

APPENDIX D

PALEONTOLOGY



SAN DIEGO NATURAL HISTORY MUSEUM
BALBOA PARK - SAN DIEGO SOCIETY OF NATURAL HISTORY - ESTABLISHED 1874

1 March 2007

Stephen Diem, PG, CEG
URS Corporation
1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108

RE: Paleontological record search – Larkspur 3 (Project No. 27657003.01000)

Dear Mr. Diem:

This letter presents the results of a paleontological record search conducted for the Larkspur 3 project. This site is located in the southeastern portion of the City of San Diego, approximately 0.30 km east of the intersection of Highway 905 and Otay Mesa Road. Kennedy and Tan (1977) mapped the sedimentary deposits in the vicinity of the project area as the Pleistocene age (approximately 0.5 to 1 million years old) Lindavista Formation disconformably overlying the Oligocene age (approximately 28 million years old) Otay Formation. The museum has no recorded localities within a one mile radius of the project area (see attached map). However, the museum has discovered numerous localities within exposures of the Otay Formation throughout southeastern San Diego County. These localities were discovered within sandstones and mudstones. Fossils recovered from these localities include plants, terrestrial invertebrates (e.g., snails), and terrestrial vertebrates (e.g., turtles, lizards, birds, insectivores, rodents, rabbits, dogs, camels, oreodonts, and rhinos).

Excavation activities associated with the proposed Larkspur 3 project will impact sedimentary deposits of the Otay Formation. Large collections of fossils have been recovered from exposures of the Otay Formation, and based on the number and scientific significance of the recovered specimens, Deméré and Walsh (1993) assigned it a high paleontological resource sensitivity. For this reason a complete paleontological resource mitigation program should be implemented. Any fossils recovered from exposures of the Otay Formation made on the Larkspur 3 project site are likely to be scientifically significant.

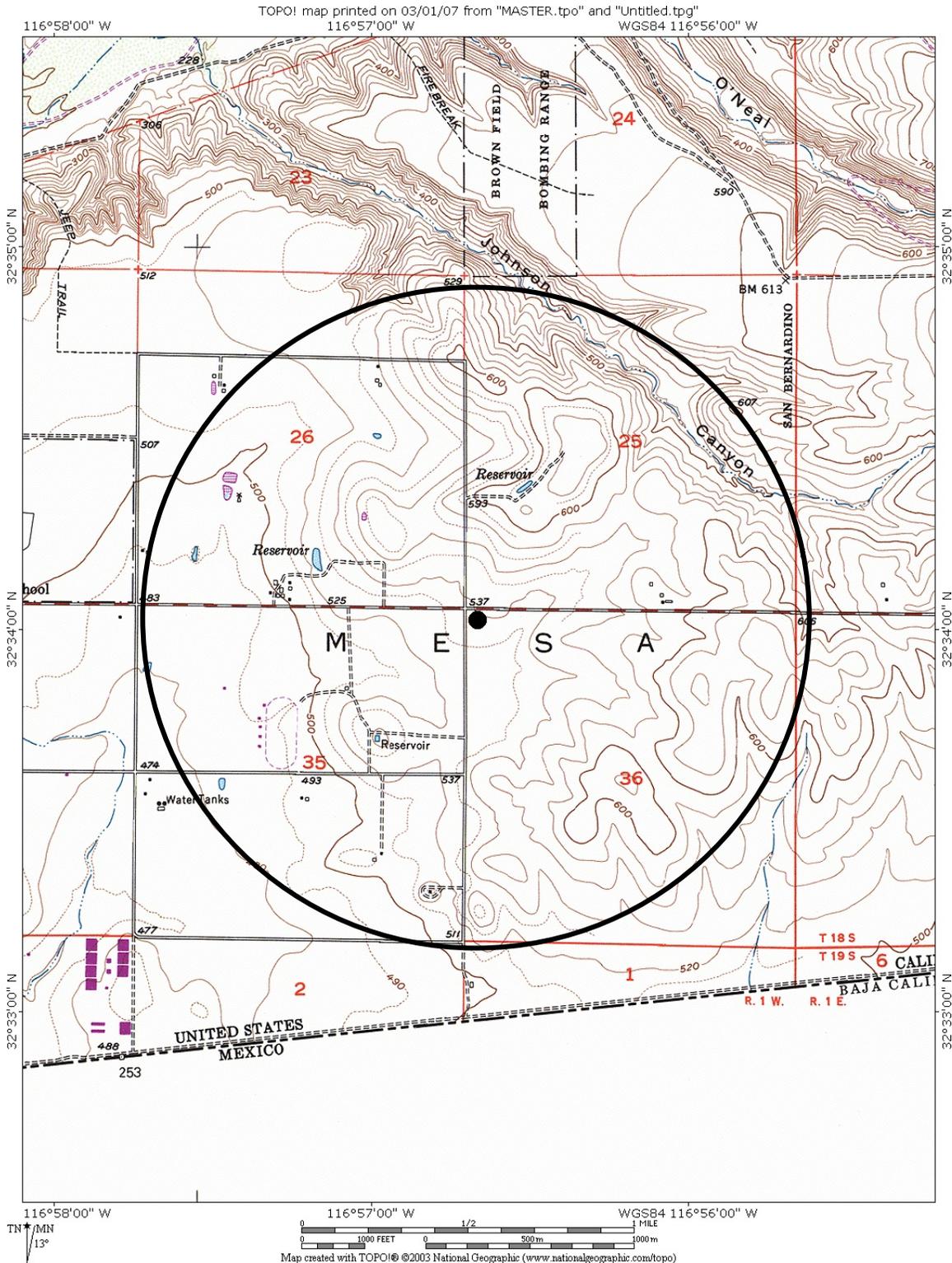
If you have any questions concerning these findings please feel free to contact me at 619-255-0187 or msoetaert@sdnhm.org.

