SEP Application Form – 2016
Los Peñasquitos Lagoon Inlet Restoration Project
Los Peñasquitos Lagoon Foundation
October 2016

SEP APPLICATION FORM

Los Peñasquitos Lagoon Inlet Restoration Project

PROBLEM STATEMENT

Los Peñasquitos Lagoon (LPL) is a relatively small coastal estuary (565 acres) with salt marsh located in the northern portion of San Diego County and is part of the Torrey Pines State Reserve. LPL receives perennial freshwater flows and storm runoff from a 60,000-acre watershed comprised of three sub-watersheds: Carmel Valley, Los Peñasquitos Canyon and Carroll Canyon. Listed as a Marsh Natural Preserve within the Torrey Pines State Natural Reserve, LPL is afforded the highest level of protection by the State of California. LPL provides critical habitat to Federally and State Listed Species that include the Ridgeway's Rail (*Rallus obsoletus*), Western Snowy Plover (*Charadrius alexandrinus nivosus*), Belding's savannah sparrow (Passerculus sandwichensis beldingi), Nuttall's Lotus (*Lotus nutallianus*) and Coulter's goldfields (*Laesthenia glabrata ssp coulteri*). LPL also serves as an important refuge for migratory bird species using the Pacific Flyway, while also providing habitat for other avian, terrestrial and marine species native to coastal salt marshes along the Southern California Bight. LPL contains Essential Fish Habitats and is the closest coastal lagoon to the only two Areas of Special Biological Significance (ASBS) located offshore of San Diego County. LPL also provides ecosystem services that include flood control for surrounding urban areas and provides water quality improvements for the coastal waters.

LPL is located along the southern reach of the Oceanside Littoral Cell, a nearshore process by which sand moves along the coastline primarily in a southern direction from Oceanside Harbor to the marine canyons located offshore of Scripps and Blacks Beach. While some beaches in the northern portion of North County San Diego experience northern movement of sand during summer months, Torrey Pines typically maintains a strong north-to-south movement throughout the year with pronounced increase rates during winter months due to the oblique angle of swells. Large, fast-moving waves generated by winter storms in the North Pacific scour beaches to the north of the LPL inlet and push sand downshore, moving sand and cobbles into the Lagoon's inlet area via storm surge, wave activity and high tides. While the initial deposit of sand can be removed by outflows from the lagoon, the cobbles remain. These cobbles form a sill that facilitates future sediment deposition in the lagoon inlet during subsequent winter swells and high tides. Evidence indicates that the LPL's inlet to the ocean had remained open year-round historically. However, land use change, including urban encroachment, during the last two centuries has reduced the

lagoon's ability to flush out sediment after storm events, constrained the lagoon inlet to a fixed location south of its historic location, and introduced perennial freshwater input from the watershed. Though tidal exchange has improved with the construction of the new lower bridge at North Torrey Pines Road (a.k.a. Historic Highway 101), reductions in the LPL's tidal prism and closures still occur as large volumes of marine sediment are still deposited within the inlet area and lagoon channels.

Decreased tidal prism and extended inlet closures at LPL can impact both aquatic and terrestrial habitats, impact native and migratory species, pose risks to nearshore coastal water quality, impair the Lagoon's Beneficial Uses, and threaten nearby urban infrastructure vulnerable to flooding. Water quality parameters (e.g. dissolved oxygen and salinity) degrade during extended inlet closures once they are no longer exposed to tidal mixing from ocean waters. Impacts to water quality can occur rapidly during periods of warm temperatures typical of summer months, resulting in fish kills and loss of invertebrate communities. Since 1995 all three of the Lagoon's three main tributaries became perennial, providing a new type of impact to Lagoon environs during extended closures as impounded water becomes hyposaline. As a result, LPL has experienced rapid habitat conversion as areas of historic salt marsh located in the eastern portion of the Lagoon have been displaced by brackish and freshwater habitats. In addition to loss of salt marsh habitats, year-round inputs of freshwater from the watershed have also raised serious public health risks due to vector-borne disease. LPL is also a known location of mosquito breeding habitat for *Culex tarsalis,* the species known to transmit West Nile Virus (WNV) in southern California. Documented cases of WNV have occurred in both wild and sentinel avian populations, as well as within human populations located near the Lagoon.

