PARTICULAR SPECIFICATION PS.G18

Preservation and Protection of Existing Trees

Particular Specification for Preservation and Protection of Existing Trees

General

1. This Particular Specification shall be read in conjunction with Section 25 – Landscape Work of the General Specification for Building 2007 Edition (GS). Where this Particular Specification conflicts with the GS, this Particular Specification shall take precedence.

Protection from physical damage and soil compaction by construction activities

2 GS Clause 25.69.3(a) is deleted and replaced by the following:

25.69.3(a) The Contractor shall erect, secure and maintain in good condition temporary protective fencing to protect the preserved trees. Details of the temporary protective fencing are shown in Drawing No. TP1 attached to this Particular Specification. The Contractor shall submit method statements including construction details to the SO for approval and obtain such approval before commencing the erection of the protective fencing.

Temporary protective hessian armouring

3. GS Clause 25.69.3(f) is deleted and replaced by the following:

25.69.3(f) The Contractor shall provide temporary protective hessian armouring around tree trunks to protect the preserved trees. When instructed by the SO, the Contractor shall provide temporary protective hessian and plank armouring as an alternative to the same trees for enhanced protection. Details of the temporary protective hessian armouring and hessian and plank armouring are shown in Drawing No. TP2 attached to this Particular Specification.

Temporary protective mulching

4. GS Clause 25.69.3(g) is deleted and replaced by the following:

25.69.3(g) Unless otherwise agreed by the SO, the ground of the TPZ(s) of the trees referred to in Clause 25.69.3(f) shall be protected from damage by construction activities through the use of temporary protective mulching. When instructed by the SO, double, overlapping, thick metal sheet coverings, or other materials of equivalent strength as agreed by the SO, shall be laid on top of the temporary protective mulching to provide additional protection from soil compaction due to passage or parking of vehicles or operation of equipment or machinery. Details of the temporary protective mulching are shown in Drawing No. TP3 attached to this Particular Specification.

Protection from changes in ground levels

5. GS Clause 25.69.4(b)(i) is deleted and replaced by the following:

25.69.4(b)(i) construct a retaining wall as shown in Drawing No. TP4 attached to this Particular Specification or similar measures as agreed by the SO to accommodate the reduction in the existing ground level around the tree,

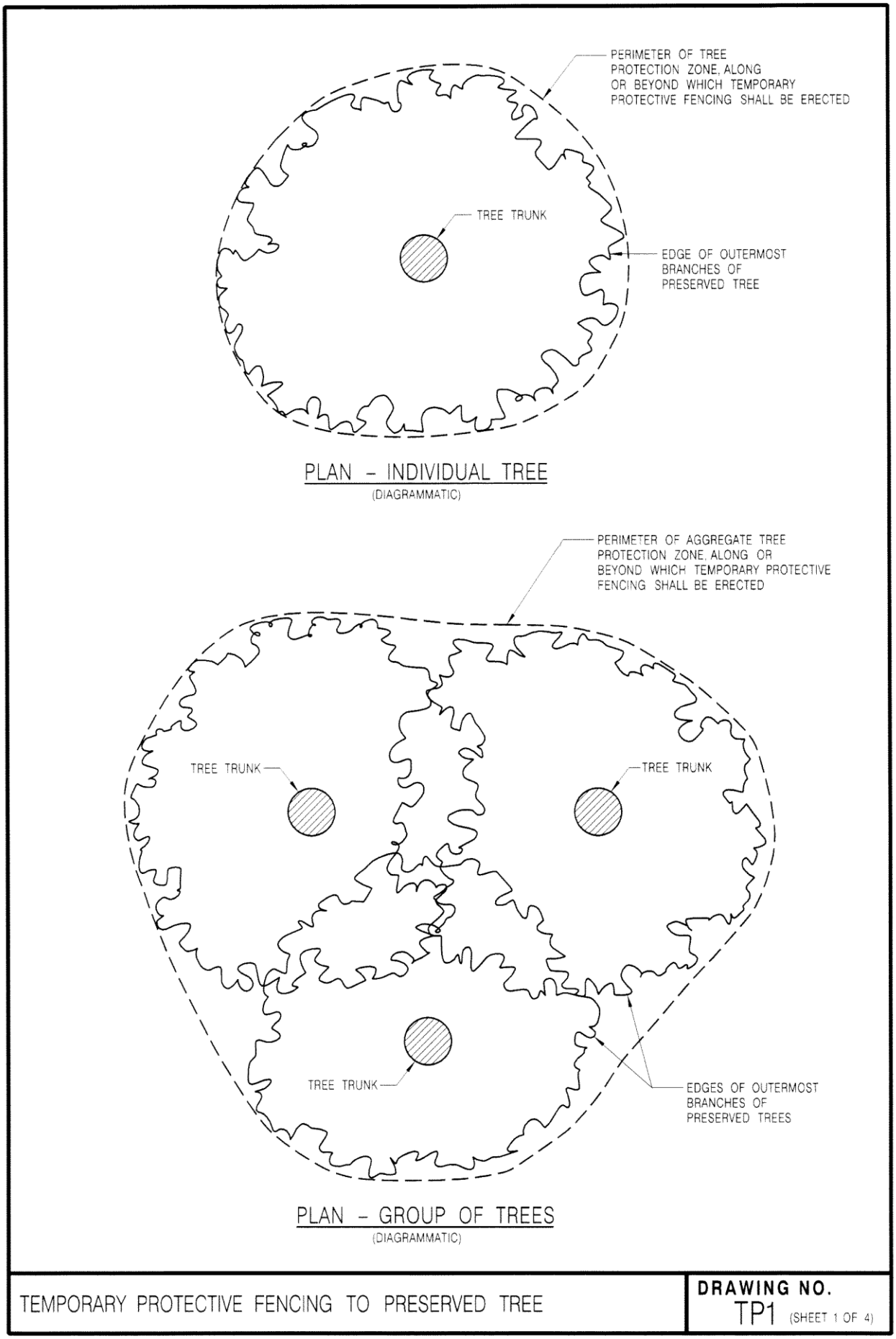
GS Clause 25.69.4(c)(i) and (ii) are deleted and replaced by the following:

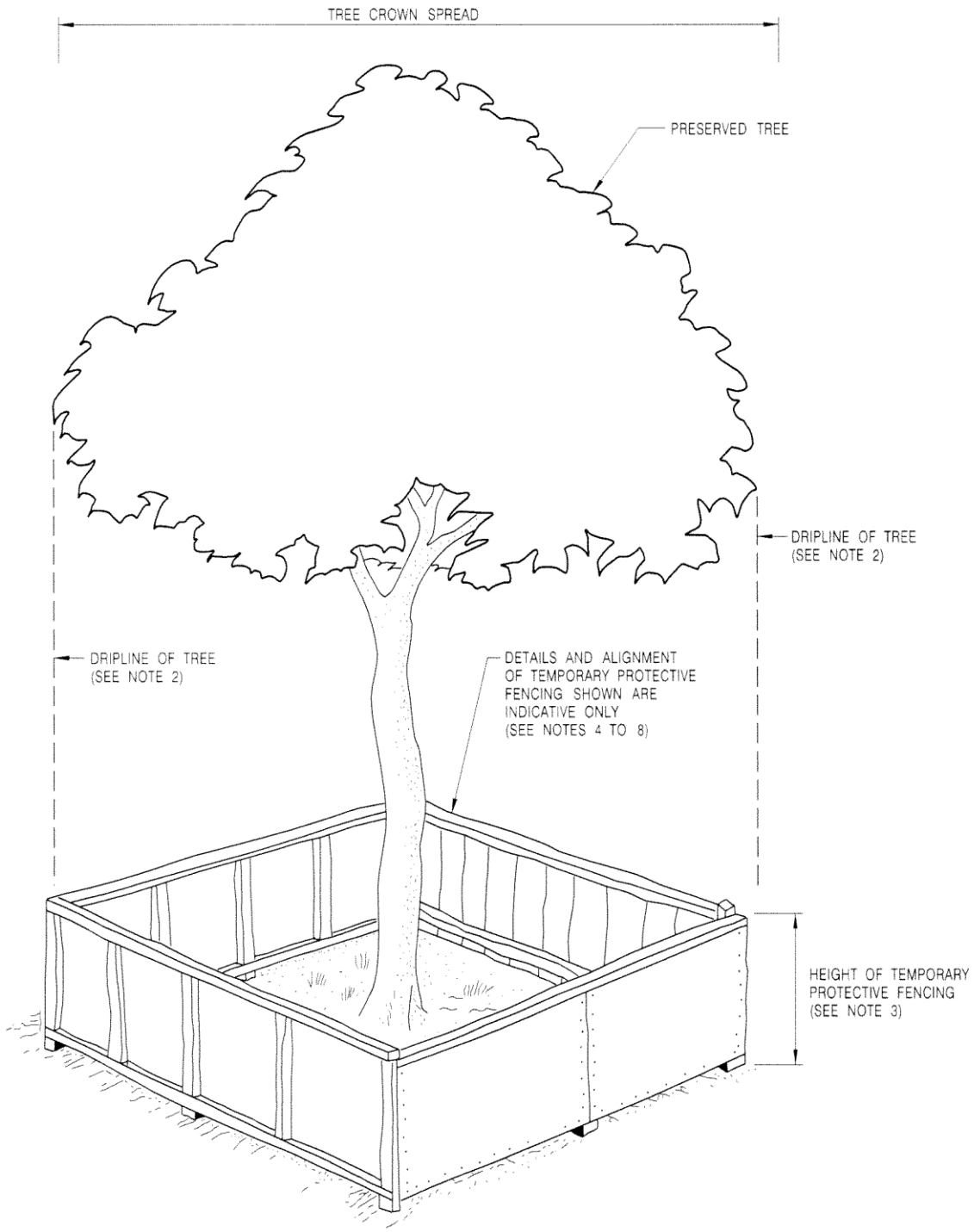
25.69.4(c)(i) construct a dry well and soil aeration system as shown in Drawing No. TP5 attached to this Particular Specification or similar measures as agreed by the SO to accommodate minor to moderate rise of up to 300 mm in the existing ground level around the tree,

25.69.4(c)(ii) construct a dry well and soil aeration system as shown in Drawing No. TP6 attached to this Particular Specification or similar measures as agreed by the SO to accommodate major rise of more than 300 mm in the existing ground level around the tree,

Protection from excavation including trenching

6. Replace "excavate the trench on the paved side of the tree if one exists, or tunnel the service in the manner and as shown in BS 5837 close to the tree trunk on one side:" in GS Clause 25.69.5(d) with "excavate the trench on the paved side of the tree if one exists, or tunnel the service in the following manner and as shown in Drawing No. TP7 attached to this Particular Specification close to the tree trunk on one side:".

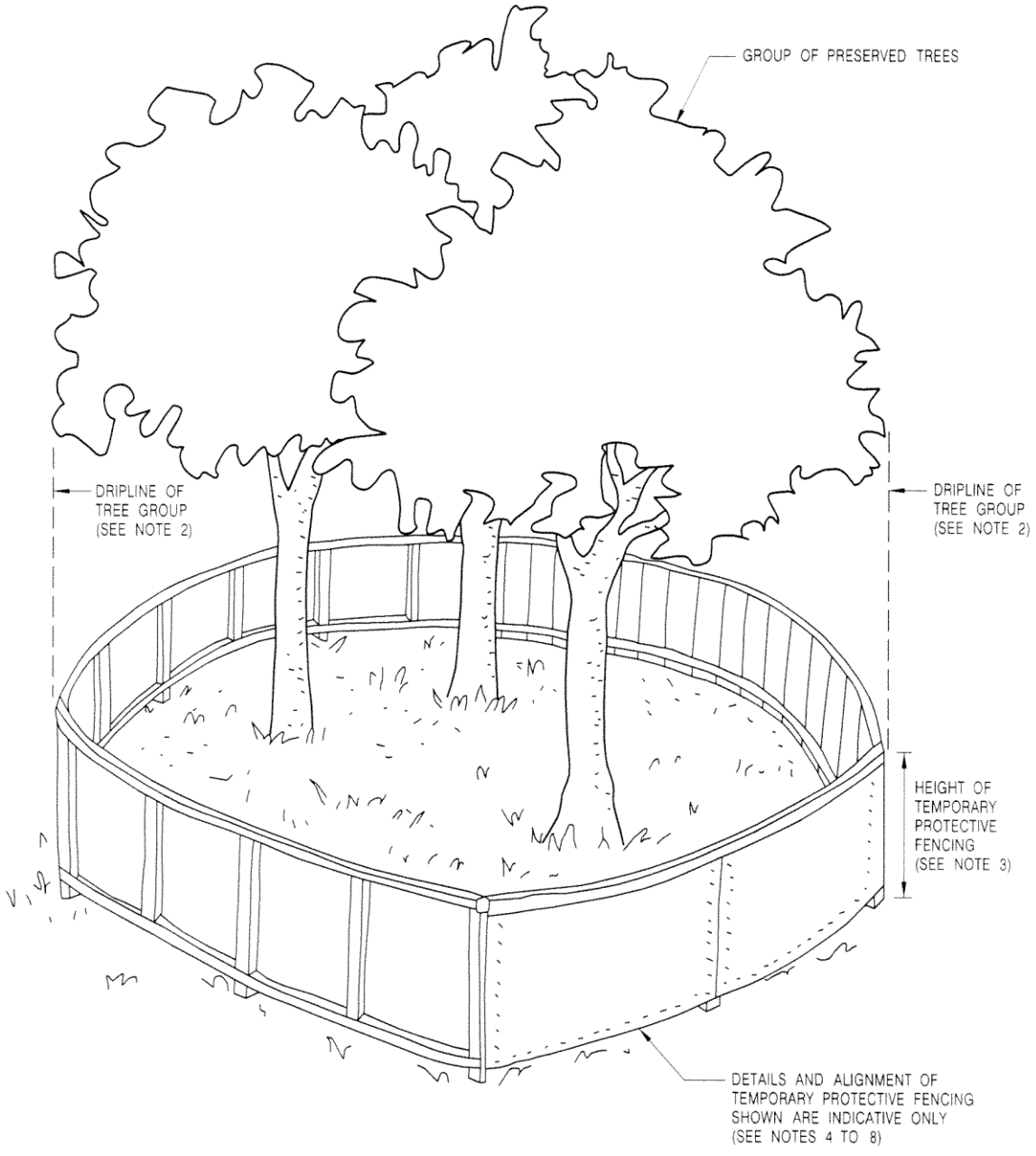

PERIMETER OF TREE PROTECTION ZONE, ALONG OR BEYOND WHICH TEMPORARY PROTECTIVE FENCING SHALL BE ERECTED
TREE TRUNK
EDGE OF OUTERMOST BRANCHES OF PRESERVED TREE
PLAN – INDIVIDUAL TREE
(DIAGRAMMATIC)
PERIMETER OF AGGREGATE TREE PROTECTION ZONE, ALONG OR BEYOND WHICH TEMPORARY PROTECTIVE FENCING SHALL BE ERECTED
TREE TRUNK
TREE TRUNK
TREE TRUNK
EDGES OF OUTERMOST BRANCHES OF PRESERVED TREES
PLAN – GROUP OF TREES
(DIAGRAMMATIC)
TEMPORARY PROTECTIVE FENCING TO PRESERVED TREE
DRAWING NO.
TP1 (SHEET 1 OF 4)



PERSPECTIVE – INDIVIDUAL TREE

(DIAGRAMMATIC)

TEMPORARY PROTECTIVE FENCING TO PRESERVED TREE	DRAWING NO. TP1 (SHEET 2 OF 4)



PERSPECTIVE – GROUP OF TREES

(DIAGRAMMATIC)

TEMPORARY PROTECTIVE FENCING TO PRESERVED TREE	DRAWING NO. TP1 (SHEET 3 OF 4)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. DRIPLINE OF *TREE / TREE GROUP EXTENDS TO THE OUTERMOST BRANCHES OF THE *TREE / TREE GROUP, DEFINING THE PERIMETER OF THE *TREE PROTECTION ZONE / AGGREGATE TREE PROTECTION ZONE.