Sincerely,

Melissa Soetaert
Collection Management Specialist
Department of Paleontology

Literature Cited:

- Deméré, T. A., and S. L. Walsh, 1993. Paleontological Resources, County of San Diego. Prepared for the Department of Public Works, San Diego County: 1-68.
- Kennedy, M. P., and S. S. Tan. 1977. Geology of National City, Imperial Beach, and Otay Mesa quadrangles, southern San Diego metropolitan area, California. Map Sheet - California Division of Mines and Geology 29.



Fossil localities within a one mile radius of the Larkspur 3 Project site, City of San Diego. (Base map Otay Mesa, CA 7.5 minute quadrangle of the U.S. Geological Survey)

Areas of Expertise	Vertebrate Paleontology; Engineering Geology
Total Years of Experience	9
URS	< 1
Other Firms	9
Education	MS/ Biology (Systematics, Evolution, and Organismal Biology)/ San Diego State University/ 1999 BS/ Geology (Engineering Geology)/ UC, Los Angeles/ 1994
Registration/Certification	Registered Geologist (RG No. 7277) Certified Engineering Geologist (CEG No. 2246) Engineer in Training
Overview	Mr. Diem is a senior paleontologist with over nine years of experience in consulting geology.
Project Experience	Paleontological Investigations Paleontological Identification Report, U.S. Highway 101/ State Route 46 West Interchange Improvement Project. City of Paso Robles, County of San Luis Obispo, CA. The scope of work for this project included the following tasks: <ul style="list-style-type: none">• Review of applicable geologic and paleontological maps and literature;• Review of known paleontological localities in vicinity of project;• Field survey of site and vicinity;• Preparation of Paleontological Identification Report. <i>Completion Date: February 1, 2007</i> <i>Client Point of Contact/Reference: City of El Paso de Robles, Public Works Department, 1000 Spring Street, Paso Robles, CA 93446.</i> Paleontological Resource Assessment, Proposed BNSF Cajon Main Third Track Summit to Keenbrook. County of San Bernardino, CA. The scope of work for this project included the following tasks: <ul style="list-style-type: none">• Review of previous work;• Revision of Paleontological section of draft Environmental Impact Report;• Revision of draft Paleontological Resource Assessment report. <i>Completion Date: February 12, 2007</i> <i>Client Point of Contact/Reference: Gresham Savage Nolan & Tilden, 550 East Hospitality Lane, Suite 300, San Bernardino, CA 92408-4205.</i> Amendment to an Application for Certification Larkspur Energy Facility, 45 MW LM6000 (Larkspur 3), The scope of work for this project included the following tasks: <ul style="list-style-type: none">• Review of previous work;• Prepare Paleontological section of Amendment to Certification. <i>Completion Date: In Progress</i> <i>Client Point of Contact/Reference: Mr. Bo Buchynsky, Diamond Generating Corporation, 333 South Grand Avenue, Suite 1570, Los Angeles, CA 90071.</i>

