STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, *Governor*

CALIFORNIA COASTAL COMMISSION
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PROPOSED FINDINGS

ON CONSISTENCY DETERMINATION

Consistency Determination
No. CD-49-95
Staff: LJS-SF
File Date: June 1, 1995
45th Day: July 16, 1995
60th Day: Extended to Aug. 31, 1995
Commission Vote: August 10, 1995
Hearing on Findings: Nov. 16, 1995

FEDERAL AGENCY: U.S. Navy

DEVELOPMENT LOCATION: Construction Battalion Center Rifle Range, Naval Air Weapons Station, Point Mugu, Ventura County (Exhibit 1)

DEVELOPMENT DESCRIPTION: Removal of earthen berms from abandoned and operating firing ranges, and construction of a new 1000-inch rifle range (Exhibit 2).

PREVAILING COMMISSIONERS: Calcagno, Doo, Flemming, Giacomini, Pavley, Rick, Staffel, Vargas, Williams.

SUBSTANTIVE FILE DOCUMENTS:

1. Negative Determination ND-77-94 (U.S. Navy, Rifle Range Revetment, Point Mugu)

2. Statewide Interpretive Guidelines for Wetlands and other Wet Environmentally Sensitive Habitats, California Coastal Commission, February 4, 1981.

EXECUTIVE SUMMARY

The Navy has submitted a consistency determination for construction of a 1000-inch rifle range at the existing Construction Battalion Center (CBC) firing range complex at Pt. Mugu, for use by Navy personnel and federal, state, county, and local law enforcement agencies. The consistency determination states that the firing range complex in which the proposed project would occur is located entirely within the upper marsh of the eastern arm of Mugu Lagoon, and that the project includes placement of approximately 0.06 acres of fill within Corps of Engineers delineated wetlands that are currently in a "degraded" state. The new range involves construction of a 307-foot-long, 32-foot-wide, and 15-foot-high earthen berm, and a 370-foot-long, 10-foot-high wooden impact wall on top of the berm, located at the existing southern firing range. Materials used to construct the berm would come from the removal of two existing earthen berms from the adjacent central (operating) and northern (closed) firing ranges.

Although the proposed rifle range berm would eliminate approximately 0.06 acres (or 2,600 square feet) of wetland habitat, the cumulative effect of berm removal at the northern and central sections of the firing range, the reintroduction of tidal waters to the northern end of the firing range (due to berm removal), and the fact that the proposed berm would prevent lead bullets from entering the wetlands at the southern end of the firing range will generate a net improvement to wetland habitat and resources at this location. Therefore, the proposed project is consistent with the marine resources protection policies of the California Coastal Management Program (Sections 30230 and 30231 of the Coastal Act).

STAFF SUMMARY AND RECOMMENDATION:

I. Project Description. The Navy proposes to construct a 1000-inch rifle range at the existing Construction Battalion Center (CBC) firing range complex along the Pt. Mugu shoreline, for use by Navy personnel and federal, state, county, and local law enforcement agencies in Ventura, Santa Barbara, and Los Angeles counties (Exhibits 1-5). The consistency determination states that the firing range complex in which the proposed project would occur is located entirely within the upper marsh of the eastern arm of Mugu Lagoon and within Corps of Engineers jurisdictional delineated wetlands that are currently in a degraded state. The new range involves construction of a 307-foot-long, 32-foot-wide, and 15-foot-high earthen berm, and a 370-foot-long, 10-foot-high wooden impact wall on top of the berm, located at the existing southern firing range (Exhibits 2-3). Materials used to construct the berm would come from the removal of two existing earthen berms from the adjacent central (operating) and northern (closed) firing ranges.

Approximately 28,600 square-feet of the northern range berm would be excavated and soil would be transported by truck to the southern range berm site. The excavated site would then be recontoured to match the adjacent Mugu Lagoon salt marsh/tidal flat topography, and as a result, approximately 10,300 sq.ft.

of beach area and 26,400 sq.ft. of mud flat habitat would eventually be created due to removal of the berm (Exhibits 4-5). Removal of the two-foot-high, 300-foot-long firing line berm in the central range involves excavation of approximately 12,000 sq.ft. of soil and transport of this material to the proposed southern berm site. The excavated site area would then be graded and recontoured to the existing and adjacent wetland ground level.

II. Status of Local Coastal Program. The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If the LCP has been certified by the Commission and incorporated into the CCMP, it can provide guidance in applying Chapter 3 policies in light of local circumstances. If the LCP has not been incorporated into the CCMP, it cannot be used to guide the Commission's decision, but it can be used as background information. The Ventura County LCP has not been incorporated into the CCMP.

III. Federal Agency's Consistency Determination. The U.S. Navy has determined the project to be consistent to the maximum extent practicable with the California Coastal Management Program.

IV. Staff Recommendation:

The staff recommends that the Commission adopt the following resolution:

A. Concurrence.

The Commission hereby concurs with the consistency determination made by the Navy for the proposed project, finding that the project is consistent to the maximum extent practicable with the California Coastal Management Program.

V. Findings and Declarations.

A. Wetlands. The Coastal Act provides the following:

Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233.

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities....

