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Page 1 of 16

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February 27, 2014

Melissa Ahrens  
 Coastal Program Analyst  
 California Coastal Commission  
 89 South California St. Suite 200  
 Ventura, CA 93001

Subject: 563-01 Response to comments RE: Coastal Development Permit Application 4-12-043  
 (Broad Beach)

Dear Ms Ahrens:

**INTRODUCTION**

This report provides engineering design for the proposed private sewage disposal system at the above noted site.

The City of Malibu reviewed the OWTS design report and plot plan dated July 19, 2013. The review comments and responses are summarized below:

<b>COMMENT 1 - CCC REVIEW COMMENT 3.A.I.</b>
<p>i. City of Malibu staff have indicated to CCC staff that the use of an alternative onsite wastewater treatment system (AOWTS) is required for new developments on beachfront properties located on top of sandy substrate, such as the properties that were analyzed as part of the submitted Ensitu analysis. The City of Malibu has also indicated that the use of an AOWTS results in an improved treatment of wastewater such that a future septic system is not required for these beachfront properties. In the event that a leach field reaches filtration capacity it is feasible to excavate the leach field area and replace the footprint with a new volume of sand materials eliminating the need for the identification of a "future" field in a different location on the site. As such, to complete your analysis of all feasible alternatives that would result the landward most location of all septic systems and associated leach fields within the project boundaries, please submit a revised alternative analysis for the septic systems and leach fields that does not include the use of a 'future' leach field on any of the properties within the project area.</p>
<b>I. EEI RESPONSE</b>
<p><i>Scenario 3 has been added to address removal of "future" leachfields, see Appendix A1, Scenario Three.</i></p>
<b>COMMENT 2 - CCC REVIEW COMMENT</b>

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Page 2 of 16

ii. City of Malibu Staff have also explained to CCC staff that under section 18.8 (Alternative Systems) of their certified Local Coastal Program (LCP) implementation plan they commonly utilize an application rate of 2 gal/sq.ft./day for properties with leach fields located in the sand. The City is able to recommend that this rate is sufficient when used in conjunction with alternative onsite wastewater treatment methods, which improve the treatment of wastewater that leaves the septic tank and enters the leach field and which would be required by the City for new development projects within the project boundaries that increase the wastewater generation rate. This rate of 2 gal/sq. ft./day is derived from the Uniform Plumbing Code. The submitted Ensitu septic analysis utilizes an application rate of 1.2 gal/sq.ft./day, which results in a leach field area that, for specific properties, can be up to 260% larger than the size of the leach field area required if the application rate of 2 gal/day/sq.ft. is used. The home sizes identified in the Ensitu analysis range from 2 bedrooms to 8 bedrooms, with 5 bedrooms being the median size. Utilizing an application rate of 2 gal/sq.ft./day, the smallest leach field size required would be 225 sq. ft., the median 450 sq. ft. and the largest 725 sq. ft. In comparison, the submitted Ensitu report utilizes an application rate of 1.2 gal/sq.ft./day, which results in proposed leach field areas that are much larger than those that would potentially be required by the City if the individual homeowners were applying for separate development permits on their properties. Using the application rate of 1.2 gal/sq.ft./day, the Ensitu analysis concludes that the smallest leach field area would need to be 500 sq. ft., the median 1,250 sq.ft., and the largest 2,000 sq. ft. As the use of a the 2 gal/sq.ft./day application rate in conjunction with an AOWTS seems to be a feasible and commonly utilized option for beachfront properties throughout the City of Malibu, please submit a Septic System Relocation Feasibility Analysis that includes the option of utilizing a 2 gal/sq.ft./day application rate for any leach fields within the project area that need to be relocated or modified in order to be placed in the landward most location on each specific property within the project boundaries and in order to cover the smallest area, so as to enable the most landward relocation of the shoreline protective device.

**2. EEI RESPONSE**

City of Malibu Staff have also explained to CCC staff that under section 18.8 (Alternative Systems) of their certified Local Coastal Program (LCP) implementation plan they commonly utilize an application rate of 2 gal/sq.ft./day for properties with leach fields located in the sand.