Since 1985, the Los Peñasquitos Lagoon Foundation (LPLF) has performed mechanized lagoon inlet openings at LPL. Through adaptive management and stakeholder coordination, LPLF has been successful in maintaining the inlet at LPL while producing multiple benefits to support and restore the Lagoon's Beneficial Uses in a cost effective manner. Typically, one large excavation of the inlet area is required to restore and maintain water quality parameters each year. However, beach nourishment efforts conducted under the Regional Beach Sand Project (RBSP) II in 2012 have greatly impaired LPLF's ability to maintain an open inlet during summer months when water quality parameters (e.g. dissolved oxygen) are most vulnerable due to warmer ambient temperatures. Part of RBSP II included the placement of over 300,000 cubic yards (cy) of sand along the beaches of Encinitas and Solana Beach in the Spring of 2012. During the years following

RBSP II, LPL experienced larger than typical volumes of sand entering the lagoon inlet area along with +4-6-foot increase in beach profiles along Torrey Pines State Beach adjacent to the inlet. Numerous lines of evidence indicate the excessive volume of sand within the inlet at LPL and along the beach came from receiver sites north of the Lagoon transported downshore by the predominate north-to-south longshore current during the winters of 2012/13, 2013/14 and 2015/16. While excavated material from the inlet typically averages around 24,000 cy during annual spring cleaning of the inlet to maintain tidal mixing throughout the summer and autumn months, post-RBSP II efforts required multiple efforts each year to remove 40,000 cy in 2013 and over 55,500 cy in 2014. During the winter of 2014/2015 the lack of frequent, large winter swells resulted in less deposition within the inlet area at the Lagoon and 25,575 cy was removed. However, this changed in 2015/2016 due to the El Niño Southern Oscillation Event (El Niño). It is believed that the numerous closures in spring of 2016 were caused in part to the consistency of large wave events generated during the winter months due to the El Niño. During the month of February, several large wave events eroded local beaches including Torrey Pines State Beach and mobilized sand within the nearshore sediment cell. Several of the eroded beaches north of the Lagoon were receiver sites for beach nourishment under the Regional Beach Sand Project II in 2012. It is estimated that more than 65,000 cy of excavated material (i.e. sand and cobbles) was hauled to Torrey Pines State Beach for disposal south of the inlet during five separate mechanized inlet openings between March 2016 and August 2016. This volume exceeds all previous years since 2007 when loads hauled to the beach were first recorded and is more than double the average. Unfortunately, the inlet closed again in early October 2016 due the large volume of sand that still remained within the inlet as both annual and emergency funding has been exhausted.

LPLF is submitting the proposed SEP to provide supplemental funding needed to excavate and remove the additional sand that currently clogs the inlet at Los Peñasquitos Lagoon to return inlet status to baseline conditions observed since 1985. LPLF, City of San Diego and CA State Parks are deeply concerned about the inability to maintain tidal mixing within the Lagoon even though an endowment has been established to perform inlet work at LPL. Annual funds provided by the endowment was calculated and negotiated prior to RBSP II and adequately covers "typical" years. However, following RBSP II and the recent El Niño there is simply too much sand and not enough funding to keep the inlet open at Los Peñasquitos Lagoon. Mitigation was not required for RBSP II for coastal estuaries located downshore of beaches that received sand, so the financial burden has fallen upon LPLF and CA State Parks to maintain an open inlet at LPL. Both LPLF and CA State Parks simply do not have the additional resources or funds to remove this excess sand, putting the Lagoon's Beneficial Uses at risk for further degradation and potentially exposing adjacent

communities and businesses to vector-borne brain encephalitis. LPLF believes the proposed SEP has a nexus to discharges within the Lagoon's watershed that result in pollutant loading to LPL, since pollutants will be trapped within Lagoon channels and adjacent habitats without adequate tidal flushing through the inlet. Maintaining an open inlet will help to abate impacts to LPL due to dilution and mixing with ocean waters.

WORK PLAN (TASKS, DELIVERABLES)

The project involves the restoration of tidal circulation and flushing within Lagoon channels by removing excess sand deposited within the inlet area and along the beach as a result of RBSP II and later exacerbated by the 2015/2016 El Niño. Tidal circulation and flushing will be restored through mechanical excavation of marine sediments from the inlet area to reconnect the Lagoon's main channels to its ocean inlet. Excavated sand and cobbles will be hauled to Torrey Pines State Beach for disposal to reduce project cost and provide for beneficial reuse of materials that include creating habitat for grunion spawns and improving beach access and use (REC-1 and REC-2) by restoring sandy beach habitat along an eroded shoreline that is typically dominated by cobbles. The project will also include a trash/debris clean up within Los Peñasquitos Lagoon (LPL) and along its boundaries. The focus of this effort will be to remove trash and debris from the inlet area and around the Lagoon to reduce impacts to native flora and fauna.

The following work plan is provided by task and deliverable:

Task 1. Permit Compliance & Reporting (Inlet Work). This task includes all compliance measures dictated by the project's permit that include: Protocoled surveys for listed bird species within and adjacent to the project area; Onsite monitoring for listed species and protection of sensitive habitats; Site management to coordinate efforts with the contractor to pursue and achieve daily goals and objective to meet project milestones; Notification to resource agency contacts regarding compliance with permit conditions to justify inlet work (e.g. dissolved oxygen below 5 mg/l); Photo-monitoring and reporting; and Notification to resource agencies regarding completion of work.

Deliverables: Pre- and Post-Monitoring Forms, Grain Size Analysis Results, Summary Report.

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon. This task includes the mechanical excavation of the inlet area to restore and maintain tidal circulation at Los Peñasquitos

Lagoon using heavy equipment that includes: excavators, front-loader, and dozer. Excavated material is then loaded onto 3 articulated rock trucks and hauled out to Torrey Pines State Beach for disposal.