The proposed earthen berm at the existing southern firing range would involve placement of fill in coastal wetlands, albeit damaged by past human activity, and as such must pass the allowable use, alternative, and mitigation tests of Section 30233 of the Coastal Act.

1. Allowable Use. Construction of an earthen berm to support rifle range operations is not one of the allowable uses listed above under Section 30233(a). Therefore, the project is inconsistent with this provision of Section 30233 of the Coastal Act. However, the Navy states that the proposed earthen berm is an essential element of the 1000" rifle range, and its revised

consistency determination addresses the allowable use test of Section 30233(a) as follows:

> Naval procedures and policy limits discretion to comply with Section 30233, however, this project is in compliance with the California Coastal Management Program to the maximum extent practicable. The only portion of the project not in compliance is the berm placement in the degraded wetlands, totalling 0.20 acres. However, other project elements are fully consistent with the allowable activity of "Restoration Purposes". Therefore, because of Naval safety requirements for firing ranges, and only limited impacts to degraded wetlands, and restoration of new wetlands, the project is consistent to the maximum extent practicable with the Coastal Zone Management Program.

Furthermore, at the August 10 Commission hearing, the Navy informed the Commission that the berm footprint would be narrowed by eight feet such that the amount of wetland fill would be reduced to 0.06 acres or 2,600 sq.ft. However, the Commission does not agree with the Navy's conclusions that it is excused from the allowable use requirement of Section 30233(a) because of firing range safety requirements and the provision of mitigation measures. The Coastal Act states that wetland fill is only allowed for a narrow list of uses and because the proposed rifle range berm is not one of those allowable uses, it is inconsistent with this requirement of Section 30233(a) of the Coastal Act.

2. Alternatives. The Coastal Act also requires that the proposed wetland fill activity be the least environmentally damaging feasible alternative. The Navy's analysis of alternatives in its consistency determination was limited to the proposed project, no project, and relocation of the facility. In the consistency determination, and in greater detail at the August 10 Commission hearing, the Navy provided adequate information to support its contention that the alternatives of relocating the proposed 1000-inch rifle range and/or the entire firing range complex to another site on or off the base were not feasible due to environmental, economic, public safety, military security, and land use reasons. The Commission concurs with this determination and finds that the project is the least environmentally damaging feasible alternative and is consistent with this requirement of Section 30233(a) of the Coastal Act.

3. Mitigation. Regarding the mitigation measures outlined by the Navy, the Commission notes that Section 30233(a) requires analysis of feasible mitigation measures to minimize adverse environmental effects, assuming for purposes of discussion that the proposed wetland fill has passed the allowable use and least damaging alternative tests. Because the proposed rifle range berm fails the allowable use test, the provision of a mitigation program could not, by itself, bring the project into consistency with the Coastal Act.

The consistency determination focuses primarily on project mitigation as represented by removal of the northern berm:

> The removal of 28,637 (sf) of the northern berm, and 11,972 (sf) of the central range firing line will have a positive benefit by restoring the original elevation to the upper marsh environment. The central range area is expected to have vegetation similar to the existing degraded

> state. The partial removal of the northern berm, however, is expected to create 26,400 (sf) of additional coastal mudflat and 10,300 (sf) of coastal beach. This is expected to more than offset the negative impact of covering 12,280 (sf) [as noted above, now reduced to 2,600 sq.ft.] of degraded wetland habitat at the proposed 1000" range.
>
> ...
>
> Realizing that the rifle range must coexist with an environmentally sensitive habitat, it is felt that the restoration of the northern-most rifle range, to its original wetlands habitat condition would help to restore degraded habitat values and further limit the encroachment of incompatible habitat areas. This, in turn, would mitigate the impacts of the proposed berm area located within the southern range area. The southern range is already in a degraded state and is surrounded by areas of equal or greater degradation. Construction within this site would be consistent and compatible with the existing firing ranges.

In its consistency determination, the Navy acknowledged that the proposed earthen berm is to be placed in Corps of Engineers-determined jurisdictional wetland habitat, albeit habitat which has been damaged, and that this action will generate "negative impacts." The Navy then stated that these impacts would be "more than offset" by the natural restoration of wetland habitat that will follow the removal of a portion of the northern firing range berm, and that the project is therefore consistent with the applicable Coastal Act policies.

The Commission agrees with the Navy's conclusion that removal of a portion of the north berm will improve habitat benefits and may eventually lead to the natural restoration of intertidal and wetland habitat at this location adjacent to existing wetland habitat at Mugu Lagoon (Exhibit 6 summarizes the wetland resources at Point Mugu). However, the Navy's "mitigation" proposal does not meet the standards normally considered adequate by the Commission for mitigation of impacts associated with wetland fill, such as a 4:1 mitigation ratio, performance standards, planting and hydrological plans, and monitoring and revegetation measures. Therefore, without provisions for meeting these standards the Commission finds the Navy's proposed mitigation for the berm inconsistent with the mitigation requirement of Section 30233(a).

