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Filed:	October 12, 2000
49th Day:	November 30, 2000
180th Day:	April 10, 2001
Staff:	DL-SD
Staff Report:	November 2, 2000
Hearing Date:	November 13-17, 2000

REGULAR CALENDAR
STAFF REPORT AND PRELIMINARY RECOMMENDATION

Application No.: 6-00-38

Applicant: San Diego Association of Governments (SANDAG) Agent: Rob Rundle

Description: Placement of approximately 2 million cubic yards of sand dredged from six off-shore borrow sites onto 12 beaches in the San Diego area. Placement to occur in spring and summer 2001. Preparation of a mitigation and monitoring program to assess the movement of the sand throughout the littoral system, and to evaluate and mitigate any potential impacts to biological resources.

Site: San Diego County area beaches at: South Oceanside, North Carlsbad, South Carlsbad (North), Batiquitos, Leucadia, Moonlight Beach, Cardiff, Solana Beach, Del Mar, Torrey Pines North, Torrey Pines South, Mission Beach and Imperial Beach.

STAFF NOTES:

Summary of Staff's Preliminary Recommendation:

Staff is recommending approval of the proposed beach replenishment project. The proposed project results in part from federal money earmarked for sand replenishment as mitigation for the homeporting of three naval aircraft carriers in San Diego Bay. Although the proposed 2 million cubic yards of sand is significantly less than the 5 million cubic yards of sand replenishment associated with the previously approved Navy homeporting project, the proposed project will have a positive impact on public access and recreation by enhancing San Diego's beaches. In order to avoid winter storms, the project is proposed to take place during the spring and summer months. Thus, some short-term, temporary impacts to public recreation will occur. Therefore, Special Conditions list the order in which work must be performed at each beach, such that work is completed outside the summer season at the beaches that have the highest public use. Work done during the summer season is prohibited during weekends and holidays. Thus, impacts to public access and recreation will be minimized to the greatest extent feasible.

The proposed receiver beaches were chosen based on the need for sand and for the need to avoid impacts to sensitive biological resources at the replenishment sites. Although the dredging and sand replenishment is not expected to have any adverse environmental impacts, the project includes a mitigation and monitoring program that ensures any potential impacts on sensitive biological resources will be evaluated and mitigated if necessary. In addition, the project includes a sand monitoring program, which will evaluate the accumulation of sand at the project site through 2005.

Substantive File Documents: SANDAG, The San Diego Regional Beach Sand Project Final EIR/EA, June 2000, KEA Environmental, "Draft Operations Procedures, Mitigation Monitoring and Contingency Measures Plan for the San Diego Regional Beach Sand Project," October 11, 2000; KEA, "Biological Assessment for the San Diego Regional Beach Sand Project," August 2000; KEA, "Regional Beach Sand Project Construction Schedule and Beach Activities Near Receiver Sites," September 2000.

I. PRELIMINARY STAFF RECOMMENDATION:

The staff recommends the Commission adopt the following resolution:

MOTION: ***I move that the Commission approve Coastal Development Permit No. 6-00-38 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE THE PERMIT:

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. Standard Conditions.

See attached page.

III. Special Conditions.

The permit is subject to the following conditions:

1. Timing of Construction. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a construction schedule that conforms to the following restrictions:

a. No work on the beach shall be performed during daylight hours on weekends or holidays between Memorial Day and Labor Day.

b. Work on any receiver beach may occur prior to Memorial Day weekend. Work after Memorial Day weekend must occur in the following order:

1. South Oceanside
2. North Carlsbad
3. Mission Beach
4. Torrey Pines
5. Del Mar
6. Solana Beach
7. Moonlight Beach
8. Leucadia
9. South Carlsbad or Batiquitos
10. Cardiff or Imperial Beach

The applicant shall undertake the development in accordance with the approved construction schedule. Any proposed changes to the approved schedule shall be reported to the Executive Director. No change to the schedule shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

2. Beach Sand Monitoring. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a detailed beach sand monitoring program for shore and nearshore monitoring at or near the receiver sites. Monitoring at and adjacent to the receiver sites shall address the following concerns:

- Whether the as-built project is at the location and of the size and extent proposed and approved by the Commission and if not, what are the changes;

- Seasonal and interannual changes to the receiver sites, in width and length of dry beach, subaerial and nearshore slope, offshore extent of nourished toe, and overall volume of sand in the profile;
- Rate and extent of transport of material up- and down-coast from the receiver sites;
- Time period over which the beach benefits related to the project can be identified as distinct from background conditions.

a. At a minimum this information shall be provided through field surveys of the receiver sites and adjacent areas. Unless otherwise indicated, all profiles shall be from an upland fixed location or monument, across the beach, through the nearshore, to closure depth. Profiles shall be prepared immediately prior to the project, immediately upon completion of the project (this survey may be terminated offshore at the toe of the project rather than going to closure), 3 months after the project, 6 months after the project and every 6 months thereafter until two separate surveys show that the material from the project is undetectable. Timing for the every-6-month survey efforts may be adjusted to coincide with the schedule that has been developed for the San Diego Regional Monitoring Program.

b. There shall be a minimum of two profiles through each receiver site, and at least one profile up coast and two profiles down coast for each receiver site. To the maximum extent practicable, these should occupy the profile locations currently being used in the San Diego Regional Monitoring Program. In locations where the receiver sites are close together, profiles may be used to provide both up coast information for one site and down coast information for another.

c. Monitoring information shall be analyzed regularly for any changes that have occurred at the receive sites. To the extent practicable, these reports should incorporate information from the San Diego Regional Monitoring Program on both historic changes at the receiver sites and on-going regional shoreline trends.

The applicant shall undertake the development in accordance with the approved monitoring program. Any proposed changes to the approved program shall be reported to the Executive Director. No change to the program shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

3. Dredging Activities Mitigation and Monitoring. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final operating procedures, mitigation, and monitoring plan for dredging activities. Said plan shall be approved by the U.S. Fish and Wildlife Service, and shall be in general conformance with the procedures and reporting outlined in "Draft Operations Procedures, Mitigation Monitoring and Contingency Measures for the San Diego Regional Beach Sand Project, October 11, 2000" and the draft "Biological Assessment for the San Diego Regional Beach Sand Project, August 2000". The California Coastal Commission shall be explicitly identified as one of the

resource agencies that must be contacted if turbidity exceeds the allowable levels or if operating procedures vary beyond specified limits.

The applicant shall undertake the development in accordance with the approved monitoring program. Any proposed changes to the approved program shall be reported to the Executive Director. No change to the program shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

4. Lagoon Mitigation and Monitoring. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a final mitigation and monitoring plan for impacts to lagoon habitat at Batiquitos, Agua Hedionda, Los Peñasquitos, San Dieguito and San Elijo Lagoons. Said plan shall include monitoring to address the following:

- Whether sand from the project is being transported into the lagoons, and if so, the volume and rate of transport; and
- Whether sand from the project is increasing the rate of shoaling in the lagoons, or altering the frequency or duration of lagoon mouth closings.

In addition, said plan shall be approved by the U.S. Fish and Wildlife Service, and shall be in general conformance with the procedures and reporting outlined in "Draft Operations Procedures, Mitigation Monitoring and Contingency Measures for the San Diego Regional Beach Sand Project, October 11, 2000" and the draft "Biological Assessment for the San Diego Regional Beach Sand Project, August 2000". If additional dredging is required as a result of this project, the Commission shall be provided the opportunity to review the dredging activities. A separate Coastal Development Permit application or amendment shall be required for this activity and for lagoon dredging.

The applicant shall undertake the development in accordance with the approved program. Any proposed changes to the approved program shall be reported to the Executive Director. No change to the program shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

5. Biological Resources Mitigation and Monitoring. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, a final mitigation and monitoring program for biological resources including: Rocky Intertidal Habitat, Shallow Subtidal Habitat, Kelp Habitat, Grunion, Lobster, California Least Tern, and Western Snowy Plover. Said plan shall be approved by the U.S. Fish and Wildlife Service, and shall be in general conformance with the procedures and reporting outlined in "Draft Operations Procedures, Mitigation Monitoring and Contingency Measures for the San Diego Regional Beach Sand Project, October 11, 2000" and the draft "Biological Assessment for the San Diego Regional Beach Sand Project, August 2000". The California Coastal Commission shall

be explicitly identified as one of the resource agencies that must be provided with all monitoring reports.

The applicant shall undertake the development in accordance with the approved monitoring program. Any proposed changes to the approved program shall be reported to the Executive Director. No change to the program shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

6. Final Staging Plans. PRIOR TO ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director for review and written approval, final plans that identify the following:

a. The location of the project construction headquarter(s)
b. The minimum number of public parking spaces (on and off-street) that are required at each receiver site for the staging of equipment, machinery and employee parking. At each site, the number of public parking spaces utilized shall be the minimum necessary to implement the project.
c. During the construction stages of the project, the permittee shall not store any construction materials or waste where it will be or could potentially be subject to wave erosion and dispersion. In addition, no machinery shall be placed, stored or otherwise located in the intertidal zone at any time, except for the minimum necessary to implement the project. Construction equipment shall not be washed on the beach or in the beach parking lots.

The applicant shall undertake the development in accordance with the approved plans. Any proposed changes to the approved plans shall be reported to the Executive Director. No change to the program shall occur without a Commission-approved amendment to the permit unless the Executive Director determines that no such amendment is required.

7. Other Permits. Prior to commencement of construction, the applicant shall provide to the Executive Director copies of all other required state or federal discretionary permits for the development herein approved. The applicant shall inform the Executive Director of any changes to the project required by such permits. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is required.

8. U.S. Army Corps of Engineers Permit. Prior to commencement of construction, the applicantshall provide to the Executive Director a copy of a U.S. Army Corps of Engineers permit, or letter of permission, or evidence that no Corps permit is necessary. The applicant shall inform the Executive Director of any changes to the project required by the U.S. Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is required.

IV. Findings and Declarations.

The Commission finds and declares as follows:

1. Detailed Project Description/History. The proposed project is beach replenishment of up to 2 million cubic yards of sand to be deposited at the following 12 San Diego region receiver beaches: South Oceanside, North Carlsbad, South Carlsbad (North), Batiquitos, Leucadia, Moonlight Beach, Cardiff, Solana Beach, Del Mar, Torrey Pines North, Torrey Pines South, Mission Beach and Imperial Beach. A detailed description of each of the twelve proposed replenishment sites is attached as Exhibit 2. Sand would be dredged from up to six offshore borrow sites, shown on Exhibit 1.

The purpose of the project is to provide enhanced public recreational opportunities and public access at the receiver sites, and to increase protection of public property and infrastructure at risk from shoreline erosion. The project is also expected to have the effect of increasing protection for private beach front and bluff top development. In 1993, SANDAG prepared the *Shoreline Preservation Strategy for the San Diego Region*, which identified regional coastal areas with critical shoreline problems and recommended a strategy to address the issue. The strategy involved various components including beach replenishment, sand retention structures, property protection structures, and policies regarding the use of the shoreline and bluff tops.

Independent of that report, the U.S. Navy began to analyze a separate action for the homeporting of the Nimitz aircraft carrier. To accommodate the carrier, the Navy proposed to dredge the carrier berthing area, turning basin, and the San Diego Bay navigational channel. Through its federal consistency review of the project, the Commission found that as mitigation for the project, the Navy should place the dredged sediment (approximately 5 million cubic yards) on beaches in the San Diego region for beach replenishment. However, during beach replenishment in Oceanside, munitions were found in the material dredged from San Diego Bay, and beach replenishment efforts were halted. Subsequently, the U.S. Congress reauthorized use of the federal money originally allocated for that beach replenishment project for use in the current beach replenishment project.

