



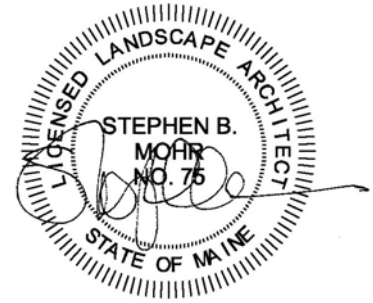
M O H R & S E R E D I N

Landscape Architects, Inc.

LANDSCAPE PLAN DESCRIPTION

118 On Munjoy Hill

December 31, 2013



A. Introduction

Mohr & Seredin Landscape Architects, Inc. (M&S) is a part of the design team for the 118 On Munjoy Hill project to refine the landscape treatment plan and address landscape concerns raised by the public and the City Staff. M&S visited the site, met with the Owner's design team, consulted with Jeff Tarling (City Arborist) and worked with Kyle Rosenberg (Forest to Shore Arborist) to prepare the landscape plan for the project.

B. Landscape Plan Description

The revised landscape plan has been reviewed and developed based upon the original planting plan, as well as from additional study of the site conditions, proposed building adjustments, and an assessment of the mature Pin Oak in the St. Lawrence Street right of way. The key elements of the plan are as follows:

1. Pin Oak Assessment: Kyle Rosenberg's Assessment (see attached exhibit) recommends that the existing Pin Oak be replaced with new plantings based upon the anticipated construction impacts to the tree. M&S concurs, but have developed a planting plan that can preserve the Pin Oak if the City Staff believe it to be required. If the City Staff recommends preservation of the tree, this will be pursued, but in the event that the construction impacts are too great, based upon field observation by the City Arborist, then the alternative Pin Oak replacement with two (2) Red Maples plan will be implemented.
2. Street Tree Planting: The proposed street tree plantings include five (5) new trees; Red Maple and Liberty or Princeton Elm, all at 2" to 2 ½" caliper, with the Pin Oak retained. The new trees will be installed in 4 foot - 6 inch by 7 foot, 4" high curbed planters within the sidewalks and will be underplanted with herbaceous groundcovers. In the event that the Pin Oak is removed, then two (2) additional Red Maple will be installed. The applicant will provide compensation to the City's Street Tree Account for the two (2) additional trees required by the ordinance, but not planted in the right of ways.
3. Building Plantings: The landscape plan proposes to install Wisteria Vines for the trellis structures on portions of the building, and to construct a planted rain garden on one edge of the development. The rain garden has been designed to receive and treat the initial 1 inch of runoff from the roof of the building, and is planted with Iris and Sedum which will tolerate the variable growing conditions in the garden.

C. Summary

The proposed landscape plan conforms to the City ordinance planting requirements and addresses the concerns raised by City Staff in the memo dated December 13, 2013. We believe that the landscape plan will create the desired tree canopy on Congress and St. Lawrence Streets, with or without the Pin Oak being preserved; there will be a net improvement in the street tree value when the project is finished; the proposed tree species will thrive in the area between the building and street curb line; and there is no substantive change in the Congress Street viewshed as a result of the building location or planting.

F O R E S T T O S H O R E

PIN OAK TREE ASSESSMENT

CORNER OF ST. LAWRENCE AND CONGRESS
STREETS, PORTLAND, ME 04101

Prepared by Kyle Rosenberg, Owner, Forest to Shore

c/o

Tanya Seredin

Mohr & Seredin Landscape Architects, Inc.

18 Pleasant St., Portland, ME 04101

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TREE SPECIES

Pin Oak *Quercus palustris*

Mature Height: 60-70 feet

Mature Canopy Spread: > 40 feet

Mature Trunk Diameter: up to 3 feet

Pin Oak naturally occurs as a wetland tree, and develops a shallow, fibrous root system. Different from other Oaks, Pin Oak trees do not form a strong, deep taproot when young. Prefers acidic soils, and does not flourish in limestone.

