View 7: Existing Conditions

View 7: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 7A

View 7

View 7: Existing Conditions

View 7: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 7B

View 7

View 7: Existing Conditions

View 7: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 7C

View 7

View 7: Existing Conditions

View 7: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 7D

View 7

View 7: Existing Conditions

View 7: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 7E

View 7

View 7: Existing Conditions

View 7: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 7F

View 7

View 8: Existing Conditions

View 8: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 8A

View 8

View 8: Existing Conditions

View 8: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 8B

View 8

View 8: Existing Conditions

View 8: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 8C

View 8

View 8: Existing Conditions

View 8: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 8D

View 8

View 8: Existing Conditions

View 8: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 8E

View 8

View 8: Existing Conditions

View 8: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 8F

View 8

View 9: Existing Conditions

View 9: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 9A

View 9

View 9: Existing Conditions

View 9: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 9B

View 9

View 9: Existing Conditions

View 9: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 9C

View 9

View 9: Existing Conditions

View 9: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 9D

View 9

View 9: Existing Conditions

View 9: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 9E

View 9

View 9: Existing Conditions

View 9: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 9F

View 9

View 10: Existing Conditions

View 10: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 10A

View 10

View 10: Existing Conditions

View 10: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 10B

View 10

View 10: Existing Conditions

View 10: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 10C

View 10

View 10: Existing Conditions

View 10: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 10D

View 10

View 10: Existing Conditions

View 10: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 10E

View 10

View 10: Existing Conditions

View 10: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 10F

View 10

View 11: Existing Conditions

View 11: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 11A

View 11

View 11: Existing Conditions

View 11: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 11B

View 11

View 11: Existing Conditions

View 11: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 11C

View 11

View 11: Existing Conditions

View 11: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 11D

View 11

View 11: Existing Conditions

View 11: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 11E

View 11

View 11: Existing Conditions

View 11: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 11F

View 11

View 12: Existing Conditions

View 12: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 12A

View 12

View 12: Existing Conditions

View 12: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 12B

View 12

View 12: Existing Conditions

View 12: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 12C

View 12

View 12: Existing Conditions

View 12: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 12D

View 12

View 12: Existing Conditions

View 12: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 12E

View 12

View 12: Existing Conditions

View 12: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 12F

View 12

View 13: Existing Conditions

View 13: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 13A

View 13

View 13: Existing Conditions

View 13: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 13B

View 13

View 13: Existing Conditions

View 13: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 13C

View 13

View 13: Existing Conditions

View 13: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 13D

View 13

View 13: Existing Conditions

View 13: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 13E

View 13

View 13: Existing Conditions

View 13: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 13F

View 13

View 14: Existing Conditions

View 14: Completion of Phase 1 Improvements

E&B Oil Development Project

FOCUS 360

Figure 14A

View 14

View 14: Existing Conditions

View 14: During Phase 2 with Drill Rig

E&B Oil Development Project

FOCUS 360

Figure 14B

View 14

View 14: Existing Conditions

View 14: Completion of Phase 3 Improvements

E&B Oil Development Project

FOCUS 360

Figure 14C

View 14

View 14: Existing Conditions

View 14: Phase 4 with Drill Rig Onsite

E&B Oil Development Project

FOCUS 360

Figure 14D

View 14

View 14: Existing Conditions

View 14: Phase 4 with Workover Rig During Maintenance

E&B Oil Development Project

FOCUS 360

Figure 14E

View 14

View 14: Existing Conditions

View 14: Phase 4 During Ongoing Operation

E&B Oil Development Project

FOCUS 360

Figure 14F

View 14

141 Portland Street
Boston MA 02114
Tel: (617) 523-8103
Fax: (617) 523-4333

October 9, 2013

Attention: Luis F. Perez
Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura, California 93003-3223

