Map 4. Current 2007 CCC Staff Recommended Coastal Act (CA) Wetland Boundaries

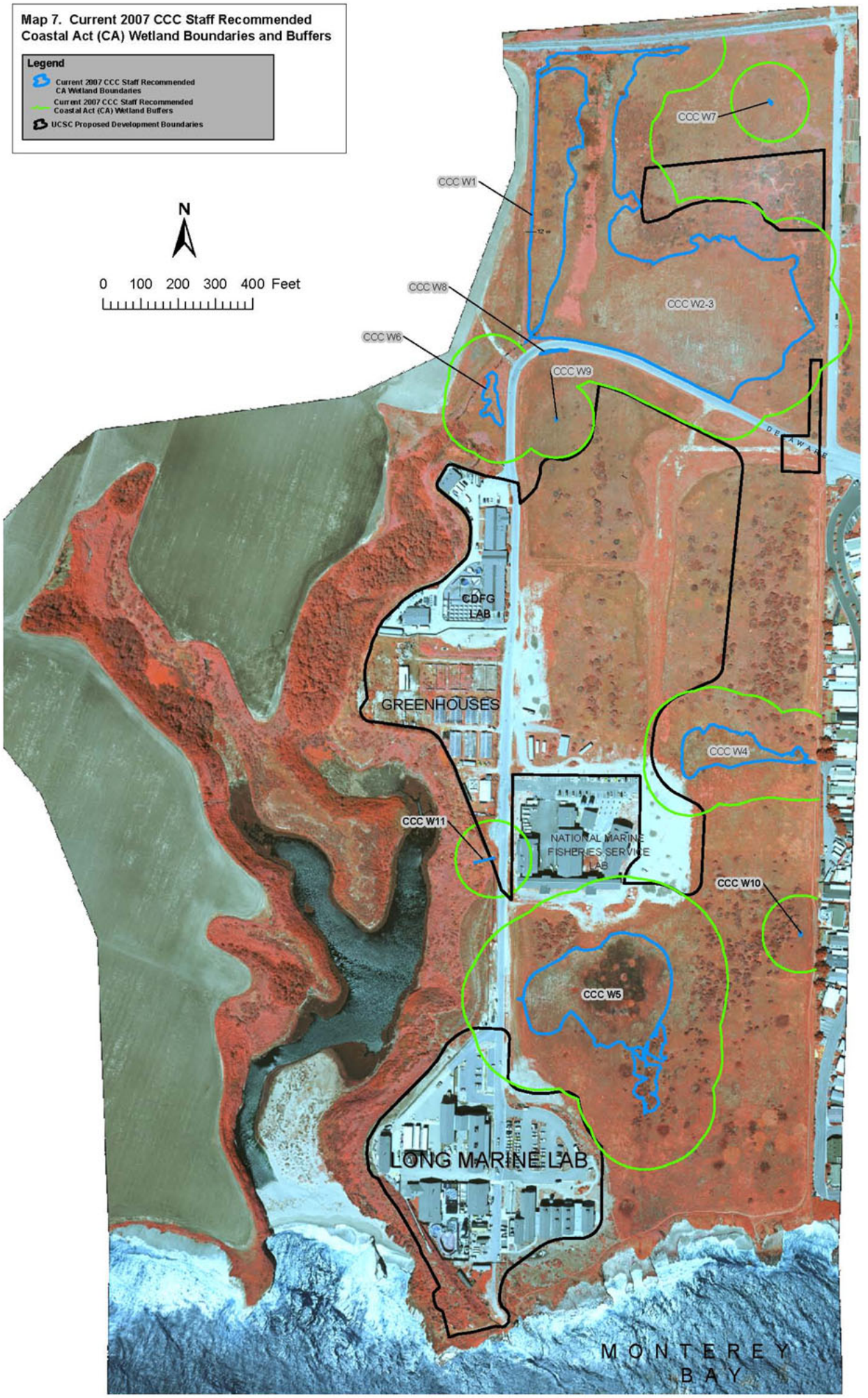
Map 5. Current CORPS Verified CWA Wetland Boundaries And Current 2007 CCC Staff Recommended CA Wetland Boundaries

Legend

- Current 2007 CCC Staff Recommended CA Wetland Boundaries (9.39 ac.)
- Current CORPS Verified CWA Wetland Boundaries (8.43 ac.)

Map 6. CCC Staff Recommended CA Wetland Boundaries: Comparison of 2006 Versus 2007 Recommendations

Map 7. Current 2007 CCC Staff Recommended Coastal Act (CA) Wetland Boundaries and Buffers



Map 8. Overlay of Previous Delineations and Current CCC Staff Recommended Wetland Boundaries

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MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist

TO: Dan Carl

SUBJECT: 2007 Independent Assessment of Wetlands at Terrace Point

DATE: April 25, 2007

Documents reviewed:

Dixon, J. (CCC). 2006. March 28, 2006 memorandum to C. Lester (CCC) regarding "Wetland delineation at Terrace Point."

Huffman-Broadway Group. 2006. Investigation of the presence and geographic extent of wetlands on Terrace Point and Younger Lagoon Reserve, University of California, Santa Cruz, Santa Cruz, (sic) California. A report dated July 2006.

Huffman-Broadway Group. 2007a. A map entitled "Attachment 1. Areas subject to Corps jurisdiction under Section 404 of the Clean Water Act, Terrace Point, Santa Cruz, CA. March 30, 2007

Huffman-Broadway Group. 2007b. A map entitled "Attachment 2. March 2007 Corps delineation with additional areas identified for CCC staff consideration regarding CMA Status, Terrace Point, Santa Cruz, CA." April 16, 2007

Leidy, R. (EPA). 2007. April 24, 2007 letter to D. Carl (CCC) regarding "Terrace Point wetland delineation, Santa Cruz County, California." This letter includes field notes made by Dr. Leidy on February 14, 2007 and an edited version of Mr. Martel's April 16, 2007 email.

Martel, D. (ACOE). 2007. April 16, 2007 email to J. Dixon (CCC) summarizing the field observations made on March 27 and 28, 2007 by Mr. Martel and Dr. Leidy (EPA) and stating their joint conclusions regarding federal jurisdictional wetlands at Terrace Point and other areas of potential wetlands under the California Coastal Act. The email references a map created for Mr. Martel by Huffman-Broadway Group (2007b).

