4- Attachment 4A

ARBORIST REPORT
AND
TREE INVENTORY SUMMARY

AEROMETALS PROJECT 3 PROJECT SITE
5145 James Drive
Town of Loomis, California

Prepared for:

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QUALIFICATION STATEMENT

Sierra Nevada Arborists is a fully insured, Rio Linda-based arboriculture consulting firm founded in January of 1998 by its Principal, Edwin E. Stirtz. Mr. Stirtz is an ISA Certified Arborist and is ISA Tree Risk Assessment Qualified. He is a member of the American Society of Consulting Arborists and International Society of Arboriculture. Mr. Stirtz possesses in excess of 30 years of experience in horticulture and arboriculture, both maintenance and construction, and has spent the last 23 years as a consulting and preservation specialist in the Sacramento and surrounding regions.

INTRODUCTION

Sierra Nevada Arborists is pleased to present this Arborist Report and Tree Inventory Summary for the trees located within and/or overhanging the property located at the Aerometals Project 3 Project Site located at 5145 James Drive in the Town of Loomis, California. This Arborist Report and Tree Inventory Summary memorializes tree data obtained by Edwin E. Stirtz, ISA Certified Arborist WE-0510A, at the time of field reconnaissance and inventory efforts on April 14, 2017.

SCOPE OF INVENTORY EFFORT

The Town of Loomis has enacted a Tree Preservation and Protection Ordinance which regulates both the removal of "protected trees" and the encroachment of construction activities within their driplines. Chapter 13.54 of the Town of Loomis Municipal Code requires as an element of a tree permit application preparation of a site plan which depicts, among other things, the location and protected zones for each protected tree on the proposed project site, and further requires an inventory and preparation of an Arborist Report which includes specific data for the protected trees within the project boundaries. The code defines "protected trees" as:

"any native oak tree with a trunk that is a minimum of 6 inches in diameter as measured at breast height (DBH) for Interior Live Oak, Valley Oak, and Oracle Oak and 4 inches DBH for Blue Oak; any oak tree with multiple trunks that have an aggregate DBH of at least 10 inches, or any Heritage Tree. This also includes any trees preserved or replanted pursuant to Chapter 13.54.090, except for Exempt Trees and those classified as invasive species by the California Invasive Pest Council, Cal IPC (cal.ipc.org) and non-native trees listed as not to be planted on Town-owned property in the Master Tree List."

At the request of Aerometals, during our site visit on April 14, 2017, Edwin E. Stirtz of Sierra Nevada Arborists visited the Aerometals Project 3 Project Site, located at 5145 James Drive in the Town of Loomis, California. The purpose of this field reconnaissance effort was to identify, inventory, and comment upon the current structure and vigor of the "protected trees" located within and/or overhanging the proposed project area.

The Tree Inventory Summary presents information concerning the species, size, and current condition of the "protected trees" within and/or overhanging the proposed project area, along with pre-development recommendations on a tree-by-tree basis which logically follow the characteristics noted within the trees at the time of field inventory efforts. Information concerning the nature and extent of root system and canopy impacts which will be sustained by the trees from proposed development activities, along with specific tree-by-tree mitigation recommendations for the trees which will sustain encroachment into their protected root zones can be provided in a Supplemental Arborist Report and Construction Impact

Assessment once development plans have been refined and finalized for the proposed project area if requested by the Town of Loomis.

METHODOLOGY

During field reconnaissance and inventory efforts, Edwin E. Stirtz of Sierra Nevada Arborists conducted a visual review from ground level of the trees within and/or overhanging the selected lots within the project area as depicted on the preliminary site map. The trees which met the defined criteria were identified in the field by affixing round metal tags to the tree trunks. The tree numbers utilized in this report and accompanying Tree Inventory Summary correspond to the tree tags which were affixed to the trees in the field, and those tree numbers or grouping of numbers were rough-plotted on the attached Tree Inventory Exhibit so that the precise vertical and horizontal location of the trees may be surveyed in the field by a licensed land surveyor and data for the trees (i.e. tree number, diameter, dripline and protected root zone radii) may be properly depicted on future development plans and Tree Location Exhibit.

At the time of field identification and inventory efforts specific data was gathered for each tagged tree including the tree's species, diameter measured at breast height ("DBH") and dripline radius ("DLR"). Utilizing this data the tree's overall structural condition and vigor were separately assessed ranging from "excellent"[1] to "poor" based upon the observed characteristics noted within the tree and the Arborist's best professional judgment. Ratings are subjective and are dependent upon both the structure and vigor of the tree. The vigor rating considers factors such as the size, color and density of the foliage; the amount of deadwood within the canopy; bud viability; evidence of wound closure; and the presence or evidence of stress, disease, nutrient deficiency and insect infestation. The structural rating reflects the root crown/collar, trunk and branch configurations; canopy balance; the presence of included bark, weak crotches and other structural defects and decay and the potential for structural failure. Finally, notable characteristics were documented and recommendations on a tree-by-tree basis were made which logically followed the observed characteristics noted within the trees at the time of the field inventory effort. The recommendations are based on the assumption that the tree would be introduced into a developed environment and may require maintenance and/or may not be suitable for retention within a post-development setting.