Geotechnical Investigations

Limited Preliminary Geotechnical Investigation, Tierra Rejada Road. County of Ventura, CA.

The scope of work for this project included the following tasks:

- Reconnaissance-level geologic mapping of the site and its immediate vicinity;
- Logging of six exploratory test pits excavated with a backhoe;
- Review of previous work;
- Preparation of the report.

Completion Date: October 31, 2006

Client Point of Contact/Reference: Mr. Richard Spencer, Cornerstone Community Church and Bible College, c/o Spectrum Land Planning, 2665-B Park Center Drive, Simi Valley, CA, 93065

Preliminary Geotechnical Investigation of Unnamed Tentative Tract, Lake Sherwood Development. County of Ventura, CA.

Evaluated the distribution and engineering characteristics of the earth materials that occur at the site. Preliminary grading and foundation recommendations were provided in the Grading Plan Review and Response to Review Report.

Completion Date: September 18, 2006

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company, 2300 Norfield Court, Thousand Oaks, CA, 91361

Geotechnical Investigation, Lots 37-39 or Tract 4409-2, Lake Sherwood Development. County of Ventura, CA.

Prepared a study of the geotechnical conditions at the subject property. The scope of work for this project included:

- Geologic mapping of the site and its immediate vicinity;
- Logging and sampling of 20 exploratory trenches excavated with a backhoe and four Borings drilled with a truck mounted bucket auger;
- Selected laboratory testing of the retrieved samples;
- Review of previous work;
- Soil engineering analysis of assembled data, and
- Preparation of the report.

Completion Date: March 7, 2003

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company, 300 West Potrero Road, Thousand Oaks, CA 91361

Geotechnical Investigation of Modification to Tentative Tract 4409, Lake Sherwood. County of Ventura, CA.

The scope of work for his project included:

- Geologic mapping of the site and its immediate vicinity;
- Aerial photo review;
- Excavation of 20 test pits and four borings;
- Review of previous work;
- Soil engineering analysis of the assembled data, and
- Preparation of the report.

Completion Date: October 16, 2002

Client Point of Contact/ Reference: Mr. Bryan Tapking, Sherwood Development Company, 300 West Potrero Road, Thousand Oaks, CA 91361.

Geotechnical Investigation of Proposed Change Order J on Sheet 4 of 17, Lots 6-13 of Tract 4590, Lake Sherwood Development. County of Ventura, CA.

The scope of work for this project included:

- Geologic mapping of the site and its immediate vicinity;
- Logging and sampling of eight additional exploratory trenches excavated with a track-hoe;
- Selected laboratory testing of retrieved samples;
- Review of previous work;
- Soil engineering analysis of assembled data, and
- Preparation of the report.

Completion Date: June 24, 2002

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company. 300 West Potrero Road, Thousand Oaks, CA 91361.

Due Diligence Geotechnical Investigation of 750-Acre Site.

City of Tehachapi, CA.

The scope of work for this project included the following tasks:

- Geologic mapping of the site;
- Review of aerial photographs of the site and its immediate vicinity;
- Review of previous work;
- Logging and sampling of 12 exploratory test pits excavated with a backhoe;
- Preparation of the report.

Completion Date: March 28, 2006

Client Point of Contact/Reference: Mr. Jim Alcalá, American Premiere Homes. 7116 Valjean Avenue, Van Nuys, CA 91406

Preliminary Geotechnical Investigation of 2887 North Towne Avenue and 700 East Harrison Avenue. City of Pomona, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Logging and sampling of six exploratory borings excavated with a truck-mounted hollow-stem auger drill rig;
- Selected laboratory resting of the retrieved samples;
- Review of previous work;
- Soil engineering analysis of the assembled data;
- Preparation of the report.