Dear Mr. Perez,

Reference: Review of E&B Oil Development Project Photo Simulations

Stantec Consulting Services Inc. (Stantec) is pleased to present this review of photo simulations for the project site located at 555 6th Street in the City of Hermosa Beach, California. E&B Natural Resources Management Corporation (E&B), the Applicant, is proposing the E&B Oil Development Project (Proposed Project) at the existing Hermosa Beach City Maintenance Yard. The documents and responses listed below were reviewed:

- Planning Application, Appendix A, Visual Simulations, dated November 2012
- Response to Requested Clarifications, Attachment G, Visual Simulation Process, dated June 24, 2013
- Response to Questions Regarding the Photo Simulations, dated Monday September 9, 2013

1.0 Scope of Work

Photo simulations and simulation process descriptions were accessed by Stantec for the proposed project via the City of Hermosa Beach Website. The photo simulations in these documents were prepared by the Applicant's consultant, Focus360 and were provided in the Project Application to the City of Hermosa Beach.

No photo simulations were provided or evaluated for the proposed relocated maintenance yard, proposed pipeline or metering station locations as part of this scope of work. No technical files or data sets used to prepare the simulations were requested or reviewed as part of this analysis.

The photo simulation information provided by the Applicant was compared to best practices for photo simulation preparation and accuracy. They were also evaluated for potential use in the Environmental Impact Report (EIR).

Reference: Review of E&B Oil Development Project Photo Simulations

2.0 Summary of Findings

The findings of Stantec's review of the photo simulations are presented below

2.1 Review of Planning Application Appendix A Visual Simulations

2.1.1 Photo Locations

Appendix A of the Planning Application included eighty-four (84) visual simulations from fourteen (14) locations surrounding the project site. Each of the 14 simulation locations were simulated during all four project phases (including three conditions during phase 4) for a total of six (6) simulations per photo location. This multi-phase multi-condition approach provides a robust and thorough framework for communicating visual impacts. Attachment 'G' Key Map provided photo locations and camera bearing direction.

Stantec Finding: the photo locations and bearing directions appear to be accurate.

For purposes of CEQA, the locations are generally representative of potential visually sensitive receptor locations (residences, recreation areas, etc.). Additional sensitive receptor locations are likely to be identified as the CEQA process moves forward, and should also be evaluated or determined to be 'not-visible' for consistency.

2.1.2 Building Materials, Color and Finishes

Stantec was unable to locate a schedule of exterior building materials, colors and finishes for the proposed project in the Application. Most materials were called out in various locations (i.e. figures and descriptive text). Colors were not identified, however Conditional Use Permit Condition of Approval 1 in Section 10 Aesthetics states that colors are required to be of 'neutral color to blend with the surroundings'.

Stantec Finding: Building materials and colors displayed were generally found to be consistent with project figures and the requirements of the condition of approval noted above. A building material not found to be specified in the Application and of particular importance is the material finish of the 'covered mast', which is intended to make the electric drill rig 'less visually intrusive' (see Applicant statement in Attachment B of the Application). In the event that a highly reflective material is used (i.e. glass) the structure has the potential to create glare which would need to be evaluated and disclosed under CEQA.

2.1.3 Plant Materials and Sizes

The plant materials and sizes were identified in the Planning Application as Figures 13, 14, 21, 22, and 27. They are visible to varying extents in most simulations.

Reference: Review of E&B Oil Development Project Photo Simulations

Stantec Finding: The plant materials have the correct general form and texture to be adequately representative of the species noted in the project figures. Locations and density are generally accurate although some species have swapped locations (note: since the species swapped have the same general scale and form, this is not viewed as a significant deviation).

The plant materials shown also accurately represent the size and scale shown in the project figures. However, the size of the trees and the density of the vine coverage in the project figures were found to be overly generous. The tree species *Arbutus 'Marina'* is shown in the figures and simulations at an approximately 32' height out of a 48" box planting size (see figure 27 and simulations). This species grown as a standard at 48" box size can only be expected to be 12'-16' maximum at the time of planting. The vine species is not specified, however it is shown almost completely covering the 16' block wall during phase three, a short fourteen month window. The depictions of the trees and vines in the simulations would only be accurate/representative of the plantings approaching full maturity toward the middle or end of phase four. They do not provide a realistic representation of what the public can expect to see during phase 3 or the first part of phase 4.