SUMMARY OF INVENTORY EFFORT

Field reconnaissance and inventory efforts found 54 trees measuring 4 inches in diameter and larger measured at breast height within and/or overhanging the proposed project area.

[1] It is rare that a tree qualifies in an "excellent" category, and it should be noted that there were no trees observed within the project area which fell within the criteria of an "excellent" or "good" rating. A complete description of the terms and ratings utilized in this report and accompany inventory summary are found on pages 9-10.

Composition of the 54 inventoried trees includes the following species and accompanying aggregate diameter inches:

SPECIES DIVERSIFICATION			
Blue Oak	=	12 trees	(194 aggregate diameter inches)
Interior Live Oak	=	40 trees	(1028 aggregate diameter inches)
Valley Oak	=	2 trees	(65 aggregate diameter inches)
TOTAL	=	**54 trees**	**(1287 aggregate diameter inches)**

Recommended Removals

At this time, five trees have been recommended for removal from the proposed project area due to the nature and extent of defects, compromised health, and/or structural instability noted at the time of field inventory efforts. If these trees were retained within the proposed project area it is our opinion that they may be hazardous depending upon their proximity to planned development activities. For reference, the trees which have been recommended for removal due to the severity of noted defects, compromised health and/or structural instability are highlighted in green within the accompanying inventory summaries and are briefly summarized as follows:

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH (inches)	DLR (feet)	CONDITIONAL ASSESSMENT	
						STRUCTURE	VIGOR
6822	Interior Live Oak	*(Quercus wislizeni)*		15	17	Poor	Fair
6829	Interior Live Oak	*(Quercus wislizeni)*		9	18	Poor	Fair
6835	Valley Oak	*(Quercus lobata)*		15	20	Poor to fair	Poor to fair
6838	Interior Live Oak	*(Quercus wislizeni)*		9	14	Poor to fair	Poor
6839	Interior Live Oak	*(Quercus wislizeni)*	6,7	13	12	Poor	Poor

It should also be noted that some of the trees within the proposed project area are trees which may be undesirable on residential lots, or are trees which will require periodic/seasonal monitoring to assess the trees' ongoing structural integrity. At this early stage of the project Sierra Nevada Arborists has not recommended the removal of these trees since development plans, including proposed home sites and building footprints, have not yet been finalized and the precise location of these trees in proximity to planned improvement activities is not known. At this time it is recommended that these trees be monitored and thoroughly inspected by a qualified ISA Certified Arborist on at least an annual basis to keep

abreast of the trees' changing condition(s) and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

CONSTRUCTION IMPACT ASSESSMENT

This Arborist Report and Tree Inventory Summary is intended to provide to Aerometals, the Town of Loomis, and other members of the development team a detailed *pre-development review* of the species, size, and current structure and vigor of the trees within and/or overhanging the proposed project area. It is not an exhaustive review of the impacts which will be sustained from project implementation. At this early stage of the project specific root system and canopy impacts on a tree-by-tree basis cannot be definitively assessed until the site development, grading, and other improvement plans have been refined and finalized and data from the accompanying inventory summary (i.e., tree numbers, dripline radius, and root protection zones) is properly depicted on the plans.

Since trees are living organisms whose condition may change at any time a complete assessment of construction impacts and specific recommendations to help mitigate for the adverse impacts which may be sustained by the trees from contemplated construction activities cannot be made until the development plans have been refined and finalized. Once final plans have been developed for the site a qualified ISA Certified Arborist with special expertise and demonstrated experience with construction projects in and among native and non-native trees should review those plans and provide a more detailed assessment of impacts, including identification of trees which may require removal to facilitate home construction and other contemplated site development activities. This review will be particularly important if structures and/or residential activities will fall within or near the fall zone of a tree which has been noted as exhibiting structural defects, questionable long-term longevity and/or a conditional rating which is less than "fair", and for trees which measure 16 inches and greater in diameter which will be retained within close proximity to development as trees of this size may pose a more significant hazard if a sudden limb shed and/or catastrophic failure should occur. In addition, the review should include an assessment of root system and canopy impacts which will be sustained by the trees which will be retained within the proposed development area, along with specific recommendations on a tree-by-tree basis to help reduce adverse impacts of construction on the retained trees. In the meantime, this report provides some pre-development recommendations which logically follow the observed characteristics noted in the trees at the time of the field inventory efforts, as well as General Protection Measures which should be utilized as a guideline for the protection of trees which may be retained within the development area. These recommendations will require modification and/or augmentation as development plans are refined and finalized.

