

APPENDIX D

Individual Tree Analysis

Individual Tree Analysis

For the Richardson Grove Improvement Project

Humboldt County, California
District 1-HUM-101, PM 1.1/2.2
EA 464800

September 2013

STATE OF CALIFORNIA
Department of Transportation

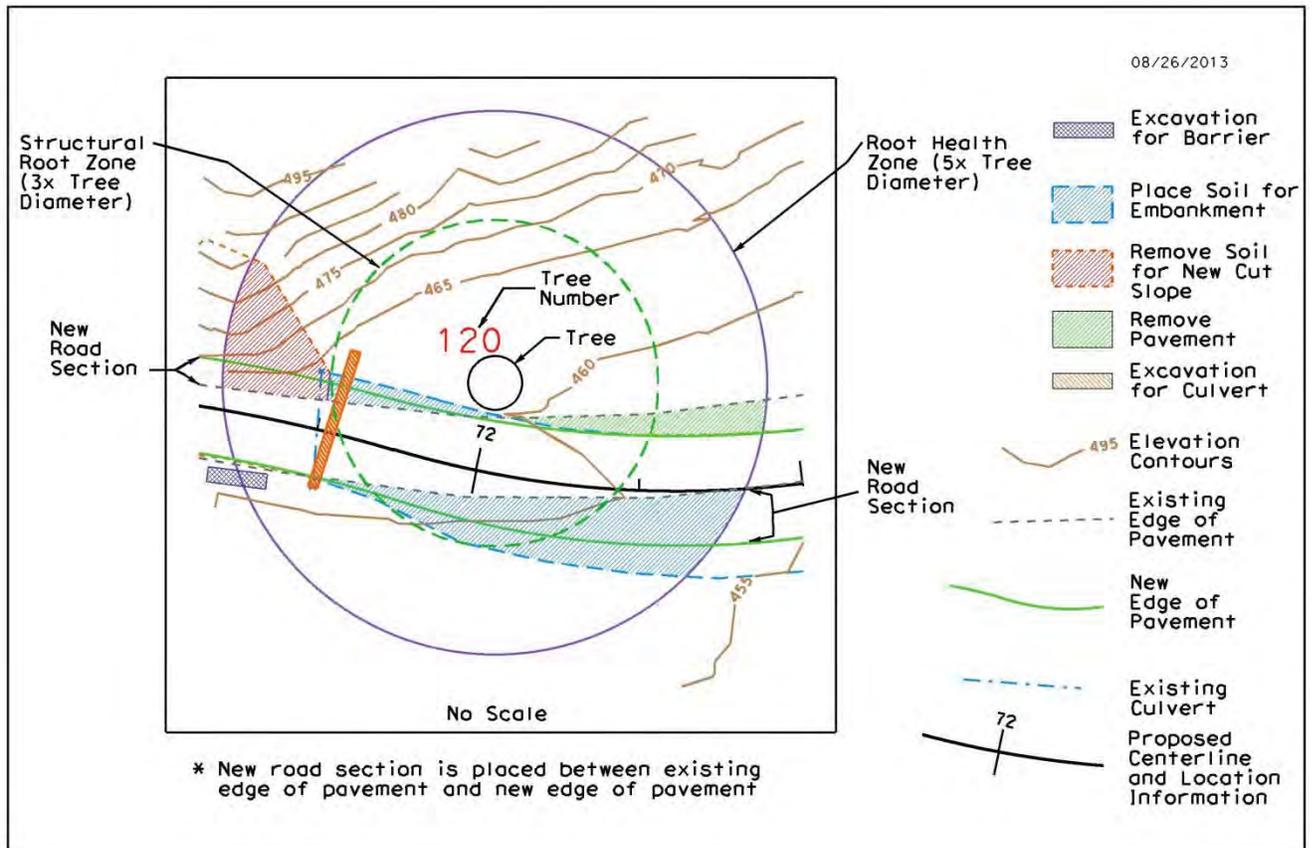
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North Region Environmental Management
(707) 445-5320

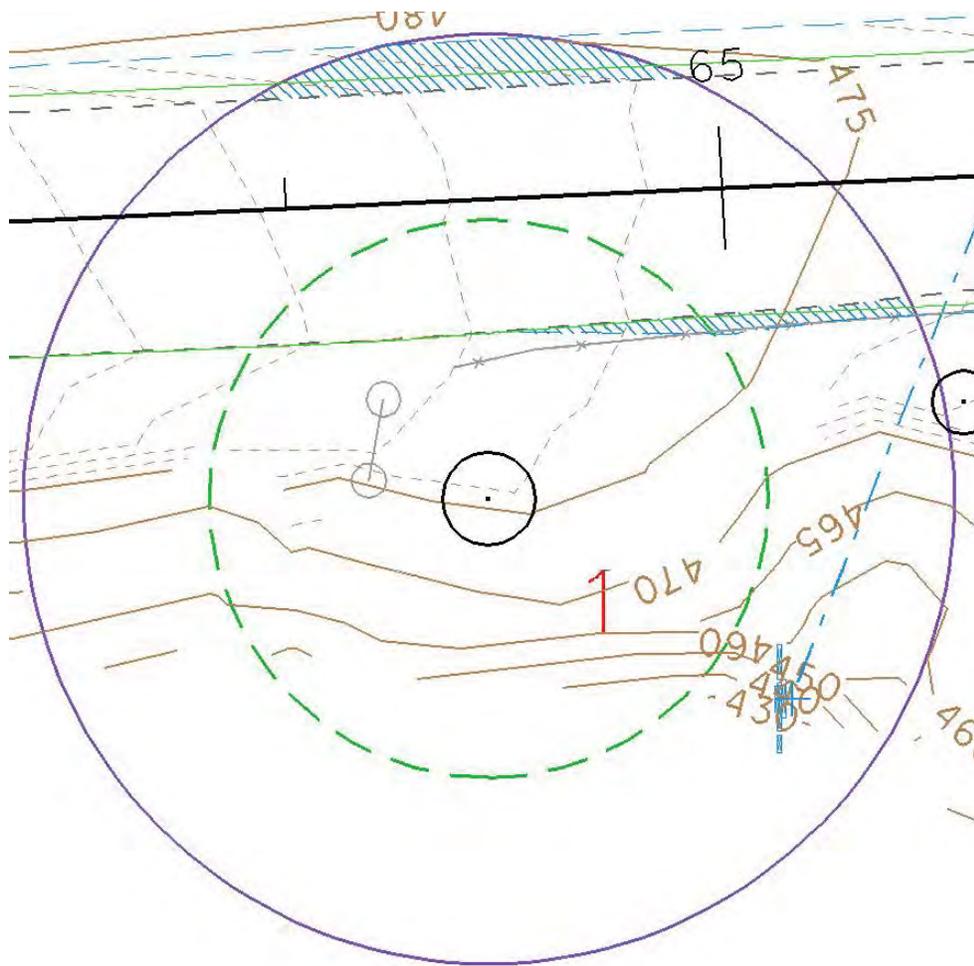
Approved By:  Date: 9-11-13
Cindy Anderson, North Region Environmental Division Chief
North Region Environmental Management
(530) 741-4277

Individual Tree Analysis

The following Individual Tree Analysis supplements the tree by tree assessment in the 2010 Final EA, and uses maps based on the updated tree information. Additionally, an illustration is included for each tree that shows the root health and structural root zones, and a depiction of proposed work within these areas of the tree. Figure 1 below is a legend for the illustrations.

Figure 1 Tree Work Legend





Description: Tree #1, 128 inches DBH (depicted in Attachment A, Sheet 3). Tree was identified as two separate trees in the Final EA. Only one trunk was within the structural root zone when considered separately. (Listed as Tree #1 in Tables 9 and 10 of Final EA.)

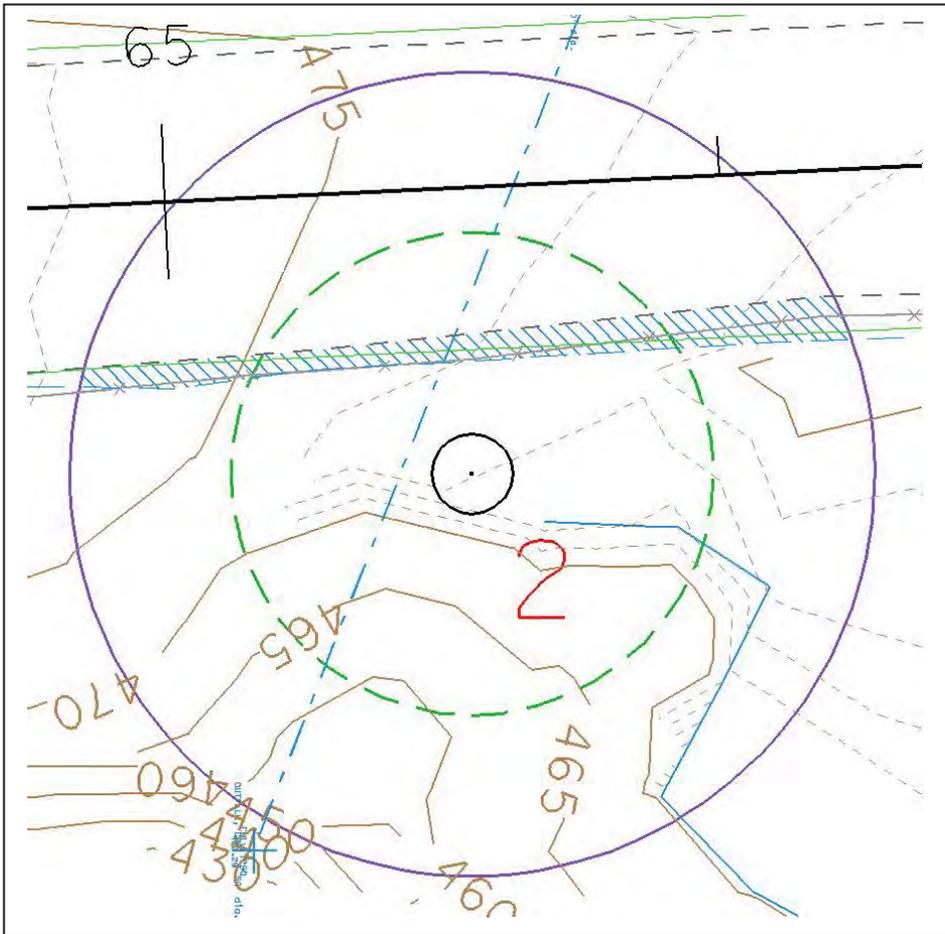
Work in structural root zone? Yes

Details of work: The road would be widened approximately 2 feet toward the tree. Where the road would be widened, soil and old road materials would be dug out and replaced with new road materials; new soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Tree would be near road work. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #2, 87 inches DBH (depicted in Attachment A, Sheet 3). Tree base appears to have been struck by a vehicle, and the root flare is not visible. (Listed as Tree #2 in Tables 9 and 10 of Final EA).

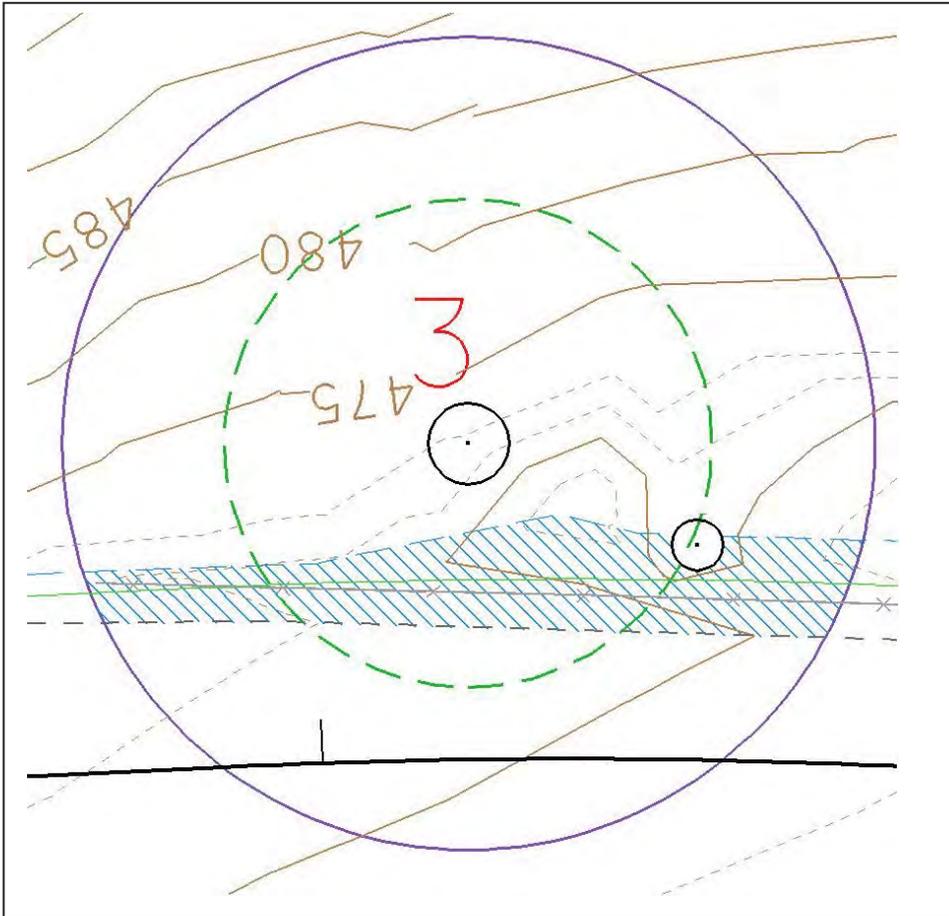
Work in structural root zone? Yes

Details of work: The road would be widened approximately 2 feet toward the tree. Where the road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Tree would be near road work. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #3, 80 inches DBH (depicted in Attachment A, Sheet 4). Tree has three trunks. (Listed as Tree #5 in Table 9, and #3 in Table 10 of Final EA).

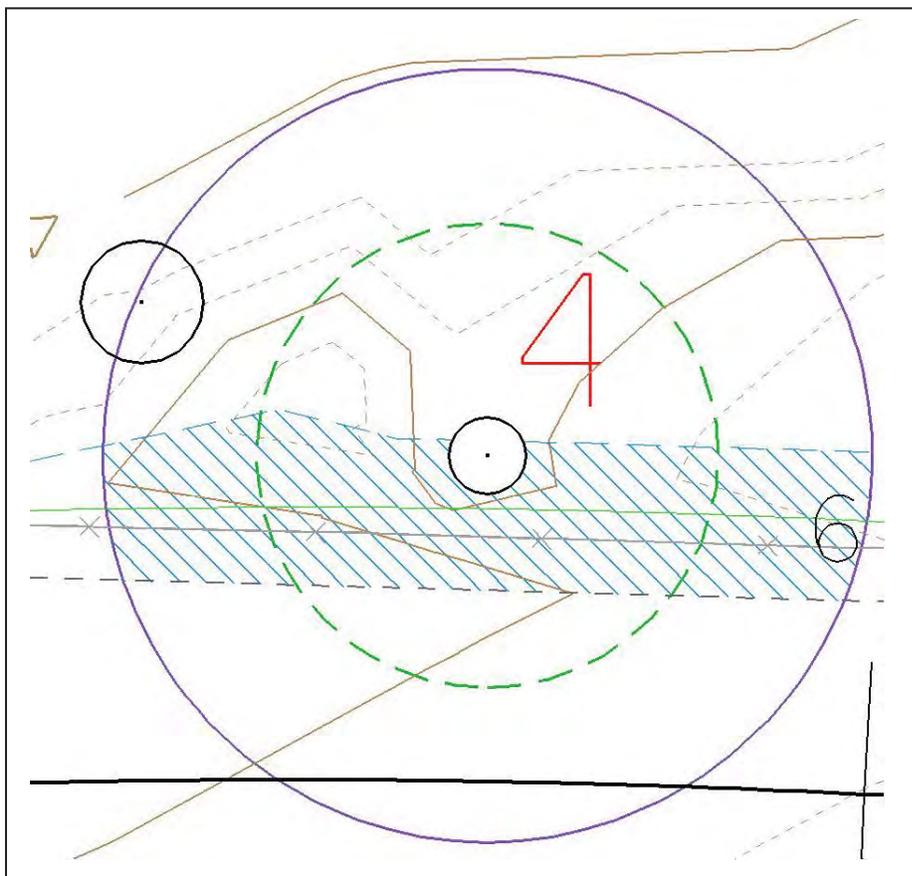
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Work would be similar to Tree #1, but tree is farther from the road. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #4, 51 inches DBH (depicted in Attachment A, Sheet 4). Base of tree is elevated from road. (Listed as Tree #7 in Table 9 and #4 in Table 10 of Final EA.)

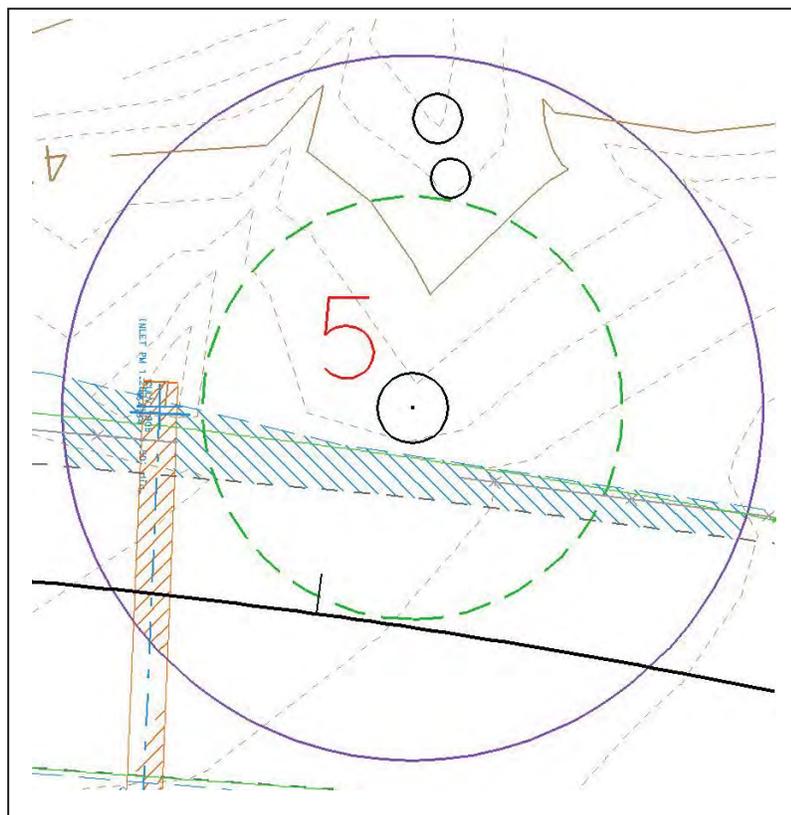
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Paving would be widened next to trunk, and shoulder would be widened on either side of tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #5, 75 inches DBH (depicted in Attachment A, Sheet 4). Tree has numerous sprouts at the base. (Listed as Tree #8 in Table 9, and #5 in Table 10 of Final EA.)

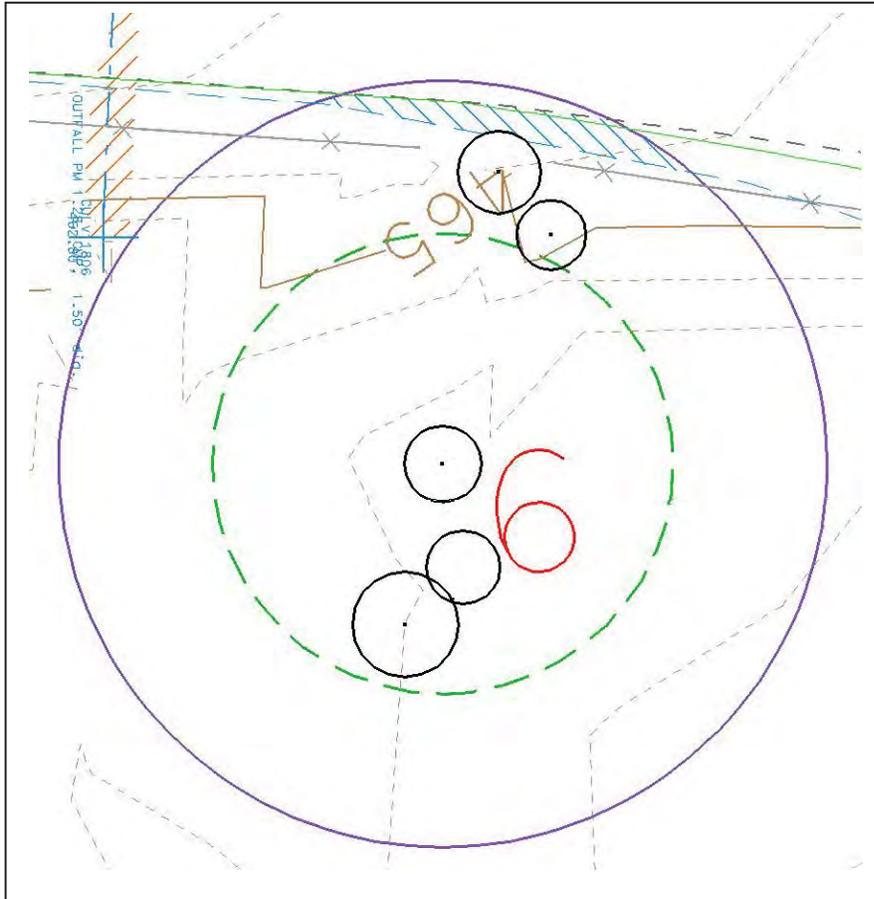
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, sprouts would be carefully cut from the tree base; soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. Outside of structural root zone an 18-inch diameter culvert would be replaced with a 24-inch culvert.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For culvert work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: The roadway was trenched to install original culvert, and it is unknown what size roots would be encountered again during replacement. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #6, 55 inches in diameter at breast height (depicted in Attachment A, Sheet 4). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and does intersect ground-disturbing activities.

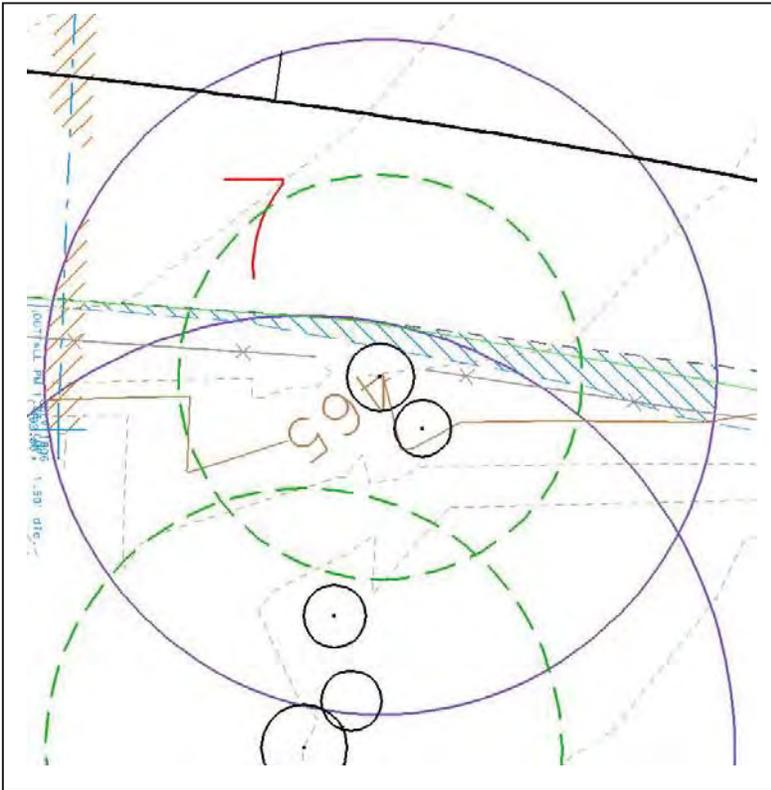
Work in structural root zone? No

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: There would be very little work within root health zone, and no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #7, 58 inches DBH (depicted in Attachment A, Sheet 4). Tree appears to have been struck by a vehicle on road side of trunk. (Listed as Tree #9 in Table 9, and #6 in Table 10 of Final EA.)

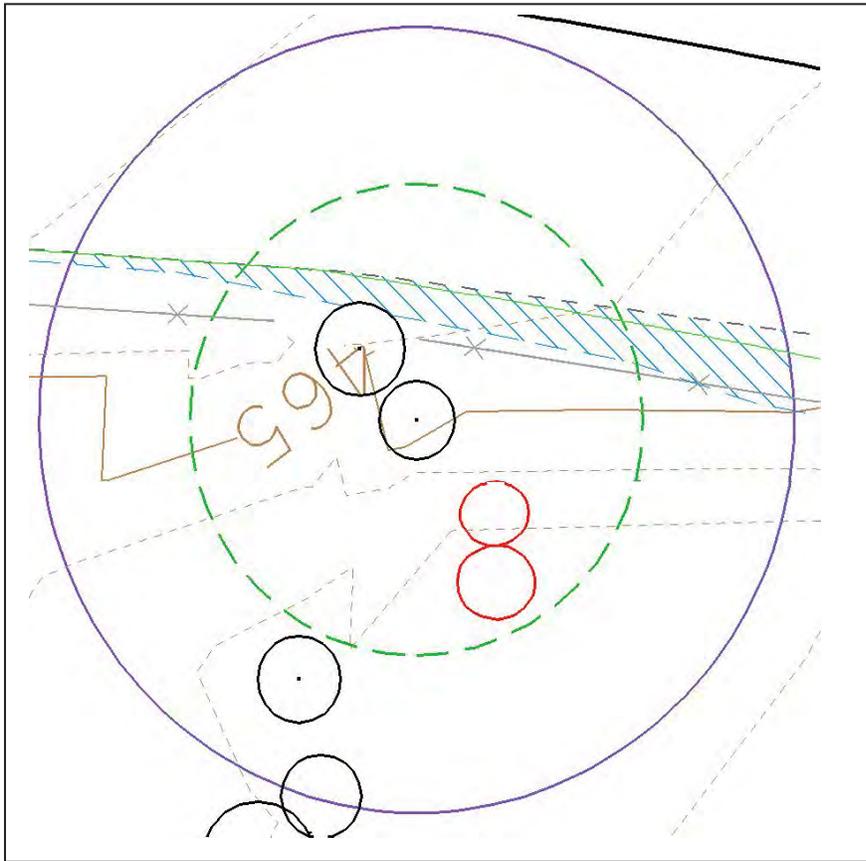
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. Outside of structural root zone an 18-inch diameter culvert would be replaced with a 24-inch culvert.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For culvert work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: The culvert replacement would take place in the outer edge of root health zone, and the new culvert would be set at the same depth as the existing. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #8, 48 inches DBH (depicted in Attachment A, Sheet 4). (Listed as Tree #10 in Table 9 and #7 in Table 10 of Final EA.)

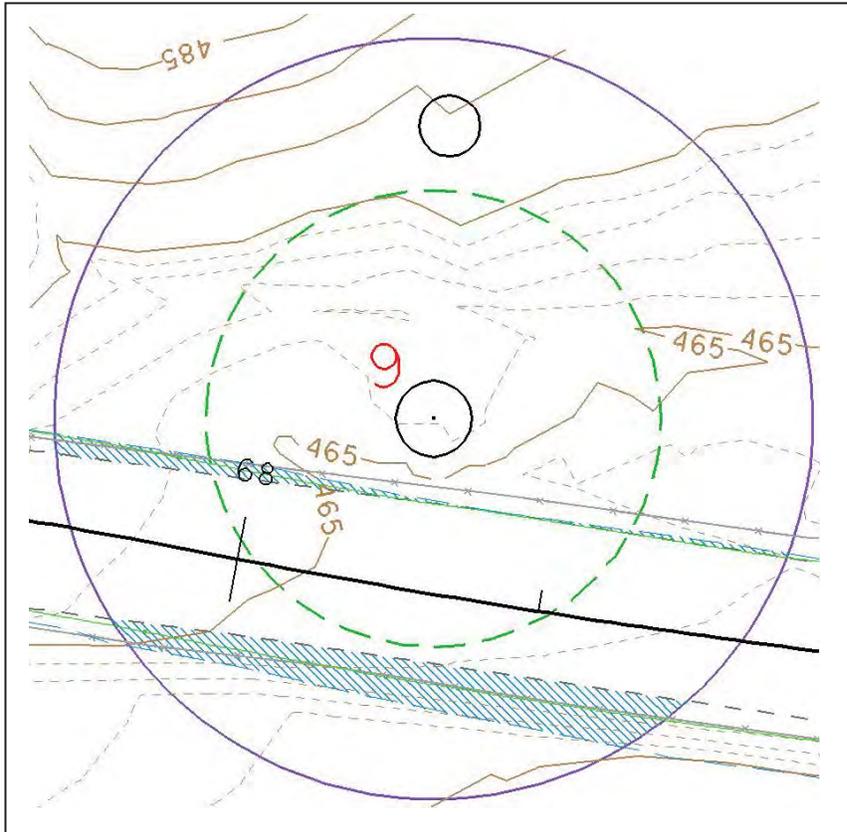
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Work is near trunk, and road widening is on the south side of the tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



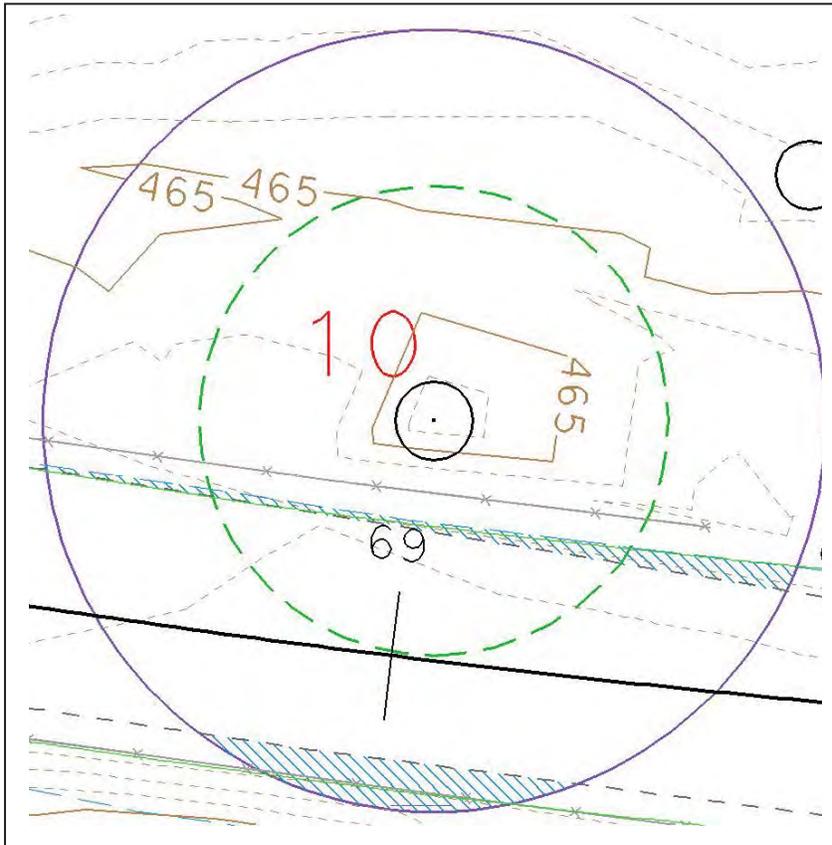
Description: Tree #9, 149 inches DBH (depicted in Attachment A, Sheet 4). Tree has two trunks. (Listed as Tree #13 in Table 9, and #8 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree; across the road it would be widened approximately 4 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: With avoidance and minimization measures in place there would be no decline in foliage density or tree health.



Description: Tree #10, 103 inches DBH (depicted in Attachment A, Sheet 4). (Listed as Tree #14 in Table 9 and #9 in Table 10 of Final EA.)

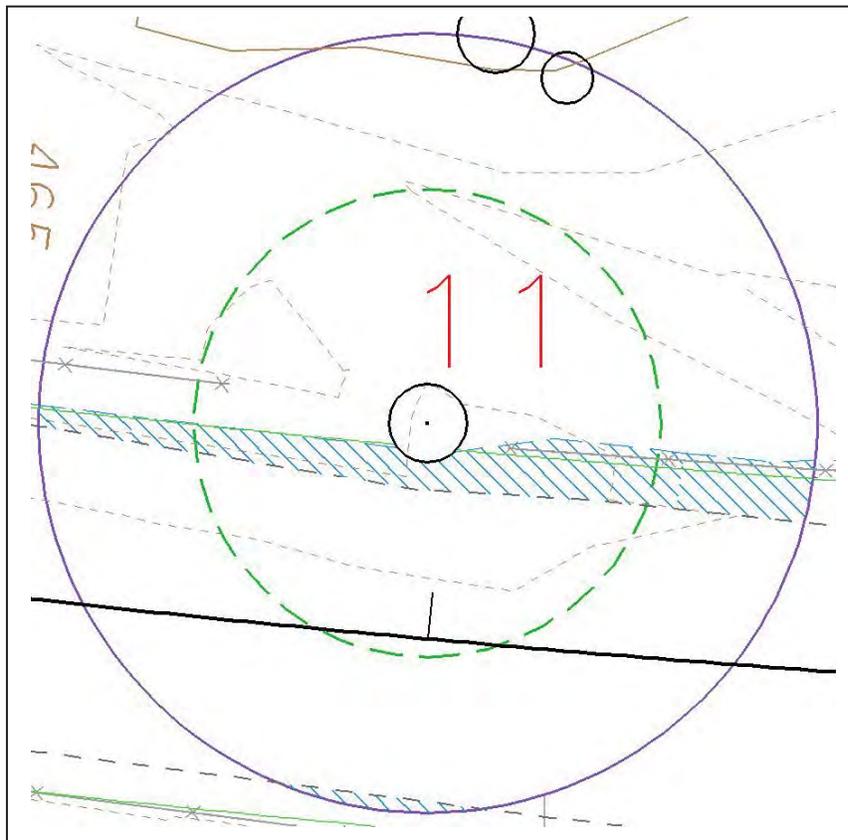
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree; across the road it would be widened approximately 4 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work is near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #11, 81 inches DBH (depicted in Attachment A, Sheet 5). (Listed as Tree #17 in Table 9, and #10 in Table 10 of Final EA.)

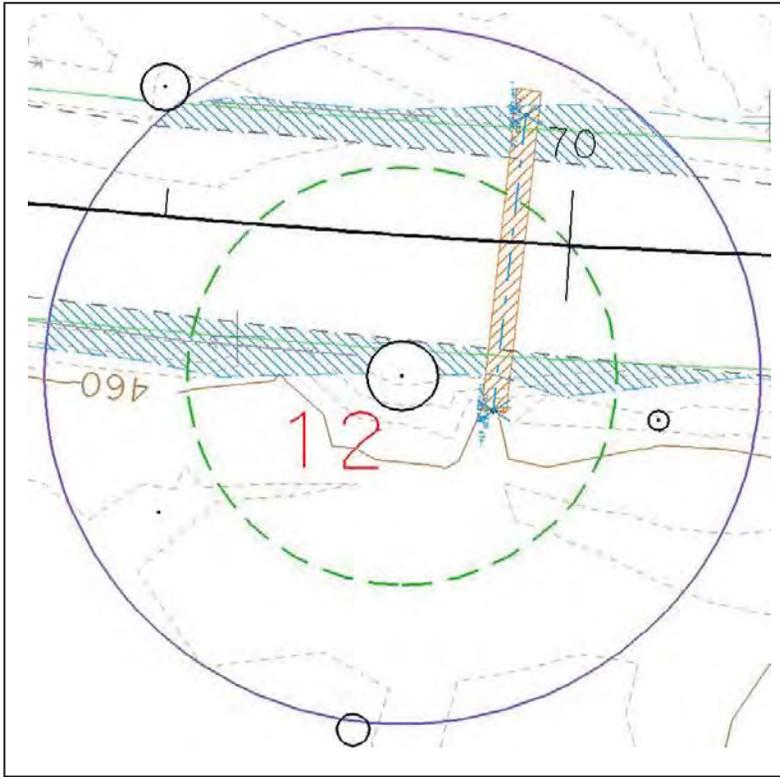
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work is near tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #12, 107 inches DBH (depicted in Attachment A, Sheet 5). Tree has two trunks. It appears to have been struck by a vehicle and has formed a callus roll. (Listed as Tree #20 in Table 9 and #11 in Table 10 of Final EA.)