Completion Date: February 1, 2006

Client Point of Contact/Reference: Mrs. Valerie Borstein, Larwin Company. 16633 Ventura Boulevard, Suite 1300, Encino, CA 91436

Reconnaissance Geotechnical Investigation of Mazur Property. City of Moorpark, CA.

Provided a reconnaissance summary of the geotechnical issues impacting feasibility of development of the property as well as two preliminary site plans. There were three primary geologic/geotechnical issues affecting the property (faulting, slope stability, and removal).

Completion Date: January 23, 2004

Client Point of Contact/Reference: Mr. Craig Messi, Toll Brothers. 7142 Trevino Drive, Moorpark, CA 93021

Preliminary Geotechnical Investigation of Tentative Tract 5347. City of Moorpark, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Logging and sampling of six bucker auger borings excavated with a truck-mounted drill rig;
- Logging and sampling of two exploratory borings excavated with a truck-mounted hollow-stem auger rig;
- Logging and sampling of nine exploratory test pits excavated with a backhoe;
- Selected laboratory resting of the retrieved samples;
- Review of previous work;
- Soil engineering analysis of the assembled data;
- Preparation of the report.

Completion Date: September 22, 2005

Client Point of Contact/Reference: Mr. Scott Birdsall, Birdsall Group LLC. 2300 Alessandro Drive, Ventura, CA 93001

Preliminary Geotechnical Investigation of Tentative Tract 060198 Southeastern Corner of 45th Street West and Avenue M-8. City of Lancaster, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- One Cone Penetrometer Tests (CPT) sounding;
- Logging and sampling of three exploratory borings excavated with a truck-mounted hollow-stem auger rig;
- Logging and sampling of five exploratory test pits excavated with a backhoe;
- Selected laboratory testing of retrieved samples;
- Review of previous work;
- Soil engineering analysis of the assembled data;
- Preparation of the report.

Completion Date: June 30, 2005

Client Point of Contact/Reference: Mrs. Joanne Phillips, Pulte Homes Corporation. 27220 Turnberry Lane, Suite 190, Valencia, CA 91355

Due Diligence Geotechnical Investigation of Civil Design Concept, North Fagan Canyon. City of Santa Paula, CA.

Geotechnical Investigation report discussed issued related to project feasibility and provided options for mitigation of geotechnical constraints through civil design, where appropriate.

Completion Date: August 2, 2005

Client Point of Contac/Reference: Mr. Scott Birdsall, Birdsall Group LLC. 2300 Alessandro Drive, Ventura, CA 93001

Due Diligence Geotechnical Investigation of 16.17 Acre Parcel, Santa Paula Memorial Hospital Property. City of Santa Paula, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Logging and sampling of two exploratory borings excavated with a truck-mounted hollow-stem auger drill rig;
- Logging and sampling of two exploratory borings excavated with a truck-mounted

- bucket-auger drill rig;
- Selected laboratory testing of retrieved samples;
- Review of previous work;
- Review of aerial photographs of the site and its immediate vicinity;
- Soil engineering analysis of the assembled data;
- Preparation of the report.

Completion Date: March 21, 2005

Client Point of Contact/Reference: Mr. Loren Borstein, Comstock Homes. 321 12th Street, Suite 200, Manhattan Beach, CA 90266

Preliminary Geotechnical Investigation, Input to Environmental Impact Report, Fagan Canyon Area Developments. City of Santa Paula, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Logging of 11 Cone Penetrometer Tests (CPT);
- Logging and sampling of 9 exploratory borings excavated with a truck-mounted hollow-stem auger drill rig;
- Logging and sampling of 15 exploratory test pits excavated with a backhoe;
- Selected laboratory testing of the retrieved samples;
- Review of previous work;
- Review of aerial photographs that cover the site immediate vicinity.