The multi-level plantings shown in the simulations at the corner of 6th Street and Valley Drive were found to be in excess of the plan depiction in Figure 21. At this corner, the new sidewalk improvements meet the wall and reduce the available planter area significantly.

2.2 Review of Response to Requested Clarifications Attachment 'G' Visual Simulation Process

2.2.1 Site Survey & Photography

Viewpoint selection

The document states that the viewpoints were selected from locations open to the public or within the public right-of-way. The views were also selected to be representative of the project site and surrounding area.

Stantec Finding: These selection criteria are adequate for general visualization and representation purposes.

For purposes of CEQA, photo locations are identified through a process of mapping high sensitivity land uses, viewing distance zones, and project viewshed/visibility. Many of the locations identified in Appendix A of the planning application may be considered candidates for key observation points. Additional locations may be identified.

Reference: Review of E&B Oil Development Project Photo Simulations

Camera and Lens

The document states that a "high-resolution digital camera that utilized a variable zoom lens" was used.

Stantec Finding: See discussion under questions 1, 2 and 3 in section 2.3.1 below.

Horizontal and Vertical Controls

The document states that a "survey-quality differential GPS unit manufactured by Trimble, TSCe/DGPS" with half-meter accuracy was used to gather horizontal and vertical data for each photo location. Additional features such as trees, poles, and surrounding features were also recorded.

Stantec Finding: The device selection, level of accuracy, and additional survey points taken indicate a thorough and technical survey was conducted at the time of photography.

2.2.2 Computer Modeling

Project Massing and Modeling

The documents states that an accurate three-dimensional model of the proposed project was created based on pertinent project information such as surveyed topographic information, civil and project design files, and details. The project files were coordinated in AutoCAD and then imported into 3D Studio Max and "built" in the computer in-place according to civil and site design files.

Stantec Finding: The modeling in the photo simulations appears to be generally accurate in terms of massing, scale and location of the project elements in each phase, based on the drawings provided in the Application. Some minor deviations were identified and where significant are noted in this review. The programs used to complete this work are appropriate and adequate.

Camera Setup and Rendering

The document describes a process in which a virtual camera is placed into the model at the selected viewpoints. The camera setups were double checked for accuracy and scale using the extra survey points gathered during the site visit.

Stantec Finding: The process described in the document for camera setup and rendering in 3D Studio Max was generally adequate. Two questions were developed by Stantec and submitted to gain additional insight into the technical rigor of the process. These are included in this review as questions 4 and 5 in Section 2.3.1 below.

Reference: Review of E&B Oil Development Project Photo Simulations

2.2.3 Composite Imaging

The document describes a process in which a digital artist isolated unchanged foreground elements from background elements and composite imaged the high resolution project rendering between the two.

Stantec Finding: The process described is standard. Review of the photo simulations in the Application indicated this work was done with a high degree of accuracy and skill.

2.3 Review of Response to Questions Regarding Photo Simulations

2.3.1 Questions and Responses

After review of the photo simulations and simulation process description provided in the planning application, Stantec submitted five questions to Focus 360 in order to gain additional clarity and insight on the technical rigor of the work. These questions were submitted in letter format dated August 14th, 2013 (Attachment A). Focus360 provided responses to the question in an email dated September 9th, 2013 (Attachment B). Included below are the questions and responses that were received. Additionally, Stantec's findings on Focus 360's responses are presented.

Question 1: What was the make and model of the camera that was used?

Focus360 Response: Canon EOS 5D with a Canon 24-105mm lens.

Stantec Finding 01: The camera model is a full-sized CCD camera, which is appropriate for photo simulation. The lens is discussed in Finding 2 below.

Question 2: It's stated that they used a "variable length lens" during the shoot. Was the focal length of the lens consistent from location to location?

Focus 360 Response: All of the selected shots use a 24mm lens setting, with the exception of View 04-7086 which was shot at 84mm.