Deliverables: Volume of material removed from the inlet and Technical Memo that summarizes efforts.

Task 3. Trash & Debris Clean Up. This task involves at least 2 separate trash and debris cleanup efforts within LPL and along its boundaries. Efforts will be coordinated with local NGOs that include San Diego Coastkeeper and the Surfrider Foundation to help supplement regional efforts to track trash and debris cleanup efforts. Trash and associated debris collected will be recorded using standardized methods to allow for comparison to other efforts around the Lagoon and within the region. Other efforts under this task include coordinating with staff from California State Parks (CSP) for required permits related to access needs and disposal of trash/debris.

Deliverables: Trash/Debris Tracking Sheets and Technical Memo that summarizes efforts.

Task 4. Project Management & Contract Administration. Includes coordinating efforts between project team members and contractors, the LPLF Board of Directors and CSP staff. Contractor procurement and managing of associated contracts is also included under this task, as well as invoicing and reimbursement. This task also includes communication, coordination and contracting efforts with staff from the San Diego Water Board.

Deliverables: Copies of contracts and agreements, invoicing.

TIMELINE (MILESTONES & END DATES)

The project is shovel-ready with inlet work (Task 2) being performed during the spring months once a contract has been executed and sub-contractor selected. Trash and debris clean up will occur prior to the inlet work if possible.

Task 1. Permit Compliance & Reporting (Inlet Work).

Milestones: Authorization to perform work, Completion of Work Notification, Summary Report.
End Dates: 14 months following project start

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon.

Milestones: Completion of Work, Volume of material removed from the inlet at LPL.

End Dates: 12 months following project start

Task 3. Trash & Debris Cleanup.

Milestones: Completion of each cleanup effort.

End Dates: 12 months following project start

Task 4. Project Management & Contract Administration.

Milestones: Executed Contract with San Diego Water Board, Executed Contract with sub-contractors, Monthly Invoices Report.

End Dates: 14 months following project start

BUDGET (TASKS)

Task 1. Permit Compliance & Reporting (Inlet Work).

Budget: $35,000

Task 2. Mechanical Excavation of the Inlet at Los Peñasquitos Lagoon.

Budget: $150,000

Task 3. Trash & Debris Cleanup.

Budget: $5,000

Task 4. Project Management & Contract Administration.

Budget: $20,000

PERMITTING REQUIREMENTS

The project is certified under CEQA as Categorically Exempt and has all of its required permits that include:

- Right of Entry Permit – CSP
- Coastal Development Permit – California Coastal Commission
- Section 401 Wetland Certification – San Diego Water Board
- Section 1602 Agreement and CESA Waivers – California Department of Fish & Wildlife
- Informal Consultation under Section 7 of the Endangered Species Act – United States Fish & Wildlife Service

- Section 404 Individual Permit – Army Corps of Engineers.

WATERSHED AFFECTED

Los Peñasquitos Watershed that includes Carmel Valley, Los Peñasquitos Canyon, and Carroll Canyon, as well as the minor drainages that feed into them.

DESCRIBE IF PROJECT CAN BE A BASIS FOR ADDITIONAL FUNDING FROM OTHER SOURCES

Yes, the project can be a basis for additional funding and/or in-kind services from other sources that include CSP, County of San Diego and the City of San Diego. Each of these entities are able to offer partial support but do not have the funding to cover all project costs. In addition, over $2 million has been spent to date to update the Lagoon Enhancement Plan, expand the annual monitoring program within the Lagoon, and move large-scale restoration of historical salt marsh within LPL beyond conceptual design and toward implementation through a Design & Feasibility Study.

MONITORING, SUCCESS CRITERIA, AND OTHER TOOLS FOR TRACKING LONG-TERM SUCCESS

Tracking long-term success will be facilitated using the long-term annual monitoring program at Los Peñasquitos Lagoon currently conducted by Jeff Crooks and other wetland scientists from the Tijuana River National Estuarine Research Reserve combined with inlet surveys to measure channel depth, width and elevations of the inlet area. Data generated by these efforts will be compared to baseline conditions at the inlet during typical years to assess the success of removing the additional sand and cobbles deposited within the inlet area as a result of beach nourishment efforts under RBSP II and the El Niño of 2015/2016. Success criteria will include total volume of sand and cobbles removed, days the inlet remains open and inlet morphology with regard to seasonal variations, and a comparative analysis of channel dimensions and elevations for years preceding and following RBSP II.

DESCRIBE HOW PROJECT IS RESILIENT TO CLIMATE CHANGE

The project is resilient to climate change by improving connectivity between the watershed, lagoon channels and ocean to abate flood events generated by storm surge and precipitation during winter and spring storms that will most likely intensify in the years to come. The project

will also facilitate the preservation of the Lagoon's salt marsh habitat, which provides one of the best forms of natural carbon sequestration while minimizing releases of methane gas that typically occurs in brackish and freshwater marsh regimes.