*Scenario 3 has been added to address code based loading rates, see Appendix A1, Scenario Three.*

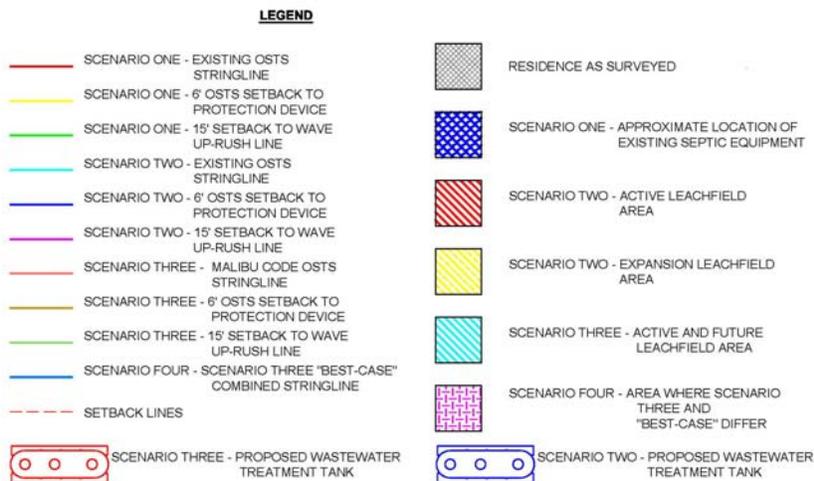
**COMMENT 3 - CCC REVIEW COMMENT**

iii. It appears from the submitted plan sets associated with the Ensitu report that there are a number of properties where the septic tank and/or leach field was not relocated to the landward most feasible location on the subject property. On 15 lots (addresses 31260, 31284, 31228, 31122, 31118, 31108, 31064, 31054, 31042, 31030, 31020, 3100 (sic), 30980, 30966, and 30860) it appears that the septic tank and/or leach field can be relocated either landward of the residence or within an interior courtyard on the property. As such, please revise the submitted septic alternative plan sets and associated analysis to indicate the placement of the septic systems/leach field on these properties in the most feasible landward location.

### 3. EEI RESPONSE

OSTS DESIGN SUMMARY TABLE (LCP/Malibu Code Comparison)											
Address	Number of Bedrooms	Wastewater Flow in Gallons per Day Malibu Code (gpd)	Wastewater Flow in Gallons per Day (LCP 18.7.N) (gpd)	OSTS Treatment Required Malibu Code	OSTS Treatment Required LCP	OSTS Dispersal Application Rate Malibu Code (gpd/sf)	OSTS Dispersal Application Rate (LCP 18.7.O) (gpd/sf)	Active Leachfield Area Required in Square Feet Malibu Code (sf)	Active Leachfield Area Required in Square Feet (LCP 18.7.O) (sf)	Total Leachfield Area Required in Square Feet Future in same location as Active Malibu Code (sf)	Total Leachfield Area Required in Square Feet (LCP 18.7.O) (sf)
		$nB$	$QT=QB(nB+1)$	$QT=QB(nB)$			DA	DA'	AA=QT/DA	AA'=QT/DA'	AT=AA
31284	4	750	1,200	ES12	ES12	2	1.2	375	1,000	375	2,000
31260	6	1,050	1,800	ES12	ES25	2	1.2	525	1,500	525	3,000
31228	3	600	900	ES6	ES12	2	1.2	300	750	300	1,500
31122	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500
31118	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500
31108	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500
31064	6	1,050	1,800	ES12	ES25	2	1.2	525	1,500	525	3,000
31054	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500
31042	6	1,050	1,800	ES12	ES25	2	1.2	525	1,500	525	3,000
31030	4	750	1,200	ES12	ES12	2	1.2	375	1,000	375	2,000
31020	6	1,050	1,800	ES12	ES25	2	1.2	525	1,500	525	3,000
31000	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500
30980	4	750	1,200	ES12	ES12	2	1.2	375	1,000	375	2,000
30966	6	1,050	1,800	ES12	ES25	2	1.2	525	1,500	525	3,000
30860	5	900	1,500	ES12	ES25	2	1.2	450	1,250	450	2,500

