TOWN OF FAIRFAX
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MEMORANDUM

To: Ben Berto – Director of Planning and Building Services

Date: February 21, 2018

From: Ray Wrysinski
Town Engineer

Subject: Marinda Heights Subdivision
Proposed Tentative Map
Marinda Drive and Ridgeway Avenue
Fairfax, CA

A.P. 001-150-12, 001-160-09, 001-17-51 and 001-251-31

This memorandum provides my first review of the proposed project Tentative Map.

The binder listed below is date stamped received by the Town as November 13, 2017, which includes updated Tentative Map and the Architectural plans. The binders appear to contain, roughly 1,000 pages and there may be other items that have been changed in the plans and information dated December, 2017 (noted below).

Documents used in making this review include a binder listing contents of 1. Vesting Tentative Map, dated December, 2017, 2. Archeological Study, 3. Biological Study Wildlife, 4. Biological Study Plants / BSA Update, 5. Geotechnical Report, 6. Hydrology Report, 7. Traffic Study, 8. Tree Studies Lots 1 through 10, 9. Visual Study, 10. CEQUA Checklist, 11. Hazardous Waste Declaration, 12. Required Statements General Conditions Development, 13. Reimbursement Contract, 14. Title Report, 15. Road and Trail Construction & Management Plans, 16. Architectural Plans. There was a 32 sheet plan set from Oberkamper & Associates Civil Engineers, Titled Vesting Tentative Map, dated December, 2017. There was a 10 sheet plan set from Urban Forestry Associates, Inc. titled Vegetation Management Plan for lots 1 through 10 and there were 10 plan sets from Pahána known architects titled Residence for lots 1 through 10, dated December 20, 2017.

Town Code Chapter 16.08 gives requirements for Tentative Maps.

The submitted map is signed by a Licensed Civil Engineer who is licensed to do Land Surveying so that signature requirement is satisfied. Code Section 16.08.020 provides some more specific comments on contents requirements.

Items of additional information required for the Tentative Map document will be given below.

Sheet C1.0, titled Vesting Tentative Map shows the phone numbers and addresses for the record owner and the Engineer. This sheet shows two copies of a note on housing supply which eliminated a previous copy's notes on an atmospheric regulation system. Sheet C2.0 provides an overall view of the property with boundary dimensions and with topography information. A set of closure calculations must be

provided for the property exterior boundary so that a check is provided that a complete set of dimensions is shown on the map. A copy of the current property fee title deed must be submitted. Copies of the easement deeds listed in the title report must be provided. A note must be added to the map stating that all easements shown in the title report and all easements known, for the property by the Surveyor, are shown on the map as required by the Code.

Access to lot 10 from Ridgeway Avenue is not adequately shown. Start showing the access to lot 10 at just below the existing end of pavement below the sharp turn in the right of way. This will include showing the dimensioned right of way lines and the location of the existing improvement, utilities and pavement and the location of the existing graded trail. Previous reviews in this area have indicated a lack of right of way for the roadway and for utility right of way extension. A recorded record of survey is required for the right of way that shows the ownership and right of way dimensions sufficient for the roadway and utility extensions. Fire Department requirements must be met including the 50 foot inside minimum radius and the minimum 20' road width in Town owned right of way. Grading and retaining walls must be indicated. The new roadway will increase the stormwater peak flow on lower Ridgeway and complaints have been received from residents in this area, on flooding with existing conditions. The increased flow must be shown to be mitigated. Diverting flows to Chester area will increase the flooding there. Previous reviews in this area have indicated a lack of access for electric, telephone and cable television facilities. Right of way for extension of those facilities must be shown.

The Ridgeway area street right of way lines and the existing improvements in that area must be shown on the plan for this project, including those on the closest private property that will be affected by this new driveway and road to lot 10. The property lines in the area must be shown so that the right of way for the new access is clearly shown relative to those property lines. I assume that there will need to be a right of way property or easement acquisition needed to allow the new access to be placed, so ownerships must be shown. There is some steep ground in the area so there may be a need for a right of way that is much wider that the new improvements to accommodate the needed grading and other construction work. The grading work and effect on trees in the area must be shown on the plan. The proposed location of the underground utilities including water, gas, electric, telephone and cable TV must be shown in Ridgeway and in the driveway. There is an indication that Taylor Lane, Burdett Lane and Parker Lane right of ways will be used for access and sanitary sewer extension. The topography and right of way, with dimensions, for the areas to be used, must be shown on the plan so that the effect of the construction on the existing conditions can be determined and addressed. The location and effect of placing utilities in Ridgeway Avenue must be shown. The question, "Can all of this be done so that lot 10 is served?" must be answered.

