SUNRISE POWERLINK

Suncrest Substation

Construction Lighting Mitigation Plan

Revised
October 19, 2010

Background
In accordance with mitigation measures V-1b and BIO-APM-29 of the Mitigation, Monitoring and Compliance Program (MMCRP) for the approved Sunrise Powerlink Project, SDG&E submits this Construction Lighting Mitigation Plan for temporary construction activities at Suncrest (SCR) Substation for review and approval. The full text of V-1b and BIO-APM-29 are included at the end of this document. Mitigation measure V-1b requires SDG&E to submit a Construction Lighting Mitigation Plan 90 days prior to construction activities at Suncrest Substation. Since the permanent lights will be operational in the final stages of construction, the permanent lighting impacts are discussed briefly below. Please note that the design and the proposed fixtures for the permanent lighting are discussed in the "Lighting Mitigation Plan." which identifies lighting used during the operation and maintenance of the Suncrest Substation.

Suncrest Substation will be located south of Bell Bluff Truck Trail approximately 2.8 miles west of Japatul Valley Road, southwest of the Interstate 8 and Japatul Valley Road intersection, east of the city of Alpine, California in San Diego County. The substation is located on SDG&E owned property in a rural, sparsely developed setting. The site is bordered by Cleveland National Forest land to the north, west and south and private lands to the east. US Interstate 8 is approximately 2 miles north of the Substation.

Work Description
Site development of the SCR Substation includes the grading and fencing of a 37 acre pad, construction of masonry control and maintenance shelters, installation of a 300,000 gallon water tank with associated irrigation plumbing and fire hydrants, planting disturbed slopes, and widening and paving a 2.6 mile access road. Construction of the substation is expected to take 17 months.

Grading of the substation and access road will be completed during the first nine months of construction. During this period, it may be necessary to perform maintenance work on construction equipment during nighttime hours. The vehicles used to perform this maintenance work contain portable lighting that is designed to provide adequate localized illumination to allow the maintenance work to be completed safely. Maintenance work may also be performed at a temporary lay-down yard located approximately 4,600 feet east of the substation pad on the south side of Bell Bluff Truck Trail.

The next phase of work will last approximately eight months and will involve some on-site assembly and set-up of major power equipment (transformers and breakers). The installation of this equipment will require a limited number of continuous processes extending into or throughout evening hours. These activities would be expected to take place in the second half of this construction phase associated with the final setup of the 500 and 230kV circuit breakers and the 500/230kV power transformers. The permanent lighting fixtures will provide the majority of illumination necessary for this work; however, portable task flood

lighting is anticipated to be utilized to supplement the permanent lighting to safely complete those tasks. The nighttime equipment setup work will be at ground level and the portable flood lights will be directed downward and focused on the immediate work area to minimize reflected glare and illumination of the nighttime sky. During the initial energization of the substation, it may be necessary to complete some aerial work at night requiring the use of directed lighting to maintain worker safety. At Suncrest this aerial work would take 3 days or less to complete and would only be done at night if system conditions require it to be completed during evening hours.

As discussed below, potentially sensitive receptors are located to the south and southeast of the substation pad. Therefore, care will be taken in the placement and orientation of portable lighting fixtures to avoid directing unshielded lights in the direction of sensitive receptors to the extent practicable. Accordingly, portable lighting will be directed away from sensitive receptors (toward the west, north, and east) to the extent possible, in order to avoid off-site direct exposure of sensitive receptors to unshielded lights.

During construction, on-site construction office trailers will be located approximately 1,000 feet northeast of the substation pad on the north side of Bell Bluff Truck Trail. Minimal outside lighting will be installed at the entrances to the construction office trailers to provide safe access to the offices. Unless lighting is required for security purposes, the outside lighting would only be illuminated when office personnel are present. If a security problem occurs it may be necessary to operate the trailer entrance lights on a dusk to dawn basis.

Sensitive Receptors

Appendix A depicts the terrain surrounding the Suncrest Substation site and approximate sight lines from the residences that may have a partial view of the substation yard. As displayed in this exhibit, the existing terrain will block the view of the substation pad construction from properties to the west, north, and east of the substation. Depending on the relative elevations of the residences to the southeast and south of the substation site, these residences will have a partial view of the pad development work. These residences are approximately ¾ of a mile away.

Construction Lighting Requirements

The majority of the substation construction will be conducted during daylight hours when outdoor supplemental lighting will not be required. Lighting will only be required at night to perform construction equipment maintenance and setup of power equipment. The amount of lighting used by SDG&E and contract construction crews will be limited to the amount necessary to safely perform the required work. As previously discussed, portable flood lights will be used to provide this illumination and towards the end of construction will be supplemented with the illumination provided by permanent lighting fixtures described in the “Lighting Mitigation Plan.”

The portable flood lighting will be provided by portable lighting trailers, typically consisting of four (4) 1000W flood lights, powered by a 10kW diesel powered generator attached to the trailer. Appendix B shows a typical portable lighting trailer that would be used.

