLE OF HOME (WoH) ASSESSMENT:

Where appliance or systems are unavailable, not specified or client unknowns, default values have been incorporated, as per NATHERS Technical Note Version 20230929, Section 12, Table 2

- Heating & Cooling:
 - Mitsubishi PEAM254YKIT 24.5kW Ducted Air Conditioner
 - Indoor Unit: PEA-M254LAA / Outdoor Unit: PUZ-2M254YKA
 - Rating: TCSPF Cooling: 4.40
 - Rating: HSPF Heating: 3.40

- Water Heating:
 - Hot Water system is unknown, this default setting has been input for the Whole of Home assessment
 - Gas storage hot water system

- Plug-in Loads Cooking Loads:
 - Induction cooktop
 - Electric oven

- Lighting:
 - 5W/m2

- Pools & Spas:
 - Pool & spa systems are unknown, one of these default settings has been input for the Whole of Home assessment where a pool or spa has been shown on the design documentation:
 - Volume: unknown, input surface area (4.41m2)
 - Pump Type: unknown
 - Star Rating:
 - Single speed 1 star

- On-site Renewable Energy:
 - System size: 13.5kW PV Solar Panel System
 - 18° roof pitch, array divided between 0° & 270° azimuths
 - Inverter capacity: 10.12kW (Total system size (kW) x 0.75)

- On-site Energy Storage:
 - Where battery technology type and size are not known, the energy storage cannot be included
 - Battery storage not specified

CONCRETE FOOTPATH

EDGE OF BITUMEN

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NEW DWELLING AT
190 SHORELINE DRV GOLDEN BEACH
TOWN PLANNING

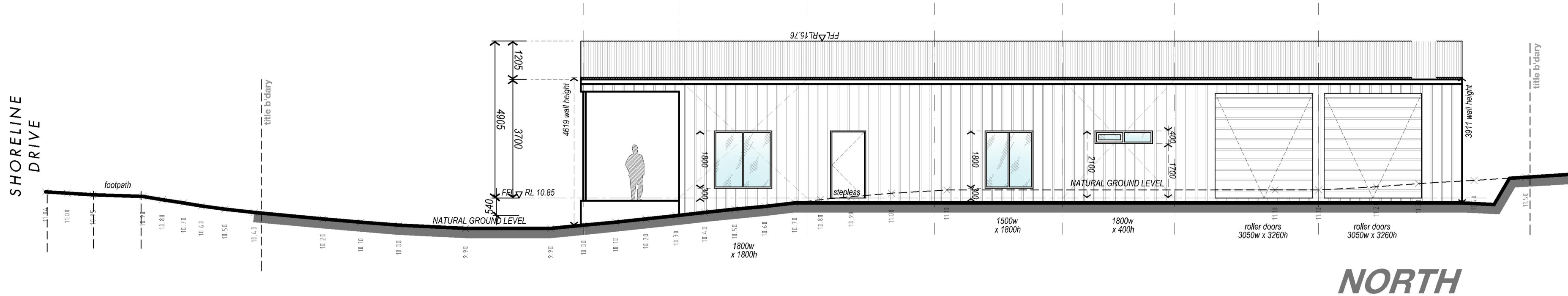
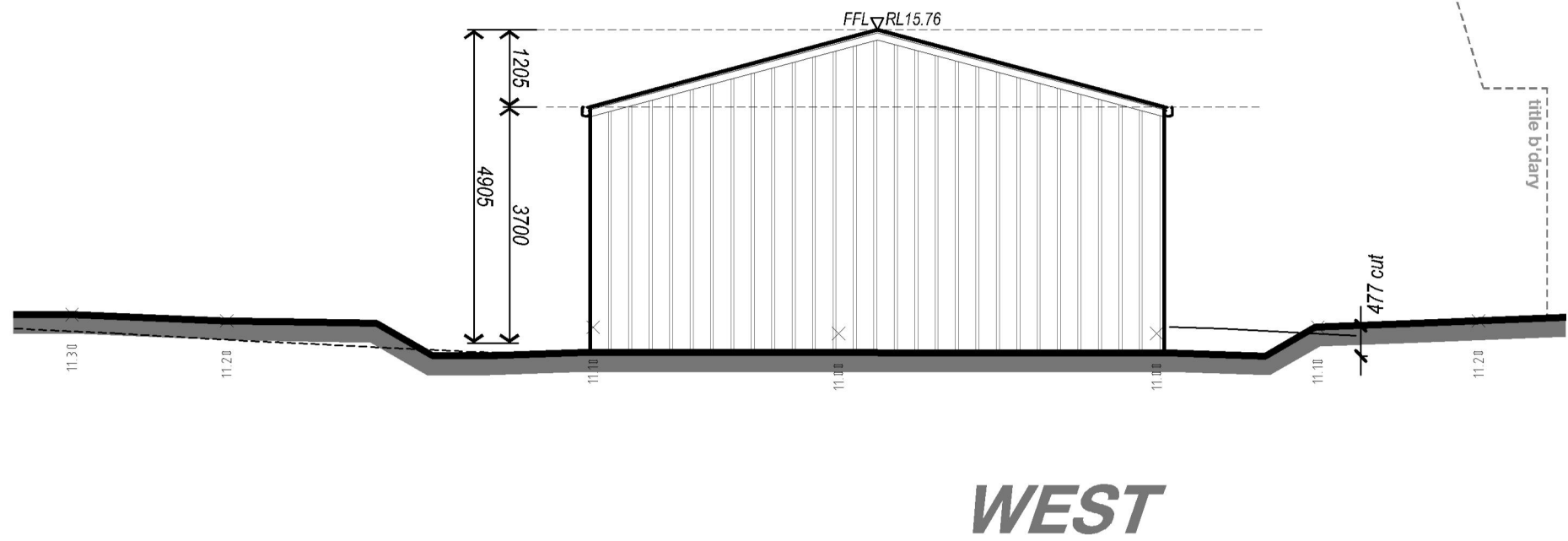
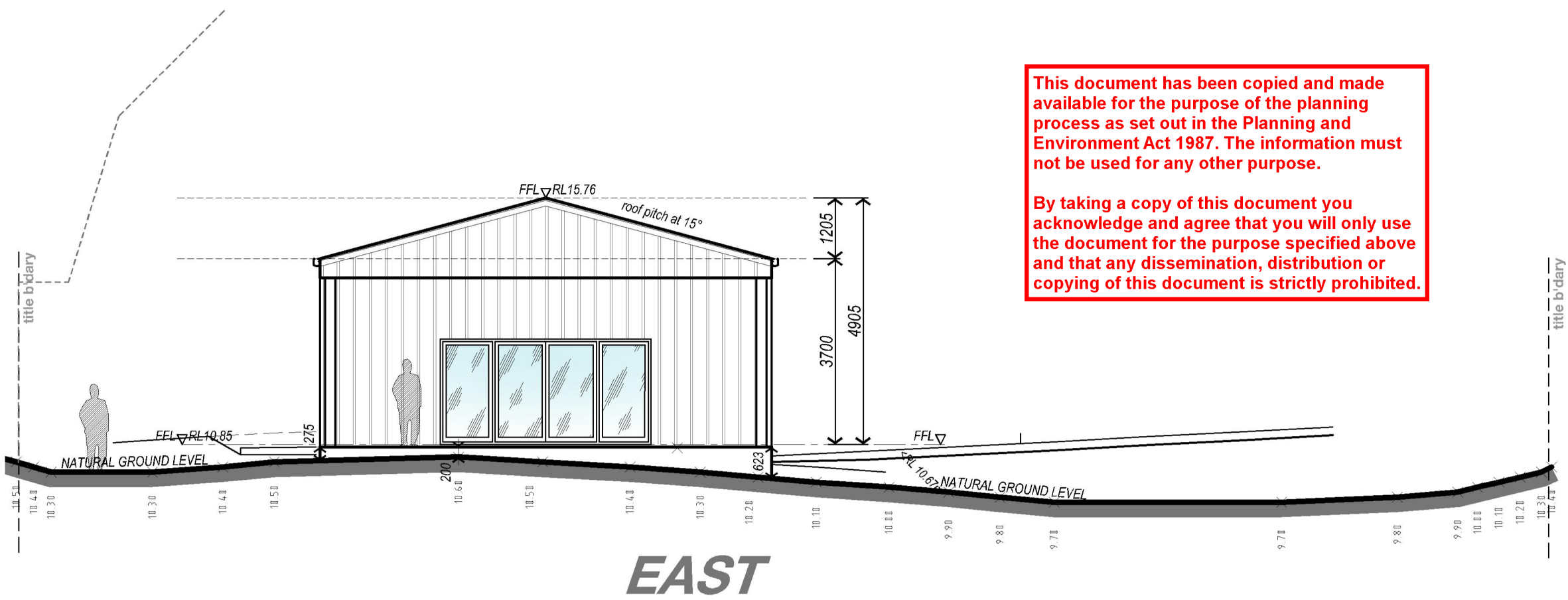
FLOOR PLANS

