Arboriculture Report

Arboricultural Method Statement (AMS) & Tree Protection Plan (TPP)

Draft 2 (for basic feedback)
23 Nov 2023

Client:
Example

Contact: Example

Site Location:
17.5 Acre Compound

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Introduction

Refer to "*Tree Survey Report and AIA Example 17.5 acre plot*" for data used in the formulating of this Arboriculture Method Statement and Tree Protection Plan.

Reason for the Tree Protection Plan (TPP) and the Arboriculture Method Statement (AMS):

- To prevent damage to the trees to be retained.
- To be provided together to the engineer and contractor as an onsite reference.

This is a preliminary draft. A dialogue between all parties should occur to ensure that all recommendations are feasible before a final version is prepared and accepted.

Main points to address between all parties:

1. Phasing,
2. Access requirements and do they vary at different times of construction phases.
3. Width, locations and construction type of permanent access routes.

Refer to the Tree Protection Plan for an illustration of the areas to be protected.

As the project arborist, I will visit, as necessary, to advise on emerging tree related issues. Fees for this service will be additional.

Responsibilities

It will be the responsibility of the site supervisor:

- To ensure that a monitoring regime regarding tree protection is adopted on site.
- For contacting the site arborist at any time issues are raised related to the trees on site.
- To ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes.
- For ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

Tree protective measures (fences and ground protection) will remain in position until completion of **ALL** construction works on the site, including landscaping, unless adjusted in consultation with the site arborist. They will be checked on a regular basis by an on-site person designated with that responsibility.

General Details

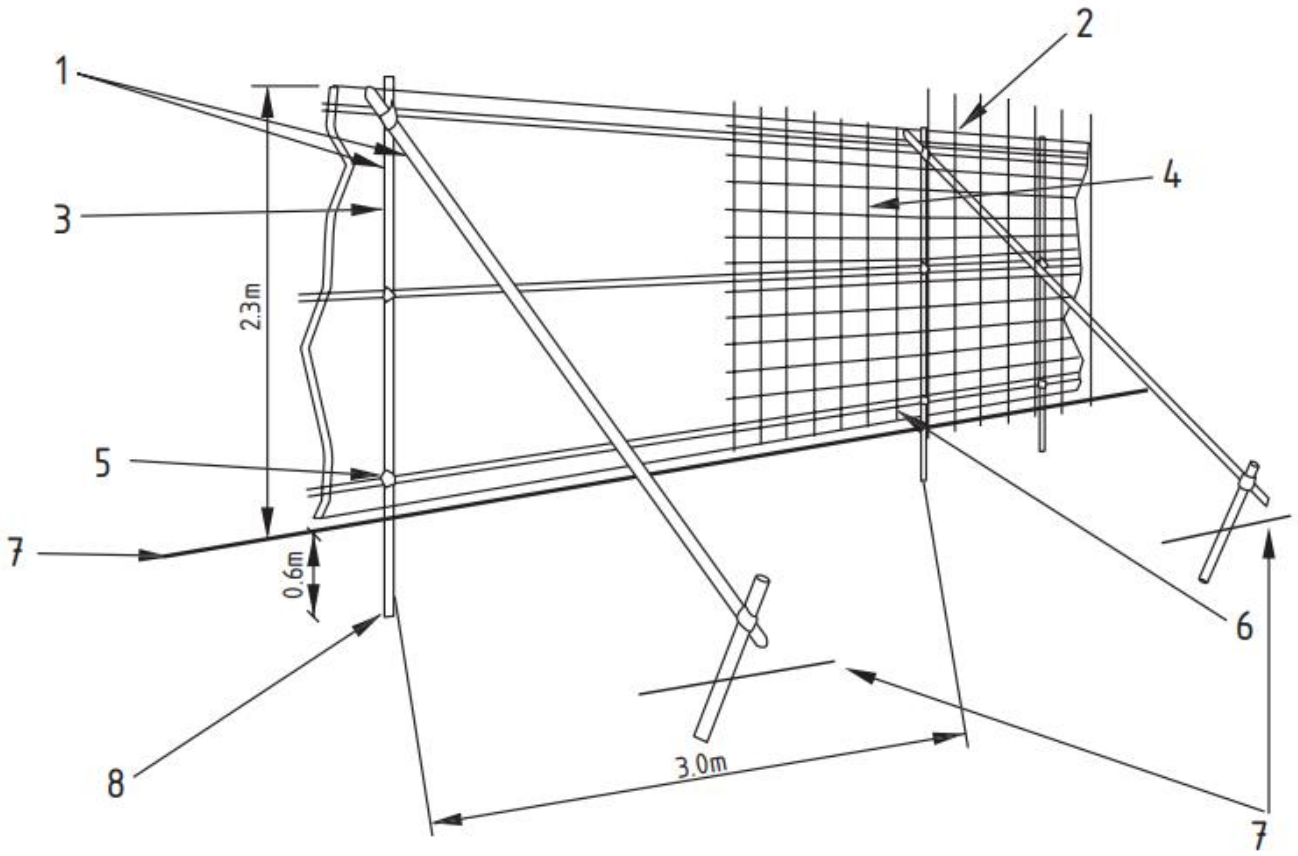
Locations of tree protection measures are all illustrated on the Tree Protection Plan (last page of this report).

