3.11 PALEONTOLOGICAL RESOURCES

3.11.1 Existing Conditions

Paleontological resources (fossils) are the remains and/or traces of prehistoric plant and animal life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, and wood are found in the geologic deposits (rock formations) in which they were originally buried. Paleontological resources represent a limited, non-renewable, sensitive scientific and educational resource.

The potential for fossil remains at a location can be predicted through previous correlations that have been established between the fossil occurrence and the geologic formations within which they are buried. For this reason, knowledge of the geology of a particular area and the paleontological resource sensitivity of particular rock formations, make it possible to predict where fossils will or will not be encountered.

Within San Diego County there are a number of distinct geologic rock units (i.e. formations) that record portions of the past 450 million years of earth history. However, the record is most complete for only the past 75 million years.

The City of San Diego is in the Coastal Plain Province, and contains several rock formations. This province is underlain by a sequence of marine and non-marine sedimentary rock units that record portions of the last 140 million years of earth history. Over this period of time, the relationship of land and sea has fluctuated drastically, such that today we have ancient marine rocks preserved up to elevations about 900 feet above sea level. Each of the geologic formations found in the City is summarized below. More detailed information about each of the formations is found in Deméré and Walsh (1994).

Late Quaternary Alluvium

The sediments at the bottom of stream beds of the later Quaternary alluvium are generally younger than 10,000 years old. Fossils are usually not found in these deposits in the Coastal Plain Province. However, there is one notable exception in San Diego. Teeth and limb bones of a mammoth were found in floodplain deposits of the Tijuana River Valley. The floors of Otay Valley, Mission Valley, Rose Canyon, Sorrento Valley, and San Dieguito Valley are the sites where later Quaternary alluvial deposits are found. Because of their young age, they are assigned low paleontological resource sensitivity.

Unnamed River Terrace Deposits

Deposits of coarse-grained, gravelly sandstones, pebble and cobble conglomerates, and claystones occur along the edge of many of the larger coastal valleys. These deposits generally occur at levels above the active stream channels and represent the sediments of ancient river courses. These river terrace deposits are anywhere from 10,000 to 500,000 years old. Fossils of "Ice Age" mammals have been collected from the South Bay Freeway, such as ground sloth,

mammoth, wolf, camel, and mastodon. The San Dieguito Valley yielded well-preserved ground sloth. All of these important sites have been discovered in construction-related excavations. The "unnamed river terrace deposits" occur along the margins of the larger coastal river valleys, like Otay Valley, Mission Valley, and San Dieguito Valley. Moderate resource sensitivity is assigned to this formation in South Eastern, Chollas Valley, Fairbanks Ranch, Skyline, Paradise Hills, Otay Mesa, Nestor, and San Ysidro communities and a low resource sensitivity is assigned to this formation in all other areas of the City.

Unnamed Marine Terrace Deposits

The Coastal Plain Province is characterized by a "stair step" sequence of elevated marine terraces, which are uplifted sea floors, and their associated marine and non-marine sedimentary covers. The lower marine terraces are referred to as "unnamed marine terrace deposits" that are about 80,000 to 180,000 years old. A large variety of marine vertebrate and invertebrate fossils have been found in these terraces. The "unnamed marine terrace deposits" occur locally along the entire coast of San Diego, and are given a high resource sensitivity.

Bay Point Formation

The Bay Point Formation is a near shore marine sedimentary deposit that is about 220,000 years old. This formation has produced a large and diverse amount of well-preserved marine invertebrate and vertebrate fossils. The Bay Point Formation is exposed along the northern shore of Mission Bay (i.e. Crown Point), along the San Diego waterfront, and throughout the city of Coronado. It is assigned high resource sensitivity.

Lindavista Formation

This formation represents a marine and/or non-marine terrace deposit. These deposits accumulated on the sea floor during a period of dropping sea levels. Today, these deposits form the extensive mesa surfaces characteristic of the Otay Mesa, San Diego Mesa, Linda Vista Mesa, Kearny Mesa, and Mira Mesa areas. Fossils are rare in the Lindavista Formation and have only been recorded in a few areas. The formation occurs over a large portion of San Diego coast, and is assigned high resource sensitivity in Mira Mesa and Tierrasanta and a moderate resource sensitivity in all other areas of the City.