Legend:



#### 3.1. 31284 BROAD BEACH ROAD

The system for 31284 Broad Beach Road can be located landward of the main residence



Figure 1 31284 Broad Beach System Layout



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Page 4 of 16

### 3.2. 31260 BROAD BEACH ROAD

The system for 31260 Broad Beach Road can be located landward of the residence

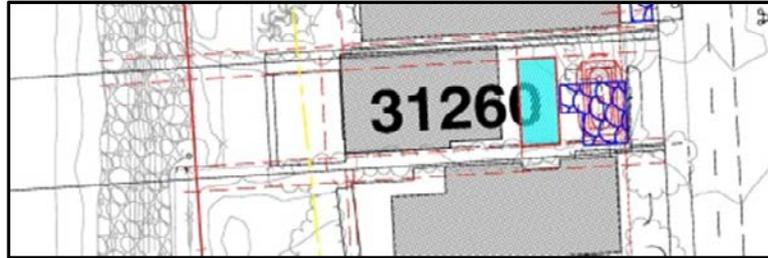


Figure 2 31260 Broad Beach System Layout

### 3.3. 31228 BROAD BEACH ROAD

The dispersal and treatment system for 31228 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 3 and Figure 4).



Figure 3 31228 Broad Beach System Layout

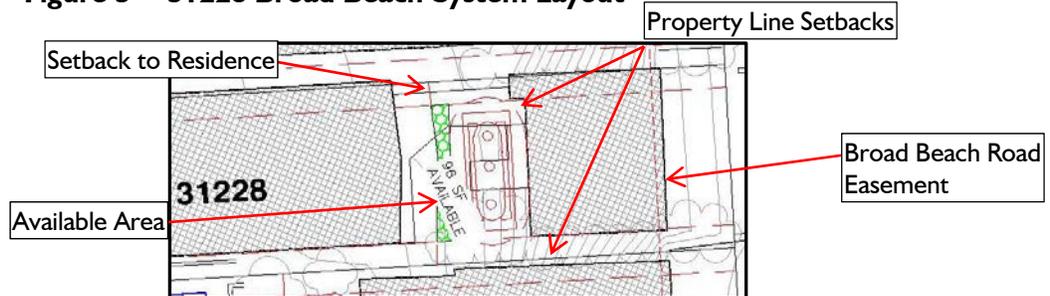


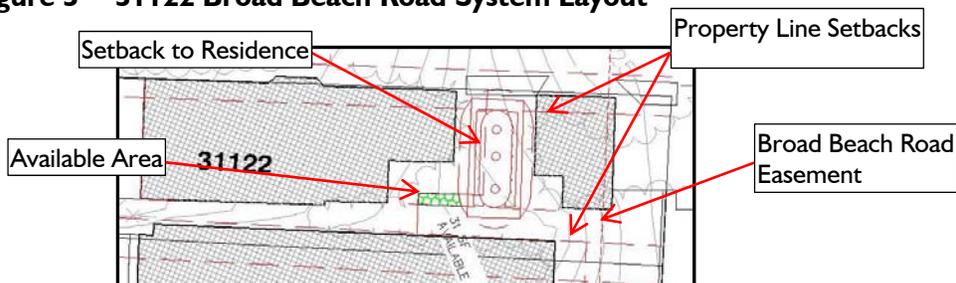
Figure 4 31228 Broad Beach Courtyard and Front of Residence

### 3.4. 31122 BROAD BEACH ROAD

The dispersal and treatment system for 31122 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 5 and Figure 6).



