



Arborist Inspection & Report · Tree Service

Licensed & Insured

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Introduction

Air excavation and root-zone inspection were conducted from August 24th through August 26th, 2026, at Longfellow School.

Terminology, assessment findings, and resulting conclusions reflect the scope of the evaluation performed and represent my independent professional judgment as the assessing arborist.

The Longfellow School remediation project requires the removal of contaminated soil within the athletic field and front lawn area of the school. Several mature trees occupy the affected work zone. Proposed air-knifing and soil displacement activities will directly impact the **critical root zones (CRZs)** of these trees. A limited air-excavation inspection was conducted to evaluate root architecture, structural stability, and overall tree health prior to soil removal.

Protected trees were identified and marked on the site map provided by the Pasadena Unified School District. Based on the contaminated soil measurements provided by Verdantas Inc. (Verdantas), the environmental consultant, prior to excavation, the affected CRZs were confirmed and air excavation was required within those limits. During assessment of the CRZs, Verdantas completed field screening of the subsurface soil at approximate 6-inch depth intervals using an x-ray fluorescence (XRF) machine to obtain approximate concentrations of lead in soil in real time for decision making purposes.

Tree Protection and Critical Root Zone Assessment

The initial recommendation was to establish a Tree Protection Zone (TPZ) at the dripline to prevent any soil disturbance or machinery from entering the CRZ, where equipment could cause mechanical injury to the root system or tree trunk. However, because soil contamination extends within the TPZs, removal of the impacted soil is required in accordance with the Department of Toxic Substances Control (DTSC)-approved Removal Action Workplan. Air excavation within the CRZ was considered a potentially viable method of removing impacted soil.

Tree Risk Assessment and Arborist Report

The purpose of the assessment presented herein was to evaluate whether air excavation to the required depth of removal to address impacted soil would compromise tree stability or overall health. The scope of work included performing selective air-spading at multiple locations around the trees to allow exposure of critical structural roots while reaching the necessary excavation depth based on real-time XRF readings provided by Verdantas. The air-spade locations, provided direct observation of:

- The depth and distribution of structural and anchoring roots
- Whether excavation would reduce mechanical stability. (Mechanical stability during air excavation of tree roots refers to maintaining the tree's structural support and preventing it from becoming unstable while soil is removed around its root system using an air spade or air knife.)
- Whether root loss would result in significant tree health decline

All air-excavation activities were monitored and directed by the ISA Certified Arborist (**Elias Najar WE-10133AT, Qualified Tree Risk Assessor, and CSLB Licenses #1122057**). I instructed workers on where and how to excavate to avoid any root damage while still achieving the required soil removal depth. This controlled method ensured that root exposure occurred safely, allowing determination of whether the tree could be retained without creating an unacceptable stability risk.

Root Architecture:

As air-excavation progresses, the depth and width of each test pit provide visibility into the structural root architecture. Once excavation reaches the appropriate depth, structural roots become identifiable, allowing the arborist to evaluate whether the remaining root system can maintain adequate mechanical stability during soil removal and until the area is backfilled.

Each excavation point serves as a controlled inspection window into the structural root zone. By observing root diameter, orientation, and distribution at these depths, the arborist can determine whether the tree retains sufficient anchoring capacity or whether stability may be compromised.

Tree Risk Assessment and Arborist Report

This assessment was conducted in real time during air-spading, enabling the arborist to make informed decisions about tree retention, risk level, and required protection measures while contaminated soil is being removed.

Structural Stability During Soil Excavation

Due to species-specific root architecture and the influence of soil type, soil structure, and compaction levels, several trees within the front lawn area and the tree near the Children's Center exhibit structural roots occurring at relatively shallow depths.

Air-excavation performed as part of this assessment revealed that critical structural roots were exposed between approximately 2 and 12 inches below grade. Details regarding the location and the depth of the exposed critical structural roots are documented for each tree below.

This depth profile indicates that the primary anchoring roots for these trees occupy the same vertical zone as the contaminated soil. As excavation continues to 12 inches and in some cases beyond in depth, the remaining soil support is fully removed, resulting in the entire structural root system becoming suspended in air. Once all soil is displaced, the tree's anchoring capacity is significantly reduced, creating a high likelihood of mechanical instability and potential root plate failure.

These findings demonstrate that excavation will expose the full structural root network, leaving no soil mass to provide lateral or vertical support. This condition must be evaluated as part of the overall tree stability risk assessment.

Definition of 'Fair' Tree Condition Based on Arboriculture Practices

Fair - 41% - 60% condition class. The tree may exhibit the following characteristics: minor structural problems and/or mechanical damage, significant damage from non-fatal or disfiguring diseases, minor crown imbalance or thin crown, and/or stunted growth compared to adjacent trees.

Tree Structural Stability and Root Zone Assessment

Purpose: Evaluate the impact of proposed soil removal and root excavation on tree stability.