GENERAL COMMENTS AND ARBORISTS' DISCLAIMER

The Town of Loomis regulates both the removal of "protected trees" and the encroachment of construction activities within their driplines. Therefore, a tree permit and/or additional development authorization should be obtained from the Town of Loomis prior to the removal of any trees within the proposed project area. All terms and conditions of the tree permit and/or other Conditions of Approval are the sole and exclusive responsibility of the project applicant. It should be noted that prior to final inspection written verification from an ISA Certified Arborist may be required certifying the approved removal activities and/or implementation of other Conditions of Approval outlined for the retained trees on the site. ***Sierra Nevada Arborists will not provide written Certification of Compliance unless we have been provided with a copy of the approved site development plans, applicable permits and/or Conditions of Approval, and are on site to monitor and observe regulated activities during the course of construction.*** Therefore, it will be necessary for the project applicant to notify Sierra Nevada Arborists well in advance (at least 72 hours prior notice) of any regulated activities which are scheduled to occur on site so that those activities can be properly monitored and documented for compliance certification.

Please bear in mind that implementation of the recommendations provided within this report will help to reduce adverse impacts of construction on the retained trees; however, implementation of any recommendations should not be viewed as a guarantee or warranty against the trees' ultimate demise and/or failure in the future. Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of the trees and ***attempt to reduce the risk of living near trees***. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. There are some inherent risks with trees that cannot be predicted with any degree of certainty, even by a skilled and experienced arborist. Entities who choose to construct homes on wooded property are accepting a certain level of risk from unpredictable tree related hazards such as toppling in storms, limbs falling and fires that may damage property at some time in the future. Since trees are living organisms their structure and vigor constantly change over time, and they are not immune to changes in site conditions or seasonal variations in the weather. Further, conditions are often hidden within the tree and/or below ground. Arborists and other tree care professionals cannot guarantee that a tree will be healthy and/or safe under all circumstances or for a specific period of time. Likewise remedial treatments cannot be guaranteed. Trees can be managed but they cannot be controlled. To develop land and live near trees is to accept some degree of risk and the only way to eliminate all risk associated with trees would be to eliminate all of the trees. ***An entity who develops land and builds a home with a tree in the vicinity should be aware of and inform their future residents of this Arborists' Disclaimer, and be further advised that the developer and the future residents assume the risk that a tree could at any time suffer a branch and/or limb failure, blow over in a storm and/or fail for no apparent reason which may cause bodily injury or property damage***. Sierra Nevada Arborists cannot predict acts of nature including, without limitation, storms of sufficient strength which can even take down a tree with a structurally sound and vigorous appearance.

Finally, the trees preserved within and/or overhanging the proposed project area will experience a physical environment different from the pre-development environment. As a result, tree health and structural stability should be regularly monitored. Occasional pruning, fertilization, mulch, pest management, replanting and/or irrigation may be required. In addition, ***provisions for monitoring both tree health and structural stability following construction must be made a priority***. As trees age, the likelihood of failure of branches or entire trees increases. Therefore, ***the future management plan must include an annual inspection*** by a qualified ISA Certified Arborist to keep abreast of the trees' changing condition(s) and to assess the trees' ongoing structural integrity and potential for hazard in a developed environment.

Thank you for allowing Sierra Nevada Arborists to assist you with this review. Please feel free to give me a call if you have any questions or require additional information and/or clarification.

Sincerely,

Edwin E. Stirtz
International Society of Arboriculture
Certified Arborist WE-0510A
ISA Tree Risk Assessment Qualified
Member, American Society of Consulting Arborists

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes, or other governmental regulations.

3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others.

4. The consultant shall not be required to give a deposition and/or attend court by reason of this report unless subsequent contractual arrangements are made for in advance, including payment of an additional fee for such services according to our standard fee schedule, adjusted yearly, and terms of the subsequent contract of engagement.

5. Loss or alteration of any part of this report invalidates the entire report. Ownership of any documents produced passes to the Client only when all fess have been paid.

6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant.

7. Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed written or verbal consent of the consultant, particularly as to value conclusions, identity of the consultant, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant as stated in his qualifications.

8. This report and any values expressed herein represent the opinion of the consultant and the consultant's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

9. Sketches, diagrams, graphs, drawings and photographs within this report are intended as visual aids and are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by other consultants is for coordination and ease of

reference. Inclusion of such information does not constitute a representation by the consultant as to the sufficiency or accuracy of the information.

10. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing or coring, unless otherwise stated.

11. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

12. This report is based on the observations and opinions of Edwin E. Stirtz, and does not provide guarantees regarding the future performance, health, vigor, structural stability or safety of the plants described herein. Neither this author nor Sierra Nevada Arborists has assumed any responsibility for liability associated with the trees on or adjacent to this Project Site, their future demise and/or any damage which may result therefrom.

