



Staff Report

INFORMATION ON THE NEW ROADWAY GEOMETRICS ON ALAMEDA DE LAS PULGAS, SOUTH OF RALSTON AVENUE

Honorable Mayor and Council Members:

Summary

On the weekend of January 10, 2009 the restriping of Alameda de las Pulgas between Ralston Ave and the San Carlos boarder was completed. The new design includes bicycle lanes on the east and west sides of the roadway.

Background

In March 2006, City Council approved the installation of diagonal parking along Alameda de las Pulgas adjacent to Carlmont High School to reduce the number of students who were parking in the adjacent residential neighborhoods. Council soon received complaints that bicyclists were not well served by the new configuration.

In June 2007, Belmont submitted a grant application for Bicycle Facility Program (BFP) to the Bay Area Quality Management District to reduce motor vehicle emissions. The proposed scope of work consisted of installing Class 2 bicycle lanes on both sides of Alameda de las Pulgas from Carlmont Drive to the San Carlos boarder. In order to allow for the two bicycle lanes within the width of the roadway, one of the two northbound lanes had to be removed. In September 2007 the Bay Area Quality Management District approved the grant application.

In January 2008, the Belmont City Council considered restriping Alameda de las Pulgas to one lane in each direction, adding bicycle lanes, and adding additional diagonal parking in front of the Belmont Library. After much deliberation, Council directed staff to draft a proposal that included adding bicycle lanes and doing away with the second northbound lane, but not adding diagonal parking in front of the Library.

In June 2008, the Belmont City Council discussed and approved the plan to create one lane in each direction and bicycle lanes on Alameda de las Pulgas south of Carlmont Drive.

Discussion

Since the new roadway striping was completed on January 11, 2009 staff has fielded some complaints from citizens. Most revolve around increased traffic congestion near the San Carlos boarder during the morning and evening commute. This is to be expected when new geometrics are introduced to a well traveled roadway.

Public Works and Police staff have met and shared ideas about how to improve the geometrics. Some of those ideas will be implemented in the very near future. Most involve the very complicated confluence of intersections and driveways near the San Carlos border.

Observations by staff indicate the congestion lasts for approximately 20 minutes in both directions during the periods when students arrive and depart. Vehicle speeds in the area are slower. The bike lanes reduce the area of exposure a pedestrian has to vehicular traffic when crossing the street. Both of these factors make it safer for all users in the area.

Fiscal Impact

None

Public Contact

The Bicycle Committee was consulted often on this project, as was the Infrastructure Committee. Representatives from Carlmont High School were contacted by the Belmont Police Department's School Resource Officer prior to the restriping. Additional public contact was provided through the posting of the City Council agenda.

Recommendation

It is recommended no action be taken at this time.

Alternatives

1. Refer back to staff for further information or other options.
2. Suggest substantive changes and restriping

Respectfully submitted,

Raymond E. Davis, III, PE, PTOE
Director of Public Works

Jack R. Crist
City Manager

Don Mattei
Police Chief

Contact:
Ray Davis
Public Works Director
595-7459
rdavis@belmont.gov



1870 Olympic Blvd.
Suite 100
Walnut Creek
California 94596

Tel: 925.935.9771
Fax: 925.935.9773
www.caleng.com

EXHIBIT A

Proposed Scope of Services for Soil Investigation & Repair Design,
Marburger Avenue, Belmont, California
16 January 2008

PROJECT TEAM

The Cal Engineering & Geology team consists of CE&G professional staff, surveying subconsultant Bellecci Associates, drilling subcontractor Exploration Geoservices, and laboratory subconsultant Cooper Testing Laboratories.

PROJECT STAFFING

Cal Engineering & Geology's proposed project team for the Marburger Avenue Road Project will be comprised of experienced principal, senior, and project level geologists and engineers from CE&G. Each of the project team members has worked on several similar projects within the past five years.

Principal Engineer Phillip Gregory, P.E., G.E. will be the Principal-in-Charge, contract manager, and the primary contact with the City. He will be responsible for coordinating contracting issues with the City. Mr. Gregory will also serve as the primary technical reviewer and quality control manager.

Senior Engineer Mark Myers, P.E., G.E. will be Cal Engineering & Geology's proposed project manager. As project manager, Mr. Myers will oversee all aspects of the geotechnical and design services to be provided for the project. He will also be the primary author of the geotechnical design report and lead design engineer for preparation of the PS&E. He will coordinate with the City staff and residents regarding access and encroachment issues. Mr. Myers will also be responsible for all coordination with subcontractors.

Senior Engineering Geologist Patrick Drumm, P.G., E.G. will be responsible for field mapping of the landslide and implementation of the subsurface exploration and testing program.