4. Policy Conflict Resolution. Although the Commission finds that the proposed berm fails the allowable use and mitigation tests of Section 30233(a) of the Coastal Act, the Commission also acknowledges that the rifle range project as a whole will result in a net improvement to wetland habitat and resources at and adjacent to the firing range complex. As noted above, removal of earthen berms at the northern range will create approximately 36,000 square feet of mudflat and sandy beach habitat. Removal of a 12,000 square-foot earthen berm at the central range will not in and of itself lead to restoration of the range, but will eliminate a man-made upland feature from this section of degraded wetland. The proposed berm at the 1000-inch rifle range, and its 2,600 square feet of degraded wetland fill, will prevent lead bullets from entering and landing in the wetland section located between the range and the shoreline. Finally, an overall project goal is to consolidate firing range activities inland and away from ocean and wetland areas, and to

allow marginal areas of the range to be naturally restored to intertidal and wetland habitat. As a result of these actions, the Commission finds that the proposed rifle range project is consistent with the marine resources protection policies of Sections 30230 and 30231 of the Coastal Act.

The Coastal Act acknowledges the potential for policy conflicts and Section 30007.5 states in part that:

> The Legislature further finds and recognizes that conflicts may occur between one or more policies of the division. The Legislature therefore declares that in carrying out the provisions of this division such conflicts be resolved in a manner which on balance is the most protective of significant coastal resources.

The Commission must resolve the conflict between the wetland fill policies of Section 30233 and the marine resources protection policies of Sections 30230 and 30231 of the Coastal Act raised by the proposed rifle range project. To that end, the Commission finds that the proposed rifle range berm would fill approximately 2,600 square feet of degraded wetland habitat, and that such a use is not consistent with Section 30233(a) of the Coastal Act. The Commission also finds that the overall rifle range project will lead to the natural restoration of approximately 36,000 square feet of intertidal mudflat and sandy beach habitat at the upper reaches of Mugu Lagoon by the removal of existing earthen berms at the abandoned northern rifle range, will remove a man-made earthen berm from a degraded wetland cell in the central range, and that these activities are consistent with Sections 30230 and 30231 of the Coastal Act. Therefore, the Commission determines that on balance the proposed rifle range project will lead to the restoration and protection of wetland and intertidal habitat, and that concurrence with the project resolves the conflict between Coastal Act policies in the manner which is most protective of wetland resources. In conclusion, the Commission finds that the proposed project is consistent with the marine resources protection policies of the CCMP (Sections 30230 and 30231 of the Coastal Act).

B. Public Access and Recreation. The Coastal Act provides:

> Section 30210. In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.
>
> Section 30211. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.
>
> Section 30212.
>
> (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where:

> (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources,
>
> (2) adequate access exists nearby....

Section 30213. Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred....

Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

Section 30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.

The Navy states in its consistency determination that the proposed project is located within a secure military area and that public access is restricted to authorized personnel. Because public access is therefore prohibited from both State Highway 1 and along the shoreline areas of the base, including the firing range, the Navy concludes that no negative impacts to public access and recreation will occur due to this project.

In August 1994 the Navy submitted a negative determination to the Commission for construction of a rock revetment at the shoreward end of the central firing range, adjacent to and northwest of the proposed 1000" range. The Navy reported at that time that the revetment was a short-term alternative to provide shore protection to the firing range complex for up to five years while alternative rifle range locations at Point Mugu were evaluated. In September 1994 the Executive Director objected to the negative determination due to the project's potential impacts on sand supply and coastal processes. In a subsequent letter to the Navy, the Executive Director also discussed the issue of rifle range operations and their impact on public use of ocean waters seaward of the range:

> Finally, the proposed revetment would extend the life of the rifle range. It is our understanding that when the range is used the water area seaward of the targets is closed to public use for obvious reasons. This means the public will be prevented from using public water areas for longer periods of time than would be the case if the life of the range were not extended. This too has an effect on coastal zone resources.

Previously, the Navy had indicated to Commission staff that closure of offshore waters to public use and transit during firing range operations was required by the Navy to protect public safety offshore of the range. However, in its revised submittal for the 1000-inch range, the Navy states that:

> ...access to offshore waters is open to the public.
>
> Military personnel visually monitor the offshore waters from observation towers, alerting firing range personnel when vessels are spotted within the warning area. Command, in-turn, signals personnel utilizing the range facility to cease and desist firing, until the all-clear signal has been received from the tower monitor. The proposed project would not alter current safety procedures, therefore, there is no impact to public access created by the proposed project.

The proposed 1000" rifle range project could extend the operational life of the firing range complex, and, if a conflict with recreation exists, may extend the conflict between firing range operations and public recreational use of offshore waters. The Navy has not demonstrated that firing ranges in general, and the specific types of ranges in operation at or proposed for the Point Mugu range complex, are coastal dependent uses that cannot be placed at alternative inland locations. However, given the Navy's statement that firing range operations are conducted in the manner described above and that ocean waters offshore of the firing range complex are not closed to public transit and use (contrary to previous assertions), then the Commission finds the proposed project is consistent with the public access and recreation policies of the CCMP (Sections 30210-30224 of the Coastal Act).