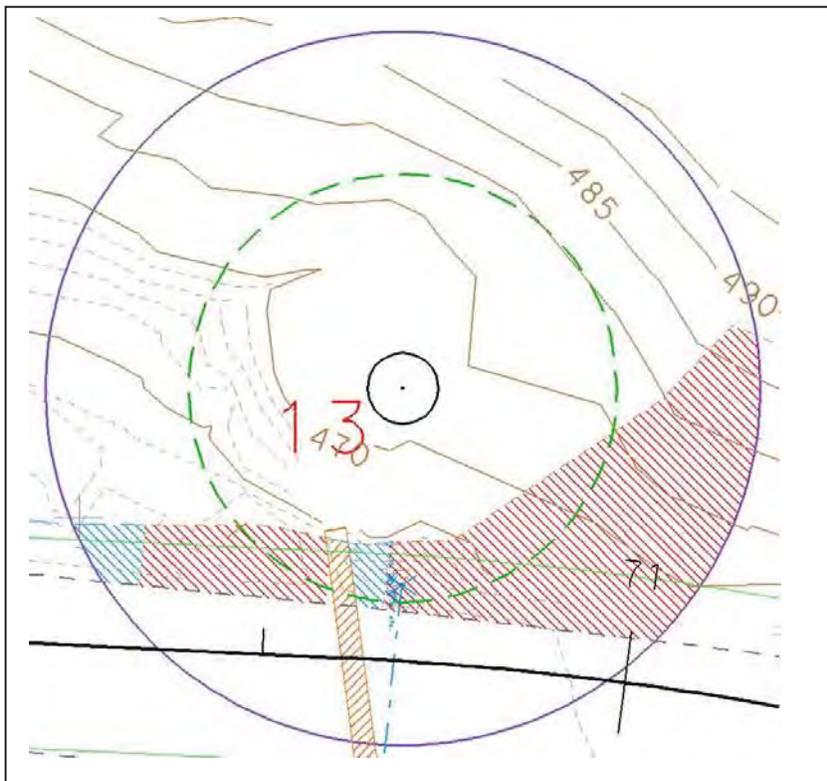
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree; across the road it would be widened approximately 4 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. An 18-inch culvert would be replaced with an 18-inch culvert.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For culvert work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Culvert replacement would be laid no deeper than originally placed, but it is unknown what size roots would be encountered again. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



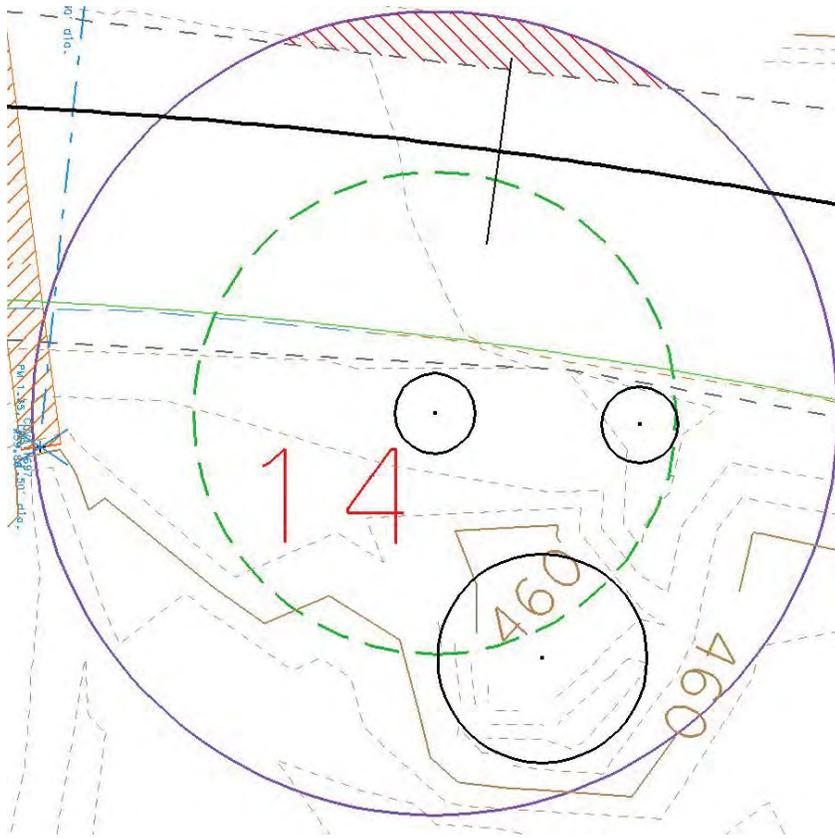
Description: Tree #13, 120 inches DBH (depicted in Attachment A, Sheet 5). The previous diameter measurement placed the structural root zone (3x diameter) of this tree outside of ground-disturbing activities; therefore it was not included in any tables for the Final EA. Re-measurement for the current study resulted in a larger diameter; therefore, it has been added to the assessment. In addition, a larger area (the root health zone, 5x diameter) is being evaluated for effect.*

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 8 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Soils would be removed for new roadside cut slopes (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. An 18-inch culvert would be replaced with a 24-inch culvert. The replacement culvert would conform to the new topography and intercept drainage at an earlier point.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope and culvert work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Soil would be removed about 12 feet from the tree, and it is unknown what size roots would be encountered. Any effect would be compensated for by the extensive and undisturbed root area, and a natural watercourse near the tree at the base of a slope. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #14, 74 inches DBH (depicted in Attachment A, Sheet 5). Tree appears to have been struck by a vehicle, and a small portion of the base appears to have been cut back. (Listed as Tree #22 in Table 9 and #12 in Table 10 of Final EA.)

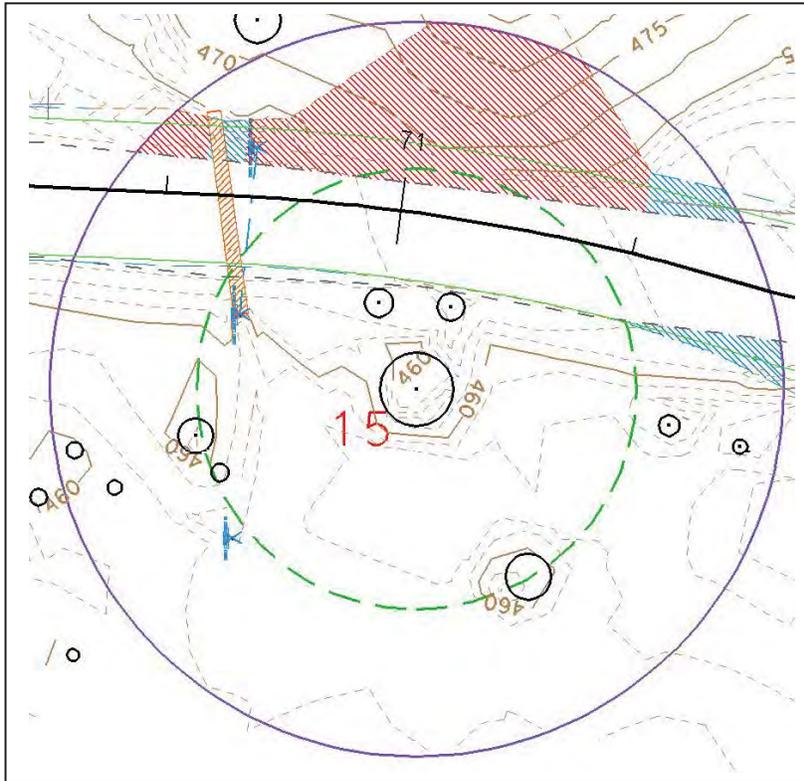
Work in structural root zone? No

Details of Work: Across the road from the tree, the road would be widened approximately 9 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new materials. Soils would be removed for new roadside cut slopes (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. Outside of structural root zone an 18-inch diameter culvert would be replaced with a 24-inch culvert. The replacement culvert would conform to the new topography and intercept drainage at an earlier point.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For cut slope and culvert work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: There would be minimal disturbance to the tree from culvert and soil removal. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #15, 187 inches DBH (depicted in Attachment A, Sheet 5). Tree has multiple stems and a large central cavity. It was identified as separate trees in the Final EA. Individually, their structural root zones (3x diameter) are outside the area of disturbance; therefore, they were not included in any tables. Measured as a single tree, and using the root health zone (5x diameter) for this analysis, it is within the limits of ground-disturbing activities.

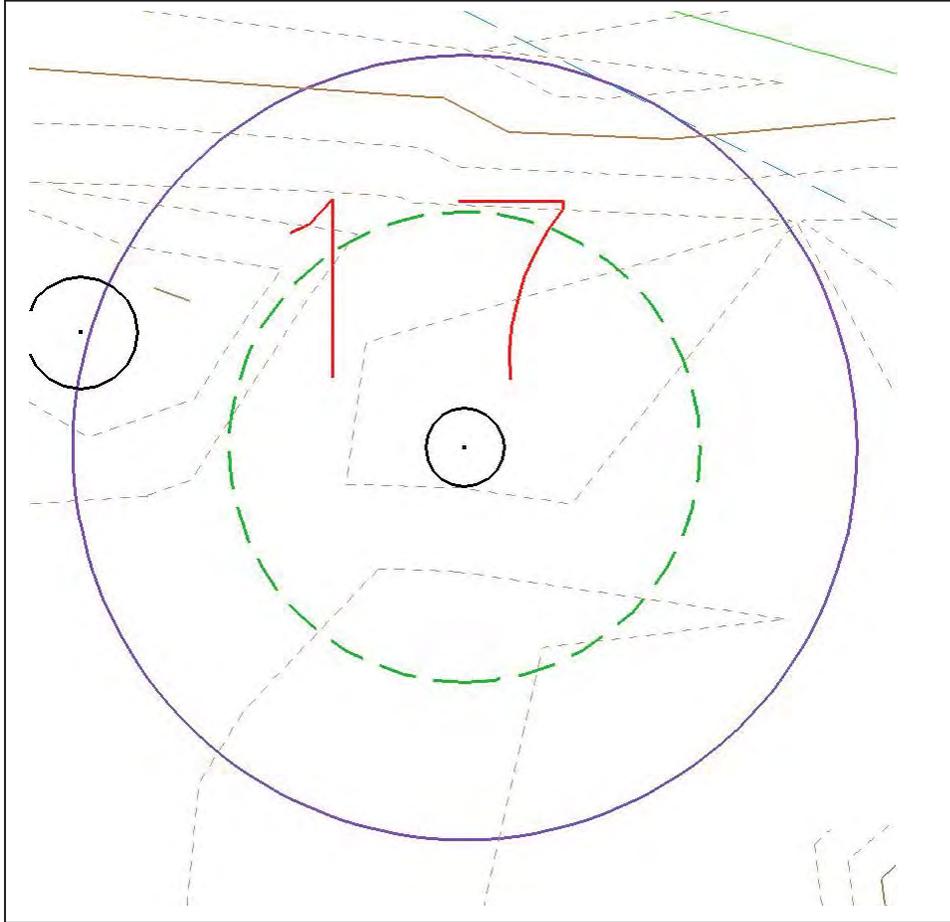
Work in structural root zone? Yes

Details of Work: Across the road from the tree, the road would be widened approximately 9 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Soils would be removed for new roadside cut slopes (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt. An 18-inch diameter culvert would be replaced with a 24-inch culvert. The replacement culvert would conform to the new topography and intercept drainage at an earlier point.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope and culvert work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Soil removal is at the outer edge of structural root zone, across the road. Culvert replacement calls for "minor concrete" backfill, which would allow a narrower trench to be dug (3 feet vs. 6 feet). With avoidance and minimization measures in place there would be no decline in foliage density or tree health.

Individual Tree Analysis



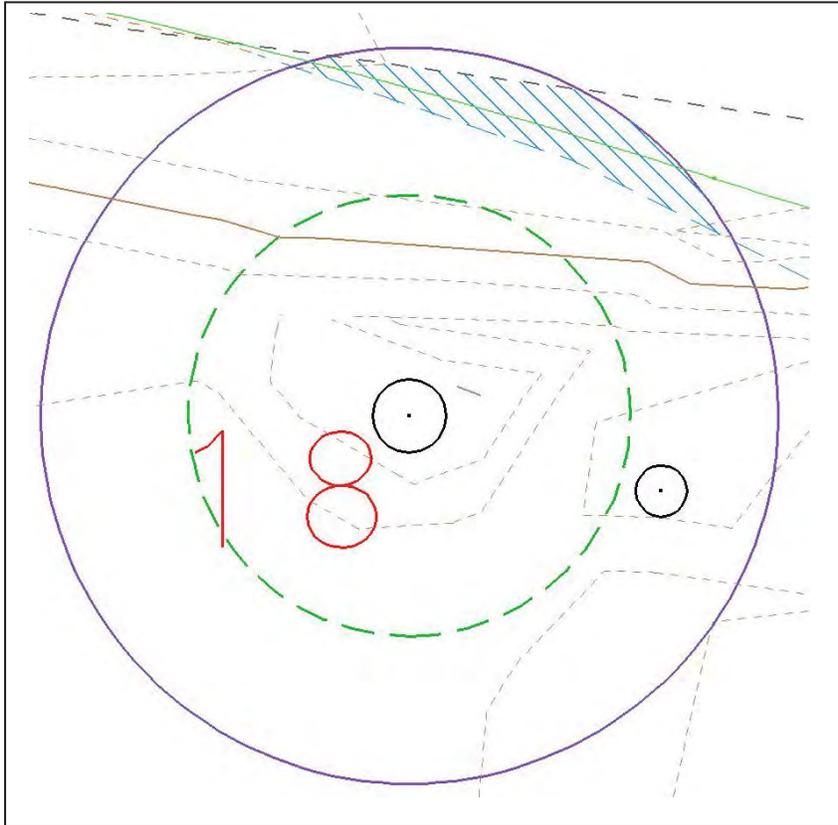
Description: Tree #17, 37 inches DBH (depicted in Attachment A, Sheet 5). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Tree is far from road, and work would barely touch root health zone. There would be no decline in foliage density or tree health.



Description: Tree #18, 55 inches DBH (depicted in Attachment A, Sheet 5). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

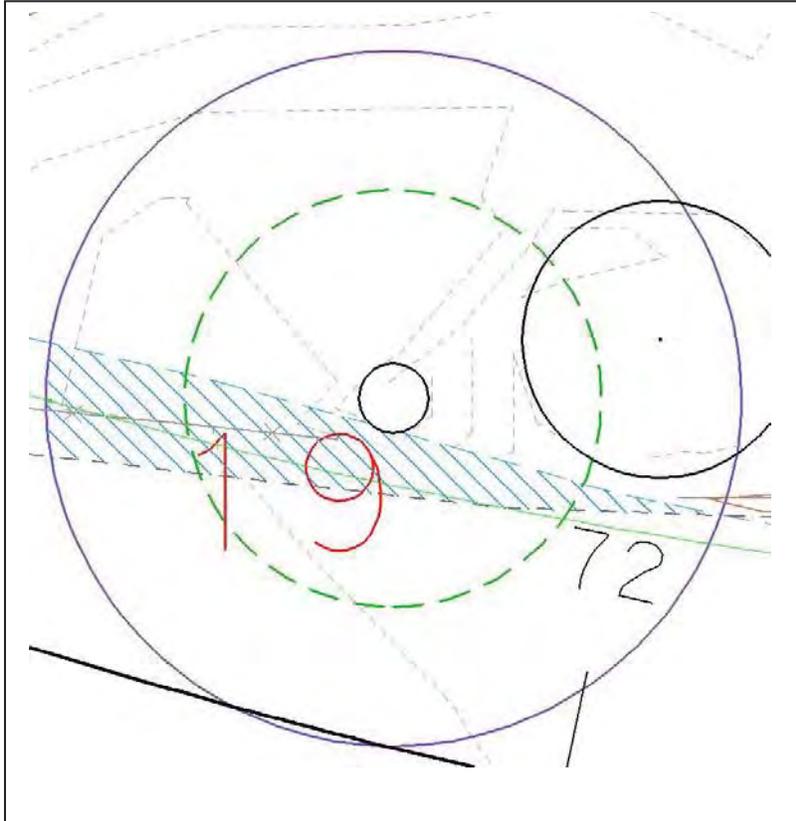
Work in structural root zone? No

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Tree would be far from road work, with a small amount of digging and soil placement in the outer edge of root health zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #19, 53 inches DBH (depicted in Attachment A, Sheet 5). Tree is near the road. (Listed as Tree #25 in Table 9 and #15 in Table 10 of Final EA.)

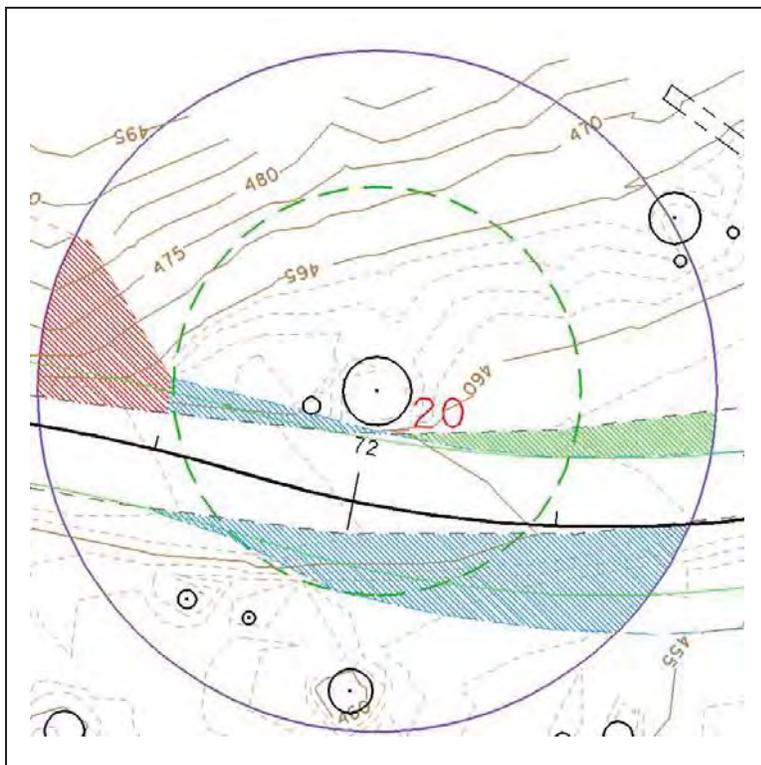
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road would be widened near tree base. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #20, 199 inches DBH (depicted in Attachment A, Sheet 6). Tree has two trunks and uppermost top of tree is dead (a “spike” top). A core sample of paving in this area revealed that asphalt material is 1.5 feet deep. Large-diameter buttress roots were cut, probably during construction of highway. Tree was previously counted as two separate trees in Final EA: Trees #26 & 27 in Table 9 and #14 & 16 in Table 10.

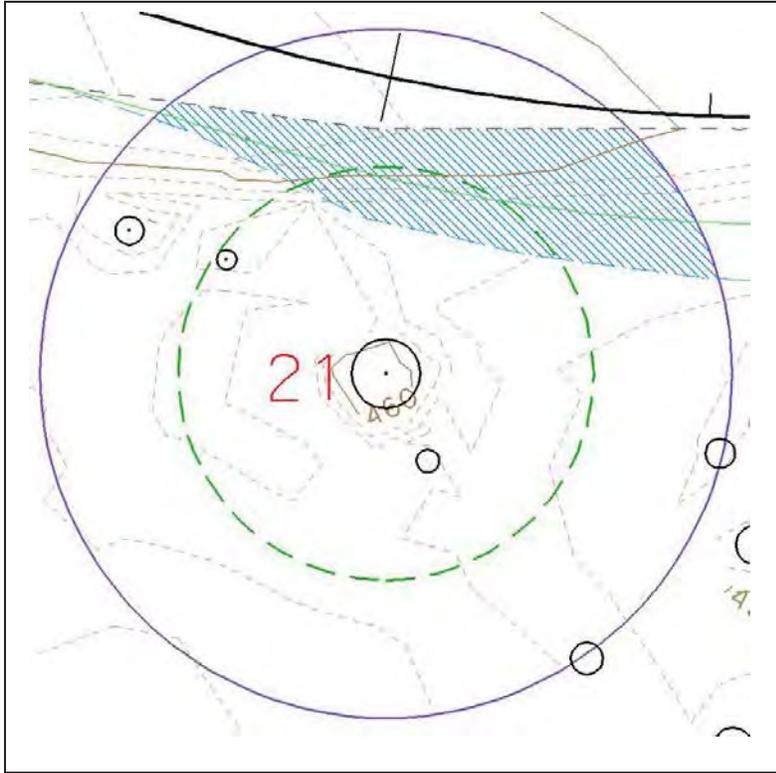
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 5 feet toward the south side of the tree and narrowed 7 feet on the north side; across the road it would be widened approximately 12 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Soils would be removed for new roadside cut slopes outside of structural root zone (average depth greater than 36 inches). Where roadway would be narrowed, road materials would be removed and replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Tree would benefit from removing pavement and replacing it with native soil and duff. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #21, 129 inches DBH (depicted in Attachment A, Sheet 6). (Listed as Tree #28 in Table 9, and #17 in Table 10 of Final EA.)

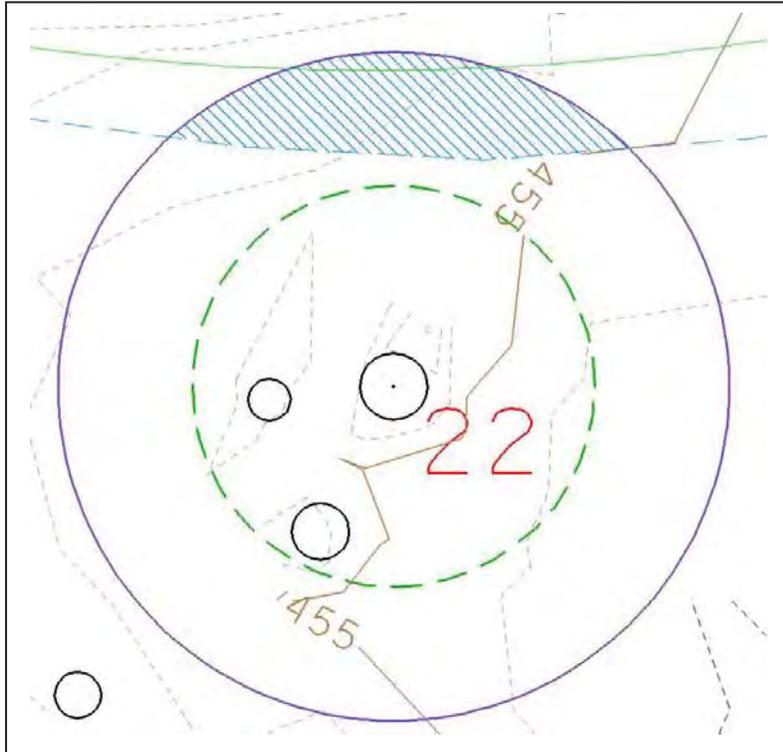
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 10 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: A large amount of embankment would be placed in a small portion of the root health zone. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #22, 89 inches DBH (depicted in Attachment A, Sheet 6). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

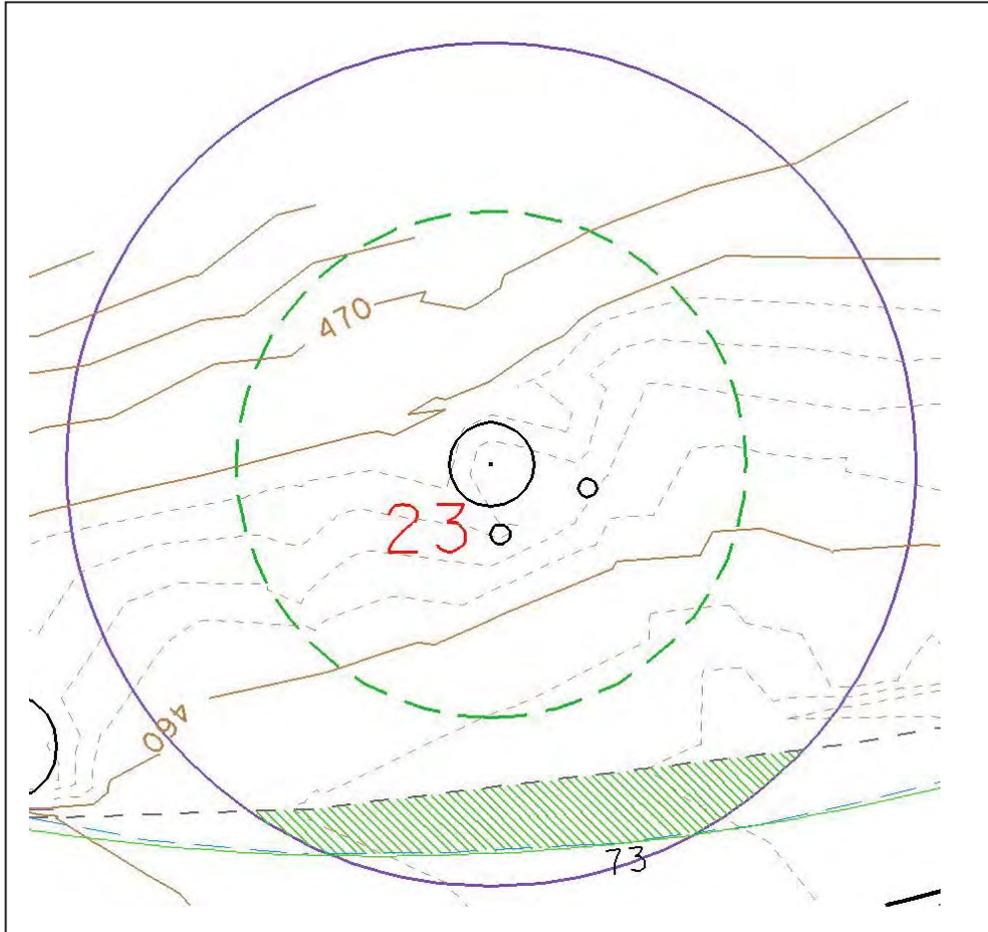
Work in structural root zone? No

Details of Work: The road would be widened approximately 16 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new materials. New soils would be placed to construct embankment (average depth greater than 36 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: A large amount of embankment would be placed in a small portion of the root health zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #23, 151 inches DBH (depicted in Attachment A, Sheet 6). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

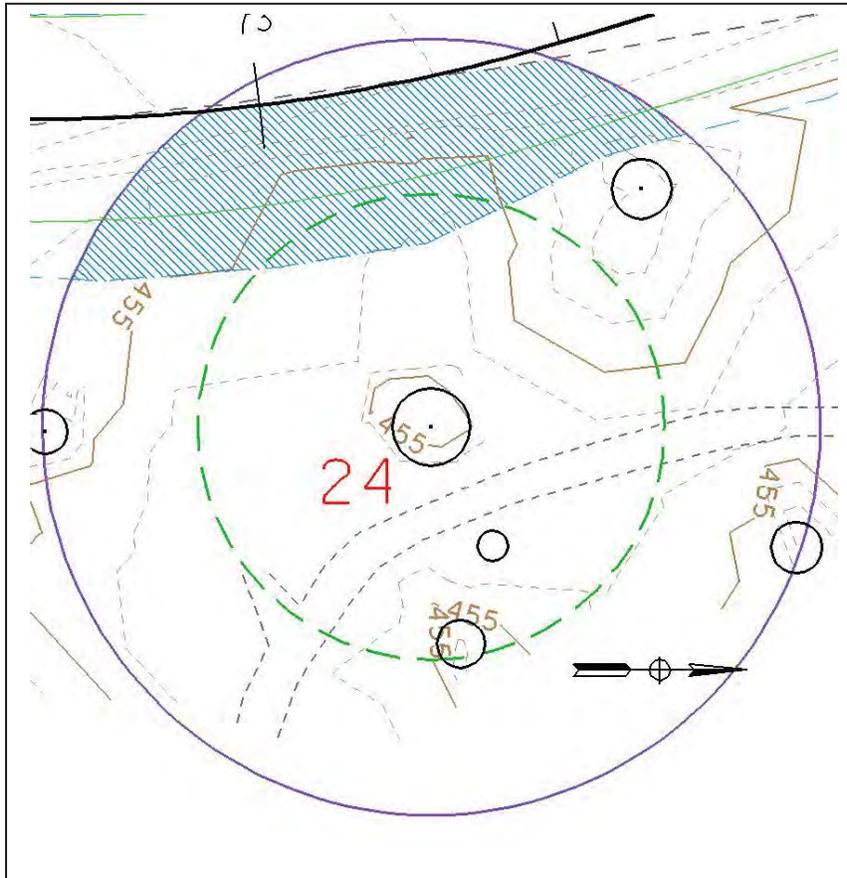
Work in structural root zone? No

Details of Work: The road would be moved approximately 10 feet away from the tree. Where road would be removed, road materials would be replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #24, 152 inches DBH (depicted in Attachment A, Sheet 6). Tree has two trunks. It was identified as two separate trees in the Final EA. Individually, their structural root zones (3x diameter) are outside the area of disturbance, and they were not included in any tables. Measured as a single tree, and using the root health zone (5x diameter) for this analysis, it is within the limits of ground-disturbing activities.

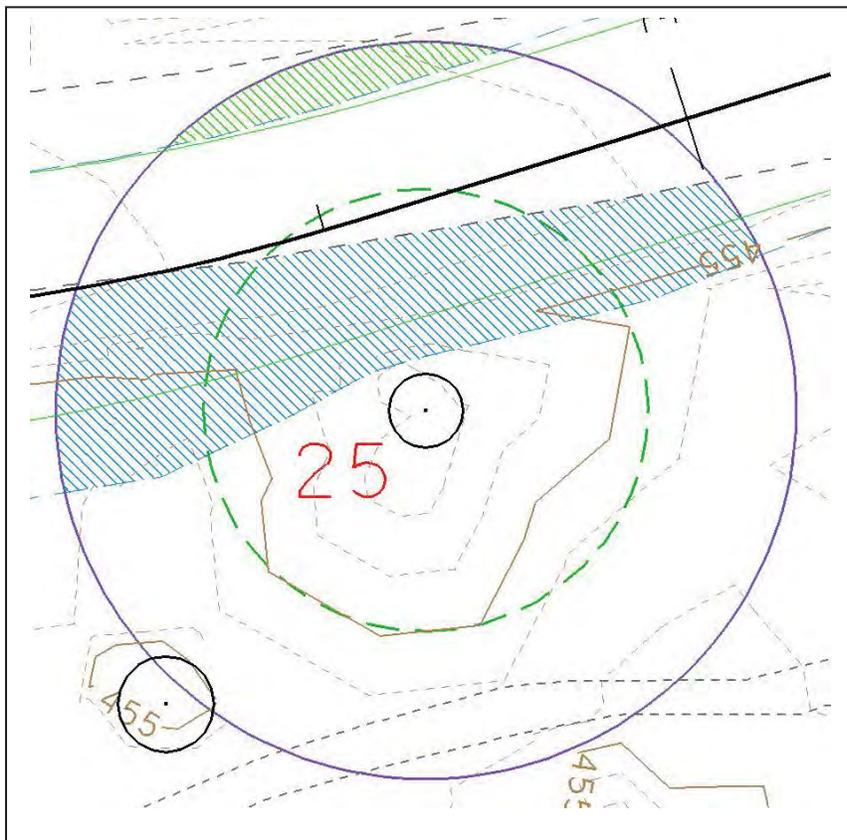
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 11 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: A large amount of embankment would be placed within the root health zone, and in a limited portion of the structural root zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #25, 119 inches DBH (depicted in Attachment A, Sheet 6). (Listed as Tree #31 in Table 9, and #18 in Table 10 of Final EA.)

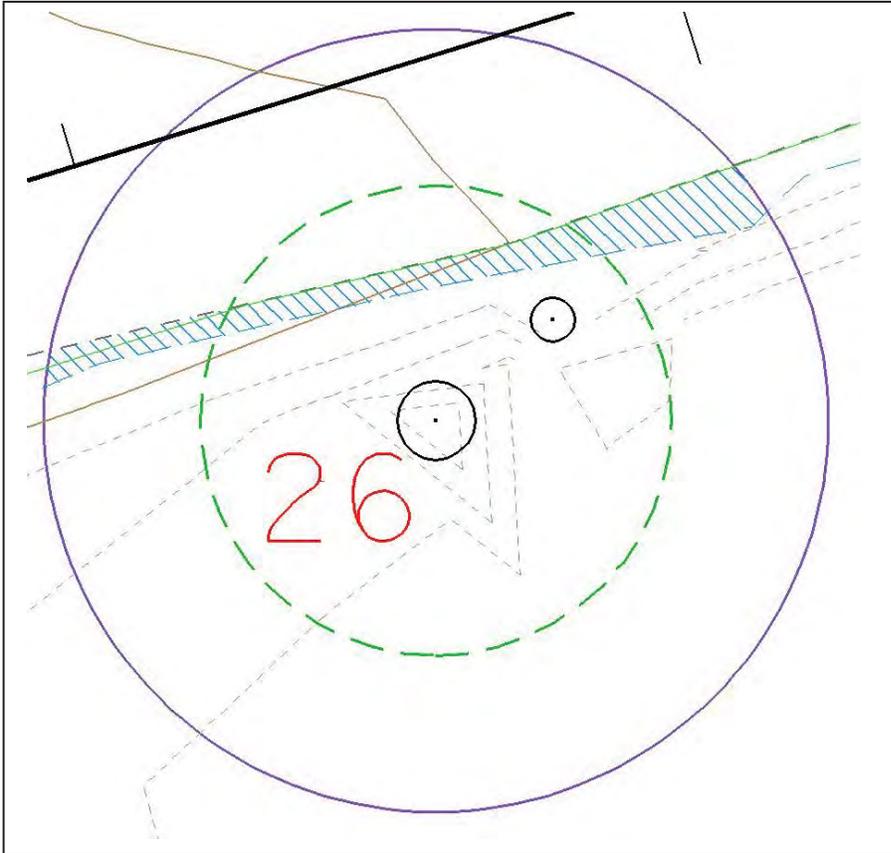
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 11 feet toward the tree; across the road it would be reduced by approximately 6 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Where road would be narrowed, road materials would be removed and replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Embankment would be added to the root health zone, up to a small redwood in front of the tree. Embankment would be partially offset by pavement removal, and tree would adapt to limited fill. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #26, 76 inches DBH (depicted in Attachment A, Sheet 6). Tree has a large basal scar that is callusing over. (Listed as Tree #32 in Table 9 and #19 in Table 10 of Final EA.)

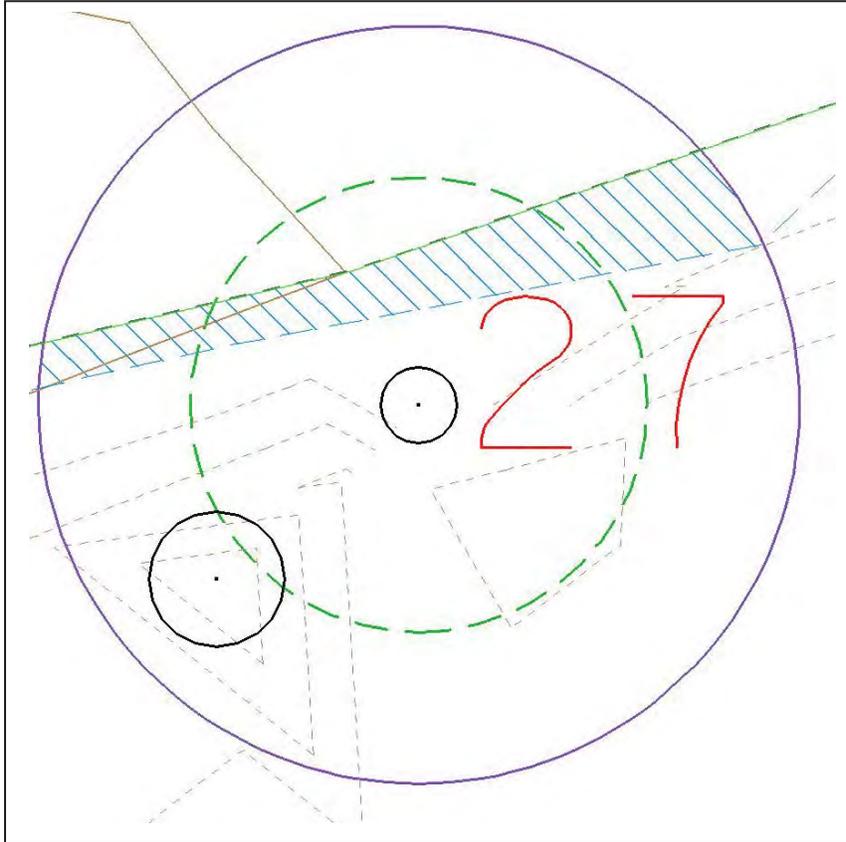
Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 1-2 inches). Pavement layers would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Amount of embankment would be small. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #27, 43 inches DBH (depicted in Attachment A, Sheet 6). Tree is adjacent to road and appears to have been struck by vehicles. The previous diameter measurement placed the structural root zone (3x diameter) outside of ground-disturbing activities; therefore it was not included in any tables for the Final EA. It has been added to the assessment because re-measurement resulted in a larger diameter. In addition, a larger area (the root health zone, 5x diameter) is being evaluated for effect.

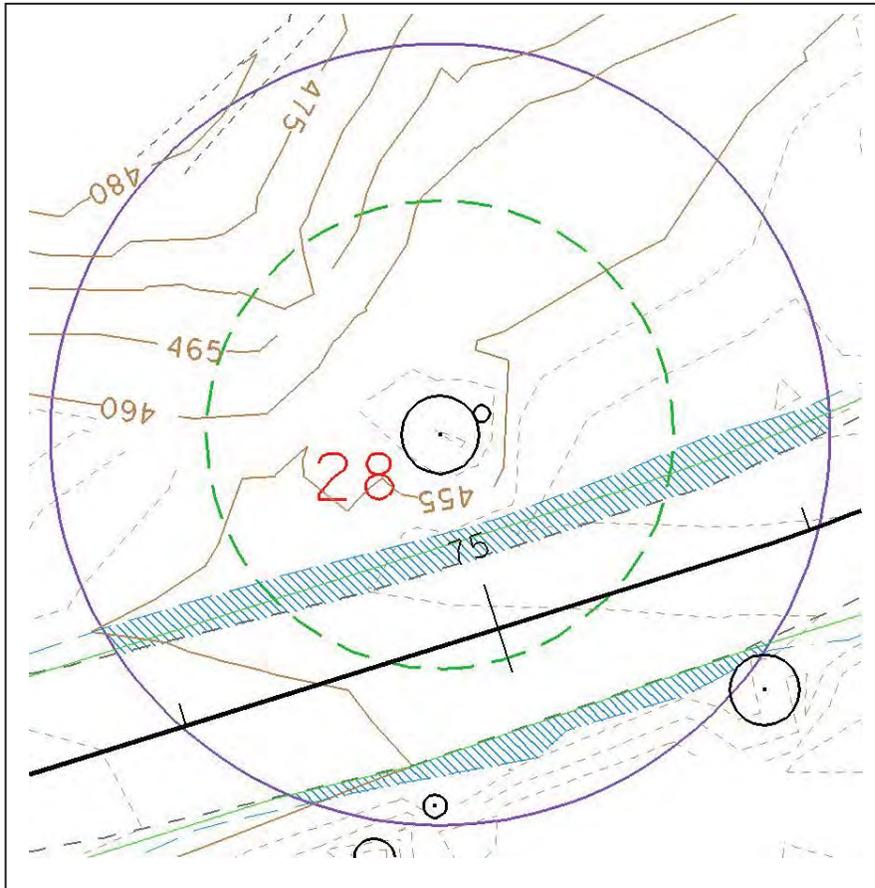
Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 1-2 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur near tree, but with a very small amount of embankment. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



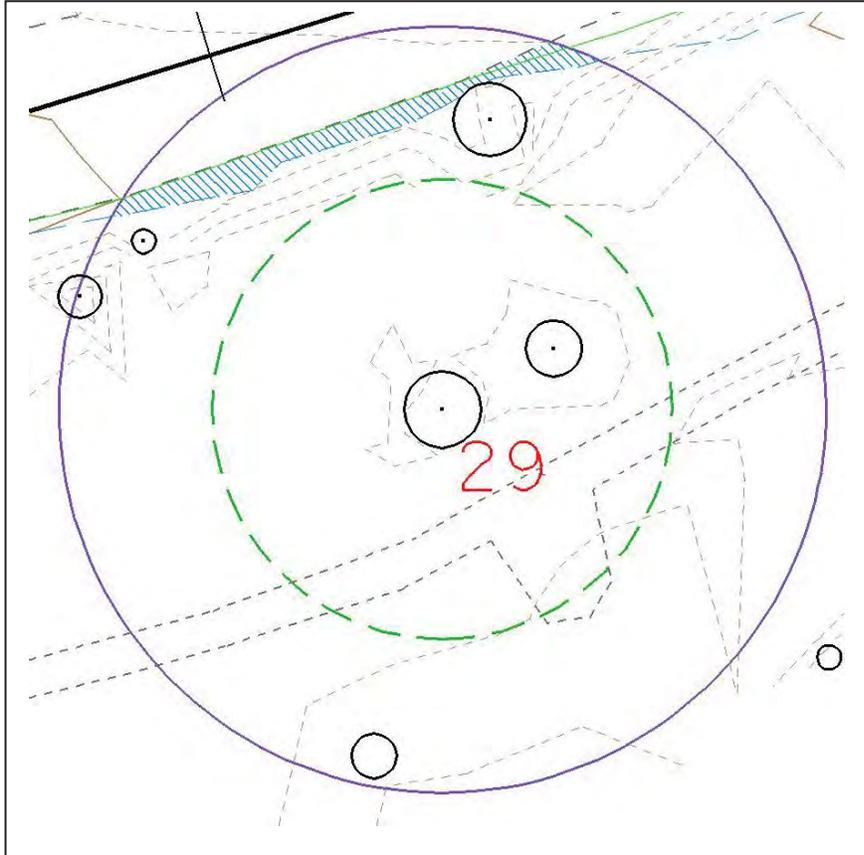
Description: Tree #28, 147 inches DBH (depicted in Attachment A, Sheet 7). Tree has two trunks with a large basal hollow, and is growing on a mound of earth above the road. It was counted as two separate trees in Final EA: Trees #33 & 34 in Table 9 and #20 & 21 in Table 10.