The application by the University of California at Santa Cruz for an amendment to their Long Range Development Plan was heard by the Coastal Commission in April 2006[1]. At that Hearing, members of the public and some of the Commissioners expressed concern that there exist areas on the University's property at Terrace Point that support stands of wetland indicator plant species[2] that have not been delineated as wetlands under the Coastal Act. As I explained to the Commission at the Hearing, I believe there is ample evidence that in many areas those species are growing in uplands and are not growing as hydrophytes[3]. Members of the public asked the Executive Director to request a wetland assessment by independent scientists and suggested Dr. Robert Leidy, a wetlands scientist with the San Francisco office of the U.S. Environmental Protection Agency. I recommended Mr. Dan Martel, a wetland scientist with the San Francisco office of the U.S. Army Corps of Engineers as a second reviewer. The Executive Director requested the assistance of these scientists from their respective agencies. Dr. Leidy was given permission to assist the Coastal Commission, but the Corps was unable to allow Mr. Martel to provide assistance that was outside the Corps' normal application evaluation process. However, since the University had requested a wetland jurisdictional determination from the Corps, it was decided that Mr. Martel and Dr. Leidy would jointly conduct the necessary field work. On January 26, 2007, Huffman-Broadway Group provided both Mr. Martel and Dr. Leidy with the most recent wetland delineation conducted for the University (Huffman-Broadway Group 2006). On February 3, 2007, I sent Mr. Martel and Dr. Leidy an email in which I explained the wetland issues at Terrace Point and provided guidance concerning wetland delineation under the Coastal Act and the Commission's Regulations (see Enclosure 1). On February 14, 2007, Dr. Leidy made a preliminary visit to the site, and on March 27 and 28, 2007, Mr. Martel and Dr. Leidy conducted the field work necessary for the federal jurisdictional determination and also characterized the site in a manner that could be interpreted in the context of the Commission's one-parameter wetland delineation. Mr. Martel and Dr. Leidy evaluated the wetland boundaries that had been delineated for the Corps by the University and also assessed all other areas where wetland indicator plants were dominant, including every patch of marsh Baccharis (*B. douglasii*, OBL[4]) that had been mapped by the University's wetland consultant, Huffman-Broadway Group (Martel 2007; Leidy 2007). Each mapped patch of marsh Baccharis was placed in one of three categories:

A. Federal wetland

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[1] At that Hearing, the University withdrew their application before the Commission voted on the matter.

[2] Reed, P.B. 1988. National list of plant species that occur in wetlands: National Summary. Biological Report 88(24). U.S. Fish and Wildlife Service, Washington, D.C. "Wetland indicator species" are those that are listed as FAC, FACW, or OBL on this list or on a 1996 draft revision of this list.

[3] By definition, nearly all wetland indicator species occur in uplands with a frequency that varies from <1% to 67% of total occurrences, depending on the particular species. Only a small minority of wetland indicator species, the truly aquatic species, are restricted to wetlands. Those species tend not to persist in seasonal wetlands.

[4] [4] "Obligate Wetland (OBL) – > 99% of occurrences in wetlands under natural conditions; Facultative Wetland (FACW) – 67-99% of occurrences in wetlands; Facultative (FAC) – 34-66% of occurrences in wetlands; Facultative Upland – 1-33% of occurrences in wetlands; Obligate Upland (UPL) - > 99% of occurrences in uplands under natural conditions within the region, but occurs in wetlands elsewhere.

B. Apparent upland. No indicators of hydric soil or wetland hydrology and either (1) the plant community did not have a preponderance of wetland indicator species, or (2) there was a preponderance of wetland indicator species, but the soil characteristics, landscape position, and wetness conditions did not differ from the immediately adjacent, obviously upland plant community.

C. Potential CCC Wetland. No indicators of hydric soil or wetland hydrology according to the 1987 Corps Wetland Delineation Manual, however there was a preponderance of wetland indicator species and a wetland plant community might be supported due to increased subsurface wetness resulting from landscape position and/or a shallow aquitard[5] that differed from that of the adjacent upland community.

Areas with a preponderance of wetland indicators species other than marsh Baccharis were mapped in the same three categories (i.e., federal wetlands, apparent upland, potential CCC wetlands). These other areas with a preponderance of wetland indicator species were overwhelmingly dominated by rye grass (*Lolium multiflorum*, FAC).

In his April 24, 2007 letter, Dr. Leidy incorporates his field notes from February 14, 2007 and includes under "Conclusions" a recommendation that seven areas that were generally dominated by rye grass "...be reassessed in light of the surface and/or near-surface saturation and shallow ponding that I observed on February 14, 2007." This recommendation and three recommendations in his field notes regarding the extent of federal jurisdictional wetlands conflict with his recommendations in the same letter presented in the context of the March 2007 site visits. I queried Dr. Leidy regarding these conflicts and he indicated that he included his February 14, 2007 observations for the use of CCC staff, but that his professional opinion concerning the extent of federal jurisdictional wetlands and the status of other areas with a preponderance of wetland indicator species is reflected in the map produced by Huffman-Broadway Group under the guidance of Mr. Martel (see Enclosure 2).

[5] An aquitard is a layer of rock or sediment (e.g., clay) that has very low permeability and so tends to retain water above it.

Enclosure 1. Guidance provided by John Dixon (CCC) via email to Dan Martel (ACOE) and Robert Leidy (USEPA) concerning wetland delineation under the Coastal Act and the Coastal Commission's Administrative Regulations

---

From: John Dixon
Sent: Saturday, February 03, 2007 5:21 PM
To: Dan Martel ; Robert Leidy
Cc: Charles Lester; Dan Carl; Peter Douglas

Dear Rob and Dan,

Before you make a site visit to Terrace Point, I would like to review the problem that we are facing there. The Commission's wetland definition simply requires that a site be wet enough long enough and frequently enough to support a prevalence of hydrophytes or to promote the formation of hydric soils. Under most circumstances, one-parameter wetland delineation is based on vegetation and is accomplished by the straightforward application of the field methods in the 1987 Manual. However, where the wetland character of a site is ambiguous, characterizing plants as "hydrophytic" requires professional judgment in addition to a demonstration that the species is included on a list of plant species that occur in wetlands. Ambiguity most often arises in areas where the prevalent vegetation is comprised of only one or two wetland indicator species, where field indicators of hydric soils and wetland hydrology are absent or unreliable, and where the landscape position and the nearby vegetation suggest upland conditions.

In past actions, the Commission has accepted the following approach to such difficult sites. Plants that are listed as OBL, FACW, or FAC on the U.S. Fish and Wildlife Service's 1996 Draft Revised List of Vascular Plants that Occur in Wetlands are presumed to be growing as hydrophytes and the prevalence of such wetland indicator species is presumptive evidence that the area in which they are growing is a wetland. However, in recognition of the fact that wetland indicator species are found in uplands with some frequency, the wetland presumption is rebuttable by compelling evidence of upland conditions.

Evidence of upland conditions is not simply the absence of field indicators of hydrology. Factors that could reasonably be considered include landscape position, topography, soil texture and permeability, presence or absence of hydric soil features, presence or absence of a shallow confining layer, rainfall records, well data, photographic evidence of inundation, history of alterations to the site, and, especially, soil wetness and presence or absence of ponding following significant rainfall. For example, if during a normal or unusually wet rainy period, a questionable area is not saturated or inundated for at least 7 continuous days, this is evidence of upland rather than wetland conditions. Comparisons between the questionable site and nearby known wetland and uplands are also useful.