The receiver beaches for the current project were chosen based on the critical need for replenishment (as identified by SANDAG in the Shoreline Preservation Strategy), and the potential that adverse impacts to sensitive marine resources could result from sand replenishment. The dredging sites were chosen after marine geophysical surveys and vibracore investigations were conducted along the San Diego coastline to map the horizontal and vertical extent, and compute the volume, of beach-quality sand at numerous possible sites, and a sand investigation study was performed in 1999 to select the offshore sand borrow sites. The proposed borrow sites were chosen on the basis of grain-size analyses that determined that the dredge material would be compatible with the receiver sites' existing sediments, based on guidelines specified by the U.S. Army Corps of Engineers (ACOE). The U.S. Environmental Protection Agency (EPA) has reviewed the project and concurred that the proposed nourishment materials from the six borrow

sites are physically compatible and chemically suitable for use as nourishment material at the proposed receiver sites.

The general process for sand dredging, delivery, and spreading would be similar for all of the receiver beaches. Sand would be dredged from a borrow site with either a cutterhead suction dredge or hopper dredge. The sand would be pumped through floating or submerged discharge lines to the beach and placed along the higher portions of the beach, using booster pumps as necessary. Existing sand would be used to build a dike between the ocean and receiver site and the dredge material would be placed behind the dike to help reduce turbidity. As the material deposits, it would be spread along the shore using bulldozers.

The proposed project is scheduled to occur during the spring and summer of 2001. The exact timing of construction activities has not been determined at this time; however, it is expected to take place between early April and mid-September. Construction activities are proposed to occur around the clock, on a 7-day/24-hour basis. The longer construction hours allow for more efficient construction and greater production rates, and thus, would allow for a greater amount of sand to be placed on the beaches. These construction hours require approval of a noise variance from Oceanside, Solana Beach, Del Mar, San Diego, and Imperial Beach.

In the cities of Imperial Beach and Oceanside, portions of the sand replenishment will occur above the mean high tide line. Because these jurisdictions have certified Local Coastal Programs, each has issued a coastal development permit for the sand replenishment project. Elsewhere, the project occurs within the Commission's original jurisdiction, and Chapter 3 of the Coastal Act is the standard of review.

2. Beach Replenishment/Public Access. Many policies of the Coastal Act address public access. The following are most applicable to the proposed development and state, in part:

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:

(l) 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 30214(a)

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

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 30233(b)

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

Finally, Section 30604(c) of the Coastal Act requires that a specific access finding be made in conjunction with any development located between the sea and the first public roadway, indicating that the development is in conformity with the public access and public recreation policies of Chapter 3. In this case, such a finding can be made.

The San Diego Association of Governments (SANDAG) has adopted the Shoreline Preservation Strategy (Strategy) for the San Diego region and is currently working on techniques towards its implementation. The shoreline is recognized as a valuable asset to the environment and economy of the San Diego region and the State. It is also considered a resource of national significance. The Strategy identifies that beaches in the San Diego area have been steadily eroding for the past decade, and increasing beach loss and property damage have been projected for the future. The Strategy also emphasizes beach replenishment as a means to preserve and enhance the environmental quality, recreational capacity, and property protection benefits of the region's shoreline. Additional sand on the region's beaches will increase the amount of available recreational area for public use, decrease the rate of beach erosion, and provide a buffer (a wider beach) between waves and adjacent private/public development, thereby reducing pressure to construct shoreline protective devices which can adversely affect both the visual quality of scenic coastal areas and shoreline sand supply.

The proposed project is designed to replenish the beach at twelve receiver sites that have been identified by SANDAG as having experienced erosion and critical shoreline problems. It is difficult to estimate precisely how long the fill sand will remain on receiver beaches; however, the Environmental Impact Report for the project estimates that it will take from 1 to 5 years for the receiver beaches to return to their pre-project condition, and during that time, the public will have the benefit of wider sandy beaches (see Exhibit 8).

Nevertheless, the project is expected to have some adverse impacts on public access and recreation. Typically, the Commission has prohibited construction on beaches or in recreational areas from occurring during the summer months, or, if summer construction is unavoidable, prohibited construction on weekends or holidays. However, the proposed deposition has been scheduled for spring and summer months because placing the sand during the later summer or fall would increase the chance that winter storms would remove the newly placed material immediately. In addition, SANDAG has proposed the construction occur as continuously as possible (not stopping on weekends or holidays), to minimize down-time construction costs and ensure that the project funding translates into the maximum amount of sand on the beach. Thus, as proposed, the project could involve closing portions of San Diego County's beaches to the public during the time when demand for beach area is at its highest. Thus, the Commission needs to weigh the benefits of the project against the public access and recreation impacts.

As proposed, there would be impacts to beach access resulting both from the actual beach replenishment activities and from equipment staging and maintenance. Because as proposed, beach replenishment activities would occur on a constant basis at each site and

using only the few machines necessary, there would not be a need for equipment storage. During replenishment activities, the vehicles would either be active or temporarily idle on the receiver site itself. Any fueling or maintenance activities would occur at the nearest public street or parking lot. Construction personnel would park near the receiver sites in public parking areas. However, SANDAG has not determined how many public parking spaces would be usurped at each beach site.

Construction activities would require the establishment of one or two headquarters/office locations, access routes to each receiver site and one key staging area for pipe assembly. Five potential headquarters locations have been identified, all in existing public parking lots. One is at Oceanside Harbor, one is at Fletcher Cove, and three are near Torrey Pines State Beach. SANDAG has identified the most likely Torrey Pines site at the existing beach parking lot inland of North Torrey Pines Road and north of the lagoon mouth. The two other options are a portion of the lot along North Torrey Pines Road, just south of the lagoon mouth, or at the park and ride lot at Carmel Valley Road and I-5. The headquarters locations would include one or two portable trailers, some staff parking, and some equipment storage. The minimum amount of parking spaces required has not been determined at this time. However, Special Condition #6 requires that the applicant submit final staging plans identifying the location and amount of public parking spaces required. The number spaces occupied must the minimum number necessary to implement the project.

The amount of time that each receiver site would be impacted will vary from beach to beach. At each site, construction would involve some preliminary mobilization prior to dredging, dredging and sand placement, then demobilization. The total active dredging time is estimated at four months. However, on any given day, only a small portion of a receiver beach would be under active construction and closed to the public. For example, at the 3,110-foot long Del Mar receiver site, the typical active construction area would be 250 feet in length and would cover the area from the back beach to the water. The contractor would also establish a 100-foot buffer around the active construction area for safety purposes. Safety measures in the vicinity of the receiver sites could include fencing, barricades, and flag personnel as necessary. The sand pipelines will be located as far back on the beach as possible, and sand berms will be constructed on the side of the pipe to allow pedestrians to cross over the pipeline. The remaining beach area outside of the active construction area would remain open to the public, and there would not be any restrictions on activity in the water.

Table 1 indicates how much beach area, and for what length of time, each beach would be closed during replenishment activities.

Table 1
Receiver Site Closures During Construction

Receiver Site	Approximate Length of Beach Closed per Day (feet)[1]	Approximately Time of Beach Closure (in days)[2]
South Oceanside	175	20
North Carlsbad	250	13
South Carlsbad North	200	9
Batiquitos	175	7
Leucadia	325	8
Moonlight Beach	150	5
Cardiff	125	6
Solana Beach	200	9
Del Mar	250	10
Torrey Pines	100	13
Mission Beach	250	6
Imperial Beach	300	7

[1] Does not include 100-foot construction buffer around construction area
[2] There would be an additional 2 to 4 days of mobilization and demobilization activity before and after the replenishment activities, but beach would not be closed

At beaches that are less heavily used, for example, Cardiff State beach, 6 days of beach closure would probably not have a significant adverse impact on the public, unless it was over a weekend or holiday. In contrast, even the partial closure of South Oceanside beach during a summer weekday is going to displace a significant number of beach users. The impact will be particularly significant at higher tides and at work areas where the entire beach area would be closed to the water line, and people cannot get past the work area to the rest of the beach except by traveling inland around the construction area.

As noted above, the exact scheduling of the deposition is not known at this time, as SANDAG has left the final job schedule up to the contractor hired for the job. However, the EIR for the project identified two biological constraints on timing which have been incorporated into the project. In order to avoid potential impacts to foraging sensitive bird species (California least terns, the California brown pelican, and western snowy plover) due to turbidity, if the dredging site SO-9 is used, sand replenishment at South Oceanside and North Carlsbad must begin no later than May 1. If SO-9 is not used, (and additional dredge material is taken from SO-7), there would not be any biological time constraints for these sites. The Batiquitos receiver site would be constructed only after July 31 to avoid potential impacts to foraging birds from turbidity.

The purpose of the project is to benefit public access and recreation, and SANDAG has avoided placing non-biologically related limitations on the time of the replenishment and the location of staging and storage areas with the intent of allowing the maximum

flexibility to place the greatest amount of sand on the beach with the available project funding. The Commission understands that the more flexibility the contractor has in scheduling, the less likely the project will experience expensive, non-productive "down-time." SANDAG has taken some measures to reduce the impact the project will have on the public. Prior to initiation of construction at any receiver site there would be public notice provided via website information, the local media, signs in public places, by regular mail, and other means typical of each local jurisdiction like community bulletin boards.

Nevertheless, the project will still have adverse impacts on the beach going public. Sandy beach will be blocked and public parking spaces will usurped. Scheduling the replenishment activities so that the busiest beaches are avoided during the peak summer season would considerably reduce this impact. Again, the Commission understands the importance of the project in providing enhanced access and recreational opportunities and protection of upland development. However, the Commission must weigh these benefits against potential adverse impacts to assure consistency with Coastal Act policies.

Therefore, Special Condition #1 places some general parameters on the timing of construction. The condition takes into account both the biological constraints on dredging, and the fact that once dredging is started at a particular borrow site, it would be inefficient to stop dredging and move to another site. However, the intent is to encourage as much as work as possible to be completed before the summer season (Memorial Day to Labor Day), and that work that has to be done at high-use beaches during the summer be performed preferably before mid-June, (when many schools finish for the summer) or as early in the season as possible. Finally, work is prohibited during daylight hours on weekends and holidays.

Of the 12 receiver sites, Commission staff has identified the following beaches as especially impacted: Mission Beach, Torrey Pines, Del Mar, Moonlight Beach, and South Oceanside. Table 2, below, shows the order in which the beach replenishment must be performed. As conditioned, work at two locations, South Oceanside and North Carlsbad would occur outside the summer season. (If time constraints allow, construction of any other locations outside the summer season would also be permissible). However, for those areas where work will most likely occur during the summer, the sites are scheduled in order of highest use, per each dredge site, such that work on the higher-use beaches will be completed first.

Table 2
Timing of Beach Replenish Per Special Condition #1

Receiver Sites in Chronological Order[1]	Borrow Site	Biological Constraints on Timing of Dredging	Estimated Dredge Activity (in days)
S. Oceanside	SO-9	Started By May 1	20
N. Carlsbad			13
Mission Beach	MB-1		6
Torrey Pines	SO-5		20
Del Mar			16
Solana Beach			13
Moonlight	SO-7		10
Leucadia			13
S. Carlsbad N.[2]			12
Batiquitos		Start After June 31	15
Cardiff[3]	SO-6		11
Imperial Beach[3]	SS-1		12

[1]Work at any site can be performed before May 1
[2]Can be performed before or after Batiquitos
[3]Work can be performed at either site first

The condition also requires that no work occur on weekends or holidays during daylight hours in the summer season. Although this will likely result in some construction "down-time", the Commission feels this is necessary to balance the positive overall impacts of the project with the short-term adverse public impacts. As conditioned, conflicts between the proposed project and the general beach-going public will be minimized to the greatest extent feasible.