13. The information contained within this report is true to the best of the author's knowledge and experience as of the date it was prepared; however, certain conditions may exist which only a comprehensive, scientific, investigation might reveal which should be performed by other consulting professionals.

14. The legal description, dimensions, and areas herein are assumed to be correct. No responsibility is assumed for matters that are legal in nature.

15. Any changes to an established tree's environment can cause its decline, death and/or structural failure.

DEFINITIONS

Tree Number:	Corresponds to aluminum tag attached to the tree.
Species Identification:	Scientific and common species name.
Diameter ("DBH"):	This is the trunk diameter measured at breast height (industry standard 4.5 feet above ground level).
Dripline radius ("DLR"):	A radius equal to the horizontal distance from the trunk of the tree to the end of the farthest most branch tip prior to any cutting. When depicted on a map, the dripline will appear as an irregularly shaped circle that follows the contour of the tree's branches as seen from overhead.
Protected Zone:	A circle equal to the largest radius of a protected tree's dripline plus 1 foot.
Root Crown:	Assessment of the root crown/collar area located at the base of the trunk of the tree at soil level.
Trunk:	Assessment of the tree's main trunk from ground level generally to the point of the primary crotch structure.
Limbs:	Assessment of both smaller and larger branching, generally from primary crotch structure to branch tips.
Foliage:	Tree's leaves.
Overall Condition:	Describes overall condition of the tree in terms of structure and vigor.
Recommendation:	Pre-development recommendations based upon observed characteristics noted at the time of the field inventory effort.
Obscured:	Occasionally some portion of the tree may be obscured from visual inspection due to the presence of dense vegetation which, during the course of inspection for the arborist report, prevented a complete evaluation of the tree. In these cases, if the tree is to be retained on site the vegetation should be removed to allow for a complete assessment of the tree prior to making final decisions regarding the suitability for retention.

TREE CONDITION RATING CRITERIA

RATING TERM	ROOT CROWN	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR
Good	No apparent injuries, decay, cavities or evidence of hollowing; no anchoring roots exposed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; no codominant attachments or multiple trunk attachments are observed; no indications of infestation or disease	No apparent injuries, decay, cavities or evidence of hollowing; below average amount of dead limbs or twigs; no major limb failures or included bark; callus growth is vigorous	Leaf size, color and density are typical for the species; buds are normal in size, viable, abundant and uniform throughout the canopy; annual seasonal growth increments are average or above average; no insect or disease infestations/ infections evident	No apparent structural defects; no weak crotches; no excessively weighted branches and no significant cavities or decay	Tree appears healthy and has little or no significant deadwood; foliage is normal and healthy
Fair	Small to moderate injuries, decay, cavities or hollowing may be evident but are not currently affecting the overall structure; some evidence of infestation or disease may be present but is not currently affecting the tree's structure	Small to moderate injuries, decay, cavities or hollowing may be evident; codominant branching or multiple trunk attachments or minor bark inclusion may be observed; some infestation or disease may be present but not currently affecting the tree's structure	Small to moderate injuries, decay or cavities may be present; average or above average dead limbs or twigs may be present; some limb failures or bark inclusion observed; callus growth is average	Leaf size, color and density are typical or slightly below typical for the species; buds are normal or slightly sparse with potentially varied viability, abundance and distribution throughout the canopy; annual seasonal growth increments are average or slightly below average; minor insect or disease infestation/infection may be present	Minor structural problems such as weak crotches, minor wounds and/or cavities or moderate amount of excessive weight; non-critical structural defects which can be mitigated through pruning, cabling or bracing	Tree appears stressed or partially damaged; minimal vegetative growth since previous season; moderate amount of deadwood, abnormal foliage and minor lesions or cambium dieback
Poor	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the overall structure; presence of infestation or disease may be significant and affecting the tree's structure	Moderate to severe injuries, decay, cavities or hollowing may be evident and are affecting the tree's structure; presence of infestation or disease may be significant and affecting the tree's structure	Severe injuries, decay or cavities may be present; major deadwood, twig dieback, limb failures or bark inclusion observed; callus growth is below average	Leaf size, color and density are obviously abnormal; buds are obviously abnormal or absent; annual seasonal growth is well below average for the species; insect or disease problems may be severe	Obvious major structural problems which cannot be corrected with mitigation; potential for major limb, trunk or root system failure is high; significant decay or dieback may be present	Tree health is declining; no new vegetative growth; large amounts of deadwood; foliage is severely abnormal

The ratings "good to fair" and "fair to poor" are used to describe trees that fall between the described major categories and have elements of both

GENERAL PROTECTION GUIDELINES FOR TREES PLANNED FOR PRESERVATION

Great care must be exercised when work is conducted upon or around protected trees. The purpose of these General Protection Measures is to provide guidelines to protect the health of the affected protected trees. These guidelines apply to all encroachments into the protected zone of a protected tree, and may be incorporated into tree permits and/or other Conditions of Approval as deemed appropriate by the applicable governing body.