3. HEIGHT OF TEMPORARY PROTECTIVE FENCING SHALL BE 1500 MINIMUM, BUT THE REQUIRED HEIGHT SHALL BE DETERMINED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER WHEN APPROVING THE CONSTRUCTION DETAILS OF THE FENCING AS REFERRED TO IN NOTE 8.

4. TEMPORARY PROTECTIVE FENCING SHALL BE STRONG AND APPROPRIATE FOR RESISTING THE IMPACTS OF CONSTRUCTION ACTIVITIES ON THE SITE. IT SHALL BE MADE OF ROBUST MATERIALS AND SHALL COMPRISE A VERTICAL AND HORIZONTAL SCAFFOLDING FRAMEWORK, WELL BRACED AND SUPPORTING **CHAIN LINK FENCING / STEEL SHEET FENCING, OR OTHER FENCING AS APPROVED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER. ONLY IN EXCEPTIONAL CIRCUMSTANCES SHALL PLASTIC WEBBING BE CONSIDERED.

5. THE ALIGNMENT OF TEMPORARY PROTECTIVE FENCING CAN BE IN CIRCULAR, SQUARE, RECTANGULAR OR ANY OTHER SHAPE SO LONG AS THE FENCING INCLUDING ITS FOUNDATIONS DOES NOT ENCROACH INTO THE TREE PROTECTION ZONE.

6. A LOCKABLE GATE SHALL BE PROVIDED TO THE TEMPORARY PROTECTIVE FENCING TO ALLOW ENTRY FOR CARRYING OUT THE NECESSARY ARBORICULTURAL WORKS OR MAINTENANCE WORKS TO THE TREE OR ANY OTHER APPROVED WORKS WITHIN THE TREE PROTECTION ZONE.

7. WARNING NOTICE GUARDING AGAINST UNAUTHORISED OPERATIONS WITHIN FENCED AREA SHALL BE ERECTED ON THE TEMPORARY PROTECTIVE FENCING.

8. THE CONTRACTOR SHALL SUBMIT THE CONSTRUCTION DETAILS OF THE TEMPORARY PROTECTIVE FENCING TO THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER FOR APPROVAL PRIOR TO ERECTION OF THE FENCING.

* DELETE WHICHEVER IS INAPPROPRIATE.

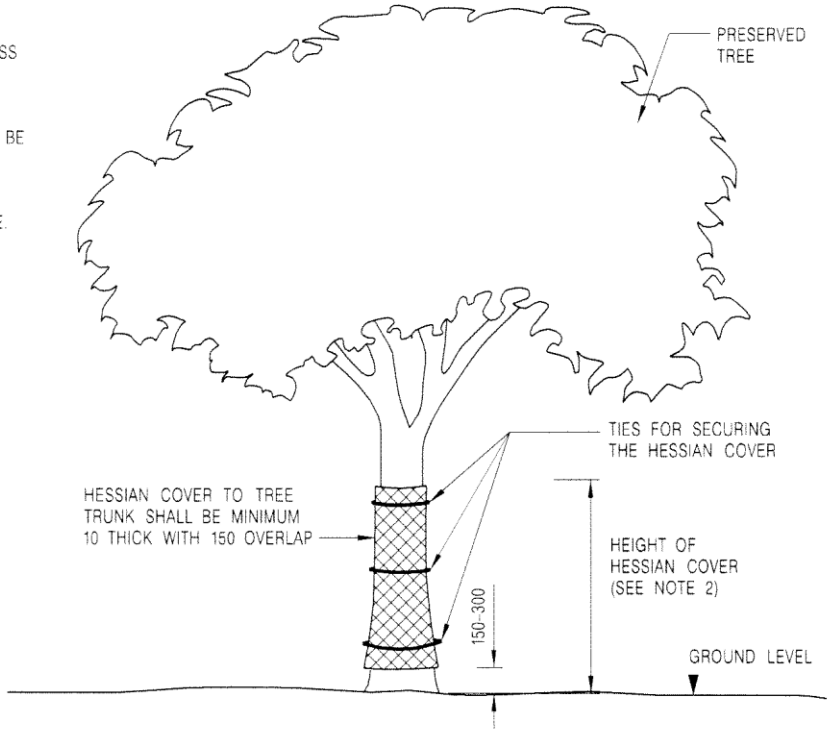
** DELETE WHICHEVER IS INAPPROPRIATE. STEEL SHEET FENCING SHALL BE USED IN CIRCUMSTANCES WHERE THE CONCENTRATION OF CONSTRUCTION ACTIVITY IS PARTICULARLY INTENSE OR THE PRESERVED TREE IS EITHER PARTICULARLY VALUABLE OR PARTICULARLY VULNERABLE.

TEMPORARY PROTECTIVE FENCING TO PRESERVED TREE	**DRAWING NO.** TP1 (SHEET 4 OF 4)

NOTES:

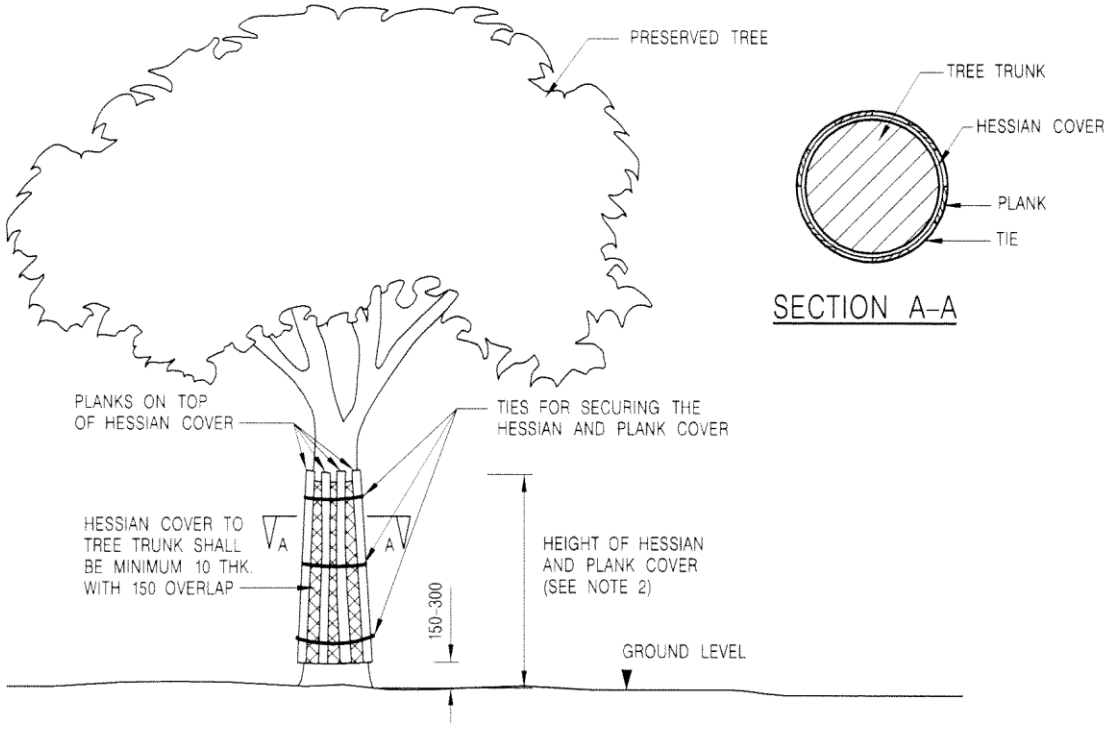
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
2. HEIGHT OF *HESSIAN COVER / HESSIAN AND PLANK COVER TO THE TRUNK SHALL BE 1500 MIN., BUT THE REQUIRED HEIGHT FOR DIFFERENT INDIVIDUAL TREES SHALL BE DETERMINED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER ON SITE.