At Terrace Point, large areas are dominated by *Lolium multiflorum* (FAC). In addition, clonal patches of *Baccharis douglasii* (OBL) are scattered throughout the site. The wetland delineator for the University, Dr. Terry Huffman, concluded that these wetland indicator species were not growing as hydrophytes in most of those locations. His analysis included a number of factors, but relied heavily on frequent observations of soil wetness following rainfall. Based on observations within what he considered representative areas, he concluded that most areas supporting *L. multiflorum* and *B. douglasii* are uplands. These conclusions have been contested by citizen's groups and their wetland consultants, based on the existing data and their personal observations of inundation or shallow soil saturation following rainfall. This is the issue upon which we are seeking your independent professional opinion within the context of the Coastal Commission's one-parameter wetland definition. The crux of the issue is whether wetland indicator species are growing as hydrophytes where they are prevalent in areas that

have been identified by Dr. Huffman as upland. The areas of greatest interest are those within the proposed development footprint where the prevalent vegetation is dominated by *B. douglasii.*

Please let me know if I can be of any assistance.

Regards,

John

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Enclosure 2. Email exchange between John Dixon (CCC) and Robert Leidy (EPA) clarifying apparent conflicts or ambiguities in Dr. Leidy's April 24, 20007 letter to Dan Carl (CCC). The exchange has been reordered with earlier emails before later emails.

-----Original Message-----
From: leidy.robert@epa.gov [mailto:leidy.robert@epa.gov]
Sent: Tuesday, April 24, 2007 10:48 AM
To: Dan Carl
Cc: Dan Martel ; John Dixon; Charles Lester
Subject: Terrace Point Wetland Delineation, Santa Cruz County, CA

Dear Mr. Carl,

Attached please find EPA's letter to the Coastal Commission regarding the Terrace Point wetland delineation, Santa Cruz County. I also will send to you by mail the original of the attached letter and copies of the Clean Water Act, Section 404, wetland data sheets.

Please contact me if you have any questions.

Thank you.

Robert Leidy

(See attached file: Terrace Point EPA Ltr April 2007.pdf)

Robert A. Leidy, Ph.D.
Wetlands Regulatory Office (WTR-8)
U.S. Environmental Protection Agency
75 Hawthorne Street
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phone: 415.972.3463
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[attachment "Attachment 2 March 2007 CORPS Delineation with Additional Areas Identified For CCC Staff Consideration Regarding CMA Status r6a.pdf" deleted by Robert Leidy/R9/USEPA/US]

From: jdixon@coastal.ca.gov
Sent: Tuesday, April 24, 2007 01:37 PM
To: Robert Leidy/R9/USEPA/US@EPA; Dan Martel
Cc: Charles Lester; Dan Carl; thuffman@h-bgroup.com
Subject: RE: Terrace Point Wetland Delineation, Santa Cruz County, CA

Dear Rob & Dan,

Thank you very much for this effort. It will be very helpful to us. I did notice that there were some apparent internal conflicts in the letter or between the letter and the map identified as Attachment 2. For example, the letter identifies B. douglasii patch 13 as having an aquitard at 6 in and being inundated or saturated nearly to the surface on 2-14-07. However, the map identifies this patch as in Group B, which the text indicates does not have those characteristics. The observations at HBG points 12 and 12b on 2-14-06 are very similar to those at patch 13, but the area is shown as upland in Attachment 2. I realize that your recommendations were based on all the data that were available. So, unless you folks direct otherwise, I will assume that the map is an accurate representation of your professional opinion based on the overall weight of the evidence that you had before you. However, I'd appreciate it if you could double check the map since it will be an important reference for our recommendations to the Commission. If you find that there are errors, please direct HBG to produce a corrected version.

Thanks again all your work,

John

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-----Original Message-----
From: leidy.robert@epa.gov [mailto:leidy.robert@epa.gov]
Sent: Tuesday, April 24, 2007 1:56 PM
To: John Dixon
Cc: thuffman@h-bgroup.com; Charles Lester; Dan Martel ; Dan Carl
Subject: RE: Terrace Point Wetland Delineation, Santa Cruz County, CA

Hi John,

Thanks for your observations. I think the best way to view the HBG maps are as a Corps/EPA consensus on wetlands at Terrace Point. My observations and conclusions from February 14 are for CCC staff consideration. Dan has not seen my write up and I don't expect him to concur with what I have written for the February 14 field inspection. My "Observation Points" (2/14) and the data points from March (Dan and I) may be somewhat inconsistent because the data was not necessarily recorded at the exact same location. I don't see that as a problem. For example, there may be small-scale spatial differences in the presence/absence of an aquitard. On February 14, I observed a broad area dominated by Lolium perenne that was also ponded or saturated at or near the surface; I disclose this for CCC consideration since at the time of my observation there was positive evidence for two wetland indicators. I cannot say how long this area remained ponded and or saturated. However, if for purposes of full disclosure you would like to delineate this area on the figures, I am happy to do so.

In any event, it would be useful if the latest version of the HBG map (assuming no more lines) could be forwarded to me for a final look.

Thanks,

Rob

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U.S. Environmental Protection Agency
75 Hawthorne Street
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phone: 415.972.3463
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e-mail: leidy.robert@epa.gov

From: jdixon@coastal.ca.gov
Sent: Tuesday, April 24, 2007 02:38 PM
To: Robert Leidy/R9/USEPA/US@EPA
Cc: Charles Lester; Dan Martel ; Dan Carl; thuffman@h-bgroup.com
Subject: RE: Terrace Point Wetland Delineation, Santa Cruz County, CA

Hi Rob,

If the map represents consensus, then the map and the accompanying explanation of the symbols will guide my analysis. Your notes from February 14 include new data and some interpretation. An extra data point is always useful and preliminary interpretations are often not the same as final interpretations based on all the evidence. If the map represents your professional judgment based on the weight of the available evidence, which was gathered over several years, then I'm not at all bothered that there was surface ponding on a particular day or that you initially thought the line should move this way or that, but your final judgment was somewhat different. If, on the other hand, you actually disagree with the map, it is important that you are explicit about it. The text of your letter could be viewed as somewhat ambiguous and will undoubtedly generate controversy, but so long as I personally understand your intent, I can deal with that.

My interpretation of your response below ["above" with the exchange reordered from 1st to last] is that the map represents your best professional judgment, but that you wanted to include your February 14, 2007 field observations so I would have all the data available for my own analysis. Please inform me if I am wrong. I am attaching what I understand to be the final version of the HBG map.

Regards,

John

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From: leidy.robert@epa.gov
Sent: Tuesday, April 24, 2007 3:12 PM
To: John Dixon
Cc: Charles Lester; Dan Martel ; Dan Carl; thuffman@h-bgroup.com
Subject: RE: Terrace Point Wetland Delineation, Santa Cruz County, CA

John,

Yes, the map represents my best professional judgement, or said another way, the combined best professional judgements of myself and Dan Martel. My February 14 observations contained in the letter are just that....professional field observations submitted for completeness of the record and for CCC consideration. I don't see them as ambiguous; they are a statement of what I observed on the site on that date. As you know, I can't control what use others will make of these observations. In the final analysis, it is a CCC call on the extent of wetlands under the CMA.

