

Construction Damage & Prevention

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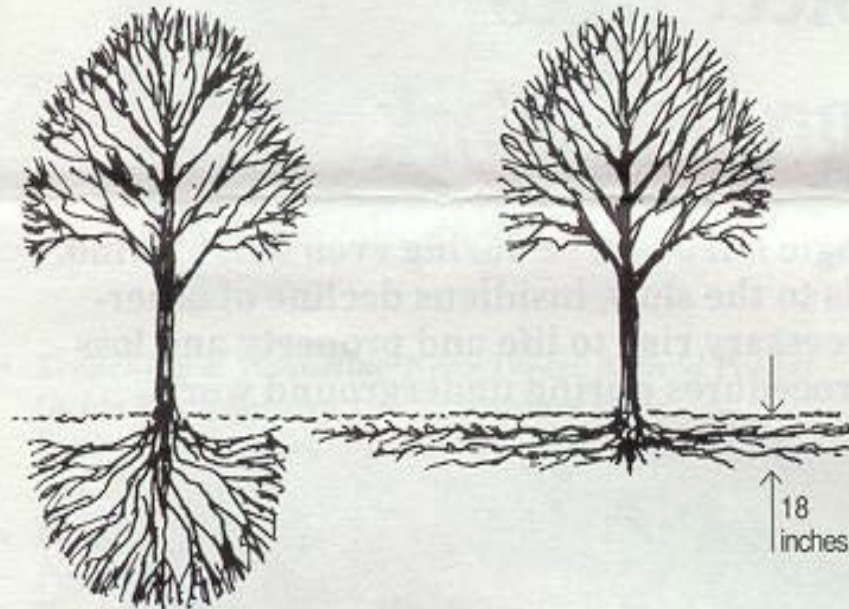
Construction damage is one of the greatest causes of tree death and decline in urban areas.

Damage & Effects

Roots

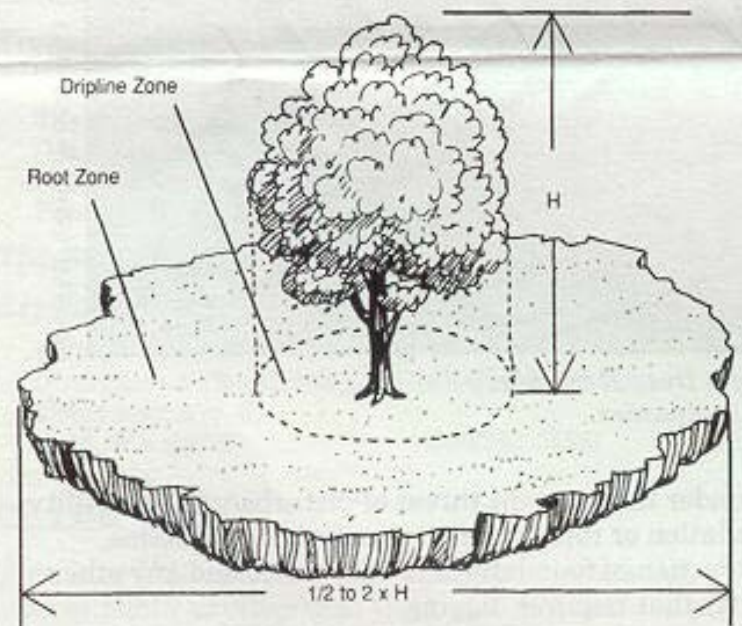
- Key to everything!
- Extend 2 - 3 times tree height from base.
- Shallow - 95% in top 3' of soil; 90% in top 1''
- Root volume reduced with reduction of soil pore space.
- Reduced root volume equals branch dieback in following years.