* DELETE WHICHEVER IS INAPPROPRIATE



TEMPORARY PROTECTIVE HESSIAN ARMOURING TO PRESERVED TREE

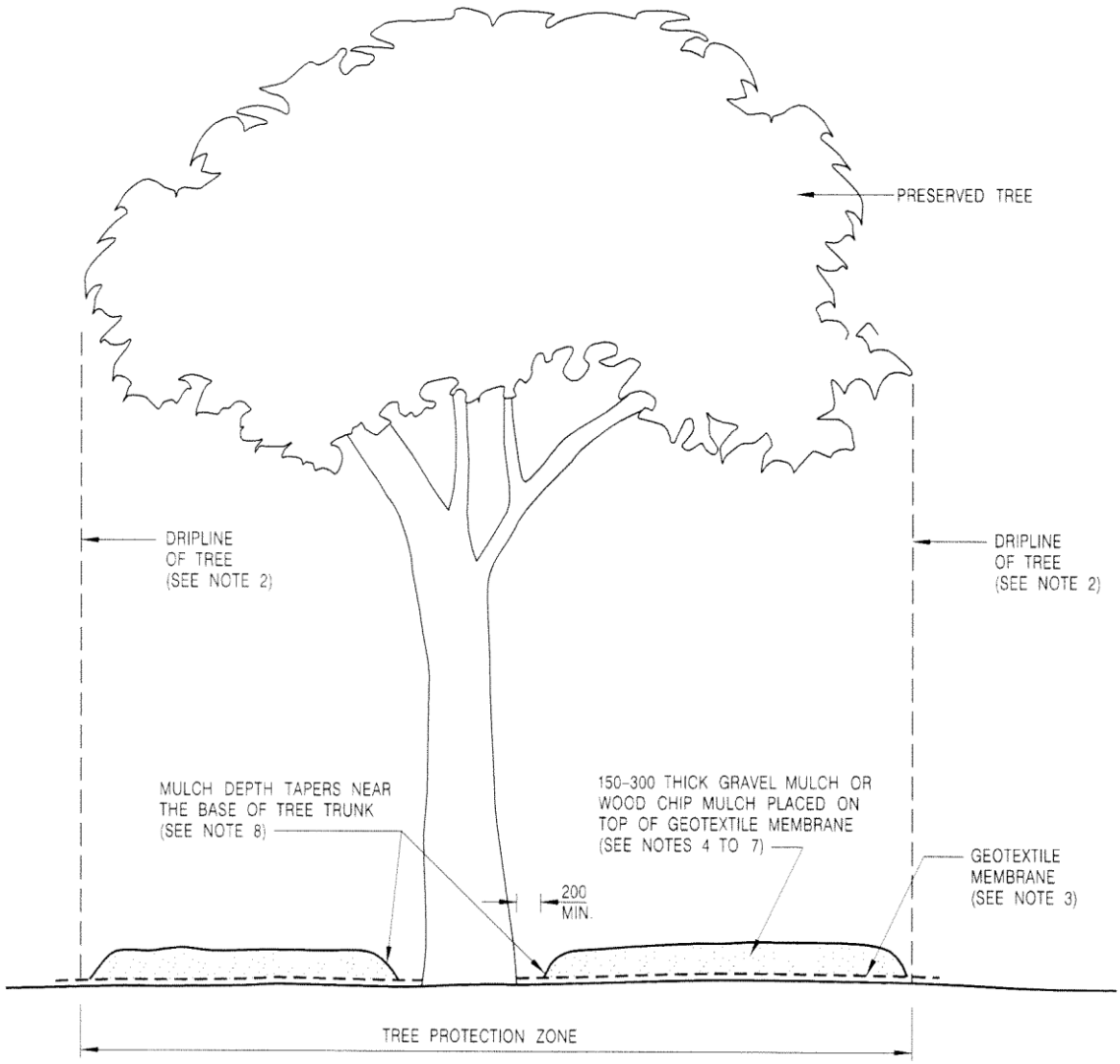
(DIAGRAMMATIC)



TEMPORARY PROTECTIVE HESSIAN AND PLANK ARMOURING TO PRESERVED TREE

(DIAGRAMMATIC)

TEMPORARY PROTECTIVE ARMOURING TO PRESERVED TREE	DRAWING NO. TP2



TEMPORARY PROTECTIVE MULCHING
TO PRESERVED TREE
(DIAGRAMMATIC)

TEMPORARY PROTECTIVE MULCHING TO PRESERVED TREE	DRAWING NO. TP3 (SHEET 1 OF 2)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. DRIPLINE OF TREE EXTENDS TO THE OUTERMOST BRANCHES OF THE TREE, DEFINING THE PERIMETER OF THE TREE PROTECTION ZONE.

3. THE GROUND BENEATH THE GEOTEXTILE MEMBRANE WITHIN THE TREE PROTECTION ZONE SHALL BE LEFT UNDISTURBED. BUT THE DEBRIS AND THE EXISTING UNDERGROWTH ON THE GROUND SHALL BE CLEARED PRIOR TO APPLYING THE GEOTEXTILE MEMBRANE. THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER'S AGREEMENT SHALL BE OBTAINED PRIOR TO CLEARANCE OF THE EXISTING UNDERGROWTH.

4. WHERE GRAVEL MULCH IS USED, THE NOMINAL SIZE OF GRAVEL SHALL BE OF 20 DIAMETER AND THE GRAVEL SHALL BE OF INERT, LIME-FREE MATERIALS WITH NO FINES.

5. WHERE WOOD CHIP MULCH IS USED THE NOMINAL PARTICLE SIZE SHALL BE IN THE RANGE 2mm TO 20mm AND THE WOOD CHIPS SHALL BE FREE FROM PERNICIOUS WEEDS, CHEMICAL CONTAMINATION, RUBBISH AND OTHER DELETERIOUS MATERIAL.

6. TEMPORARY PROTECTIVE MULCHING SHALL BE INSPECTED AT MONTHLY INTERVALS AND, IF NECESSARY, SHALL BE REPLENISHED TO THE SPECIFIED THICKNESS.

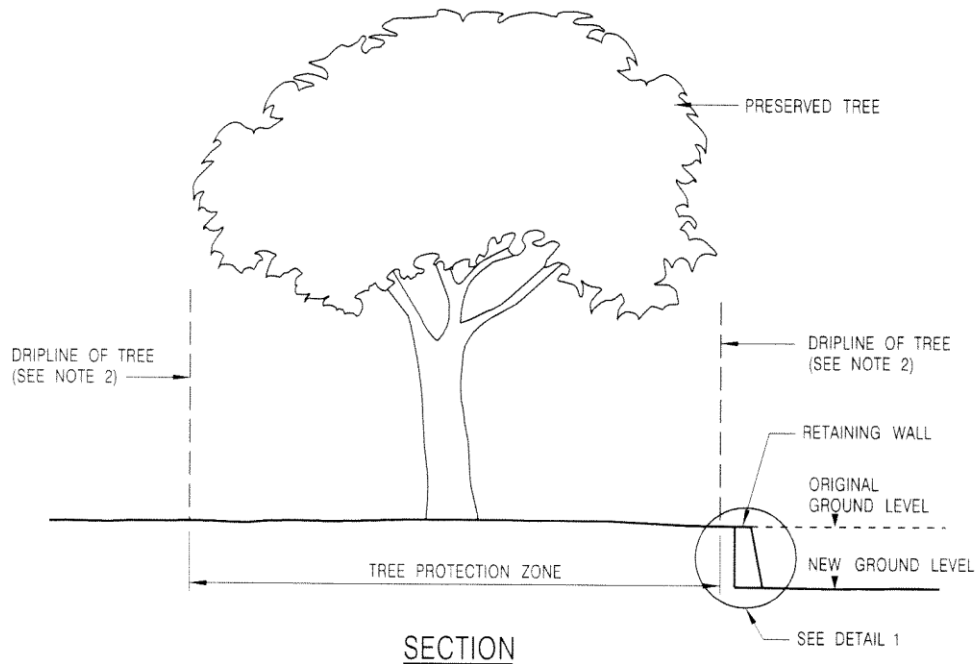
7. WHERE, IN ADDITION TO PEDESTRIAN LOADS, THE PASSAGE OR PARKING OF VEHICLES OR THE OPERATION OF EQUIPMENT OR MACHINERY WITHIN THE TREE PROTECTION ZONE HAS BEEN AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER, DOUBLE, OVERLAPPING THICK METAL SHEET COVERINGS, OR OTHER MATERIALS OF EQUIVALENT STRENGTH AS AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER, SHALL BE LAID ON TOP OF THE TEMPORARY PROTECTIVE MULCHING TO PROVIDE ADDITIONAL PROTECTION FROM SOIL COMPACTION.