San Diego Formation

The San Diego Formation is exposed extensively from Otay Mesa and Otay Ranch to Mission Valley, with isolated occurrences stretched out along the Rose Canyon Fault Zone at Tecolote Canyon, Balboa Avenue, Rose Canyon, and all along the southern slopes of Mount Soledad from Interstate-5 (I-5) to the sea cliffs at Pacific Beach. The San Diego Formation is a marine sedimentary deposit. The formation has rich fossil beds that have yielded extremely diverse assemblages of marine organisms. In addition, rare remains of terrestrial mammals and fossil wood and leaves have been recovered here. This diverse group of fossils represents one of the most important sources in the world of information on Pliocene marine organisms and environments, and is given high paleontological resource sensitivity.

Otay Formation

The Otay Formation is a fluvial sedimentary rock unit. Numerous fossil localities have been discovered in the upper portion of the formation. Well-preserved remains of a diverse assemblage of terrestrial vertebrates were found here. Based on recent discoveries, the Otay Formation is now considered to be the richest source of late Oligocene terrestrial vertebrates in California. This formation is exposed throughout, from approximately the latitude of State Route-94 (SR-94) south to the International Border and from Interstate-805 (I-805) east to the base of the San Ysidro Mountains and San Miguel Mountain. Part of the formation is exposed extensively in the area around Lower Otay Lake, as well as in patches along the north side of the San Ysidro Mountains as far east as Sycamore Canyon. The Otay Formation is assigned a high paleontological resource sensitivity, because of its important fossils.

Sweetwater Formation

The Sweetwater Formation is a non-marine rock unit. This formation was deposited in a river channel setting, and some exposures of the formation may represent ancient soils. Fossils were collected from the lower part of the formation, which consisted of dental remains of opossums, insectivores, and rodents. Only a few non-diagnostic mammal teeth are known from the upper portion. The Sweetwater Formation crops out from Otay Valley northward and eastward to at least Encanto and Casa de Oro. Good exposures occur around Lower Otay Lake, at the confluence of Wolf Canyon and Otay Valley, and in the area of the confluence of Long Canyon and Sweetwater Valley. Sweetwater Formation is assigned a high paleontological resource sensitivity.

Mission Valley Formation

This formation is the only Eocene rock unit in southern California to have a radiometric date directly associated with fossil mammal localities. The marine strata of the Mission Valley Formation have produced abundant and generally well-preserved remains of marine microfossils, macroinvertebrates, and vertebrates. Fluvial strata of the formation have produced well-preserved examples of petrified wood and fairly large and diverse assemblages of fossil land mammals. The fact that marine microfossils and land mammals occurred at the same time is extremely important, as it allows for the direct correlation of terrestrial and marine faunal time scales. The formation crops out discontinuously from Otay Valley in the south to at least Miramar Reservoir in the north, and from Old Town in the west to Spring Valley, El Cajun Valley, and Santee in the east. The Mission Valley Formation represents one of the few instances in North America where such comparisons are possible, and they are assigned high paleontological resource sensitivity.

Stadium Conglomerate

The Stadium Conglomerate is made up of two conglomeratic units that are distinct both with regard to the time period of formation and to the composition of the formation. The two units occur together in some places, but only one may be present in other areas. The formation occurs in Mission Valley and Murphy Canyon, Tierrasanta, Rancho Peñasquitos, and Rancho Bernardo areas. Where it occurs in Murphy Canyon, there have been sparse, but well-preserved remains of

rhinoceros, primates and small mammals. Where it occurs in Scripps Ranch, Rancho Peñasquitos, and Carmel Mountain Ranch, there have been recovered well-preserved remains of rodents, bats, tapirs and primates. Because of the diverse and well-preserved remains found in this formation, it has been assigned a high resource sensitivity.

Friars Formation

The Friars Formation consists mainly of sandstones, siltstone, mudstones, and cobble conglomerate. It is rich in vertebrate fossils, especially terrestrial mammals such as primates, rodents, artiodactyls, and perissodactyls. Well-preserved remains of marine microfossils and macroinvertebrates, and remains of fossil leaves have been recovered from the Friars Formation. The formation crops out from Mission Valley north to Rancho Bernardo in the east and Rancho Santa Fe in the west. In the south, the formation extends from Tecolote Canyon east to Santee and Lakeside. This formation is given high paleontological resource sensitivity.