Completion Date: January 21, 2004

Client Point of Contact/Reference: Mr. Rick Bianchi, Centex Homes. 27200 Tourney Road, Suite 200, Valencia, CA 91355

Preliminary Geotechnical Investigation of Tentative Parcel Map, Douglas Ranch, APN 615-0-270-625, Mount Sinai. City of Simi Valley, CA.

The scope of work for this project included:

- Geologic mapping of the site and its immediate vicinity,
- Logging and sampling of seven exploratory trenches excavated with a backhoe and four borings excavated with a truck-mounted hollow-stem auger,
- Five cone penetrometer tests (CPT),
- Selected laboratory testing of the retrieved samples,
- Review of previous work,
- Soil engineering analysis of the assembled data, and
- Preparation of the report.

Completion Date: January 2, 2003

Client Point of Contact/Reference: Valerie Borstein Larwin Company. 16633 Ventura Boulevard, Suite 1300, Encino, CA 91436

Grading Plan Review

Grading Plan Review, NE of Stine Road and McCutchen Road. City of Bakersfield, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Logging and sampling of three exploratory borings excavated with a truck-mounted hollow-stem auger rig;
- Logging and sampling of nine exploratory test pits excavated with a backhoe;
- Selected laboratory testing of retrieved samples;
- Review of previous work;

- Soil engineering analysis of the assembled data;
- Preparation of the report.

Completion Date: August 21, 2006

Client Point of Contact/Reference: Mr. Brian W. Grant, Standard Pacific Homes. 4700 Stockdale Highway, Suite 100, Bakersfield, CA 93309.

Grading Plan Review and Response to Review Report, Tracts 4409-3 through 4409-8, Lake Sherwood Development, County of Ventura. City of Thousand Oaks, CA.

The scope of work for this project included the following tasks:

- Mapping of the site and its immediate vicinity;
- Review of aerial photographs of the site and its immediate vicinity;
- Logging and sampling of four exploratory borings excavated with a truck-mounted bucket-auger drill rig;
- Logging and sampling of 52 exploratory test pits excavated with a backhoe;
- Selected laboratory testing of the retrieved samples;
- Review of previous work;
- Soil engineering analysis of the assembled data.

Completion Date: November 4, 2005

Client Point of Contact/Reference: Mr. Bryan Tapping, Sherwood Development Company. 300 West Potrero Road, Thousand Oaks, CA 91361.

Grading Plan Review, 16.17 Acre Parcel, Ridgeview at Vista Glen, Santa Paula Memorial Hospital Property. City of Santa Paula, CA.

Performed a grading plan review of improvements proposed for the subject parcel. Provided geotechnical recommendations for rough grading per the electronic plans prepared on June 27, 2005.

Completion Date: August 10, 2005

Client Point of Contact/Reference: Mrs. Tiffany Mueller, Comstock Homes. 321 12th Street, Suite 200, Manhattan Beach, CA 90266.

Grading Plan Review Report for Tracts 4192-5 & 4192-6, Carlisle Inlet Area of the Lake Sherwood Development. County of Ventura, CA.

The scope of work for this project included:

- Review of the 1"=40' scale rough grading plans for Tracts 4192-3/C.U.P. 4631 and Tracts 4192-5 and 4192-6 provided by the project civil engineer (Pacific Coast Civil), referenced reports;
- Geologic mapping of the site and its immediate vicinity;
- Logging and sampling of 37 exploratory trenches excavated with a backhoe;
- Selected laboratory testing of retrieved samples;
- Review of previous work;
- Soil engineering analysis of assembled data;
- Preparation of the report.

Completion Date: July 21, 2004

Client Point Contact/Reference: Mr. Bryan Tapping, Sherwood Development Company. 300 West Potrero Road, Thousand Oaks, CA 91361.

Supplemental Grading Plan Review, Tract 4192-3, Offsite ACOE Remediation Grading Plan, Carlisle Inlet Area, Lake Sherwood Development. County of Ventura, CA.

The scope of work for this project included review of previous work, logs of previous exploratory excavations and geophysical studies.

Completion Date: July 11, 2002

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company. 300 West Potrero Road, Thousand Oaks, CA 91361.

Geotechnical Report Regarding Grading Plan, Lots 12-42 of Tract 4192-3 and Offsite Areas. County of Ventura, CA.