Construction Exclusion Zones (CEZ):

No personnel, machinery or storage of materials is permitted within any **Construction Exclusion Zone.** Only with arborist consent can any encroachment into this zone be permitted.

CEZs are to be protected using sturdy fencing materials locally available. The fencing layout is depicted on the Tree Protection Plan (Appendix 1 & 2). The fencing materials will remain in place until signed off by the project arborist.

Fencing on the perimeter may not be required where the wall is sufficient to keep people out, but it has been illustrated on the plan to ensure that the trees are protected in all directions.



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6 m driven into the ground

Figure 1: Example protective fence

Access

All access for construction vehicles will be from the southeast of the property. Recommended access routes have been plotted on the TPP.

No Dig Zone

Anywhere that ground protection is required and is illustrated on the TPP is a no dig zone. No excavation is to occur within this area except with the consent of the site arborist.

Access encroachment into the Root Protection Area (RPA)

Where any surface is to be accessed within the RPA of any trees, ground protection will be employed.

The ground protection will comprise one of the following:

1. **For pedestrian movements only**, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

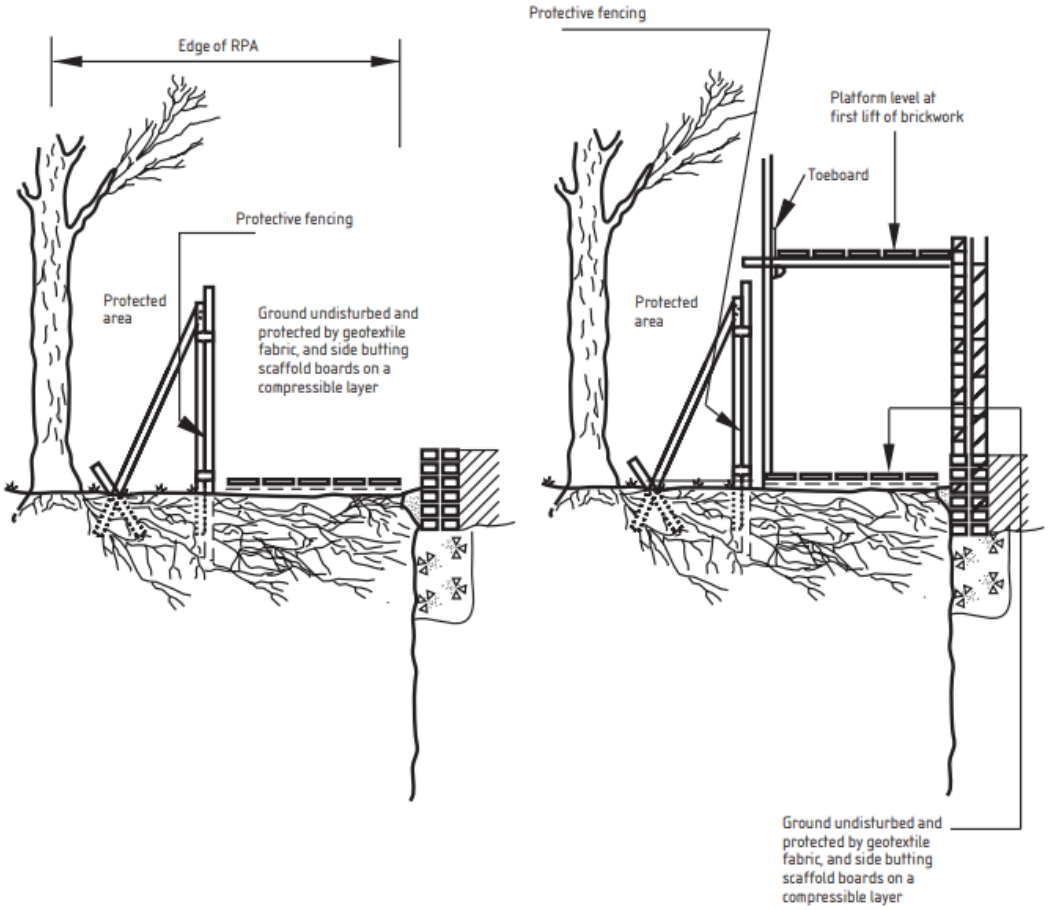
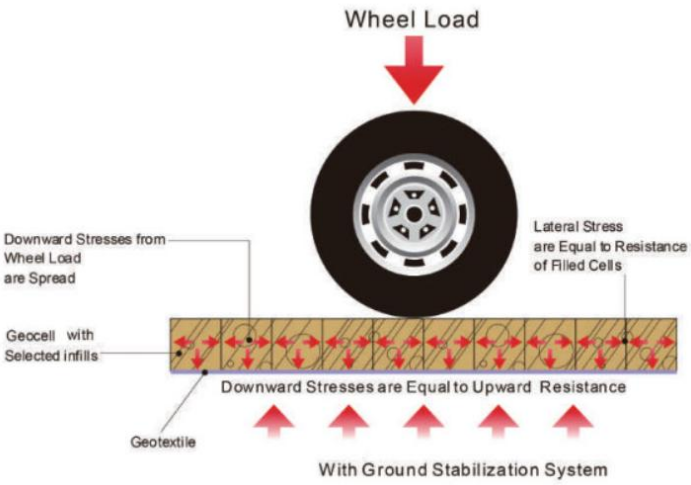


Figure 2: Example fencing setup within RPA

2. **For pedestrian-operated plant up to a gross weight of 2 t**, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