Scripps Formation

The Scripps Formation is considered to be potentially fossiliferous almost everywhere it occurs. Most of the fossils known from this formation consist of remains of marine organisms (i.e. bony fishes, sharks, rays, etc.) and land mammals (i.e. uintathere, brontothere, rhinoceros, and artiodactyl). Well-preserved pieces of fossil wood have also been recovered from the Scripps Formation. This formation crops out from Presidio Park in the south, north to Del Mar, and from Clairemont east to La Jolla Valley. Based on the joint occurrence of marine invertebrate fossils and terrestrial vertebrates, the formation is assigned high resource sensitivity.

Ardath Shale

The Ardath Shale has yielded diverse and well-preserved assemblages of marine microfossils, macroinvertebrates, and vertebrates. This formation crops out from Soledad Valley in the north to La Jolla, Pacific Beach, and Clairemont in the south. Because of its production of diverse and well-preserved assemblages of fossils, high resource sensitivity is given to this formation.

Torrey Sandstone

The Torrey Sandstone has produced important remains of fossil plants and marine invertebrates. Many of the plant remains are from taxa related to species that today live in brackish-water marsh and/or riparian woodland environments in subtropical and tropical regions of Southeast Asia and the southeastern U.S. Their occurrence in the Torrey Sandstone suggests that the Eocene climate in this area was warmer and wetter than the modern climate. The formation occurs from Sorrento Valley in the south to Batiquitos Lagoon in the north, and from the coast inland to La Jolla Valley. This formation has a high resource sensitivity in Black Mountain Ranch and Carmel Valley and a low paleontological resource sensitivity rank in all other areas of the City.

Delmar Formation

Fossils form this formation consist of well-preserved to poorly preserved remains of estuarine invertebrates, and estuarine vertebrates. The Delmar Formation crops out from Sorrento Valley in the south to at least Batiquitos Lagoon in the north. The best exposures of the formation occur in the sea cliffs from Torrey Pines State Reserve to Encinitas. The Delmar Formation has produced important remains of terrestrial vertebrate fossils and is assigned high paleontological resource sensitivity.

Mount Soledad Formation

The Mount Soledad Formation has yielded fossils of various kinds of marine organisms including molluscs, planktonic foraminifers, benthonic foraminifers and pollen. This formation has a rather limited areal distribution, and is exposed in road cuts on the western and eastern sides of Rose Canyon. It is also exposed in the sea cliffs at Tourmaline Beach, in artificial slopes at the north end of Point Loma, and in canyon slopes of Mount Soledad. Although the extent of known fossil occurrences is limited, its sedimentary nature suggests greater potential. This formation is given moderate resource sensitivity in all areas except in the Rose Canyon area between Mission Bay south of SR-52 where it is given a high resource sensitivity.

Pomerado Conglomerate

The lower portion of the Pomerado Conglomerate has produced remains of fossil terrestrial mammals including primates, protoreondonts, and insectivores. The middle part of the conglomerate has yielded remains of near shore marine molluscs, as well as unidentifiable mammal bone fragments. The upper conglomerate member has yielded a single fragmentary jaw of an unidentified artiodactyl. The Pomerado Conglomerate crops out from La Mesa to the south to at least Miramar Reservoir in the north, and from there eastward to Santee. The Pomerado Conglomerate is assigned high paleontological resource sensitivity in Scripps Ranch and Tierrasanta, and moderate sensitivity in all other areas of the City.

Cabrillo Formation

The Cabrillo Formation is composed mainly of sandstones and conglomerates, and is approximately 70 million years old. Fossils from this formation are not well known and consist of remains of marine invertebrates and vertebrates. The Cabrillo Formation crops out along the eastern and southwestern sides of the Point Loma peninsula in both sea cliff exposures and road cuts. It is also exposed on the western, northern, and eastern flanks of Mount Soledad. Based on the unproven resource potential of the formation, a moderate paleontological sensitivity is given.

Point Loma Formation

The Point Loma Formation was deposited on an ancient sea floor. Well-preserved remains of many types of fossil marine invertebrates and vertebrates are known from this formation. In addition, the formation has also produced sparse remains of terrestrial plants and dinosaurs. Taken together, the paleontological resources of the Point Loma Formation represent some of the best preserved examples of late Cretaceous marine fossils known from California and one of the few sources of dinosaur fossils in the state. The formation is well exposed along the western

margin of Point Loma and along the northern flank of Mount Soledad. The Point Loma Formation has produced diverse and well-preserved assemblages of marine invertebrate fossils, as well as rare dinosaur remains, and is assigned a high paleontological sensitivity.