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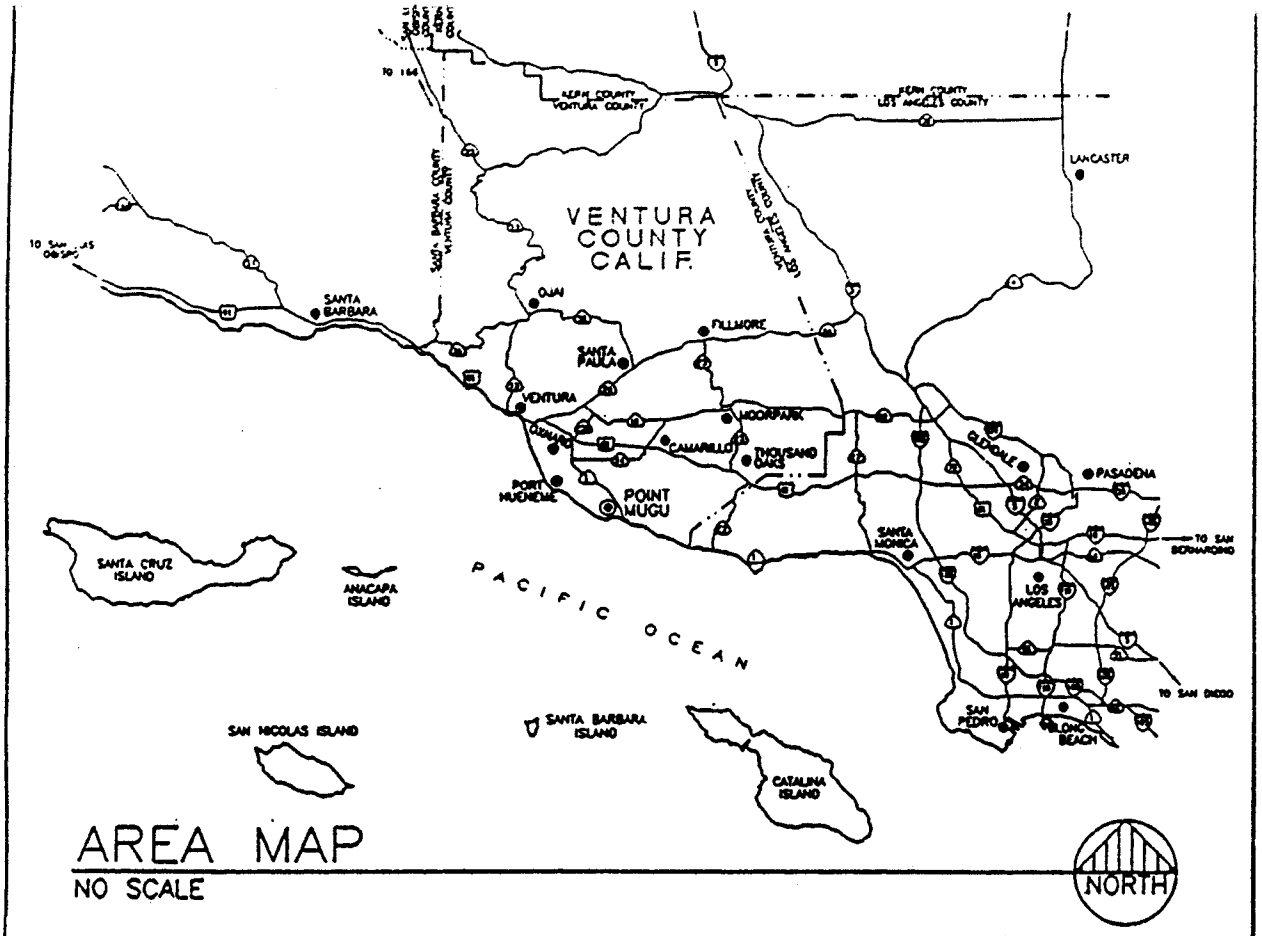


AREA MAP

NO SCALE

PROJECT LOCATION MAP

EXHIBIT NO. 1

APPLICATION NO.