I have also reviewed the latest HBG map (attachment 2) that you have forwarded. I am happy with this version of the map.

Thanks and let me know if you need further clarification on something contained within the letter.

Rob

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MEMORANDUM

FROM: John Dixon, Ph.D.
Ecologist / Wetland Coordinator

TO: Charles Lester

SUBJECT: Wetland Delineation at Terrace Point

DATE: March 28, 2006

Documents reviewed:

Habitat Restoration Group. November 2, 1993. Terrace Point specific plan. Preliminary wetland delineation and addendum. A report prepared for S. Strelow.

John Gilchrist & Associates. May 1997. Preliminary wetland delineation, Santa Cruz coastal marine research center at Terrace Point. A report prepared for ATC Realty Sixteen, Inc.

Huffman-Broadway Group. August 2001. Investigation of the presence of wetlands and other environmentally sensitive habitat areas on the Terrace Point site, University of California, Santa Cruz. A report prepared for Campus and Community Planning, University of California, Santa Cruz.

Huffman-Broadway Group. January 2004. Investigation of the presence and geographic extent of wetlands on Terrace Point and Younger Lagoon reserve, University of California, Santa Cruz. A report prepared for Campus and Community Planning, University of California, Santa Cruz.

R.R. Curry, Ph.D. (Watershed Systems). November 23, 2005. Letter to C. Lester (CCC) re: Huffman-Broadway Group wetland delineation at Terrace Point.

T. Huffman, Ph.D. (Huffman-Broadway Group). February 7, 2006. Letter to C. Lester (CCC) re: Response to R. Curry letter of November 23, 2005.

Prior to human disturbance, the habitat at Terrace Point was probably coastal terrace prairie. The soils are mollisols, which are characterisitic of prairie soils. In the context of wetland delineation, mollisols are designated "problem soils" because they have a dark coloration resulting from the high organic content that is typical of grasslands. This constitutes a problem for the wetland delineator because the primary field indicator of wetland soils is also a dark coloration, but in the case of wetlands the coloration results from the leaching of iron that occurs in waterlogged soils when they become anaerobic.

Since mollisols have a dark coloration (low chroma) in both uplands and wetlands that is unrelated to the presence or absence of anaerobic reducing conditions, soil coloration is not a useful field indicator of hydric soils at Terrace Point. There are other soil characteristics known as "redoximorphic" features that may also be indicative of wetland soils. For unknown reasons, these features are uncommon in most areas at Terrace Point, including those wetlands that are inundated for nearly the whole winter each year. As a result of these problems, hydric soil indicators are of little use at this location, so delineation must rely on hydrology and wetland indicator plants.

In most of coastal California, wetland vegetation is the most useful feature for establishing the boundaries of wetlands because it contrasts with the adjacent upland vegetation that is typically made up of difference species. However, at Terrace Point one of the most dominant species is the FAC[1] rye grass, *Lolium* sp. Along the central coast, *Lolium* commonly grows in both wet and dry habitats and, at Terrace Point, can be found growing both in areas that are under water for months at a time and in areas that appear never to be inundated or saturated except shortly after rainfall. A second species that is abundant at Terrace Point is the OBL species, false willow (*Baccharis douglasii*). In natural, unaltered habitats, more than 99% of the occurrences of this species are estimated to be in wetlands and, unlike rye grass, false willow is usually a useful wetland indicator, generally growing around the edges of marshes and streams. At Terrace Point, false willow colonized sometime after farming activities ceased (1987) and was scattered throughout most of the site[2] by at least 1993. However, its distribution does not appear to be correlated with soil moisture[3]. Since both rye grass and false willow grow in both wet and dry areas at Terrace Point, their distribution is not very useful in drawing wetland boundaries. There are those in the community who seem to believe that every area that has a preponderance of plants that are on the U.S. Fish and Wildlife Service's list of plants that occur in wetlands should be delineated as "wetlands," regardless of size, landscape position, soil characteristics, or hydrological status. In my opinion, this is a recipe for improperly categorizing uplands as wetlands. Some of the possible problems are addressed in the most recent delineation report (Huffman-Broadway Group 2004).

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[1] Wetland indicator plants are given designations based on the estimated frequency that they occur in wetlands: Obligate Wetland (OBL) – > 99% of occurrences in wetlands under natural conditions; Facultative Wetland (FACW) – 67-99% of occurrences in wetlands; Facultative (FAC) – 34-66% of occurrences in wetlands; Facultative Upland – 1-33% of occurrences in wetlands; Obligate Upland (UPL) - > 99% of occurrences in uplands under natural conditions within the region, but occurs in wetlands elsewhere (Reed, P.B. Jr. 1988. National list of plant species that occur in wetlands: California (Region 0). U.S. Fish and Wildlife Service Biological Report 88 (26.10). 135 p.).

[2] The reasons for the occurrence of false willow in uplands as well as in wet areas at Terrace Point are not understood. However, field observations have falsified the hypothesis that it is being supported by deep roots that reach ground water. I think it is most likely that false willow was able to colonize uplands shortly after the cessation of agriculture when there was little competition from other species and is now able to hold that space. Most wetland species do not require wet conditions but are able to tolerate saturated soil whereas their upland competitors cannot grow under such conditions. False willow does not appear to be colonizing new areas at Terrace Point.

[3] However, as judged by stem height and diameter, plants are more robust in wetter areas and are more robust where they grow in homogenous stands without competitors.

The Commission has routinely taken an appropriately conservative approach to wetland delineation by finding that plants on the Service's list of wetland indicator plants are presumptively growing as "hydrophytes,"[4] and that areas with a predominance[5] of such plants are presumptively "wetlands." However, this presumption can be rebutted by strong positive evidence[6] of upland conditions. The Commission always has the discretion to assess multiple factors and rely upon professional judgment, and I think such an approach is particularly appropriate in technically difficult situations, such as that at Terrace Point.

The first two wetland delineations (Habitat Restoration Group 1993; John Gilchrist Assoc. 1997) were both conducted by Ms. Mara Noelle, based on the wetland definition of the Army Corps of Engineers. In 1993, about 13 acres were delineated as wetlands. In 1997, only 4 acres were delineated using the same wetland definition and methods. Three factors appear to account for the difference. In 1993, an area of about 1.4 acres in the southeast portion of the site had no indications of hydrology and no wetland vegetation in the winter but following heavy rainfall in the spring the annual rabbit's foot grass (FACW+) sprouted and the area it dominated was added to the delineation. In 1997, that area showed no indication of wetland vegetation (other than the scattered clones of false willow that are still present) or hydrology and was mapped as uplands. South of the large pond near the National Marine Fisheries building a ditch was dug to drain water to the coastal bluff during the period of agriculture. This ditch had wetland characteristics in 1993, but by 1997 had largely filled in and no longer had wetland hydrology. Finally, in 1993 a very large area of wet meadow dominated by rye grass was delineated north of Delaware based largely on hydrology. However, by 1997 most of this area had been invaded by upland weeds and no longer showed evidence of wetland hydrology, perhaps because much of the remnant furrow structure from earlier plowing had broken down and filled in.