- ☐ A circle with a radius measurement from the trunk of the tree to the tip of its longest limb, plus one foot, shall constitute the critical root zone protection area of each protected tree. Limbs must not be cut back in order to change the dripline. The area beneath the dripline is a critical portion of the root zone and defines the minimum protected area of each protected tree. Removing limbs that make up the dripline does not change the protected area.

- ☐ Any protected trees on site which require pruning shall be pruned by an ISA Certified Arborist prior to the start of construction work. All pruning shall be in accordance with the American National Standards Institute (ANSI) A300 pruning standards, ANSI Standard 2133.1-2000 regarding safety practices, and the International Society of Arboriculture (ISA) "Tree Pruning Guidelines" and Best Management Practices.

- ☐ Prior to initiating construction, temporary protective fencing shall be installed at least one foot outside the root protection zone of the protected trees in order to avoid damage to the tree canopies and root systems. Fencing shall be installed in accordance with the approved fencing plan prior to the commencement of any grading operations or such other time as determined by the review body. The developer shall contact the Project Arborist and the Planning Department for an inspection of the fencing prior to commencing construction activities on site.

- ☐ Signs shall be installed on the protective fence in four (4) equidistant locations around each individual protected tree. The size of each sign must be a minimum of two (2) feet by two (2) feet and must contain the following language:

  WARNING: THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE TOWN OF LOOMIS.

  Once approval has been obtained by the Town of Loomis protective fencing shall remain in place throughout the entire construction period and shall not be removed, relocated, taken down or otherwise modified in whole or in part without prior written authorization from the Agency, or as deemed necessary by the Project Arborist to facilitate approved activities within the root protection zone.

- ☐ Any removal of paving or structures (i.e. demolition) that occurs within the dripline of a protected tree shall be done under the direct supervision of the Project Arborist. To the maximum extent feasible, demolition work within the dripline protection area of the protected tree shall be performed by hand. If the Project Arborist determines that it is not feasible to perform some portion(s) of this work by hand, then the smallest/lightest weight equipment that will adequately perform the demolition work shall be used.

- ☐ No signs, ropes, cables (except those which may be installed by an ISA Certified Arborist to provide limb support) or any other items shall be attached to the protected trees. Small metallic numbering tags for the purpose of identification in preparing tree reports and inventories shall be allowed.

- ☐ No vehicles, construction equipment, mobile homes/office, supplies, materials or facilities shall be driven, parked, stockpiled or located within the driplines of protected trees.

- ☐ Drainage patterns on the site shall not be modified so that water collects, stands or is diverted across the dripline of any protected tree.

- ☐ No trenching shall be allowed within the driplines of protected trees, except as specifically approved by the Planning Department as set forth in the project's Conditions of Approval and/or approved tree permit. If it is absolutely necessary to install underground utilities within the dripline of a protected tree the utility line within the protected zone shall be "bored and jacked" or performed utilizing hand tools to avoid root injury under the direct supervision of the Project Arborist.

- ☐ Grading within the protected zone of a protected tree shall be minimized. Cuts within the protected zone shall be maintained at less than 20% of the critical root zone area. Grade cuts shall be monitored by the Project Arborist. Any damaged roots encountered shall be root pruned and properly treated as deemed necessary by the Project Arborist.

- ☐ Minor roots less than one (1) inch in diameter encountered during approved excavation and/or grading activities may be cut, but damaged roots shall be traced back and cleanly cut behind any split, cracked or damaged area as deemed necessary by the Project Arborist.

- ☐ Major roots greater than one (1) inch in diameter encountered during approved excavation and/or grading activities may not be cut without approval of the Project Arborist. Depending upon the type of improvement being proposed, bridging techniques or a new site design may need to be employed to protect the roots and the tree.

- ☐ Cut faces, which will be exposed for more than 2-3 days, shall be covered with dense burlap fabric and watered to maintain soil moisture at least on a daily basis (or possibly more frequently during summer months). If any native ground surface fabric within the protected zone must be removed for any reason, it shall be replaced within forty-eight (48) hours.

- ☐ If fills exceed 1 foot in depth up to 20% of the critical root zone area, aeration systems may serve to mitigate the presence of the fill materials as determined by the Project Arborist.

- ☐ When fill materials are deemed necessary on two or three sides of a tree it is critical to provide for drainage away from the critical root zone area of the tree (particularly when considering heavy winter rainfalls). Overland releases and subterranean drains dug outside the critical root zone area and tied directly to the main storm drain system are two options.

- ☐ In cases where a permit has been approved for construction of a retaining wall(s) within the protected zone of a protected tree the applicant will be required to provide for immediate protection of exposed roots from moisture loss during the time prior to completion of the wall. The retaining wall within the protected zone of the protected tree shall be constructed within seventy-two (72) hours after completion of grading within the root protection zone.