CD-49-95

California Coastal Commission

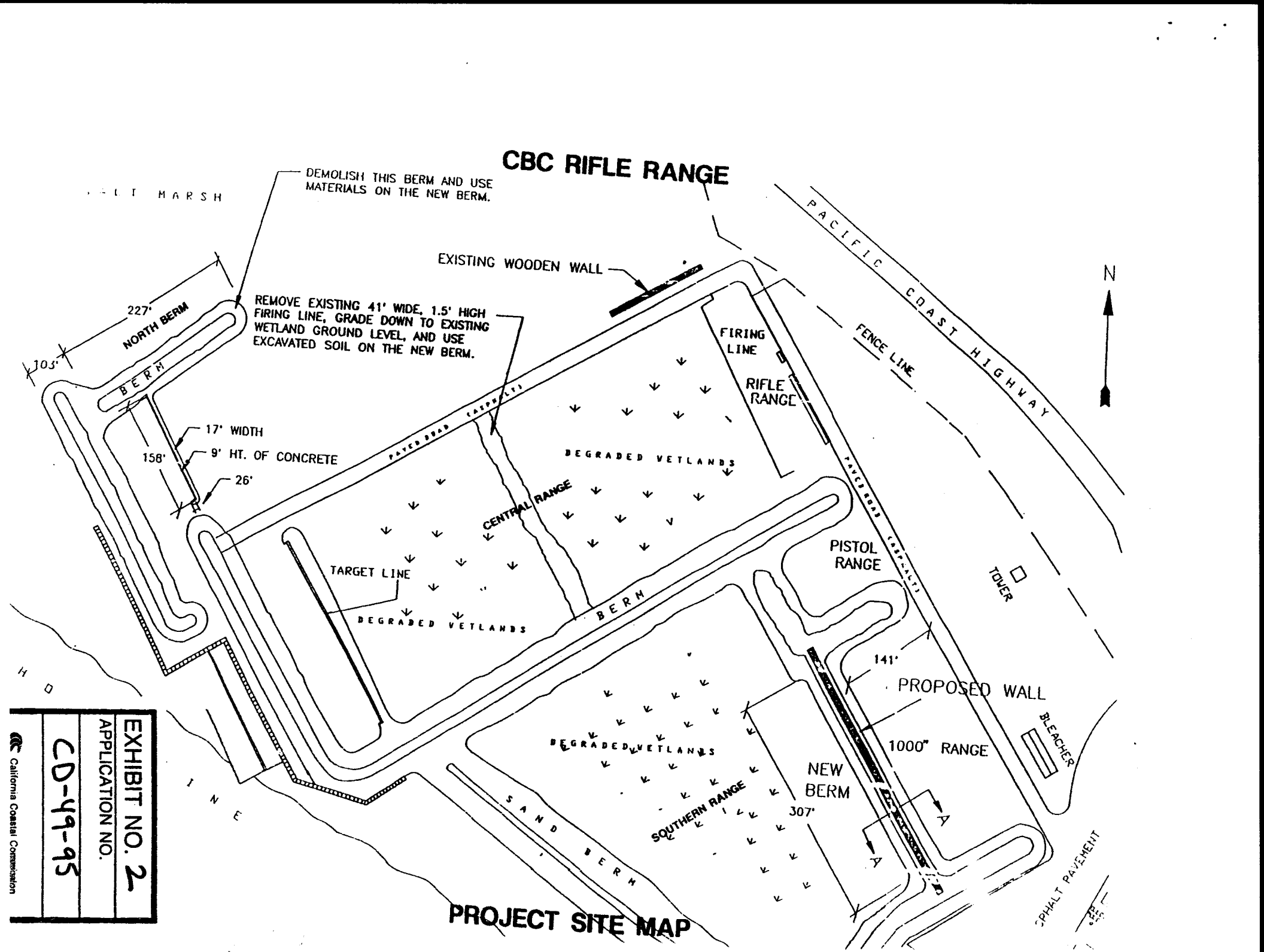


EXHIBIT NO. 2
APPLICATION NO.
CD-49-95

California Coastal Commission

SOUTHERN RANGE

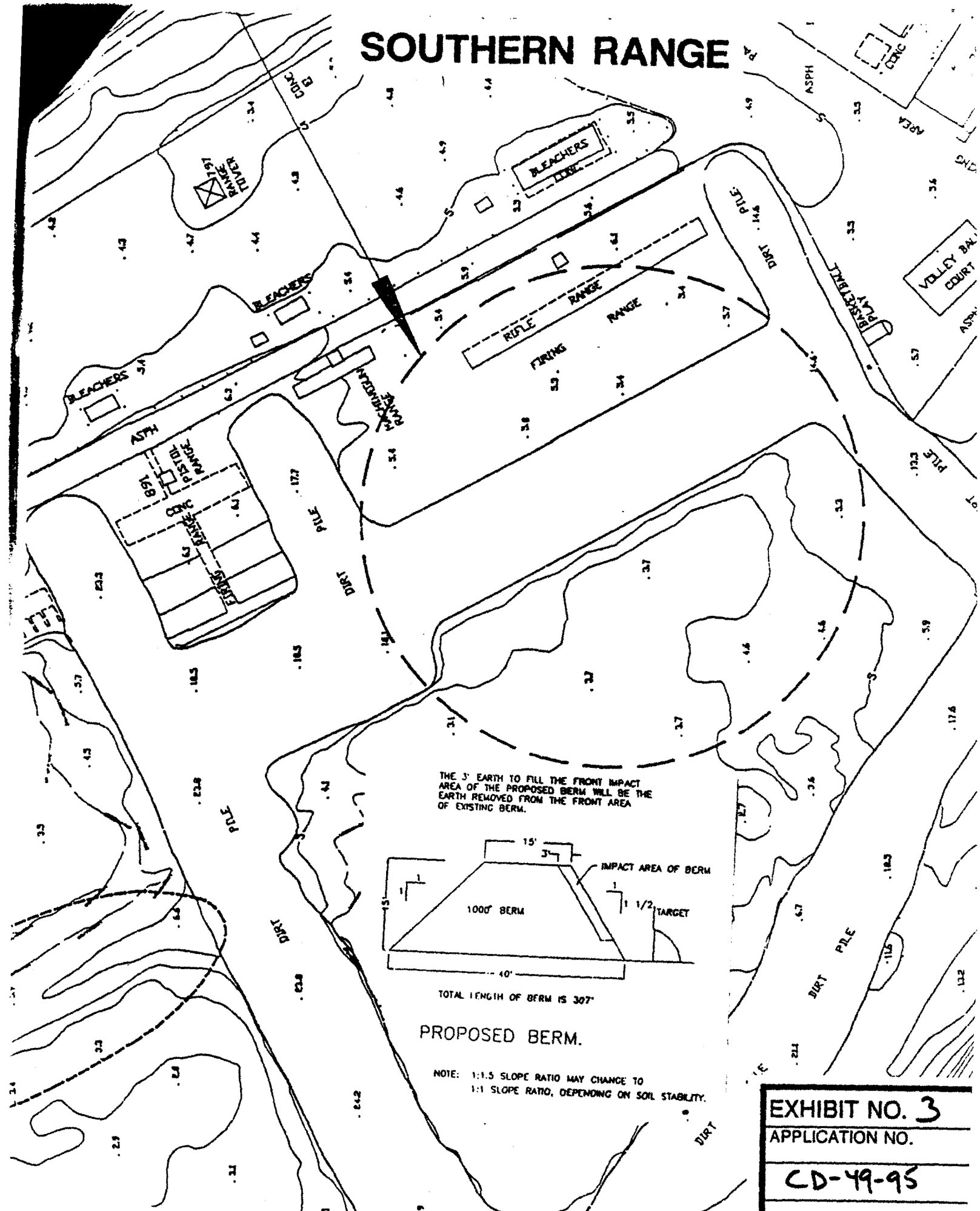


EXHIBIT NO. 3

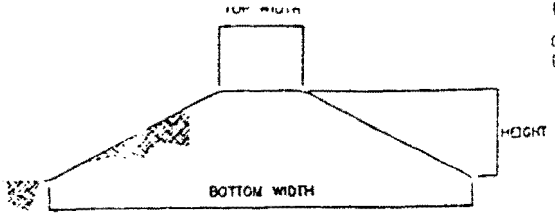
APPLICATION NO.

CD-49-95

California Coastal Commission

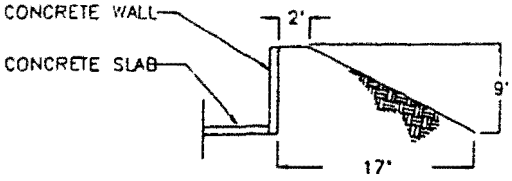
EXISTING CONCRETE STRUCTURE & BERM TO BE REMOVED. DISPLACED EARTH TO BE USED TO BACKFILL NEW BERM.

ORIGINAL CONTOURS TO BE RESTORED AS DIRECTED BY PT. MUGU ENVIRONMENTAL.



LENGTH OF BERM FOR A1 = 227 FT
HEIGHT OF BERM FOR A1 = 14 FT
BOTTOM WIDTH OF BERM FOR A1 = 67 FT
TOP WIDTH OF BERM FOR A1 = 13 FT

LENGTH OF BERM FOR A2 = 100 FT
HEIGHT OF BERM FOR A2 = 21 FT
BOTTOM WIDTH OF BERM FOR A2 = 103 FT
TOP WIDTH OF BERM FOR A2 = 23 FT