The location of the joint utility trench must be shown for service to all the lots similar to the sewer and water installation. The plans indicate that telephone will be provided by Comcast. Normally conduits or pipes are placed for all utilities including telephone and cable TV. I am requiring that conduits for both cable TV and telephone be included in the joint utility trench unless this requirement for telephone (not Comcast) is waived by the Planning Director or by the Planning Commission. I am concerned that only providing service facilities for Comcast will exclude service to property owners normally provided by the telephone company.

Lot 6 has an extensive force main shown for service. I am concerned about the difficulty of maintaining a sanitary sewer force main with such a long length and large elevation change. The Sanitary District may have restrictions for private force mains of such great elevation change and a private property owner may have difficulty keeping it working. The applicant is to provide information to show that will resolve the above concerns.

Lot 1 does not have an obvious location for the sanitary sewer connection location shown and that must be shown.

The extent of Parcel A is not clear so that limit must be clarified on the map with notes or some other delineation. This parcel seems to have different boundaries shown on different plan sheets so consistency is needed. There appears to be a water tank on Parcel A so it must be shown who will own the water tank and who will own the land the tank is on and who will own the land that provides access to the tank.

I reviewed the Traffic Study and I do not have any comments on it or reservation about it.

Additional information must be shown on the plan for the private road extension and for the driveways. The road and driveways are shown with relatively weak pavement sections. This may be suitable if the subgrade soil is very good. A note must be added for these sections that the pavement will be designed as a durable pavement that will carry the full loads required by the Fire Department. The private street and the driveways appear to be steeper along the inside of curves than is acceptable to the Fire Department in some locations and have sharper curvature than is acceptable to the Fire Department in some locations. Dimensions and slopes must be shown on the plans to confirm that the design satisfies minimum standards.

The Geotechnical Report is dated October 31, 2016. This indicates it was done before the submitted Tentative Map was prepared. Statements in the Geotechnical Report indicate that the report does not reflect review of the Tentative Map design. A letter from the Geotechnical Engineer must be provided that indicates the current design has been reviewed and that the design satisfies the Geotechnical Engineers requirements. The report notes the hillside soils are highly erodible and notes localized areas of slope instability. It notes that controlling surface drainage to minimize erosion will be very important. Significant areas of slope instability are mentioned and must be shown on a base map that uses the site topography information and lot layout so that the Town and future property owners will have that information including location to forewarn them of these problems and of the potential liability that may come from landslide activity in these areas. This map and information must cover the whole site at a scale that allows an accurate assessment of location and extent of unstable areas. The map must indicate that it shows these problem areas that the geotechnical engineer has been able to identify. The Geotechnical Engineer must identify those areas of instability that must be repaired as part of this project. The areas to be repaired are the ones that may damage improvements proposed in this project or areas that are likely to damage down hill improvements and thereby become a cost and liability problem for the new homeowners. Repair recommendations must be provided and also shown on the plans in sufficient detail to address instability problems.

The drainage design has many hillside discharge areas for the proposed project drainage. Based on the extreme steepness in the area of many of these drainage discharges and based on my review of the Geotechnical report, I conclude that these drainage discharges on the hillside have the potential to cause

serious erosion and landslide problems. A report from the Geotechnical Engineer is required that provides a review of the total drainage design. This report must provide recommendations for designing all of these drainage discharges so that they will not become erosion or landslide problems. If a location is deemed free of these problems the report must state that. If a location is a potential problem the new Geotechnical Report must give recommendations for design that will solve the problems and the plans must, then, be modified to satisfy the Geotechnical Engineer's corrective requirements. There also must be a follow-up letter from the Geotechnical Engineer stating the modified design provides resolution for the problems of erosion and instability.