- ☐ The construction of impervious surfaces within the dripline of a protected tree shall be minimized. When necessary, a piped aeration system shall be installed under the direct supervision of the Project Arborist.

- ☐ Preservation devices such as aeration systems, tree wells, drains, special paving and cabling systems must be installed in conformance with approved plans and certified by the Project Arborist.

- ☐ No sprinkler or irrigation system shall be installed in such a manner that sprays water or requires trenching within the dripline of a protected tree. An above ground drip irrigation system is recommended. An independent low-flow drip irrigation system may be used for establishing drought-tolerant plants within the protected zone of a protected tree. Irrigation shall be gradually reduced and discontinued after a two (2) year period.

- ☐ All portions of permanent fencing that will encroach into the protected zone of a protected tree shall be constructed using posts set no closer than ten (10) feet on center. Posts shall be spaced in such a manner as to maximize the separation between the tree trunks and the posts in order to reduce impacts to the tree(s).

- ☐ Landscaping beneath native oak trees may include non-plant materials such as bark mulch, wood chips, boulders, etc. Planting live material under protected native oak trees is generally discouraged, and is not recommended within six (6) feet of the trunk of a native oak tree with a diameter a breast height (DBH) of eighteen (18) inches or less, or within ten (10) feet of the trunk of a native oak tree with a DBH of more than eighteen (18) inches. The only plant species which shall be planted within the dripline of native oak trees are those which are tolerant of the natural, semi-arid environs of the tree(s).

AEROMETALS
Aerometals Project 3 Project Site
5145 James Drive
Town of Loomis, California
TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT						NOTABLE CHARACTERISTICS	MAINTENANCE RECOMMENDATIONS
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6801	Interior Live Oak	*(Quercus wislizeni)*	5,7	12	12	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6802	Interior Live Oak	*(Quercus wislizeni)*	7,8,10, 12,12	49	30	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6803	Blue Oak	*(Quercus douglasii)*		16	16	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6804	Blue Oak	*(Quercus douglasii)*		12	12	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk wound, south side; minor interior decay; above average amount of deadwood.	None at this time.
6805	Blue Oak	*(Quercus douglasii)*		11	10	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6806	Interior Live Oak	*(Quercus wislizeni)*	8,9,9,10	36	27	Fair	Fair	Fair	Fair	Fair	Fair	Slightly above average amount of deadwood.	None at this time.
6807	Interior Live Oak	*(Quercus wislizeni)*	5,7,15	27	23	Fair	Fair	Fair	Fair	Fair	Fair	One sided north; slightly above average amount of deadwood.	None at this time.
6808	Blue Oak	*(Quercus douglasii)*		8	11	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6809	Interior Live Oak	*(Quercus wislizeni)*		15	22	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6810	Blue Oak	*(Quercus douglasii)*	12,17	29	33	Fair	Fair	Fair	Fair	Fair	Fair	Northerly trunk leans to the north; southerly trunk leans to the south; callusing trunk wound, southerly stem, approximately 7' above grade at the point of an old branch attachment; minor interior decay.	None at this time.
6811	Interior Live Oak	*(Quercus wislizeni)*	18,28	46	40	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Several callused wounds on the lower trunk; trunks lean south; above average amount of deadwood.	None at this time.
6812	Interior Live Oak	*(Quercus wislizeni)*	11,24	35	30	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6813	Interior Live Oak	*(Quercus wislizeni)*		37	34	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Measured at 2' above grade; forks at 4' and 6' above grade; large primary stem has failed, south side; callusing basal lower trunk wound, east side, at the point where two stems are in contact; minor to moderate interior decay; above average amount of deadwood.	None at this time.
6814	Blue Oak	*(Quercus douglasii)*		37	48	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing basal lower trunk wound, north side, to approximately 2' above grade, with moderate interior decay and hollowing; another callusing trunk wound, northwest side, approximately 25' above grade at the point of a primary branch attachment with minor to moderate interior decay; several callusing pruning wounds, various locations throughout the crown.	***Inspect annually.***