In 2001, Dr. Terry Huffman (Huffman-Broadway Group 2001) conducted a delineation based on the wetland definitions of the Coastal Act and Commission's regulations following the methods promulgated by the Army Corps of Engineers. The Coastal Commission considers a wetland to be any area that is wet enough long enough to support a predominance of hydrophytic vegetation *or* result in the development of hydric soils. However, because of the problem soils and prevalence of rye grass and false willow, Huffman could not reasonably base his delineation on the simple application of the field indicators of hydric soils and wetland indicator plants. Rather he considered

[4] A "hydrophyte is any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Wetland indicator plants are typically adapted to grow in such conditions, but most are also capable of growing in dry upland soil.

[5] "Predominance" is a community concept that means that more than 50% of the dominant plant species present are wetland indicator species. Dominance is determined by various measures of relative abundance.

[6] As opposed to "negative evidence" - for example, the simple absence of field indicators of hydrology. By contrast, "positive evidence" of upland hydrology might be the observation that a given area saturates only ephemerally following significant rainfall, that the soil is very permeable with no confining layer, or that the land is steep and drains rapidly. Positive evidence of upland conditions is difficult to obtain during the dry season.

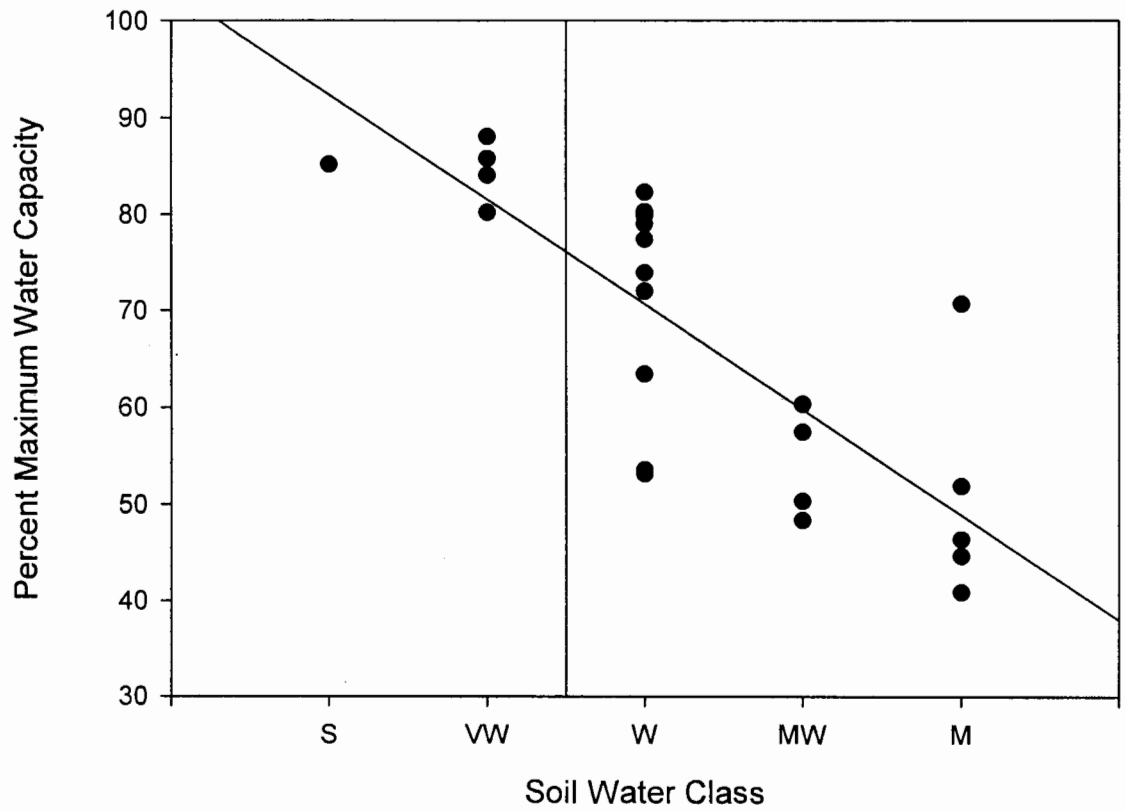
multiple factors, including soil characteristics, landscape position, and drainage patterns. However, in the final analysis his wetland boundaries were overwhelmingly based on evidence of inundation, such as sediment deposits and algal mats. This resulted in a delineation that, for the most part, would correspond to boundaries based on the 3-parameter (water, soils, vegetation) Corps' approach and, indeed, the boundaries were only slightly different from those drawn in 1997. Community organizations, including the Terrace Point Action Network and the Sierra Club, questioned the conclusions of the 2001 delineation and argued that additional wetland areas were present based on the distribution of false willow and on observations and photographs of ponding in some areas. In order to resolve these issues, additional field work was conducted during the rainy seasons of 2001-2002 and 2002-2003. A primary purpose of the new field work was to examine in some detail patterns of soil saturation in questionable areas and not base the delineation so strongly on evidence of inundation. This resulted in a considerably larger area being delineated in the wet meadow north of Delaware.

Soil saturation[7] is generally caused by either high ground water or a perched water table. The Corps considers the upper 12 inches of the soil to be the "major part of the root zone" for most plant species and, if the water table rises to within 12 inches of the surface, the soil is considered to be saturated in the major portion of the root zone since in most soils capillary action will saturate the soil above the water table. The Corps and the National Resource Conservation Service generally consider inundation for 7 days or more or saturation for 14 days or more to be evidence of wetland conditions. Where the root zone is saturated by a high water table, there is generally either continuous saturation throughout the soil column or a cline from moist to wet to saturated soil from the ground surface to deeper in the soil column. At Terrace Point, this pattern does not hold in many areas. Although there is an impermeable mudstone underlying the site, it is generally several feet below the surface, except in the central wetland near the NMFS building. In addition, many areas have clayey soils within 2 feet of the surface and some of these may be sufficiently impermeable to perch water. However, outside the areas of inundation, the soils do not appear to be saturated by a perched water table. Instead, rainwater slowly percolates through the soil producing a saturated band a few inches thick with unsaturated soil above and below. The Corps manual does not address itself to this unusual situation. Huffman examined soil saturation by using a soil auger to extract and characterize the soil column inch by inch. The soil texture was noted and its water content estimated. An objective moisture scale was developed with my participation based on the visual characteristics and apparent plasticity of the soil. The first year the scale was: Dry (feels dry), Moist (feels moist, but no surface sheen), Wet (water observable among soil particles as a surface sheen), Saturated (water runs from the soil when held). The second year a similar scale was used but, because field delineators felt a need to add "plus" and "minus" qualifiers to the categories, two additional categories were added: Dry (crumbly or solid), Moist (feels damp, malleable), Moist-Wet (predominantly moist but with wet patches), Wet (Obvious surface sheen, no