Lusardi Formation

No identifiable fossils have been recovered from the Lusardi Formation in San Diego. The Cretaceous age of this rock unit coupled with its terrestrial depositional setting suggest the potential presence of dinosaurs and other terrestrial vertebrates. The Lusardi Formation is exposed in Lusardi Canyon and La Zanja Canyon near Rancho Santa Fe, along Poway Road east of Poway, in the Alpine area, near San Vicente Reservoir, and east of Palomar Airport in Carlsbad. This formation is assigned a high resource sensitivity in Black Mountain Ranch, Lusardi Canyon Poway, and Rancho Santa Fe and moderate resource sensitivity in all other areas of the City.

Table 3.11-1 provides a summary of the paleontological sensitivity (i.e., the potential for paleontological resources to occur) of all geological units within the City of San Diego with more specific reference to the sensitivity of each geologic unit within certain communities (from City of San Diego 2002).

Santiago Peak Volcanics

The Santiago Peak Volcanics are comprised of Metasedimentary and Metavolcanic formations. Only the Metasedimentary formation has the potential to contain fossil remains. These formations can be found in Black Mountain Ranch, La Jolla Valley, Fairbanks Ranch, Mira Mesa, and Rancho Peñasquitos. Santiago Peak Volcanics found in these areas are assigned moderate resource sensitivity. The Metavolcanic formations found in all other areas of the City have no potential to contain fossil remains and are assigned a zero resource sensitivity.

Granite/Plutonic

Granitic/Plutonic formations have no potential to contain fossil remains and are assigned a zero resource sensitivity throughout the City.

Table 3.11-1
Geologic Formations and Paleontological Resource Potential

Geologic Unit	Potential Fossil Localities	Sensitivity Rating
Alluvium	All communities where this unit occurs	Low
Ardath Shale	All communities where this unit occurs	High
Bay Point/Marine Terrace	All communities where this unit occurs	High
Cabrillo Formation	All communities where this unit occurs	Moderate
Delmar Formation	All communities where this unit occurs	High
Friars Formation	All communities where this unit occurs	High
Granitic/Plutonic	All communities where this unit occurs	Zero
Lindavista Formation	A. Mira Mesa / Tierrasanta	A. High

Table 3.11-1
Geologic Formations and Paleontological Resource Potential

Geologic Unit	Potential Fossil Localities	Sensitivity Rating
	B. All other areas	B. Moderate
Lusardi Formation	A. Black Mountain Ranch/Lusardi Canyon Poway/Rancho Santa Fe B. All other areas	A. High B. Moderate
Mission Valley Formation	All communities where this unit occurs	High
Mt. Soledad Formation	A. Rose Canyon B. All other areas	A. High B. Moderate
Otay Formation	All communities where this unit occurs	High
Point Loma Formation	All communities where this unit occurs	High
Pomerado Conglomerate	A. Scripps Ranch/Tierrasanta B. All other areas	A. High B. Moderate
River/Stream Terrace Deposits	A. South Eastern/Chollas Valley/Fairbanks Ranch Skyline/Paradise Hills/Otay Mesa Nestor/San Ysidro B. All other areas	A. Moderate B. Low
San Diego Formation	All communities where this unit occurs	High
Santiago Peak Volcanics A. Metasedimentary B. Metavolcanic	A. Black Mountain Ranch/La Jolla Valley; Fairbanks Ranch/Mira Mesa/Peñasquitos B. All other areas	A. Moderate B. Zero
Scripps Formation	All communities where this unit occurs	High
Stadium Conglomerate	All communities where this unit occurs	High
Sweetwater Formation	All communities where this unit occurs	High
Torrey Sandstone	A. Black Mountain Ranch/Carmel Valley B. All other areas	A. High B. Low

3.11.2 Thresholds of Significance

A significant impact could occur if implementation of the General Plan:

- Allows development to occur that could significantly impact a unique paleontological resource or a geologic formation possessing a medium to high fossil bearing potential.

3.11.3 Impact Analysis

Could implementation of the proposed General Plan allow development to occur that could significantly impact a unique paleontological resource or a geologic formation possessing a medium to high fossil bearing potential?