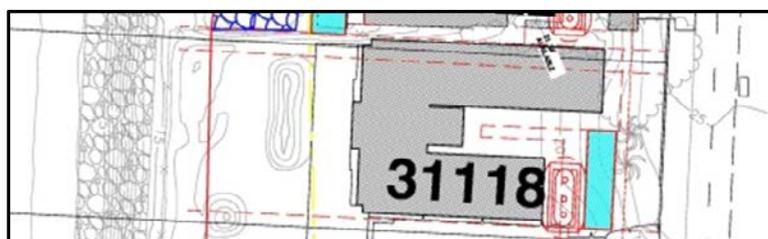
**Figure 5 31122 Broad Beach Road System Layout**



**Figure 6 31122 Broad Beach Courtyard and Front of Residence**

### 3.5. 31118 BROAD BEACH ROAD

The system for 31118 Broad Beach Road can be located landward of the residence.



**Figure 7 31118 Broad Beach Road System Layout**

### 3.6. 31108 BROAD BEACH ROAD

The dispersal and treatment system for 31108 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 8 and Figure 9).



**Figure 8 31108 Broad Beach Road System Layout**

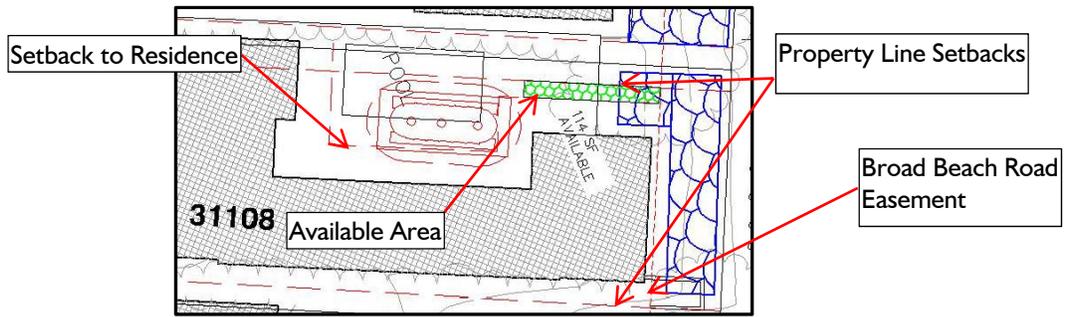


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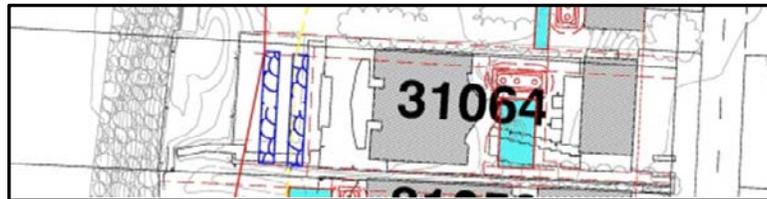
Page 6 of 16



**Figure 9 31108 Broad Beach Courtyard and Front of Residence**

### 3.7. 31064 BROAD BEACH ROAD

The system for 31064 Broad Beach Road can be located landward of the residence



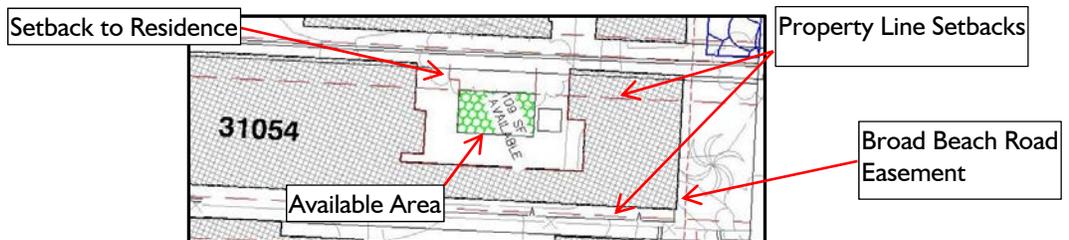
**Figure 10 31064 Broad Beach Road System Layout**

### 3.8. 31054 BROAD BEACH ROAD

The dispersal and treatment system for 31054 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 11 and Figure 12).