1. Tree roots are *not* an underground reflection of the crown.



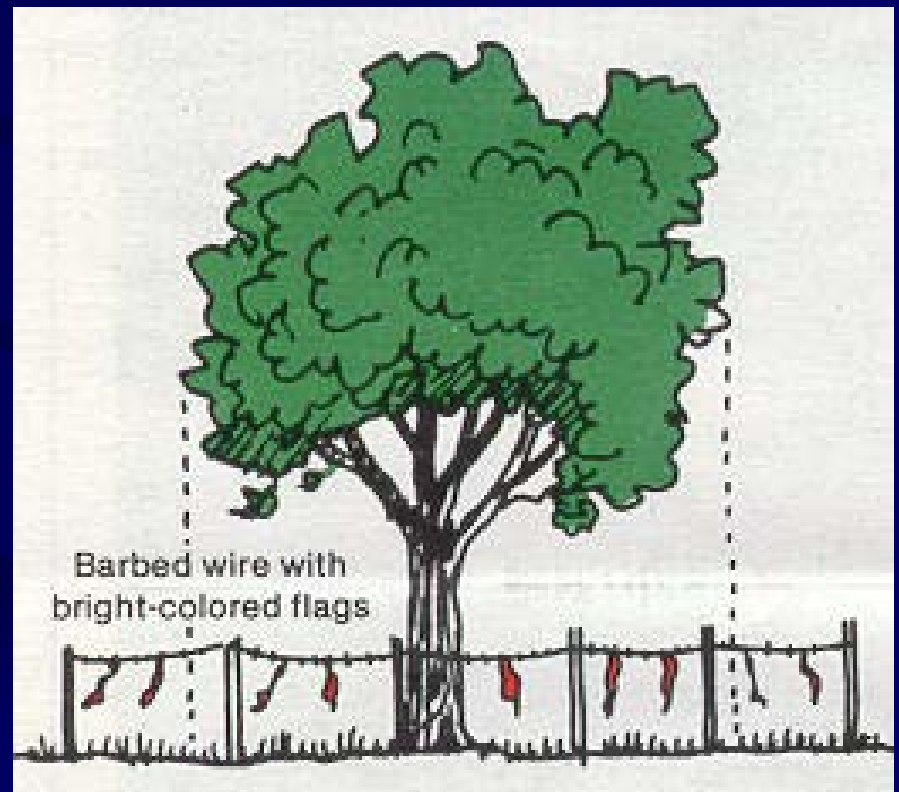
Root Spread

2. Roots spread far and wide!



Soil Compaction

- Effected by soil type or texture.
- Loss of pore space = loss of oxygen = loss of roots = loss of branches or tree.
- Results from any equipment or foot traffic.
- Protect **Critical Root Zone (CRZ)** with fencing, mulch, water, etc.

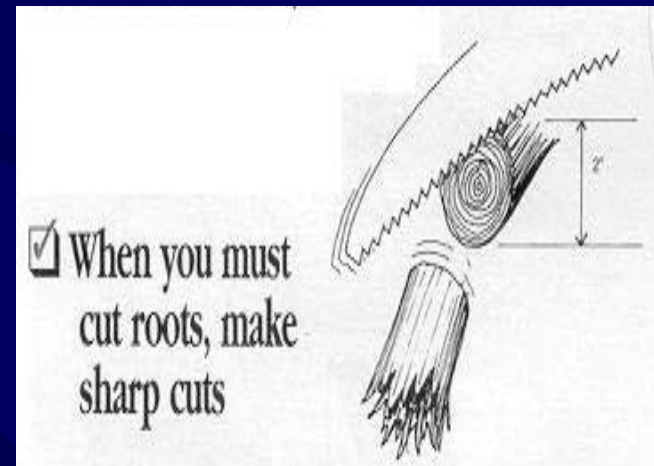
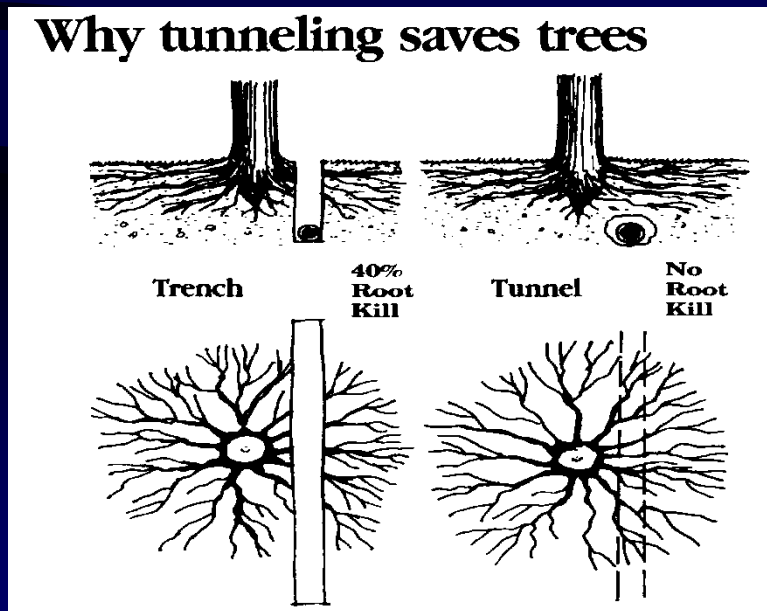


Above Ground

- Protect trunks
- Assure adequate height clearance for branches
(use an arborist)
- No storage, parking, etc. within CRZ.
- Avoid cut/fill within CRZ
- Avoid damaging conditions from grade
changes (excess water, etc.)