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road would be widened near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #29,* 132 inches DBH (depicted in Attachment A, Sheet 7). Tree has three trunks. Originally identified as two separate trees in the Final EA, their structural root zones (3x diameter) are outside the area of disturbance, and they were not included in any tables. Measured as a single tree, and using the root health zone (5x diameter) for this analysis, it is within the limits of ground disturbing activities. *Tree #29 was originally numbered as Trees #29 & #30 in this table. On re-examination, they were determined to be a single individual and were combined. Tree #30 is therefore absent from this table.

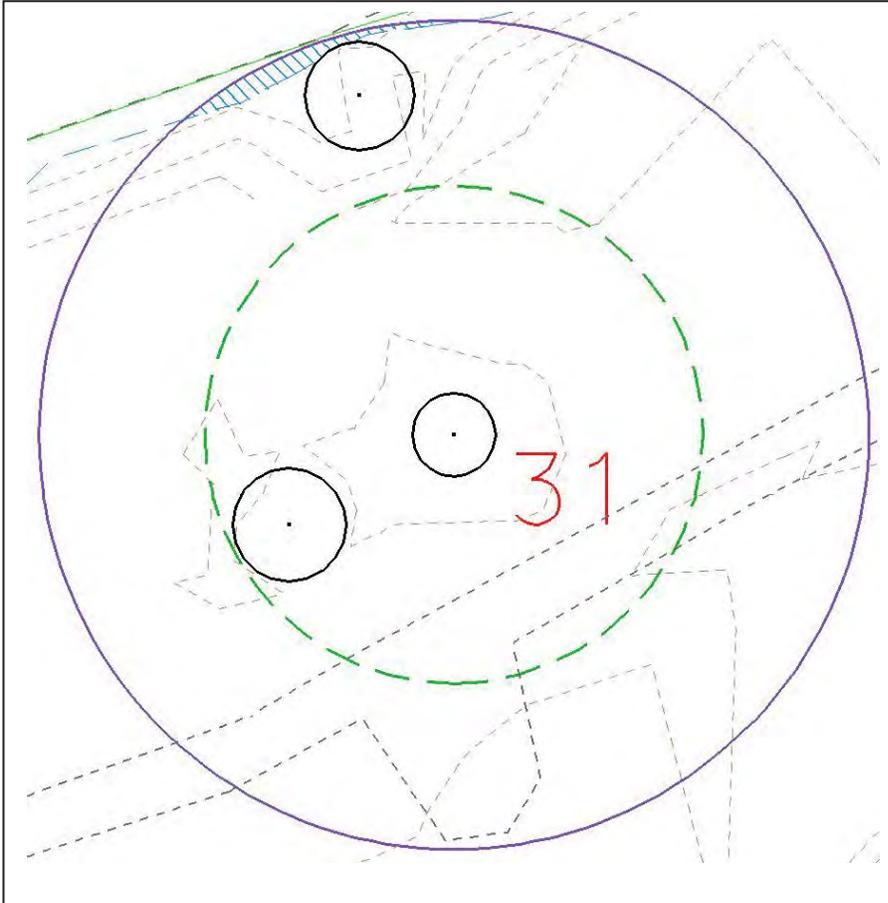
Work in structural root zone? No

Details of Work: The road would be widened less than 1 foot toward the tree. Where the road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would affect a small portion of the outer area of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #31,* 100 inches DBH depicted on Sheet 7). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities. *Tree #29 was originally numbered as Trees #29 & #30 in this table. On re-examination, they were determined to be a single individual and were combined. Tree #30 is therefore absent from this table.

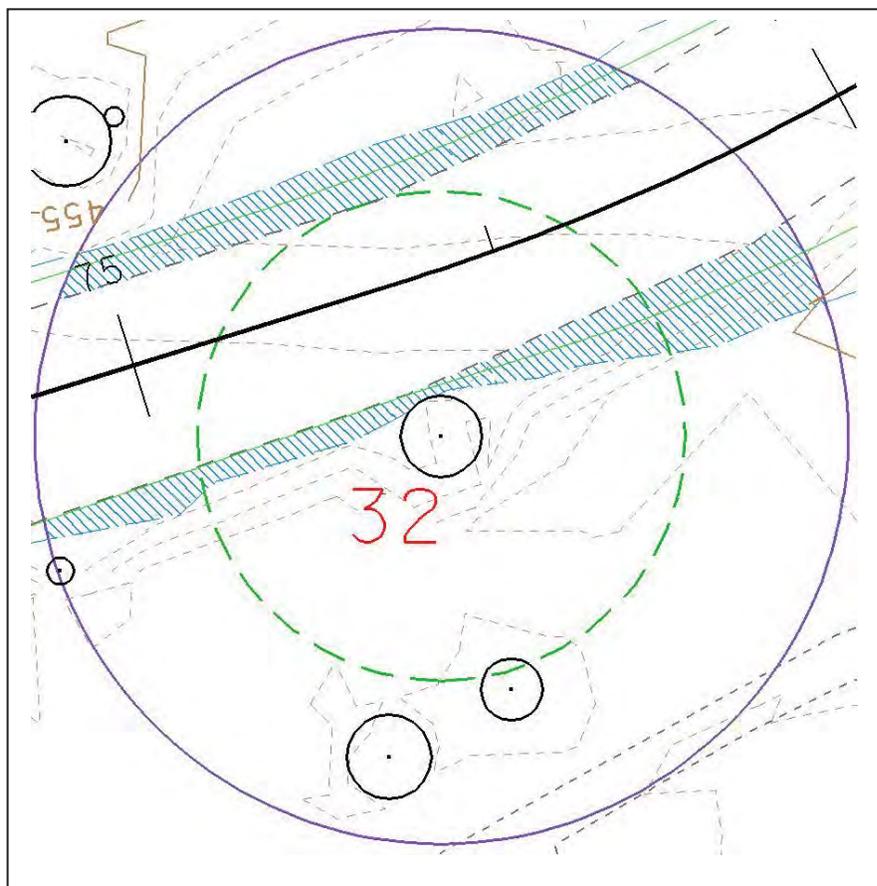
Work in structural root zone? No

Details of Work: The road would be widened less than 1 foot toward the tree. Where the road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment outside of structural root zone (average depth 6 to 18 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would barely touch the outer edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #32, 129 inches DBH (depicted in Attachment A, Sheet 7). Tree has two trunks. The base of tree is at the edge of road; root flare has never been cut. It was counted as two separate trees in Final EA: Trees #35 & 36 in Table 9 and #22 & 23 in Table 10.

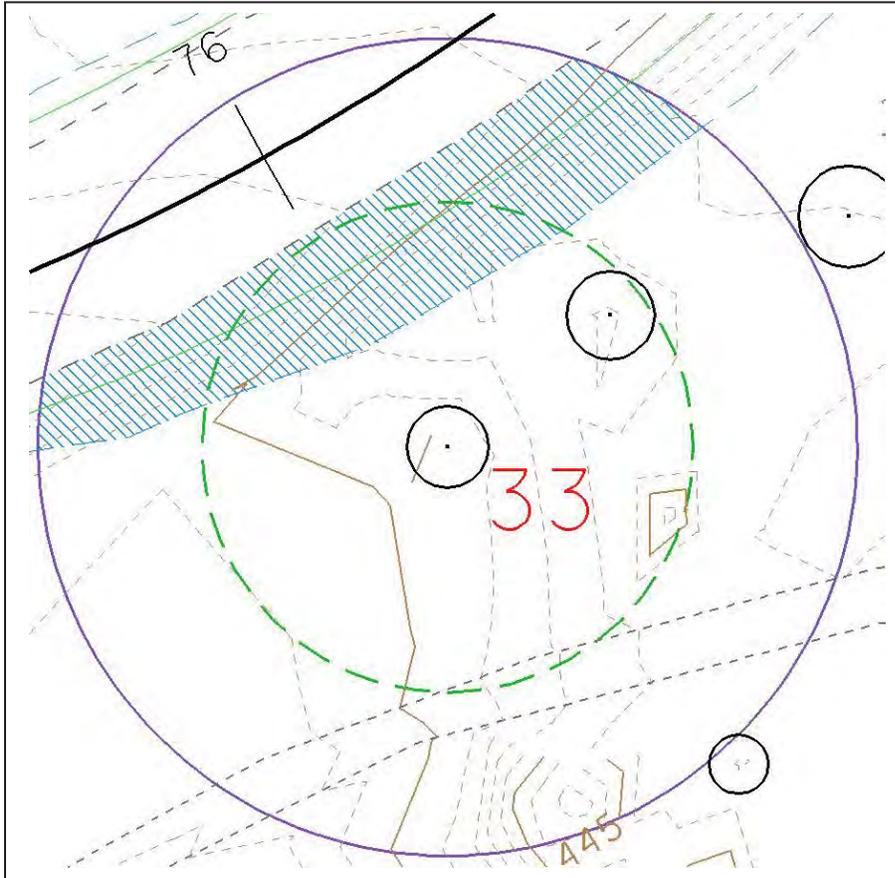
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree; across the road it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near the tree, but there is a large undisturbed area behind it. With avoidance and minimization measures in place there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #33, 118 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #37 in Table 9 and #24 in Table 10 of Final EA.)

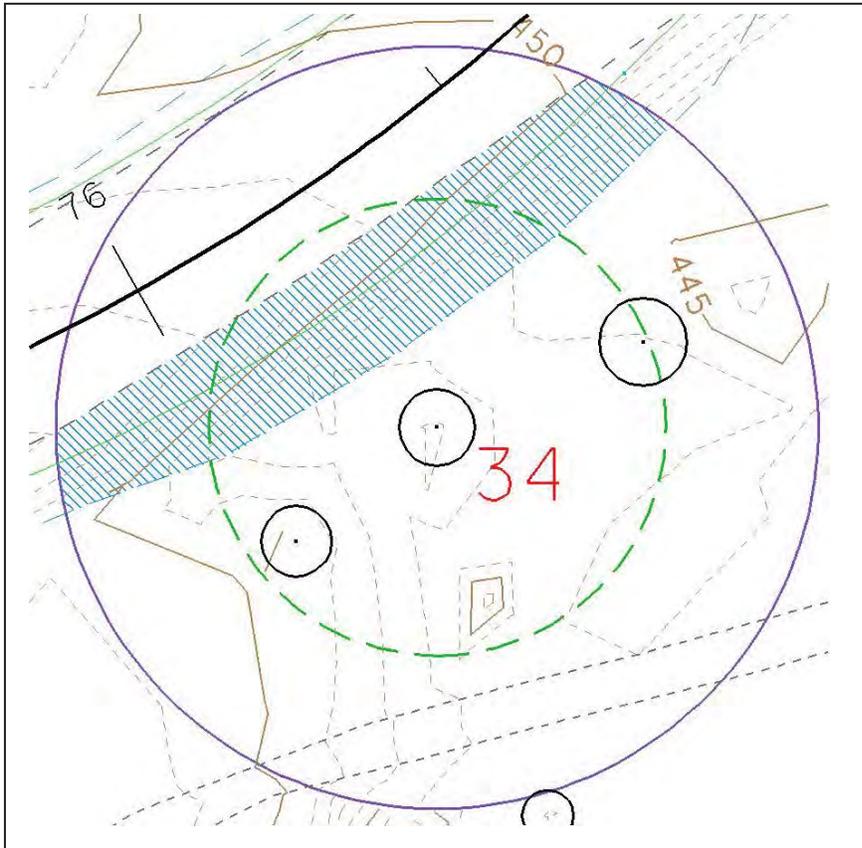
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 6 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Tree has an extensive, undisturbed area behind it, available for water and nutrient supply. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #34, 125 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #39 in Table 9 and #25 in Table 10 of Final EA.)

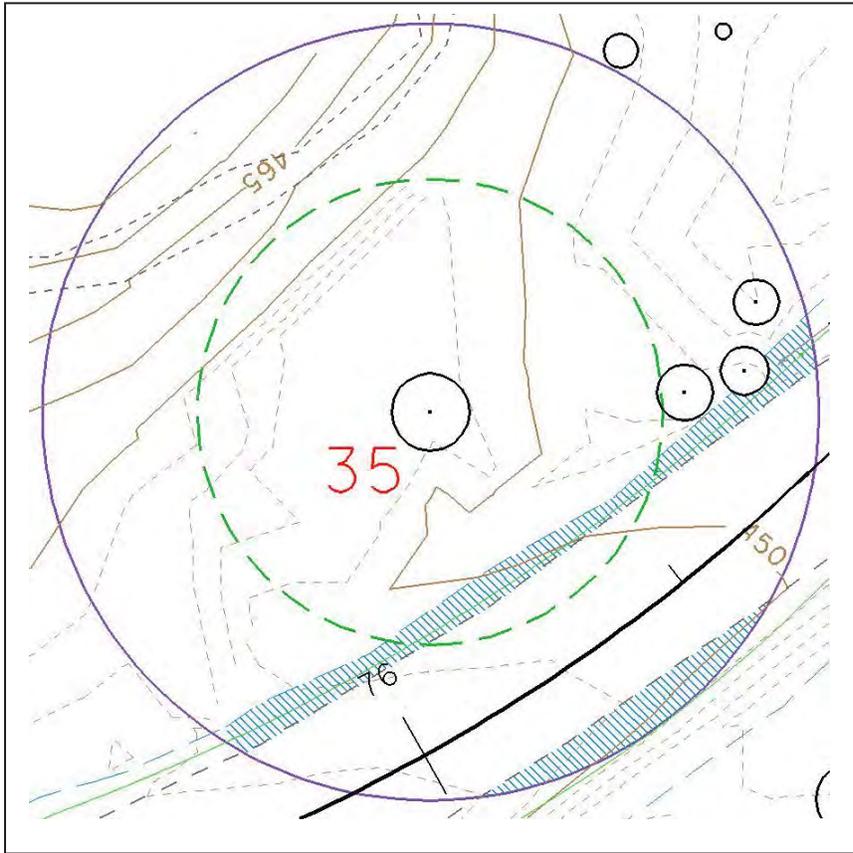
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 6 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Tree has an extensive, undisturbed area behind it, available for water and nutrient supply. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #35, 154 inches DBH (depicted in Attachment A, Sheet 7). Tree has a full crown and a fire scar on one side of trunk. (Listed as Tree #38 in Table 9 and #27 in Table 10 of Final EA.)

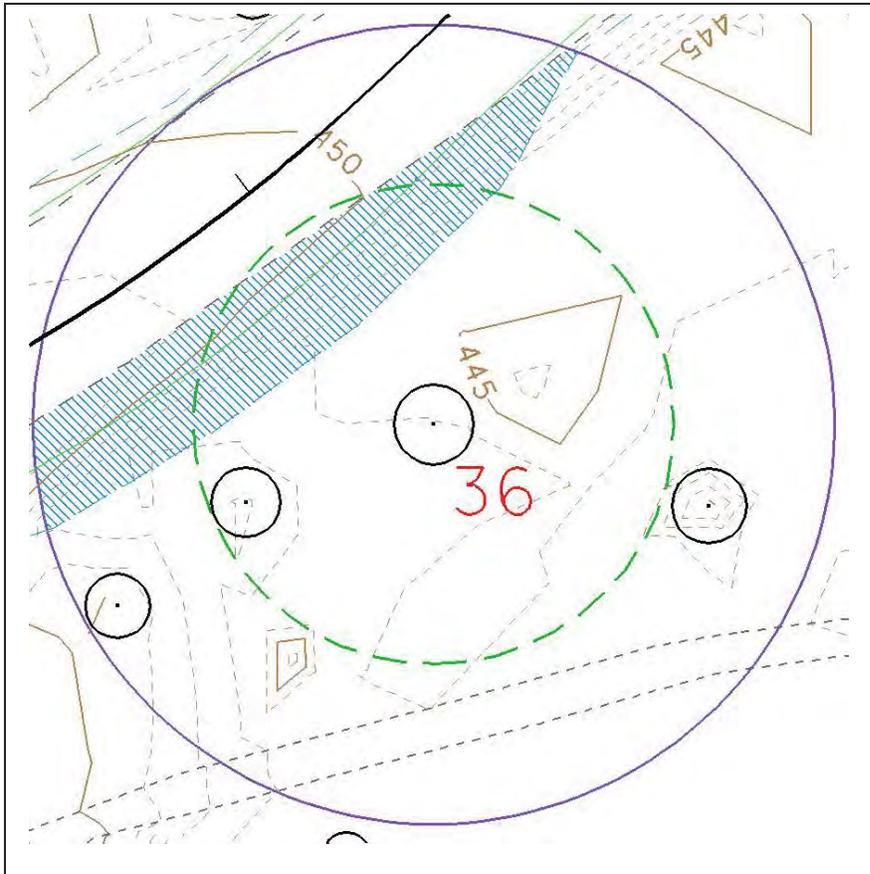
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree; across the road it would be widened approximately 6 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would not be extensive. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #36, 144 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #40 in Table 9 and #26 in Table 10 of Final EA.)

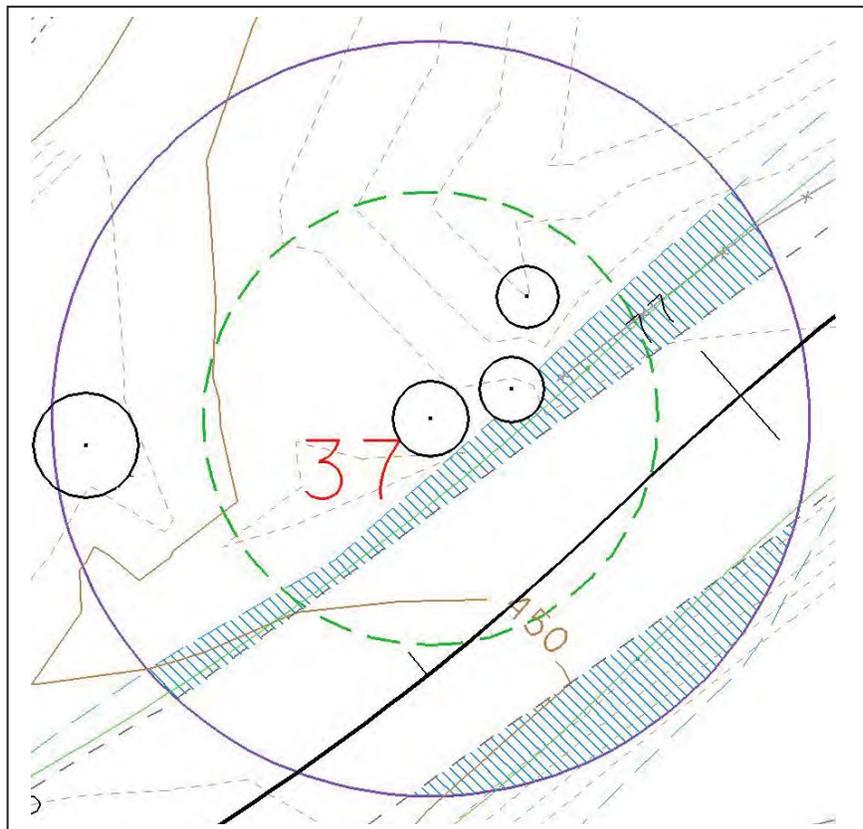
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 5 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Tree has an extensive, undisturbed area behind it, available for water and nutrient supply. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #37, 108 inches DBH (depicted in Attachment A, Sheet 7). Trunk is near road. (Listed as Tree #41 in Table 9 and #28 in Table 10 of Final EA.)

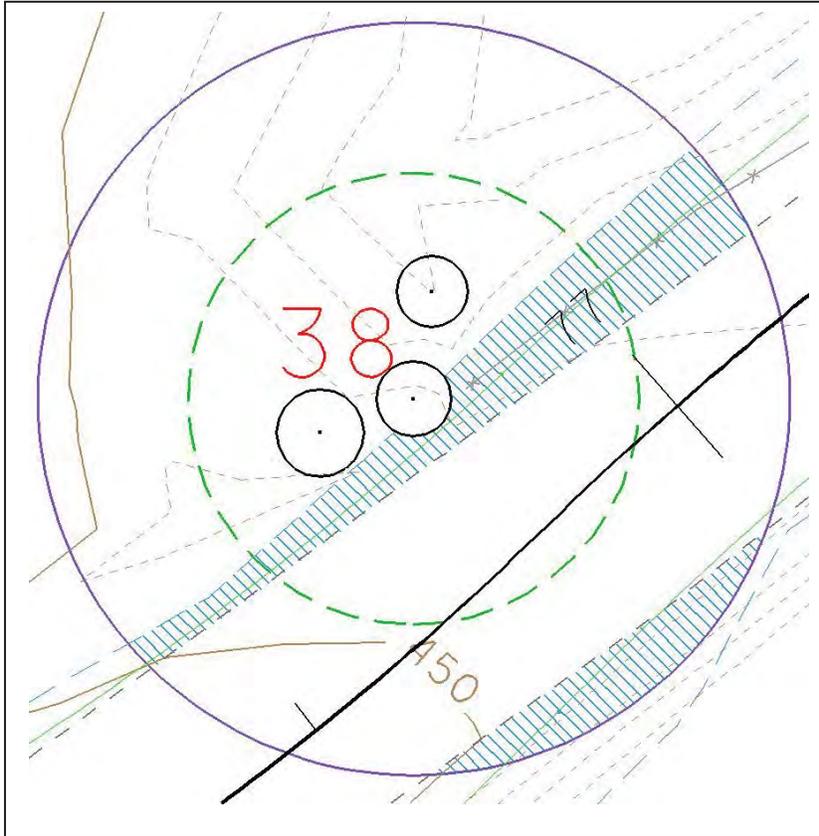
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree; across the road it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #38, 94 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #42 in Table 9 and #29 in Table 10 of Final EA.)

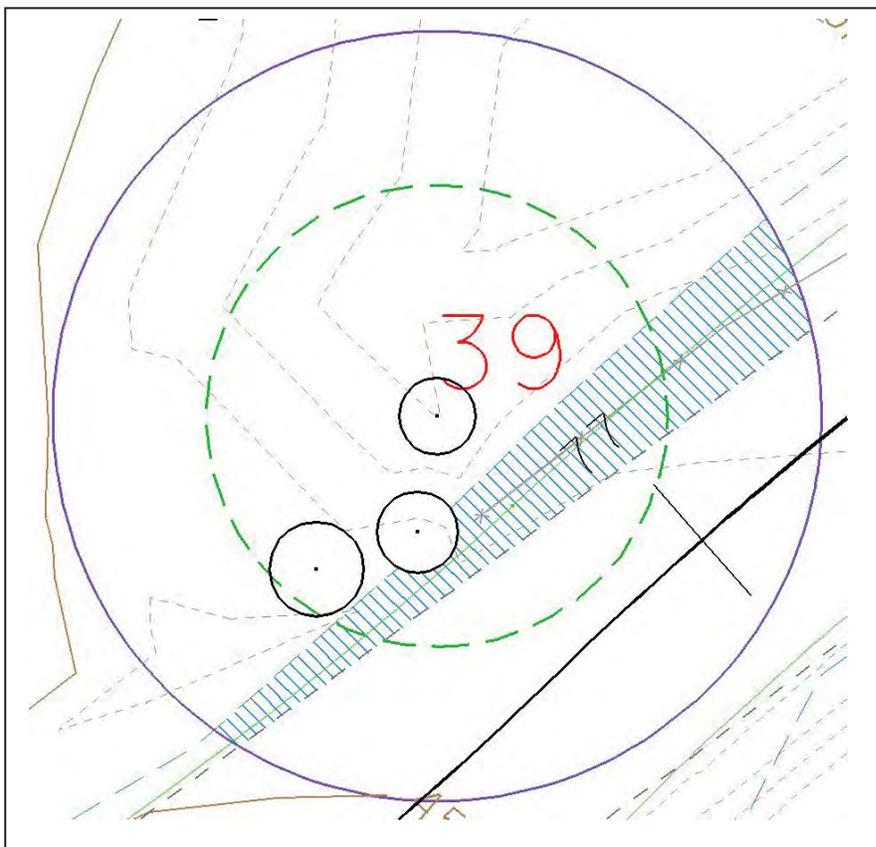
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree; across the road it would be widened approximately 2 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



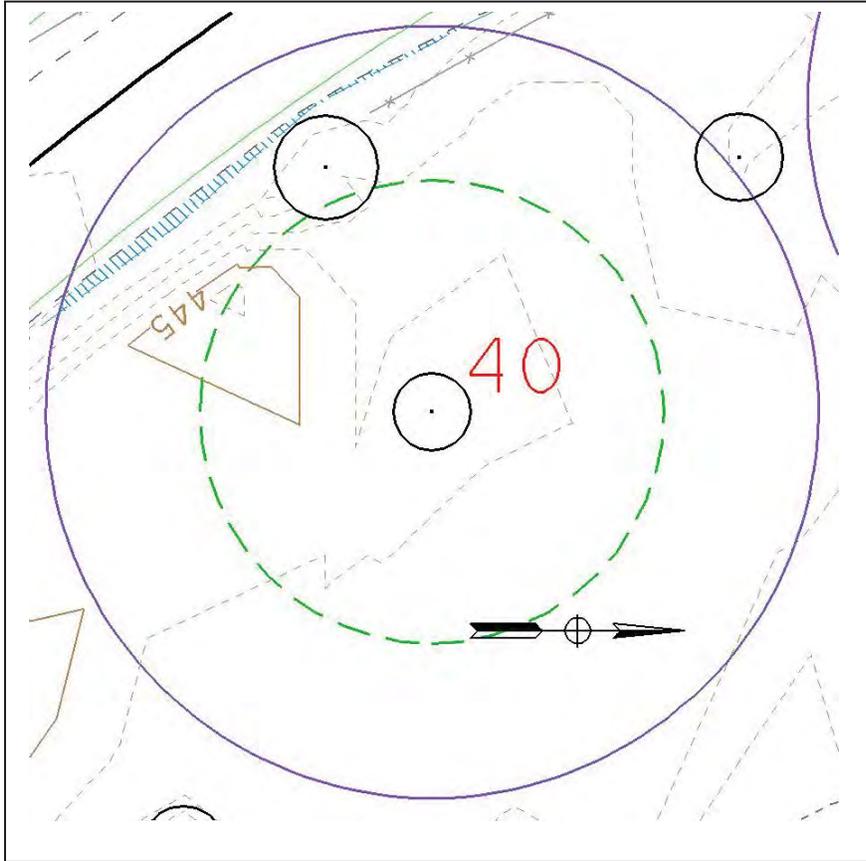
Description: Tree #39, 90 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #43 in Table 9 and #30 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur further away from tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #40, 122 inches DBH (depicted in Attachment A, Sheet 7). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

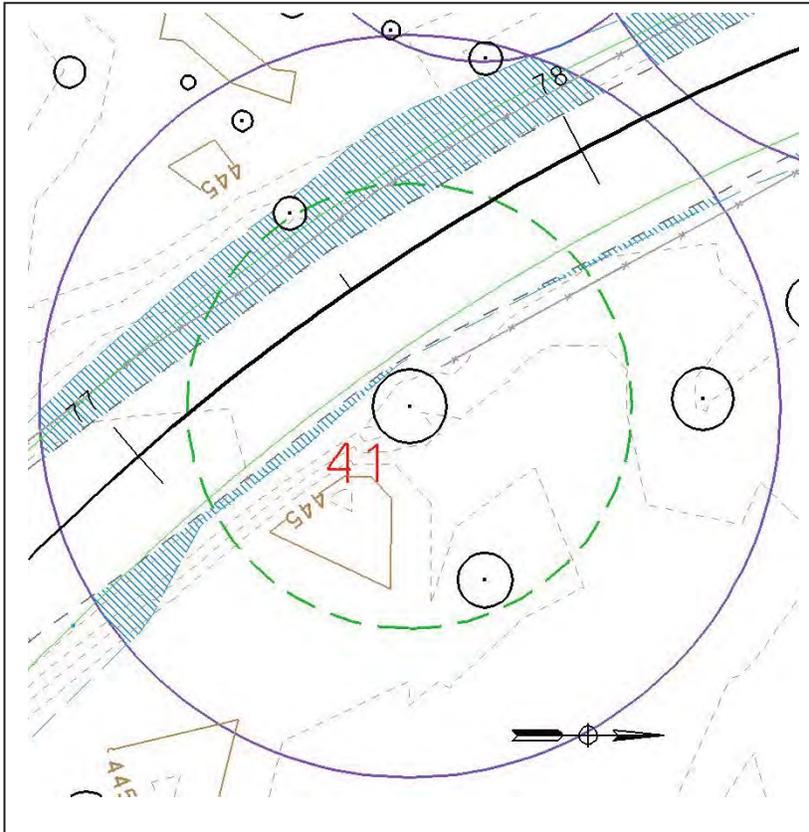
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment outside of structural root zone (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Tree is behind Tree #41, and would be away from road work. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #41, 165 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #45 in Table 9 and #32 in Table 10 of Final EA.) Tree is next to road, and base and lower trunk appear to have been struck by a vehicle.

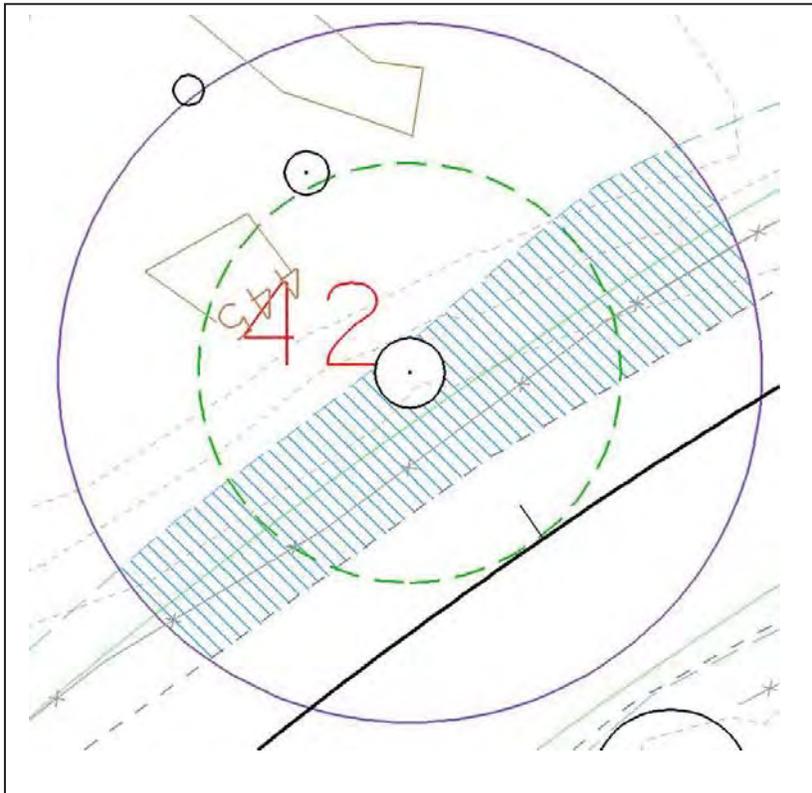
Work in structural root zone? Yes

Details of Work: Across the road from the tree, the road would be widened approximately 7 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Majority of work would occur away from the trunk of the tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



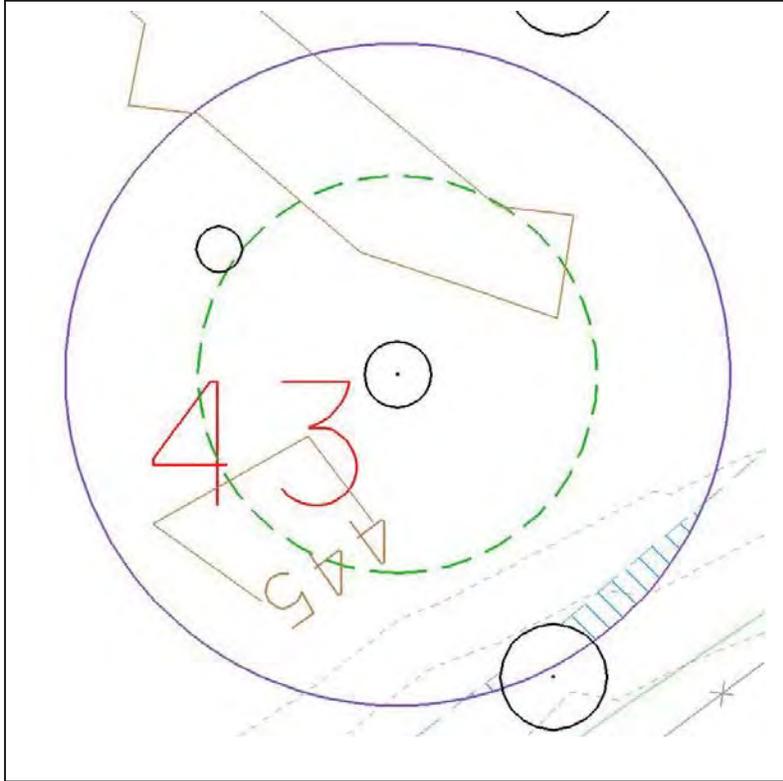
Description: Tree #42, 75 inches DBH (depicted in Attachment A, Sheet 7). (Listed as Tree #44 in Table 9 and #31 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 7 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur close to tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #43, 46 inches DBH (depicted in Attachment A, Sheet 7). No work is proposed within the structural root zone (3x diameter); therefore this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

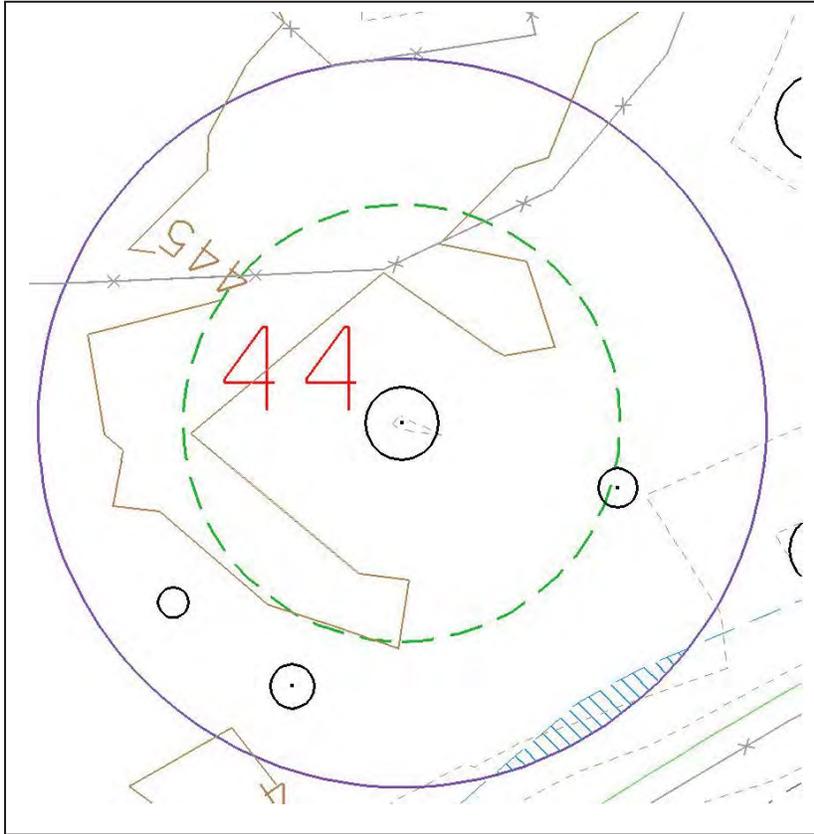
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur a distance from tree. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #44, 75 inches DBH (depicted in Attachment A, Sheet 8). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

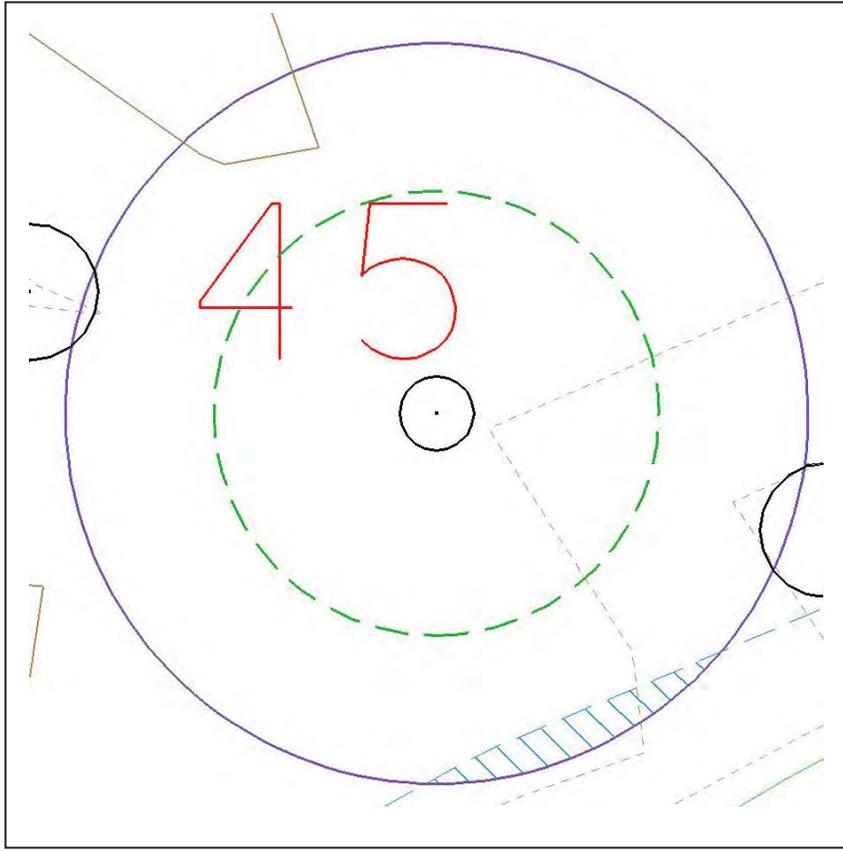
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would occur in a very small part of the outer root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #45, 41 inches DBH (depicted in Attachment A, Sheet 8). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

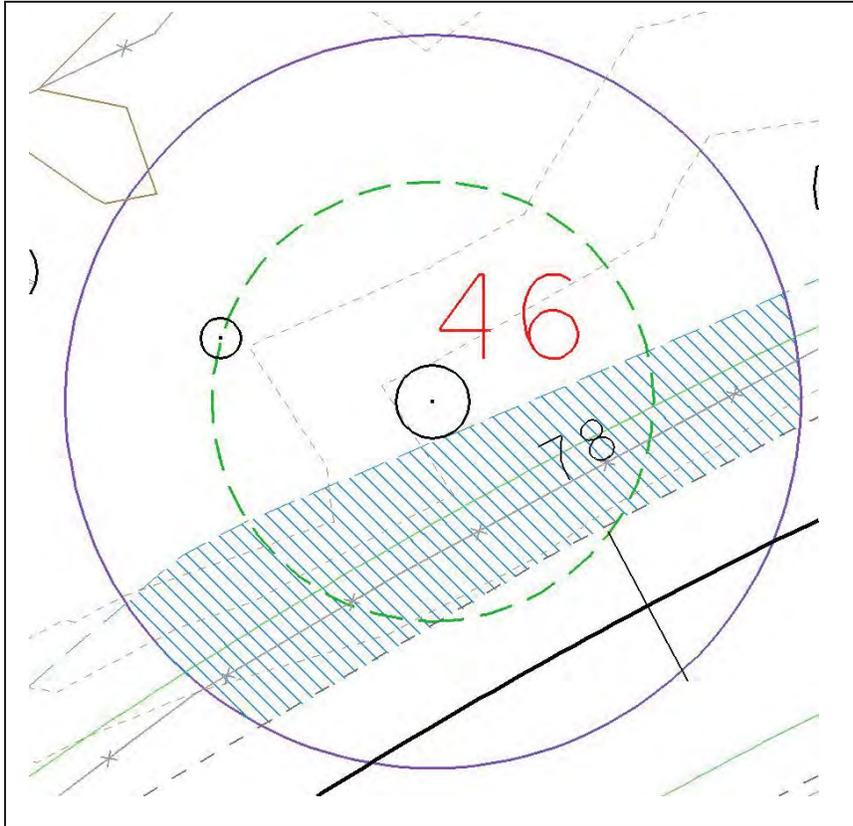
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would occur in a very small part of the outer root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #46, 75 inches DBH (depicted in Attachment A, Sheet 8). (Listed as Tree #46 in Table 9 and #34 in Table 10 of Final EA.)