APPLICANT'S ABILITY/AUTHORITY TO RECEIVE AND DISTRIBUTE FUNDS

LPLF has been the lead entity that manages inlet work at LPL since the certification of the Los Peñasquitos Lagoon Enhancement Plan in 1985. While annual efforts are coordinated with CA State Parks and other key stakeholders, LPLF handles all project aspects that include: receipt and management of funds, sub-contractor procurement, and distribution of funds that includes reimbursement of sub-contractors. In consultation with CA State Parks staff and sister NGOs that operate in the Torrey Pines State Natural Reserve (i.e. Torrey Pines Association, Torrey Pines Docents), LPLF often takes on community outreach and education efforts specific to the Lagoon that include trash and debris clean up within the inlet area, adjacent beach areas and along the borders of LPL.

LPLF has worked with several state agencies that include the State Water Board to receive, manage, and distribute funds for restoration efforts in LPL and its adjacent upland areas. LPLF has also worked directly with the City of San Diego and the County for similar efforts that include restoring the inlet at LP.

IS THE PROJECT TO CONDUCT WORK REQUIRED BY ANY ENTITY/AGENCY? (E.G. CLEAN UP OR MITIGATION)

The project is not required by any entity or agency as a result of a clean up and abatement order, or required mitigation as RBSP II was not subjected to mitigation requirements by resource agencies with regard to impacts to coastal estuaries located downshore of the receiver sites.

SEP APPLICATION CHECKLIST

Los Peñasquitos Lagoon Inlet Restoration Project

ELIGIBILITY REQUIREMENTS

1. **Does the project address an environmental justice issue or benefit a disadvantaged community (DAC)?** Yes, the project benefits disadvantaged communities. The Torrey Pines State Natural Reserve, which includes Los Peñasquitos Lagoon (LPL) and Torrey Pines State Beach, receives over 1 million visitors per year with many coming from Disadvantaged Communities that are located nearby (see below). The Reserve provides the closest opportunity for members of these communities to enjoy the natural and recreational resources provided by the Reserve's dramatic vistas, unique geology, sensitive species, beaches, recovered habitats and trail systems that includes a section of the California Coastal Trail and trailhead for Sea to Sea Trail. When the inlet is closed, many of the Lagoon's Beneficial Uses are impaired and park visitors can be exposed to vector-borne brain encephalitis.

   Using the State's Disadvantaged Communities Mapping Tool, numerous Disadvantaged Community Tracts and Blocks have been identified near the project area with access facilitated by their proximity to key regional transportation corridors that lead directly to the Lagoon and the rest of the Reserve. The following Disadvantaged Community Tracts and Blocks are located just south of the Reserve with immediate access provided by Interstate 5 and Interstate 805: Disadvantaged Community Tracts (Tract ID #06073008305 & #06073008361) and Disadvantaged Community Blocks (Block Group ID #060730083052, #060730083612, #060730083643, #060730083632, #060730083433, #060730083432, and #060730083403). The following Disadvantaged Community Tracts and Blocks are located just east of the Reserve and adjacent to State Route 56 that leads directly to the North Parking Lot at LPL: Disadvantaged Community Tract ID #06073017035 and Disadvantaged Community Block #060730170353 that occur adjacent to State Route 56 that leads directly to the North Parking Lot at LPL.

2. **Does the project address DAC water related infrastructure needs?** No

3. **Does the project promote preservation or restoration of the aquatic ecosystems in the San Diego Region?** Yes, the project will directly benefit aquatic and terrestrial ecosystems that support sensitive species and their long-term preservation. Over 29 years of continuous monitoring in LPL and relevant peer-reviewed literature highlight tidal circulation as the key component for protecting and preserving health in San Diego's tidal salt marshes for both aquatic and terrestrial species that require specific water quality parameters, soils salinity levels and elevation gradients for both function and survival. Tidal circulation and flushing is essential for protecting and conserving LPL's sensitive salt marsh communities (i.e. remnant dune and salt marsh habitats) and individual sensitive species that include: Nuttal's Lotus (*Lotus nuttallianus*), Coulter's goldfields (*Laesthenia glabratta ssp coulteri*), Western snowy plover (*Charadrius alexandrinus nivosus*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*); Ridgeway's rail *(Rallus obsoletus)*; and Wandering skipper (*Panoquina errans*). Key benefits associated with adequate tidal mixing within LPL's channels include: Recovery of healthy water quality parameters (e.g. dissolved oxygen, salinity, temperature) for aquatic species through the mixing of oceanic waters within lagoon channels; Facilitating draw down times through tidal cycles (incoming and ebb tides) that pull freshwater out of the lagoon and reduce inundation times in areas above channel banks during flood events; and Maintaining water levels below lagoon channel banks during dry weather periods since perennial freshwater inputs into LPL cause the Lagoon waters to overtop tidal banks during inlet closures even when precipitation has not occurred. Sand and cobbles removed during excavation will be used to fill eroded banks and scour points near sensitive vegetation communities (e.g. Nuttall's Lotus) to provide a buffer from future erosion that can occur from both storm runoff and wave energy entering the lagoon during storm surges. Education and outreach efforts will bolster coastal stewardship efforts by helping to: Inform members of the public about the need for adequate tidal circulation within LPL; Management efforts designed to achieve and maintain tidal circulation; and Important plant communities and sensitive species within LPL that rely on an active exchange of water between the watershed, lagoon and ocean. Volunteer trash/debris clean up efforts within LPL will be help improve visual corridors and give volunteers an "up-close" view of the Lagoon and its resources, which is normally off-limits due to its status as a State Preserve. Volunteers will also learn about how cleaning up trash removes potential threats to lagoon fauna (e.g. birds), that can mistake small plastics and balloon fragments for food.