The project also includes a detailed sand monitoring program, which will provide information on the movement of sand along the coast beaches and nearshore areas in three littoral cells. The program involves measuring beach profiles at a total of 40 transects perpendicular to the coast in spring and fall, plus monitoring the lagoon mouth entrances. The transects extend from Oceanside to Imperial Beach. Each spring and fall, beach profile data compatible with historical data will be obtained at the 40 transects. Aerial photographs will be taken at each of the five lagoon sites for documentation and planning current surveys. The conditions of the entrance channels at Los Peñasquitos, San Dieguito, and San Elijo Lagoons will be documented by collecting topographic data in and around each channel. The data will plot, among other things, nearshore beach profiles, annual Mean Sea Level (MSL) shoreline positions and seasonal changes in MSL, beach widths at each transect, changes in shoreline volume per lineal foot, and beach profiles and elevations maps. The monitoring studies will occur twice yearly though the spring of 2005.

The proposed project is not intended to be a permanent solution to counter San Diego's eroding shoreline. Beach replenishment is necessarily a on-going effort. The proposed sand monitoring program is intended to provide information regarding the short and long-term effects of beach replenishment, including how long the sand remains on the beach at different sites in different conditions. Currently, this type of data is not available, and the proposed project will be extremely useful in planning and designing effective beach replenishment projects in the future. With the movement of replenishment beach sand through the littoral processes, offshore bars could potentially develop over time, thereby affecting surf breaks. Changes in the formation of offshore sand bars is a natural occurring event, and there are seasonal periodic changes to surfing localities, and the proposed project is not expected to have any long-term impacts on surfing. However, the proposed sand monitoring will help confirm or deny this expectation, as well as providing other useful information on the movement of sand along the shoreline. As such, the data provided by the monitoring program will help offset the identified short-term impacts to public recreation resulting from the project. Special Condition #2 requires SANDAG to submit a sand monitoring program that tracks the changes to the receiver sites and the transport of material up and down coast of receiver sites. Monitoring reports and evaluations must be submitted to the Commission.

In summary, the proposed project will have short-term impacts on public access and recreation, which have been minimized by conditions requiring that construction be scheduled outside or early in the summer season. The project overall will have a positive impact on San Diego's beaches, and the monitoring program will provide valuable information on the movement of sand along the San Diego shoreline that will be useful in planning and designing future sand replenishment projects. Therefore, as conditioned, the proposed project can be found consistent with the public access and recreation policies of the Coastal Act.

3. Biological Resources/Water Quality. Section 30230 of the Act states:

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 of the Act states in part:

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...

Section 30233 of the Act states in part:

(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:

(l) 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.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

[...]

Section 30240 of the Act states:

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

These Coastal Act policies require the Commission to address the impacts on marine resources by considering the timing of the deposition of the material on the beach, the location of the receiver beach and the presence of environmentally sensitive resources. The extraction of sand for restoring beaches is a permitted use in open coastal waters under Section 30233; however, the project must be the least environmentally damaging alternative, and any impacts must be mitigated. Deposition of material onto the beach can affect marine life through the burial of organisms on the beach and in the nearshore environment, and by increasing turbidity in adjacent waters. In addition, as discussed above, the project is proposed for the spring and summer months, in order to avoid winter storms that could remove the sand quickly. However, this schedule coincides with the nesting season for California least terns, the California Brown Pelican, and western snowy plovers, and turbidity in the water could adversely impact their ability to find food in offshore waters.

The EIR for the project reviewed the potential project impacts from both the direct placement of sand, from dredge equipment, from turbidity, from long-term sediment transport, and direct impacts from dredging. The project has been designed to avoid sensitive marine resources by choosing both dredge sites and the receiver beaches in locations that do not contain biological resources such as reefs, surfgrass beds, and kelp canopies. The sand pipeline routes have been mapped to avoid reefs, kelp beds, and surfgrass. Sand is the predominant existing habitat at the proposed receiver sites, although most have bands of cobblestones as well, and as such, there would be no direct impacts to nest locations of western snowy plovers or least terns. Some loss of benthic organisms on the receiver beaches is expected; however, these species are fairly adaptable and are expected to recover quickly. A grunion monitoring program will be implemented to ensure that construction is suspended until the grunion eggs hatch if spawning occurs at the construction site. None of the receiver sites are predicted to experience long-term, significant direct impacts from the physical placement of sand.

Turbidity can indirectly impact plankton, fish, marine mammals, birds, vegetated reefs, and benthic invertebrates. Turbidity results from suspended particles in the water column that can reduce ambient light levels, which can impact primary production of plankton and inhibit kelp and algae growth. Turbidity plumes from dredging of the borrow sites is expected to be small, as the dredge material is sandy sediment with a low percentage of fines. A minimum 500 foot buffer has been provided between the dredge area and

nearby kelp or reefs, except at SO-7, where there is one artificial reef approximately 350 feet distant. The EIR determined that while there is some potential for turbidity plumes to reach reefs, the duration would be limited, and the actual amount of a turbidity plume that would reach the sensitive area is be expected to be within the range that naturally occurs in these areas.

Predicted turbidity plumes from construction were analyzed at each receiver site, along with sediment transport modeling. Turbidity at the receiver sites would result from placement of the dredged material on the beach in a slurry mixture. As the water flows back toward the ocean waves, finer materials that have not settled behind the training dikes would generate turbidity. Turbidity is expected to be localized to the discharge location (an average of 250 feet) under average current conditions, and could extend up to 1,000 to 3,000 feet downcurrent. However, the EIR found that concentrations within the plume would be expected to be no higher than that which occurs naturally in nearshore waters under higher wave or storm conditions.

To address the issue of turbidity and impacts to sight-foraging birds, a project-specific evaluation was completed to estimate the amount of area potentially affected by turbidity from the project within a one-mile radius of known tern nesting locations. The length of the plume was calculated based on the average grain size in each borrow site, the current speed, and the water depth. The analysis determined that under the worst-case conditions of maximum typical current, up to four percent of foraging area within one mile, would be affected, and 96 percent would remain available. The more typical condition, average current, would result in less than one-half of one percent affected. In addition, the turbidity plume would dissipate during transit times and both the borrow and receiver sites, so there would not be continuous turbidity. Thus, the EIR concludes that turbidity impacts would be less than significant for foraging birds.

Although no sand will be placed directly on sensitive marine resources, the sand placed on the receiver beaches will eventually be washed by waves and redistributed offshore and alongshore through natural processes. There is a potential that the sand introduced into the littoral cell through the proposed project would eventually settle on nearby sensitive resources, potentially disturbing or harming those resource. An analysis of indirect sedimentation impacts was performed which identified the location of sensitive resources, the "life history" of specific indicator species (i.e., how sensitive the species are to physical stresses), past beach replenishment projects, and natural sand fluctuations in the area.

The EIR concludes that based on worst-case model predictions, partial sedimentation could occur to hard substrate with indicator species (kelp, feather boa, and surfgrass) near four receiver sites: North Carlsbad, Batiquitos, Moonlight, and Solana Beach. However, these impacts are considered less than significant because the amount of kelp in the effected area is generally sparse and little damage is likely, feather boa re-colonizes rapidly, and the impacts to surfgrass would affect only one growing season and leaves would be well above the sand deposition levels, allowing for long-term recovery.

Construction equipment used for the project has the potential to contaminate the sand from minor spills and leaks from equipment. However, as proposed, no refueling or fuel storage will occur on the beach, and the dredging contractor will be required to develop a Spill Prevention Control and Counter-Measure Plan (SPCC) prior to initiating pumping operations. Additional protection will be provided by the contractor using biodegradable (e.g., vegetable oil-based) lubricants and hydraulic fluids, and/or electric or natural gas powered equipment, where practicable. Special Condition #6 also prohibits the storage of construction material in the surfzone, and washing vehicles on the beach. As conditioned, no significant impacts to water quality are expected.

Although the proposed project is considerably smaller in scale than the Navy sand replenishment program and no significant impacts to biological resources are anticipated, SANDAG has prepared an extensive mitigation and monitoring plan that identifies construction techniques, schedules, best management practices, monitoring methodologies, reporting protocol, contingency operations, etc., that will be implemented prior to, during, and after construction, to ensure that no significant adverse impacts occur. The plan addresses monitoring of water quality (turbidity), marine resources, (including rocky intertidal habitat, shallow subtidal habitat, kelp habitat, lagoon resources, grunion monitoring, lobster monitoring), and land resources (including the California least tern and western snowy plover). In addition, a Biological Assessment of the project has been prepared which contains additional mitigation and monitoring measures. The Biological Assessment will also initiate a required formal consultation with the U.S. Fish and Wildlife Service and preparation of a Biological Opinion for the project.

Although the Mitigation and Monitoring Plan and Biological Assessment are not finalized, the documents constitute a comprehensive plan for first avoiding, then evaluating and finally mitigating any significant impacts to sensitive biological resources as a result of the proposed project. The plans describe where and when monitoring for each of the resources will occur, sampling techniques and methods, the number and location of transects to establish baseline data, etc. A biologist is required to be actively involved on-site during construction. For most plan elements, monitoring would occur during the construction period only. Reporting of results would occur periodically during operation and a summary report would follow within 60 days of project completion. Monitoring for marine resources, however, would have surveys to establish baseline conditions, monitoring during construction and twice-yearly monitoring for four years following construction. Results of this monitoring would be summarized in annual reports and a final report evaluating long-term effects of the project.

One key focus of the monitoring will be to track the sand that is placed at the receiver sites and the other key focus will be to determine whether any sensitive areas near the dredge sites or receiver sites are being adversely effected by the project. Both elements are important to the overall project evaluation. For example, if impacts are identified in one of the sensitive reef areas, but the surveys show that 95% of the placed sand is still at the receiver sites where it was placed initially, then something beside the project may be contributing to the impacts at the sensitive reef area. Or, if only 10% of the sand is still at

the receiver then it is more likely that the increase in sand at a downcoast reef area could be from the project. Since sand is a mobile substance, it is important to monitor both where it is placed as well as the sensitive resource areas to get a more thorough understanding of the project effects. This information will also help identify possible mitigation for any impacts that might occur.

If project-related impacts to marine resources are identified based on monitoring results, SANDAG would implement a mitigation program encompassing all marine habitat types. The mitigation plan requires consultation with the ACOE and other resource agencies regarding the type of mitigation required and amount of habitat to be restored. Restoration of like habitat at a 1:1 ratio would be proposed as a first priority; however, consideration would be given to the construction of artificial reefs as mitigation to offset project impacts at a 1:1 ratio if like habitat restoration efforts were not feasible as determined by the ACOE. SANDAG has committed to a not-to-exceed cap of $1.3 million on reef mitigation costs for all marine habitat, excluding lagoons.

If lagoons experience sand input above typical conditions as a result of the project, funding will be provided to the applicable lagoon management authority to allow for sediment removal or an additional lagoon mouth opening in concert with other on-going maintenance efforts at each lagoon. SANDAG will establish a project account containing $590,000 to fund these efforts as needed at Agua Hedionda, Batiquitos, San Elijo, San Dieguito, and Los Peñasquitos Lagoons.

As stated, the Mitigation and Monitoring Program has not been finalized, pending final review and approval of the resource agencies, and the U.S. Fish and Wildlife Service (USFW) has yet to issue a Biological Opinion on the project, although USFW has indicated their intent to expedite the process. Special Conditions #3-5 requires SANDAG to submit and implement final monitoring Programs for turbidity, lagoons, and biological resources approved by the U.S. Fish and Wildlife Service. Special Conditions #7 and #8 require the applicant to submit a copy of any other state or federal permits required, including the Army Corps of Engineers permit for the project, to ensure any additional mitigation required is incorporated in the subject permit. However, mitigation measures that resulted in a substantial change to the project would require an amendment to this permit or a new coastal development permit.

The proposed project has been designed not avoid significant adverse impacts on biological resources. As conditioned, the Commission finds that the proposed project, including implementation of the final Mitigation and Monitoring Program and Biological Assessment, will ensure that all environmental impacts are minimized, and if significant impacts do occur despite all precautions, they will be identified and adequately mitigated. Therefore, the proposed project can be found consistent with resource protection policies of the Coastal Act.

4. Local Coastal Planning. Section 30604(a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local

Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made.