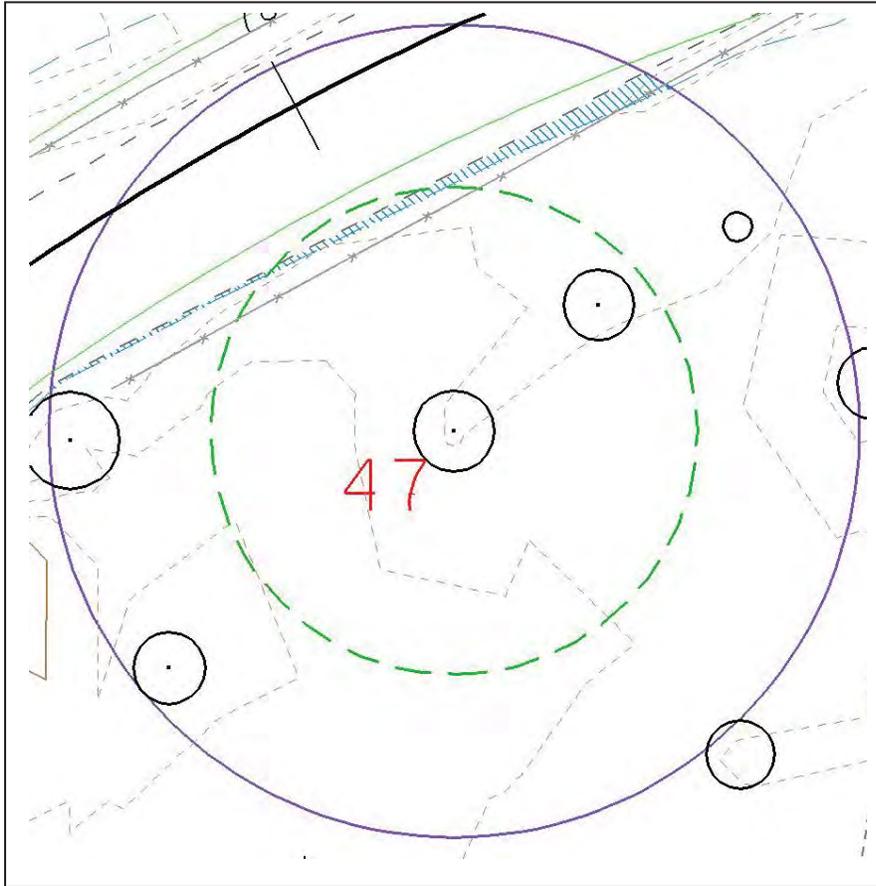
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 7 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Embankment would be placed adjacent to tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #47, 139 inches DBH (depicted in Attachment A, Sheet 7). This tree was not analyzed for potential impacts in the Final EA.

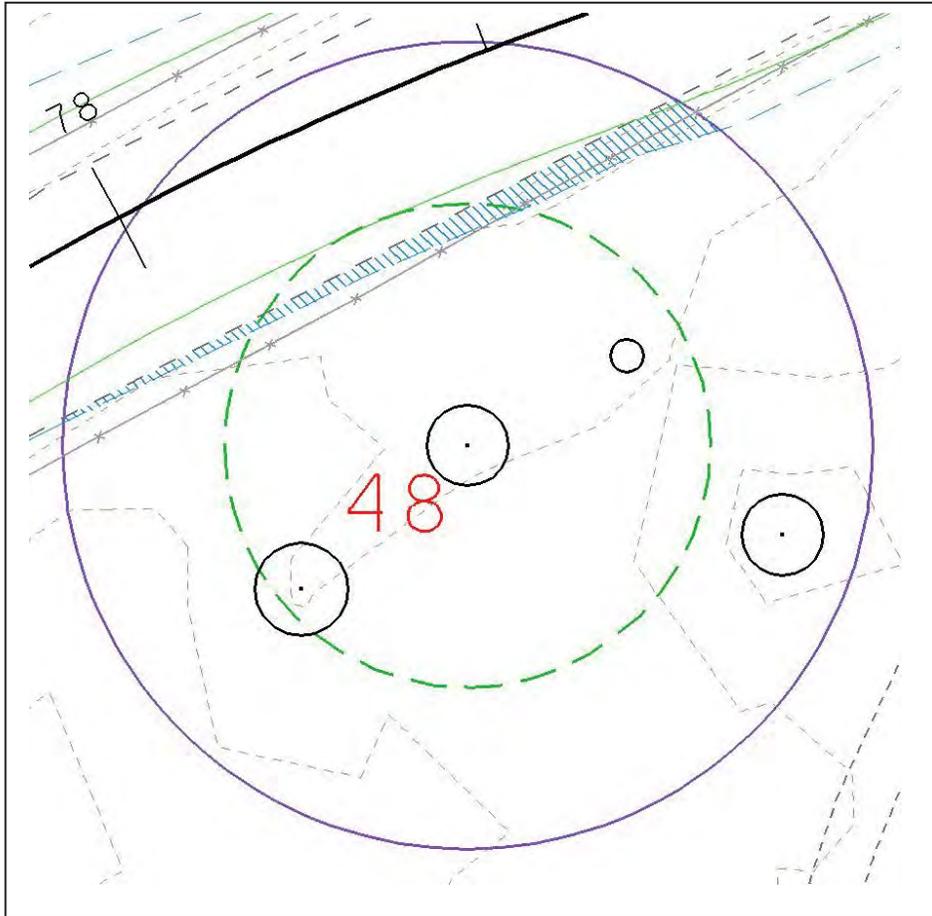
Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Pavement would change slightly at the outer edge of the structural root zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



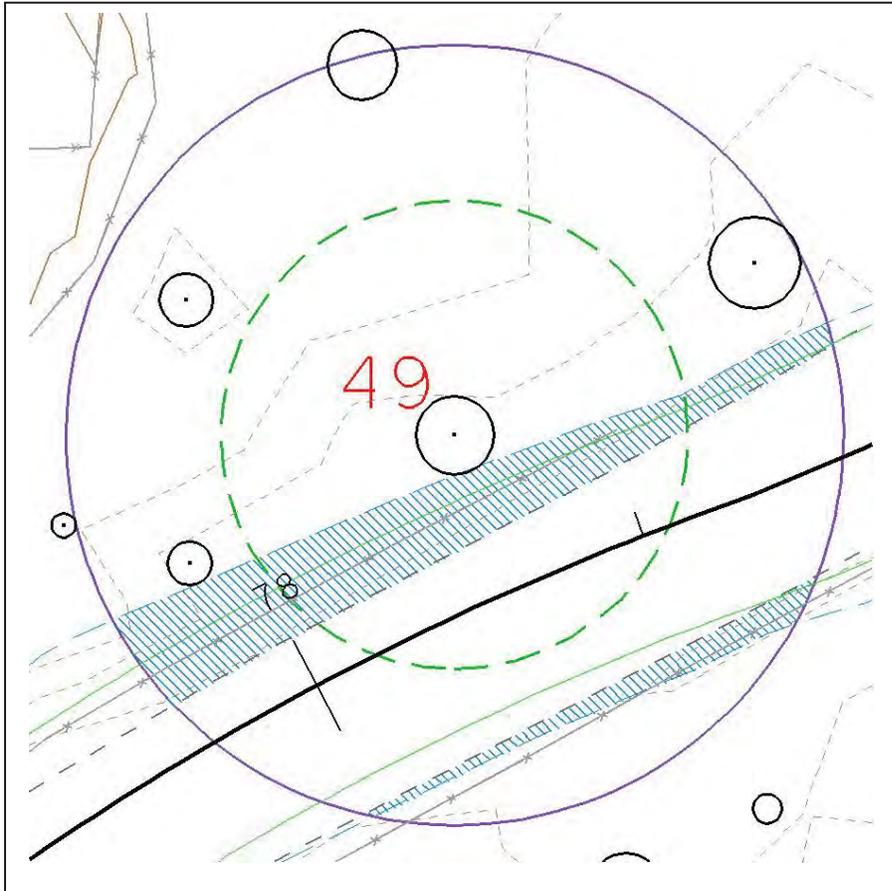
Description: Tree #48, 122 inches DBH (depicted in Attachment A, Sheet 8).
(Listed as Tree #47 in Table 9 and #33 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Pavement would change slightly at the outer edge of the structural root zone. There would be no decline in foliage density or tree health.



Description: Tree #49, 130 inches DBH (depicted in Attachment A, Sheet 8). (Listed as Tree #48 in Table 9 and #35 in Table 10 of Final EA.)

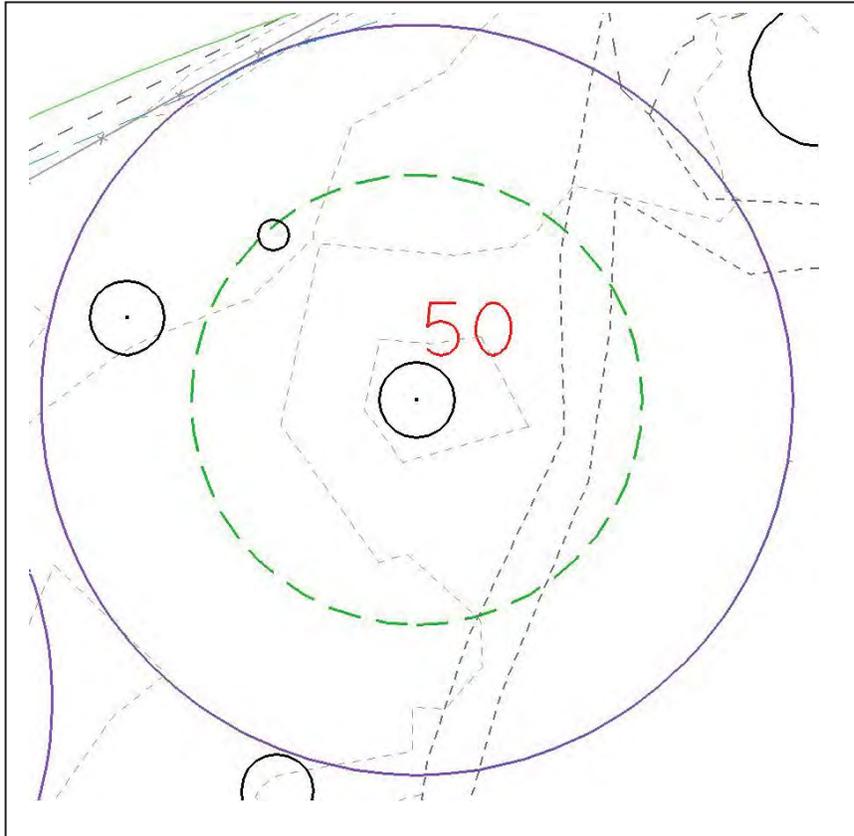
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 7 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road would be moved closer to tree, and embankment would be added. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #50, 122 inches DBH (depicted in Attachment A, Sheet 8). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and it is at the edge of ground-disturbing activities.

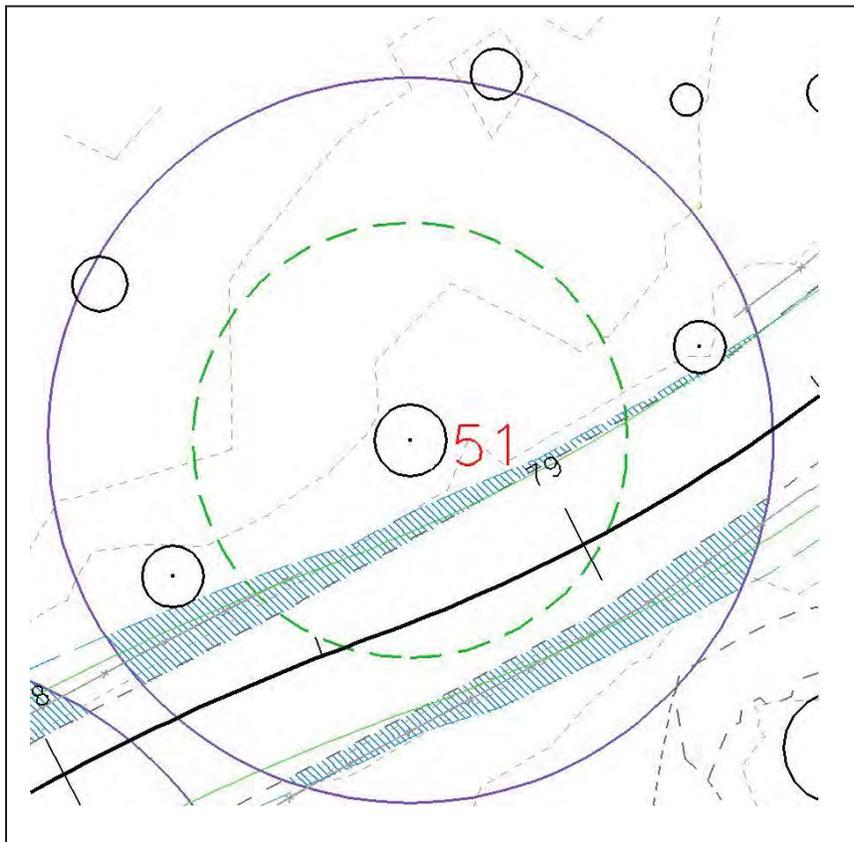
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and laced as erosion control.

Evaluation: Minimal work would occur at the outer edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #51, 153 inches DBH (depicted in Attachment A, Sheet 8). Tree has a cavity with fire scar, though not extensive. Area around the tree had historically been used for vehicle parking. (Listed as Tree #49 in Table 9 and #36 in Table 10 of Final EA.)

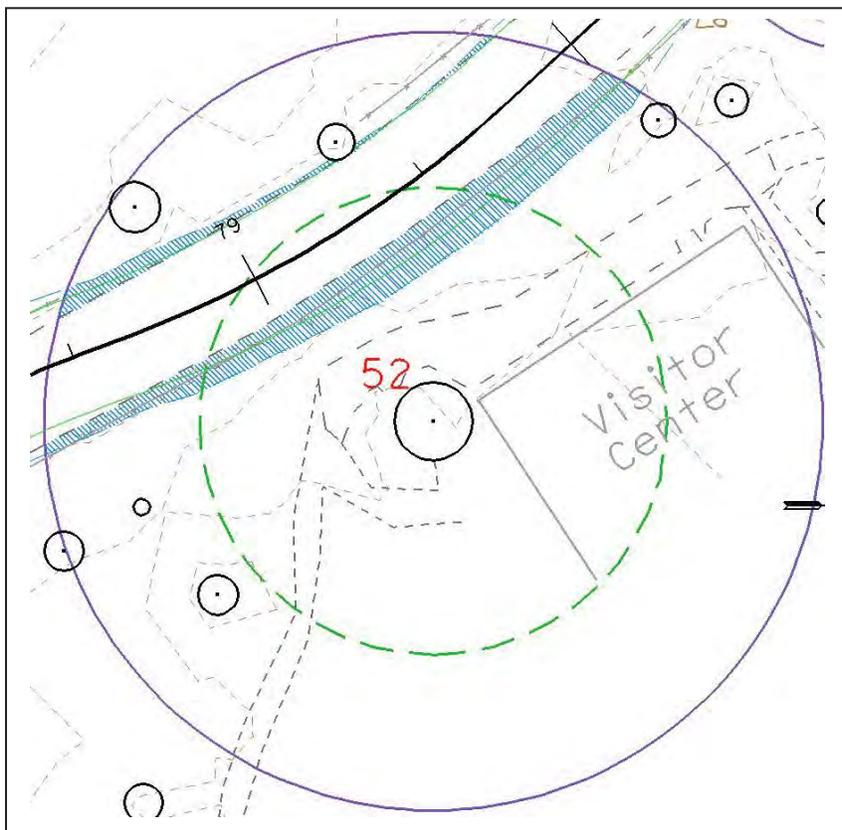
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree; across the road it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway of would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Work near tree is minor. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



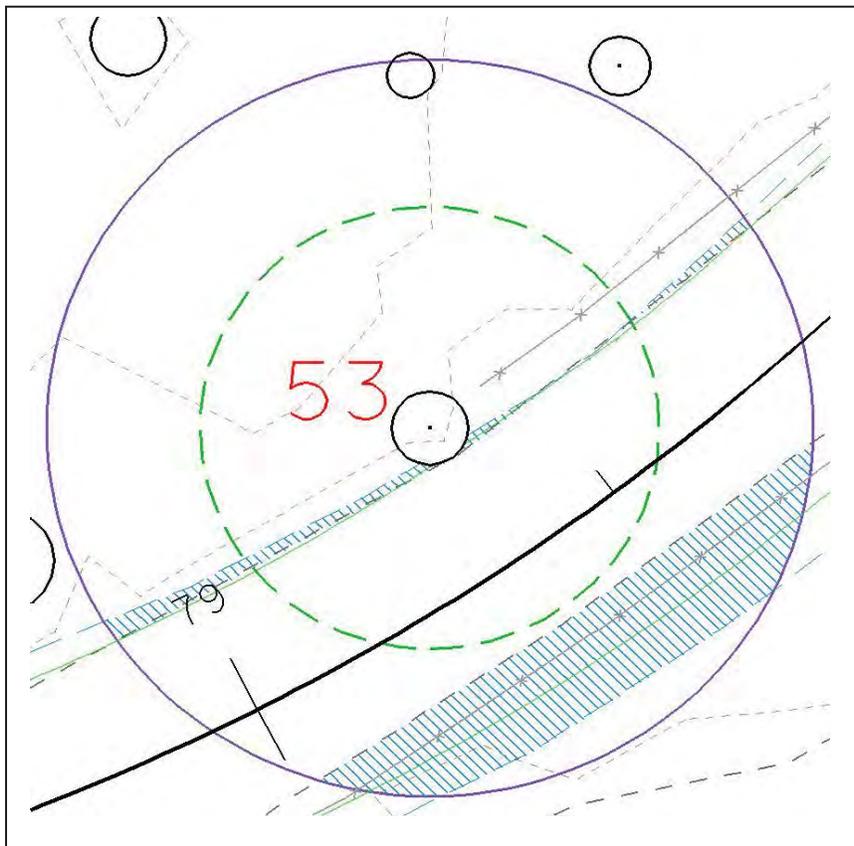
Description: Tree #52, 236 inches DBH (depicted in Attachment A, Sheet 8). Tree has two trunks. It is next to the park Visitor Center and is known as the “bat” tree. The ground around the trunk and through the hollow of the tree is completely paved. The tree was identified as two separate trees in the Final EA. Only one trunk was within the structural root zone when considered separately. (Listed as Tree #50 in Table 9 and #38 in Table 10 in Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 6 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



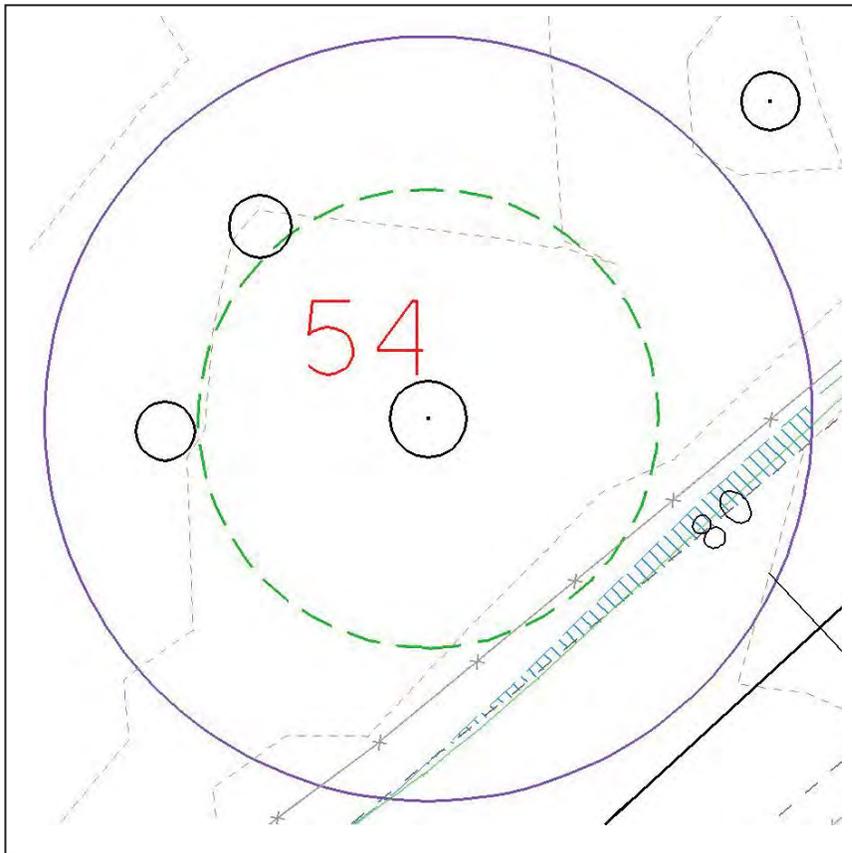
Description: Tree #53, 111 inches DBH (depicted in Attachment A, Sheet 8). Tree appears to have been struck by vehicles; basal flare was apparently cut for road installation, but crown is in very good condition. (Listed as Tree #51 in Table 9 and #37 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: Across the road from the tree, the road would be widened approximately 6 feet, outside of the structural root zone. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches) both within and outside of structural root zone. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur close to tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #54, 88 inches DBH (depicted in Attachment A, Sheet 8). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

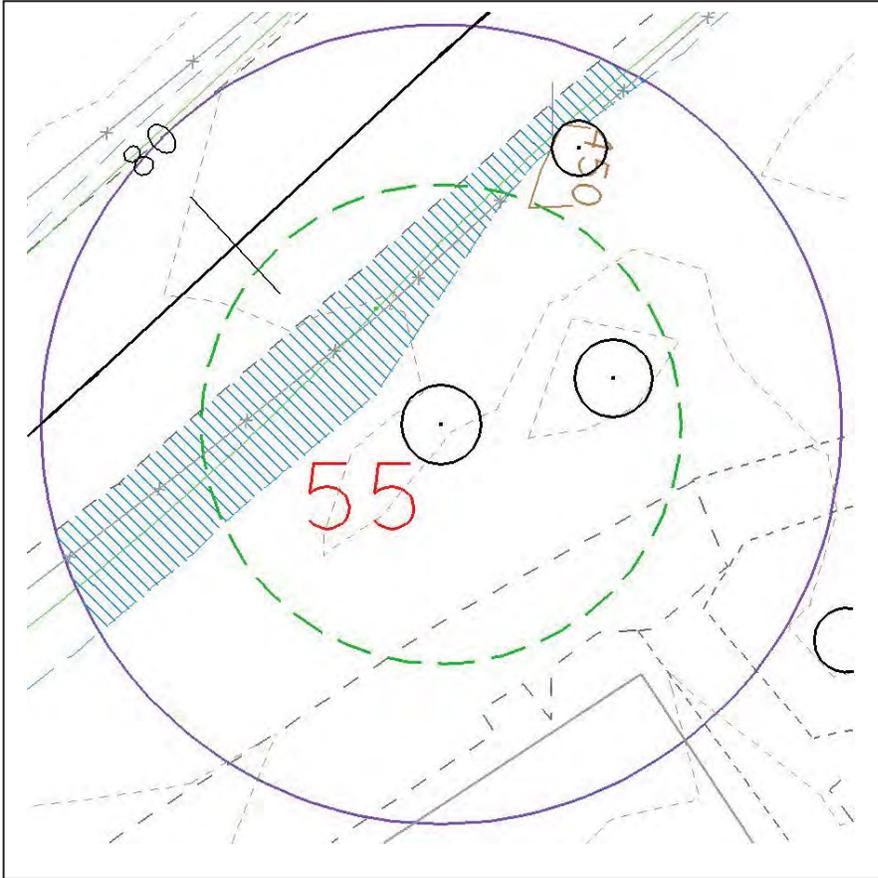
Work in structural root zone? No

Details of Work: The road would be widened less than 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials; new soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Very little work would occur done within the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #55, 104 inches DBH (depicted in Attachment A, Sheet 8). (Listed as Tree #52 in Table 9 and #39 in Table 10 of Final EA.)

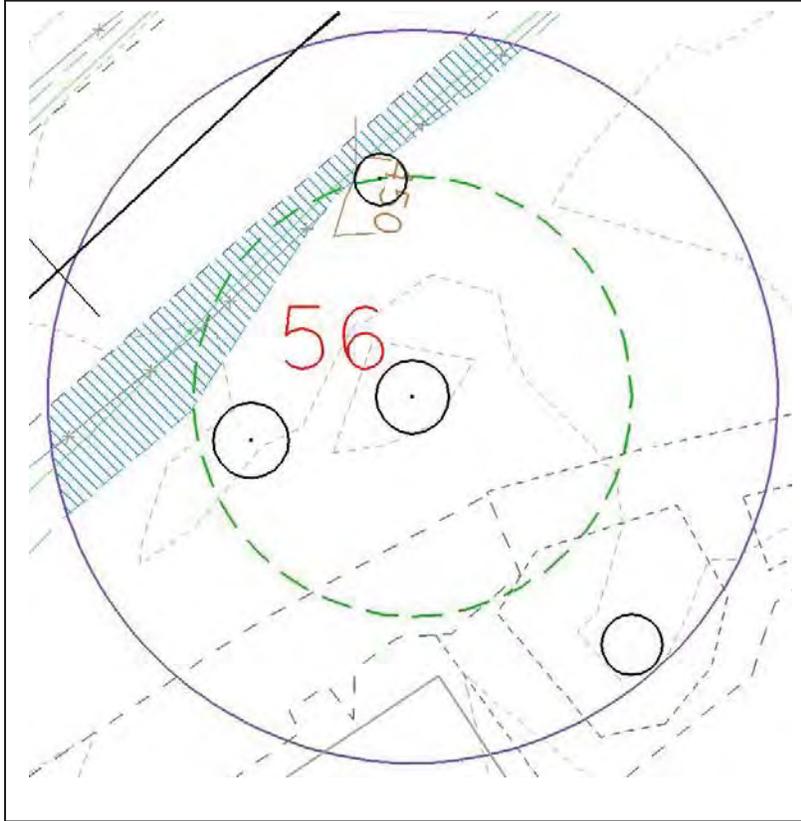
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 5 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Embankment would slope to grade level as it passed trunk of tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



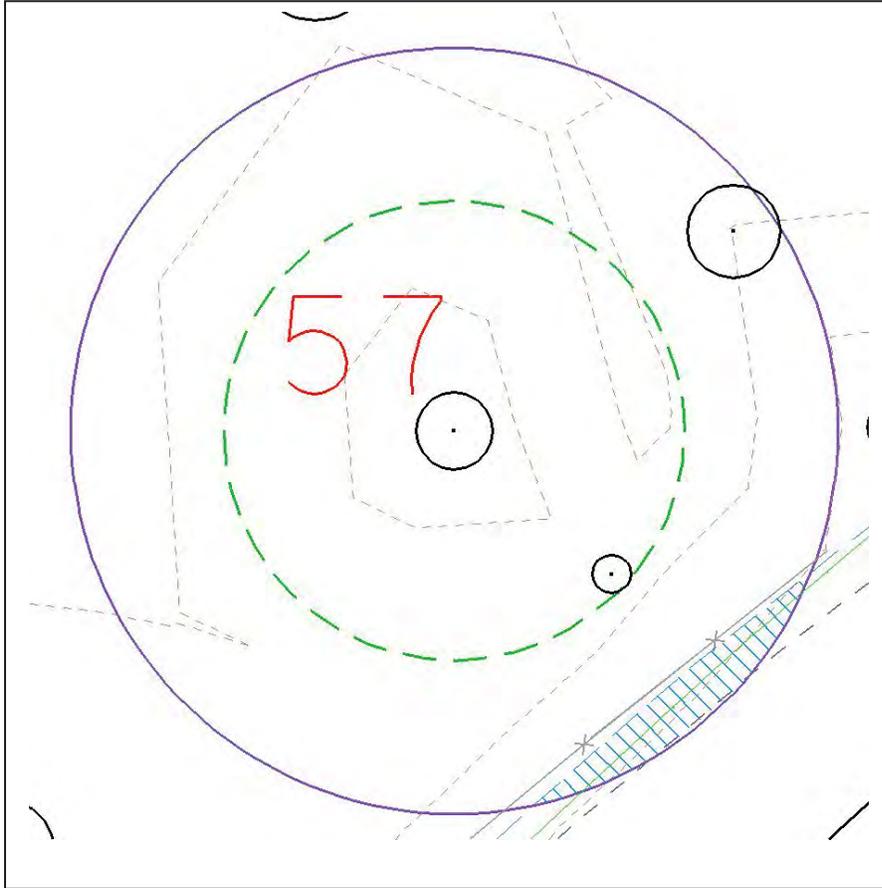
Description: Tree #56, 102 inches DBH (depicted in Attachment A, Sheet 8). Tree is by the large park entrance sign at the Visitor Center. It was not included in the Final EA.

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: The amount of work in the structural root zone would be small. Although the road would be moved closer to the tree, the sign and another tree would limit the amount. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #57, 67 inches DBH (depicted in Attachment A, Sheet 8). Tree is away from road. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

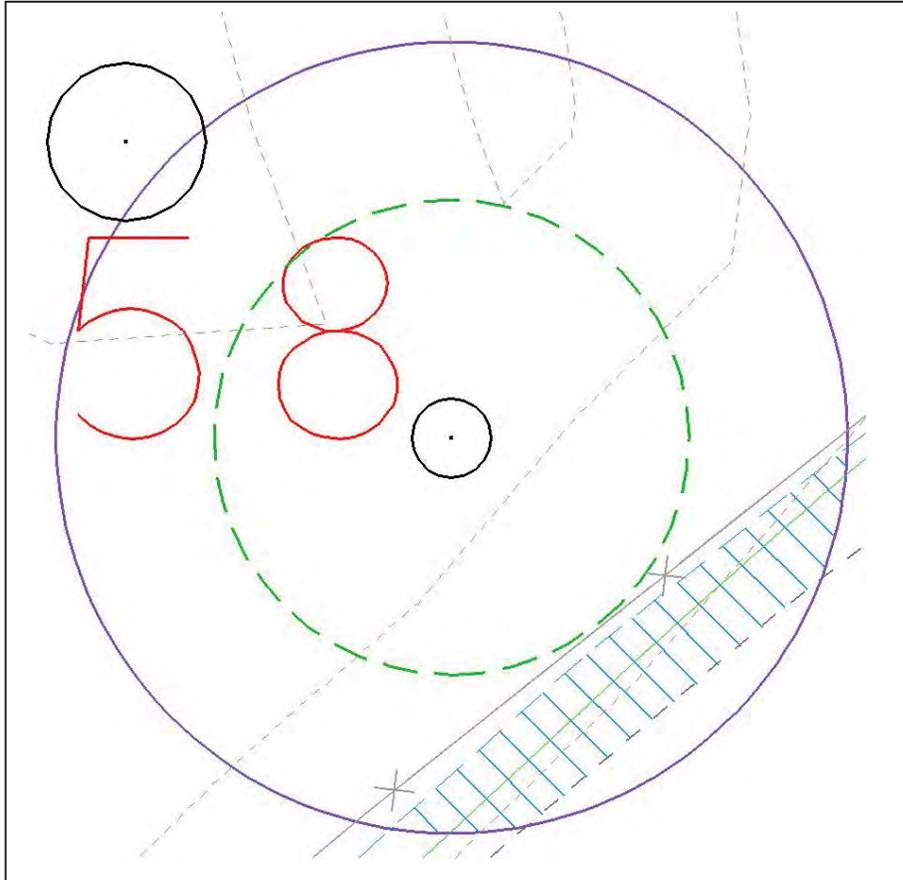
Work in structural root zone? No

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #58, 34 inches DBH (depicted in Attachment A, Sheet 8). This is a small tree near the road. (Listed as Tree #54 in Table 9 and #44 in Table 10 of Final EA.)

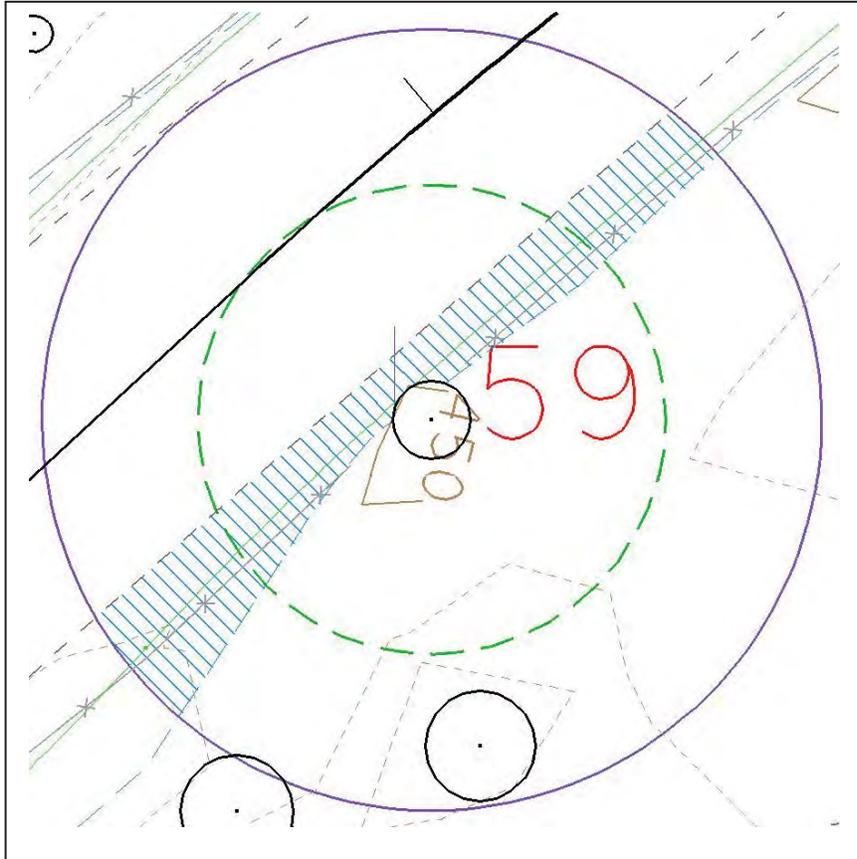
Work in structural root zone? No

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work occurs outside of the structural root zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #59, 72 inches DBH (depicted in Attachment A, Sheet 8). There is vehicle parking behind tree. (Listed as Tree #53 in Table 9 and #40 in Table 10 of Final EA.)