Reviewed Rough Grading Plans (the referenced report); excavated 29 new test pits with a backhoe; performed seven seismic refraction lines, and performed geologic mapping on the site. Seventeen seismic refraction lines were performed throughout the Carlisle Inlet area, seven within the scope of the location. Prepared the seismic refraction study reports.

Completion Date: March 30, 2001

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company. 300 West Potrero Road, Thousand Oaks, CA 91361.

Bulk Grading Plan Review Report and Partial Response to Review Letter Dated March 11, 2002, Tract 5045. City of Moorpark, CA.

Performed a study of the geotechnical conditions at the subject property with respect to the bulk-grading plan prepared by a different consulting firm. Evaluated the distribution and engineering characteristics of the earth materials that occur at the site so that we might assess their impact upon the proposed bulk grading of the project.

Completion Date: March 5, 2004

Client Point Contact/Reference: Mr. Jim Beck, Pardee Homes. 1320 Flynn Road, Suite 100, Camarillo, CA 93012.

Grading Plan Review Report for Phase I, Tract 5045, Spring Road from Charles Street to Walnut Canyon Road. City of Moorpark, CA

The scope of work for this project included geologic mapping of the site and its immediate vicinity, selected laboratory testing of retrieved samples, review of previous work and aerial photographs, soil engineering analysis of the assembled data, and preparation of the report.

Completion Date: February 4, 2007

Client of Point of Contact/Reference: Mr. Jim Beck, Pardee Construction Company. 1320 Flynn Road, Suite 100, Camarillo, CA 93012

Other Projects

Review of Planned Water Tank Grading, Portion of Tract 4409-6, Lake Sherwood Development. County of Ventura, CA

Performed a study of the geotechnical conditions at the Lake Sherwood Development. Evaluated the distribution and engineering characteristics of the earth materials that occurred at the site in order to assess their impact upon the development of the property.

Completion Date: October 13, 2006

Client Point of Contact/Reference: Mr. Bryan Tapking, Sherwood Development Company. 2300 Norfield Court, Thousand Oaks, CA 91361

Discussion of Soil Conditions and Foundation Design, Phases 1 & 2 of Tract

6329. City of Bakersfield, CA

The scope of work for this project included the following tasks:

- Logging and sampling of two exploratory borings excavated with a truck-mounted hollow-stem auger drill rig;
- Logging and sampling of 21 exploratory test pits excavated with a backhoe;
- Selected laboratory testing of the retrieved samples, and
- Preparation of the report.

Completion Date: July 20, 2006

Client Point of Contact/Reference: Mr. Brian W. Grant, Standard Pacific Homes. 1500 Haggin Oaks Blvd., Suite 101, Bakersfield, CA 93311

Professional Associations

Society of Vertebrate Paleontology
Geological Society of America
Association of Engineering Geologists
American Society of Civil Engineers

Awards

1994-1998 SDSU Biology Department Grants for Research
1995 Dinosaur Society Grant for Research

Publications

Diem, S. D. and Archibald, J. D. (2005). Range Extension of Southern Chasmosaurine Ceratopsian Dinosaurs into Northwestern Colorado; *Journal of Paleontology*, Vol. 79, No. 2, pp. 251-258.

- identification, description, and discussion of Late Cretaceous ceratopsian dinosaur fossil

Diem, S. D., & Archibald, J. D. (2000). Vertebrate fauna from the Upper Cretaceous Williams Fork Formation, northwestern Colorado.

- poster session and abstract presented at the Society of Vertebrate Paleontology Annual Meetings, Mexico City, Mexico (2000)

Eaton, J. G., Diem, S. D., Archibald, J. D., Schierup, C., & Munk, H. (1999). Cretaceous vertebrate faunas from the Kaiparowits plateau, south-central Utah, in *Vertebrate Paleontology in Utah*, edited by D.D. Gillette.

- identification, description, and discussion of Late Cretaceous mammalian specimens

Diem, S. D., (1999). Vertebrate faunal analysis of the Upper Cretaceous Williams Fork Formation, northwestern Colorado.

- masters thesis: biostratigraphic position of Late Cretaceous fauna