The Cities of Oceanside and Imperial Beach have certified LCPs and have approved permits for the portion of the project within those jurisdictions. The permits were not appealed to the Coastal Commission. The Cities of Carlsbad, Encinitas, and San Diego also have certified LCPs, but the proposed sand replenishment would occur in the Commission's original jurisdiction. The Cities of Solana Beach and Del Mar do not have certified LCPs.

As described above, the proposed project would provide sand for public recreation. Enhancement of the beach is consistent with all certified LCPs and with Chapter 3 of the Coastal Act. As conditioned, no adverse impacts to coastal resources are anticipated. However, a biological mitigation and monitoring program will ensure that any impacts are identified and mitigated. Therefore, the Commission finds that proposed project will not prejudice the ability of the any of the affected local governments to prepare or continue implementing a certifiable LCP.

5. Consistency with the California Environmental Quality Act (CEQA).

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The proposed project has been conditioned in order to be found consistent with the biological resources and public access and recreational policies of the Coastal Act. Mitigation measures, including conditions on the timing of construction, mitigation and monitoring, and the submittal of final plans, will minimize all adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

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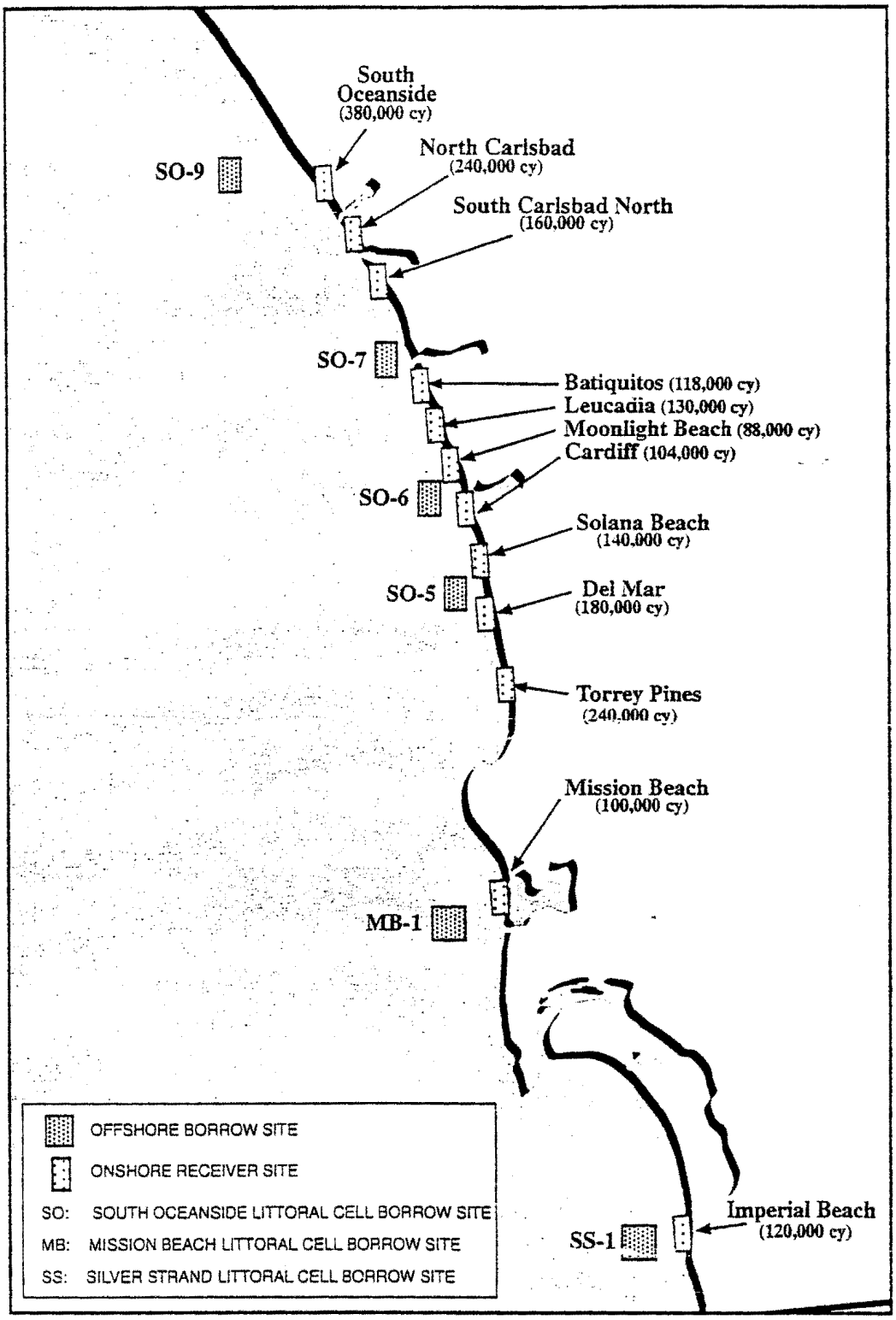

EXHIBIT NO. 1
APPLICATION NO.
6-00-38
Location Map

California Coastal Commission

Exhibit 2: Detailed Description of Individual Receiver Sites

Beach replenishment at **South Oceanside** would involve onshore placement of sand from just south of Forster Street to Kelly Street for a total length of approximately 4,100 feet (0.8 mile). Dredged sediment would be placed on the existing sand beach and graded to form a berm. The top of the berm would be constructed to an elevation of approximately 13 feet above mean lower low water (MLLW), and would be flat and 135 feet wide. (MLLW is the average of the lower low water height of each tidal day observed over time. A positive number indicates elevation above MLLW and a negative number is below MLLW.) The beach fill would then extend seaward approximately 250 feet at a slope of 20:1 (horizontal distance:vertical distance).

Beach replenishment at **North Carlsbad** would involve onshore placement of sand from just south of the Buena Vista Lagoon to south of Carlsbad Village Drive (Elm Avenue), a distance of approximately 3,000 feet (0.6 mile). Dredged sediment would be placed on the existing sand beach and graded to form a berm. The top of the berm would be constructed to an elevation of approximately 12 feet above MLLW and would be flat, with a width of approximately 125 feet. The beach fill would then slope seaward approximately 150 feet at a slope of 10:1. The site would also have a slope to the east of the berm at a slope of approximately 5:1 extending 35 feet back to the mean high tide line. The sand placement, as described in this EIR/EA, would not extend from the existing revetment to the water edge. However, as disclosed in Section 2.7, during the final design phase, the fill site would be redesigned to flatten the berm at mid-beach and extend the material to the existing revetment. The footprint analyzed in this document represents a worst-case evaluation for visual quality for purposes of disclosure.

Beach replenishment at the **South Carlsbad North** site would consist of the placement of dredged sediment near the Palomar Airport Road intersection with Carlsbad Boulevard, stretching to the south for 2,100 feet (0.4 mile) near the Encinas Creek outlet. A berm would be constructed to an elevation of approximately 12 feet above MLLW. The beach fill would be flat with a width of approximately 170 feet. The beach fill would then slope seaward approximately 100 feet at a slope of 10:1.

Beach replenishment at **Batiquitos** would involve the placement of dredged sediment from a point approximately 850 feet south of the Batiquitos Lagoon, into the community of Leucadia and Leucadia State Beach, a distance of approximately 1,390 feet (0.3 mile). The northern part of the site is known as "Ponto." A berm would be constructed to an elevation of approximately 12 feet above MLLW and would have a width of approximately 110 feet. The beach fill would then slope seaward approximately 375 feet at a slope of 20:1.

The **Leucadia** beach fill plan would include creation of a berm of approximately 12 feet above MLLW, extending seaward approximately 70 feet. The top of the beach fill would be flat. The berm would then slope seaward approximately 125 feet at a slope of 10:1. The proposed receiver site at the Leucadia site extends approximately 2,700 feet (0.5 mile) from just south of the Grandview access stairs to Glacus Street.

The **Moonlight Beach** receiver site's berm would be constructed to a height of approximately 12 feet above MLLW. The beach fill would be relatively flat and would extend seaward approximately 130 feet seaward and would then slope seaward at a slope of 20:1. Toward the north, the slope would extend approximately 150 feet, while at the southern part of the berm, the slope would extend approximately 250 feet. The proposed receiver site would be approximately 770 feet (0.1 mile) long.

Beach replenishment at the **Cardiff** site would consist of the placement of dredged sediment along 780 feet (0.1 mile) of Cardiff State Beach south of the San Elijo Lagoon inlet and Restaurant Row. A berm would be constructed at this location to an elevation of approximately 12 feet above MLLW. The berm would be flat and extend seaward approximately 115 feet. The beach fill would then slope seaward approximately 350 feet at a slope of 20:1.

Beach replenishment at the **Solana Beach** site would consist of the placement of dredged sediment along approximately 1,800 feet (0.3 mile) of the beach. The northern boundary of the proposed fill site starts just south of Fletcher Cove and extends southward. A berm would be constructed at this location to an elevation of approximately 12 feet above MLLW. The berm would be flat and extend seaward approximately 100 feet. The beach fill would then slope seaward approximately 135 feet at a slope of 10:1.

The berm at **Del Mar's** receiver site would be built to a height of approximately 11 feet above MLLW and would extend seaward approximately 170 feet. The beach fill would then slope seaward approximately 150 feet at a slope of 10:1. The receiver site extends from just north of 27th Street to Powerhouse Park, a distance of approximately 3,110 feet (0.6 mile).

The beach replenishment berm at the **Torrey Pines** site would be constructed to an elevation of approximately 11 feet above MLLW, and would extend for approximately 1,620 feet (0.3 mile). The berm would be flat with a width of approximately 300 feet. The beach fill would then slope seaward approximately 200 feet at a slope of 10:1.

The **Mission Beach** receiver site would be constructed to create a berm of approximately 10 feet above MLLW and approximately 150 feet wide, stretching approximately 1,590 feet (0.3 mile) from Nantasket Court to Santa Barbara Place. The beach fill would then slope seaward at a slope of 20:1. The width of the slope would be approximately 125 feet at the northern end and 250 feet to the south, where the underwater slope is more gradual.

In **Imperial Beach**, the beach replenishment berm would be built to approximately 10 feet above MLLW and would be approximately 120 feet wide, stretching from just Admiralty Way to approximately 600 feet south of Encanto Avenue. The total length would be approximately 2,310 feet (0.4 mile). The beach fill would then slope seaward approximately 125 feet at a slope of 20:1.