4. **Does the project implement or further the recovery of streams, wetlands, and riparian systems?** Yes, please refer to the answer provide under question #3.

5. **Does the project implement or further the monitoring and assessment framework in the San Diego Water Board's Practical Vision Chapter 2?** Yes, the project will use a monitoring and assessment framework that is in line with the San Diego Water Board's requirements for producing information that enables the work of protecting and restoring the health of San Diego Region waters to be strategic and effective and provides for a meaningful evaluation of the success of that work. The annual monitoring program at LPL is cutting edge and has the longest set of continuous data sets (e.g. water quality, vegetation) in Southern California. Established by Joy Zedler through the Pacific Estuarine Research Laboratory (PERL), the monitoring program at LPL is now run by Jeff Crooks and his staff from the Tijuana River National Estuarine Research Reserve (TRNERR). Dr. Crooks works as an advisor to the San Diego Water Board to ensure that monitoring protocols for coastal estuaries, such as LPL, adhere to the mission statement that "monitoring and assessment programs determine the status and trends of conditions in San Diego Region waters, identify the causes of unsatisfactory conditions, determine the effectiveness of management actions, and effectively communicate key finds to the public, stakeholders, and decision-makers." Furthermore, LPL is used by TRNERR as a reference lagoon that is compared to other regional lagoons that include the Tijuana Estuary to improve our understanding of these systems and facilitate adaptive management of these systems. Currently there are four continuous monitoring stations at LPL that are telemetered to provide "real-time" access to water quality parameters that include: dissolved oxygen, salinity, temperature, surface elevation, and conductivity. Data from these stations help determine when inlet restoration is required and display the quick improvements to water quality once tidal circulation has been restored.

6. **Does the project implement or further a strategy for achieving a sustainable local water supply?** No.

PROJECT ATTRIBUTES

1. **Does the project directly contribute to improvements of water quality objectives and/or beneficial uses?** Yes, tidal circulation is the key process for improving water quality objectives and protecting the Beneficial Uses afforded by LPL. These improvements can be tracked and documented at each of the four telemetered, continuous monitoring stations located within the Lagoon. Removing trash and debris from the Lagoon and along its boundaries will improve water quality and Beneficial Uses as well. Without an open inlet and adequate tidal mixing, water quality objectives for LPL cannot be met and its Beneficial Uses impaired, potentially

resulting in the Lagoon being identified for other impairment parameters under the 303(d) list (e.g. habitat conversion, eutrophication)

2. **Does the project propose measurable environmental outcomes**? Yes, measurable environmental outcomes include restored water quality parameters (e.g. dissolved oxygen, salinity) that are needed to protect both aquatic and terrestrial habitats, as well as the Lagoon's many Beneficial Uses. LPL's four telemetered monitoring sites allow for "real-time" access to water quality improvements to water quality within Lagoon channels. Additional measurable outcomes include documenting truckloads of sand hauled to Torrey Pines State Beach for disposal to estimate total volume of sand and cobbles removed from the inlet. Trash and debris removed from LPL and along its borders will be quantified using standardized categories and classifications so that it can be compared trash and debris clean ups in the region conducted by groups such as the Surfrider Foundation and San Diego Coastkeeper.

3. **Does the project demonstrate sustained longevity of environmental outcomes (e.g. conservation, maintenance endowments, easements, monitoring)?** Yes, LPLF is seeking funding through the proposed project to re-establish baseline conditions at the inlet that have been modified by beach nourishment efforts under RBSP II and the El Niño event during 2015/2016. Once baseline conditions are re-established, inlet management will become sustainable through the long-term via the inlet endowment that provides annual funding to restore and maintain tidal circulation within LPL's channels during typical years without the effects of beach nourishment. Sustained longevity of environmental outcomes will also be demonstrated through the long-term monitoring program at LPL and the pilot restoration project to restore up to 23 acres of salt marsh in the Lagoon that is currently in the Design & Feasibility stage.