AEROMETALS
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TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT						NOTABLE CHARACTERISTICS	MAINTENANCE RECOMMENDATIONS
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6815	Interior Live Oak	*(Quercus wislizeni)*	4,4,4,6	18	11	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6816	Interior Live Oak	*(Quercus wislizeni)*	7,8,9, 9,15	48	28	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6817	Interior Live Oak	*(Quercus wislizeni)*	11,13,17	41	32	Fair	Fair	Fair	Fair	Fair	Fair	Slightly above average amount of deadwood.	None at this time.
6818	Interior Live Oak	*(Quercus wislizeni)*		7	16	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk cavity, west side, approximately 2' above grade; minor interior decay; trunk leans east; suppressed.	None at this time.
6819	Interior Live Oak	*(Quercus wislizeni)*		7	18	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing trunk wounds, various locations; minor interior decay; trunk leans and bends east.	None at this time.
6820	Interior Live Oak	*(Quercus wislizeni)*	7,10	17	30	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk wound, north side, at the point of an old stem attachment; minor interior decay; the 7" stem leans and bends to the east and is lying on Tree 6818; the 10" stem leans significantly to the south; above average amount of deadwood.	None at this time.
6821	Interior Live Oak	*(Quercus wislizeni)*		8	18	Fair	Fair	Fair	Fair	Fair	Fair	Trunk leans east; one sided east.	None at this time.
6822	Interior Live Oak	*(Quercus wislizeni)*		15	17	Fair	Poor	Fair	Fair	Poor	Fair	Past stem failure on the east side, creating a large callusing wound from 2'-5' above grade; moderate to significant interior decay.	***Recommend removal due to nature and extent of noted defects***
6823	Interior Live Oak	*(Quercus wislizeni)*		8	25	Fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Callusing trunk wounds, various locations at the point of old branch and stem attachments; minor interior decay; trunk bends to the east; suppressed; above average amount of deadwood; sparse foliage; vine growing throughout the crown.	***Remove vine from trunk and crown.***
6824	Interior Live Oak	*(Quercus wislizeni)*		11	23	Fair	Fair	Fair	Fair	Fair	Fair	Trunk bends to the east; one sided east; above average amount of deadwood.	None at this time.
6825	Interior Live Oak	*(Quercus wislizeni)*	10,12,18	40	30	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6826	Blue Oak	*(Quercus douglasii)*		13	23	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Girdling wire on the lower trunk; trunk leans and bends to the south; above average amount of deadwood.	***Cut wire at trunk.***
6827	Blue Oak	*(Quercus douglasii)*		16	20	Fair	Poor to fair	Fair	Fair	Fair	Fair	Evidence of girdling wire on the lower trunk; trunk leans east; one sided east.	None at this time.
6828	Blue Oak	*(Quercus douglasii)*		20	27	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Wire embedded in the lower trunk; slightly above average amount of deadwood.	***Cut wire at trunk.***

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						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6829	Interior Live Oak	*(Quercus wislizeni)*		9	18	Poor to fair	Poor	Fair	Fair	Poor	Fair	Callusing basal lower trunk cavity, west side, at 3' above grade, east side, with moderate to significant interior decay.	***Recommend removal due to nature and extent of noted defects***
6830	Blue Oak	*(Quercus douglasii)*		11	15	Fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Fair	Callusing trunk wounds, various locations; minor interior decay; above average amount of deadwood.	None at this time.
6831	Interior Live Oak	*(Quercus wislizeni)*	8,12	20	27	Fair	Fair	Fair	Fair	Fair	Fair	Above average amount of deadwood.	None at this time.
6832	Blue Oak	*(Quercus douglasii)*		11	18	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6833	Interior Live Oak	*(Quercus wislizeni)*		15	24	Fair	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Above average amount of deadwood; somewhat sparse foliage.	None at this time.
6834	Interior Live Oak	*(Quercus wislizeni)*	4,7,13	24	25	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6835	Valley Oak	*(Quercus lobata)*		15	20	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Poor to fair	Callusing basal lower trunk wound, west side, to approximately 4' above grade, additional wounds and fire scars along the trunk to 25'-30' above grade; excessive deadwood; sparse foliage.	***Recommend removal due to nature and extent of noted defects***
6836	Interior Live Oak	*(Quercus wislizeni)*	8,14	22	23	Poor to fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	The 7" stem leans significantly to the west; callusing basal lower trunk wound to approximately 1' above grade with moderate interior decay; the largest stem has callusing wound on the north side at the point of an old stem attachment, with minor interior decay; a vine is growing along the trunk and throughout the crown.	***Remove vines from trunk and crown.***
6837	Interior Live Oak	*(Quercus wislizeni)*		18	20	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing trunk cavity extending down into the root crown, east side; moderate to significant interior decay and hollowing; callusing trunk wound, west side, approximately 6' above grade at the point of an old branch attachment; minor interior decay.	None at this time.
6838	Interior Live Oak	*(Quercus wislizeni)*		9	14	Poor to fair	Poor to fair	Poor	Poor to fair	Poor to fair	Poor	Callusing basal trunk cavity, south side; moderate to significant interior decay; excessive deadwood; sparse foliage.	***Recommend removal due to nature and extent of noted defects***
6839	Interior Live Oak	*(Quercus wislizeni)*	6,7	13	12	Fair	Poor	Poor	Poor	Poor	Poor	Trunks bend and lean to the southwest; excessive deadwood; sparse foliage.	***Recommend removal due to nature and extent of noted defects***