**Figure 11 31054 Broad Beach Road System Layout**



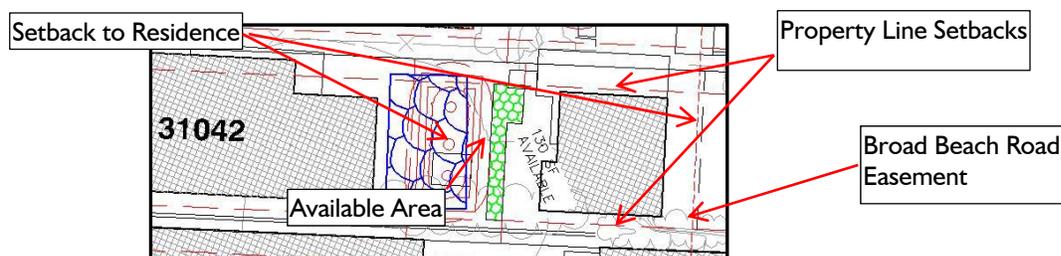
**Figure 12 31054 Broad Beach Courtyard and Front of Residence**

### 3.9. 31042 BROAD BEACH ROAD

The dispersal system for 31042 Broad Beach Road cannot be located landward of the existing septic system nor can it be located fully landward of the residence, the treatment system can be located landward of the existing septic system. The dispersal system will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 13 and Figure 14).



**Figure 13 31042 Broad Beach Road System Layout**



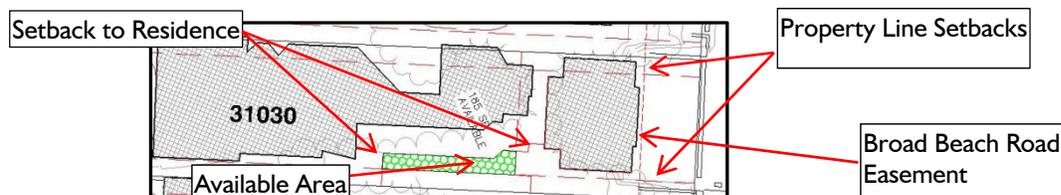
**Figure 14 31042 Broad Beach Courtyard and Front of Residence**

### 3.10. 31030 BROAD BEACH ROAD

Neither the dispersal system nor the treatment system for 31030 Broad Beach Road can be located fully landward of the residence. Both the dispersal system and the treatment system can be located landward of the existing dispersal system. The dispersal system and the treatment system will not fit within the setbacks to the structure, property lines, and treatment tank in the courtyard or in front of the residence (see Figure 15 and Figure 16).



**Figure 15 31030 Broad Beach Road System Layout**



**Figure 16 31030 Broad Beach Courtyard and Front of Residence**



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Page 8 of 16

### 3.11. 31020 BROAD BEACH ROAD

The dispersal and treatment system for 31020 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 17 and Figure 18).

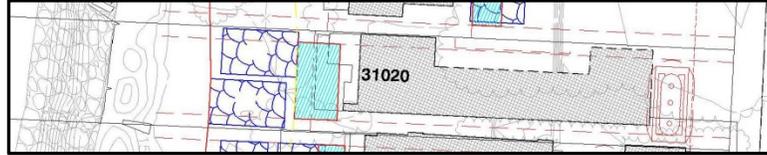


Figure 17 31020 Broad Beach Road System Layout

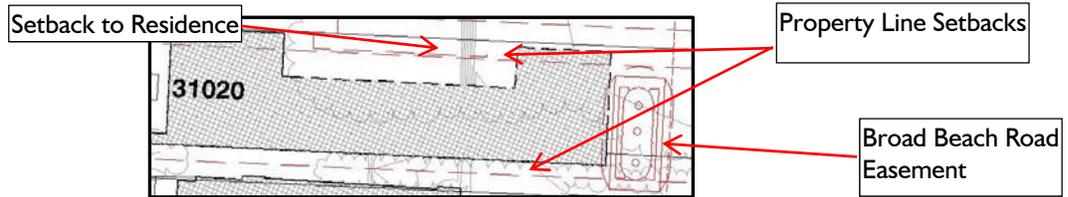


Figure 18 31020 Broad Beach Courtyard and Front of Residence

### 3.12. 31000 BROAD BEACH ROAD

The dispersal and treatment system for 31000 Broad Beach Road can be located landward of the existing septic system but the dispersal system cannot be located fully landward of the residence. The dispersal field will not fit within the setbacks to the structure, property lines, and treatment tank (see Figure 19 and Figure 20).