8. MULCH SHALL BE KEPT AWAY FROM THE BASE OF TREE TRUNK TO PREVENT ROOT COLLAR ROT.

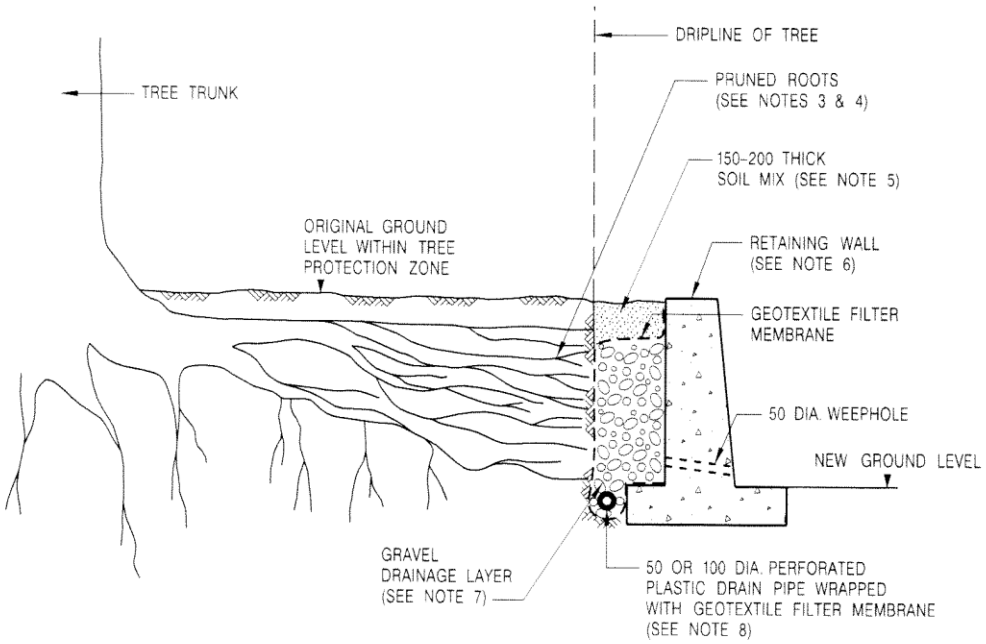
9. WHERE THE PRESERVED TREE IS ON SLOPING GROUND, 300 HIGH TIMBER EDGE SHALL BE PEGGED ON DOWNSLOPE SIDE OF THE TREE PROTECTION ZONE TO HOLD THE MULCH.

* DELETE WHICHEVER IS INAPPROPRIATE.

TEMPORARY PROTECTIVE MULCHING TO PRESERVED TREE	**DRAWING NO.** TP3 (SHEET 2 OF 2)



SECTION
(DIAGRAMMATIC)



DETAIL 1 – RETAINING WALL
NEAR TREE PROTECTION ZONE
(DIAGRAMMATIC)

MEASURES TO ACCOMMODATE REDUCTION IN GROUND LEVEL AROUND PRESERVED TREE	**DRAWING NO.** TP4 (SHEET 1 OF 2)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. DRIPLINE OF TREE EXTENDS TO THE OUTERMOST BRANCHES OF THE TREE, DEFINING THE PERIMETER OF THE TREE PROTECTION ZONE.

3. THE FOLLOWING PROCEDURES SHALL BE FOLLOWED IN ROOT PRUNING TO AVOID TEARING AND SHREDDING OF THE ROOTS BY GRADING EQUIPMENT:
   (i) BEFORE GRADING, TRENCH AROUND THE TREE AT LEAST 200 BEYOND THE PERIMETER OF THE TREE PROTECTION ZONE WITH HAND-HELD TOOLS SUCH AS HOE AND SPADE,
   (ii) CAREFULLY FORK THE SOIL AWAY FROM THE ROOTS USING HAND-HELD TOOLS UP TO THE EDGE DEFINED BY THE PERIMETER OF THE TREE PROTECTION ZONE, AND
   (iii) PRUNE THE ROOTS USING HAND-HELD TOOLS UP TO THE EDGE DEFINED BY THE PERIMETER OF THE TREE PROTECTION ZONE.

4. THE FOLLOWING PROCEDURES SHALL BE FOLLOWED IMMEDIATELY AFTER ROOT PRUNING UNTIL BACKFILLING IS COMPLETE TO PREVENT THE CUT AND EXPOSED ROOTS FROM DRYING OUT:
   (i) HANG THICK HESSIAN OR OTHER POROUS, ABSORBENT FABRIC FROM THE TOP OF THE CUT SURFACE OVER THE EXPOSED ROOTS AND SOIL; AND
   (ii) MIST THE HESSIAN OR FABRIC IN A FREQUENCY THAT KEEPS THE ROOTS AND SOIL AT THE CUT SURFACE MOIST ALL THE TIME.

5. SLOW RELEASE FERTILIZER SHALL BE INCORPORATED INTO THE SOIL MIX AT A RATE OF 500 G / M^2 OR AT A RATE AS DIRECTED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER.

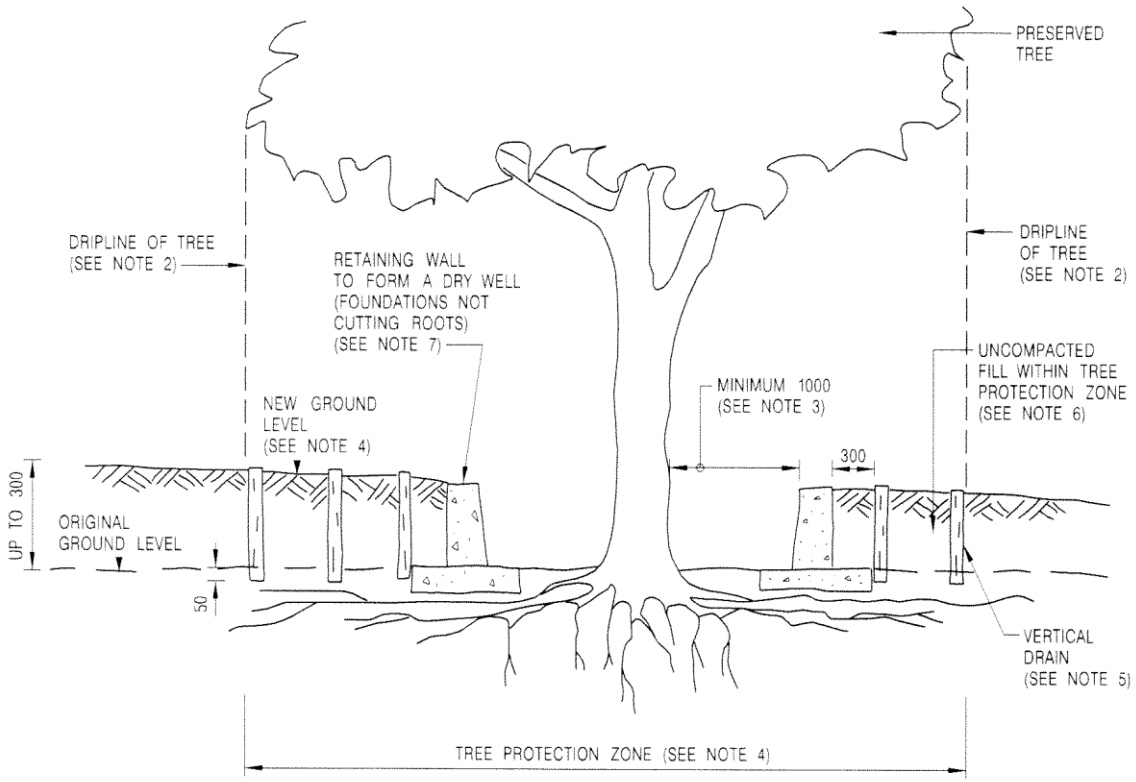
6. THE ALIGNMENT OF THE RETAINING WALL MAY VARY TO ACCOMMODATE THE ROOTS THAT ARE TO BE RETAINED, INCLUDING BUT NOT LIMITED TO TAP ROOTS, SINKER ROOTS, SUPPORT ROOTS AND ROOTS WITH DIAMETER EXCEEDING 50.