Stantec Finding 02: We would prefer to see that a consistent focal length is used for all shots used in the photo simulation process. The use of 24mm and 84mm lens settings for photo simulation are discussed in Stantec Finding 3 below.

Question 3: Was there an attempt to approximate a 50mm lens?

Focus360 Response: We prefer to provide as much context as possible within each shot, thus we strive to maintain the 24mm setting as much as possible. While this causes more in-camera distortion as compared to a 50mm setting, we feel it provides a better study image, especially when in close proximity to the subject development.

Reference: Review of E&B Oil Development Project Photo Simulations

Stantec Finding 03: We concur that a 24mm wide-angle lens provides more context within each individual study image. We also concur that the use of a 24mm lens results in more in-camera distortion than a 50mm lens. This distortion, while acceptable for general visualization or 'study image' purposes, is undesirable for environmental review-level photo simulation. We would prefer to see a 50mm fixed focal length lens used. The 50mm lens is widely-regarded to be the closest approximation of the human eye. A 24 mm lens (or wide angle lens) expands the field of view wider than a human eye can record, by exaggerating the perspective of a given view. This translates into an image where objects in the distance seem smaller and further away, while objects in the foreground seem closer and larger in scale. An 84mm focal length setting (or telephoto lens) has the opposite effect, contracting the field of view. Since the distortions produced by a 24mm and 84mm lens are not produced by the human eye, they are less defensible as fair representations of project impacts from set locations. These lenses are also less defensible as a basis for evaluating the magnitude of change under CEQA, since the distortions alter perceptions of depth and distance.

We also disagree with the use of varying focal length lenses from location to location. While each individual simulation is accurate to the photo, we have strong reservations about introducing the 84mm lens images alongside the 24mm lens images as it does not provide a consistent sense of scale and proportion throughout the image set. See Attachment C for demonstration of lens distortion significance.

Question 4: When creating the cameras in 3DS Max, was the focal length multiplier of the physical camera lens taken into account?

Focus360 Response: The FLM for this camera is 1. No multiplier is needed. In 3dsMax, we use the Vray physical camera that takes in the same value as shown in the shot metadata.

Stantec Finding 04: Approach and methodology are acceptable.

Question 5: When rendering the image, was the output size of the image identical to that of the original uncropped image?

Focus360 Response: Yes, the images are rendered full frame, directly onto the photo backplate – no cropping was involved in these images.

Stantec Finding 05: Approach and methodology are acceptable.

Reference: Review of E&B Oil Development Project Photo Simulations

3.0 Conclusions and Recommendations

3.1 Conclusions

- Overall, the photo simulations are accurate representations of the project and were produced with a high degree of skill and attention to detail.
- The massing, phasing and materials depicted are consistent with the figures, drawings and descriptions provided in the Project Application.
- The focal length used in the original photography produces field of view and depth distortions which do not accurately reproduce those of the human eye.
- The visual simulations have limited usefulness for purposes of CEQA, since the base photography does not represent what a human standing at the location would observe.
- Tree size and vine coverage representations were found to be overly generous.

3.2 Recommendations

- Prepare simulations intended to be used for CEQA using original photography shot with 50mm lens on full-size CCD camera.
- Prepare all simulations intended to be used for CEQA using the same 50mm focal length.
- Ensure sun/shadow settings in each simulation are set to the date and time of each original photograph.
- Ensure material finishes, colors and reflectivity of materials accurately depict those proposed by the Applicant.
- Provide tables outlining the exterior materials, colors and finishes for each phase.
- Ensure landscape materials are appropriately scaled and represented for each phase. Provide written statement of assumed plant material maturity that simulations are intended to represent.
- If drill rig location varies along the well cellar alignment, we recommend locating rig in 'worst case scenario' location.
- Prepare additional simulations at sensitive public view locations identified in CEQA analysis section. These may include but not be limited to the Hermosa Beach Pier, the Pacific Ocean shoreline, the relocated Public maintenance yard area, areas adjacent to the pipeline alignment and other public areas.