Figure 19 31000 Broad Beach Road System Layout

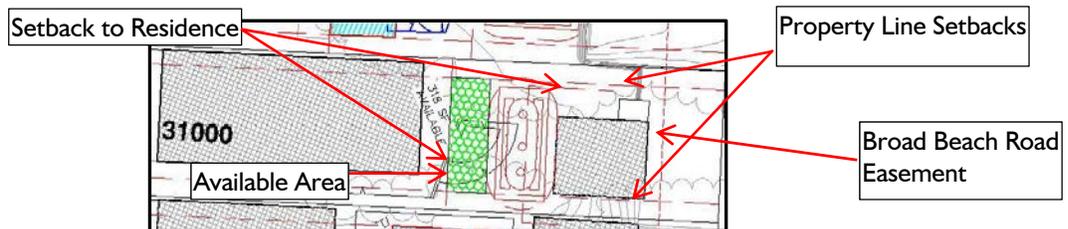


Figure 20 31042 Broad Beach Courtyard and Front of Residence

### 3.13. 30980 BROAD BEACH ROAD

The system for 30980 Broad Beach Road can be located landward of the residence



**Figure 21 30980 Broad Beach Road System Layout**

### 3.14. 30966 BROAD BEACH ROAD

Neither the dispersal system nor the treatment system for 30966 Broad Beach Road can be located fully landward of the residence. Both the dispersal system and the treatment system can be located landward of the existing dispersal system. The dispersal system and the treatment system will not fit within the setbacks to the structure, property lines, and treatment tank in the courtyard or in front of the residence (see Figure 22 and Figure 23).



**Figure 22 30966 Broad Beach Road System Layout**



**Figure 23 30966 Broad Beach Courtyard and Front of Residence**



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Page 10 of 16

### 3.15. 30860 BROAD BEACH ROAD

The system for 30980 Broad Beach Road can be located landward of the residence



#### COMMENT 4 - CCC REVIEW COMMENT

- iv. The submitted plan sets associated with the Ensitu report indicate that there are six (6) properties within the project boundaries that currently rely on existing seepage pits located landward of the residences instead of a septic system and leach field on the sandy beach. Clearly, on these properties, the existing septic pits would constitute the most landward feasible location for septic facilities to be located. However, the submitted Ensitu report analyzed the replacement of these existing functioning septic seepage pit systems located landward of these residences, with a septic system and leach field located further seaward. This is inconsistent with Staff's request that the applicant analyze all feasible alternatives to relocate existing septic systems as landward as feasible. Please revise the submitted analysis to maintain the existing seepage pits and only show those septic system improvements/relocations necessary to allow for the furthest landward location of a shoreline protective device along Broad Beach.

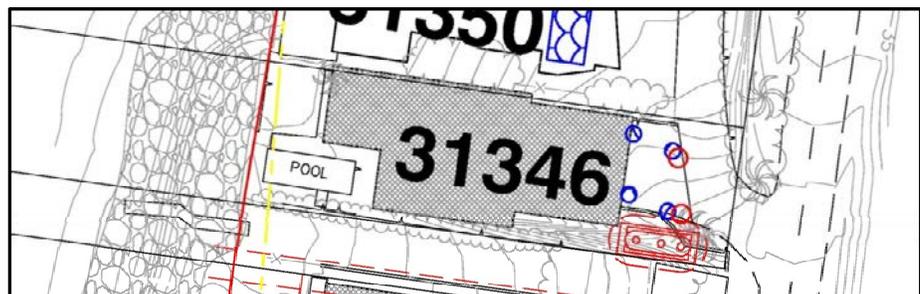
#### 4. EEI RESPONSE

##### 4.1. NUMBER OF PROPERTIES WITH SEEPAGE PITS

EEI could only locate five (5) properties with seepage pits on the plan; 31346, 31330, 31236, 31232, 31214. Of those properties only 31346 Broad Beach Road can accommodate seepage pits as the method of wastewater dispersal.