Many fossil sites presently on record in San Diego have been discovered during construction operations. Weathering quickly destroys most surface fossil materials, and it is not until fresh, unweathered exposures are made by grading that well-preserved fossils can be recovered. Impacts to paleontological resources occur when excavation activities cut into fossiliferous geological deposits, and cause physical destruction of fossil remains. Fossil remains, fossil sites, fossil-producing geologic formations, and geologic formations that have the potential for containing fossil remains are all considered paleontological resources or have the potential to be

paleontological resources. Fossil remains are considered important if they are: 1) well preserved; 2) identifiable; 3) type/topotypic specimens; 4) age diagnostic; 5) useful in environmental reconstruction; and/or 6) represent new, rare, and/or endemic taxa (City of San Diego 2002).

The determination of whether or not a project has the potential to impact paleontological resources is based on the sensitivity of the geologic unit and the amount of grading proposed for that project. In this case, the proposed project is the City's General Plan and specific grading is not proposed at any location. However, it can be assumed that future projects developed consistent with the goals and policies of the General Plan have the potential to result in grading within sensitive geologic units. The Draft General Plan does not include specific policies for the protection of paleontological resources. Likewise, the current land development regulations provide no protection for paleontological resources. These resources are identified and protected through the environmental review process for discretionary projects. Once a proposed project is subject to environmental review, the initial study would identify whether or not it is likely that fossils are present on the site.

For those formations with a high sensitivity rating, a significant impact may occur if grading exceeds 1,000 cubic yards and is ten or more feet deep (the volume count starts at the surface). For moderately sensitive formations, the threshold is 2,000 cubic yards and 10 feet of depth. A potential for significant impact should always be identified when grading any amount of material on or near a known fossil recovery site as indicated on published maps (Kennedy and Peterson 1975; Kennedy and Tan 1977). There is no potential for impact when grading in fill material.

Some areas within the City have been graded and/or filled and recompacted as part of parcel or subdivision maps or other previous projects. If an area was previously graded, the bedrock formation will be closer to the surface, so even shallow excavations, such as building footings, may extend into formations. Conversely, if an area has been filled during past construction activities (such as a canyon), even deep excavations may not reach the formation (City of San Diego 2002).

Finally, several community plans identify preservation of paleontological resources as an environmental goal for the community. Since implementation of the Draft General Plan could result in the loss of these resources, there could be significant land use impacts related to conflicts with environmental goals and policies. (See also **Section 3.8** – Land Use.)

The proposed project does not provide for detection, investigation, collection or preservation of paleontological resources. For activities not subject to environmental review, the presence of fossil resources would not be detected. Therefore, the proposed project would have a significant impact on paleontological resources. Although mitigation measures would reduce impacts, it is infeasible at this Program Environmental Impact Report (Program EIR) level to provide more specific mitigation that would reduce impacts to a less than significant level, since specific development projects are not known. Thus, potential impacts related to paleontological resources are considered significant and unavoidable.

3.11.4 Mitigation Framework

Even if alternative language in the form of policies directed at preserving important fossil remains were included in the General Plan, there is currently no regulatory scheme to implement those policies for ministerial projects. However, monitoring for paleontological resources

required during construction activities would be implemented at the project level and would provide mitigation for the loss of important fossil remains with future discretionary projects that are subject to environmental review.

The steps currently taken to identify and mitigate significant impacts to paleontological resources, as part of the discretionary review of development projects, are provided below (from City of San Diego 2007).

I. Prior to Permit Issuance

A. Environmental Review Manager (ERM) Plan Check.
   1. Prior to Notice to Proceed (NTP) for any construction permits, including but not limited to, the first Grading Permit, Demolition Plans/Permits and Building Plans/Permits, but prior to the first preconstruction meeting, whichever is applicable, the ERM Environmental designee shall verify that the requirements for Paleontological Monitoring have been noted on the appropriate construction documents.

B. Letters of Qualification have been submitted to ERM.
   1. The applicant shall submit a letter of verification to Mitigation Monitoring Coordination (MMC) identifying the Principal Investigator (PI) for the project and the names of all persons involved in the paleontological monitoring program, as defined in the City of San Diego Paleontology Guidelines.
   2. MMC will provide a letter to the applicant confirming the qualifications of the PI and all persons involved in the paleontological monitoring of the project.
   3. Prior to the start of work, the applicant shall obtain approval from MMC for any personnel changes associated with the monitoring program.