The project grading is shown as 6,500 cubic yards of excavation and 6,500 cubic yards of fill on sheet C5.0. This quantity of grading requires Planning Commission approval. The grading quantity is shown, as required, on the Tentative Map as an estimate from the project Civil Engineer with excavation, fill and soil removed from the site. No material is shown to be removed from the site. The information on lot 10 lacks cut and fill banks and lacks retaining walls so it suggests that grading quantities were not determined for that area. That area must be included in the grading quantities and plan. Provide information that is currently missing on the amount of grading for the water tank area including access. The note on grading indicates that trenching, structural excavation and piers are excluded. Those items must be included so that the Planning Commission can understand and consider the full scope of grading quantities and of material hauled out of and into the project area. The driveway layouts on the Architect's site plans and on the Civil Engineer's grading plans are different by small and large amounts. This will make approval of grading, tree removal and general appearance uncertain so these plans must be made to be consistent to avoid that problem.

There is likely to be damage to existing streets from construction activity that will have to be monitored and repaired related to the project. The lot building pad grades must be shown to sufficient detail so that grading for the building sites, including the driveways can be estimated and visualized. The project trench excavation for sewer, water, storm drain and joint utility trenching must be included in the estimate. This will include material from the trenches hauled out of the site and must include select material hauled into the site to backfill the trenches. These quantity estimates will necessarily be rough but they must provide a reasonable indication of overall material movement. I think this information will add at least another 15,000 cubic yards of material movement to the project information.

I reviewed the hydrology study and drainage calculations. We need to receive a copy of those calculations bearing the signature and seal of the licensed engineer responsible for them. In the time I have been reviewing submittals for the Town, I have not seen anything like those calculations. Are these in response to the recent State Water Quality Control Board requirements? They do not follow the typical 1974 Caltrans Guidelines that have been used in this area for many years. I have attempted to provide guidelines to make that 1974 information along with Caltrans Highway Design Manual guidelines so that is a standard for Fairfax. The local requirement for design includes 100 year storm event design. The calculation seemed to provide flows that would be in the neighborhood of the flows that would come from the 1974 Guidelines. Has the Caltrans Runoff Coefficient frequency factor of C(f) = 1.25 been used? If that is in the calculations, I need to know where it is. If it was not used, then the calculations must be adjusted. I thought the runoff coefficient of 0.57, in the calculations, was quite low for this steep hillside area that has soils that typically have low infiltration characteristics. The required 1.25 factor will help bring this coefficient to a level appropriate for these conditions. The typical minimum time of concentration in the Highway Design Manual is five minutes and a minimum time in these calculations is given as seven minutes. Why is the greater minimum time of concentration used? Using an

inapropriately long time of concentration will result in design flows that are too low and pipe sizes that are too small. I want to avoid getting undersized systems through technical tinkering of design factors. The flooding problems in Fairfax are substantially due to stormwater conveyance systems being too small. Obtaining lower flows by using less conservative calculation factors results in economy of smaller systems but increases frequency of system overflows during larger storms. I am not looking for another review of the calculations. I can see there is good layout of storm drain facilities so sizing them, including appropriate head loss calculations, can be done during environmental or construction plan review. There does seem to be an effort to provide infiltration systems to go into relatively impermeable clay soils and bedrock. The Geotechnical Engineer should explain how that is supposed to work. There were no conduit sizes that I could spot and it would be just speculation for me to attempt to look at what inlet structure the noted flow, in the calculations, will enter and what system that will be moving through. Conduits in the public right of way must be a minimum of 12" diameter for maintenance purposes. A better map for identifying drainage area, inlet location, structure type, conduit size and slope is needed for future review. The watershed maps must be of a size so that all the information on them is easily read. I do not expect problems with the existing systems flows since the design should provide needed flow control so flows are not increased due to development.

The Code requires that the net lot areas must be shown on the Tentative Map with these areas excluding access easements.

Prior to issuing a construction permit, the Town must receive confirmation that State Water Quality Control Board requirements have been satisfied.

Many trees are proposed to be removed, so a Fairfax Tree Committee Report and tree removal permit must be obtained. I find it difficult to identify many trees that likely will have to be removed for construction or that are so close to construction that they will be likely to receive damage. I will leave it to the Planning Department to decide if a specific plan set must be provided that clearly shows trees that must be removed or that likely should be removed because they will be damaged by construction.

There is a length of the site boundary that adjoins County of Marin jurisdiction. This must be shown on the plans. Where the proposed parcel A meets the project boundary, show the ownership or easement condition on the adjoining land so that access can be understood at that location.

I recommend that the processing of this project be considered incomplete until the above required information is provided.

Please let me know if you need any more information from me on this project.

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Ray Wrysinski, P. E.
Town Engineer