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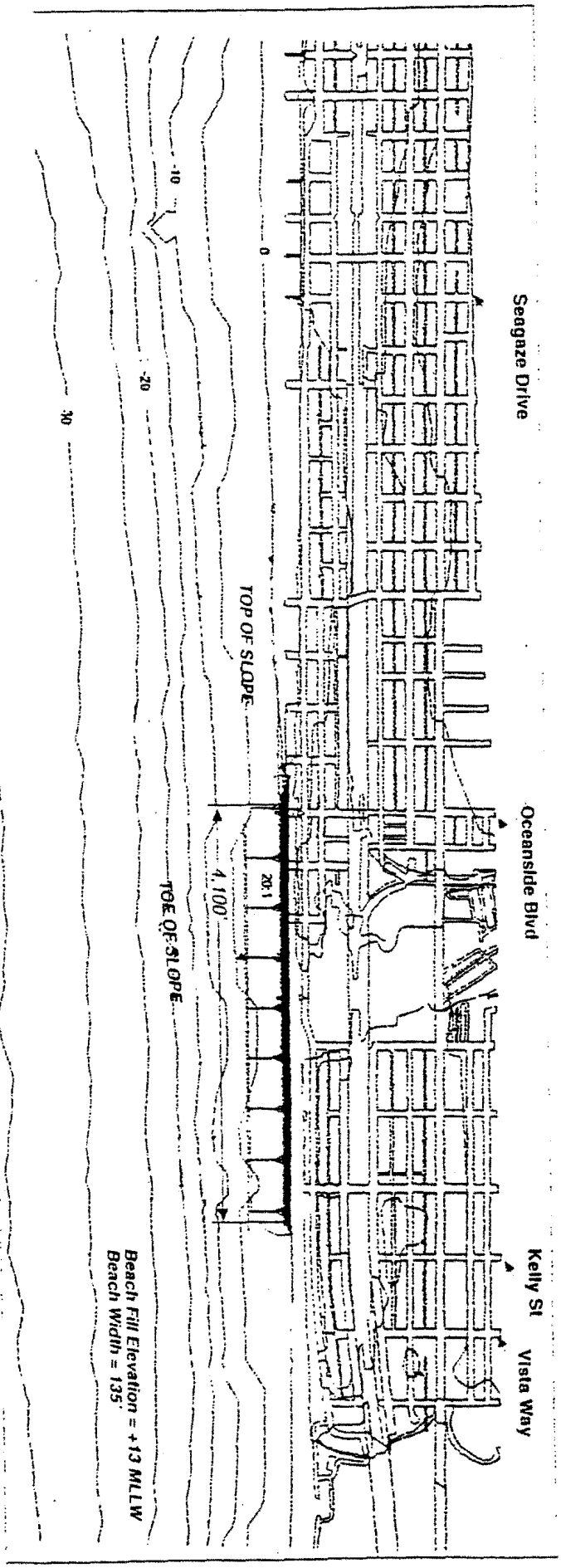

South Oceanside

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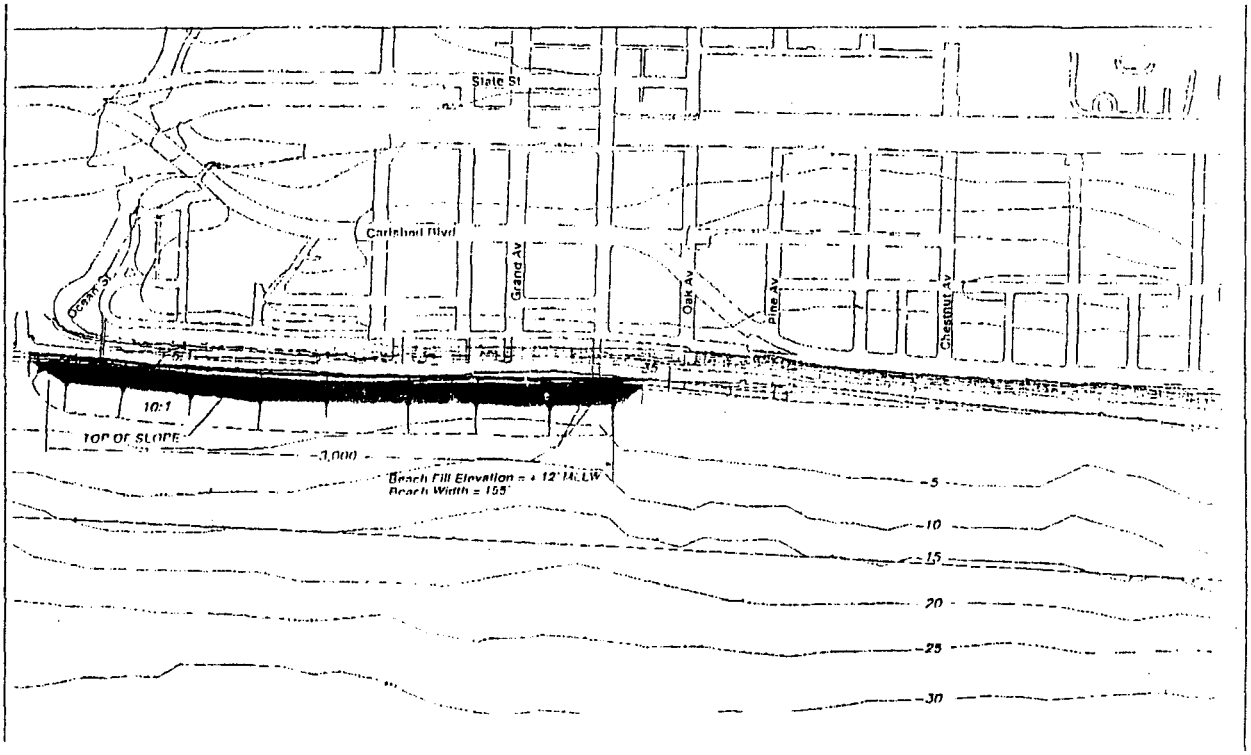
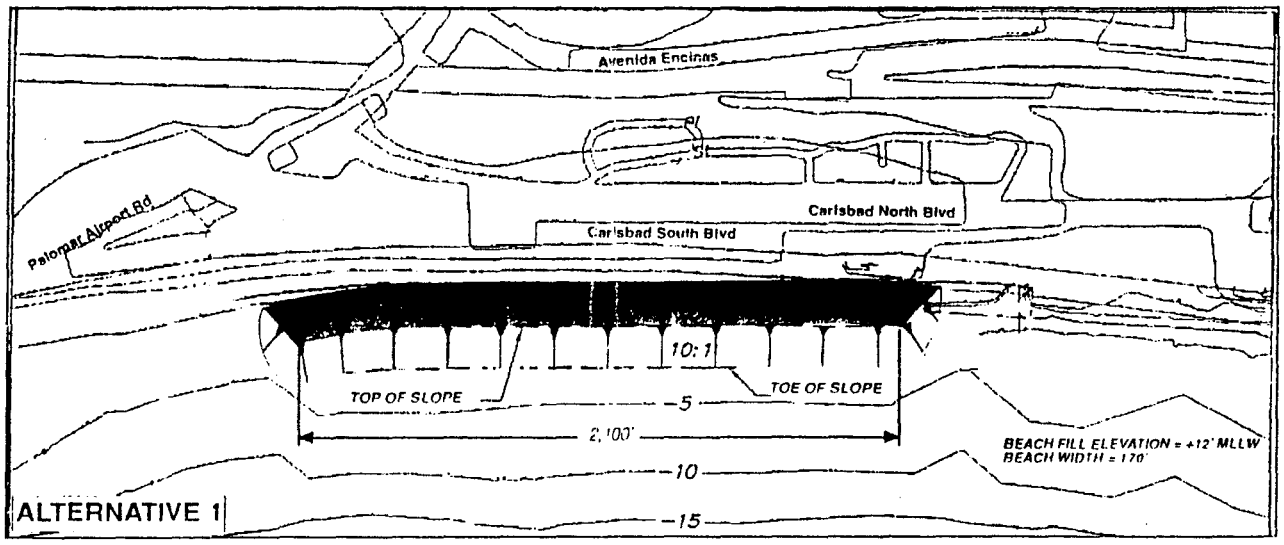


North Carlsbad Beach



South Carlsbad North Beach

TOP OF BERM

SLOPE OF BERM

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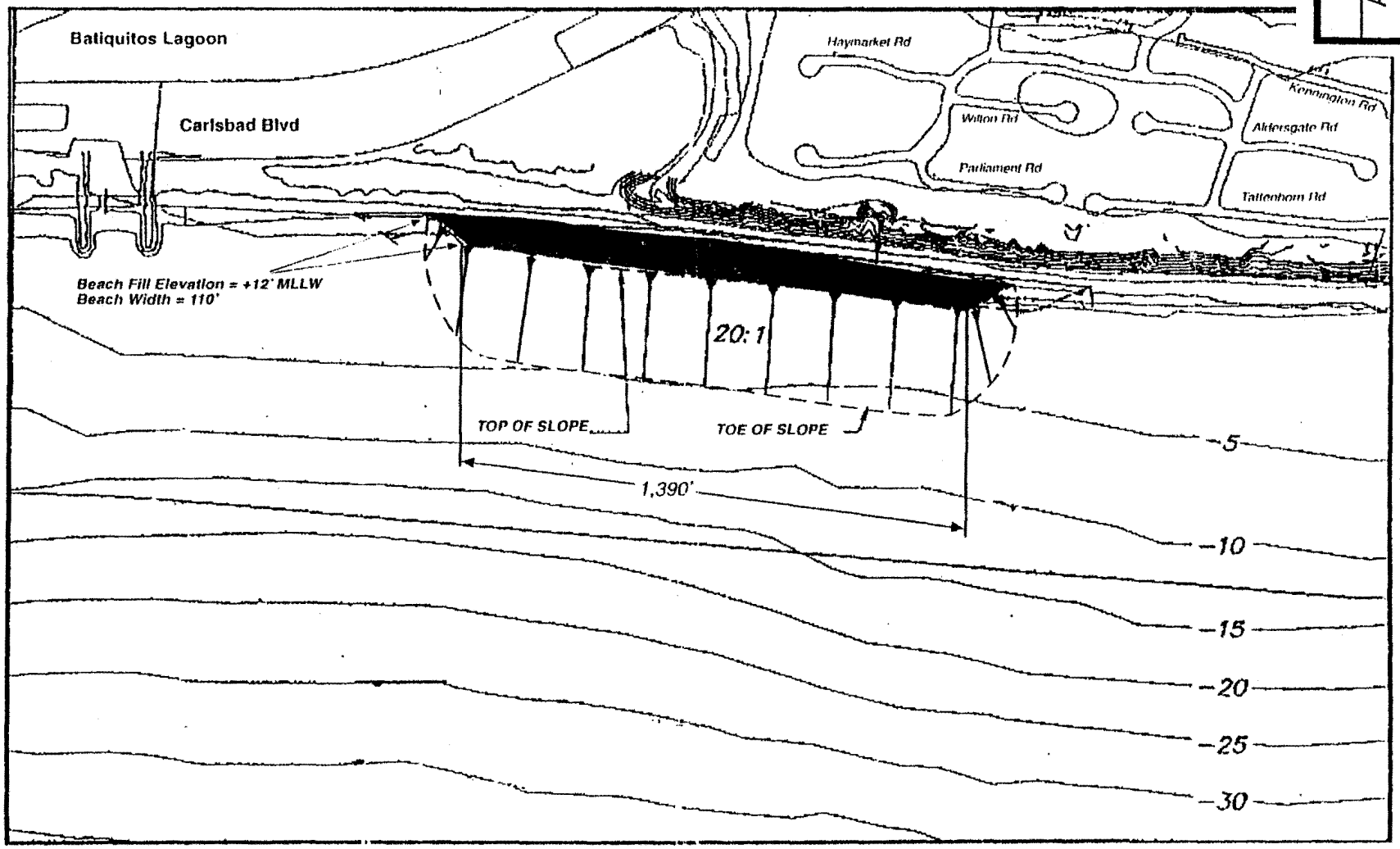