7. THE NOMINAL SIZE OF GRAVEL SHALL BE OF 20 DIAMETER AND THE GRAVEL SHALL BE OF INERT LIME-FREE MATERIALS WITH NO FINES.

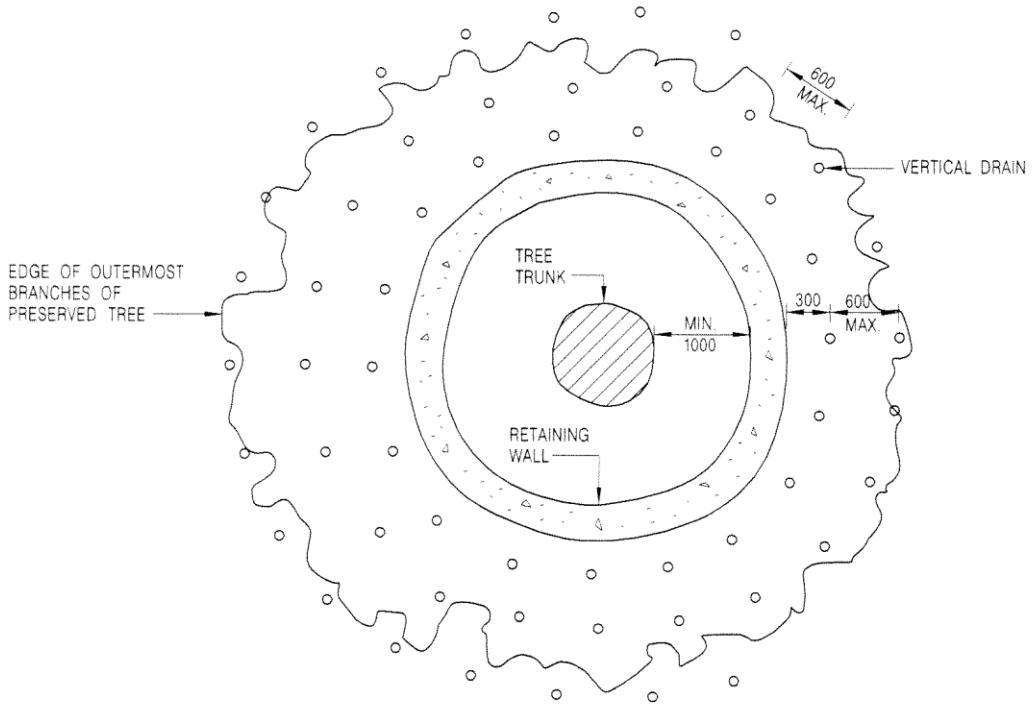
8. THE DRAIN PIPE SHALL BE CONNECTED TO A SUITABLE NEARBY DRAINAGE OUTLET SUCH AS SURFACE CHANNEL OR STORM WATER DRAIN AS AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER.

* DELETE WHICHEVER IS INAPPROPRIATE.

MEASURES TO ACCOMMODATE REDUCTION IN GROUND LEVEL AROUND PRESERVED TREE	**DRAWING NO.** TP4 (SHEET 2 OF 2)



SECTION
(DIAGRAMMATIC)



PLAN
(DIAGRAMMATIC)

MEASURES TO ACCOMMODATE MINOR TO MODERATE RISE (UP TO 300mm) IN GROUND LEVEL AROUND PRESERVED TREE

DRAWING NO. TP5 (SHEET 1 OF 2)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. DRIPLINE OF TREE EXTENDS TO THE OUTERMOST BRANCHES OF THE TREE, DEFINING THE PERIMETER OF THE TREE PROTECTION ZONE.

3. UNDER NO CIRCUMSTANCES SHALL THE FILL BE PLACED AGAINST THE TREE TRUNK. WHERE ONLY PART OF THE DRY WELL IS FORMED SUCH THAT PART OF THE AREA NEXT TO THE TRUNK BASE IS CONNECTED TO THE ADJACENT PAVING AREA AT THE ORIGINAL GROUND LEVEL, THE AREA NEXT TO THE TRUNK BASE SHALL BE COVERED WITH OPEN JOINT PAVING OR LOOSE COBBLES.

4. GRADING WITHIN THE TREE PROTECTION ZONE SHALL DRAIN AWAY FROM THE TREE TRUNK. WHERE THE TREE IS ON SLOPING GROUND, A SOIL BERM SHALL BE FORMED BETWEEN THE RETAINING WALL OF THE DRY WELL AND THE PERIMETER OF THE TREE PROTECTION ZONE ON THE UPSLOPE SIDE OF THE WELL TO DIRECT EXCESSIVE WATER FROM ENTERING THE WELL.

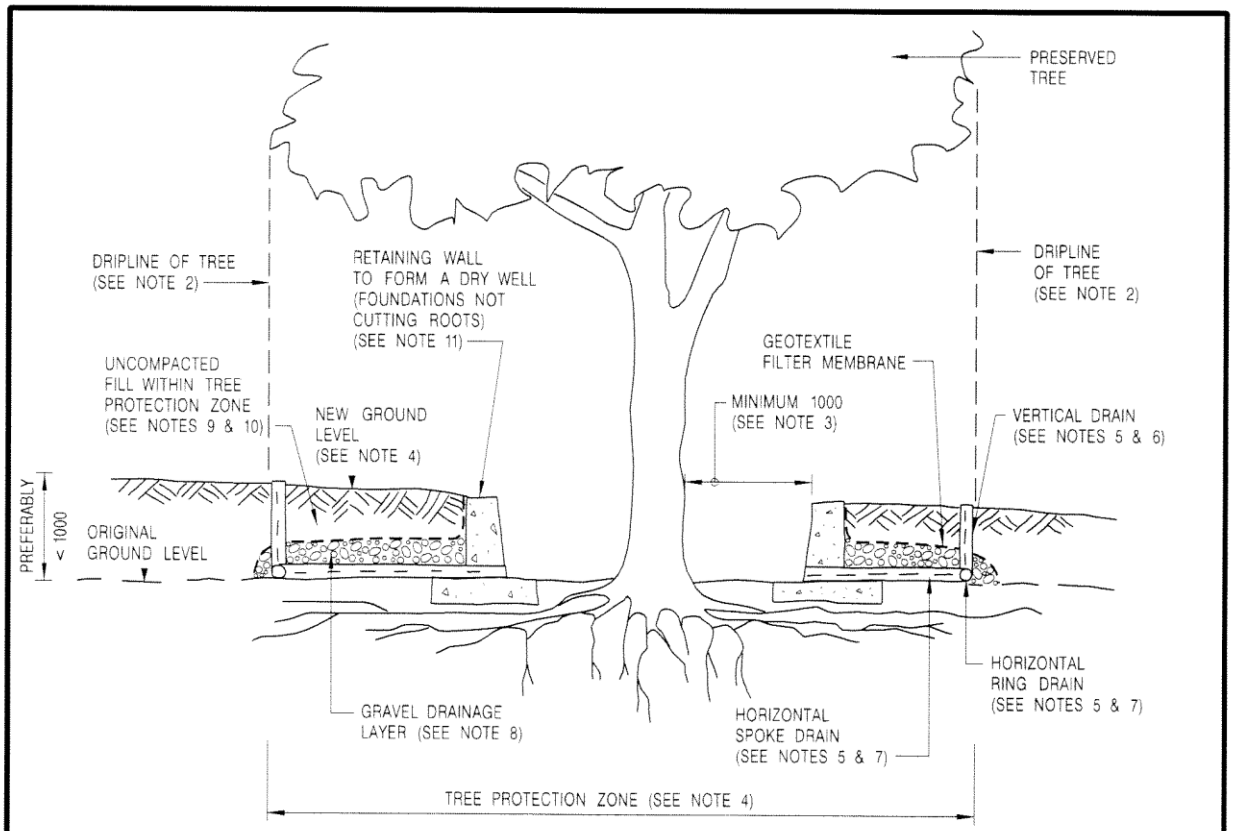
5. THE VERTICAL DRAINS SHALL BE 50 OR 100 DIAMETER PERFORATED PLASTIC DRAIN PIPES WRAPPED WITH GEOTEXTILE FILTER MEMBRANE. THE OPENINGS OF THE DRAINS TO THE AIR SHALL BE COVERED WITH A TIGHTLY-FITTED GRATE OR THE DRAINS SHALL BE FILLED WITH COARSE GRAVEL OF INERT, LIME-FREE MATERIALS WITH NO FINES, FOR SAFETY, EXCLUSION OF ANIMALS, AND TO ALLOW AIR AND WATER MOVEMENT. THE VERTICAL DRAINS SHALL BE PLACED IN 600 MAXIMUM HORIZONTAL SPACING WITHIN THE TREE PROTECTION ZONE AND SHALL EXTEND AT LEAST TO THE DRIPLINE OF THE TREE.