##### 4.2. 31346 BROAD BEACH ROAD

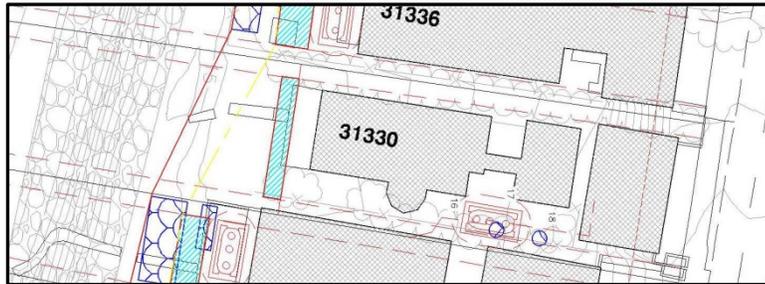
The proposed system for this property utilizes seepage pits as the method of dispersal.



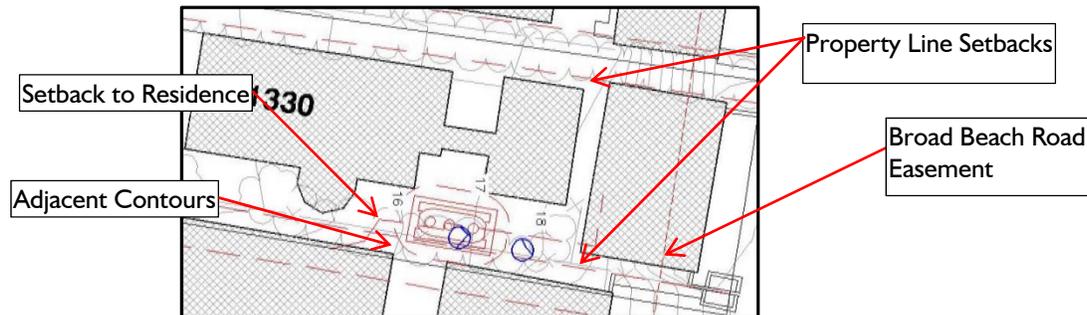
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### 4.3. 31330 BROAD BEACH ROAD

The proposed system for this property does not utilize seepage pits as the method of dispersal. Seepage pits are not feasible due to site elevation and setbacks to structures. The existing seepage pits are at elevations 17 and 18, assuming 10' separation to groundwater, minimum depth of 10', and minimum cap depth of 1'-6" the site elevation would need to be a minimum of 21'-6" for seepage pit disposal (see Figure 24 and Figure 25).



**Figure 24 31330 Broad Beach Road System Layout**



**Figure 25 31330 Broad Beach Courtyard and Front of Residence**



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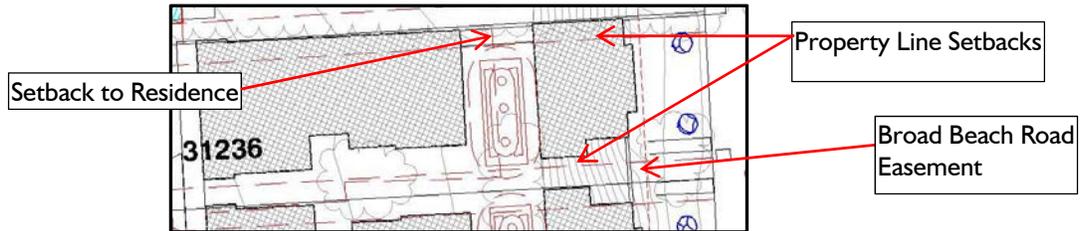
Page 12 of 16

#### 4.4. 31236 BROAD BEACH ROAD

The proposed system for this property does not utilize seepage pits as the method of dispersal. Seepage pits are not feasible due to site setbacks and setbacks to structures. (see Figure 26 and Figure 27).