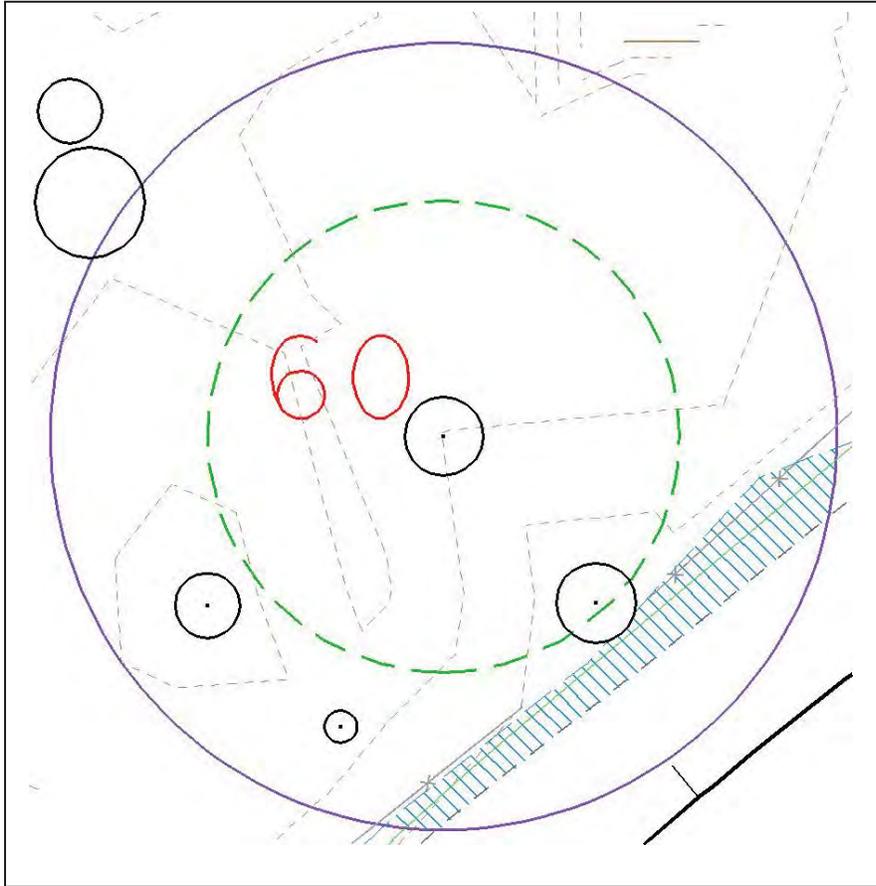
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Elevation change by tree would be minor. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #60, 82 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #56 in Table 9 and #46 in Table 10 of Final EA.)

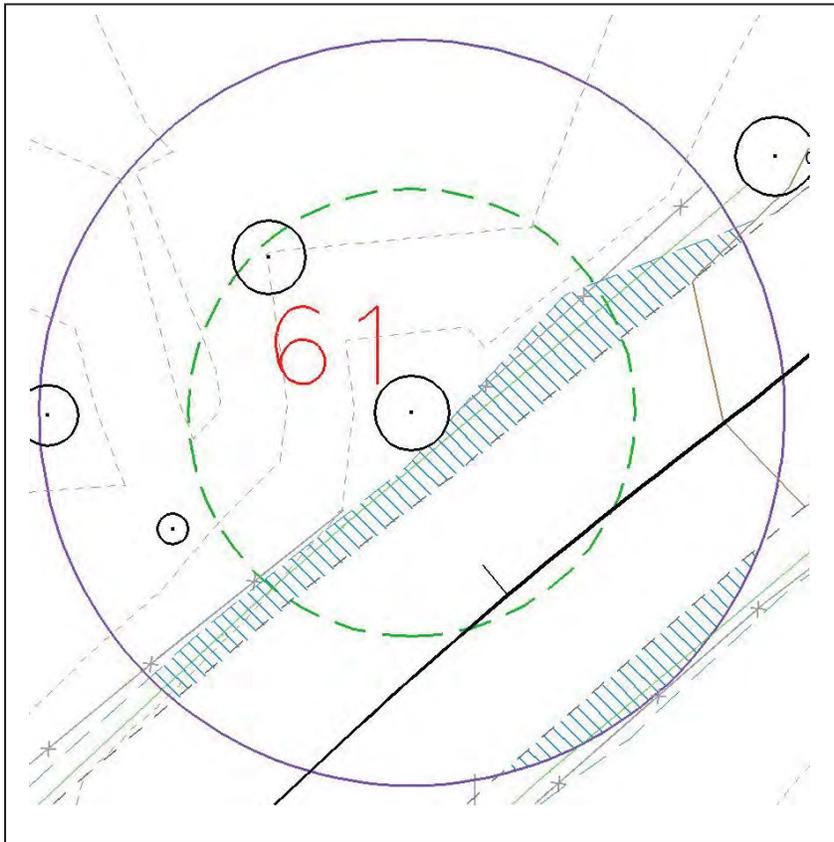
Work in structural root zone? No

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would occur outside of structural root zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #61, 82 inches DBH (depicted in Attachment A, Sheet 8). (Listed as Tree #55 in Table 9 and #45 in Table 10 of Final EA.)

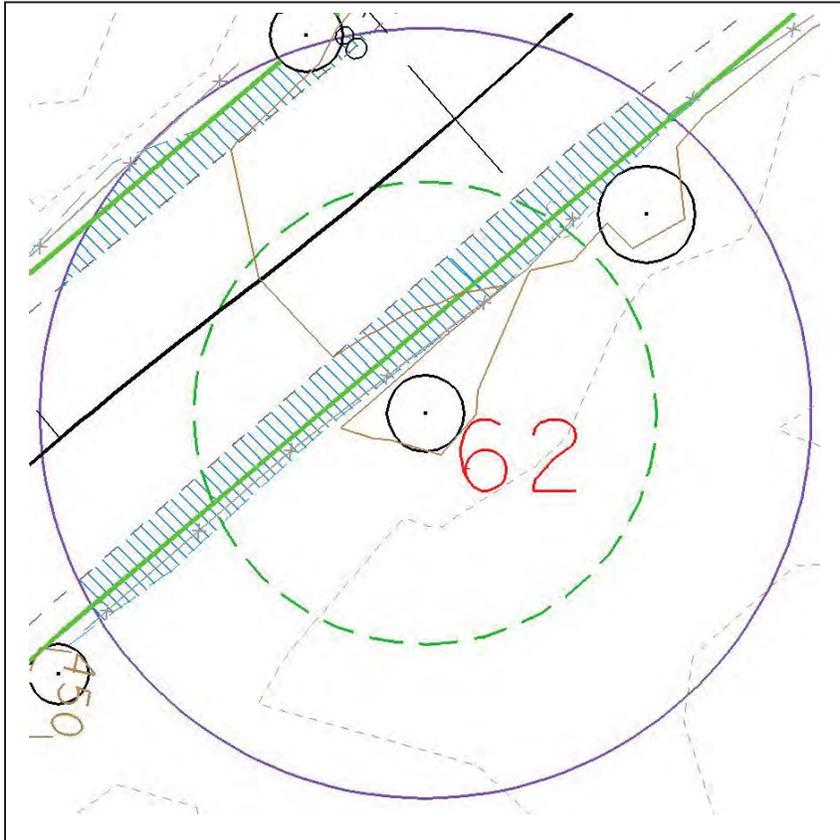
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Across the road it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Although road work would be adjacent to the tree, it would occupy a small part of the root health zone. Tree has a large, undisturbed area behind it. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #62, 94 inches DBH (depicted in Attachment A, Sheet 9). Tree was apparently struck by a vehicle and has formed a substantial callus roll at the wound edges. (Listed as Tree #57 in Table 9 and #41 in Table 10 of Final EA.)

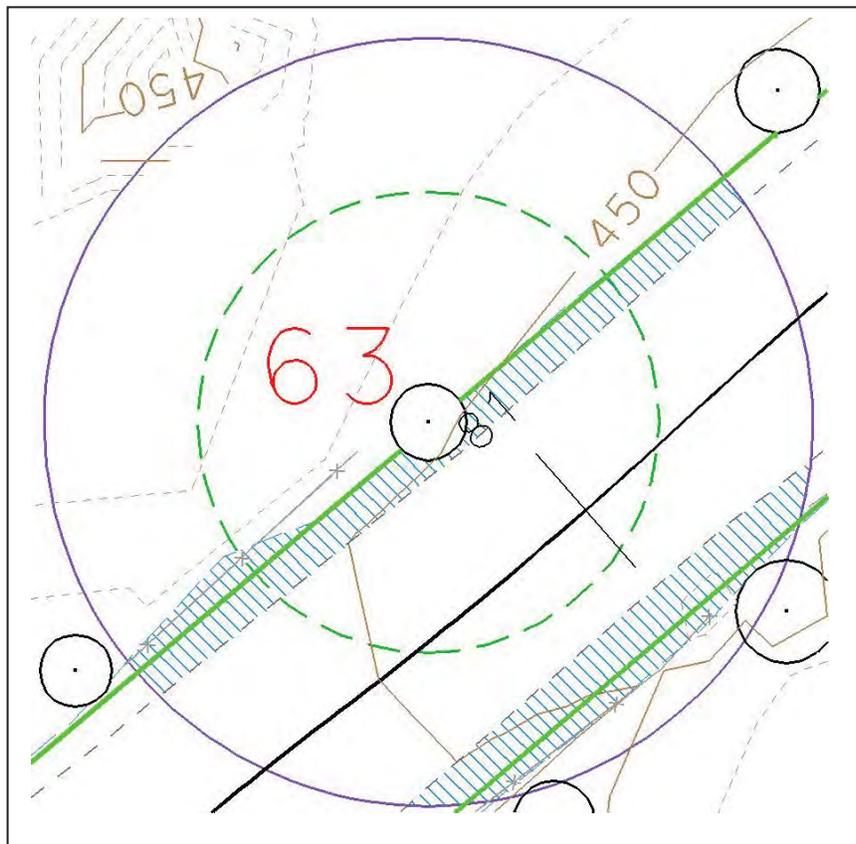
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Across the road it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Some road work would occur near the tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #63, 86 inches DBH (depicted in Attachment A, Sheet 9). Basal flare of tree may have been cut when road was constructed; tree appears to have been struck by vehicles. (Listed as Tree #58 in Table 9 and #47 in Table 10 of Final EA.)

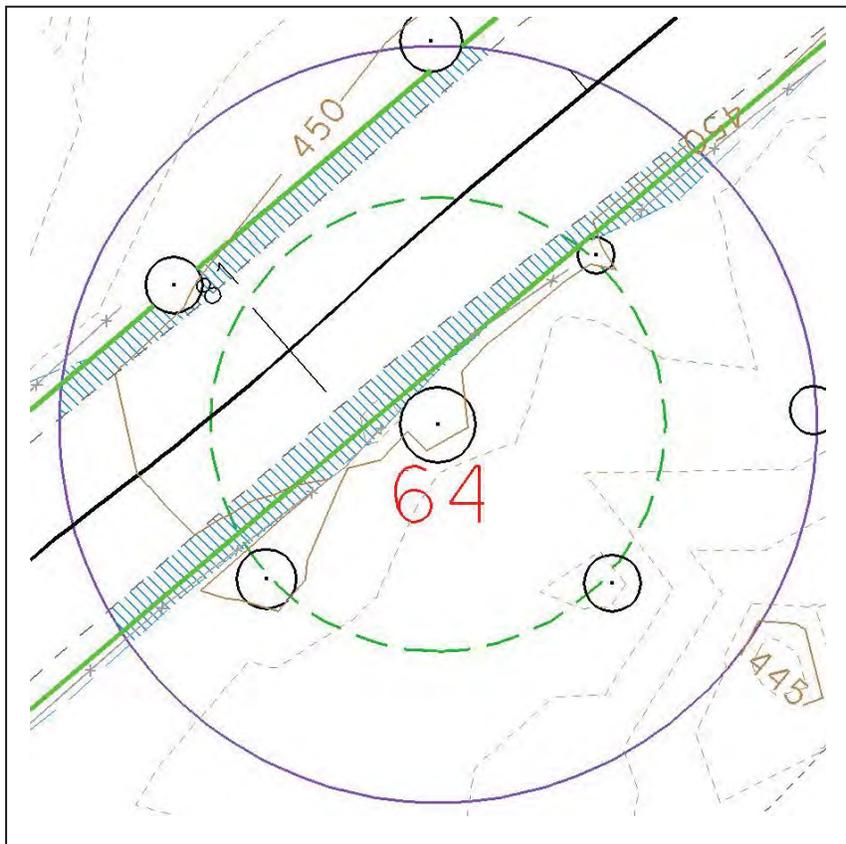
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet on either side of the tree; across the road, it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur close to tree but amount of work would be minor. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



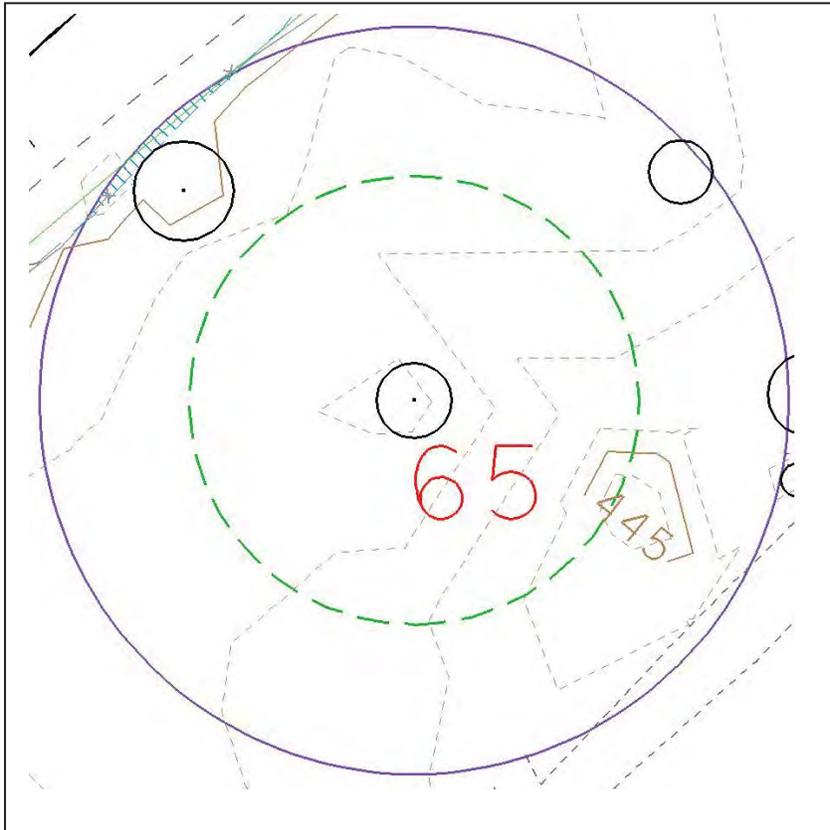
Description: Tree #64, 116 inches DBH (depicted in Attachment A, Sheet 9). Root flare of tree has been cut back at edge of road. (Listed as Tree #59 in Table 9 and #42 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Across the road, it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur close to tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



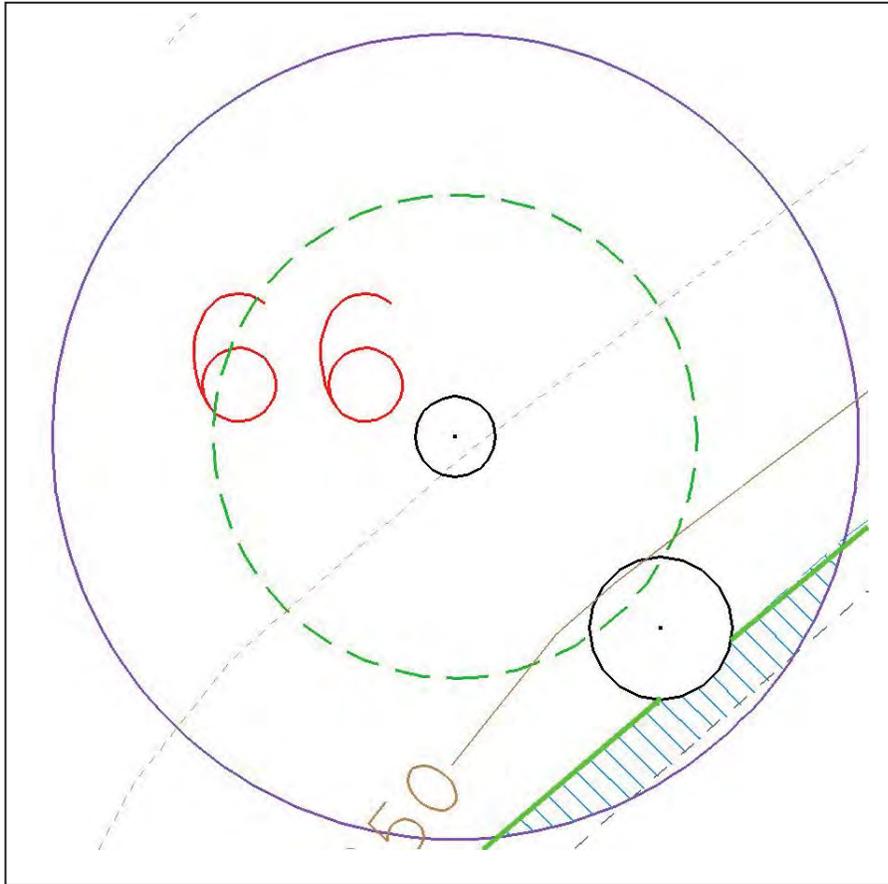
Description: Tree #65, 86 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment outside of structural root zone (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur at the outer edge of the root health zone, and would be minimal. There would be no decline in foliage density or tree health.



Description: Tree #66, 56 inches DBH (depicted in Attachment A, Sheet 9). Tree is farther away from road, behind tree 68. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

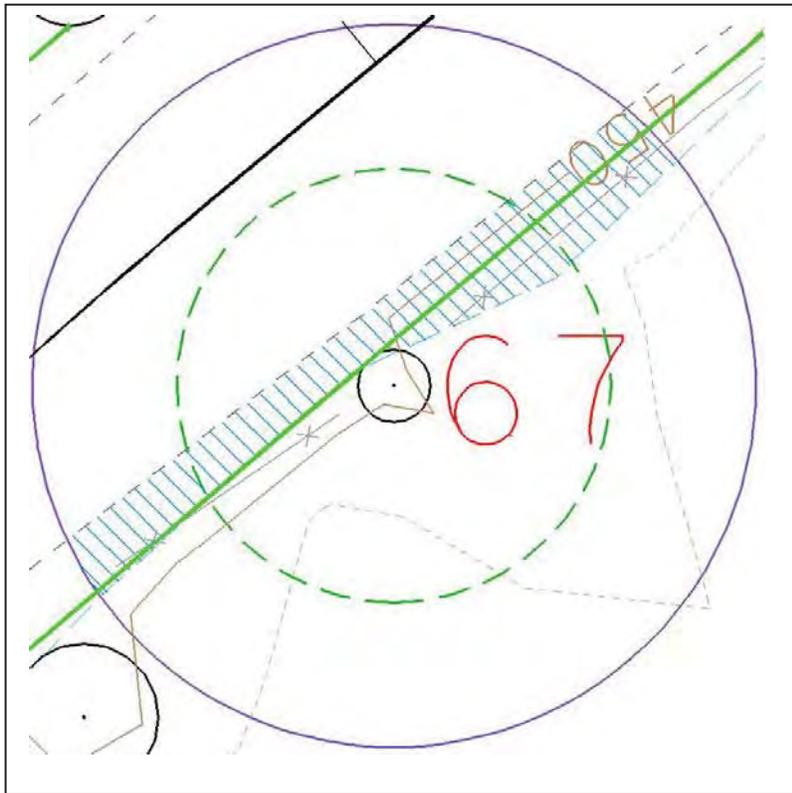
Work in structural root zone? No

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur at the outer edge of the root health zone, and would be minimal. There would be no decline in foliage density or tree health.

Individual Tree Analysis



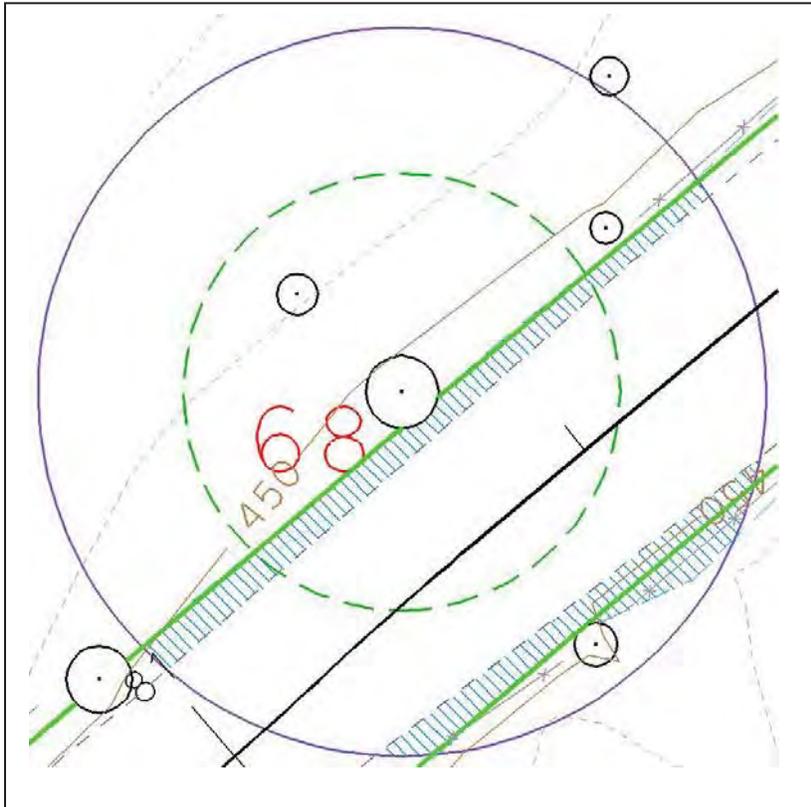
Description: Tree #67, 57 inches DBH (depicted in Attachment A, Sheet 9). Tree appears to have been struck by a vehicle, or perhaps cut to accommodate road, and injury has callused over. (Listed as Tree #60 in Table 9 and #43 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #68, 96 inches DBH (depicted in Attachment A, Sheet 9). Trunk of tree appears to have been struck repeatedly by vehicles. (Listed as Tree #61 in Table 9 and #48 in Table 10 of Final EA.)

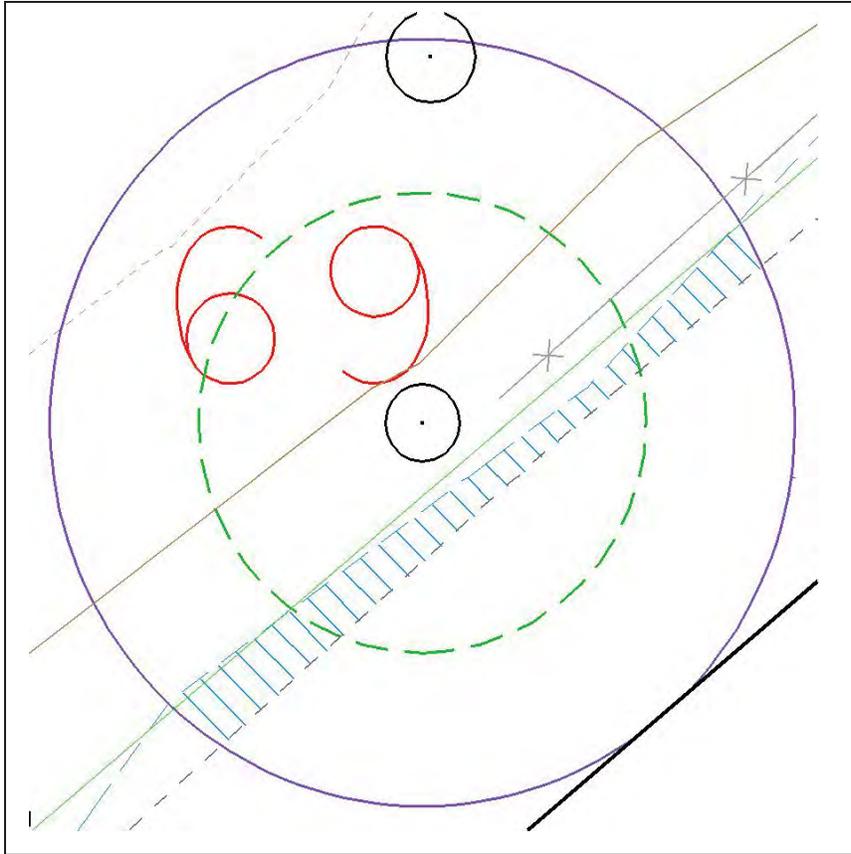
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree; across the road, it would be widened approximately 3 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #69, 43 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #62 in Table 9 and #49 in Table 10 of Final EA.)

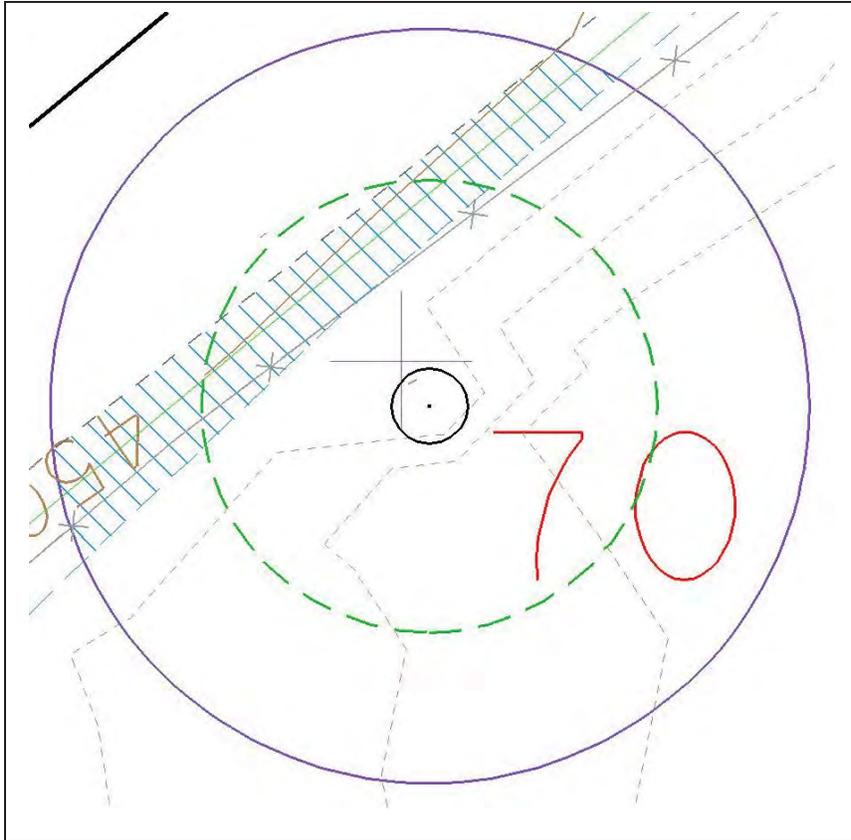
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road would be moved closer to tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #70, 44 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #63 in Table 9 and #52 in Table 10 of Final EA.)

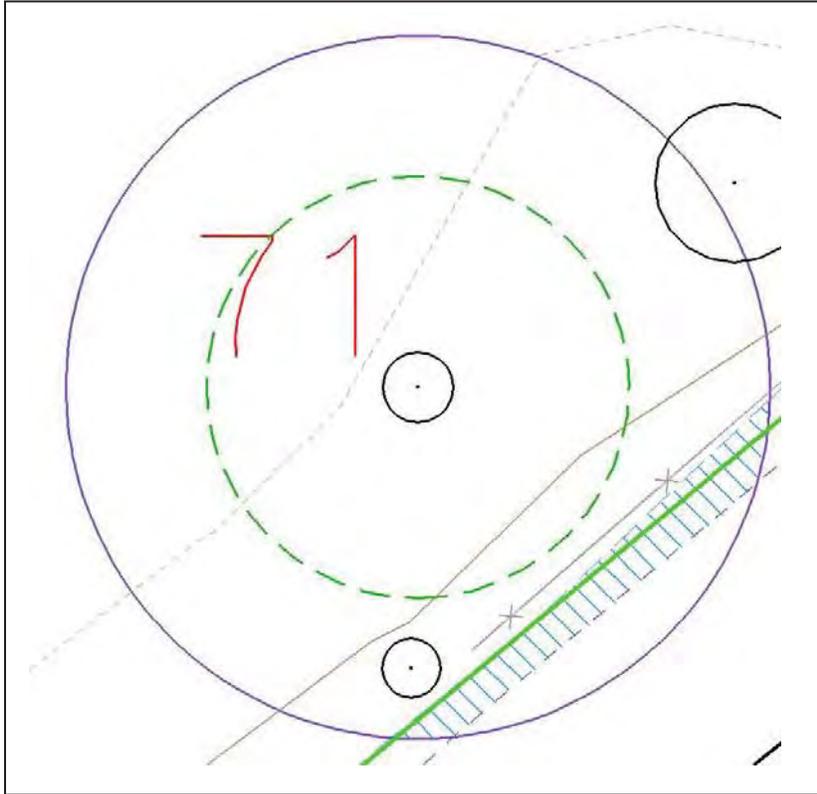
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #71, 50 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

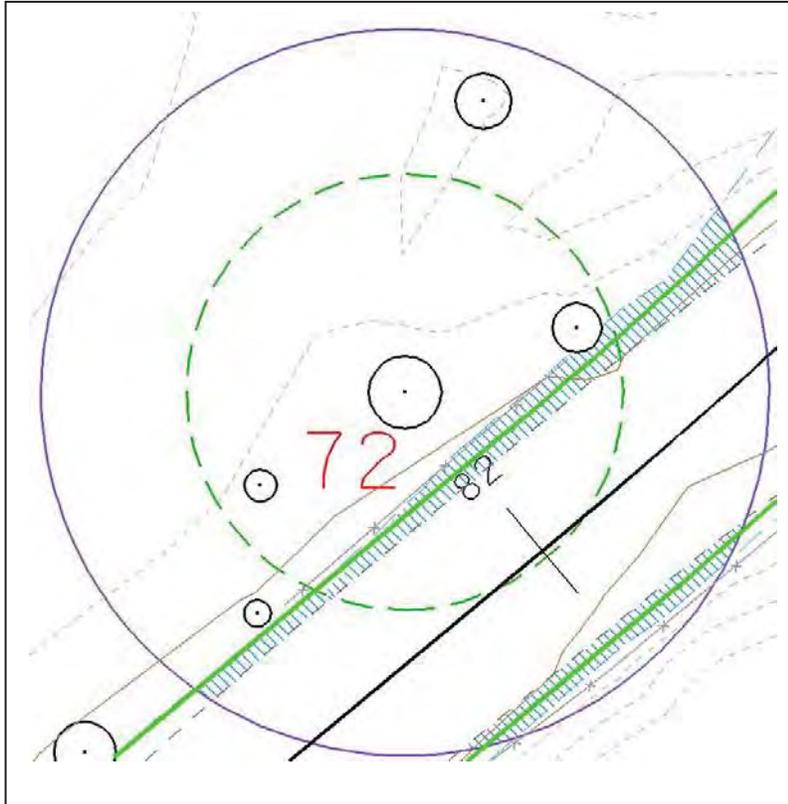
Work in structural root zone? No

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment outside of structural root zone (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur well away from tree. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #72, 112 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #64 in Table 9 and #50 in Table 10 of Final EA.)

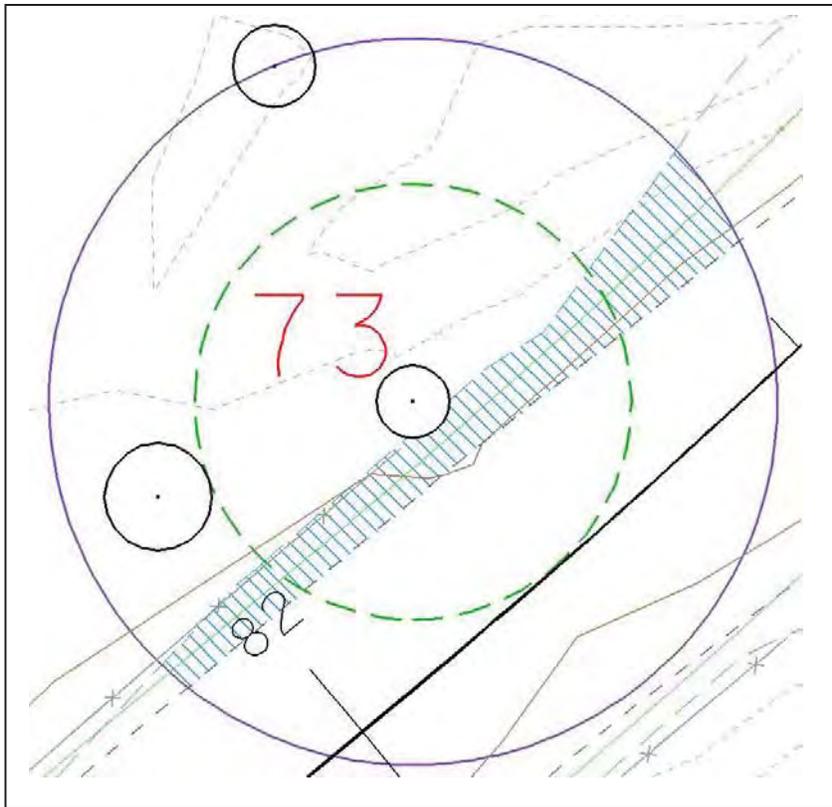
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree; across the road it would be widened approximately 2 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #73, 76 inches DBH (depicted in Attachment A, Sheet 9). Tree base appears to have been struck by a vehicle. (Listed as Tree #65 in Table 9 and #51 in Table 10 of Final EA.)

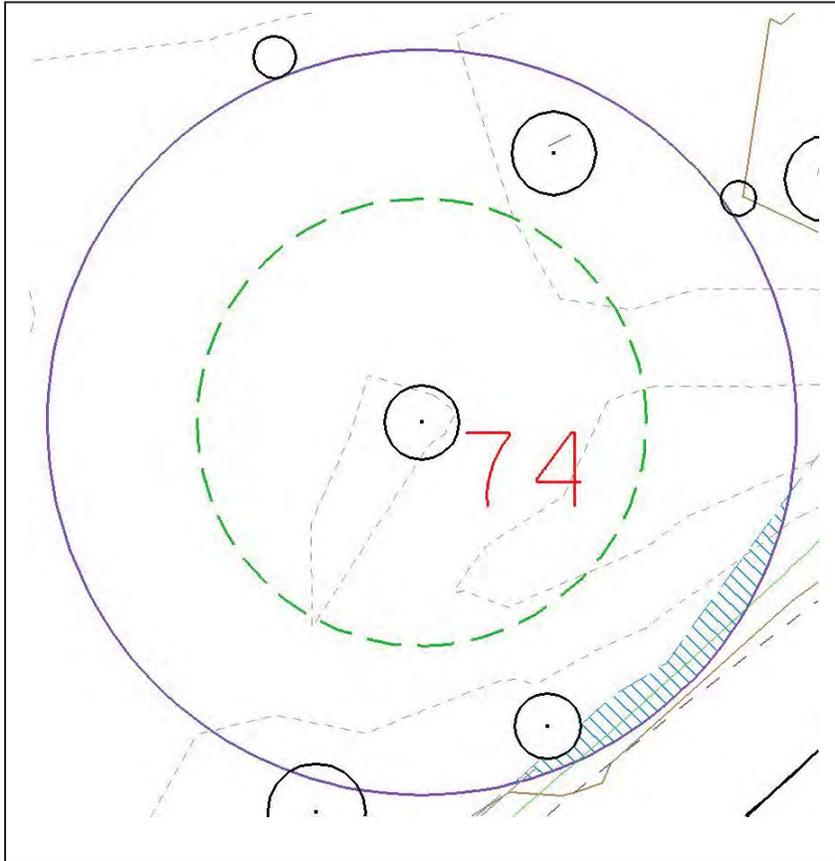
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #74, 86 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

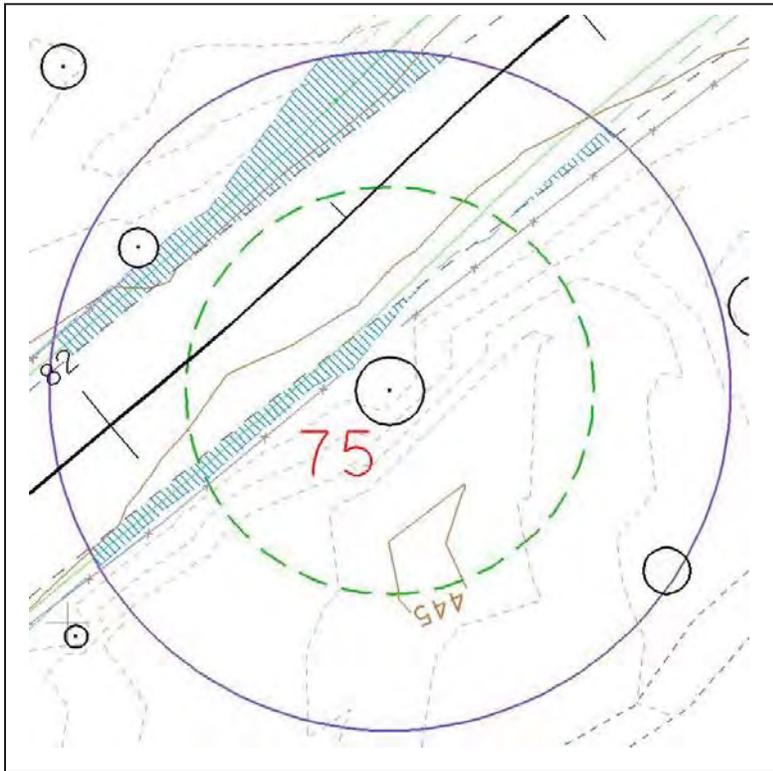
Work in structural root zone? No

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur far from tree. There would be no decline in foliage density or tree health.