4. **Is the project part of a larger vetted, adopted, or established plan with support from multiple and diverse partners?** Yes, the project is part of the annual inlet maintenance program at LPL that was vetted, adopted and established as part of the Los Peñasquitos Lagoon Enhancement Plan. The Lagoon Enhancement Plan identifies inlet maintenance as a priority for protecting lagoon health and its Beneficial Uses. Furthermore, the Water Quality Improvement Plan (WQIP) prepared for the Los Peñasquitos Watershed identifies the Lagoon Enhancement Plan as the guiding document for restoring and preserving water quality objectives and Beneficial Uses in LPL.

5. **Does the project improve conditions for a 303(d) limited segment or preserve conditions in a high quality water body?** Yes, the project is essential for improving and preserving conditions of LPL, a State Marsh Natural Preserve, which is a 303(d) impaired waterbody with a Sediment TMDL and Bacteria TMDL. Failure to keep the inlet open to adequate tidal circulation may compromise the ability to restore the Lagoon's historic salt marsh habitat which is a compliance target of the Lagoon's Sediment TMDL. Extended inlet closures may also degrade the Lagoon to a point that it could qualify for additional 303(d) listings (e.g. habitat conversion, eutrophication).

6. **Does the project improve a designated priority listed in a Water Quality Improvement Plan?** Yes, the project is essential for improving and preserving conditions of LPL which is a key priority of the Water Quality Improvement Plan developed for the Los Peñasquitos Watershed that identifies both sediment and dry weather inputs of water as key threats to the health and resiliency of LPL that are exacerbated during inlet closures that prevent lagoon flushing during both dry and wet weather.

7. **Does the project improve conditions of a key beneficial use category in a key area?** Yes, the project will improve conditions of the following Beneficial Uses provided by LPL and Torrey Pines State Beach:
    - Water Contact Recreation (REC-1)
    - Non-Contact Water Recreation (REC-2)
    - Estuarine Habitat (EST)
    - Marine Habitat (MAR)
    - Wildlife Habitat (WILD)
    - Preservation of Biological Habitats of Special Significance (BIOL)
    - Preservation of Rare and Endangered Species (RARE)
    - Fish Migration (MIGR)
    - Fish Spawning (SPWN)

8. **Does the project address the source of the problem at/near the source of the problem?** The project addresses the problem that LPL is a managed system that suffers impacts from non-point sources within the watershed and along the coastline. While LPLF works with stakeholder groups such as local NGOs, resource agencies, and municipalities to address non-

point sources, the Foundation typically does not have jurisdiction to perform work outside of the Lagoon boundaries. However, LPLF works to address "staging areas" of pollutants from non-point source that are found just outside of the Lagoon's borders. With respect to inlet restoration, LPLF removes excess sand and cobbles from the inlet area east of Highway 101 but also focuses on beach areas west of the bridge within the project's permitted footprint that lend to sand deposition within the Lagoon. Increased beach elevations along Torrey Pines State Beach caused by RBSP II has led to increased rates and volumes of shoaling sand within LPL's inlet channels as beach profiles attempt to stabilize during and after excavation efforts, filling in excavated channels within the inlet area sometimes within a 24-hour period. As such, project efforts will include lowering these modified beach profiles to elevations that are typical of seasonal variation at Torrey Pines State Beach to restore shoaling processes back to their natural state. A similar effort will be made with regard to trash and debris. Clean up efforts proposed under this SEP includes removal of trash and debris along the Lagoon borders that include Torrey Pines State Beach to prevent it from entering LPL's sensitive habitats that include nesting and foraging areas used by listed bird species as well as refuge areas for migratory fowl. While some trash is transported to the inlet area from storm runoff, a majority is introduced to the inlet area of Lagoon through predominate wind directions, ocean tides, and storm surges/wave activity that push trash and debris from the ocean and into the Lagoon inlet.

9. **Does the project address problems to sensitive/vulnerable/rare places/waters/uses?** Yes, the project will benefit sensitive aquatic and terrestrial ecosystems that support sensitive species, as it is essential for their short- and long-term protection and conservation. Over 29 years of continuous monitoring in LPL and relevant peer-reviewed literature highlight tidal circulation as the key component for protecting and preserving health in San Diego's tidal salt marshes for both aquatic and terrestrial species that require specific water quality and soils salinity parameters for both function and survival. Tidal circulation and flushing is essential for protecting and conserving LPL's sensitive salt marsh communities (i.e. remnant dune and salt marsh habitats) and individual sensitive species that include: Nuttal's Lotus (*Lotus nuttallianus*), Coulter's goldfields (*Laesthenia glabratta ssp coulteri*), Western snowy plover (*Charadrius alexandrinus nivosus*), Belding's savannah sparrow (*Passerculus sandwichensis beldingi*); Ridgeway's rail *(Rallus obsoletus)*; and Wandering skipper (*Panoquina errans*). Key benefits associated with adequate tidal mixing within LPL's channels include: Recovery of healthy water quality parameters (e.g. dissolved oxygen, salinity, temperature) for aquatic species through the mixing of oceanic waters within lagoon channels; Facilitating draw down