II. Prior to Start of Construction

A. Verification of Records Search.
   1. The PI shall provide verification to MMC that a site specific records search has been completed. Verification includes, but is not limited to a copy of a confirmation letter from San Diego Natural History Museum, other institution or, if the search was in-house, a letter of verification from the PI stating that the search was completed.
   2. The letter shall introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities.

B. PI Shall Attend Precon Meetings.
   1. Prior to beginning any work that requires monitoring; the Applicant shall arrange a Precon Meeting that shall include the PI, Construction Manager (CM) and/or Grading Contractor, Resident Engineer (RE), Building Inspector (BI), if appropriate, and MMC. The qualified paleontologist shall attend any grading/excavation related Precon Meetings to make comments and/or suggestions concerning the Paleontological Monitoring program with the Construction Manager and/or Grading Contractor.
      a. If the PI is unable to attend the Precon Meeting, the Applicant shall schedule a focused Precon Meeting with MMC, the PI, RE, CM or BI, if appropriate, prior to the start of any work that requires monitoring.

2. Identify Areas to be Monitored.
   Prior to the start of any work that requires monitoring, the PI shall submit a Paleontological Monitoring Exhibit (PME) based on the appropriate construction documents (reduced to 11x17) to MMC identifying the areas to be monitored including the delineation of grading/excavation limits. The PME shall be based on the results of a site specific records search as well as information regarding existing known soil conditions (native or formation).
3. When Monitoring Will Occur.
   a. Prior to the start of any work, the PI shall also submit a construction schedule to MMC through the RE indicating when and where monitoring will occur.
   b. The PI may submit a detailed letter to MMC prior to the start of work or during construction requesting a modification to the monitoring program. This request shall be based on relevant information such as review of final construction documents which indicate conditions such as depth of excavation and/or site graded to bedrock, presence or absence of fossil resources, etc., which may reduce or increase the potential for resources to be present.

III. During Construction

A. Monitor Shall be Present During Grading/Excavation/Trenching.
   1. The monitor shall be present full time during grading/excavation/trenching activities as identified on the PME that could result in impacts to formations with high and moderate resource sensitivity. **The Construction Manager is responsible for notifying the RE, PI, and MMC of changes to any construction activities.**
   2. The monitor shall document field activity via the Consultant Site Visit Record (CSVR). The CSVRs shall be faxed by the CM to the RE the first day of monitoring, the last day of monitoring, monthly (**Notification of Monitoring Completion)**, and in the case of ANY discoveries. The RE shall forward copies to MMC.
   3. The PI may submit a detailed letter to MMC during construction requesting a modification to the monitoring program when a field condition such as trenching activities that do not encounter formational soils as previously assumed, and/or when unique/unusual fossils are encountered, which may reduce or increase the potential for resources to be present.

B. Discovery Notification Process.
   1. In the event of a discovery, the Paleontological Monitor shall direct the contractor to temporarily divert trenching activities in the area of discovery and immediately notify the RE or BI, as appropriate.
   2. The Monitor shall immediately notify the PI (unless Monitor is the PI) of the discovery.
   3. The PI shall immediately notify MMC by phone of the discovery, and shall also submit written documentation to MMC within 24 hours by fax or email with photos of the resource in context, if possible.

C. Determination of Significance.
   1. The PI shall evaluate the significance of the resource.

a. The PI shall immediately notify MMC by phone to discuss significance determination and shall also submit a letter to MMC indicating whether additional mitigation is required. The determination of significance for fossil discoveries shall be at the discretion of the PI.
b. If the resource is significant, the PI shall submit a Paleontological Recovery Program (PRP) and obtain written approval from MMC. Impacts to significant resources must be mitigated before ground disturbing activities in the area of discovery will be allowed to resume.
c. If resource is not significant (e.g., small pieces of broken common shell fragments or other scattered common fossils) the PI shall notify the RE, or BI as appropriate, that a non-significant discovery has been made. The Paleontologist shall continue to monitor the area without notification to MMC unless a significant resource is encountered.
d. The PI shall submit a letter to MMC indicating that fossil resources will be collected, curated, and documented in the Final Monitoring Report. The letter shall also indicate that no further work is required.