6. THE SOIL FOR FILLING WITHIN THE TREE PROTECTION ZONE SHALL BE OF A COARSER TEXTURE THAN THE UNDERLYING SOIL BELOW THE ORIGINAL GROUND LEVEL.

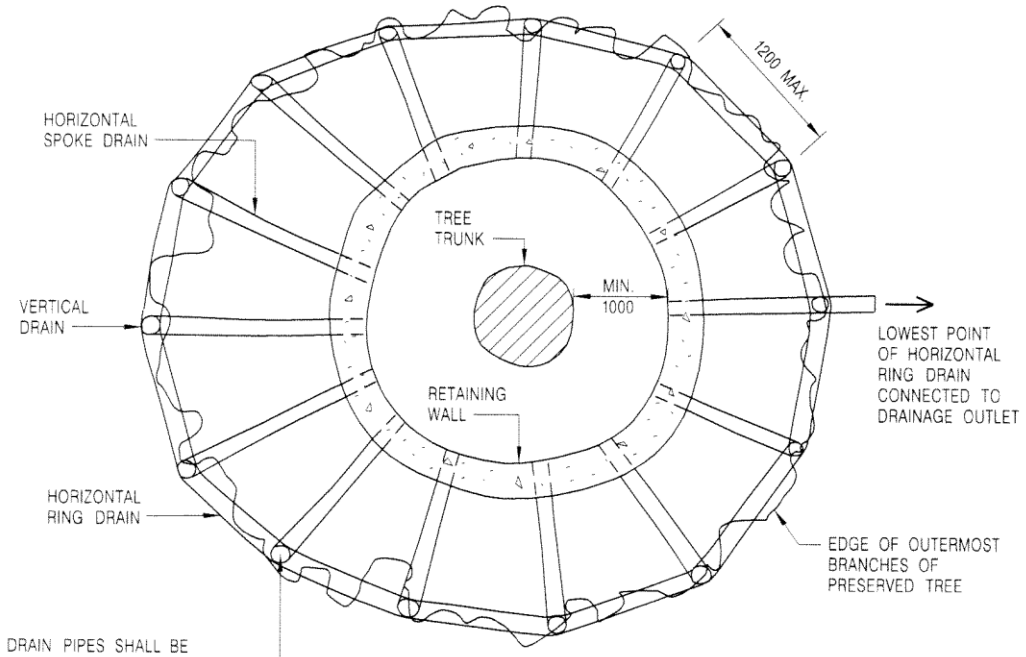
7. THE DETAILS OF THE RETAINING WALL FOUNDATION SHOWN ARE INDICATIVE ONLY. TO MINIMIZE ROOT DAMAGE, EXCAVATION FOR FOUNDATION SHALL BE CARRIED OUT BY HAND AND SLAB FOUNDATION SHALL BE AVOIDED. WHERE DISCONTINUOUS FOUNDATION IS USED, THE LOCATION OF THE FOUNDATION SHALL BE AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER.

* DELETE WHICHEVER IS INAPPROPRIATE.

MEASURES TO ACCOMMODATE MINOR TO MODERATE RISE (UP TO 300mm) IN GROUND LEVEL AROUND PRESERVED TREE	**DRAWING NO.** TP5 (SHEET 2 OF 2)



SECTION
(DIAGRAMMATIC)



PLAN
(DIAGRAMMATIC)

MEASURES TO ACCOMMODATE MAJOR RISE (>300mm) IN GROUND LEVEL AROUND PRESERVED TREE	DRAWING NO. TP6 (SHEET 1 OF 2)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. DRIPLINE OF TREE EXTENDS TO THE OUTERMOST BRANCHES OF THE TREE, DEFINING THE PERIMETER OF THE TREE PROTECTION ZONE.

3. UNDER NO CIRCUMSTANCES SHALL THE FILL BE PLACED AGAINST THE TREE TRUNK. WHERE ONLY PART OF THE DRY WELL IS FORMED SUCH THAT PART OF THE AREA NEXT TO THE TRUNK BASE IS CONNECTED TO THE ADJACENT PAVING AREA AT THE ORIGINAL GROUND LEVEL, THE AREA NEXT TO THE TRUNK BASE SHALL BE COVERED WITH OPEN JOINT PAVING OR LOOSE COBBLES.

4. GRADING WITHIN THE TREE PROTECTION ZONE SHALL DRAIN AWAY FROM THE TREE TRUNK. WHERE THE TREE IS ON SLOPING GROUND, A SOIL BERM SHALL BE FORMED BETWEEN THE RETAINING WALL OF THE DRY WELL AND THE PERIMETER OF THE TREE PROTECTION ZONE ON THE UPSLOPE SIDE OF THE WELL TO DIRECT EXCESSIVE WATER FROM ENTERING THE WELL.

5. BOTH VERTICAL DRAINS AND HORIZONTAL DRAINS SHALL BE 100 DIAMETER PERFORATED PLASTIC DRAIN PIPES WRAPPED WITH GEOTEXTILE FILTER MEMBRANE. HORIZONTAL DRAINS SHALL HAVE NON-PERFORATED INVERT TO HELP DIRECTION OF WATER TO THE DRAINAGE OUTLET. THE OPENINGS OF THE VERTICAL DRAINS TO THE AIR SHALL BE COVERED WITH A TIGHTLY-FITTED GRATE OR THE DRAINS SHALL BE FILLED WITH COARSE GRAVEL OF INERT, LIME-FREE MATERIALS WITH NO FINES, FOR SAFETY, EXCLUSION OF ANIMALS, AND TO ALLOW AIR AND WATER MOVEMENT.

6. THE VERTICAL DRAINS SHALL BE PLACED IN 1200 MAXIMUM HORIZONTAL SPACING ALONG THE PERIMETER OF THE TREE PROTECTION ZONE.

7. THE HORIZONTAL SPOKE DRAINS SHALL DRAIN TOWARDS THE HORIZONTAL RING DRAIN. THE LOWEST POINT OF THE HORIZONTAL RING DRAIN SHALL BE CONNECTED TO A SUITABLE NEARBY DRAINAGE OUTLET SUCH AS SURFACE CHANNEL OR STORM WATER DRAIN AS AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER.

8. THE GRAVEL DRAINAGE LAYER IS NOT REQUIRED IF THE RISE IN GROUND LEVEL IS NOT MORE THAN 450. WHERE THE DRAINAGE LAYER IS REQUIRED, THE NOMINAL SIZE OF GRAVEL SHALL BE OF 20 DIAMETER AND THE GRAVEL SHALL BE OF INERT, LIME-FREE MATERIALS WITH NO FINES.