times through tidal cycles (incoming and ebb tides) that pull freshwater out of the lagoon and reduce inundation times in areas above channel banks during flood events; and Maintaining water levels below lagoon channel banks during dry weather periods due to perennial freshwater inputs into LPL cause the Lagoon waters to overtop tidal banks during inlet closures even when precipitation has not occurred. Sand and cobbles removed during excavation will be used to fill eroded banks and scour points near sensitive vegetation communities (e.g. Nuttall's Lotus) to provide a buffer from future erosion that can occur from both storm runoff and wave energy entering the lagoon during storm surges. Education and outreach efforts will bolster coastal stewardship efforts by helping to: Inform members of the public about the need for adequate tidal circulation within LPL; Management efforts designed to achieve and maintain tidal circulation; and Important plant communities and sensitive species within LPL that rely on an active exchange of water between the watershed, lagoon and ocean. Volunteer trash/debris clean up efforts within LPL will be help improve visual corridors and give volunteers an "up-close" view of the Lagoon and its resources, which is normally off-limits due to its status as a State Preserve. Volunteers will also learn about how cleaning up trash removes potential threats to lagoon fauna (e.g. birds), that can mistake small plastics and balloon fragments for food.

10. **Can the project be used for leverage for other funding/actions/benefits?** Yes, the project can be used to leverage additional funding and/or in-kind services from other sources that include CSP, County of San Diego and the City of San Diego. Over $2 million has been spent to date to update the Lagoon Enhancement Plan, expand the annual monitoring program within the Lagoon, and move large-scale restoration of historical salt marsh within LPL beyond conceptual design and toward implementation through a Design & Feasibility Study. Keeping an open inlet at LPL will be necessary to support these efforts.

11. **Does the project provide a cost-effective means of attaining water quality goals?** The project provides the most cost effective means of attaining water quality goals for LPL by removing excessive sand and cobbles from the inlet area that impede and, at times, blocks tidal mixing. Numerous methods and equipment types were used and critiqued by LPLF since 1985 to provide the best and most cost effective approach to keeping the inlet open at LPL to preserve its sensitive habitats and species. The proposed project is the result of this adaptive approach to restore tidal circulation that has proven successful prior to RBSP II. Volunteer clean up of trash and debris also provide a cost-effective means of attaining water quality

goals, while also serving as an ideal platform to pursue education and outreach from the public that goes beyond local community members.

12. **Does the project integrate outreach and education to targeted audiences?** Outreach and education for the project will be integrated through onsite expertise during inlet excavation to engage members of the local communities and visitors observing the operation; updates, photos, and project description on the LPLF website (lospenasquitos.org) and through the trash and debris clean ups.

APPLICANT ATTRIBUTES

1. **Does the applicant have an established record of project completion with the Water Board?** Yes, LPLF has successfully completed projects funded by the State Water Board that include:
    - Los Peñasquitos Sediment Control Project (# 03-066-559)
    - Los Peñasquitos Sediment Retention Project (# 02-029-259)
    - Los Peñasquitos Sediment Basin Project (# 06-136-559)

2. **Does the applicant have a record of project completion with other awarding agencie**s? Recent projects completed by LPLF include:
    - Los Peñasquitos Lagoon Pilot Restoration Project (County of San Diego #DEH12-0004)
    - Los Peñasquitos Management (SANDAG EMP Grant #5001772)
    - Los Peñasquitos Lagoon Sediment Basin (State Coastal Conservancy #07-23)
    - Securing permits for Los Peñasquitos Lagoon Mouth Maintenance (State Coastal Conservancy #91-032)

3. **Does the applicant demonstrate a commitment to continue the water quality/restoration effort into the future, beyond the elements which are sought for funding?** Since its inception in 1983, LPLF has lead the effort to restore and enhance LPL and its Beneficial Uses. The LPLF Board of Directors consists of key stakeholders that include high-level representatives from major land owners (CA State Parks), local municipalities (City of San Diego), academia (Scripps Institution of Oceanography) sister NGOs (Torrey Pines Association), experts in coastal policy (CA Coastal Act), and members from local communities. Such representation allows LPLF to be highly successful in coordinating stakeholder buy-in, coordination and collaboration to further restore the Lagoon and its water quality. LPLF's water quality monitoring program is cutting edge and LPL is used as a reference estuary by

wetland scientists from the Tijuana River National Estuarine Research Reserve for their regional management efforts and monitoring protocols. LPLF is currently coordinating efforts with CA State Parks, City of San Diego and other watershed stakeholders to develop and design a large-scale restoration project at LPL that will be driven primarily by water quality improvements that include freshwater management and enhanced tidal prism. This phased restoration project's timeframe is 20-years and will include a comprehensive approach that links watershed improvements with lagoon restoration. LPLF has organized a Technical Advisory Committee comprised of leading experts in wetland ecology, salt marsh restoration, coastal processes, water quality, storm water management, and modeling that will help lead restoration design and provide QA/QC throughout the design process. Funding of this proposed SEP will assist large-scale restoration design and implementation by returning the inlet status back to baseline conditions with regard to sediment volume and elevations within the inlet area and along Torrey Pines State Beach that have been modified by regional beach nourishment efforts under RBSP II that added over 300,000 cy. Removed from compacted sand bars offshore, this additional sand was reintroduced to the nearshore and its associated processes (e.g. longshore distribution within the littoral cell) when it was placed on the beaches and exposed to coastal erosion. As a result, additional volumes of sand entering the inlet from nourished beaches to the north quickly exceeded funding capacity to remove it. However, once baseline conditions are restored at the Lagoon's inlet, the inlet endowment will be able to fund maintenance efforts in perpetuity.