**Figure 26 31236 Broad Beach Road System Layout**



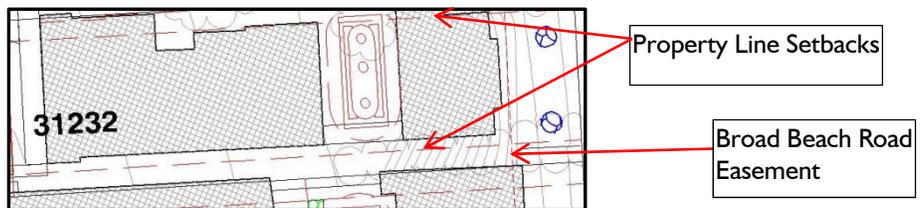
**Figure 27 31236 Broad Beach Courtyard and Front of Residence**

#### 4.5. 31232 BROAD BEACH ROAD

The proposed system for this property does not utilize seepage pits as the method of dispersal. Seepage pits are not feasible due to site setbacks and setbacks to structures. (see Figure 28 and Figure 29).



**Figure 28 31232 Broad Beach Road System Layout**



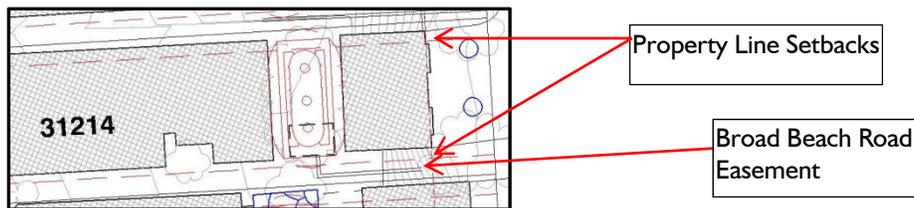
**Figure 29 31232 Broad Beach Courtyard and Front of Residence**

#### 4.6. 31214 BROAD BEACH ROAD

The proposed system for this property does not utilize seepage pits as the method of dispersal. Seepage pits are not feasible due to site setbacks and setbacks to structures. (see Figure 30 and Figure 31).



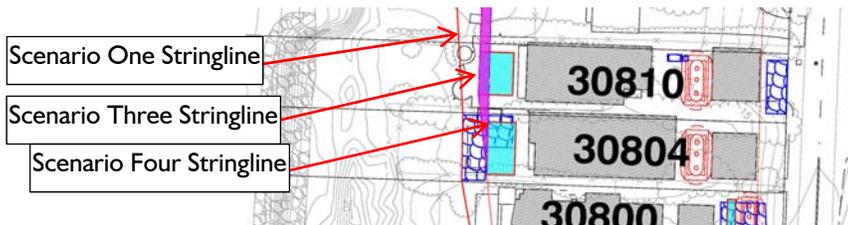
**Figure 30 31214 Broad Beach Road System Layout**



**Figure 31 31214 Broad Beach Courtyard and Front of Residence**

#### COMMENT 5 - COMMENT RECEIVED AFTER RESPONSE TO FILING LETTER

EEL was asked to look at a "best case" scenario combining Scenario One and Scenario Three to create a stringline that was as landward as possible. The scenario looked at the replacement of systems if they could be located more landward and not replacing systems if they could not. The resulting stringline was only slightly more landward from 30860 Broad Beach to 30804 Broad Beach (see Figure 32, page 13 and Appendix A1).



**Figure 32 Scenario Four Stringline**

Any persons concerned with this project, who observe conditions or features of the site or its surroundings that are different from those described in this report, should notify EEL immediately for evaluation. Thank you for the opportunity to have been of service. If you have any questions, or require additional assistance please feel free to contact us at (805) 772-0150.

Sincerely,

John N. Yaroslaski PE 60149  
**Ensitu Engineering Inc.**  
Project Engineer



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Page 14 of 16

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