dwg scale: 1:100@A2
1:200@A4
plot date: 21 Aug 2026
project date: JULY, '24
no. of dwgs: 05 of 10

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BUILDING MATERIALS

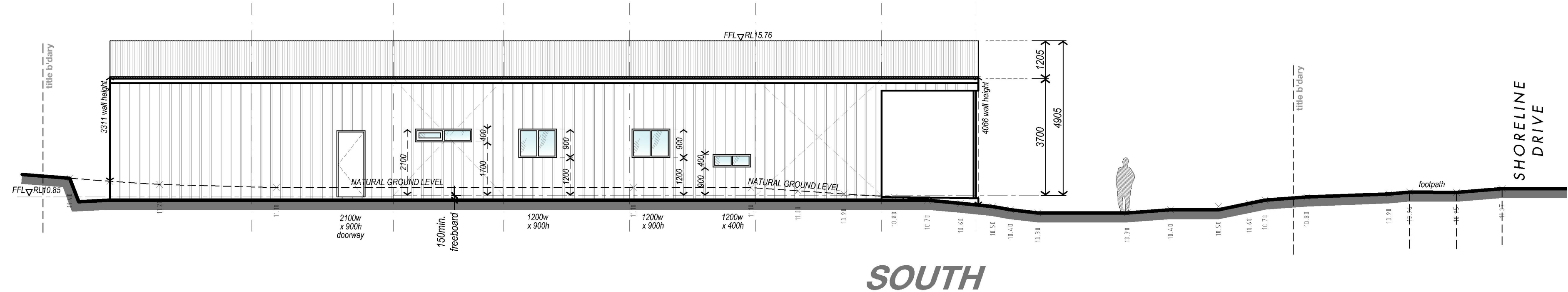
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ROOF CLADDING / CAPPING / FLASHING + GUTTERS + FASCIA + WINDOWS

colorbond SURFMIST

DRIVEWAY concrete surface all-weather sealcoat to surface



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seek clarification of any discrepancies or conflicts with author
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NEW DWELLING AT
190 SHORELINE DRV GOLDEN BEACH
TOWN PLANNING

ELEVATIONS
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1:200@A4
plot date: 21 Aug 2026
project date: JULY, '24
no. of dwgs: 08 of 10

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