Observations & Methodology

An exploratory root diagnostic was conducted via localized, variable-depth test pits within the tree's CRZ. The objective was to determine if the tree could tolerate full-scale structural root exposure and temporary soil loss for a duration of several days to a week during completion of the contaminated soil removal project.

As presented in the DTSC-approved RAW, lead impacted soil within the Longfellow Elementary School front lawn occurs from the surface to depths between 1 and 2 feet below ground surface. Lead impacted soil in the landscaped area south of the Children's Center occurs at depths between 1 and 3 feet below ground surface. Localized test pits provided sufficient diagnostic data to evaluate structural integrity and lean dynamics without requiring a full 360-degree trench around the root plate.

Tree Stability & Risk Determination

Based on the data gathered during the diagnosis of the air excavation, it is my professional determination that the trees will not survive the proposed soil remediation and will present an imminent risk of failure.

The removal of supporting matrix soil down to 12 inches and in some cases beyond in depth will critically compromise the anchorage provided by the structural root plate. Leaving these major lateral and anchoring roots unsupported in an open trench—even temporarily—will destabilize the tree's center of gravity. This structural deficit is severely compounded by the majority of the trees existing lean, which is measured at 20 degrees or greater. Due to the high probability of whole-tree failure caused by root destabilization, preservation is not a viable option if the soil remediation proceeds as planned.

Tree #39 — Tipuana tree (Tipuana tipu)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Compacted soils; existing root exposure on the south side

Location of tree: Children's Center

Observations

Tree #39 (subsequently removed by contractor) exhibits a southerly lean, approximately 28 degrees, with no corrective counter lean present. Several structural roots are already exposed due to soil displacement and compaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the north side.

Root Zone Inspection

Air-knifing performed on the north side of the tree to a depth of 18 inches revealed structural and anchor roots beginning at approximately 9 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 24 inches will expose the majority of the tree's structural and anchor root system. Based on International Society of Arboriculture (ISA) Best Management Practices (BMPs) for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise the tree's mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #39 cannot maintain structural stability if excavation proceeds to the proposed depth. The contaminated soil removal will expose and destabilize all major structural roots on the north side, creating a high likelihood of failure once root support is compromised.

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Tree #90 — Deodar tree (*Cedrus deodara*)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Uncompacted soils; existing root exposure on the north side

Location: Front Lawn

Observations

Tree #90 exhibits a slight southerly lean, approximately at a 20 degree angle. No corrective counter lean present. Several structural roots are already exposed due to soil displacement and uncompaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the north side. Several branches were damaged, creating an unbalanced canopy.

Root Zone Inspection

Air-knifing was performed on the north and east sides to a depth of 12 inches revealed structural and anchor roots beginning at approximately 10 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's structural and anchor root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise the mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #90 cannot maintain structural stability if excavation proceeds to the proposed depth 1 foot below grade. The planned contaminated soil removal will expose and destabilize all major structural roots on all sides of the tree, creating a high likelihood of failure once root support is compromised.

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Tree #92 — Deodar tree (*Cedrus deodara*)

ISA Condition Rating

Overall Condition: Fair

Structure: Strong lean toward the south

Site Factors: Uncompacted soils; existing root exposure on the north side

Location: Front Lawn

Observations

Tree #92 exhibits a southerly lean, approximately at a 25 degree angle, with corrective counter lean to the east side of the tree. Several structural roots are already exposed due to soil displacement and uncompaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the north side. Several branches were damaged, creating an unbalanced canopy.

Root Zone Inspection

Air-knifing was performed on the north, south, east, and west sides of the tree to a depth of 12 inches. Investigation revealed structural and anchor roots beginning at approximately 10 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's structural and anchor root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise the tree's mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #92 cannot maintain structural stability if excavation proceeds to the proposed depth of 1 foot below grade. The planned contaminated soil removal will expose and destabilize all major structural roots on all sides, creating a high likelihood of failure once root support is compromised.

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Tree #97 — Deodar tree (*Cedrus deodara*)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Uncompacted soils; existing root exposure on the north side

Location: Front Lawn

Observations

Tree #97 exhibits a slight southerly lean at an approximate 20 degree angle, with no corrective counter lean present. Several structural roots are already exposed due to soil displacement and uncompaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the north side. Several branches were damaged, creating an unbalanced canopy.

Root Zone Inspection

Air-knifing was performed on the north, south, east, and west sides of the tree to a depth of 12 inches. Investigation revealed structural and anchor roots beginning at approximately 8 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's structural and anchor root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise the tree's mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #97 cannot maintain structural stability if excavation proceeds to the proposed depth of 1 foot below grade. The planned contaminated soil removal will expose and destabilize all major structural roots on all sides, creating a high likelihood of failure once root support is compromised.