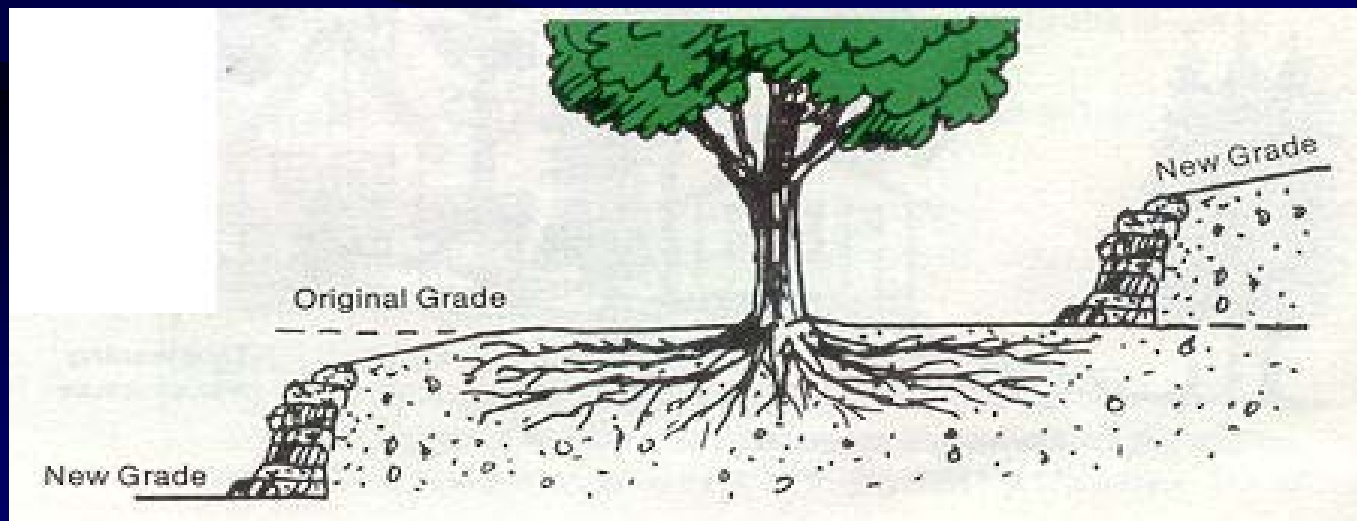
Below Ground

- Trenching beyond CRZ only.
- Tunnel under roots within CRZ.
- Assure “clean cuts” of large, severed roots.
- Keep exposed roots moist until covered.



Grade Changes

- 2” - 4” of fill kills roots.
- Fine “feeder” roots are near the soil surface.
- Any “cut” removes roots.
- Drainage patterns change.
- Use retaining walls if unavoidable.

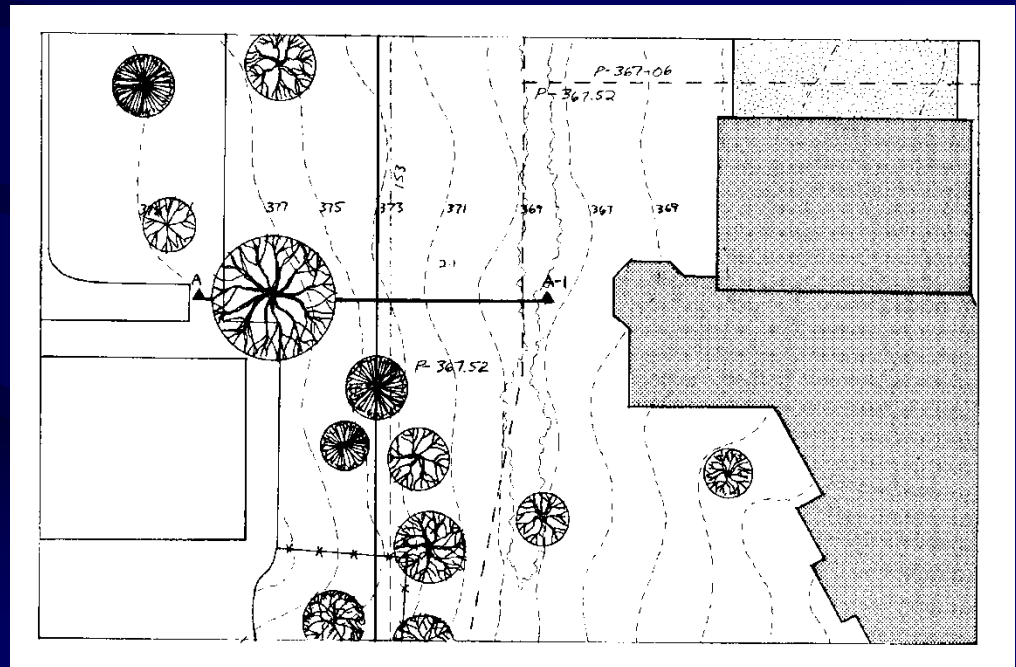


Prevention

Plan Before You Build

- Tree map.
 - Species, Size, Location, Health?

- Site plan.
 - Structures
 - Utilities
 - Roads
 - Grading



ID Trees to be Preserved

- Use a professional “tree person”.
- Trees to remove include:
 - Those that can't be planned around.
 - Undesirable species.
 - Those unlikely to survive the construction process. (These may be the larger trees on site)

ID Trees to be Preserved, cont.

- Modify site plan to accommodate trees to be preserved.
 - Written construction specs are needed including:
 - + Protection fences for CRZ
 - + Travel lanes beyond CRZ
 - + Parking areas beyond CRZ
 - + Storage areas beyond CRZ
 - + Grade changes beyond CRZ
 - Supervised by “tree pro” on site.

Post Construction Activities

- Re-asses condition of trees.
- Determine maintenance needs.
 - Automatic sprinkling systems?
 - Pruning damaged limbs (arborist).
 - Mulch, mulch, mulch; aka **NO GRASS**
 - Extra water?
 - Fertilization?