Portable lighting would only be used during construction when absolutely necessary for worker safety, or as necessary to accomplish critical construction equipment maintenance or time-critical continuous process tasks that extend into nighttime hours.

When in operation the temporary flood lighting will be directed towards the work area to minimize illumination of areas beyond the immediate work areas, and minimize reflected glare and illumination of the nighttime sky to the maximum extent practicable. When not in immediate use the temporary flood lights will be directed downward or turned off.

As designed, the construction lighting described above will meet the requirements of mitigation measure V-1b and the night lighting requirement of mitigation measure BIO-APM-29.

In compliance with mitigation measure L-1a, SDG&E has identified a public liaison and a toll-free hot line, to respond to concerns of neighboring property owners related to construction disturbances. Contact information for the public liaison person is included in the construction notices. SDG&E will respond to complaints in a timely manner. SDG&E will log the complaint, notify the CPUC of the complaint, and provide documentation to the CPUC that the complaint was effectively resolved.

Applicable Mitigation Measure

V-1b: Reduce construction night lighting impacts.
SDG&E shall design and install all lighting at construction and storage yards and staging areas and fly yards such that light bulbs and reflectors are not visible from public viewing areas; lighting does not cause reflected glare; and illumination of the project facilities, vicinity, and nighttime sky is minimized.

SDG&E shall submit a Construction Lighting Mitigation Plan to the BLM (only if on BLM lands), Forest Service (only if on National Forest lands), Anza-Borrego Desert State Park (for Park lands) and CPUC (for all areas) for review and approval at least 90 days prior to the start of construction or the ordering of any exterior lighting fixtures or components, whichever comes first. SDG&E shall not order any exterior lighting fixtures or components until the Construction Lighting Mitigation Plan is approved by the reviewing agency. The Plan shall include but is not necessarily limited to the following:

- Lighting shall be designed so exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of the lighting shall be such that the luminescence or light sources is shielded to prevent light trespass outside the project boundary

- All lighting shall be of minimum necessary brightness consistent with worker safety
- High illumination areas not occupied on a continuous basis shall have switches or motion detectors to light the area only when occupied

BIO-APM-29: Construction Lighting and Traffic

- Reduce construction night lighting on sensitive habitats. Exterior lighting within the project area adjacent to preserved habitat shall be of the lowest illumination allowed for human safety, selectively placed, shielded, and directed away from preserved habitat to the maximum extent practicable.
- Vehicle traffic associated with the project activities would be kept to a minimum volume and speed to prevent mortality of nocturnal wildlife species that may be moving about.