[7] Saturated soil is soil in which all easily drained voids (pores) between soil particles are temporarily or permanently filled with water.

water drains when held or gently squeezed), Very Wet (strong sheen to thin surface film; no water drains when held or gently squeezed, but liquefies when shaken), Saturated (soft mass, water drains when held or gently squeezed). Since we were not aware of established standards for judging soil saturation in the field, we decided to analyze soil samples in the laboratory to see if the measured water content of soils judged to be "saturated" was similar to the water content reported in the literature for saturated soils. To that end, we collected 24 vials of soil by pressing each vial into the side of a soil pit. We then dug out and classified in the field a second sample taken from about the same place. The vial of soil was taken to the laboratory weighed wet, weighed dry, and the weight and volume of the vial determined. From these measurements, the degree of saturation was calculated using standard methods. The results are shown in the following figure.

Relationship Between Soil Water Classification
and Measured Water Content



There is a strong and highly significant correlation between the actual water content and our field classification (correlation coefficient r=0.79). There was no difference between the one "Saturated" sample and the "Very Wet" samples and both categories were considered to represent soil that was saturated with water for purposes of the

delineation (Huffman-Broadway Group 2004). Although about 60% of the observed variability in water content is explained by differences in field classification[8], there is considerable unexplained variability within each category. Much of this is probably due to the logistic necessity of collecting laboratory and field samples separately and likely reflects small-scale variability in water content within the soil column. Despite this source of error, there was relatively little overlap between the "Saturated" and "Very Wet" categories and the "Wet" and drier categories. In general, soil judged "Wet" or drier in the field was very obviously not saturated with water.

The data suggest that soils that were placed in the "Very Wet" and "Saturated" categories in the field contained between 80% and 90% of the maximum possible water volume based on the calculated soil porosity[9]. Research by Pilot and Patrick[10] suggests that soils must contain about 90% of the maximum water capacity to produce reducing conditions. Therefore, if anything, our determinations were conservative.

Dr. Curry (2005) has suggested that the delineation should have included a direct assessment of reducing conditions in the soil as estimated with a hand held redox meter. Using this non-standard delineation approach would not result in a delineation that was more conservative in the direction of resource protection. If anything, it would have the opposite affect. This is because soil saturation is a necessary, but not sufficient condition for reducing conditions. In other words, all soils that are saturated are not anaerobic. However, in Huffman's delineation observed soil saturation that was judged to last 7 days was considered sufficient evidence of wetland conditions.

The use of the field determinations of water content was also conservative. Soils were judged saturated if the band of saturation was at least 6 inches wide within the upper 12 inches of the soil. If saturation in the major portion of the root zone was judged to have persisted for at least 7 days, this was considered evidence of wetland conditions. The Corps and NRCS requires evidence of saturation within the major portion of the root zone for at least 14 days for it to be taken as evidence of hydric conditions.

On the other hand, some of the data analysis was not conservative in the direction of resource protection. Because rainfall was unusually high during both December 2001 and December 2002, Huffman elected to ignore data collected prior to January 30, 2002 and did not begin to collect data in 2003 until January 31 in an effort to assess "normal" conditions. The affects of this decision during Phase III (2002-2003 rain season) cannot be assessed. However, data were taken but not analyzed during the previous year (Phase II). Nine data points were potentially affected (points 1, 2, 4, 5, 6, 9, 15, 40, 55) since there was evidence of soil saturation on one or more survey dates prior to the end of January. Nearly all of these locations were very near a delineated wetland boundary and would be contained within the buffer zone. Only one point (15) was in an area

[8] As indicated by $r^2 = 0.63$.

[9] Some soils estimated in the field to be "saturated" may have had higher water contents since they were poorly represented in the laboratory analysis.

[10] Pilot, L. and W.H. Patrick, Jr. 1972. Nitrate reduction in soils: effect of soil moisture tension. Soil Science 114:312-316.

likely to be affected by development (the proposed maintenance area), but it was dominated by rye grass and did not have more than 50% wetland indicator plants, suggesting upland conditions. I conclude that the decision not to analyze the earlier data probably had little practical affect on the on the ultimate determination of wetland locations and boundaries.

There was one location (data point 59) in the northwest portion of the field south of Delaware where the data were ambiguous and Huffman did not delineate a wetland. I initially agreed, but upon further reflection decided that in the face of significant uncertainty the area should be delineated. With this addition, I believe that the 2004 wetland delineation is accurate and conservative.

-----Original Messa
From: Steve Blank
Sent: Thursday, May 24, 2007 11:46 PM
To: Jeff Staben
Subject: Ex Parte about: Younger Lagoon beach closure issue

Jeff,
Ex parte I received about Younger Lagoon. I don't know if its on any calendar yet.

Regards,

Commissioner Steve Blank

From: m]
Sent: Thursday, May 24, 2007 12:49 PM
To:
Subject: Fwd: Younger Lagoon beach closure issue

Dear Steve:

Sorry I missed you today here is the email regarding Younger Beach.

Robert
-----Original Message-----
From: Margaret H Fusari [mailto:fusari@ucsc.edu]
Sent: Tuesday, May 22, 2007 5:13 PM
To: AWRANCH@aol.com
Subject: Re: Younger Lagoon beach closure issue

CCC Exhibit J
(page 1 of 8 pages)

Robert,
Thank you for understanding my concerns about contacting a commissioner. The CLRDP process has been extremely difficult and long as I am sure Steve has told you.

The beach closure issue is this:

CCC staff members are willing to allow another temporary closure of the beach if UC provides a set of docent guided tours down to the beach and a monitoring plan. We are very happy to do that and have been hoping to beef up our public education program and our reserve monitoring for some time now. We already have a small interpretive program, a new set of interpretive panels, and a very active restoration program.

But, CCC staff members, including Peter Douglas, want UC/NRS to have to reapply for beach closure every 5 years through a Notice of Impending Development process (NOID), thus leaving NRS vulnerable on a regular basis to the existing politics concerning beach access.

In addition CCC staff seem to believe that we can produce a scientifically valid analysis as to whether our use, compared with a "comparable" beach, makes a difference in the condition of the beach ecology. Our monitoring will document beach condition but with N=1, high variability for many reasons, and a highly questionable comparison situation I do not consider we can "prove" our use is best. It also makes us vulnerable to having to damage or risk damaging the beach to prove that the use is too much and causing damage.

It is time to validate the mission of the NRS and the integrity of Younger Lagoon Reserve.

I believe our use is best because NRS provides public, albeit supervised, use of the beach and research and teaching opportunities at a public university while assuring a high level of protection to the natural resource.