Source: Moffatt & Nichol Engineers

NORTH

0 750 Feet

TOP OF BERM

SLOPE OF BERM

Batiquitos

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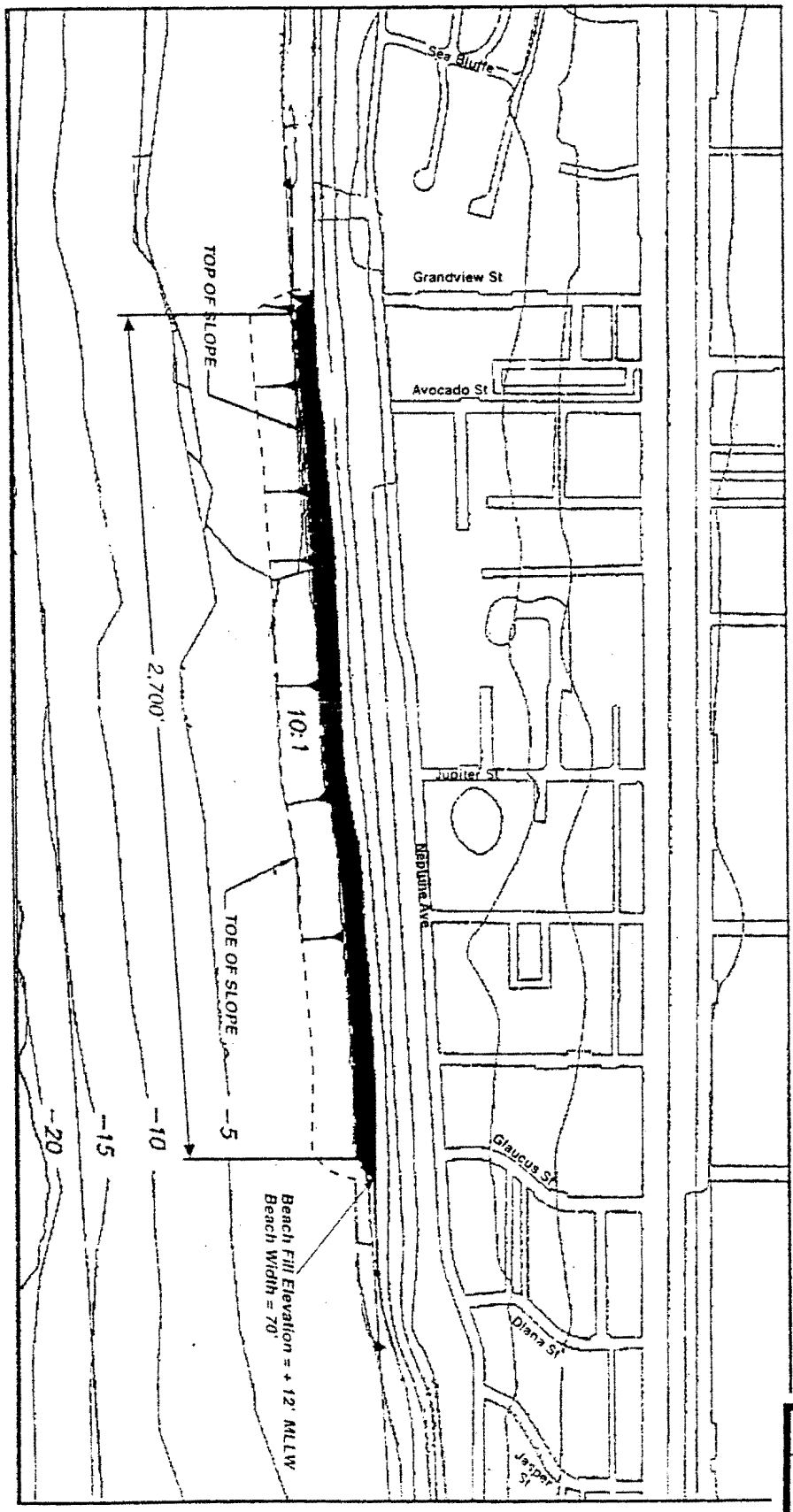

Leucadia Beach

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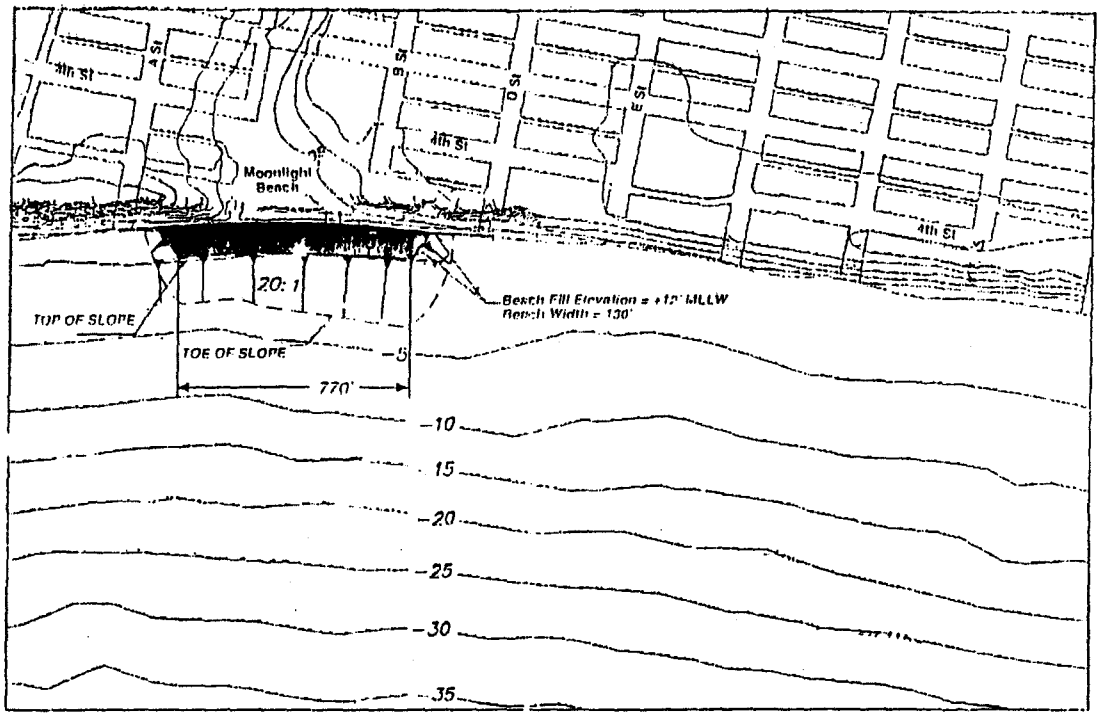
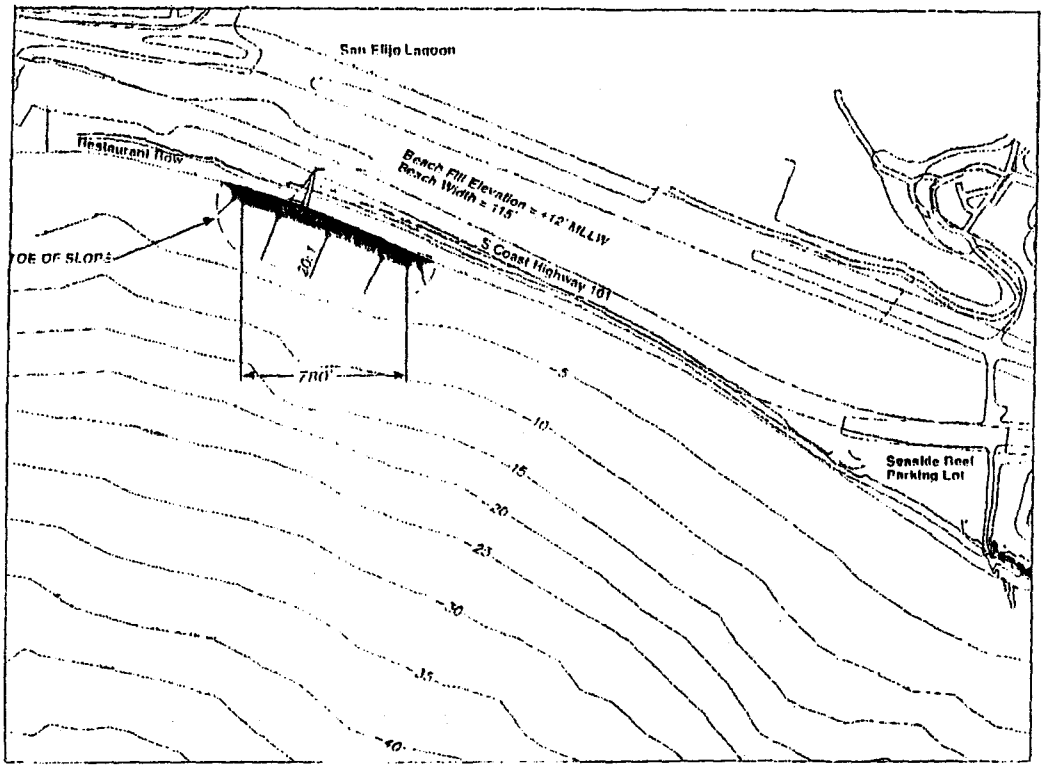


Moonlight Beach



TOP OF BERM
TOE OF BERM

Cardiff Beach

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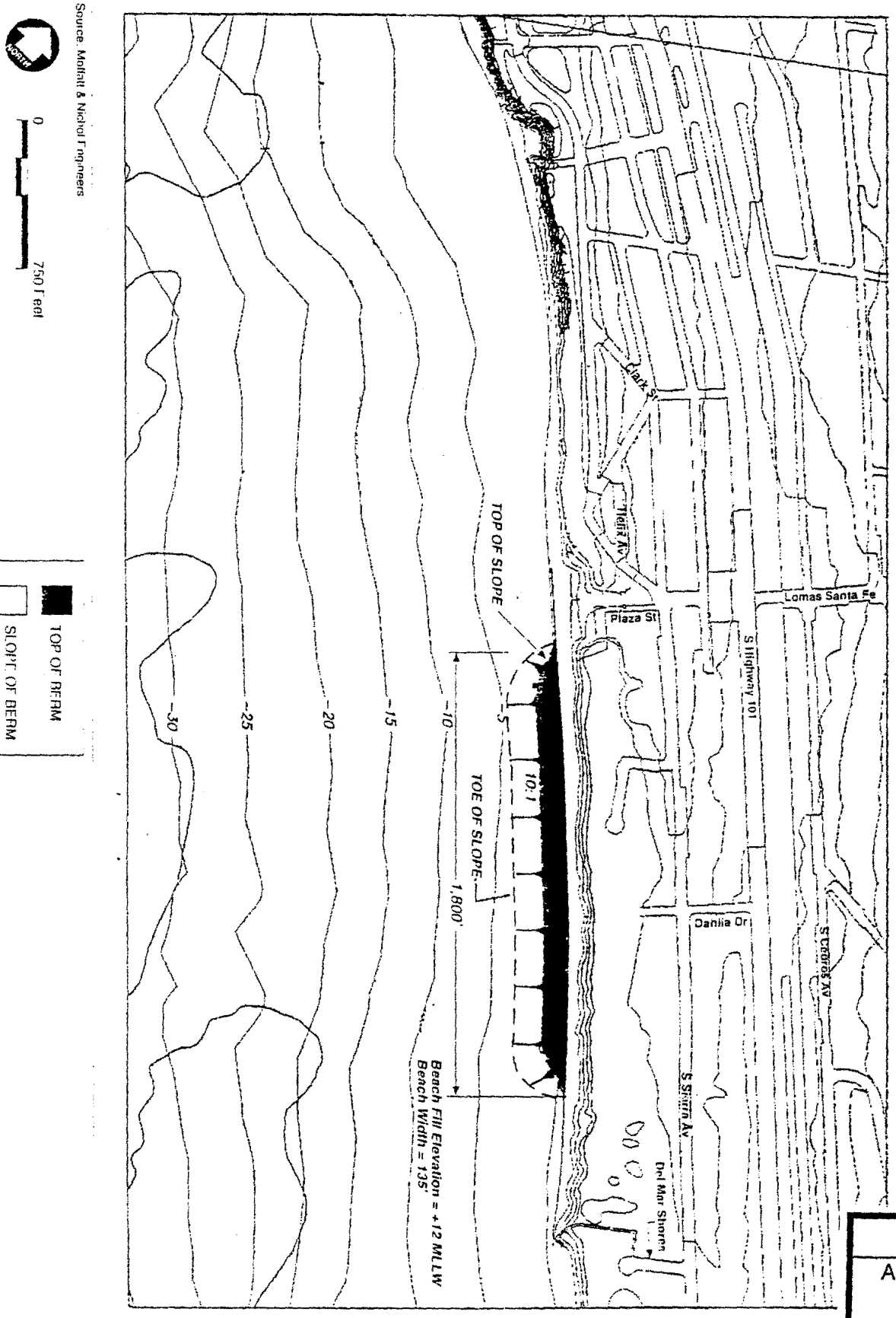