Project Engineers Chris Hockett, P.E. and Elijah Zane, P.E. will report to Mr. Myers and be responsible for developing the subsurface exploration and testing programs for the project, completing design analysis, and preparing the project plans and specifications.

PROJECT APPROACH AND SCHEDULE

Potential Methods of Stabilization

Based on our site reconnaissance and review of the Cotton Shires & Associates preliminary evaluation letter, we believe that the roadway should be stabilized by isolating the road prism from the remainder of the landslide below through the use of reinforced concrete stabilization piles and/or a combination of soil nails, micropiles, and possibly tiebacks. The preferred alternative will depend upon the depth of movement indicated in the exploratory borings and the configuration of the sliding.

Scope of Services

Cal Engineering & Geology will the work into three main phases: 1) Site Exploration and Characterization, 2) Design Engineering, and 3) Construction Support Services.

Phase 1 Site Exploration and Characterization and Report

Task 1: Topographic Map

A topographic survey of the site will need to be prepared to serve as the base for the geologic mapping and roadway stabilization plans. The survey will be prepared by Bellecci & Associates. The survey will include the right-of-way location and private property lines within the area of distress. Topography will be developed for roughly 200 feet downslope and 100 feet up slope of the road and 50 to 100 feet on each side of the current sliding.

Task 2: Geology and Landslide Features Mapping

A site geology and landslide features map will be developed using the topographic map developed under Task 1. The map will include landslide features, scarps, pavement and slope distress, outcrops, and other pertinent surface features. The topographic map prepared under Task 1 will be used as the base for the geologic mapping.

A second landslide features map of the larger underlying landslide will also be prepared. This map will utilize available topographic maps of the area and will be based on interpretation of stereopaired aerial photographs and field observations.

Task 3: Subsurface Investigation and Testing

We propose to complete three exploratory borings using Exploration Geoservices as our drilling subcontractor. The borings will be drilled from the road using hollow stem auger and/or rotary wash methods. Two borings will be excavated within the active sliding and one beyond. The locations of the

borings may end up being controlled by the locations of both the underground and overhead utilities which are present. We will coordinate with the drilling subcontractor when we mark the site for USA clearance so that the best potential boring sites are identified prior to the drilling date. Boreholes will be drilled and sealed in accordance with County standards.

We anticipate that each boring will be extended to between approximately 60 and 80 feet in order to facilitate assessment of both the larger underlying landslide and the current active landslide. To the extent possible continuous sampling of the borings will be completed in the upper 20 to 30 feet of each hole until the depth of the active sliding is exceeded. Below the apparent depth of the active movement, samples will be taken at 5 to 10 foot intervals. The borings will be logged by an engineering geologist from our firm and the samples will be retained for potential laboratory testing.

We do not anticipate that the installation of instrumentation such as inclinometers and piezometers will be needed to characterize the site sufficiently to design stabilization measures.

Task 4: Laboratory Soils Testing

Following completion of the exploratory drilling, samples from the borings will be selected for index properties and strength testing. Undrained triaxial shear tests with pore pressure measurements will be completed on samples of slide plane and bedrock materials. Laboratory soils testing will be completed at Cooper Labs in Palo Alto.

Task 5: Soils Investigation Report

We will prepare a soils investigation report which will include the results of Tasks 1 through 4 and will provide the basis for design for the recommended stabilization system for the roadway. The report will include 1) geologic characterization of the site and of both the active and underlying inactive landslide, 2) slopes stability analyses of the current condition of the active and underlying landslides, 3) analyses and discussion of the stability of the landslide after the recommended stabilization measures have been completed, and 4) design parameters for design of the recommended stabilization measures. A draft report will be provided to the City and its peer review consultant and a final report will be prepared after the review comments have been considered and discussed with the City and its review consultant.

Task 6: Meetings with City and Review Consultant

We will meet with the City and its peer review consultant prior to the start of the investigation, following the completion of the subsurface exploration, and following review of the draft report.

Alternative Scope of Work

As requested in the RFP, we will can provide additional services relating to evaluating and developing recommendations for addressing adjacent areas of the roadway where there are signs of potential instability, but not active movements. This work is relatively minor compared to the primary scope and can be completed with very little additional effort and will be included within the base work described and proposed herein.

Phase 1 Deliverables: Draft and Final Soils Investigation Reports

Phase 2: Design Engineering

Task 1: Stabilization System Design Calculations

We will complete design calculations for the roadway stabilization system including slope stability analyses based on cross-sections developed from Phase 1, structural calculations for the anticipated stabilization piles and grade beam/retaining wall, and drainage calculations. The design calculations together with the slope stability analyses included in the soils investigation report will be intended to demonstrate that the recommended stabilization measures will not adversely impact the stability of the older underlying landslide on the adjacent properties.