I believe the NRS mission and the CCC mission should be judged by the commission itself to be the best use of this beach and to fulfill the mandates of both state organizations.

The NRS needs to assure a high level of protection to its reserves and should not be risking damages at all.

There are excellent beaches nearby for public access (Wilder, Natural Bridges and many more) and Younger beach is small, hard to access and not very useful to the general public. Public use would be hidden from view and hence controlling trash, trespass into the reserve proper, disturbance of the tidewater goby and the beach strand vegetation would be extremely difficult if not impossible.

I believe the best use of this beach is as a closed part of an NRS reserve with public education programs through the Seymour Center Docents. I believe the founders of the NRS and of the Younger Lagoon Reserve would more than agree. We have also had excellent support from natural groups such as Sierra Club, the Santa Cruz bird club, and California Native Plant Society and from several local surfing groups (who do not see our closure as a serious barrier to their access of the surf break) for protection of the beach. Finally the commission itself has 3 times voted to accept closure. We hope they will vote again for a final and indefinite closure as long as our programs remain in compliance with the CLRDP.

On Tue, 22 May 2007 18:30:51 EDT
AWRANCH@aol.com wrote:
> Maggie:
>
> I will read your email and call my friend Steve Blank.
>
> Robert
>
>
>
> ********** See what's free at

CCC Exhibit J
(page 2 **of** 8 **pages)**

>http://www.aol.com.

Maggie Fusari

UCSC Natural Reserves
c/o ENVS
1156 High St.
Santa Cruz, CA 95064
(831)459-4971 work
(831) 459-4015 fax

Never give up, Never surrender!

CCC Exhibit J
(page 3 **of** 8 **pages)**

RECEIVED
MAR 1 4 2007
CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATIONS

Name or description of project, LPC, etc.:
Item 6a University of California at Santa Cruz Coastal Long Range Development Plan (UCSC CLRDP)

Date and time of receipt of communication: **2/21/07 2:30-4:00**

Location of communication: **209 Blackburn, Menlo Park, CA**

Type of communication (letter, facsimile, etc.): **Oral**

Person(s) initiating communication: **Mark Massara, Sierra Club**

Detailed substantive description of content of communication:
(Attach a copy of the complete text of any written material received.)

General description of project, environmental issues at stake and Sierra Club's position on the project.

Thursday, March 08, 2007
Date

Signature of Commissioner

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.

If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceeding and provide the Executive Director with a copy of any written material that was part of the communication.

RECEIVED

APR 28 2006

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATION

Received at Commission Meeting

APR 12 2006

From:

Date and time of communication: ~~Thursday, April 6~~ Wed Apr 12, 2006; noon
(For messages sent to a Commissioner by mail or facsimile or received as a telephone or other message, date time of receipt should be indicated.)

Location of communication: Santa Rosa
(For communications sent by mail or facsimile, or received as a telephone or other message, indicate the means of transmission.)

Person(s) initiating communication: Nancy Lucast, Steve Davenport (UCSC) Gary Griggs

Person(s) receiving communication: Mike Reilly

Name or description of project: UCSC CLRDP (April, 2006, Wed, 15.c.)

Detailed substantive description of content of communication:
(If communication included written material, attach a copy of the complete text of the written material.)

UCSC representatives described additional efforts to come to agreement with staff on areas of disagreement and enumerated the remaining outstanding issues: 1) Suggested Mod to expand wildlife corridor not supported by evidence or FWS, FWS has endorsed UCSC's proposal; 2) Allowing uncontrolled access to the narrow beach at YLR will threaten sensitive dune and lagoon habitats and species; 3) UCSC lab requirements necessitate use of up to 25% of the roof ridgeline for rooftop equipment, not the 20% proposed by staff; 4) Use of parking meters is essential to insure that designated "public access" spaces are, in fact, available for the public and not usurped by students, faculty, staff or visitors to the Seymour Center; 5a) No rationale for staff's proposed extension of water quality testing program; and ~~5b) No rationale for staff's proposal to use imported soils for drainage swales and filter strips.~~

4/12/06
Date

Mike Reilly
Signature of Commissioner

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.

If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceeding and provide the Executive Director with a copy of any written material that was part of the communication.

CCC Exhibit J
(page 5 of 8 pages)

RECEIVED

APR 2 8 2006

CALIFORNIA
COASTAL COMMISSION
CENTRAL COAST AREA

Received at Commission Meeting

APR 1 1 2006

From:_____

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATION

Date and time of communication: Thursday, April 6, 2006; noon
(For messages sent to a Commissioner by mail or facsimile or received as a telephone or other message, date time of receipt should be indicated.)

Location of communication: Santa Rosa
(For communications sent by mail or facsimile, or received as a telephone or other message, indicate the means of transmission.)

Person(s) initiating communication: Nancy Lucast, Steve Davenport (UCSC)

Person(s) receiving communication: Mike Reilly

Name or description of project: UCSC CLRDP (April, 2006, Wed, 15.c.)

Detailed substantive description of content of communication:
(If communication included written material, attach a copy of the complete text of the written material.)

UCSC representatives described additional efforts to come to agreement with staff on areas of disagreement and enumerated the remaining outstanding issues: 1) Suggested Mod to expand wildlife corridor not supported by evidence or FWS, FWS has endorsed UCSC's proposal; 2) Allowing uncontrolled access to the narrow beach at YLR will threaten sensitive dune and lagoon habitats and species; 3) UCSC lab requirements necessitate use of up to 25% of the roof ridgeline for rooftop equipment, not the 20% proposed by staff; 4) Use of parking meters is essential to insure that designated "public access" spaces are, in fact, available for the public and not usurped by students, faculty, staff or visitors to the Seymour Center; 5a) No rationale for staff's proposed extension of water quality testing program; and 5b) No rationale for staff's proposal to use imported soils for drainage swales and filter strips.

4/7/06
Date

Mike Reilly
Signature of Commissioner

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If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceeding

CCC Exhibit J
(page 6 **of** 8 **pages)**

FORM FOR DISCLOSURE

Received at Commission Meeting

FEB - 8 2006

From:_____

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATION

RECEIVED

MAR 03 2006

CALIFORNIA COASTAL COMMISSION CENTRAL COAST AREA

Date and time of communication: Fri, Feb. 3, 2006, noon

(For messages sent to a Commissioner by mail or facsimile or received as a telephone or other message, date time of receipt should be indicated.)

Location of communication: Santa Rosa

(For communications sent by mail or facsimile, or received as a telephone or other message, indicate the means of transmission.)

Person(s) initiating communication: Mary Hudson, Steve Davenport (UCSC)

Person(s) receiving communication: Mike Reilly

Name or description of project: UCSC LRDP (Feb.10, 2006, Fri., 5.b.)

Detailed substantive description of content of communication:

(If communication included written material, attach a copy of the complete text of the written material.)