Pin Oak grows primarily on level or nearly level, poorly drained alluvial floodplain and river bottom soils with high clay content. Pin Oak is usually found on sites that flood intermittently during the dormant season but do not ordinarily flood during the growing season. The level topography and presence of a clay pan in the soil of these areas cause these sites to be excessively wet in winter and spring.

Pin Oak is one of the most widely planted species of the Oak family. Its natural occurrence as a flood plain species, with a seasonal high water table resulting in oxygen deprived soils, makes this species ideal to thriving as a street tree. The compacted soils common in streetscapes are similar to floodplain soils in that there is a lack of oxygen moving into the soil profile. As a result, Pin Oak develops a shallow root system to better access the oxygen necessary to fuel respiration.

PLANTING SITE EVALUATION

The planting site is typical of a city streetscape. The plant bed is situated between the street and the sidewalk in a space roughly 4 feet wide by 50 feet in length.



Evidence of a shallow root system, typical of the species, is evident in the condition of the hot top of the adjacent parking lot. Raised areas and corresponding cracks in the hot top suggest tree roots are close to the surface and traveling underground into the parking area. The red lines in the photo below represent the direction and path of a number of cracks radiating into the parking lot from an origin of what appears to be the tree trunk.



The opposite side of the tree is a public street. Roots are less apt to be found beneath the street due to the compaction necessary to construct a roadway properly. Roots require air, water and a soil structure which allows for root movement thru the soil profile. Since the soil profile under the roadway will not offer any benefit to the root system, it is inferred there is little viable root system found below this feature.

DISCUSSION

The future site plan calls for the construction of a building whose footprint shall be within 4 feet of the trunk of the tree. This will require soil disturbance outside of the building envelope further encroaching upon the tree. Preservation of this plant during construction will be a significant challenge.

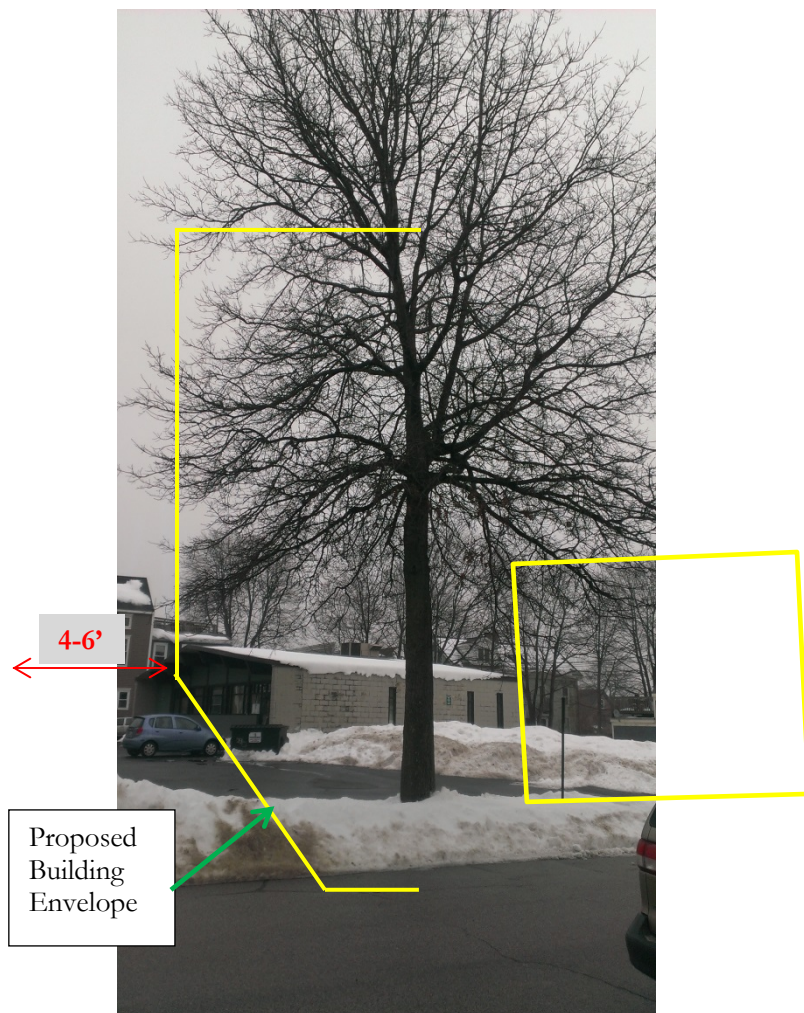
Generally, if a tree is to be preserved during construction several steps may be taken to help protect the tree during the process. One step frequently employed in tree preservation is the designation of a critical root zone or CRZ. Visually, a CRZ is laid out in the form of a circle made up of stakes and a material not unlike orange snow fence attached to the stakes at the edge of the CRZ. The tree trunk is at the center of the circle. To calculate the CRZ, measure trunk diameter and measure out the radius of the CRZ one foot from the trunk for every inch of trunk diameter. Since the diameter of this tree is nearly 20" the radius of the CRZ would be 20 feet out from the trunk creating a circle with a 40 foot diameter.