APPENDIX A

Suncrest Substation Sight Line Exhibit

BETA ENGINEERING
FOR INFORMATION ONLY

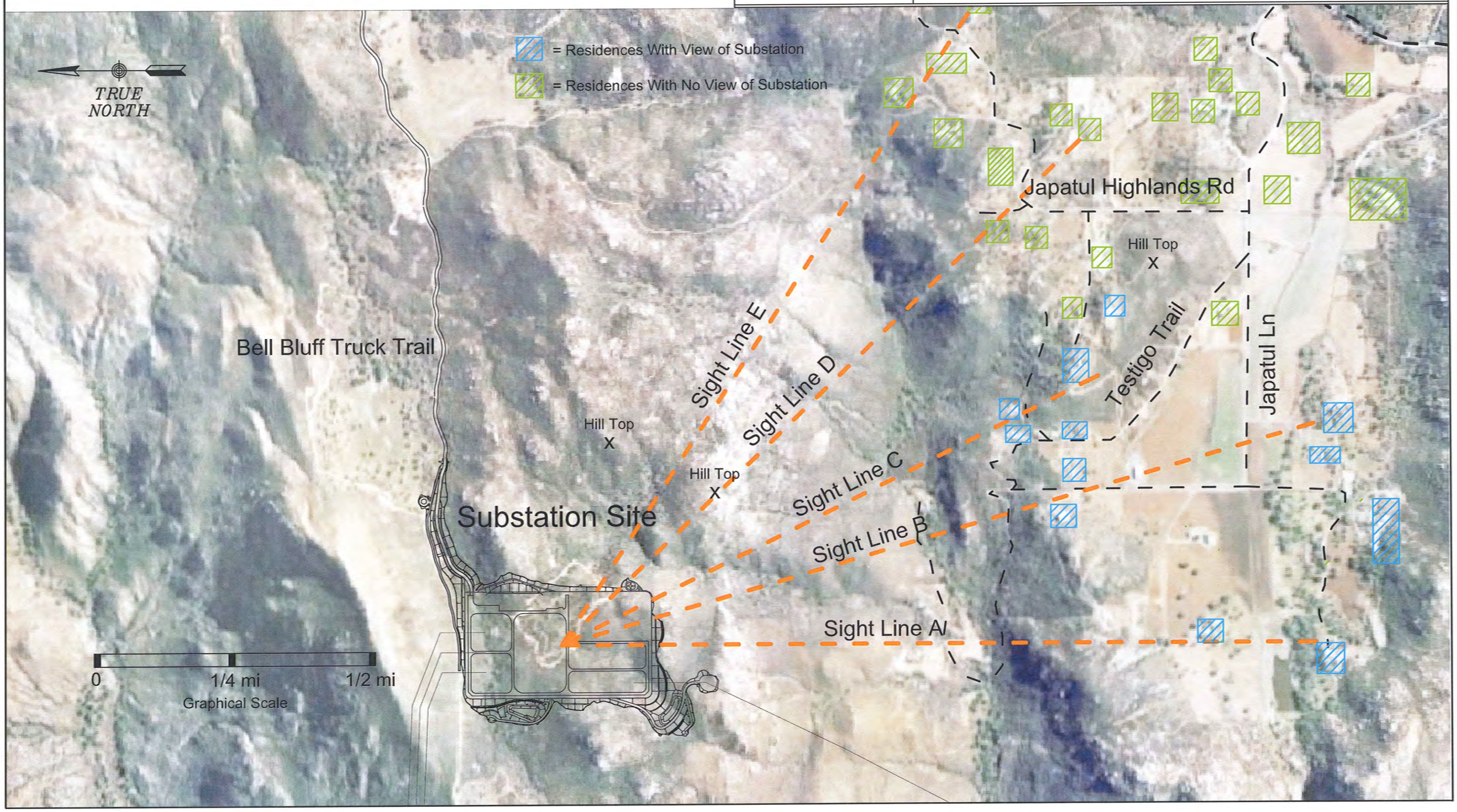
Suncrest Substation Sight Line Exhibit

Plan View

See Sheets 2-7 For Sight Line Profiles

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Lines	Sheet	1



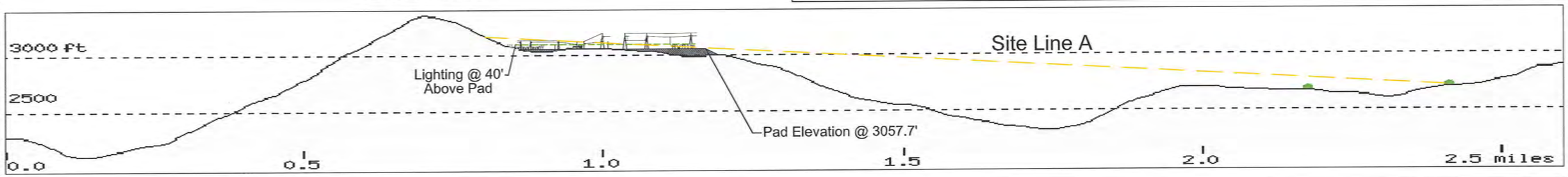
BETA ENGINEERING
FOR INFORMATION ONLY

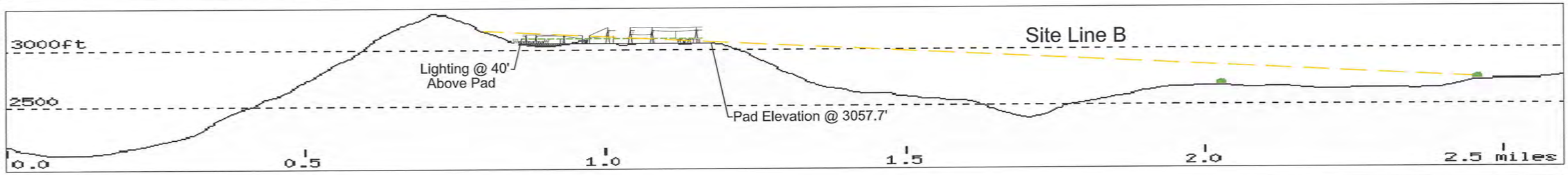
Suncrest Substation Sight Line Exhibit

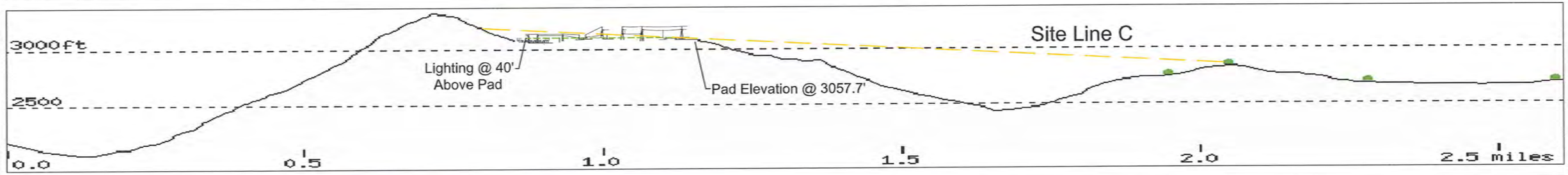
See Sheets 3, 4, 5, 6 & 7 For Substation Area Detail
No Scale
Horizontal = Vertical