Reference: Review of E&B Oil Development Project Photo Simulations

4.0 Closure

We trust that this report provides the information you need at this time. If you have any questions or need additional information, please contact us.

Regards,

Stantec Consulting Services Inc.

Prepared by:

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Approved by:

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Principal Scientist
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Attachment A: Stantec Letter, *Hermosa Beach E&B Oil Development Project: Photo Simulation Process Questions*, dated August 14th, 2013

Attachment B: Focus 360 Email, Responses to Questions on the Visual Simulations, dated September 9th, 2013

Attachment C: Lens Focal Length Demonstration, produced by Stantec

Stantec Architecture Inc.
141 Portland Street
Boston MA 02114
Tel: (617) 523-8103
Fax: (617) 523-4333

August 14, 2013
File: 185803045

Attention: Mr. Luis Perez
Marine Research Specialists
3140 Telegraph Road, Suite A
Ventura, CA 93003-3238

Dear Luis,

Reference: Hermosa Beach E&B Oil Development Project: Photo Simulation Process Questions

In response to *Attachment G - Visual Simulation Process* included as part of the *Response to Requested Clarifications on Planning Application* by E&B Oil (dated June 24, 2013), we have the following questions regarding the preparation of the photo simulations.

1. What was the make and model of the camera that was used?
2. It's stated that they used a "variable length lens" during the shoot. Was the focal length of the lens consistent from location to location?
3. Was there an attempt to approximate a 50mm lens?
4. When creating the cameras in 3DS Max, was the focal length multiplier of the physical camera lens taken into account?
5. When rendering the image, was the output size of the image identical to that of the original uncropped image?

Regards,

STANTEC ARCHITECTURE INC.

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Senior Associate
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chuck.lounsberry@stantec.com

c. Mr. Dalton LaVoie, Mr. Michael Weber, Mr. Paul Marcillac, and Mr. Ed White, Stantec

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Subject: Responses to Questions on the Visual Simulations
Date: Monday, September 9, 2013 11:07:24 AM Pacific Daylight Time
From: Lauren Jue <lajue@earthlink.net>
To: Karen Northcutt <knorthcutt@earthlink.net>

Karen,

Here the responses that Brent Chase provided.

1. What was the make and model of the camera that was used?

   Canon EOS 5D with a Canon 24-105 mm lens

2. It's stated that they used a "variable length lens" during the shoot. Was the focal length of the lens consistent from location to location?

   All of the selected shots use a 24mm lens setting, with the exception if View 04-7086 which was shot at 84mm.

3. Was there an attempt to approximate a 50mm lens?

   We prefer to provide as much context as possible within each shot, thus we strive to maintain the 24mm setting as much as possible. While this creates more in-camera distortion as compared to a 50mm setting, we feel that it provides a better study image, especially when in close proximity to the subject development.

4. When creating the cameras in 3DS Max, was the focal length multiplier of the physical camera lens taken into account?

   The FLM for this camera is 1. No multiplier is needed. In 3dsMax, we use the Vray physical camera that takes in the same value as shown in the shot metadata.

5. When rendering the image, was the output size of the image identical to that of the original un-cropped image?

   Yes, the images are rendered full frame, directly onto the photographic backplate- no cropping was involved in these images.

Thanks,

Lauren Jue

Northcutt & Associates

From: Edward Almanza <superpark@igc.org>
Date: Thursday, August 15, 2013 5:06 PM
To: Karen Northcutt <knorthcutt@earthlink.net>, Lauren Jue <lajue@earthlink.net>
Subject: Visual Simulations