Individual Tree Analysis



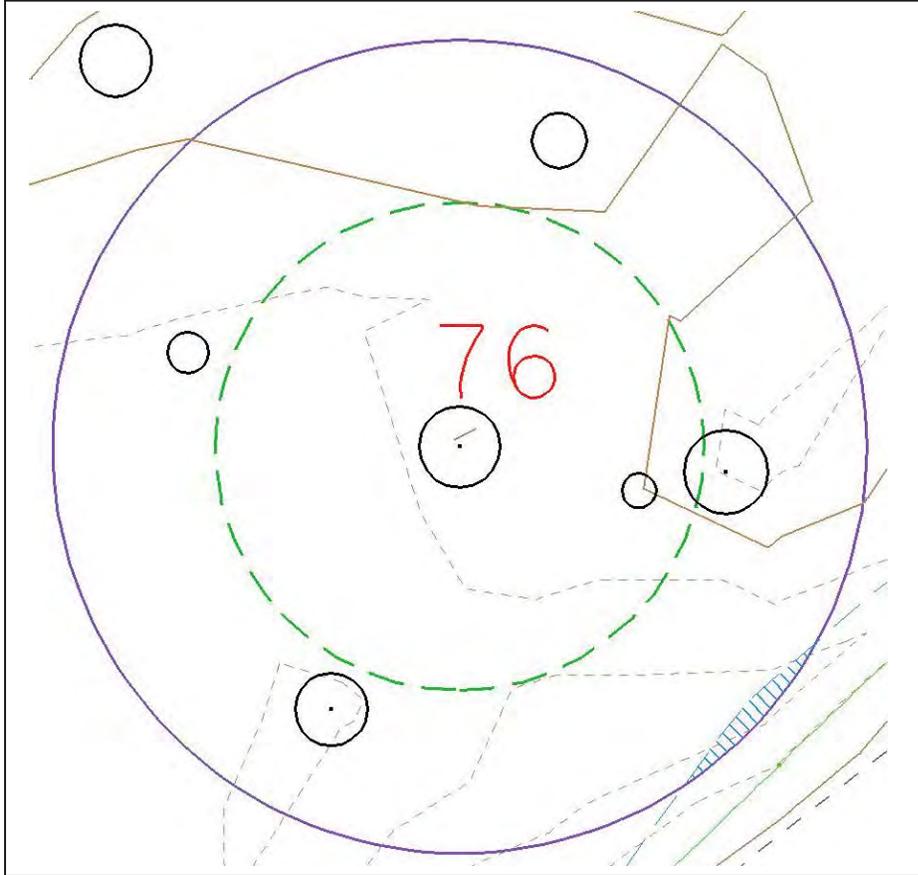
Description: Tree #75, 132 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #66 in Table 9 and #53 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree; across the road, it would be widened approximately 4 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Minor road work would occur near tree; embankment work across the road would be in the root health zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #76, 95 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

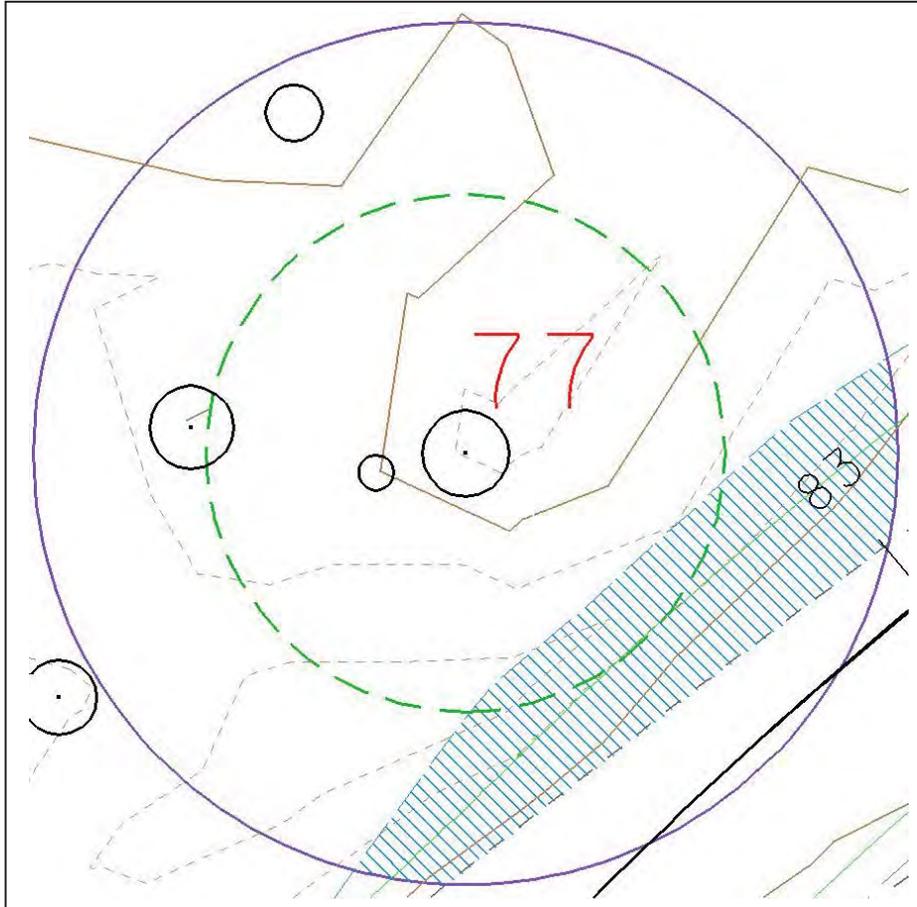
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Minor work would occur at the outer edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



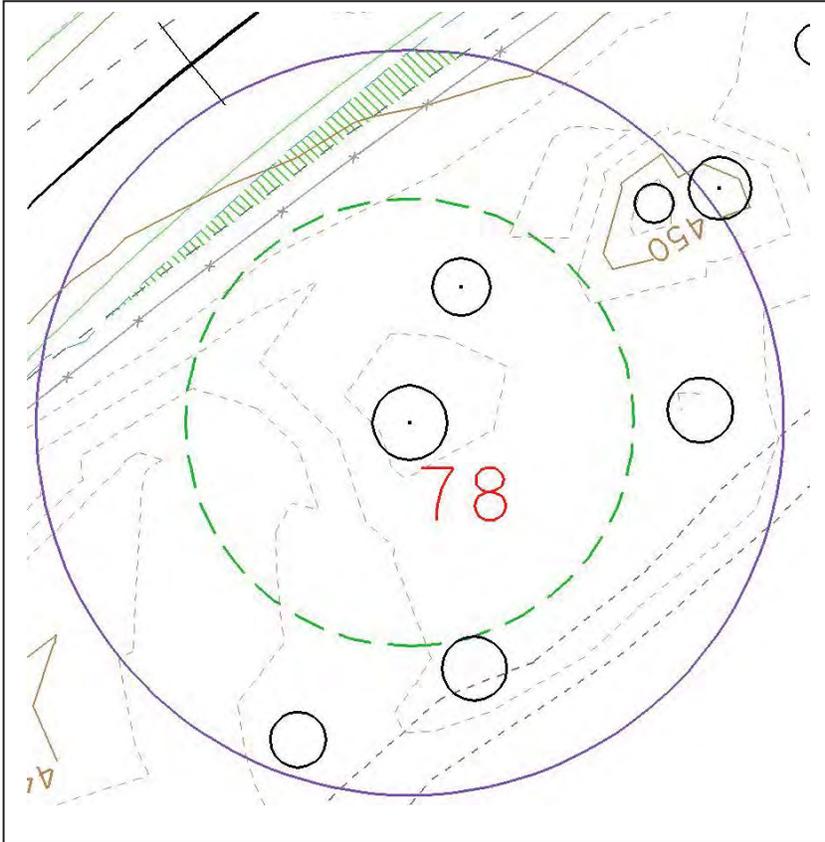
Description: Tree #77, 98 inches DBH (depicted in Attachment A, Sheet 9). (Listed as Tree #68 in Table 9 and #54 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 7 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road would be moved closer to tree with large amount of embankment. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



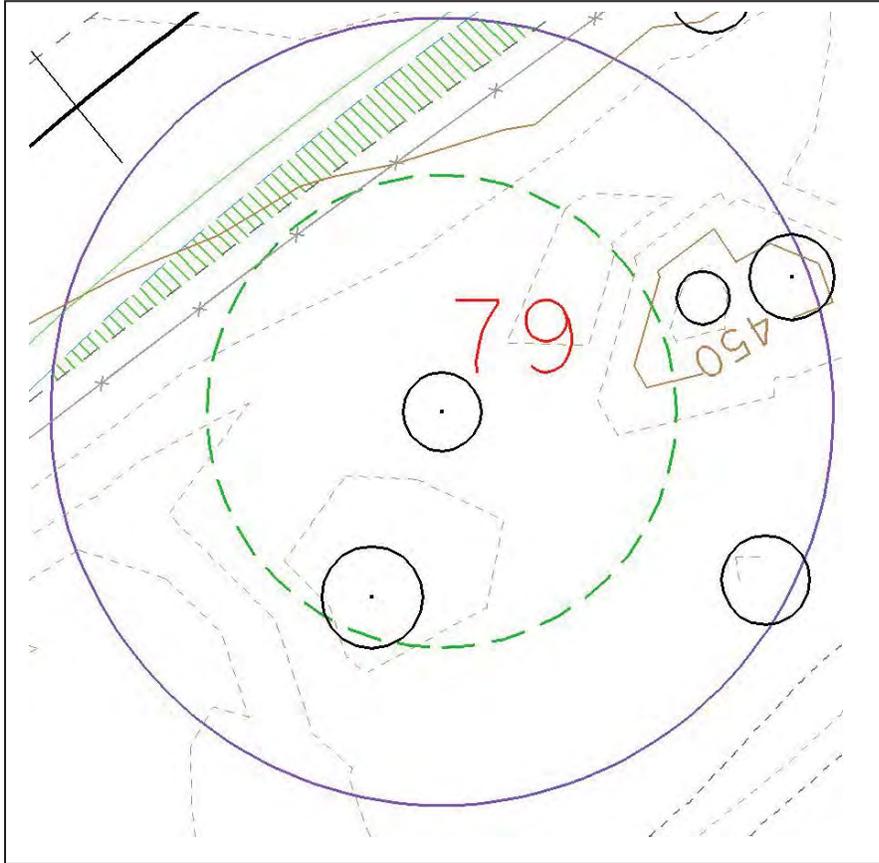
Description: Tree #78, 121 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be moved approximately 5 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: Road work would be minor and occur outside of the structural root zone; it would be offset by the removal of impervious surface. There would be no decline in foliage density or tree health.



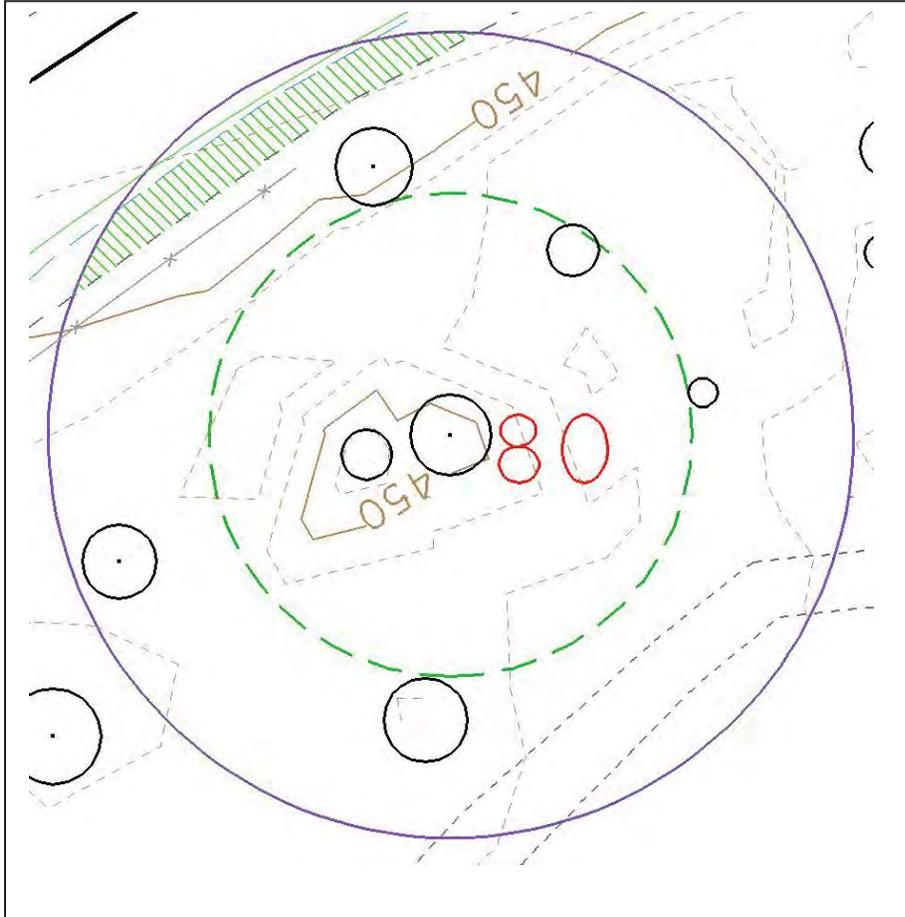
Description: Tree #79, 93 inches DBH (depicted in Attachment A, Sheet 9). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be moved approximately 6 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: Work would be minor and would occur outside of the structural root zone; it would be offset by removal of impervious surface. There would be no decline in foliage density or tree health.



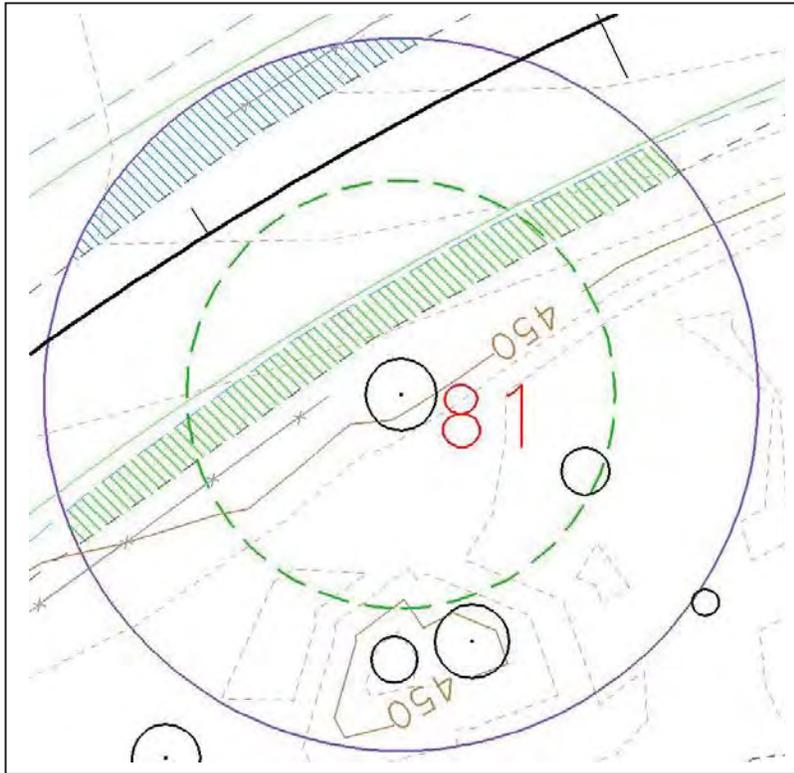
Description: Tree #80, 100 inches DBH (depicted in Attachment A, Sheet 9). Trunk of tree is intact. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be moved approximately 5 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: Work would be minor and occur outside of the structural root zone; it would be offset by the removal of impervious surface. There would be no decline in foliage density or tree health.



Description: Tree #81, 96 inches DBH (depicted in Attachment A, Sheet 10). This tree was not included in any tables for the Final EA.

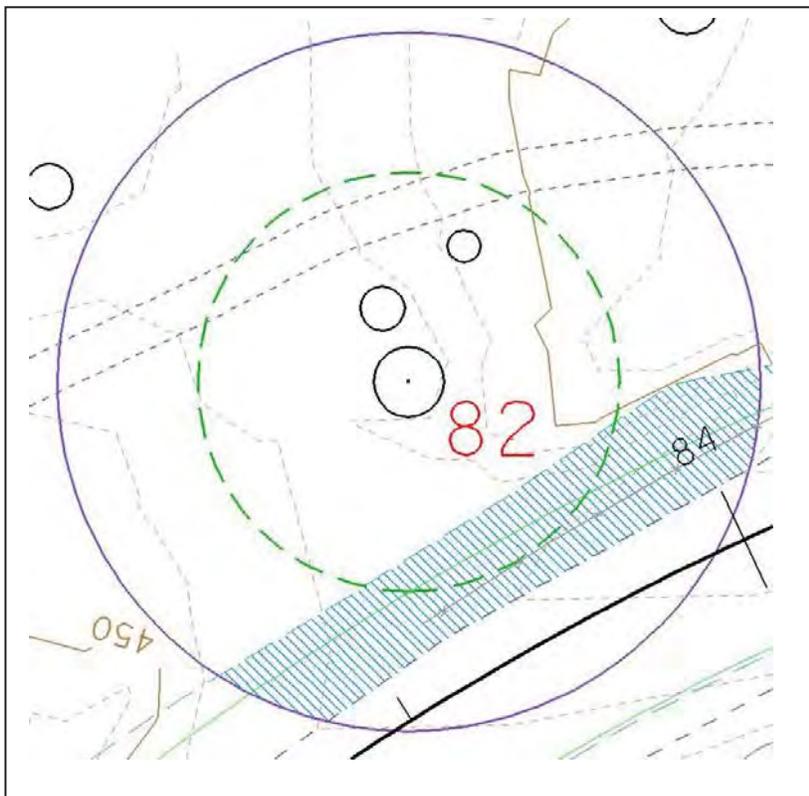
Work in structural root zone? Yes

Details of Work: The road would be moved approximately 5 feet away from the tree; across the road, it would be widened approximately 8 feet, outside of structural root zone. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials; new soils would be placed to construct embankment (average depth 6 to 18 inches). Where pavement would be removed, road materials would be replaced with native soil and duff. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Pavement removal would be a minor disturbance offset by removal of impervious surface. Widening would occur outside of the structural root zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #82, 112 inches DBH (depicted in Attachment A, Sheet 10). (Listed as Tree #69 in Table 9 and #55 in Table 10 of Final EA.)

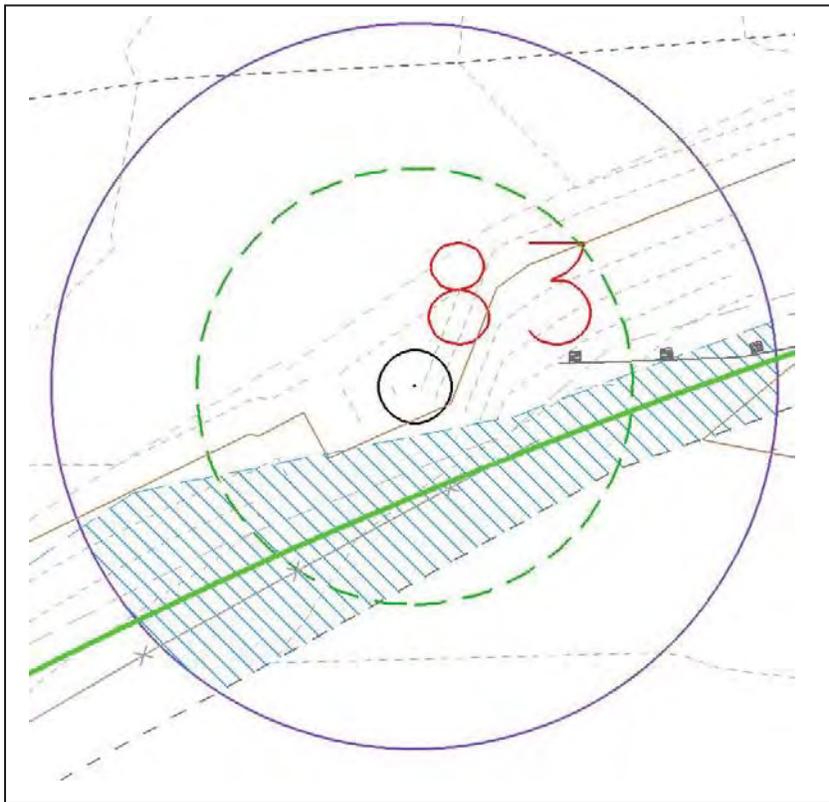
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 8 feet toward the tree. Where road would be widened or realigned, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: There would be an increase in elevation and embankment toward the tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



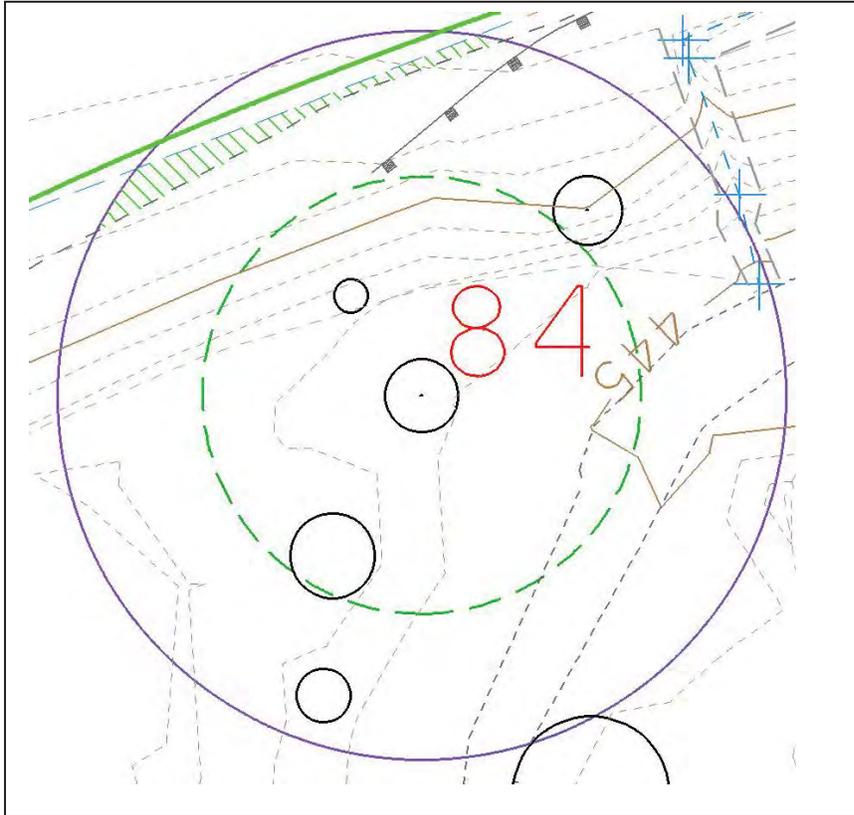
Description: Tree #83, 67 inches DBH (depicted in Attachment A, Sheet 10). Tree is growing in embankment. (Listed as Tree #70 in Table 9 and #56 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 5 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Redwood logs approximately 12 inches in diameter and ten feet in length would be placed against the trunk ("brow logs"), parallel to the road, vertically stacked and internally secured with rebar; embankment would be placed against the logs rather than against the tree. Metal beam guardrail would be removed and soil would be placed into the post holes. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Brow logs would be placed against trunk; work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: There would be a substantial change in grade due to embankment. Brow logs would be 1.5 to 2 times the diameter of the tree in length (about 10 feet). Internal rebar may be used within logs if needed to keep them in place. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #84, 69 inches DBH (depicted in Attachment A, Sheet 10). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

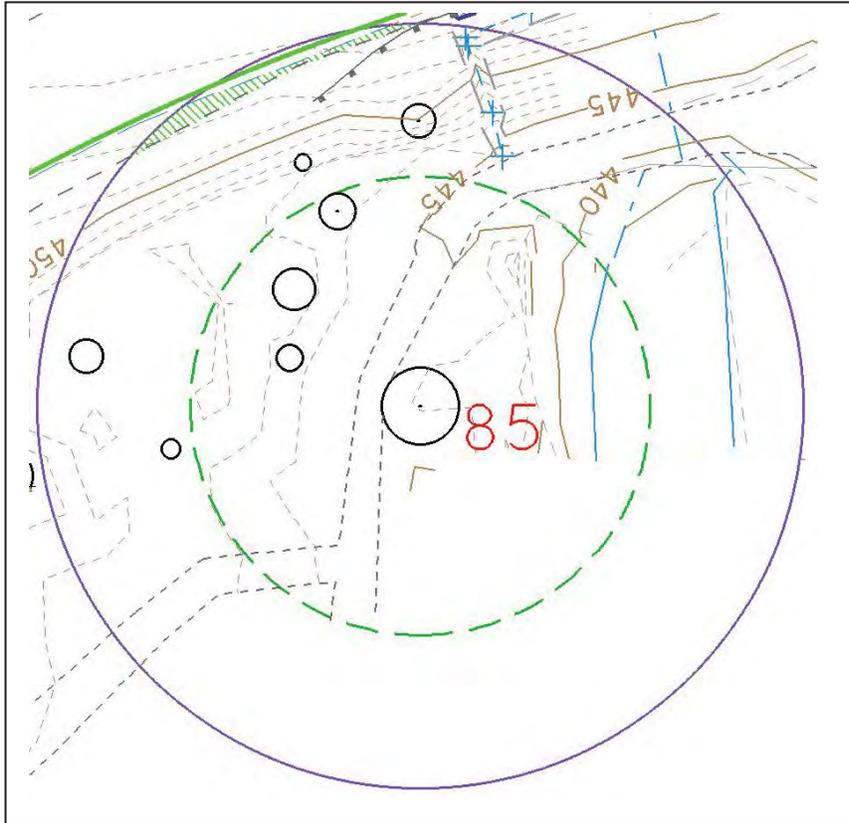
Work in structural root zone? No

Details of Work: The road would be moved approximately 2 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Metal beam guardrail would be removed and soil would be placed into the post holes. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: Work would be minor disturbance beyond structural root zone, offset by removal of impervious surface. There would be no decline in foliage density or tree health.

Individual Tree Analysis



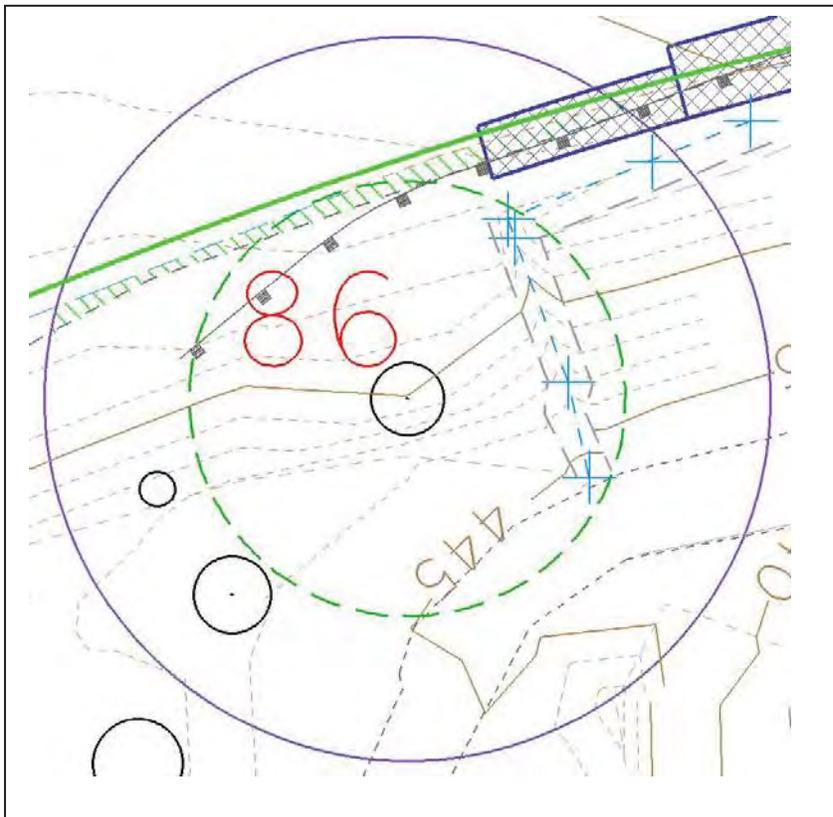
Description: Tree #85, 147 inches DBH (depicted in Attachment A, Sheet 10). Tree has three trunks. It is across a trail from road work. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be moved approximately 3 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Metal beam guardrail would be removed and soil would be placed in the post holes.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #86, 66 inches DBH (depicted in Attachment A, Sheet 10). Tree was not included in any tables for the Final EA.

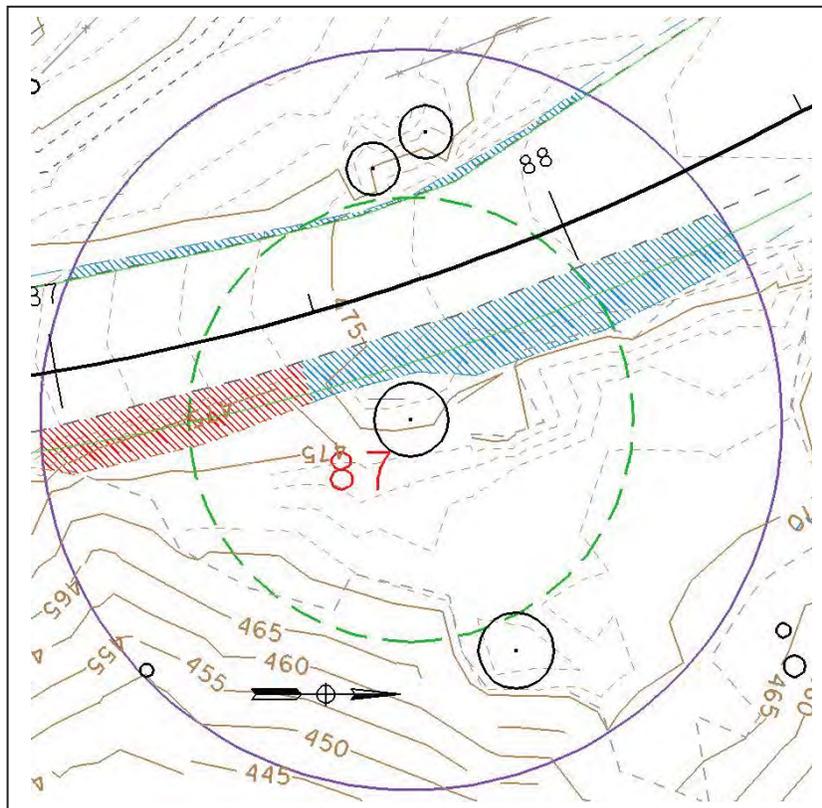
Work in structural root zone? Yes

Details of Work: The road would be moved approximately 2 feet away from the tree. Where pavement would be removed, road materials would be replaced with native soil and duff. Metal beam guardrail would be removed and soil would be placed in the post holes; outside of structural root zone, a crash cushion would be installed in its place. For the crash cushion, soil will be removed to a depth of 1 foot, a width of 4 feet, and a length of 15 feet. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist. For crash cushion work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #87, 168 inches DBH (depicted in Attachment A, Sheet 11). Tree has two trunks. (Listed as Tree #72 in Table 9 and #59 in Table 10 of Final EA.)

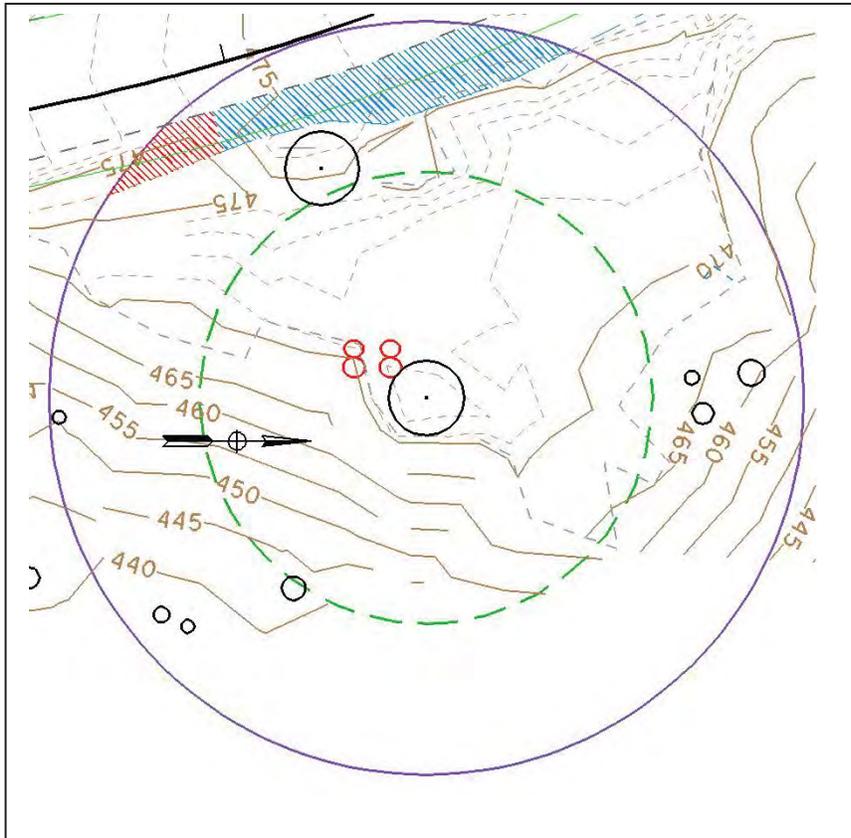
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 6 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Soils would be removed for new roadside cut slopes (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: The bank would be shaved 2-3 feet in front of southernmost trunk, and it is unknown what size of root may have to be cut back. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #88, 175 inches DBH (depicted in Attachment A, Sheet 11). Tree has three trunks. (Listed as Tree #73 in Table 9 and #58 in Table 10 of Final EA.)

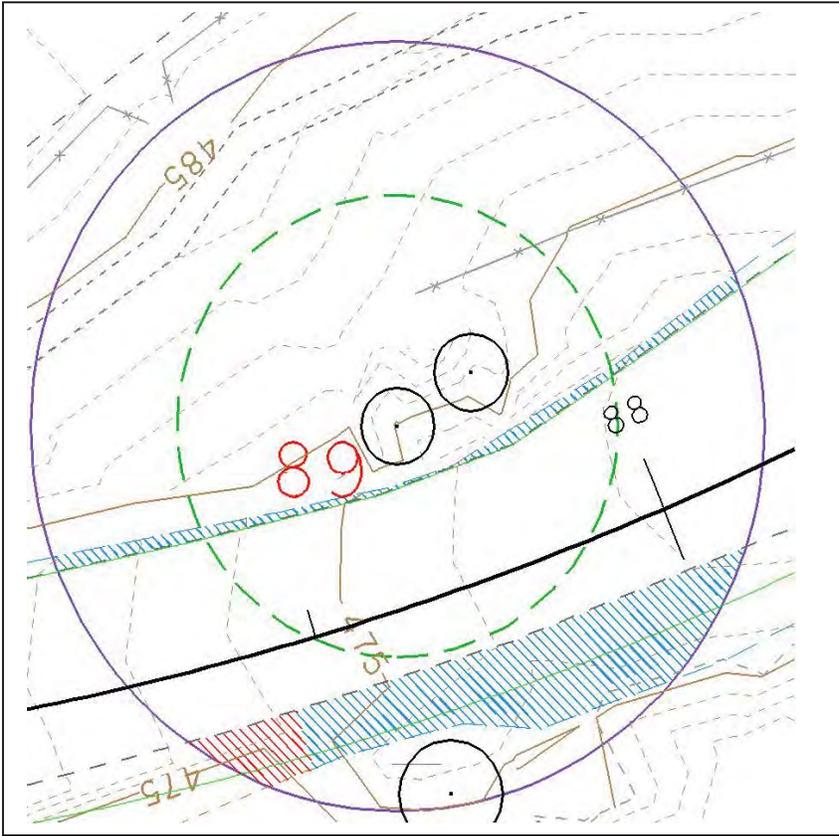
Work in structural root zone? No

Details of Work: The road would be widened approximately 6 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment outside of structural root zone (average depth 6 to 18 inches). Soils would be removed for new roadside cut slopes outside of structural root zone (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For cut slope work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Work would occur in outer edge of root health zone only. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



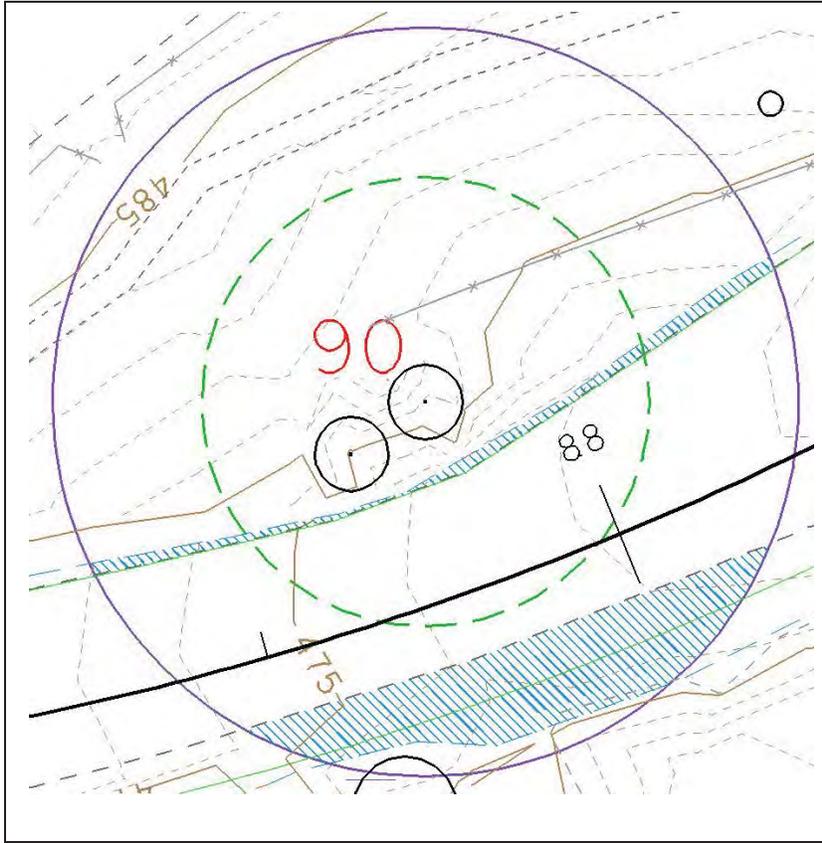
Description: Tree #89, 121 inches DBH (depicted in Attachment A, Sheet 11). Tree and adjacent Tree #90 may have developed from a single base that is now hollowed by a fire cavity. Several large buttress roots facing the road were severed decades ago during highway construction. The uppermost top of tree is dead (“spike” top) but has vigorous crown below. (Listed as Tree #74 in Table 9 and #60 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened across the road from the tree by approximately 6 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Soils would be removed for new roadside cut slopes outside of structural root zone (average depth 18 to 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Work in the structural root zone would be minor. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #90, 125 inches DBH (depicted in Attachment A, Sheet 11). Tree has two trunks. This tree and adjacent Tree #89 may have developed from a single base that is now hollowed by a fire cavity. Several large buttress roots facing the road were severed decades ago during highway construction. The tree now has a dead remnant "spike top" but maintains an apparently vigorous crown. Tree was identified as two trees in Final EA: Trees #75 & 76 in Table 9, and #61 & 62 in Table 10.