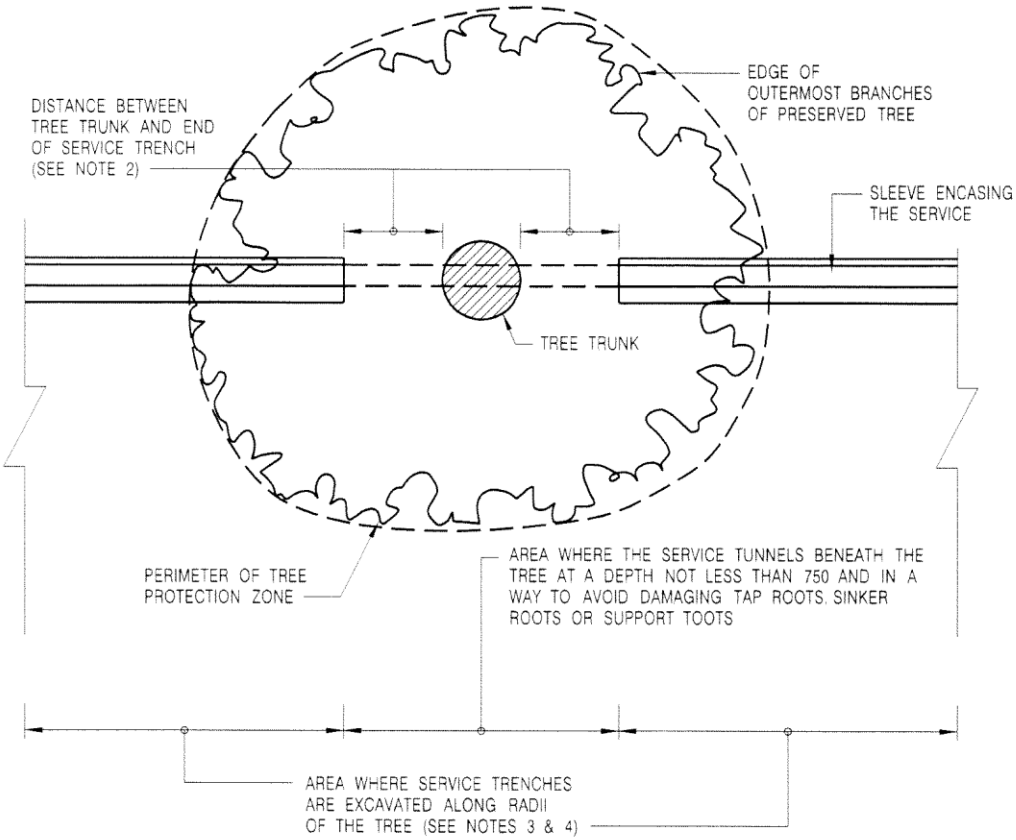
9. THE CAP OF FILL ABOVE THE GRAVEL DRAINAGE LAYER, IF PRESENT, SHALL BE 300 THICK.

10. THE FILL SHALL BE CAREFULLY ADDED TO BUILD THE NEW GROUND LEVEL SO THAT THE INTEGRITY OF THE DRAIN SYSTEM SURROUNDING THE DRY WELL IS MAINTAINED. THE SOIL FOR FILLING WITHIN THE TREE PROTECTION ZONE SHALL BE OF A COARSER TEXTURE THAN THE UNDERLYING SOIL BELOW THE ORIGINAL GROUND LEVEL.

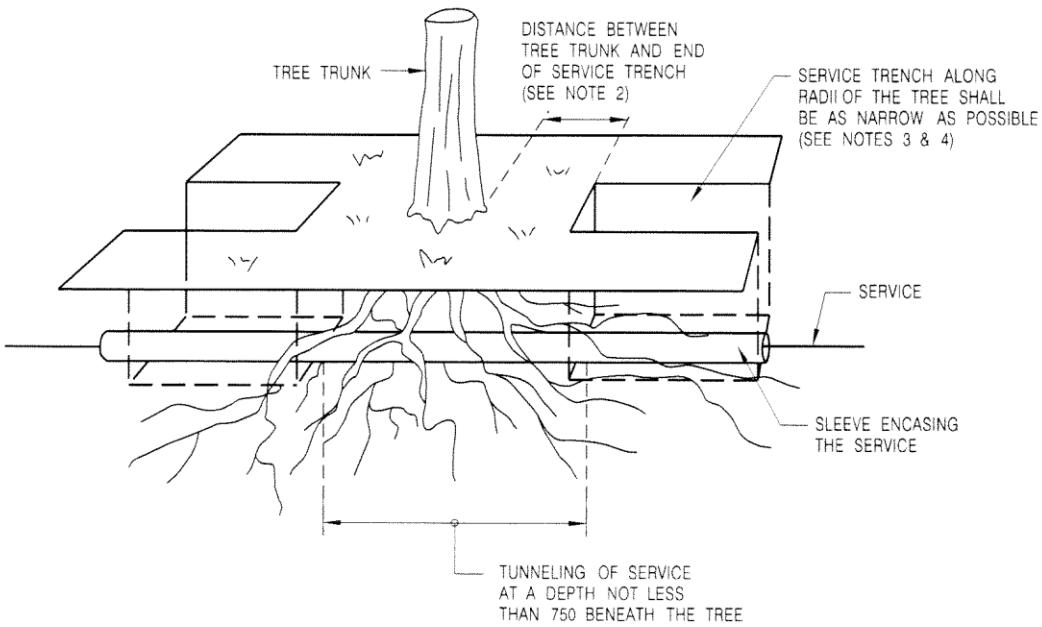
11. THE DETAILS OF THE RETAINING WALL FOUNDATION SHOWN ARE INDICATIVE ONLY. TO MINIMIZE ROOT DAMAGE, EXCAVATION FOR FOUNDATION SHALL BE CARRIED OUT BY HAND AND SLAB FOUNDATION SHALL BE AVOIDED. WHERE DISCONTINUOUS FOUNDATION IS USED, THE LOCATION OF THE FOUNDATION SHALL BE AGREED BY THE *ARCHITECT / ENGINEER / SUPERVISING OFFICER.

* DELETE WHICHEVER IS IN APPROPRIATE.

MEASURES TO ACCOMMODATE MAJOR RISE (>300mm) IN GROUND LEVEL AROUND PRESERVED TREE	**DRAWING NO.** TP6 (SHEET 2 OF 2)



PLAN
(DIAGRAMMATIC)



PERSPECTIVE
(DIAGRAMMATIC)

TRENCHING AND TUNNELING ALONG RADII OF PRESERVED TREE

DRAWING NO.
TP7 (SHEET 1 OF 2)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.

2. THE SERVICE TRENCH SHALL BE EXCAVATED DIRECTLY TOWARDS THE TREE ALONG A RADIUS TO AT LEAST 1000 FROM THE TRUNK OR TO A DISTANCE WHERE ROOTS LARGER THAN 25 DIAMETER ARE ENCOUNTERED, WHICHEVER DISTANCE IS FARTHER AWAY FROM THE TRUNK.

3. THE SERVICE TRENCH WITHIN TREE PROTECTION ZONE SHALL BE EXCAVATED USING HAND-HELD TOOLS.

4. ANY ROOT CUTTING DURING TRENCH EXCAVATION WITHIN TREE PROTECTION ZONE SHALL BE CARRIED OUT USING HAND-HELD TOOLS, AND THE FOLLOWING PROCEDURES SHALL BE FOLLOWED IMMEDIATELY AFTER ROOT PRUNING UNTIL BACKFILLING IS COMPLETE TO PREVENT THE CUT AND EXPOSED ROOTS FROM DRYING OUT:

   (i) HANG THICK HESSIAN OR OTHER POROUS, ABSORBENT FABRIC FROM THE TOP OF THE CUT SURFACE OVER THE EXPOSED ROOTS AND SOIL, AND

   (ii) MIST THE HESSIAN OR FABRIC IN A FREQUENCY THAT KEEPS THE ROOTS AND SOIL AT THE CUT SURFACE MOIST ALL THE TIME.

TRENCHING AND TUNNELING ALONG RADII OF PRESERVED TREE	**DRAWING NO.** TP7 (SHEET 2 OF 2)