TOWER

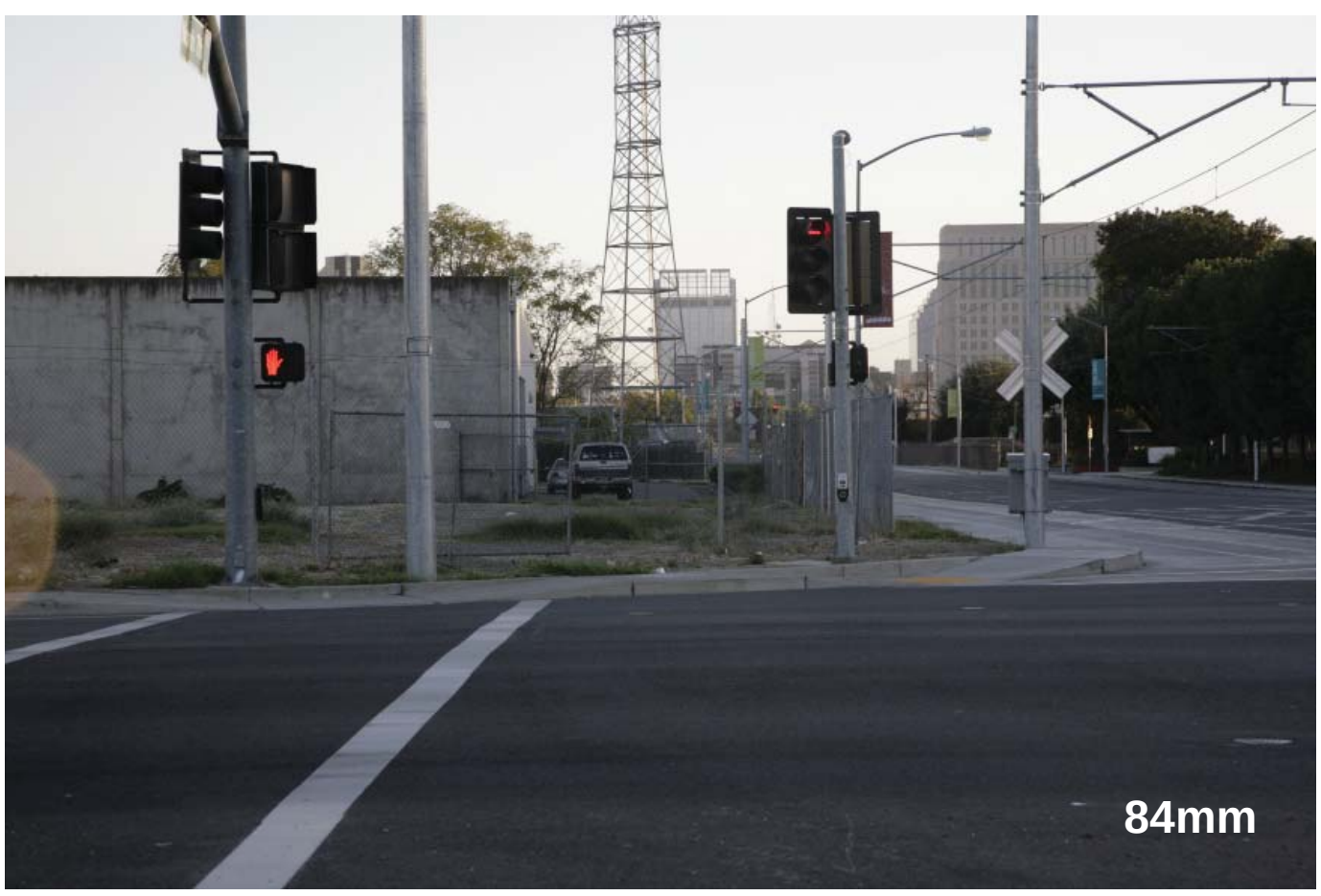
TOWER

TOWER

Stantec

Lens Focal Length Demonstration

These three photos are taken from the exact same location, with the same camera at the different focal lengths listed



Lens Focal Length Demonstration

These three photos are taken from the exact same location, with the same camera at the different focal lengths listed

Lens Focal Length Demonstration

These three photos are taken from the exact same location, with the same camera at the different focal lengths listed

TOWER

TOWER

TOWER

Variable Focal Length Comparison

While each camera location is a different distance from the tower, the tower appears to be a fairly consistent size from image to image due to the use of inconsistent focal length lenses between locations.