APPENDIX F

VISUALIZATION METHODOLOGY

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Garden Terraces Visualization Methodology

The following technologies and methods were used to create the photo simulations.

Image Capture

Digital imagery was captured from agreed upon locations. The images were captured using currently available photographic equipment having the ability to recreate images with maximum clarity and with minimal lens distortion. As images were captured Global Positioning (GPS) and compass heading coordinated data from each camera location was also captured. Together with each digital image is EXIF metadata. This EXIF data includes date/time shutter speed, etc. but most importantly the data includes focal length information about the lens used to capture the image. This focal length information is later used in the process to derive the Field of View (FOV) in the images. The FOV is the geometric angle that can be represented in a plan view of the project indicating the limits of what is seen by the camera.

Model Creation

Based on the plans provided by the applicant we constructed a 3 dimensional computer model of the proposed project. The model includes both project site and building information.

The site model includes curbs, sidewalks, paving and hardscape elements indicated on the drawings to be modified from existing conditions. We identified some discrepancies between Civil and Landscape drawings especially as it relates to the proposed modifications to Garden Street. Our model was constructed to more closely follow the Civil drawings as it related to curbs, gutters and sidewalks. We followed the Landscape drawings for placement of trees.

The building model was primary based on the architectural drawings dated 10/31/06. In addition to these drawings we were provided with AutoCAD layouts, a SketchUp 3 dimensional model and colored elevations of the proposed project. The secondary elements provided were used as reference material but in the case of discrepancy we relied on the printed drawings. We were specifically requested to attempt to utilize the model that had been previously constructed by the applicant as a means to reduce redundancy and provide a more streamlined set of services. This request came from the applicant and was not mandated or required by the City or AMEC (the prime consultant in the preparation of the EIR). The model provided by the applicant was discarded early in the process after we discovered that model was based on the assumption of a flat site. In reality there is approximately a four foot differential in height between Broad Street and Garden Streets. This ground plane differential needed to be precisely represented in our model in order to achieve an accurate representation of the proposed construction into the base photography. We were unable to utilize the 3 dimensional electronic information

provided by the applicant, except as reference to clarify massing relationships in the model.

Material Replication

We derived digital representations of the materials specified by the applicant and referenced in the same drawings used to create the computer model. The material attributes were then assigned to the computer model. The identical priorities were used for the assignment of materials as used to construct the model. Again, as we identified discrepancies in the various reference materials we followed the printed plans first. Specifically, the colored elevations provided by the applicant appear to have inconsistencies with the printed plans. One of the most notable differences is the color assignment of the stair tower located about mid block along Marsh Street.

GPS location and FOV matching

Once the computer model was completed and the material assigned to the surfaces of that model the model was digitally located consistent with the California State Plane coordinate system. The GPS points captured with the base images were translated into the same coordinate system and merged into the model. A digital camera was then placed at each of these locations and pointed to match the compass bearing collected earlier. The FOV settings for each camera was set to match the corresponding lens information collected. The end result is an electronic camera that matches the physical camera as it relates to relative position to the proposed construction.

Model Rendering

A computer rendering was generated from each of the electronic cameras. The computer lighting of the scene was modified in each camera to mimic the time of day the base photograph was captured.

Photo Compositing

The resulting computer rendering was then overlaid into the base photography. The foreground elements in the photographs between the proposed construction and the camera were then digitally masked and layered over the rendering.

Shadow and Solar Access Studies

A composite 3d model representing the proposed construction coupled with existing adjacent conditions was created. Known solar angles for the City of San Luis Obispo were plotted against this model to reveal areas of the proposed design that both cast shadows on adjacent structures and exceed the solar access recommendations imposed by the City.