The CRZ of this tree will be greatly impacted by the excavation and construction of the proposed building. Additionally, there is a strong indication that the vast majority of roots from this tree may be found within the parking area. Excavation will certainly damage and/or sever a vast majority of tree roots.

Root loss of this magnitude will not only disrupt the nutrient and water uptake of the plant but dramatically impact how the tree is anchored into the soil. Root rot, trunk rot, and the potential for wind throw in a severe weather event are all likely to occur post construction.

Tree preservation during construction generally focuses on the below ground portion of a tree. In this case however, the impact upon the canopy of the tree must also be taken into account. As seen in the photo below, the construction of even a single story building will require the removal or reduction of a percentage of live tree canopy.

*Photo not to scale but used solely as a visual reference:





The impact upon the canopy alone would normally not have a negative impact on the tree but combined with root loss the impacts upon the tree will be great.

TREE PRESERVATION STRATEGIES

Tree preservation in this case will be a challenge. Due to the amount of potential root loss and viable branch removal necessary to construct a building onsite, a number of steps must be taken to ensure tree health and vigor is maintained.

The building will be well within the CRZ of this plant. While it may be helpful to establish a CRZ, it may unnecessary due to the scope of the project. A number of other strategies may be implemented in caring for this tree.

1. Deep root fertilization of the plant before and after construction to increase plant vigor prior to construction and to encourage fine root development once construction is complete
2. Root pruning to be completed during construction. Since roots to not develop from crushed stems it would be imperative to cut cleanly any roots which may be otherwise severed by excavation machinery or crushed during the excavation process.
3. Incorporation of a structural soil such as a 'Cornell Mix', a mix of angular crushed stone and loam in the plant beds and adjacent 12" to 18". This soil type encourages root development and does not compact to the point where soil porosity is affected.
4. Season of PHC treatments to reduce insect and disease pressure post construction

RECOMMENDATIONS

Building construction entails a great deal of processes. While sites vary, these processes seldom do. Preservation of mature, unique, or historic trees on a given site is at the heart of any forward thinking construction project. However, there are instances where tree preservation may not be the best long term answer for the site.

The field data collected along with the construction site plan for this property lead me to believe removal of the Pin Oak, along with replanting, is the best long term use of current resources. While tree preservation practices would buy a few seasons more for this tree the overall impact of construction upon it would certainly show in time. The efforts of preservation would eventually be lost in tree decline and mortality.

Applying financial resources now toward sound plant bed construction, such as incorporating structural soils and trenching between beds, will help to ensure the installation of new plants along with proper follow-up care (irrigation/fertilization/proper pruning etc.) will create a greener property. Installing larger trees will help to make up the canopy loss of the single Pin Oak. Smaller woody plants would help to fill in the understory. The combination of plants would offer year around appeal, help soften the property and help reduce the overall carbon footprint of the property. In the 5 years + or - the Pin Oak may out live construction the new plants would be well established and giving back to the site in a manner the single Pin Oak could not.

Thank you and we look forward to being of assistance on this project.

Sincerely,

Kyle Rosenberg, Owner
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