Solana Beach

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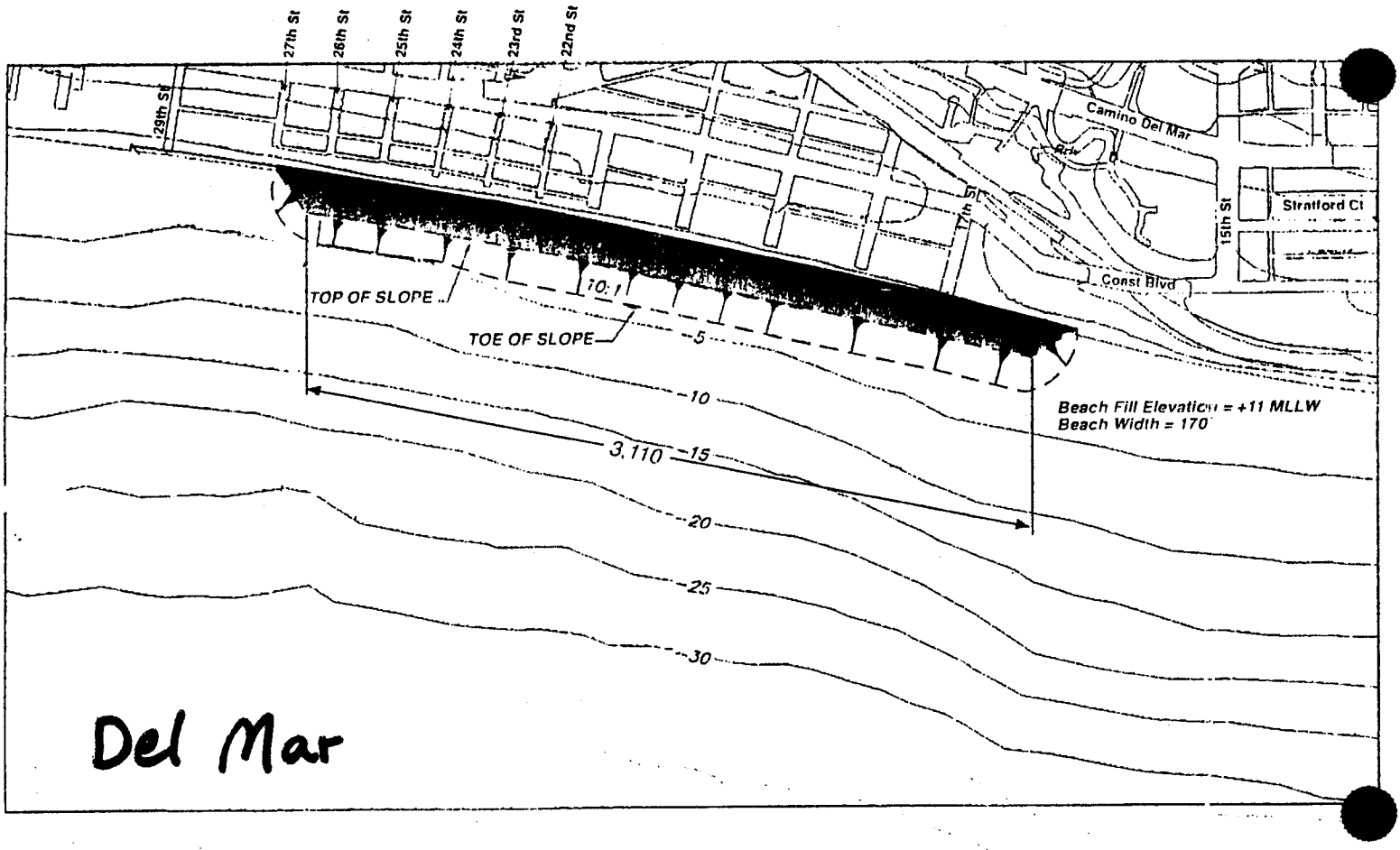
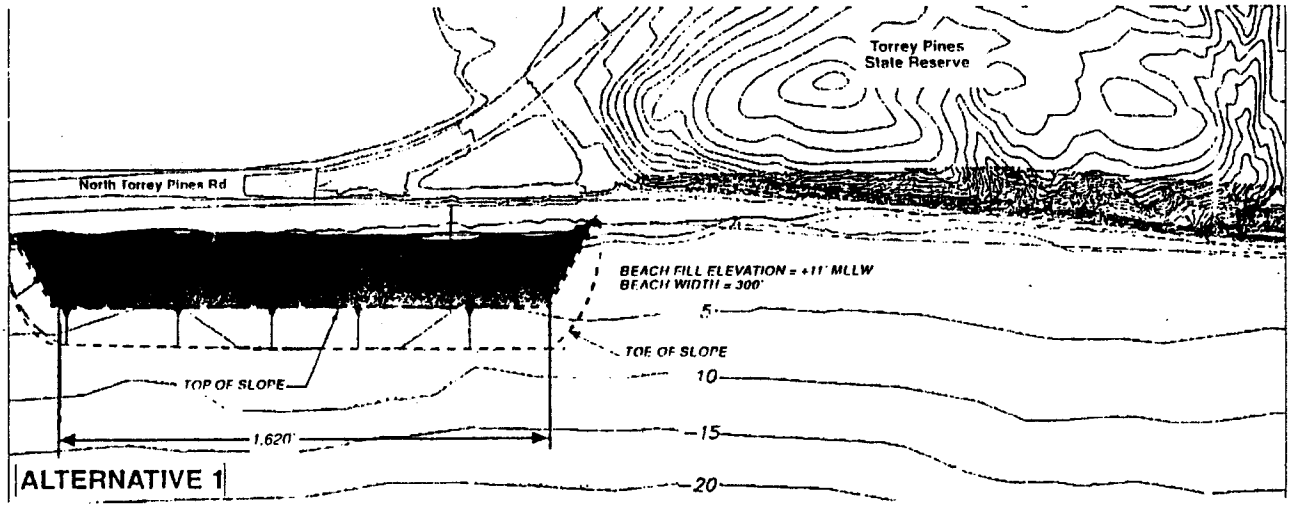


Del Mar



Torrey Pines

TOP OF BLUFF
SLOPE OF BERM

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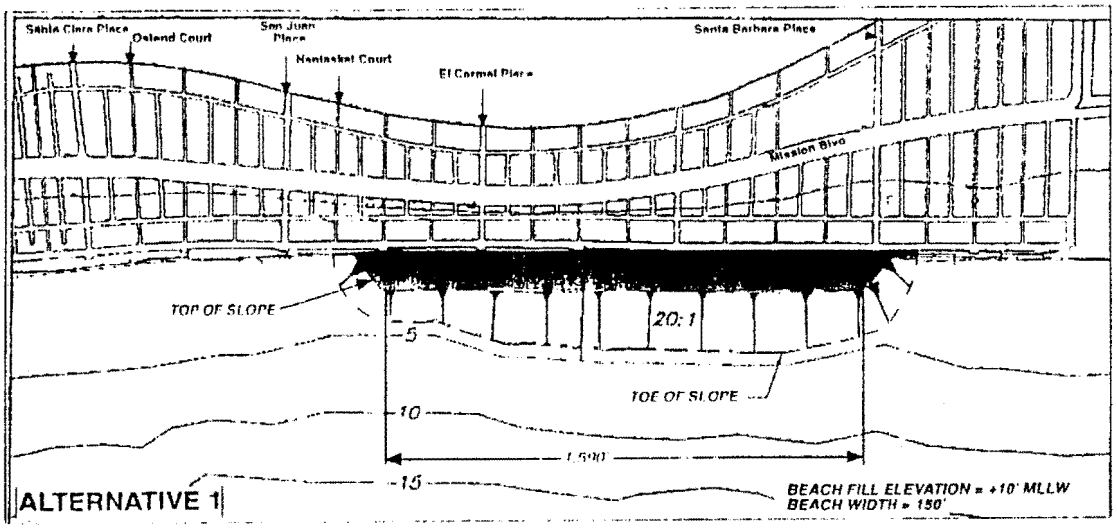
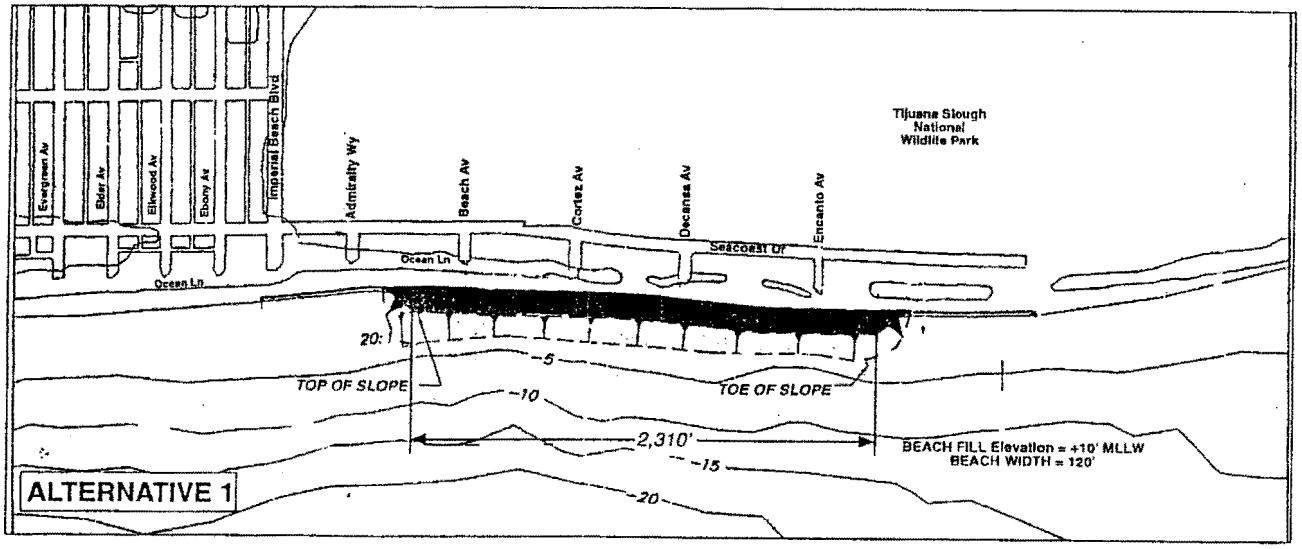
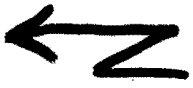
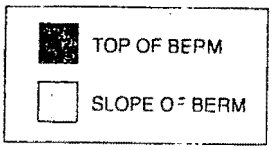


Mission Beach



Imperial Beach





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Sand Quantities Proposed

Receiver Site	Borrow Site	[redacted] (cubic yards)
Oceanside	SO-9	380,000
North Carlsbad		240,000
South Carlsbad North	SO-7	160,000
[redacted]		—
Batiquitos		118,000
Leucadia		130,000
Moonlight Beach		88,000
Cardiff	SO-6	104,000
Solana Beach	SO-5	140,000
Del Mar		180,000
Torrey Pines		240,000
Mission Beach	MB-1	100,000
Imperial Beach	SS-1	120,000
Total		**2,000,000**

Borrow Site Characteristics

Borrow Sites	Volume of Sand to be Dredged (in cy)	Approx. Surface Area to be Dredged (in acres)	Depth of Dredge (in feet)	Water Depth (in feet, MLLW)
SO-9[1]	706,000[2]	63	Max. 15	45 to 55
SO-7[3]	496,000	70	1 to 11	60 to 85
SO-6	104,000	29	3 to 4	60 to 80
SO-5	656,000[2]	127	Max. 6	50 to 80
MB-1	100,000	19	Max. 6	68 to 75
SS-1	120,000	22	Max. 6	40 to 53

(1) With dredge area modified to provide a larger buffer between previously unmapped artificial reef areas, the dredge area would be reduced by approximately 25 percent. The borrow site may be eliminated during final design.

(2) Volume includes overfill factor (Moffatt & Nichol 2000c).