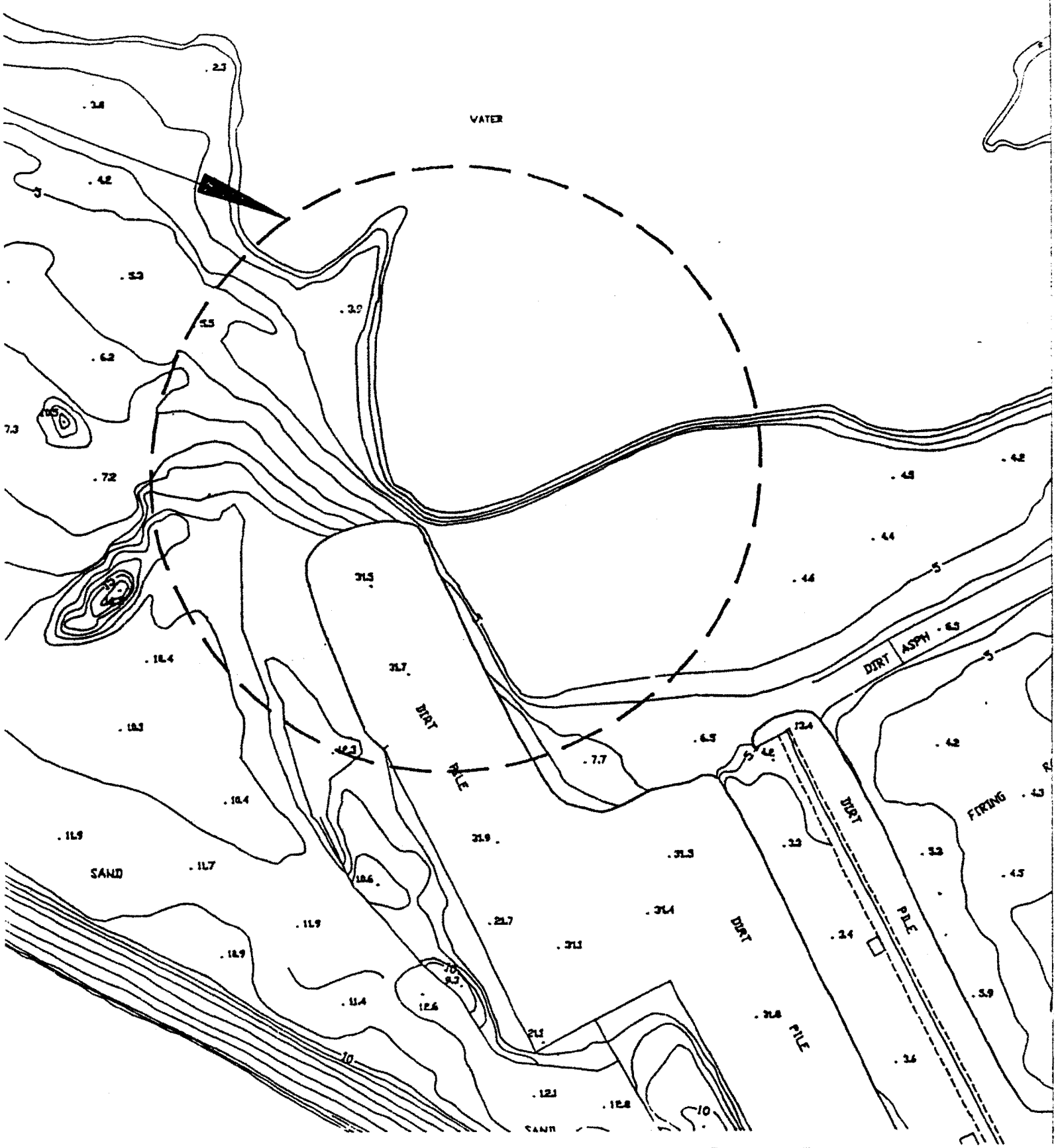
LENGTH OF BERM FOR A3 = 184 FT

WATER

A1
A2
A3
FIRING RANGE
DIRT
ASPH
DIRT PILE
DIRT
FIRING RANGE
DIRT
PILE

NORTH BERM SPECIFICATIONS

EXHIBIT NO. 4
APPLICATION NO.
CD-49-95



NORTH BERM AFTER RESTORAT

EXHIBIT NO. 5

APPLICATION NO.

CD-49-95

California Coastal Commission

POINT MUGU WETLAND RESOURCES

1. Historic Wetland Losses. The Coastal Act clearly recognizes that wetlands are important resources. Coastal wetlands provide spawning, nursery, and foraging areas for many species of marine fish. More than 50 species are known to utilize this habitat, many of which are important to the sport and commercial fishing industries. Coastal wetlands are also essential wintering habitats for many species of migratory shore birds and water fowl that use these habitat areas for resting places during their annual migrations. Finally, these coastal wetlands are also important because they provide habitat for many endangered species, including the California least tern, the light-footed clapper rail, the California clapper rail, Belding's savannah sparrow, and the salt marsh harvest mouse, to name a few.

The Commission has previously found that adverse effects on wetlands on federal lands, such as at Point Mugu, can be expected to have adverse impacts on coastal zone resources. The endangered species observed in the area--light-footed clapper rail, Belding's savannah sparrow--are experiencing declining numbers throughout the state due to human impacts and habitat loss. Suitable habitat niches in the coastal zone may already be occupied or able to optimally support only a limited population of these species. Loss or disturbance of habitat will further reduce the species' ability to successfully survive. By virtue of its being on the Pacific Flyway, Mugu Lagoon is therefore critical habitat for migrating coastal species, and species which spend much if not most of their lives in the coastal zone.

Historically, coastal estuaries and wetlands have been destroyed or disturbed by many human activities, including: dredging for ports and marinas; diking to remove from tidal influence; filling for the creation of new land for development; disposing of domestic sewage and industrial waste, and removing freshwater inflows. The wetland acreage in California's coastal zone has been reduced by approximately 90 percent from its historic amount. Of the original 197,000 acres of marshes, mudflat, bays, lagoons, sloughs, and estuaries in California (excluding San Francisco Bay), the natural productivity and open space values of 52 percent have been totally destroyed by dredging and filling. Of California's remaining estuaries and coastal wetlands, 62 percent have been subjected to severe damage and 19 percent have received moderate damage. Less than 10 percent of California's original coastal estuaries and wetlands remain relatively undisturbed.

Of California's remaining coastal wetlands, southern California wetlands have been the most severely degraded. However, southern California's coastal wetlands still support numerous birds, including endangered, migratory, and resident species. Several of the bird species that use southern California coastal wetlands are now threatened because of the massive losses of wetland habitat. Approximately 75 percent of the estuaries and coastal wetlands in southern California have been destroyed or severely altered by man since 1900. Two-thirds of the twenty-eight sizable estuaries existing in southern California at the turn of the century have been dredged or filled.