4. **Does the applicant have the institutional stability and capacity to complete the project including the ability to accomplish the work and provide the products and reports expected?** Leveraging the knowledge and institutional leadership of its board of directors, LPLF provides an efficient and successful alternative for resource management at LPL. LPLF has been leading inlet restoration at LPL using heavy equipment since 1985 using adaptive management and stakeholder coordination. LPLF provides support for managing all permits and assurances that the contractor that conducts inlet work is the most qualified for performing this type of effort in sensitive wetlands. LPLF also tracks budget expenditures, invoicing and reporting for inlet work and the proposed SEP will provide the same work products and reporting that are typically performed by LPLF on an annual basis. LPLF has also successfully lead trash and debris clean ups at LPL in coordination with CA State Parks and other NGOs that typically organize and implement regional beach and shoreline clean ups (i.e. Surfrider Foundation, San Diego Coastkeeper).

State of California • Natural Resources Agency
Edmund G. Brown Jr., *Governor*

DEPARTMENT OF PARKS AND RECREATION
Lisa Ann L. Mangat, *Director*
San Diego Coast District
4477 Pacific Highway
San Diego, CA 92110

October 19, 2016

Attn: Dave Gibson, Executive Director
California Regional Water Quality Board, San Diego Region
2375 Northside Drive, Suite 100
San Diego, CA 92108

RE: SEP Proposal Los Peñasquitos Lagoon Inlet Restoration Project.

Dear Mr. Gibson:

I am writing to ask your support of the Los Peñasquitos Lagoon Inlet Restoration Project being submitted as a Supplemental Environmental Project (SEP) by the Los Peñasquitos Lagoon Foundation (LPLF). California State Parks (CSP) owns and manages nearly all of the Los Peñasquitos Lagoon as a part of the Torrey Pines State Natural Reserve. Recognized as Marsh Natural Preserve, Los Peñasquitos Lagoon is afforded the highest level of protection within California. The Lagoon and its transitional uplands provides critical habitat five listed bird species, 35 rare and endangered plants, and is an essential stop for migratory birds using the Pacific Flyway. Los Peñasquitos Lagoon also provides key ecologic services that include improved water quality, attenuation of flood waters, passive recreation, and carbon sequestration.

Following beach nourishment efforts in 2012 performed under the Regional Beach Sand Project (RBSP) II, the inlet at Los Peñasquitos Lagoon has received significant increases in sand volume and elevated beach profiles within in the inlet area and along Torrey Pines State Beach. Numerous efforts were required in 2013, 2014 and 2016 to open the lagoon inlet and lower beach elevations to drain lagoon waters and re-establish tidal mixing. CSP was required to expend emergency funds numerous times to support these efforts and request support from neighboring State Parks districts. 2016 alone required five separate efforts to open the inlet mechanically and removed over 65,000 cubic yards from the Lagoon's inlet, almost three times the average volume removed annually before RBSP II. Unfortunately, the inlet closed again in early October, barely a month after the most recent excavation of the inlet area. LPLF has provided numerous lines of evidence linking the increase in sand volumes within the inlet and along Torrey Pines State Beach with RBSP II and believes this additional sediment has modified baseline conditions at the Lagoon inlet, especially following the recent El Niño event. As a result, annual budgets to maintain the inlet are inadequate and must be augmented to re-establish baseline conditions within the inlet and beach. The proposed project will provide this service and prevent further impairment of Los Peñasquitos Lagoon, which is a 303(d)-listed water body due to sediment and siltation. Currently there is a Sediment Total Maximum Daily Load (TMDL) for the Lagoon and CSP is concerned that extended inlet closures could trigger additional TMDLs (e.g. habitat conversion, eutrophication).

CSP has worked closely with the LPLF and watershed stakeholders to manage Los Peñasquitos Lagoon and will continue to coordinate efforts directly with LPLF should the proposed project receive funding, including the issuance of the Right of Entry Permit. The project is consistent with other planning documents for Los Peñasquitos Lagoon that include State Park's General Plan for managing the Torrey Pines State Natural Reserve, the updated Los Peñasquitos Lagoon Enhancement Plan, and the Water Quality Improvement Plan for the Los Peñasquitos Watershed.

Thank you for your attention to this important project. Please feel free to contact me (619-688-3260 or my District Services Manager (619.952.3895; darren.smith@parks.ca.gov) if you have any questions about our support for this project.

Sincerely,

Robin Greene, San Diego Coast District Superintendent

Cc Darren Smith, District Services Manager
Reading File