3. **For wheeled or tracked construction traffic exceeding 2 t gross weight**, an alternative system (e.g. proprietary systems such as Geocell or pre-cast reinforced concrete slabs) to an engineering specification designed in



Figures 3 and 4: Examples of Geocell technology (available in India)

Figure 5: Example of permanent tarmac using Geowebb or similar. Exposed Geowebb is only there to show that it is present but would normally be covered/under the road.

conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected. This can be a permanent installation (figure 5).

Construction personnel vehicle parking

To be determined

Site Offices and Toilets

To be determined

Storage Space

To be determined

Underground encroachment into the Root Protection Area (RPA):

Where it is unavoidable to encroach into the RPA for construction requirements. I recommend first to ascertain the location and extent of root systems by digging with an excavator up to the estimated RPA under the constant supervision of the on-site arborist. From there, based on whether roots are present or not, excavating cautiously (a foot at a time) until roots are found. Once roots are found and based on the recommendations of the on-site arborist, it can be determined up to where digging can occur (by hand tools) and what roots need pruning, if any.

An impermeable liner is to be employed when concrete is used within the RPA to prevent contamination of leachate from cement to the roots to be retained.

Jute sacks or similar, kept humid, are to be used to cover temporarily exposed roots to prevent their dessication.

For laying of services/utilities within an RPA trenchless options or a pneumatic excavator such as an *Airspade* are recommended. This can enable services/utilities to be laid under the roots of a tree, in consultation with the site arborist.