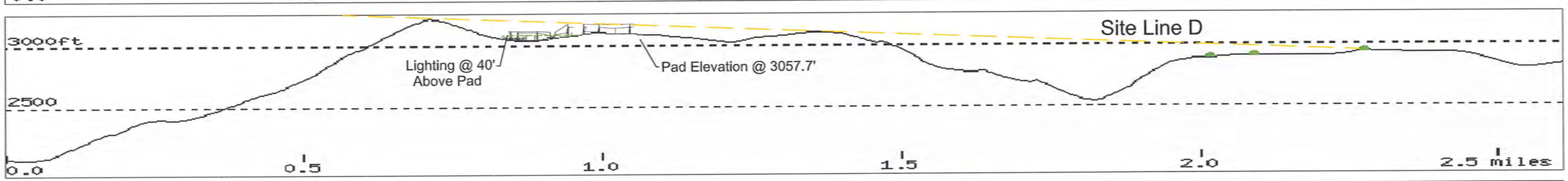
Beta ENGINEERING

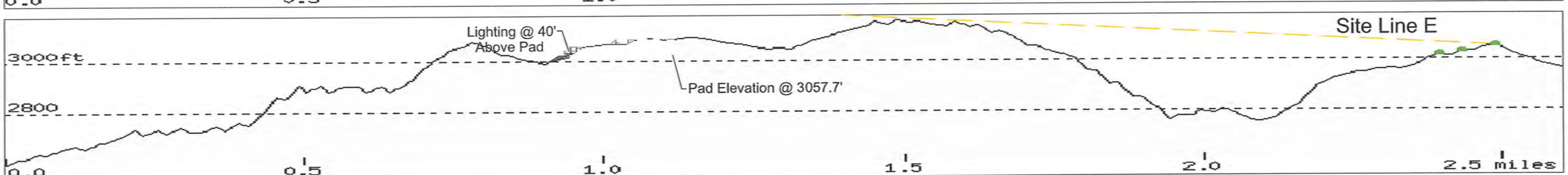
Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations	Sheet	2