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Tree #89 — Glossy Shower (*Senna surattensis*)(Leaflet margins and floral characteristics did not match the diagnostic traits of Golden Trumpet)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Uncompacted soils; existing root exposure on the north side

Location: Front Lawn

Observations

Tree #89 exhibits a slight southerly lean to an approximate 20 degree angle, without correctional lean. Several structural roots are already exposed due to soil displacement and uncompaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the south side. Several branches were damaged, creating an unbalanced canopy.

Root Zone Inspection

Air-knifing was performed on the east and north side of the tree to a depth of 24 inches revealed structural and anchor roots beginning at approximately 12 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's structural and anchor root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #89 cannot maintain structural stability if excavation proceeds to the proposed depth. The planned contaminated soil removal will expose and destabilize all major structural roots on the east and north side, creating a high likelihood of failure once root support is compromised.

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Tree #89



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Tree #98 — Pink trumpet (*Handroanthus heptaphyllus*)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south east

Site Factors: Uncompacted soils; existing root exposure on the north side

Location: Front Lawn

Observations

Tree #98 exhibits a slight southerly lean, with several structural roots already exposed due to soil displacement and uncompaction. The lean has resulted in partial loss of soil cover over the primary structural roots on the south side. Several branches were damaged, creating an unbalanced canopy.

Root Zone Inspection

Air-knifing was performed on the east, and south side of the tree to a depth of 24 inches revealed structural and anchor roots beginning at approximately 12-18 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 24 inches will expose the majority of the tree's structural and anchor root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #98 cannot maintain structural stability if excavation proceeds to the proposed depth of 2 feet below grade. The planned soil removal will expose and destabilize all major structural roots on the east and south side, creating a high likelihood of failure once root support is compromised.

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Tree #91 — Canary island date palm (*Phoenix canariensis*)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Uncompacted soils; older dry fiber roots.

Location: Front Lawn

Observations

The tree #91 exhibits a slight southerly lean, with portions of the older fibrous root system already exposed, consistent with the natural growth habit of date palms. This pre-existing lean reduces structural stability and increases susceptibility to disturbance during air-knife excavation. Date palm fibrous roots were easily deflected, torn, or severed when soil was removed around the root zone, and excavation approximately 12 inches is expected to result in significant root loss, including portions of the structural root plate responsible for anchorage. Such loss will materially compromise the tree's health, stability and physiological function. The tree is unlikely to maintain adequate structural support or long-term health following excavation.

Root Zone Inspection

Air-knifing performed on the north and east side of the tree to a depth of 12 inches revealed structural and anchor roots beginning at approximately 2-4 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's fiber root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #91 cannot maintain structural stability if contaminated soil excavation proceeds to the proposed level of 1 foot below grade. The planned soil removal will expose and destabilize all major fiber roots, creating a high likelihood of failure once root support is compromised.

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Tree #96 — Canary island date palm (*Phoenix canariensis*)

ISA Condition Rating

Overall Condition: Fair

Structure: Moderate lean toward the south

Site Factors: Uncompacted soils; older dry fiber roots.

Location: Front Lawn

Observations

The tree #96 exhibits a slight southerly lean, with portions of the older fibrous root system already exposed, consistent with the natural growth habit of date palms. This pre-existing lean reduces structural stability and increases susceptibility to disturbance during air-knife excavation. Date palm fibrous roots were easily deflected, torn, or severed when soil was removed around the root zone, and excavation approximately 12 inches is expected to result in significant root loss, including portions of the structural root plate responsible for anchorage. Such loss will materially compromise the tree's health, stability and physiological function. The tree is unlikely to maintain adequate structural support or long-term health following excavation.

Root Zone Inspection

Air-knifing performed on the north, east and west sides of the tree to a depth of 12 inches revealed structural and anchor roots beginning at approximately 2-4 inches below grade. These roots provide essential mechanical support and are responsible for resisting overturning forces associated with the tree's existing lean.

Assessment of Impacts

Excavation to 12 inches will expose the majority of the tree's fiber root system. Based on ISA BMPs for Tree Risk Assessment and Root Management, removal of soil to this depth within the CRZ will imminently compromise mechanical stability. Given the tree's existing lean and the depth at which critical roots occur, further excavation will likely result in loss of structural support and may lead to tree failure.

Conclusion

Tree #96 cannot maintain structural stability if contaminated soil excavation proceeds to the proposed level of 1 foot below grade. The planned soil removal will expose and destabilize all major fiber roots, creating a high likelihood of failure once root support is compromised.

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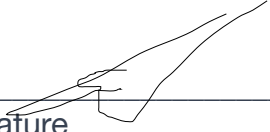


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This report was revised on September 17, 2026 and transmitted to the Pasadena School District on September 18, 2026.



Signature

____ Elias Najar _____

Printed name

____ 09/21/2026 _____

Date