Figure 6: Airspade used to dig around tree roots.

Figure 7: The result after using a pneumatic excavator.

Specific Procedures and Phasing of Works (Recommendations)

1. **Access route locations and specifications for material and building method finalized. Consider: permeable materials such as pavers and/or Geocell, as mentioned below for permanent access installations.**
2. **Utilities/services locations finalized.**
3. **Site visit by arborist.**

   To identify locations requiring required pruning works to trees that may be affected by access (height and width) and construction requirements.

   To specify these tree work requirements.

   To meet with the site manager(s) to ensure understanding and agreement of tree protection measures and resolve any issues.
4. **Tree works are carried out.**
5. **Installation of tree protection measures (fencing and ground protection)**

   No machinery to encroach unto tree RPAs. Ground protection to be installed first. Install ground protection closest to main entrance first and then move farther in as the work progresses. Fencing to be installed in parallel.
6. **Construction of main access routes**
7. **Demolition of existing structures (to improve access for transplantation of trees)**

   Following section 7.3 of the BS5837:2012, demolition will be carried out using a top-down method, where the existing slab is retained to allow the movement of

small plant on it. Remove slabs farthest from access routes first and then work backwards towards the access routes.

Where appropriate, leave below ground structures in place if their removal will cause excessive Root Protection Area disturbance (to be discussed if significant roots (>10cm dia) are found).

8. **Transplantation of trees**

   New locations for the trees to transplant should be identified and ideally moved to these locations prior to any construction.

9. **Demolition and construction of the boundary walls**

   Near trees, a supervisor is to be always present. The top of the wall is to be removed by machine if possible. Should any significant roots (>10cm dia) be found, hand digging is recommended. Ideally, reuse the existing footings for the wall. Should the foundations/footings need to be extended downwards or laterally, reassessment on site is to be carried out (by the site arborist) if significant roots could be impacted.

   Where fencing would be too restrictive for wall removal, this is to be communicated to the site arborist for re-evaluation.

10. **Construction of new structures**
11. **Reassess tree protection measure requirements for landscaping**
12. **Landscaping and small accessway construction**
13. **Removal of tree protection measures (fencing and ground protection)**

Other considerations:

No storage of materials, lighting of fires will take place within any Construction Exclusion Zone.

No cement mixing or storage of materials will take place up a slope where they may leak into a CEZ.

No fires will be lit within 20 metres of any tree stem and will take into account fire size and wind direction so that no flames come within 5m of any foliage.

No notice boards, cables or other services will be attached to any tree.

Materials which may contaminate the soil will not be discharged within 10m of any tree stem.

No change of grade within a CEZ.

Care must be taken with machinery taller than tree protection fences, such as cranes, to ensure that they do not damage trees during operations. Banksmen to be present during operations.

Trees subject to statutory controls:

Work to trees on this site may be subject Forest Department or the Local Planning Authority authorization.