IV. Night Work

A. If night work is included in the contract.
   1. When night work is included in the contract package, the extent and timing shall be presented and discussed at the precon meeting.
   2. The following procedures shall be followed.
      a. No Discoveries
      In the event that no discoveries were encountered during night work, The PI shall record the information on the CSVR and submit to MMC via fax by 9:00 a.m. the following morning, if possible.
      b. Discoveries
      All discoveries shall be processed and documented using the existing procedures detailed in Sections III - During Construction.
      c. Potentially Significant Discoveries
      If the PI determines that a potentially significant discovery has been made, the procedures detailed under Section III - During Construction shall be followed.
      d. The PI shall immediately contact MMC, or by 8:00 a.m. the following morning to report and discuss the findings as indicated in Section III-B, unless other specific arrangements have been made.

B. If night work becomes necessary during the course of construction.
   1. The Construction Manager shall notify the RE, or BI, as appropriate, a minimum of 24 hours before the work is to begin.
   2. The RE or BI, as appropriate, shall notify MMC immediately.

C. All other procedures described above shall apply, as appropriate.

V. Post Construction

A. Submittal of Draft Monitoring Report.
   1. The PI shall submit two copies of the Draft Monitoring Report (even if negative) which describes the results, analysis, and conclusions of all phases of the

Paleontological Monitoring Program (with appropriate graphics) to MMC for review and approval within 90 days following the completion of monitoring,

a. For significant paleontological resources encountered during monitoring, the Paleontological Recovery Program shall be included in the Draft Monitoring Report.
b. Recording Sites with the San Diego Natural History Museum
The PI shall be responsible for recording (on the appropriate forms) any significant or potentially significant fossil resources encountered during the Paleontological Monitoring Program in accordance with the City's Paleontological Guidelines, and submittal of such forms to the San Diego Natural History Museum with the Final Monitoring Report.

2. MMC shall return the Draft Monitoring Report to the PI for revision or, for preparation of the Final Report.
3. The PI shall submit revised Draft Monitoring Report to MMC for approval.
4. MMC shall provide written verification to the PI of the approved report.
5. MMC shall notify the RE or BI, as appropriate, of receipt of all Draft Monitoring Report submittals and approvals.

B. Handling of Fossil Remains.
1. The PI shall be responsible for ensuring that all fossil remains collected are cleaned and catalogued.
2. The PI shall be responsible for ensuring that all fossil remains are analyzed to identify function and chronology as they relate to the geologic history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate

C. Curation of fossil remains: Deed of Gift and Acceptance Verification.
1. The PI shall be responsible for ensuring that all fossil remains associated with the monitoring for this project are permanently curated with an appropriate institution.
2. The PI shall include the Acceptance Verification from the curation institution in the Final Monitoring Report submitted to the RE or BI and MMC.

D. Final Monitoring Report(s).
1. The PI shall submit two copies of the Final Monitoring Report to MMC (even if negative), within 90 days after notification from MMC that the draft report has been approved.
2. The RE shall, in no case, issue the Notice of Completion until receiving a copy of the approved Final Monitoring Report from MMC which includes the Acceptance Verification from the curation institution.

3.11.5 Significance of Impact with Mitigation Framework

Although significant impacts to paleontological resources can be mitigated through review and monitoring of discretionary development projects, impacts at the project level for non-discretionary projects would not be mitigated due to a lack of regulatory language in the land development code requiring protection of paleontological resources. Since specific development projects are not known at this time, the impact to paleontological resources is considered significant and unavoidable.

Notes and References

"City of San Diego Paleontological Guidelines (2007)". Available from the Development Services Department, Environmental Analysis Section located at 1222 First Avenue, San Diego, CA.

"Paleontological Resources, County of San Diego" (Thomas A. Deméré and Stephen L. Walsh, Department of Paleontology, San Diego Natural History Museum, August 1994

"Geology of the San Diego Metropolitan Area, California," by Michael P. Kennedy and Gary L. Peterson (published in the *California Division of Mines and Geology Bulletin 200,* Sacramento, 1975)

"Geology of National City, Imperial Beach and Otay Mesa Quadrangles, Southern San Diego Metropolitan Area, California," by Michael P. Kennedy and Siang S. Tan, 1977 (California Division of Mines & Geology).