(3) Possible expansion to 1.5 million cy with total surface area of 150 acres if SO-9 and SO-6 are eliminated. Maximum depth of dredge would be 15 feet.

EXHIBIT NO. 4
APPLICATION NO.
6-00-38
Sand Quantities & Borrow Site Characteristics
California Coastal Commission

6-00-38

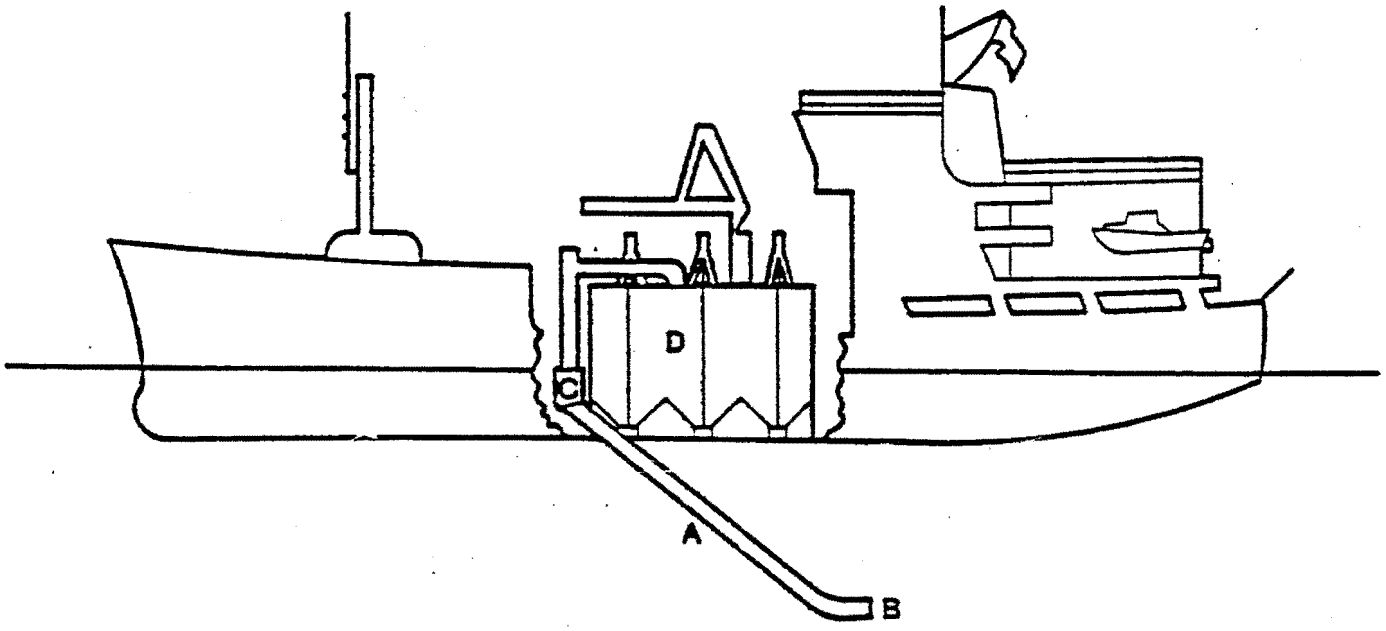
Table 2
Identified Access Routes for Receiver Sites

Receiver Site	Access Route
South Oceanside	Oceanside Boulevard, Buccaneer Beach Park
North Carlsbad	City maintenance route north of Ocean Street
South Carlsbad North	Southern end of campground
Batiquitos	Carlsbad Boulevard, south of lagoon mouth
Leucadia	North and south along beach
Moonlight Beach	Moonlight Beach Park
Cardiff	Restaurant parking lot north of site
Solana Beach	Fletcher Cove Park
Del Mar	17th Street, Powerhouse Park ramp
Torrey Pines	North Torrey Pines Road
Mission Beach	North and south along beach
Imperial Beach	Imperial Beach Boulevard

The key staging area for pipeline assembly would be at the beach in Oceanside just north of the pier. This is the same location used by the Navy in their previous project.

EXHIBIT NO. 5
APPLICATION NO.
6-00-38
Access Routes &
Key Staging Location
California Coastal Commission

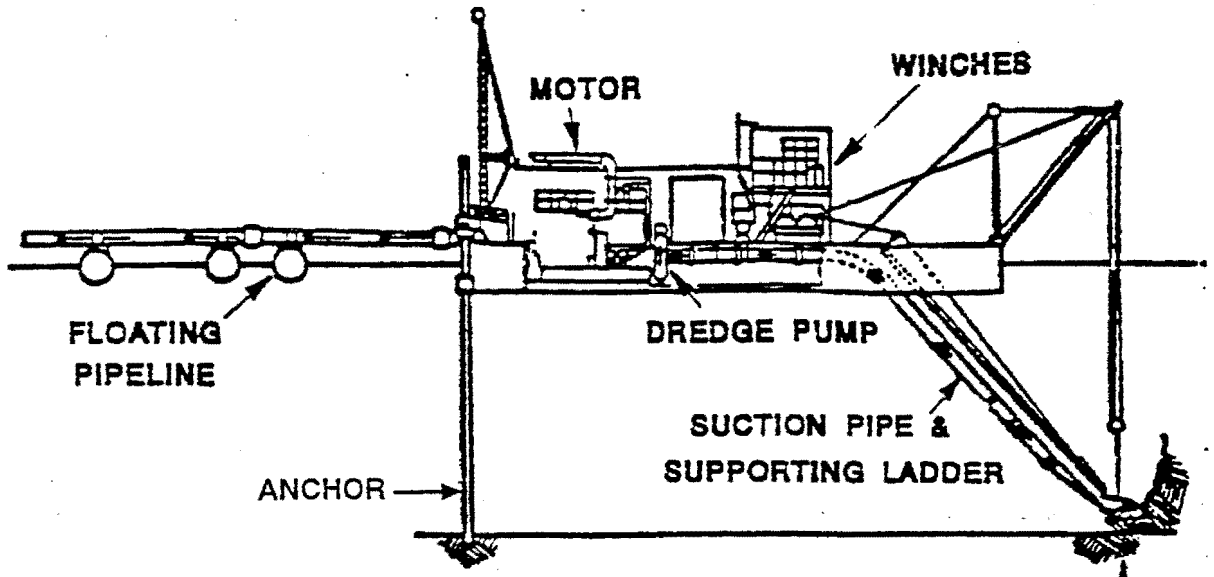
6-00-38



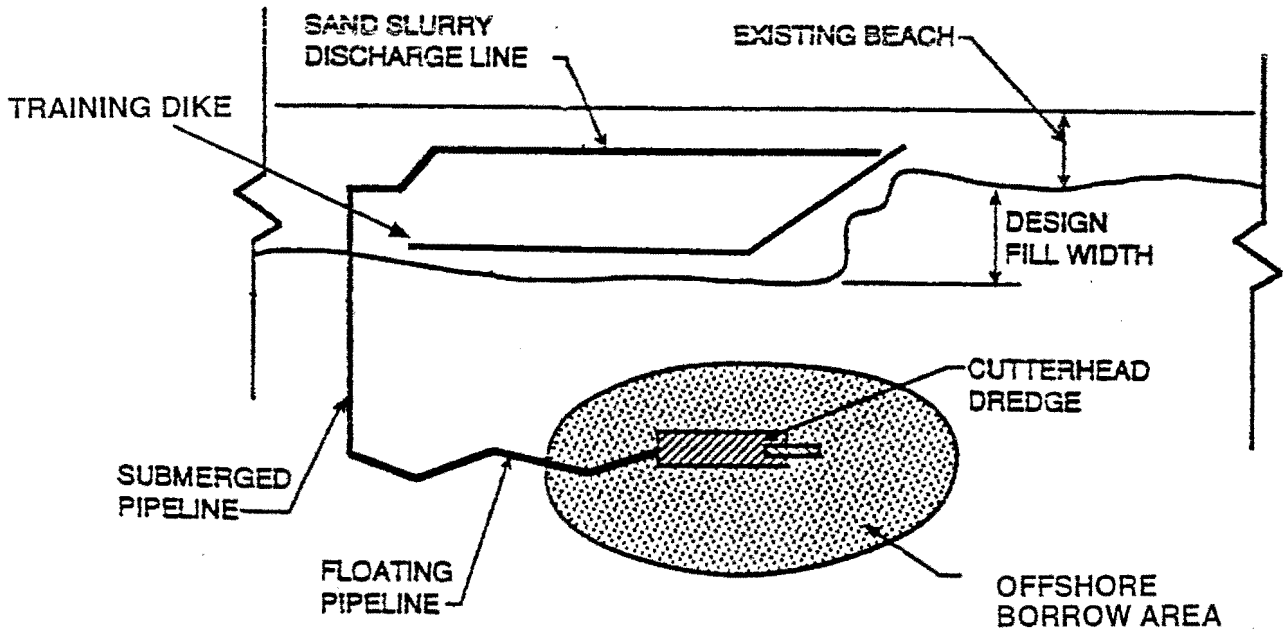
Drag arms (A) With drag heads (B) extend from each side of the ship's hull. The drag heads are lowered to the ocean floor and slowly pulled over the area to be dredged. Pumps (C) create suction in the drag arm and the material is drawn up through the arms and deposited in hopper bins (D) in the vessels midsection. When the bins are full, the vessel sails to the mono buoy and conveys the material to the receiver site via a pipeline.

EXHIBIT NO. 6
APPLICATION NO.
6-00-38
Hopper Dredge
California Coastal Commission

6-00-38



TYPICAL CUTTERHEAD DREDGE
NOT TO SCALE



TYPICAL FILL OPERATION
NOT TO SCALE

EXHIBIT NO. 7
APPLICATION NO.
6-00-38
Cutterhead Dredge & Typical Fill Operation
California Coastal Commission

6-00-38

Table 4.1-1
Predicted Retention Time of Beach Fill at Each Receiver Site

Receiver Site	Approximate Time for Receiver Site to Return to Pre-Fill Condition (years)
South Oceanside	1 to 2
North Carlsbad[1]	4 to 5
South Carlsbad North	1
South Carlsbad South[2]	1
Batiquitos[1]	1 to 2
Leucadia[1]	1 to 2
Moonlight Beach[1]	1 to 2
Cardiff	4 to 5
Solana Beach	1 to 2
Del Mar	1 to 2
Torrey Pines	1 to 2
Mission Beach	2 to 3
Imperial Beach	2 to 3

[1] Alternative 1 only.
[2] Alternative 2 only.
[3] Under average wave conditions
Source: Moffatt & Nichol 2000a

6-00-38

Table 1-1
Comparison of Sand Replenishment for
Navy Homeporting Project and San Diego Regional Beach Sand Project

Receiver Site	Homeporting Project (cubic yards)		Regional Beach Sand Project[1] (cubic yards)	
Oceanside	Onshore	1,044,298	Onshore	380,000
Carlsbad				
North Carlsbad	Onshore	445,526	Onshore	240,000
South Carlsbad, North	Onshore	251,164	Onshore	160,000
South Carlsbad, South	Onshore	503,080	Onshore	0
Encinitas				
Batiquitos		0	Onshore	118,000
Leucadia		0	Onshore	130,000
Moonlight Beach		0	Onshore	88,000
Cardiff	Onshore	283,501	Onshore	104,000
Solana Beach	Onshore	178,227	Onshore	140,000
Del Mar	Nearshore	450,027	Onshore	180,000
Torrey Pines				
Torrey Pines North	Onshore	296,172	Onshore	0
Torrey Pines South	Onshore	230,359	Onshore	240,000
Mission Beach	Nearshore	860,051	Onshore	100,000
Imperial Beach	Nearshore	915,665	Onshore	120,000
Total		**5,458,070**		**2,000,000[1]**

[1] Reflects quantity of sand based on Alternative 1.

EXHIBIT NO. 9
APPLICATION NO.
6-00-38
Project Comparison
California Coastal Commission