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TREE INVENTORY SUMMARY

TREE #	COMMON NAME	SPECIES	MULTI-STEMS (inches)	TOTAL DBH INCHES	DLR (feet)	CONDITIONAL ASSESSMENT						NOTABLE CHARACTERISTICS	MAINTENANCE RECOMMENDATIONS
						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6840	Interior Live Oak	*(Quercus wislizeni)*		9	29	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk wounds, various locations, with minor interior decay; trunk leans and bends to the south; suppressed; above average amount of deadwood.	None at this time.
6841	Interior Live Oak	*(Quercus wislizeni)*		12	30	Fair	Fair	Fair	Fair	Fair	Fair	Trunk leans and bends to the west.	None at this time.
6842	Interior Live Oak	*(Quercus wislizeni)*	11,13,18	42	40	Fair	Fair	Fair	Fair	Fair	Fair	The largest stem leans and bends to the south.	None at this time.
6843	Interior Live Oak	*(Quercus wislizeni)*	22,32	54	42	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing trunk wound on the west side approximately 5' above grade at the point of an old stem attachment; minor interior decay in the main stem; large branch failure on the southerly primarily stem, approximately 15' above grade.	None at this time.
6844	Interior Live Oak	*(Quercus wislizeni)*		9	21	Fair	Fair	Fair	Fair	Fair	Fair	Trunk leans northwest.	None at this time.
6845	Interior Live Oak	*(Quercus wislizeni)*		13	24	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk wound with minor interior decay at the point of an old stem attachment, 3' above grade, trunk leans north; above average amount of deadwood.	None at this time.
6846	Blue Oak	*(Quercus douglasii)*		10	19	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.
6847	Interior Live Oak	*(Quercus wislizeni)*	7,8,9	24	35	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Trunks bend and lean to the south; the 8" stem has a callusing trunk cavity, north side, 5' above grade, with moderate to significant interior decay; the smaller stem grows between and is being compressed by the two other stems; the 9" stem has a trunk cavity, east side, approximately 6' above grade, with moderate to significant interior decay and hollowing.	None at this time.
6848	Interior Live Oak	*(Quercus wislizeni)*		24	35	Fair	Fair	Fair	Fair	Fair	Fair		None at this time.

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						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6849	Interior Live Oak	*(Quercus wislizeni)*	27,35	62	33	Fair	Poor to fair	Poor to fair	Fair	Poor to fair	Fair	Callusing trunk cavities, west side, 1' above grade at the point of old stem attachments; moderate interior decay; trunks grow in a convoluted fashion, with the westerly primary stem crossing over and grafting with the easterly primary stem at 6' above grade; callusing wound on the westerly primary stem at 7' above grade, with moderate to significant interior decay; above average amount of deadwood; callusing wound on the southerly primary branch, approximately 10' above grade, with moderate interior decay.	None at this time.
6850	Interior Live Oak	*(Quercus wislizeni)*	6,22,30	58	29	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing wounds, various locations along the trunk and primary limbs, with minor to moderate interior decay.	None at this time.
6851	Interior Live Oak	*(Quercus wislizeni)*	16,19	35	38	Fair	Fair	Poor to fair	Fair	Fair	Fair	Callusing trunk wound, south side, 1' above grade at the point of an old stem attachment, with minor to moderate interior decay and hollowing; above average amount of deadwood.	None at this time.
6852	Interior Live Oak	*(Quercus wislizeni)*	8,11,12	31	28	Poor to fair	Poor to fair	Fair	Fair	Poor to fair	Fair	Callusing basal lower trunk cavity, south side, with moderate to significant interior decay and hollowing; additional trunk wound on the 11" stem, south side, approximately 6' above grade, at the point of an old stem attachment; minor interior decay and hollowing; the 8" stem is dead above 7'.	None at this time.
6853	Interior Live Oak	*(Quercus wislizeni)*	6,6, 12,12,12	48	31	Fair	Poor to fair	Fair	Fair	Poor to fair	Fair	One 12" stem has a callusing wound, east side, 2'-5' above grade; moderate to significant interior decay and hollowing.	None at this time.

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						RT CR	TRUNK	LIMBS	FOLIAGE	STRUCTURE	VIGOR		
6854	Valley Oak	*(Quercus lobata)*		50	44	Poor to fair	Fair	Poor to fair	Fair	Poor to fair	Fair	Sounding indicates decay and hollowing in the buttress roots and root crown, west side; large callusing wound in the one of the primary stems, west side, at approximately 30' above grade, with moderate to significant interior decay and hollowing; several bird hollows in some of the primary branches throughout the crown.	None at this time.

TOTAL INVENTORIED TREES = 54 Trees (1287 aggregate diameter inches)
TOTAL RECOMMENDED REMOVALS = 5 Trees (61 aggregate diameter inches)
PRECAUTIONARY TREES HIGHLIGHTED FOR REFERENCE