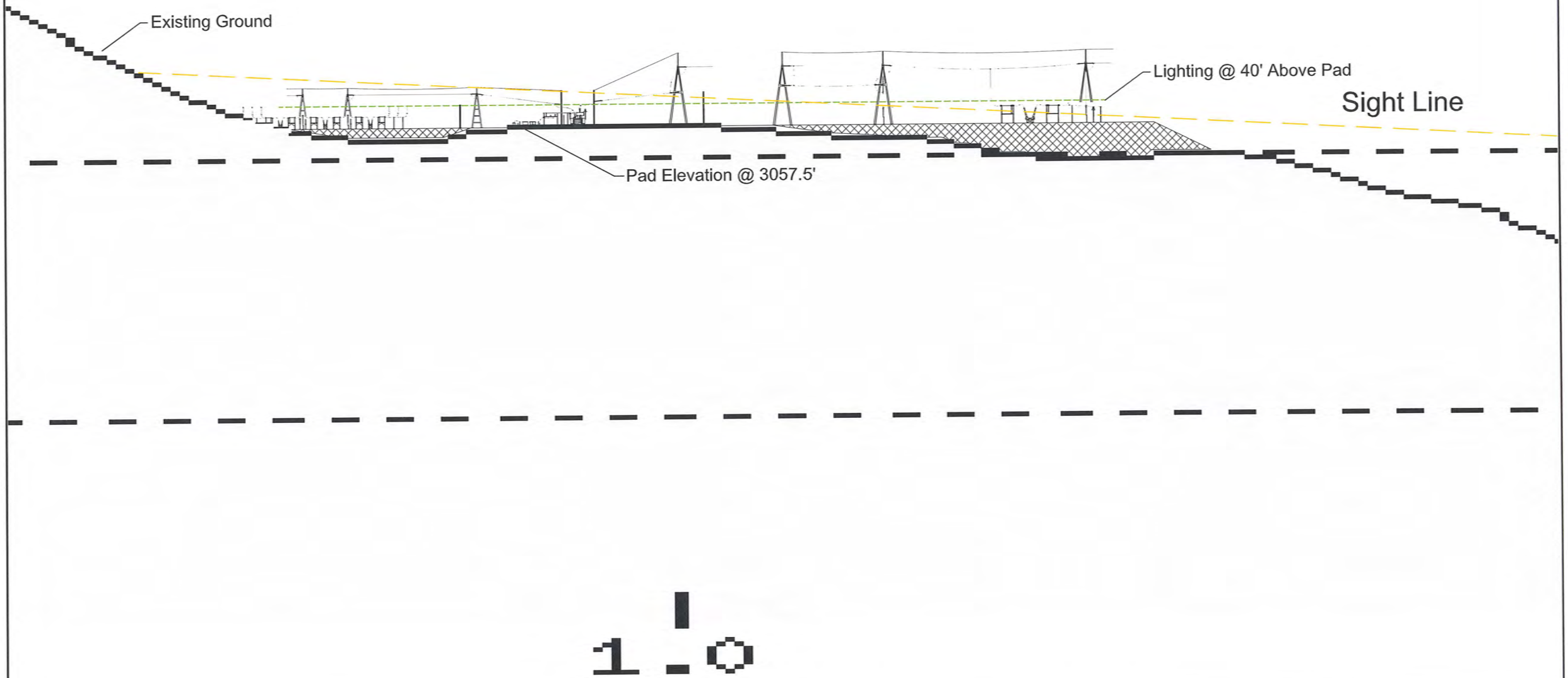
BETA ENGINEERING
FOR INFORMATION ONLY

Suncrest Substation Sight Line Exhibit

Sight Line A
No Scale
Horizontal = Vertical

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations (Line A)	Sheet	3



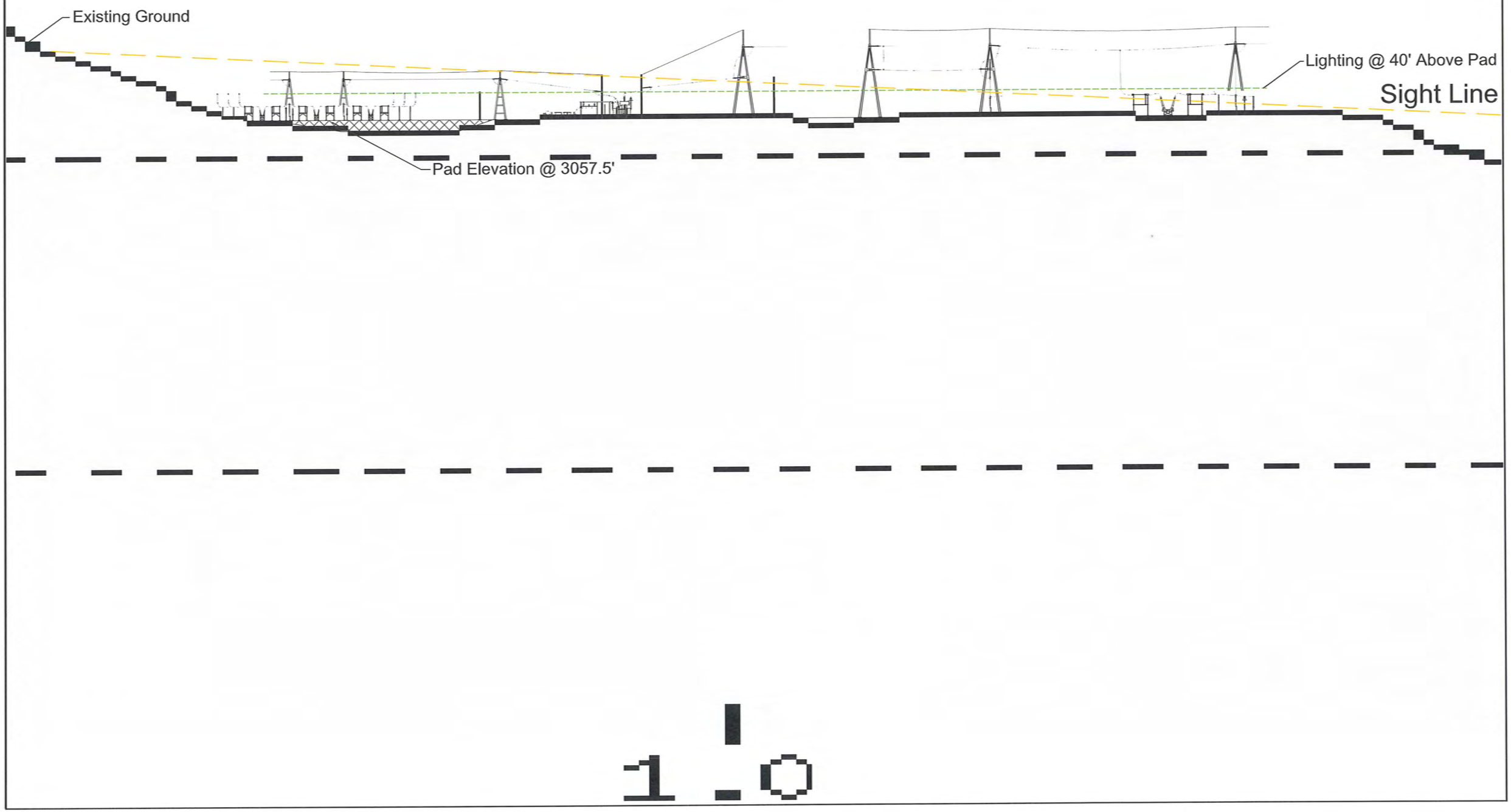
BETA ENGINEERING
FOR INFORMATION ONLY

Suncrest Substation Sight Line Exhibit

Sight Line B
No Scale
Horizontal = Vertical

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations (Line B)	Sheet	4



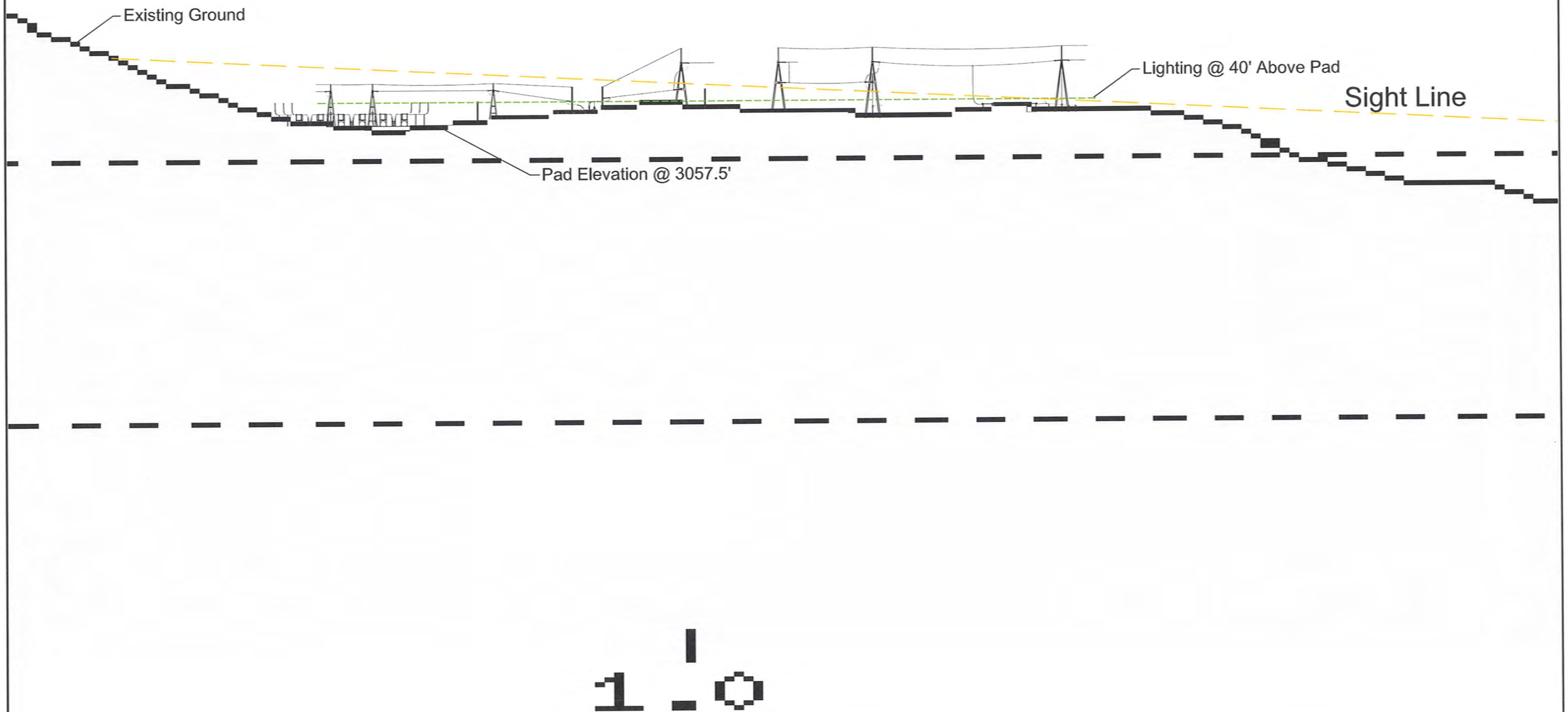
BETA ENGINEERING
FOR INFORMATION ONLY

Suncrest Substation Sight Line Exhibit

Sight Line C
No Scale
Horizontal = Vertical

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations (Line C)	Sheet	5



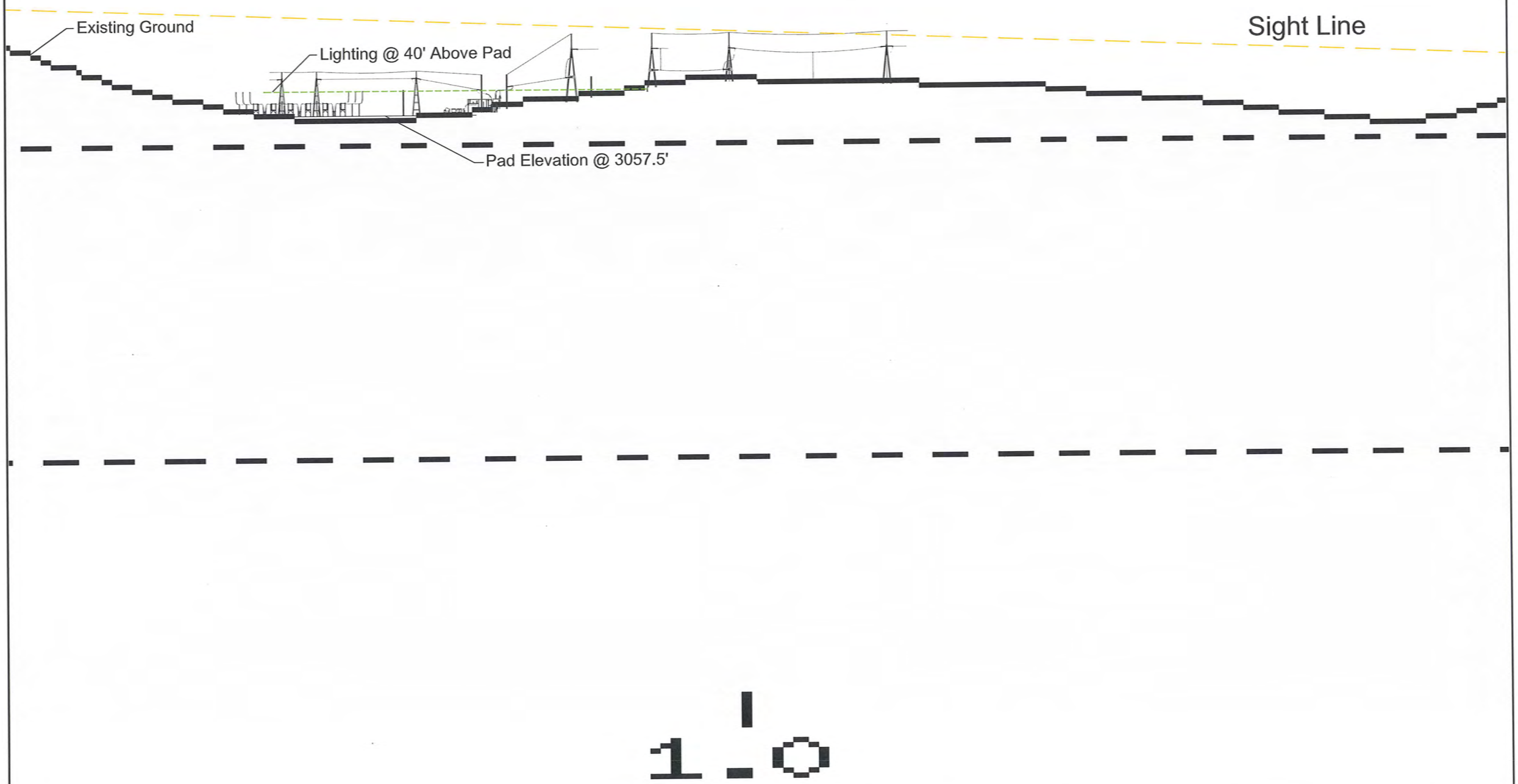
BETA ENGINEERING
FOR INFORMATION ONLY

Suncrest Substation Sight Line Exhibit

Sight Line D
No Scale
Horizontal = Vertical

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations (Line D)	Sheet	6



BETA ENGINEERING
FOR INFORMATION ONLY

Suncrest Substation Sight Line Exhibit

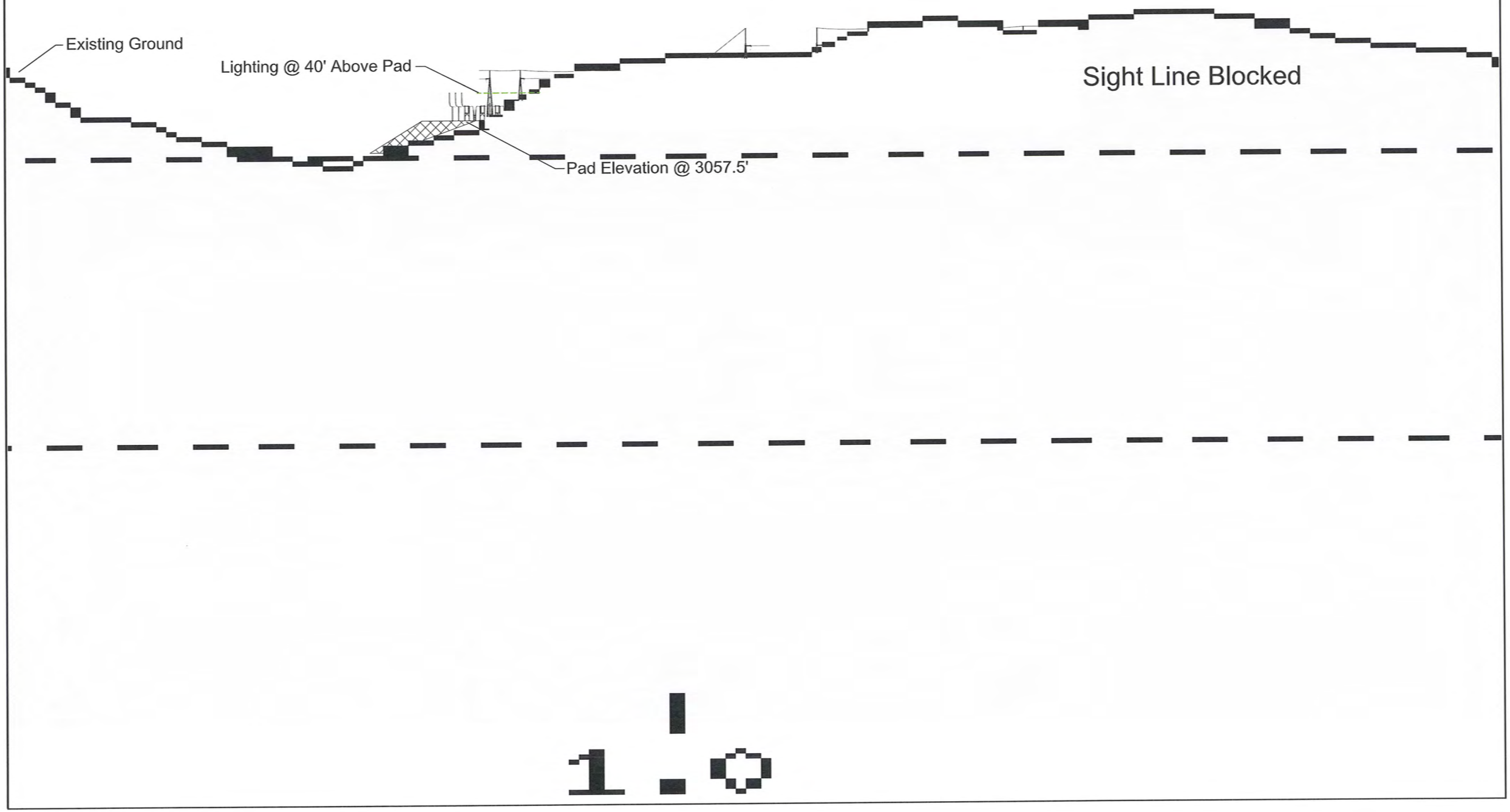