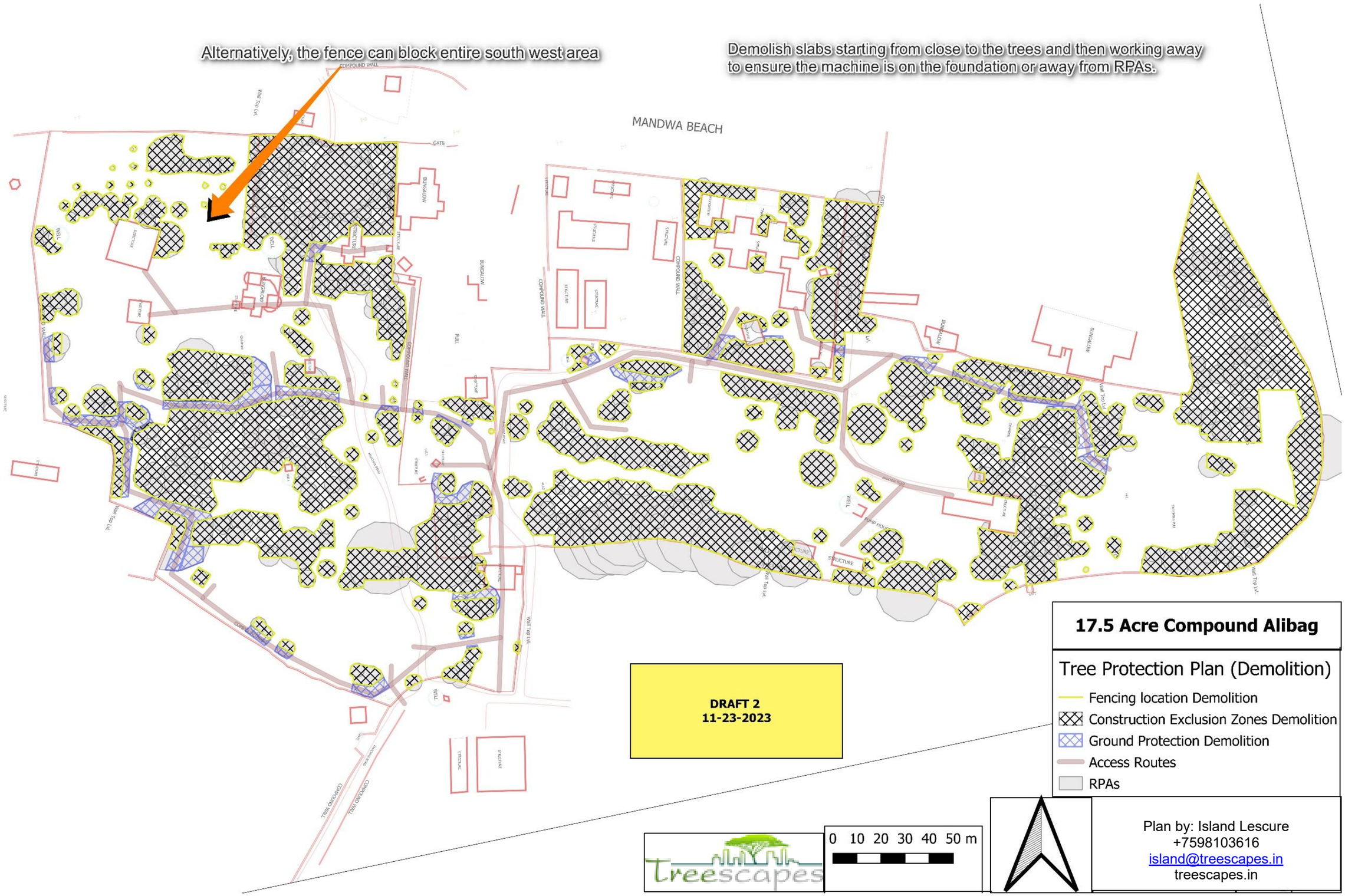
Acronyms used:

- **RPA**: Root Protection Area
- **CEZ**: Construction Exclusion Zone
- **AIA**: Arboricultural Impact Assessment
- **AMS**: Arboricultural Method Statement
- **TPP**: Tree Protection Plan

References

- BS 5837 (2012) *Trees in relation to design, demolition and construction – Recommendations*, BSI www.shop.bsigroup.com/
- AS 4970 (2009) (Incorporating Amendment No. 1) Protection of trees on development sites www.standards.org.au/
- BS 8545 (2014) *Trees: from nursery to independence in the landscape – Recommendations*, www.shop.bsigroup.com/
- BS 3998 (2010) *Tree work – Recommendations*, BSI www.shop.bsigroup.com/
- *Trees in the Townscape: A Guide for Decision Makers*, published by the Trees & Design Action Group http://www.tdag.org.uk/
- *Trees in Hard Landscapes: A Guide for Delivery*, published by the Trees & Design Action Group www.tdag.org.uk/
- National Joint Utilities Group (2007) Volume 4, Issue 2: *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees* www.njug.org.uk/publications/

Appendix 1 - Tree Protection Plan during demolition (DRAFT)



Appendix 2 - Tree Protection Plan (Construction) (DRAFT