Task 2: Plans, Specifications, and Engineer's Estimate

We anticipate that the plans will consist of five to seven sheets including: general notes, symbols and project description; site plan and the layout of the proposed stabilization measures; drainage plan; typical sections; developed elevation of the retaining wall; details; erosion control plans; and traffic control and construction staging. We assume that City will assist in preparation of the plan cover sheet. Plans will be prepared in standard Imperial units in general conformance with the Caltrans Drafting and Plans Manual. Details from Caltrans Standard Plans will be used where appropriate. Plans will be prepared using AutoCAD. If the plans need to be prepared using the City's drafting standards, we assume that the City will provide the necessary digital files for their standards.

Review submittals will be 11x17 inch half size plots. The final (approved) plans will be stamped and signed reproducible full-size plots on vellum. Final unsigned half-size plots will also be provided. If requested, electronic drawing files (AutoCAD 2008 "DWG" files) will be provided with the understanding that they will not be modified in any way without the consent of Cal Engineering & Geology. Signatures will not be digitized.

We will prepare project technical specifications pertinent to the retaining wall in general conformance with the Caltrans Standard Special Provisions (SSP) format which will augment, as necessary, the 2006 Standard Specifications. The project technical specifications which we prepare will become a part of

the overall project specification package prepared together with the City staff. The technical specifications will be provided as hard copy until the final approved submittal at which time a Word or WordPerfect file will also be provided.

An engineers estimate of the probable construction cost will be prepared based on known unit costs for similar public works projects on which we have worked in the past three years.

Task 3: Meetings with City and Review Consultant

We will meet with the City and its peer review consultant prior to the start of Phase 2 and following the completion of the Preliminary for Review PS&E.

Phase 2 Deliverables: The plans, specifications, and engineer's estimate will each be developed in three stages: A) Preliminary for Review (approximately 70%) in conjunction with the soils investigation report and a preliminary engineer's estimate; B) Pre-Final for Review (approximately 95%); and C) Final (stamped and signed).

Phase 3: Construction Support Services

The scope of construction support services will depend upon the level of assistance required by the project inspectors with regard to the retaining wall construction. We propose to provide a baseline of construction engineering services consisting of the following tasks:

- Attendance at pre-bid and pre-construction meetings;
- Review and respond to RFI's and project submittals;
- Observations during construction of the road stabilization system and pavement repairs;
- Special inspection and testing of the construction; and
- Preparation of summary of construction report and record drawing.

We assume that contract administration, construction staking, and all other inspection services will be handled by the City.

Access to Adjacent Property

Based on our proposed scope of work we anticipate that it will be necessary to access portions of apparent private properties below and above the road for the purpose of developing the site topographic survey, geologic mapping, and potential geophysical survey. We do not anticipate the need to drill or do destructive testing outside of the apparent road right of way.

Depending on the final design of the stabilization measures, it will may be necessary to obtain permanent or temporary encroachment permits for construction of stabilization piles and possibly tieback anchors.

Proposed Schedule

The proposed schedule for Phases 1 and 2 is provided in Table 1. The proposed schedule is based on good weather conditions and rapid turn around of reviews by the city and its review consultant. Should inclement weather develop, drilling may be delayed until safe conditions exist.

PROPOSED LEVEL OF EFFORT AND COST

The proposed level of effort and costs for Phases 1 and 2 are provided in Tables 2 and 3. The level of effort and cost for Phase 3 will depend upon the efficiency and scheduling of the contractor selected to complete the work and are not included herein. The proposed schedule is based on good weather conditions and rapid turn around of reviews by the city and its review consultant. Should inclement weather develop, drilling may be delayed until safe conditions exist.



1870 Olympic Blvd.
Suite 100
Walnut Creek
California 94596

Tel: 925.935.9771
Fax: 925.935.9773
www.caleng.com

EXHIBIT A

CAL ENGINEERING & GEOLOGY, INC.
2009 FEE SCHEDULE

Professional Services. These are "all-up" rates, and include direct salary cost, overhead, general and administrative costs not separately accounted for, and profit.

Classification	Rate
Principal Engineer/Geologist	\$180 per hour
Associate Engineer/Geologist	\$150 per hour
Senior Engineer/Geologist	\$125 per hour
Project Engineer/Geologist	\$95-\$105 per hour
Staff Engineer / Geologist	\$85-\$90 per hour
Technician	\$80 per hour
Administration/Clerical	\$60 per hour
Deposition/Court Testimony (minimum 4 hours)	\$250 per hour

Expenses. All direct costs will be billed at actual cost plus 15%, unless there is explicit agreement otherwise. Direct costs include:

- ▶ Third party services – Fees for subcontracted third party services (including drilling and backhoe services, special consultant fees, permits, special equipment rental, overnight mail or messenger services and other similar project related costs)
- ▶ Reproduction costs, including photocopy, blueprints, graphics, photo prints or printing.