2. Mugu Lagoon Resources. Outside of San Francisco Bay, Mugu Lagoon ranks among the largest wetland systems in California. It provides one of the few surviving examples of the diverse and highly productive salt marsh lagoon ecosystems that once flourished in many areas along the southern California coastline. Over 250 species of plants are present and more than 300 species of birds use the area at least seasonally. The lagoon and tidal channels support a diverse benthic invertebrate fauna and at least 39 species of fish. The uplands provide habitat for over 40 mammalian species, as well as several reptiles. The Lagoon and vicinity harbor four endangered birds species: the California Brown pelican (Pelicanus occidental is californicus), the light footed clapper rail (Rallus longirostrus levipes, the California least tern (Sterna albifrons) and the Belding's savannah sparrow (Passerculus sandwichensis beldingi). The floral endangered species include the salt marsh bird's beak (Cordylanthus maritimus ssp. maritimus). Thus, Mugu Lagoon, its sloughs and wetlands, and some of the adjacent upland, are considered environmentally sensitive habitat and subject to the protection of Sections 30233 and 30240.

The Pacific Missile Test Center (PMTC) encompasses approximately 4,575 acres and contains Mugu Lagoon with its associated wetland communities. These wetlands are a diverse and highly productive ecosystem of a type that was once more common along the coast of California. Development of the PMTC has altered the original wetlands through dredge-and-fill activities that resulted in deepening the central portion of the lagoon to provide fill for construction of military facilities. About 1,400 acres of the original 3,100 acres of wetlands have been lost (MacDonald, 1976). Of the remaining area, about 310 acres are in the lagoon and tidal channels, 290 acres are barrier beach and sand spit, and 1,134 acres are salt marsh and sand or mud flats.

The Navy's description of remaining habitat at Mugu Lagoon includes the following statements:

> The Mugu Lagoon ecosystem is located within the Pacific Flyway and supports one of the greatest concentrations of water-associated birds found between Morro Bay and Anaheim Bay. The greatest numbers of birds are present between September and April, with over 10,000 birds estimated to overwinter at the lagoon (MacDonald, 1976). The size of the habitat, relative protection from human disturbance, and high productivity of the ecosystem all contribute to the avifaunal abundance and diversity. Common waterfowl include northern pintail (Anas acute), northern shoveler (Anas clypeata), teal (Anas spp.), mallards (Anas platyhynchos), and American widgeons (Anas americana). Shorebirds, such as willets (Catoptrophorus semipalmatus) and godwits (Limosa fedoa), are particularly abundant during winter. They use the beach, wetlands, and landscaped areas on the PMTC. Loons (Gavia spp.), grebes (Podiceps spp. and Aechmophorus occidental is), pelicans (Pelicanus spp.), cormorants (Phalacrocorax spp.), and mergansers (Mergus spp.) commonly forage on fish in open waters of the lagoon, whereas herons (Ardea herodias and Nycticorax nycticorax) and egrets (Casmerodius albus and Egretta thula) wade in shallow waters in search of prey. American coots (Fulica americana) are extremely abundant during the winter migratory season; gulls (Larus spp.) and terns (Sterna spp.) are also present.

A number of species that are federally- or state-listed as threatened or endangered are present on the PMTC, along with several species that are candidates for federal listing. [Exhibit 5] lists these species, their status, and notes on occurrence in the area.

Of the rare, threatened, and endangered species presented in [Exhibit 5], only the light-footed clapper rail and Belding's savannah sparrow are likely to be affected by the Proposed Action. The following provides more information on the occurrence of these species at PMTC.

Light-footed Clapper Rail. The light-footed clapper rail is a resident of coastal wetlands in Southern California. In 1990, a survey of 36 marshes located 189 pairs in 9 marshes with approximately 70 percent of these in Upper Newport Bay (Zembal, 1990). At Mugu Lagoon, the population has fluctuated from none to seven pairs over the past 10 years (Zembal, 1990). Six nesting pairs were present in 1990, two of which have renested for a second clutch (Ledig, 1990). Nesting success is estimated to be less than 44 percent. Nesting generally occurs in pickleweed within the salt marsh community at Mugu Lagoon (Ledig, 1990; see also Edwards, 1922, and Jorgensen cited in USFWS, 1977).

Currently occupied habitat on PMTC is located in the central basin. The largest area is bounded by the runway on the west, 17th Street and the lagoon on the north, Beach Road on the south, and South J Avenue on the east. Another small area lies on the northeast side of South G Avenue and Beach Road intersection. A number of areas containing suitable but unoccupied habitat are also present in the salt marsh.

Population size at marshes other than Newport Bay may be limited by factors, such as predation, chemical contamination, and lack of adequate nesting cover (Zembal, 1990). At Mugu Lagoon, the first two factors could be influencing the population. Accumulation of pollutants, such as dichlorodiphenyltrichloroethane (DDT) and its derivatives and polychlorinated biphenyls (PCBs) in egg shells is being investigated (Ledig, 1990). Raptors appear to be the primary predators of this species at the PMTC, but mammals also kill some rails (Ledig, 1990).

Belding's Savannah Sparrow. Belding's savannah sparrow inhabits middle and upper elevations in salt marshes, particularly in areas dominated by pickleweed. It forages on insects, saltbush seeds, and pickleweed tips. Mugu Lagoon supports one of the two largest extant populations of this species. Abundance is greatest around the central basin of the lagoon (Onuf, 1987).