UCSC representatives indicated they have been working closely with staff for some time and are continuing to do so. It appears some issues may be unresolved: (1) wildlife protection measures on the terrace; (2) conflict between Younger Lagoon Reserve ESHA and beach access; (3); Parking adequacy and management; and (4) above and beyond these issues, technical problems with staff's proposed findings (a University-wide concern). Meetings are continuing with staff to try to work these out.

Feb 6, 2006 _____ Mike Reilly _____

CCC Exhibit J

(page 7 **of** 8 **pages)**

FORM FOR DISCLOSURE OF EX PARTE COMMUNICATION

RECEIVED
MAR 0 3 2006
CALIFORNIA COASTAL COMMISSION CENTRAL COAST AREA

Date and time of communication: Tues, Feb. 7, 2006, 9:30 PM
(For messages sent to a Commissioner by mail or facsimile or received as a telephone or other message, date time of receipt should be indicated.)

RECEIVED
FEB - 8 2006
CALIFORNIA COASTAL COMMISSION

Location of communication: San Diego
(For communications sent by mail or facsimile, or received as a telephone or other message, indicate the means of transmission.)

Person(s) initiating communication: Steve Davenport (UCSC), Nancy Lucast

Person(s) receiving communication: Dave Potter

Name or description of project: UCSC LRDP (Feb.10, 2006, Fri., 5.b.)

Detailed substantive description of content of communication:
(If communication included written material, attach a copy of the complete text of the written material.)

UCSC representatives recalled our earlier site visit some months ago (on file) including a brief description of the overall existing conditions and mission of the Marine Campus. They indicated they have been continuing to work closely with staff. It appears some issues may yet be unresolved: (1) wildlife protection measures on the terrace; (2) conflict between natural resource protection for Younger Lagoon Reserve ESHA and beach access; (3); parking adequacy and management (including metered public parking such as permitted at UCSB); (4) height of rooftop equipment (UCSC needs 1 ft. above staff's limit for specialized marine tank/plumbing eqt.), and (5) above and beyond these issues, technical problems with staff's proposed findings (a University-wide concern). Meetings are continuing with staff to try to work these out. They expect to be proposing alternative findings regarding (5), above, and some alternative sugg mods at the CCC hrg for those outstanding issues that may remain after this week's meetings with CCC staff.

2/7/05
Date

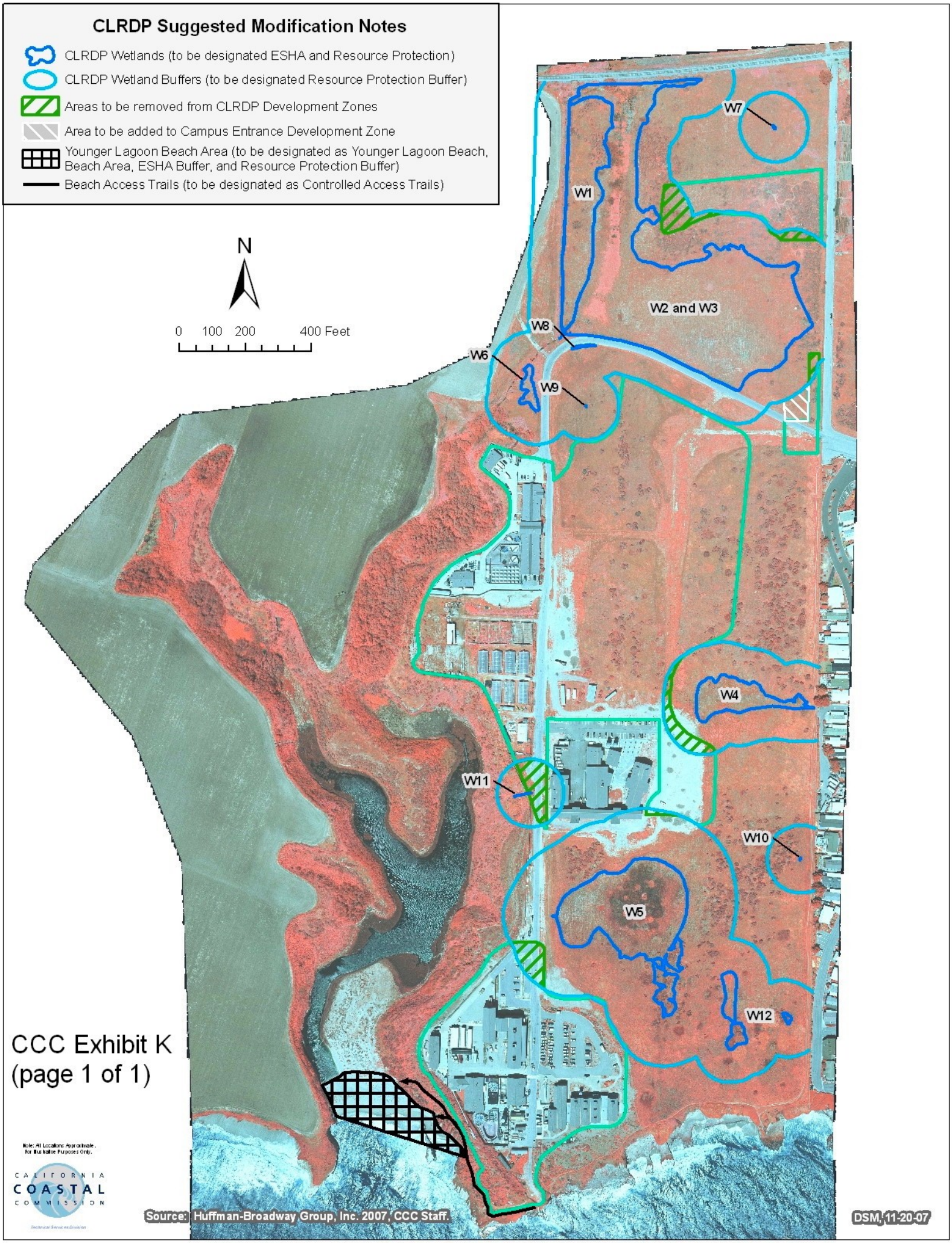
D Potter
Signature of Commissioner

If the communication was provided at the same time to staff as it was provided to a Commissioner, the communication is not ex parte and this form does not need to be filled out.

If communication occurred seven or more days in advance of the Commission hearing on the item that was the subject of the communication, complete this form and transmit it to the Executive Director within seven days of the communication. If it is reasonable to believe that the completed form will not arrive by U.S. mail at the Commission's main office prior to the commencement of the meeting, other means of delivery should be used, such as facsimile, overnight mail, or personal delivery by the Commissioner to the Executive Director at the meeting prior to the time that the hearing on the matter commences.

If communication occurred within seven days of the hearing, complete this form, provide the information orally on the record of the proceeding and provide the Executive Director with a copy of any written material that was part of the communication.

CCC Exhibit 5
(page 8 of 8 pages)



CCC Exhibit K
(page 1 of 1)