Sight Line E

No Scale

Horizontal = Vertical

Beta ENGINEERING

Job Name	Suncrest Substation	Job No.	B537
Customer	San Diego Gas & Electric	Date	2/8/10
Description	Lighting Sight Line Elevations (Line E)	Sheet	7



APPENDIX B

Typical Portable Flood Lighting

LTC 4C Light Tower

Item Number: 0620017

LTC 4C

Compact, heavy-duty light towers provide exceptional lighting

>> Heavy-duty, trailer-mounted light towers feature a compact and narrow body design for easy transport - two abreast a on flatbed truck. Distinctive elliptical light fixtures allow light to travel directly to the work area for brighter illumination. Each light can be individually adjusted without tools and a quick disconnect power cord allows for easy removal prior to transport. The 360-degree rotating mast allows for light adjustment while raised. <<

Additional Advantages

- Large capacity fuel tank allows for 68 hours of continuous lighting/run time.
- A lockable, weather protected, powder-coated steel enclosure protects components from the elements. Zinc/dichromate treated mast and lamp mounted bar provide superior corrosion resistance.
- Four 2,000 lb. rated zinc-plated leveling jacks provide easy leveling and stability on uneven terrain and in windy conditions.
- Control panel features an elapsed hour meter and a convenient 120V GFCI receptacle with circuit breakers for additional power. Separate engine control panel with full diagnostics for engine protection and operator convenience.
- Reliable diesel engine offers glow plug preheat system for long service life and easier cold weather starting. Automatic engine shutdown protects the engine from damage due to low oil pressure and high coolant temperature.
- Fully equipped highway-ready trailer offers combination pintle/ball hitch, tires, four tie-downs, DOT lighting, VIN number and chains.

Description	Metric	Imperial
Length x width x height (standard)	3886 x 1220 x 1600 mm	153 x 48 x 63 in
Operating weight	817 kg	1802 lb
Shipping weight (including packaging)	720 kg	1585 lb
Maximum tower height	9 m	30 ft
Sound level	72 dB(A)	72 dB(A)
Output	6 kW	6 PS
Voltage	120 V	120 V
Amperage	50 A	50 A
Frequency	60 Hz	60 Hz
Power draw	1,0 kW	1.0 hp
Voltage regulation no load to full load	+/- 5%	+/- 5%
Lamp Output	4 x 1.000W	4 x 1,000W
Coverage (Lighting levels as recommended by IES)	30.400 @ 5.4 lumens m^2	5-7 @ .5 footcandles Acres
Generator insulation	H	H
Speed	1.800 1/min	1,800 rpm
Generator type	Brushless	Brushless
Engine Type	Caterpillar diesel	Caterpillar diesel
Max. Rated Power at Rated Speed*	10 kW at 1800 rpm	13.4 hp at 1800 rpm
Displacement	954 cm^3	58 in^3
Power Rating Specification	ISO 3046 IFN	ISO 3046 IFN
Fuel tank capacity	114 l	30 US gal
Fuel consumption	1,91 l/h	.42 US gal/h

Standard Package - LTC 4C

Above package includes operator's manual and parts book.

Please refer to our Price List and Ordering Guide for complete accessory information.

Specifications may change due to continuous product development. Users are advised to consult Wacker Neuson's Operator's Manual and website for specific information regarding the engine power rating. Actual power output may vary due to conditions of specific use.

Generated on Friday, February 5, 2010