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STRUCTURAL DESIGN CERTIFICATE

Project details

STA Project Reference: CE195281

Project Description: Bayside Gate Frames Standard Concrete Sleeper Retaining Wall Range

Compliance

I can verify that STA Consulting Engineers has carried out a structural design for concrete sleeper retaining walls as detailed in the drawings listed below (*Table 1*) and certify that these parts of the design comply with the following Australian Standards and Building Regulations;

AS1170.0:2002, AS 1170.1:2002, AS 1170.4-2007, AS4055-2012, AS 4100:1998, AS 3600:2018, AS 4678:2002

Note: STA's Design and certification will exclude any items not listed above and all comments and assumptions listed below should be considered by a suitably qualified person.

Table 1: Referenced Drawings

Drawing Description	Dwg No.	Drawing Date	Revision
1. Construction Notes	S01 & S02	13/03/2023	5
2. 65mm Concrete Sleeper Details	S10	20/10/2023	7
3. 75mm Concrete Sleeper Details	S20-S22	13/03/2023	5
4. 100mm Concrete Sleeper Details	S30-S32	13/03/2023	5
5. Column & Welded Reinforcement Bar Retaining Wall Details	S40-S46	13/03/2023	5
6. Typical Retaining Wall Details	S50, S51	13/03/2023	5

Design certification is based on the following Notes:

1. 50-year structural lifespan
2. Retained soil is free draining and the water table is below the underside of the cantilever posts.
3. Ground surface in front of wall to have maximum slope of 1:4 (~14° degrees) for the first metre away from wall.
4. Ground surface above the wall to have maximum slope of 1:4 (~14° degrees).
5. Maximum allowable live load surcharge is 5 kPa.
6. Unless otherwise stated, the base founding material to have load bearing capacity of 75kPa for non-cohesive and 150kPa for cohesive soils or greater. (Refer bore log for approximate founding level)

7. Assumed retained soil unit weight and soil friction angle are:
    - Cohesive (Stiff Clay) - $18kN/m^3$ & 23°
    - Non-cohesive (Dense Sand) – $18.5kN/m^3$ & 35°
8. Concrete cover to reinforcement 30mm.
9. Classes A1, A2, B1 Concrete strength 40MPa based on below assumption (Inland – greater than 50km from coastline, Near-Coastal - between 1km to 50km from coastline, Industrial and Tropical Zones)
10. No excavation shall be carried out within 1.5m of base of wall.
11. No excavation or additional surcharge (other than surcharges nominated in the design) shall be carried out or placed within the zone of influence of the retaining wall (s). STA does not accept any responsibilities of the wall integrity being compromised as a result of such acts.
12. Drainage & free draining material with geofabric to be installed behind wall.
13. No highly or extremely reactive material is to be used in the back fill zone & no clay or sand can be used in the drainage zone.
14. Regular monitoring of walls to be carried out including :-
    - Regular visual inspection
    - Inspections after floods & earthquakes
    - Basic monitoring of lateral deflection
    - Refer to specific retaining wall notes for signs to watch for.
15. Site specific engineering and building approvals to be obtained as required by local authority requirements. This certificate does not constitute a site specific assessment and may not take into account all site features present that may impact the design. This should be assessed by a suitably qualified person to ensure suitability.

If you require any further information please do not hesitate to contact the undersigned.

Signed: Digitally signed by STA Consulting Engineers DN: c=AU, st=Queensland, l=Brisbane, o=STA Consulting Engineers, cn=STA Consulting Engineers, email=bookings@staconsulting.com.au Date: 2023.10.25 15:02:16 +10'00' Date: 25/10/2023

Paul Wisowaty

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Senior Structural Engineer