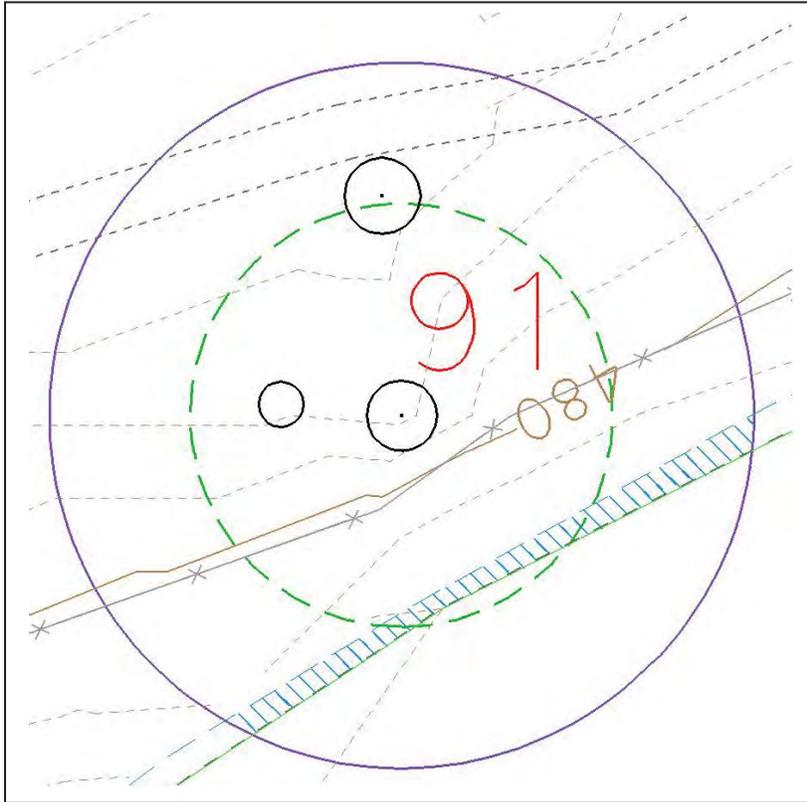
Work in structural root zone? Yes

Details of Work: Across the road from the tree and outside of the structural root zone, the road would be widened by approximately 6 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches) both within and outside of the structural root zone. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Majority of work is taking place across road; work within the structural root zone is minor. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #91, 62 inches DBH (depicted in Attachment A, Sheet 11). Tree is away from roadway. (Listed as Tree #77 in Table 9 and #63 in Table 10 of Final EA.)

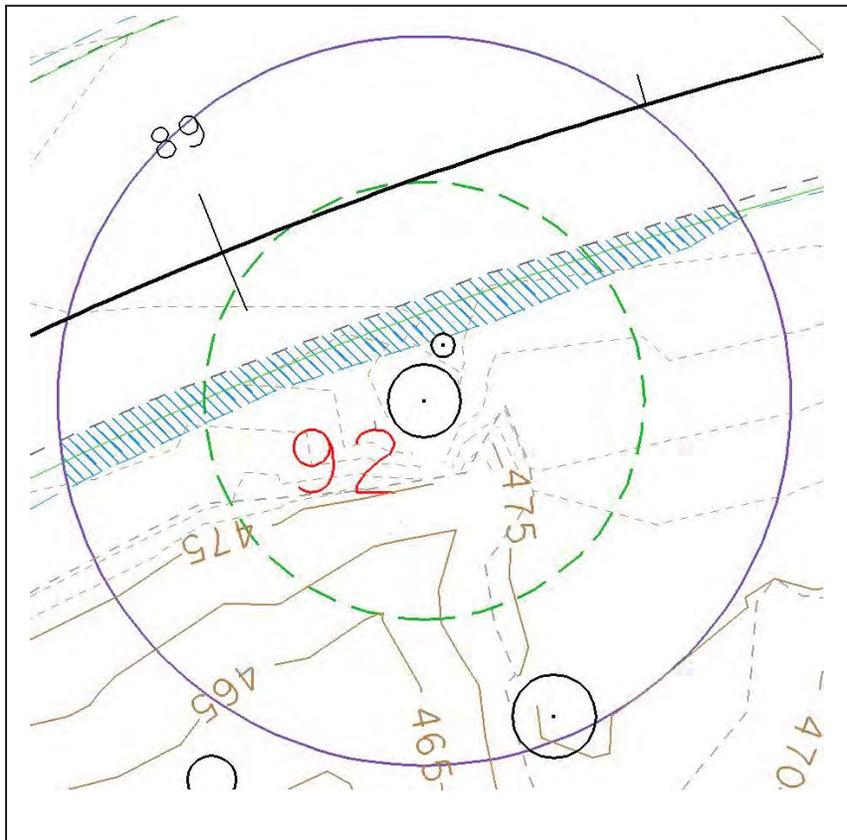
Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Embankment work would be minor: strip of embankment would be less than 6 inches deep, and about 1 foot in width. There would be no decline in foliage density or tree health.

Individual Tree Analysis



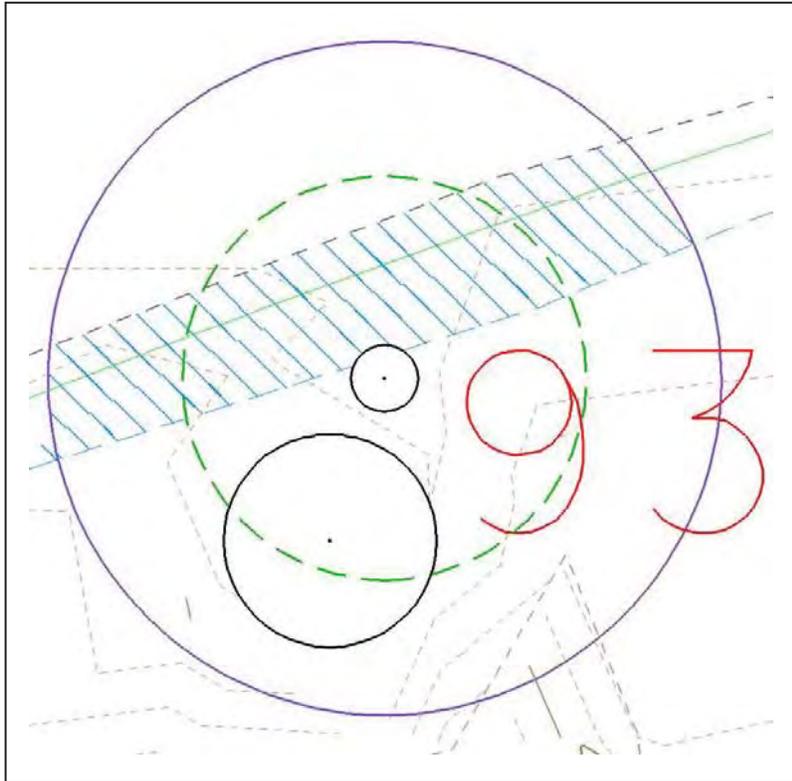
Description: Tree #92, 100 inches DBH (depicted in Attachment A, Sheet 11). Tree has two trunks. A fire scar extends from base of tree up to about 20 feet. (Listed as Tree #78 in Table 9 and #64 in Table 10 of Final EA.)

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



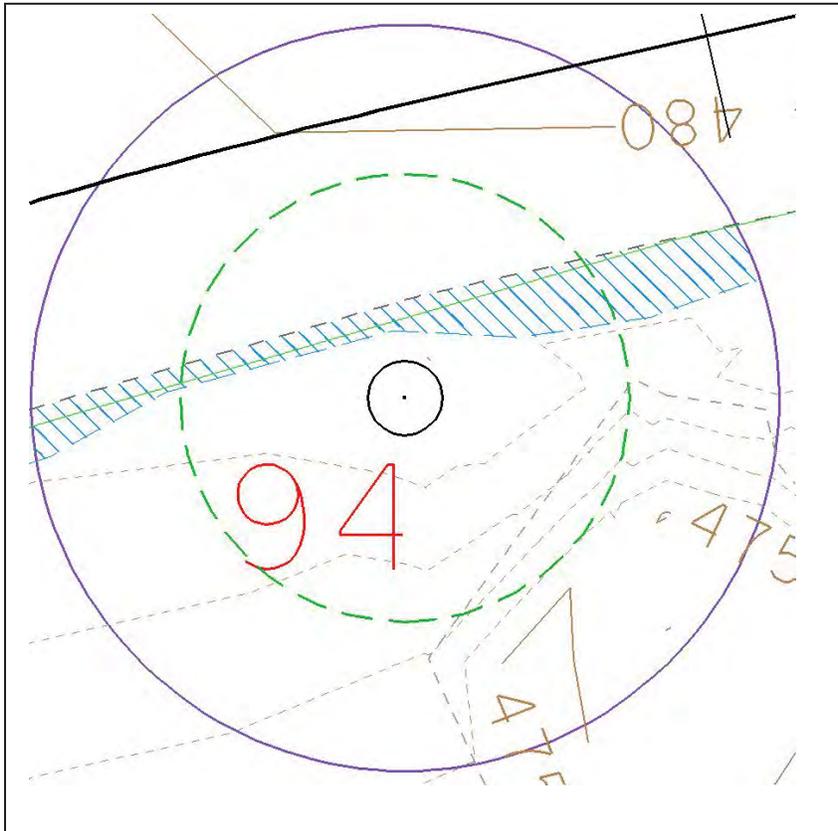
Description: Tree #93, 32 inches DBH (depicted in Attachment A, Sheet 11). Tree is not listed in any tables for the Final EA, as the previous diameter measurement did not meet the criterion of 30 inches diameter defined for old growth. It has been added to the assessment because re-measurement resulted in a larger diameter.

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 2 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #94, 61 inches DBH (depicted in Attachment A, Sheet 12). Trunk has a large tuberous swelling and numerous branches are dead on one side; tree may have been suppressed by an adjacent, now-fallen tree. (Listed as Tree #79 in Table 9 and #65 in Table 10 of Final EA.)

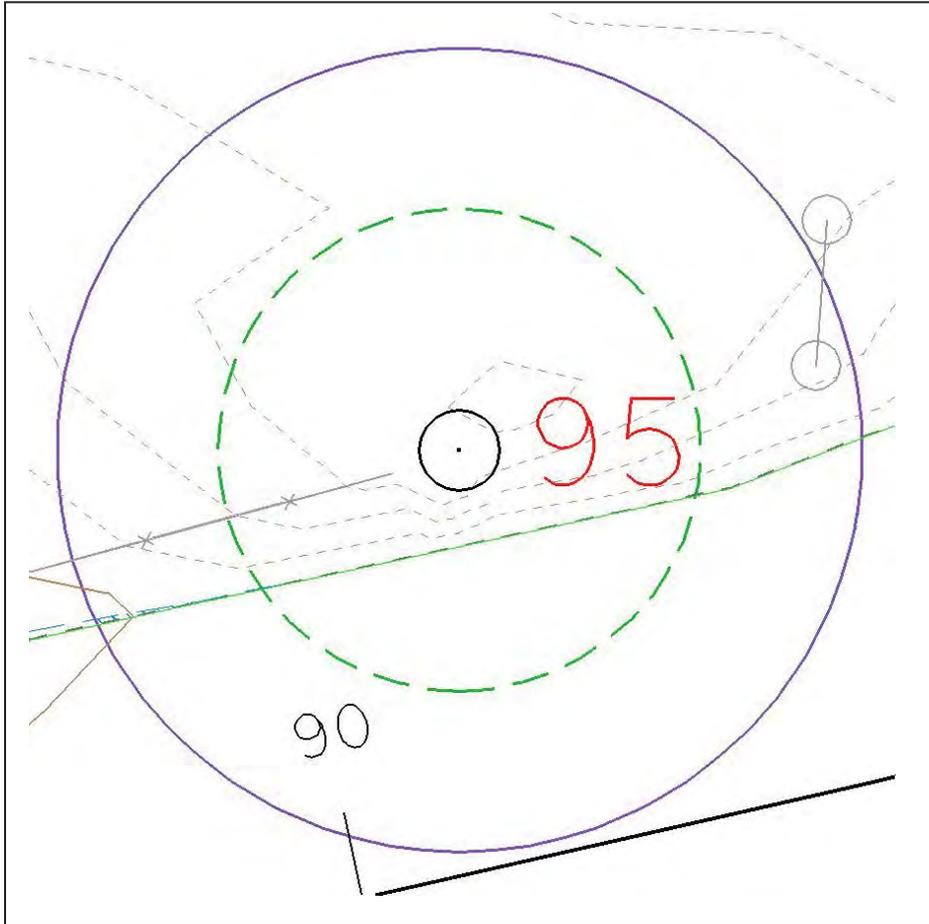
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #95, 80 inches DBH (depicted in Attachment A, Sheet 12). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is barely within ground-disturbing activities.

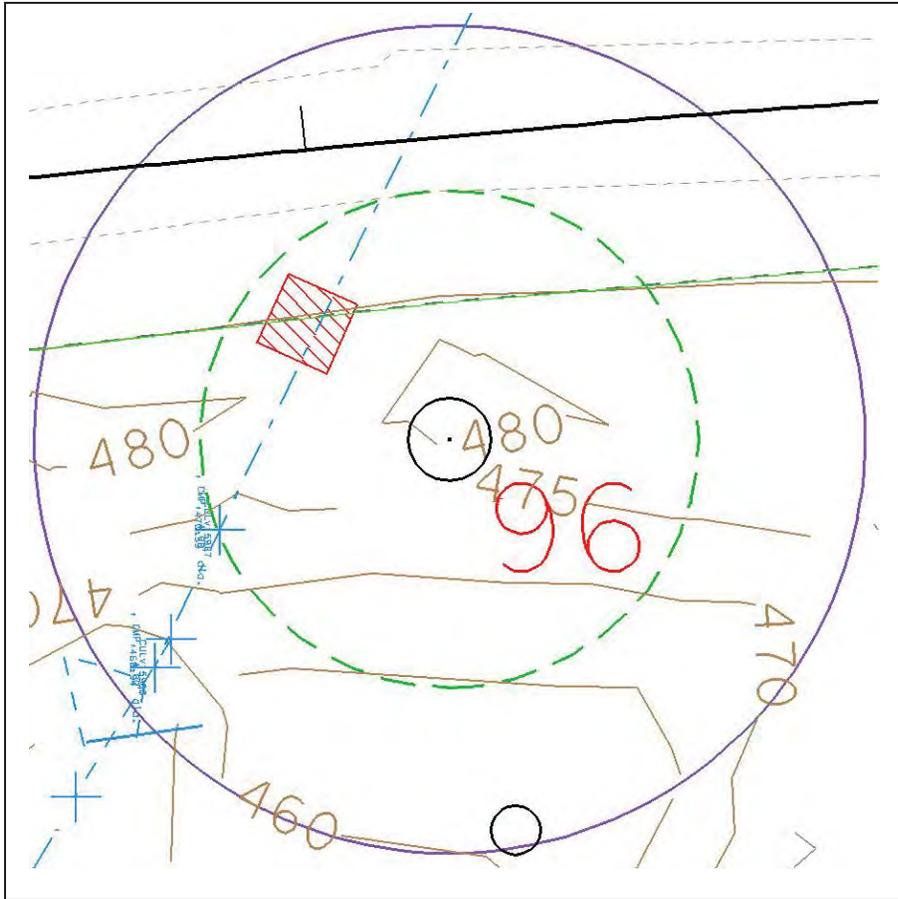
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work is at very edge of root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #96, 81 inches DBH (depicted in Attachment A, Sheet 13). Tree was not included in the Final EA.

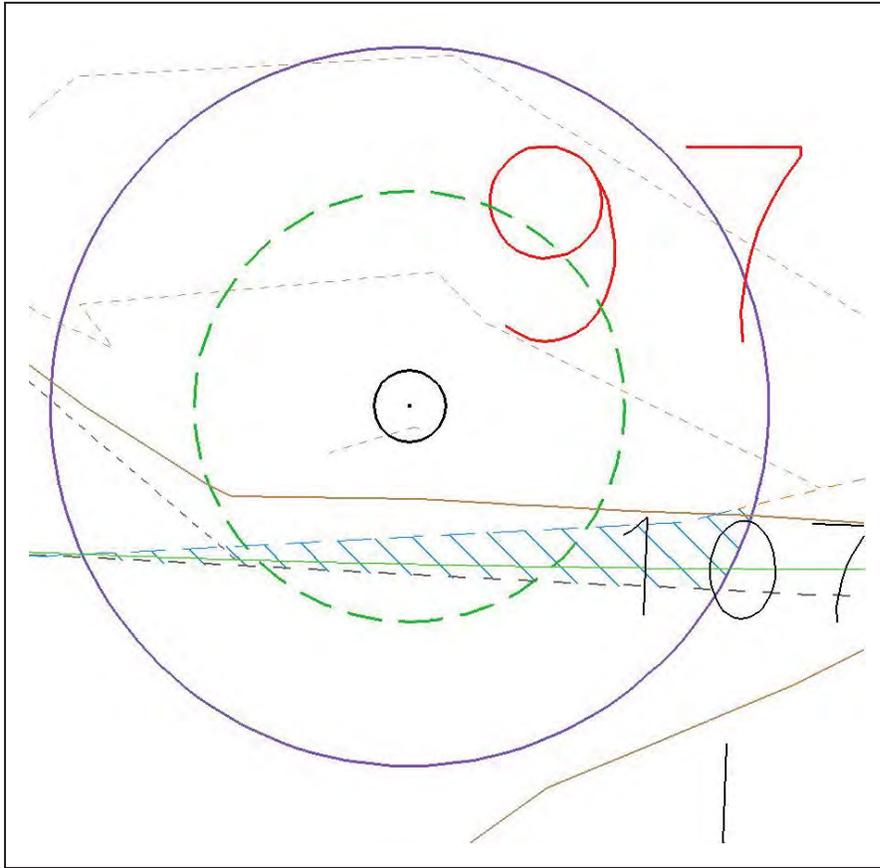
Work in structural root zone? Yes

Details of Work: A 6-ft x 6-ft hole would be dug to install a new drain inlet at the road edge, connecting to an existing culvert. An apron of pavement approximately 4 feet wide would be added between the drain inlet and the roadway to direct water to the inlet.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and utilized as erosion control. Roots greater than 2 inches diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: Area of work would be within a highway embankment that was trenched and filled in approximately 25 years ago, when culvert was last replaced (date of initial installation unknown). The size of roots that have re-grown since culvert was replaced is unknown; however, the area of proposed disturbance would be small. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



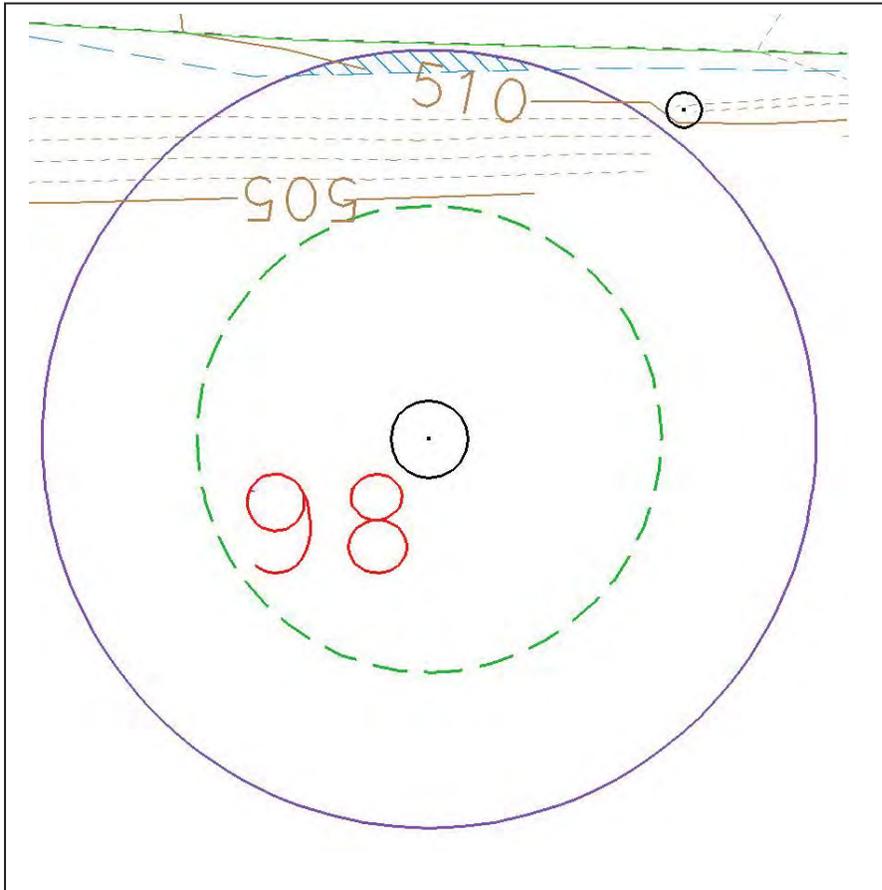
Description: Tree #97, 32 inches DBH (depicted in Attachment A, Sheet 18). Tree has a cavity at the base, on side opposite road. It was not included in the Final EA.

Work in structural root zone? Yes

Details of Work: The road would be widened approximately 1 foot toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade.

Evaluation: Embankment would taper as it approached tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #98, 67 inches DBH (depicted in Attachment A, Sheet 18). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

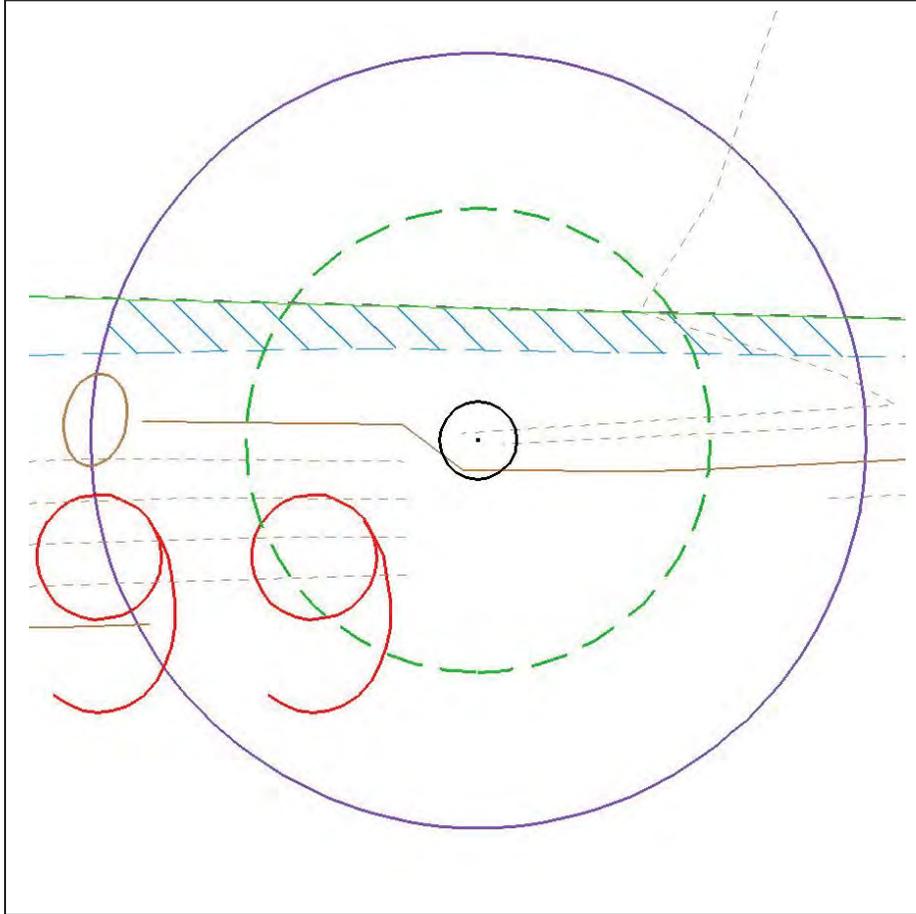
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Shallow embankment work would be in outermost area of root health zone only. There would be no decline in foliage density or tree health.

Individual Tree Analysis



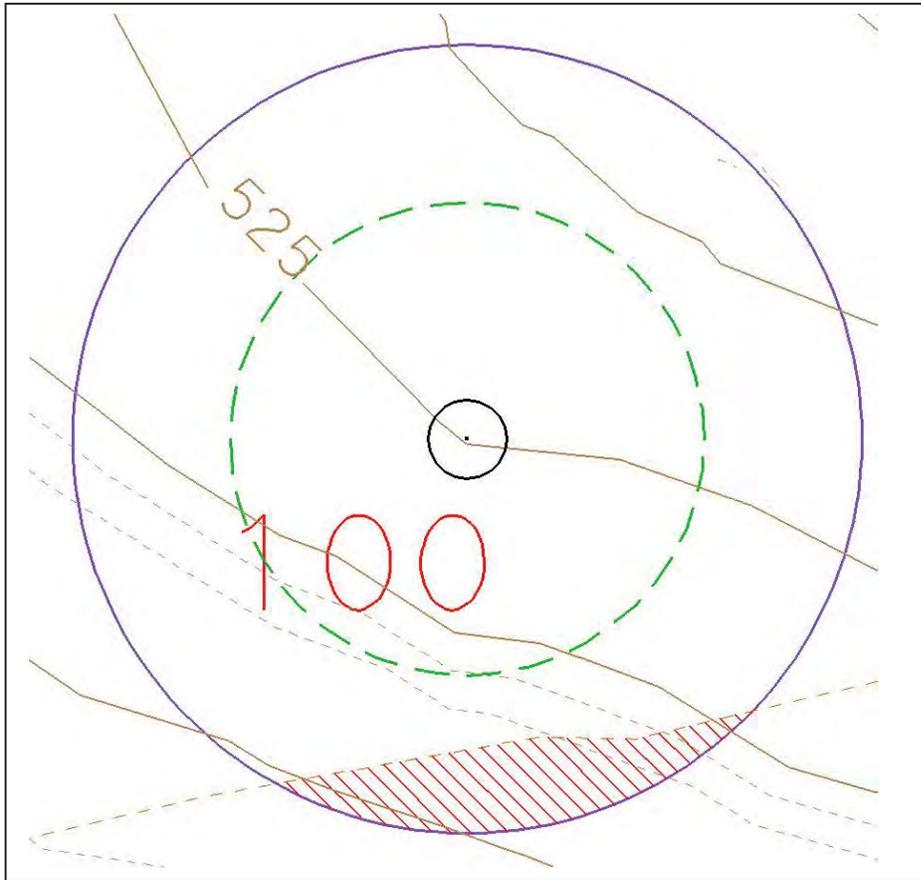
Description: Tree #99, 33 inches DBH (depicted in Attachment A, Sheet 18). (Listed as Tree #80 in Table 9 and #66 in Table 10 of the Final EA.)

Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Road work would occur near tree. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #100, 70 inches DBH (depicted in Attachment A, Sheet 18). Tree is growing on hillside. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

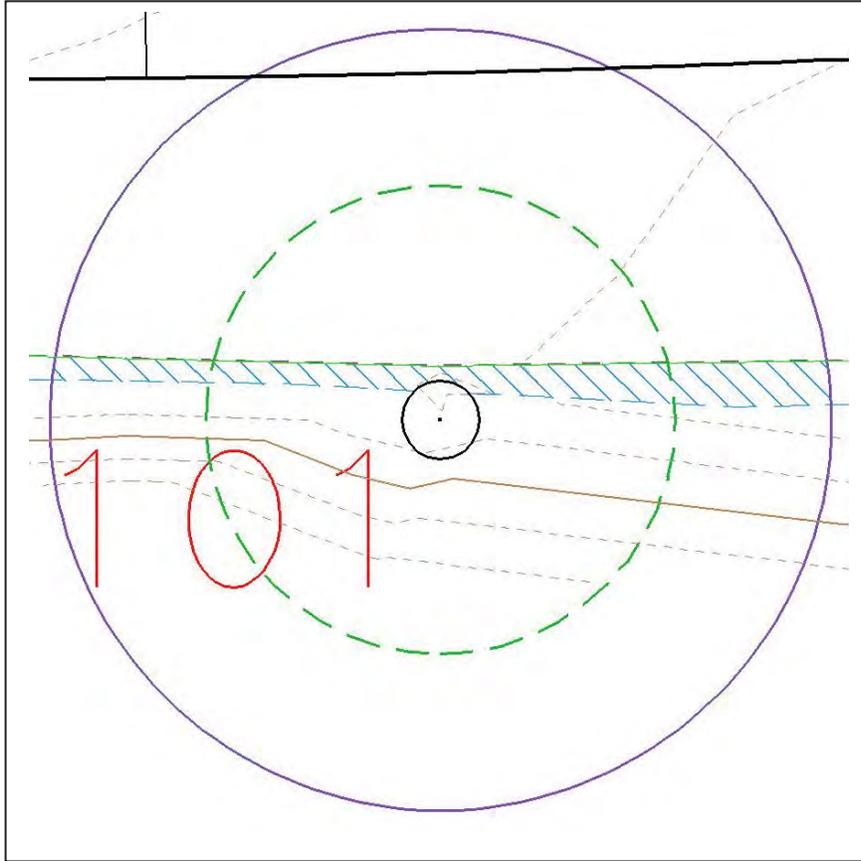
Work in structural root zone? No

Details of Work: Soils would be removed for new roadside cut slopes (average depth 18 to 36 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist. Roots greater than 2 inches that must be cut would be cut back cleanly with a sharp instrument; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Soil would be removed from a small part of the root health zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



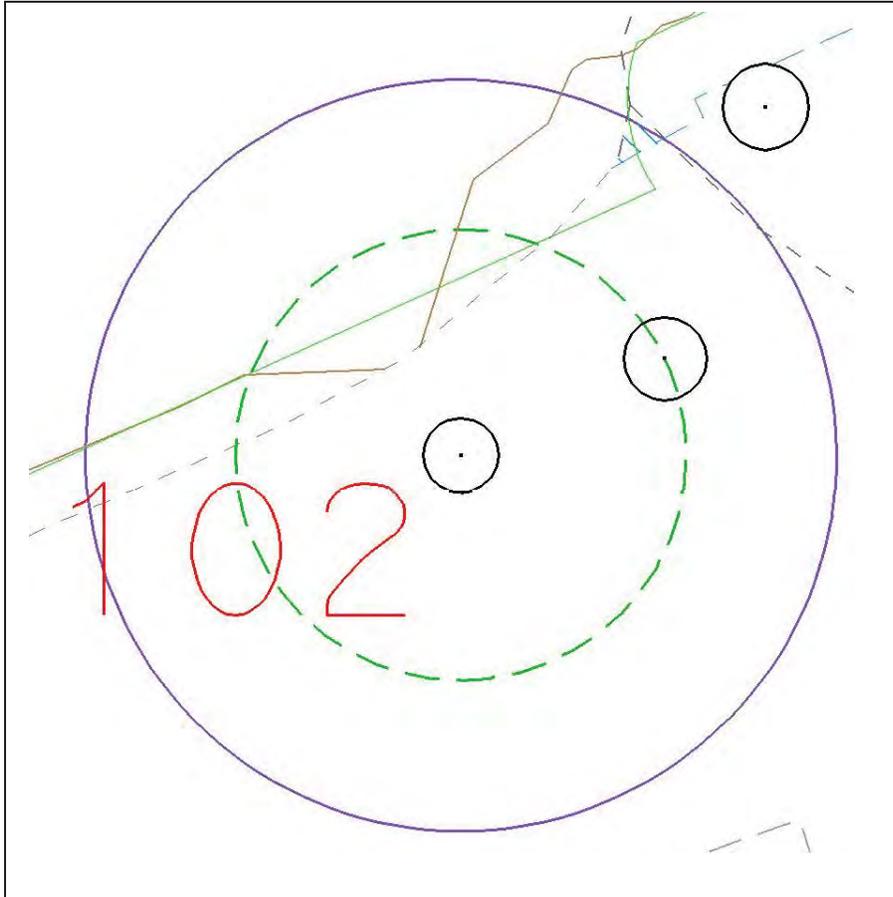
Description: Tree #101, 48 inches DBH (depicted in Attachment A, Sheet 18). Tree was counted twice in tables for the Final EA: Trees #81 & 82 in Table 9 and #67 & 68 in Table 10.

Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Depth and area of embankment would be small. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.



Description: Tree #102, 50 inches DBH (depicted in Attachment A, Sheet 19). This tree is adjacent to Tree #103, away from the road. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

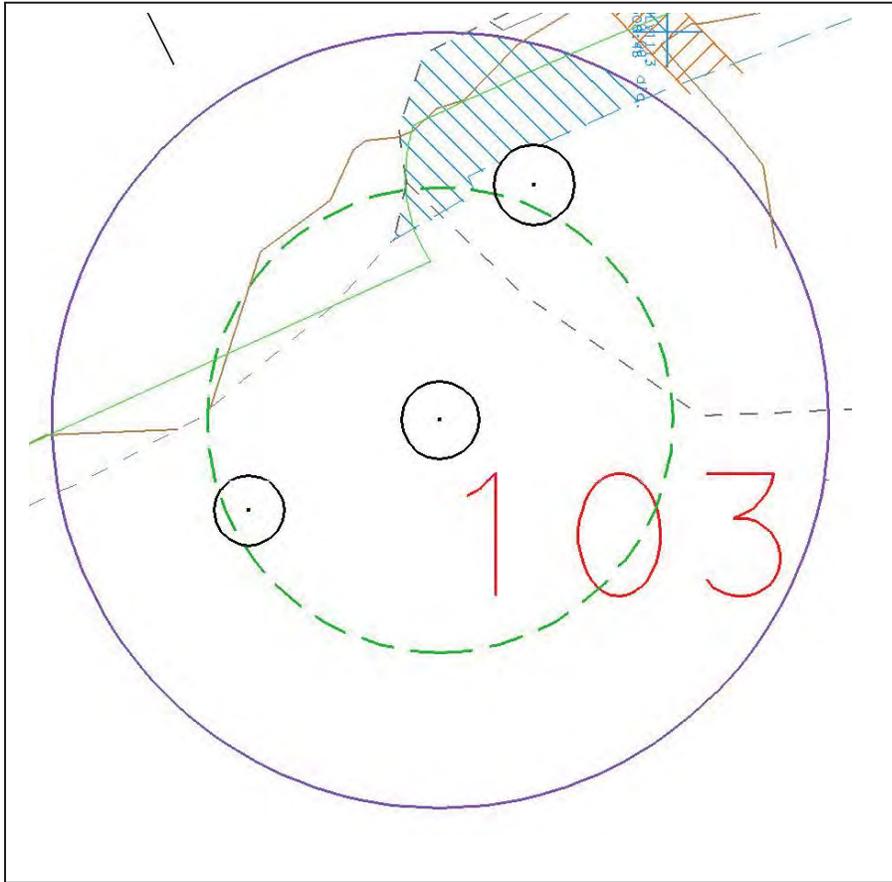
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: A small amount of new road material would be placed near the outer edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #103, 54 inches DBH (depicted in Attachment A, Sheet 19). Tree is growing in an island of soil in front of a building. It was not included in the Final EA.

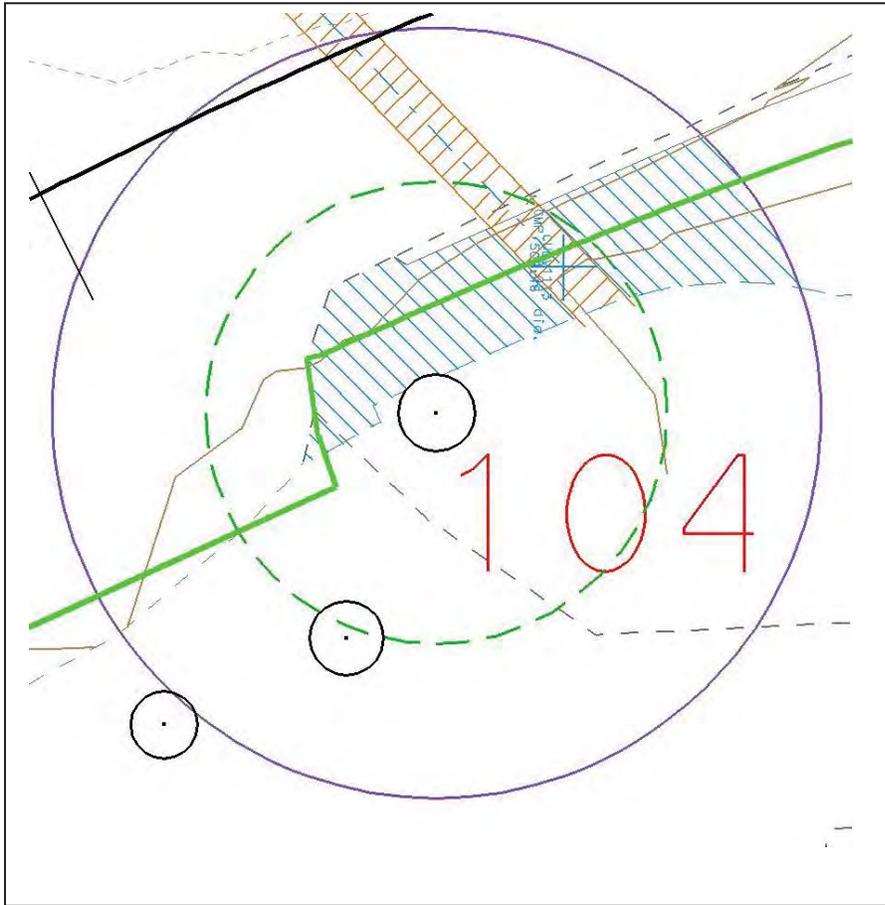
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials outside of structural root zone. New soils would be placed to construct embankment (average depth 18 to 36 inches) both within and outside of structural root zone. Soils would be removed (average depth 18 to 36 inches) outside of structural root zone to construct a gabion wall.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For gabion work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: Small amount of embankment would be added to minor area of structural root zone. With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #104, 58 inches DBH (depicted in Attachment A, Sheet19). (Listed as Tree #84 in Table 9, and is not in Table 10 of Final EA.)

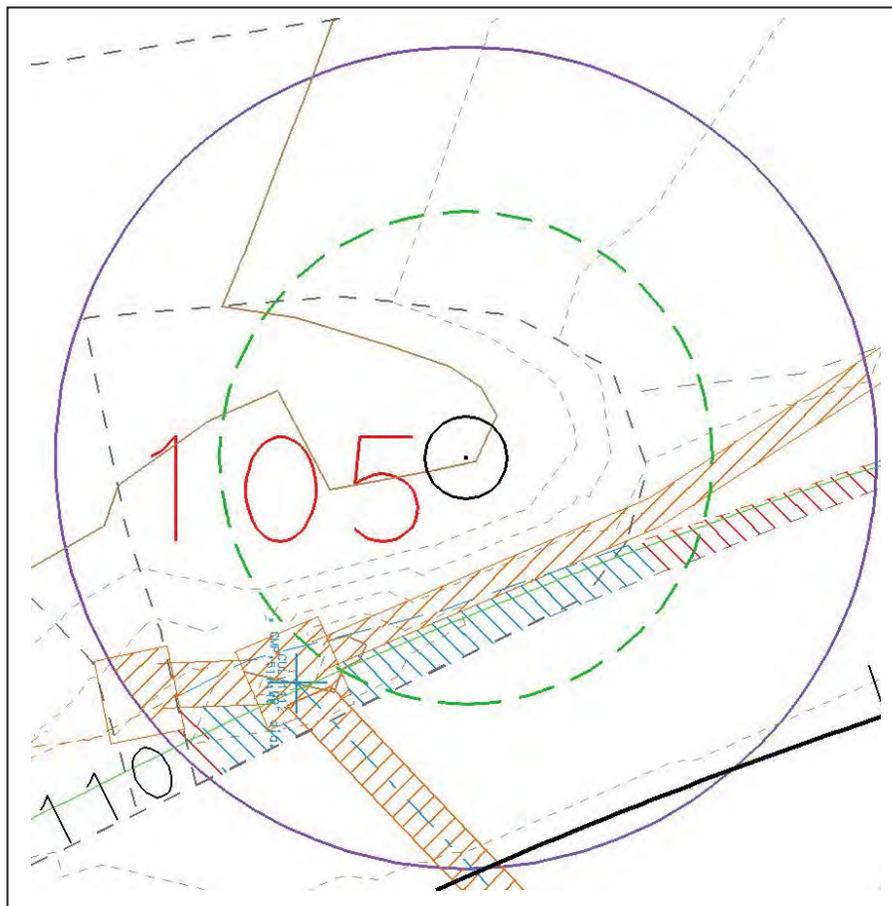
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new. New soils would be placed to construct embankment (average depth 18 to 36 inches). Soils would be removed (average depth greater than 36 inches) to construct a gabion wall, which can be shaped to conform to the profile elevation of the tree. A 24-inch culvert would be replaced with a 24-inch culvert. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For gabion and culvert work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: The gabion wall would be compressible and would accommodate tree growth. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #105, 68 inches DBH (depicted in Attachment A, Sheet 19). Tree is growing outside of the state park on a raised mound of earth that is adjacent to private and public roadways. The buttress flare does not appear to be severed or buried and the crown appears healthy. (Listed as Tree #85 in Table 9, and is not in Table 10 of Final EA)

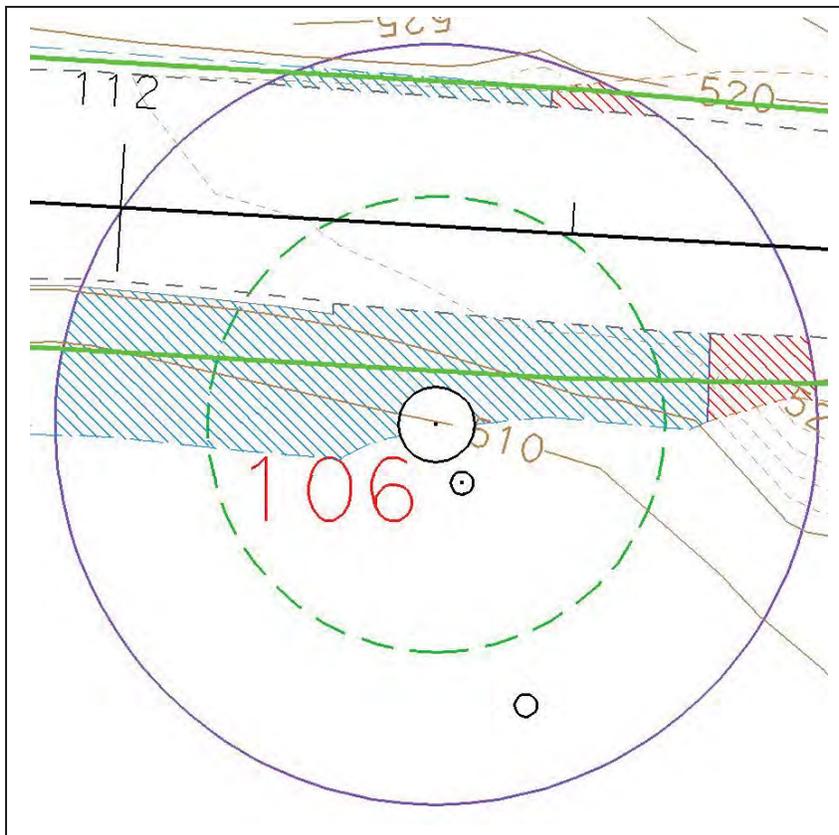
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 3 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Soils would be removed for new roadside cut slopes (average depth 0 to 6 inches). A 24-inch culvert would be replaced with a 24-inch culvert. Two new drainage inlets would be constructed, and a new 12-inch slotted drain would be installed. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope, culvert and drain work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: There would be several different disturbances around this tree. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #106, 103 inches DBH (depicted in Attachment A, Sheet 19). Tree has two trunks. It is established at roadway height at least 10 feet above downslope buttress flare. (Listed as Tree #86 in Table 9 and is not in Table 10 of Final EA.)

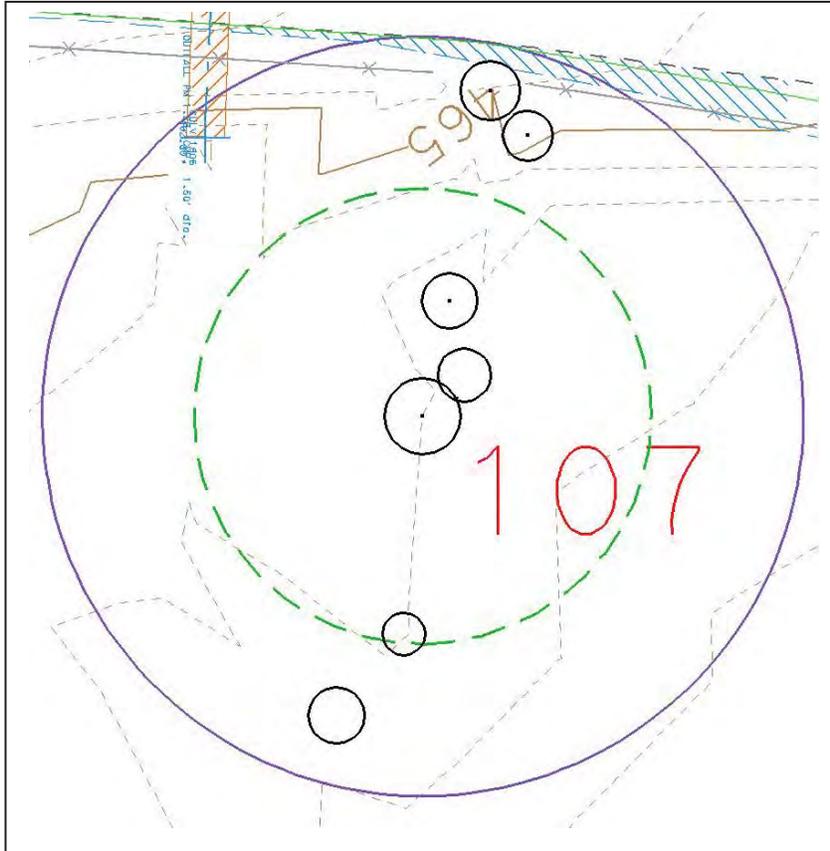
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 7 feet toward the tree; across the road, it would be widened approximately 2 feet. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 18 to 36 inches). Soils would be removed (average depth greater than 36 inches) to construct a gabion wall. A 30-inch diameter hole would be dug within 8 feet of the tree to construct a soldier pile wall. Soils would be removed for new roadside cut slopes (average depth greater than 36 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For cut slope and soldier pile work: roots greater than 2 inches diameter that must be cut would be cut back cleanly with a sharp instrument. For gabion wall: digging for the end of the gabion wall would cease when root plate of tree is reached, and wall would be placed at that point.

Evaluation: The single soldier pile boring would eliminate some roots. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #107, 73 inches DBH (depicted in Attachment A, Sheet 4). Tree has two trunks. It was identified as two separate trees in the Final EA. Individually, their structural root zones (3x diameter) are outside the area of disturbance, and they were not included in any tables. Measured as a single tree, and using the root health zone (5x diameter) for this analysis, it is within the limits of ground-disturbing activities.

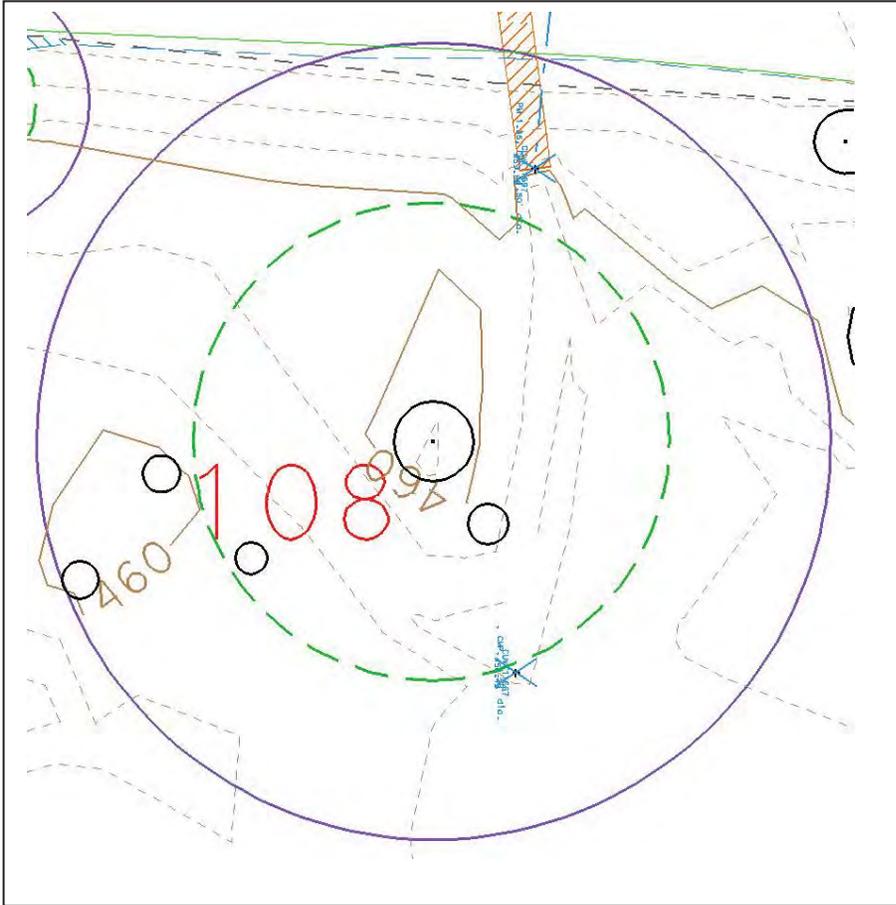
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches). An 18-inch diameter culvert would be replaced with a 24-inch culvert.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control. For culvert work: roots greater than 2 inches diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: There would be very little work in the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #108, 90 inches DBH (depicted in Attachment A, Sheet 5). Tree has three trunks. It was identified as two separate trees for the Final EA. Measured as a single tree, and using the root health zone (5x diameter) for this analysis, it is within the limits of ground-disturbing activities.

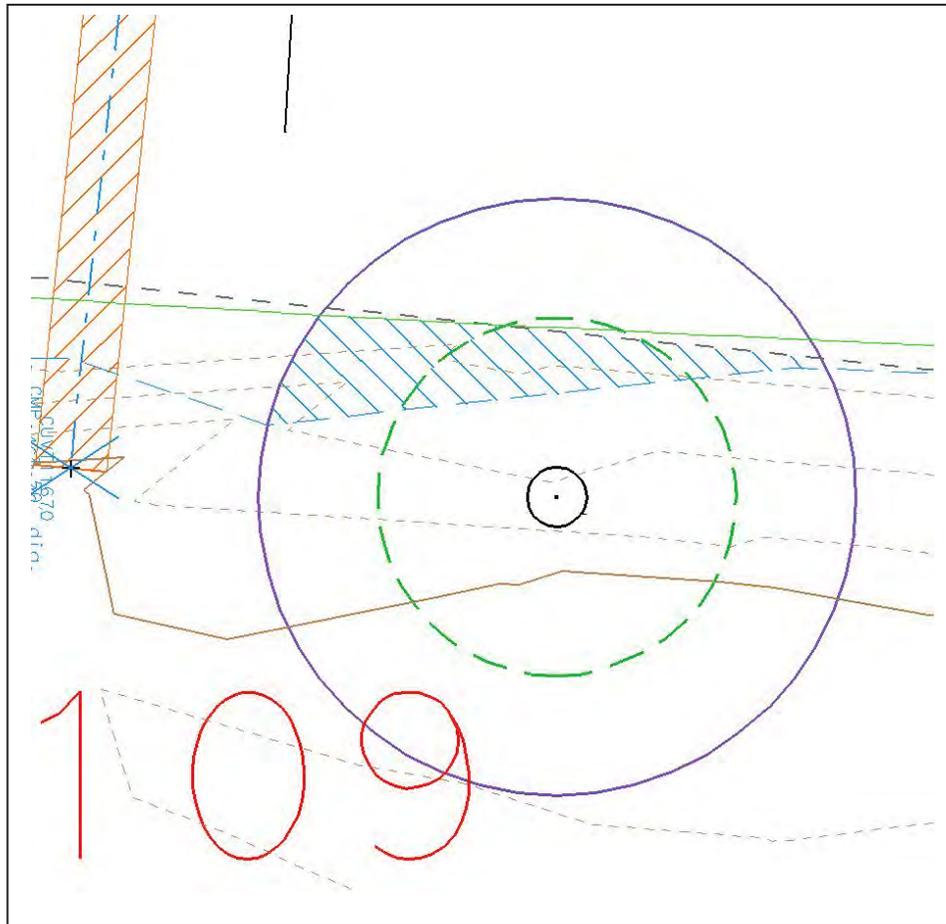
Work in structural root zone? No

Details of Work: An 18-inch diameter culvert would be replaced with a 24-inch culvert. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; roots greater than 2 inches diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: Culvert replacement work would occur far from the tree. There would be no decline in foliage density or tree health.

Individual Tree Analysis



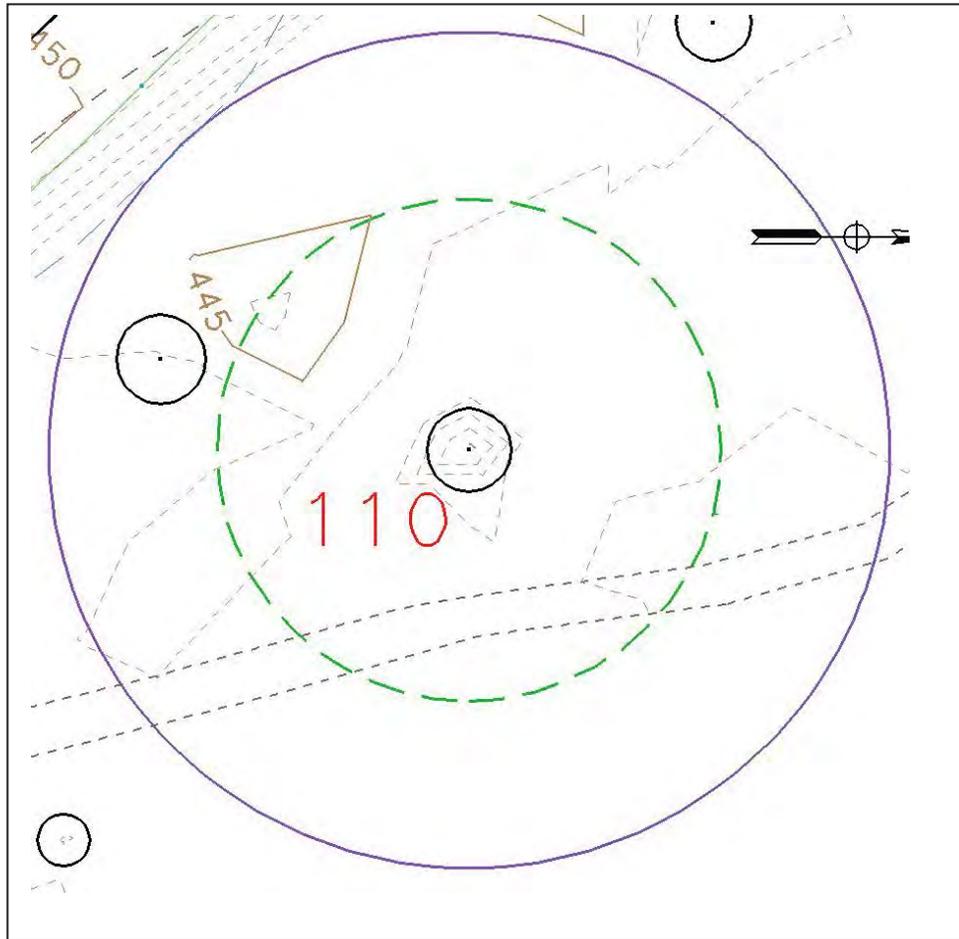
Description: Tree #109, 30 inches DBH (depicted in Attachment A, Sheet 5). Tree has three trunks. It was not included in the Final EA.

Work in structural root zone? Yes

Details of Work: New soils would be placed to construct embankment (average depth 6 to 18 inches). Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Gravel fill would be placed in depression area. There would be no decline in foliage density or tree health.



Description: Tree #110, 135 inches DBH (depicted in Attachment A, Sheet 7). No work is proposed within the structural root zone (3x diameter) of this tree; therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is barely within the limits of ground-disturbing activities.

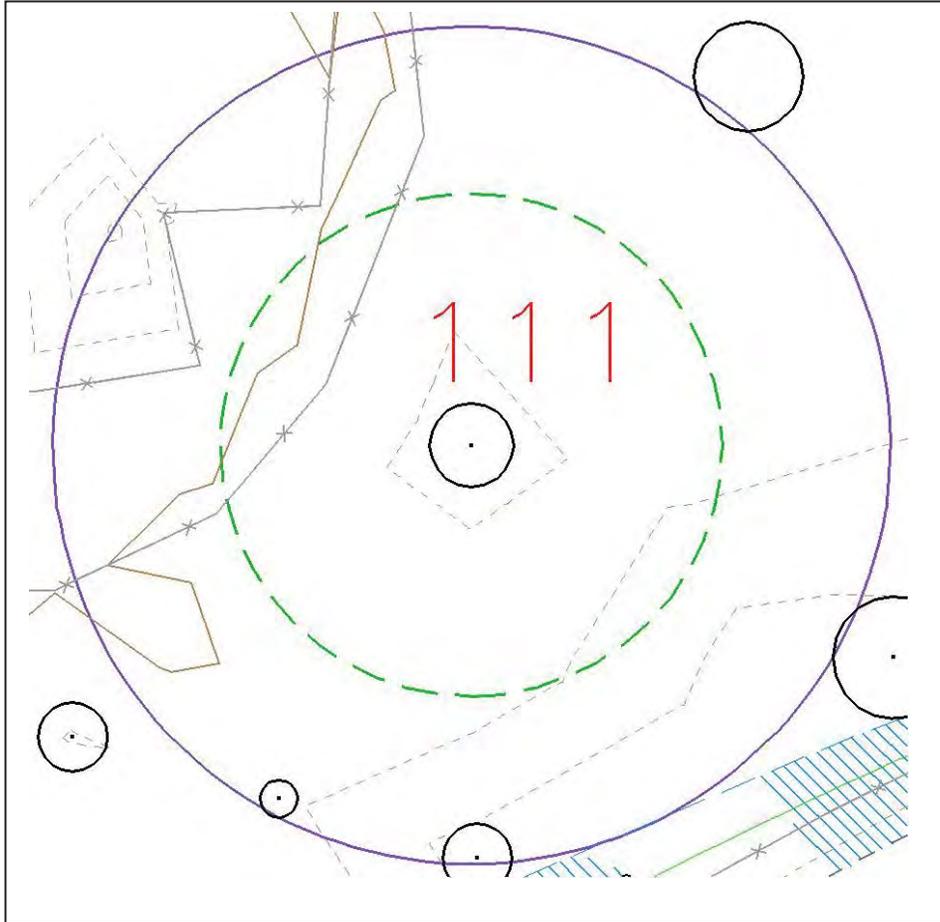
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Tree would be very far from ground disturbance. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #111, 89 inches DBH (depicted in Attachment A, Sheet 8). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is barely within the limits of ground-disturbing activities.

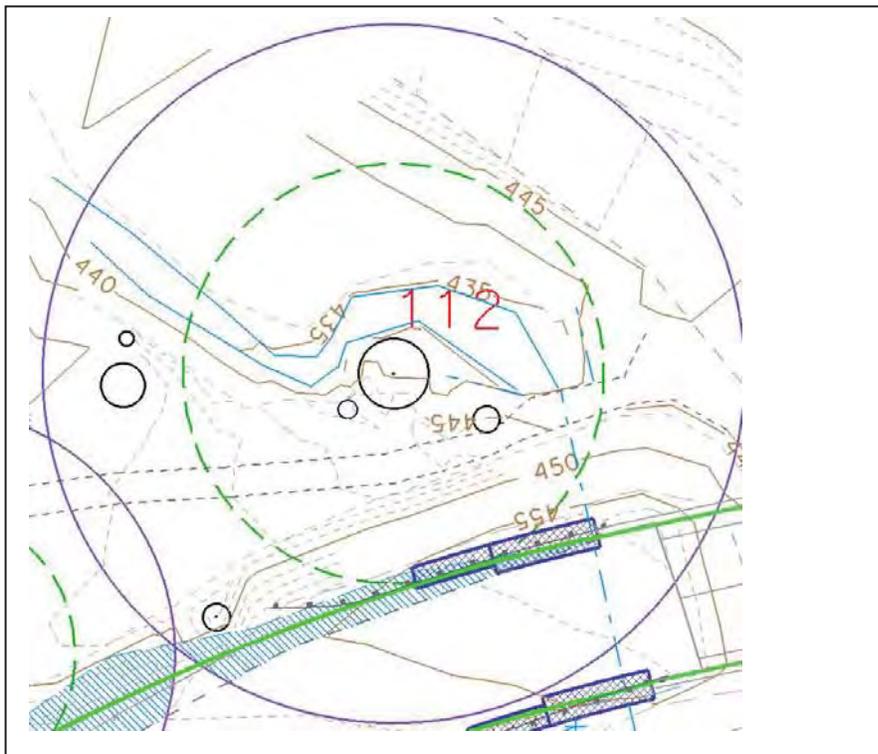
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Work would occur at the outermost arc of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #112, 156 inches DBH (depicted in Attachment A, Sheet 10). Tree is growing in the bank of Durphy Creek; some exposed roots are scoured by soil and rock movement on the creek side. (Listed as Tree #71 in Table 9 and #57 in Table 10.)

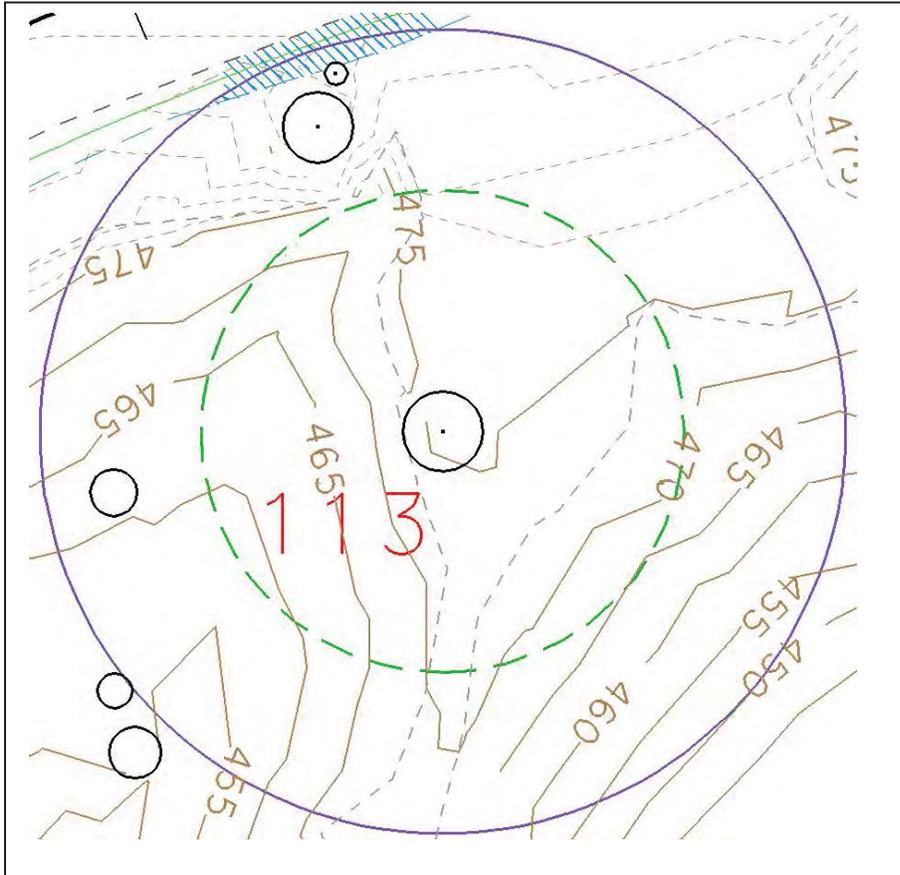
Work in structural root zone? Yes

Details of Work: The road would be widened approximately 4 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth 6 to 18 inches). Metal beam guardrail would be removed and soil would be placed in the post holes; a transition barrier and crash cushion would be installed in its place. For the transition barrier, soil would be removed to a depth of 4 feet, a width of 5.5 feet, and a length of 20 feet. For the crash cushion, soil will be removed to a depth of 1 foot, a width of 4 feet, and a length of 15 feet. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored and replaced as erosion control. For new road sections in structural root zone: a pneumatic excavator or hand tools would be used; roots larger than 2 inches in diameter would not be cut; if roots smaller than 2 inches must be cut, they would be cut cleanly with a sharp instrument; structural root zone would be irrigated within 24 hours of digging below the finished grade. For barrier and crash cushion work, roots larger than 2 inches in diameter that must be cut would be cut back cleanly.

Evaluation: Work would take place about 15 vertical feet above the tree base. The effect on the tree would be slight; with avoidance and minimization measures in place, there would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #113, 112 inches DBH (depicted in Attachment A, Sheet 11). No work is proposed within the structural root zone (3x diameter); therefore, this tree was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

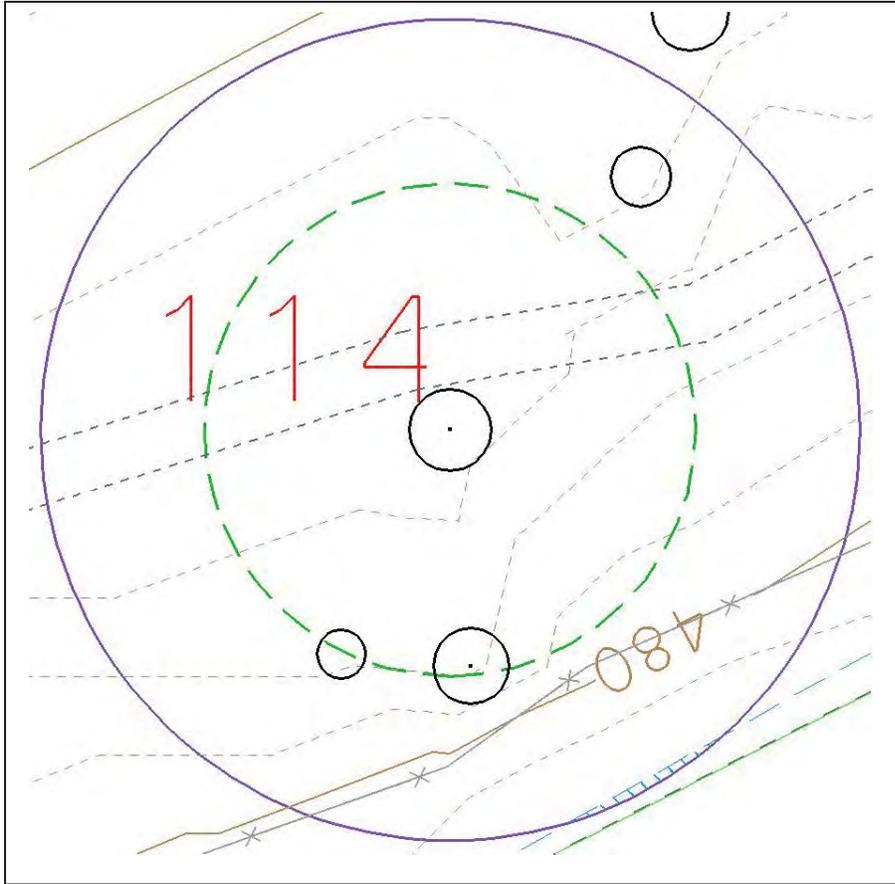
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored and replaced as erosion control.

Evaluation: Shallow embankment soil would be added at the outermost edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #114, 66 inches DBH (depicted in Attachment A, Sheet 11). Tree is well off roadway. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

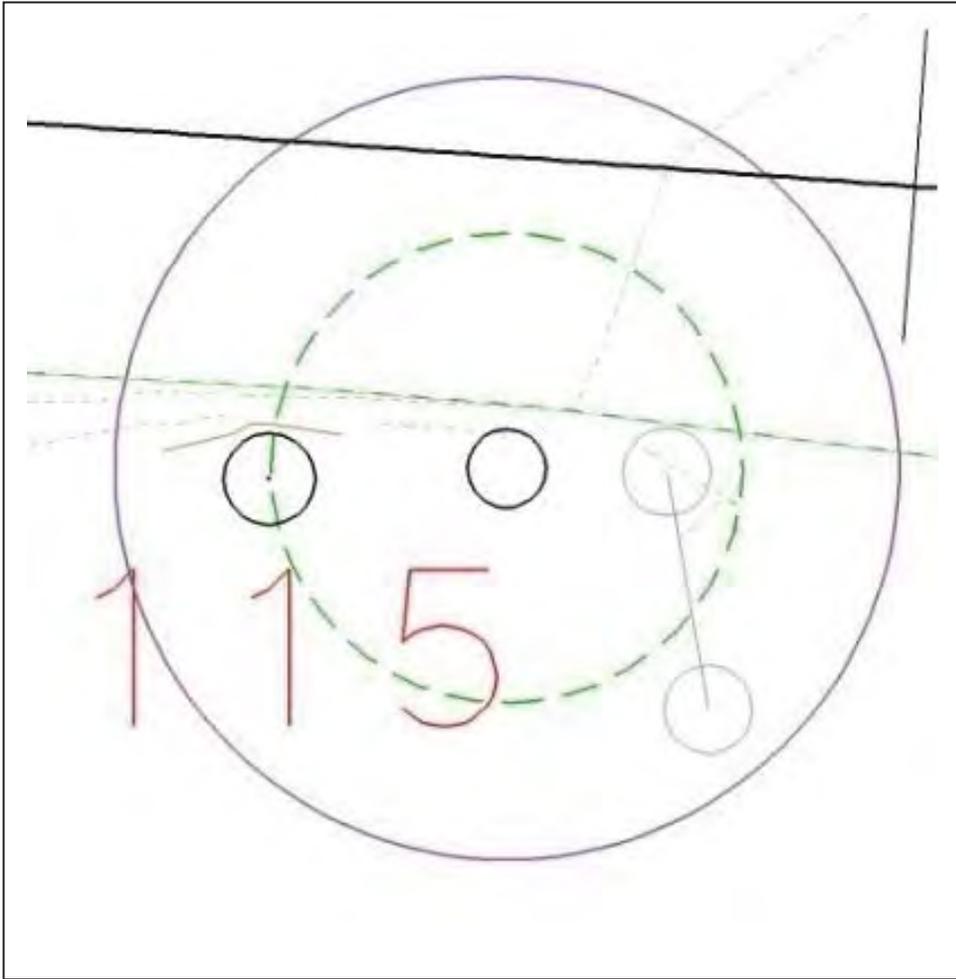
Work in structural root zone? No

Details of Work: New soils would be placed to construct embankment (average depth 0 to 6 inches).

Avoidance and Minimization Measures: Work would be monitored by arborist; duff would be raked off by hand, stored, and replaced as erosion control.

Evaluation: New embankment soil would be less than 6 inches deep, and about 1 foot in width, at the outermost edge of the root health zone. There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #115, 42 inches DBH (depicted in Attachment A, Sheet 17). Tree appears to have been struck by a vehicle. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is very close to the limits of ground-disturbing activities.

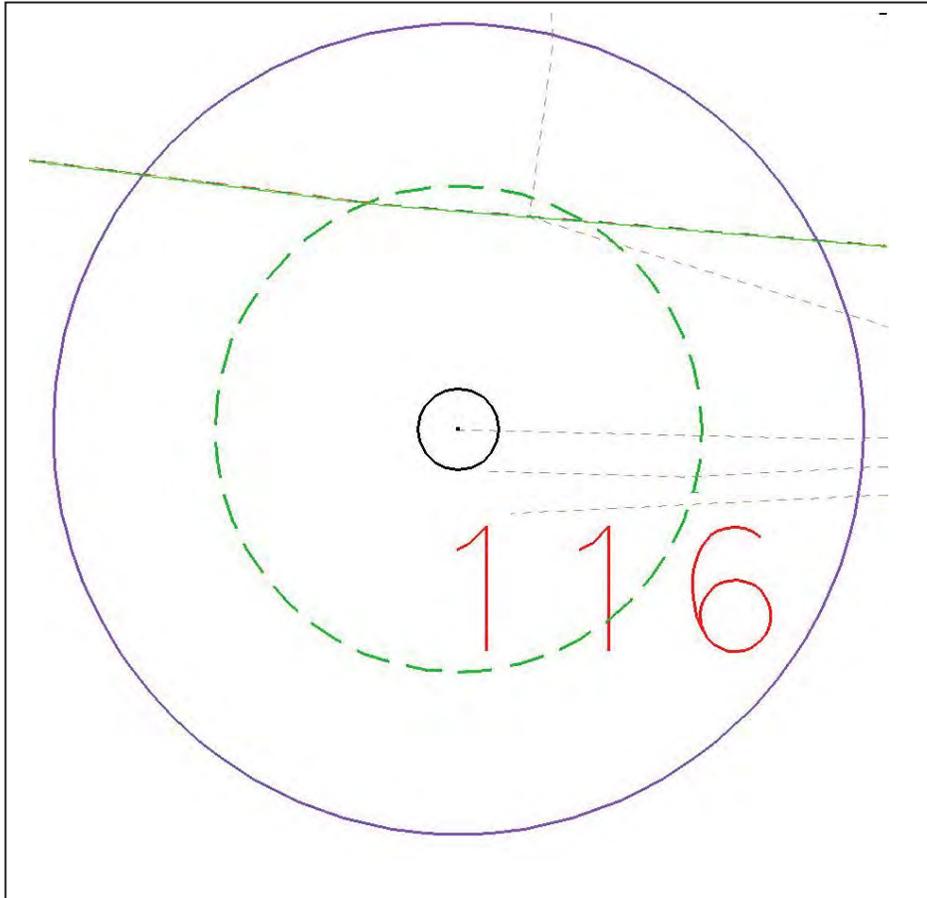
Work in structural root zone? No

Details of Work: Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #116, 56 inches DBH (depicted in Attachment A, Sheet 17). Tree has two trunks. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is very close to the limits of ground-disturbing activities.

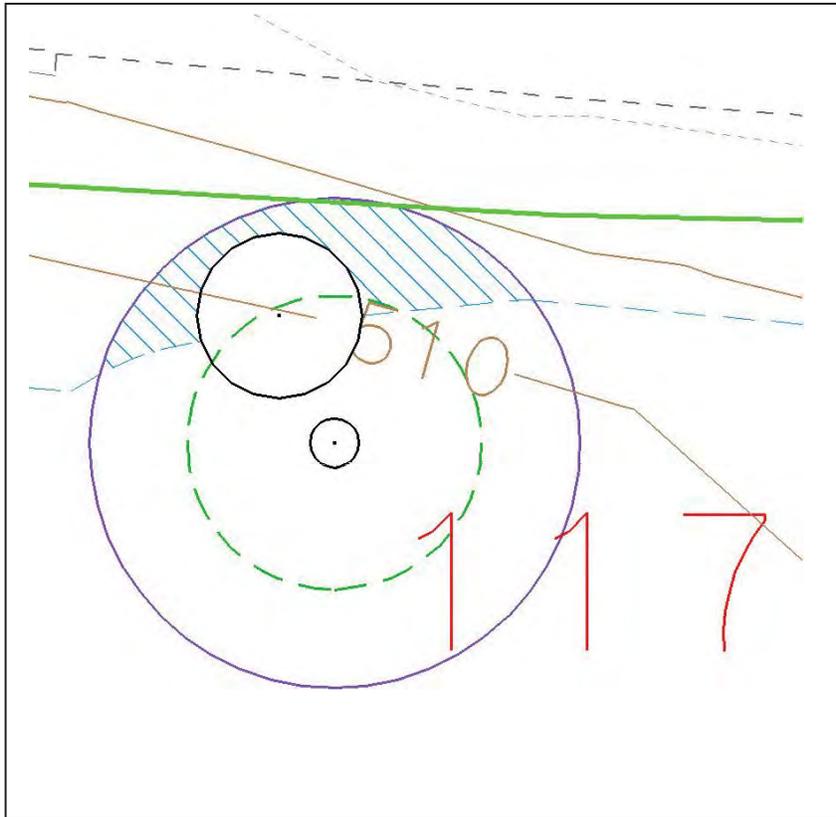
Work in structural root zone? No

Details of Work: Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist.

Evaluation: There would be no decline in foliage density or tree health.

Individual Tree Analysis



Description: Tree #117, 30 inches DBH (depicted in Attachment A, Sheet 19). Trunk of tree is partially buried against bank. No work is proposed within the structural root zone (3x diameter); therefore, it was not included in any tables for the Final EA. It has been added to the assessment because a larger area (the root health zone, 5x diameter) is being evaluated, and is within the limits of ground-disturbing activities.

Work in structural root zone? No

Details of Work: The road would be widened approximately 7 feet toward the tree. Where road would be widened, soil and old road materials would be dug out and replaced with new road materials. New soils would be placed to construct embankment (average depth greater than 36 inches). Soils would be removed (average depth greater than 36 inches) to construct a gabion wall. Pavement layers of entire roadway would be ground off and replaced with new asphalt.

Avoidance and Minimization Measures: Work would be monitored by arborist; Cement Treated Permeable Base would be used; duff would be raked off by hand, stored, and replaced as erosion control. For gabion work: roots larger than 2 inches in diameter that must be cut would be cut back cleanly with a sharp instrument.

Evaluation: With avoidance and minimization measures in place, there would be no decline in foliage density or tree health.