

MEA PARKS SUBSTATION UPGRADES SUMMARY

Birchwood Community Council Meeting: Public Meeting
Beach Lake Chalet

March 11, 2020 6:30 pm to 9 pm

ATTENDEES:

MEA

- Jon Sinclair, PE, Director of Engineering
- Haileigh Seil, Site Engineer/Project Manager
- Manny Lopez, SR/WA, Land Services Manager
- Julie Estey, Director of External Affairs

R&M Consultants, Inc.

- Van Le, AICP, Land Use Permitting
- Taryn Oleson-Yelle, AICP, Land Use Permitting

OUTREACH & NOTIFICATION:

- Mailed postcard invitation to 446 addresses within 3,000 feet of substation site
- Birchwood Community Council Email Notification with agenda
- MEA Facebook page posting
- Appearance at February 12, 2020 Birchwood Community Council introducing the project and invitation to March public meeting
- Attendance at Chugiak Community Council February 20, 2020
- Announcement at Chugiak-Eagle River Chamber of Commerce meeting March 4, 2020

ATTACHMENTS:

- Fact Sheet
- 2013 Effort vs. Current Upgrade Project Comparison
- Comment Form
- Sign in from Meeting (to be provided by Birchwood CC when available)
- Presentation Boards:
 - Existing Neighborhood Context
 - Title 21 Landscape Assessment
 - Landscape Plan
 - Landscape Perspectives: Before photo, 1-2 years and 15 + years post construction renderings
 - Fence Height & Elevations
 - Relocation Feasibility Study Summary

SUMMARY

As part of continuing community engagement, and to support the Conditional Use Permit application process, MEA and R&M Consultants, Inc. (R&M) presented at the March 11, 2020 Birchwood Community Council (BCC) Meeting and held additional project specific meeting time before and after the formal BCC meeting. The objective of this meeting was to provide information on the proposed Justine Parks Substation (PASS) Upgrade project and permitting process, present the preliminary design including improvements to landscaping and screening since the February 12 BCC meeting, and to gather valued feedback from the community.

Following the BCC reports, Julie Estey, Haileigh Seil and Van Le gathered at the front of the room to give a presentation on the MEA PASS Upgrades project. Jon Sinclair and Taryn Oleson-Yelle were in the audience to aid in answering specific questions attending community members had.

PROJECT OVERVIEW

Julie Estey began the presentation to the Council with an overview of the project history and the past efforts to upgrade the substation. The Justine Parks substation was first constructed in response to area residents, led by Justine Parks, asking utility companies for power so their community could successfully grow. MEA responded to that request more than 47 years ago by constructing an electrical substation on the site it exists today, though at the time of construction was in the middle of an undeveloped field. Since its installation, the community has grown around the Justine Parks Substation, including the adjacent residential neighborhoods, and the substation continues to this day to provide power to more than 2000 MEA customers including residences, churches, businesses, the Chugiak Area Senior Center, and Chugiak Elementary School.

An upgrade project was first attempted back in 2013, before any of the current project's team members were on staff, to replace the aging equipment, some of which has not been upgraded since it was built over than 47 years ago. MEA was unsuccessful in that original upgrade effort primarily due to a lack of meaningful engagement with the community and inadequate design. Now, more than seven years later, the substation is nearing the end of its useful life, which puts electrical services to the area residents, businesses, schools and churches at risk. Based on feedback from the community, a site selection study was conducted in 2015 to assess whether there are other more suitable locations to relocate the substation. Questions concerning the location of the Justine Parks Substation were raised again at this meeting, and a review of the site selection study was provided. The size of a lot, it's configuration, access, proximity to the load, ease of connecting existing powerline to the new location, and topography are all factors to consider when locating a substation. The alternate location near Chugiak Elementary required the transmission lines be dragged over private properties while the alternate location near the Glenn Highway required additional distribution lines to connect to the existing 3rd and 4th planned feeders, in addition to other significant site improvements. The study found that the current location of the substation is the least impactful to the community members of the sites that were studied, so this project is moving forward with the current site. MEA is committed to

continuing to work with the community as it has been on this project so far and is actively modifying the proposed design in response to community concerns.

Questions were heard throughout the remainder of the presentation/discussion and are summarized below.

Haleigh provided information and responded to questions about the proposed upgrades including improvements to the new switch gears, towers, landscaping and screening, etc. Jon Sinclair assisted in responding to questions regarding equipment specifications, noise, lighting and other engineering based concerns.

Van provided an overview of the Municipality of Anchorage's permitting requirements for the substation upgrade including a conditional use permit, a replat of the existing Parks Substation lot with the adjacent property (Lot 93), and a fence height variance for a 12' tall fence which incorporates the National Electrical Safety Code (10' requirement) and responds to the BCC's request at the previous meeting to raise the fence height to 12 feet. She also provided an overview of the CE-R6 zoning district regulations, which allow utility substations through a conditional use permit, and the Chugiak-Eagle River Comprehensive Plan which supports locating substations within the residential districts if they are serving areas residents, such as the Parks substation.

DISCUSSION (QUESTION/ANSWER)

The questions and answers captured below are a summarized representation of the discussion had at the BCC meeting. Please note that this is not a transcript of the meeting and words are not verbatim.

UTILITY SUBSTATION DESIGN

Q: What is the current capacity at the substation? What will the proposed equipment have?

A: MEA will more than double the capacity of the existing substation with the new one. The new design will increase redundancy and have a greater chance of keeping power on at your house in the event of a transmission outage. The new design will isolate transmission faults to smaller section of the system resulting in reduced or no outages to substation and members. It will also provide backup redundancy to downtown Eagle River and Eklutna/Peters Creek.

Q: Will there be lighting on site? What will the lumens be?

A: There will be lighting on site, but it will be minimal and operate in two phases. Phase one lighting will be on all the time (when it's dark) to ensure MEA staff can access the equipment if needed. The lights will be LED, very directional and limited. All lights will be downfacing to significantly minimize/limit off-site light pollution. We do not have the number of lumens with us at this time, but can easily find it and provide you with that information. Phase two lighting will only be in use when there is work that is being done on the site – when an MEA worker is actively performing

maintenance on site. Light poles will be 30 feet tall in order to properly light the substation equipment.

Q: How loud will the new substation be compared to the one that is on site now? We want to see the exact numbers.

A: It will be quieter than the one that's there now. New equipment is more efficient, efficiency is in our best interest, and efficient equipment is quieter. We expected the noise level to be about 60 decibels which is about the level of a normal conversation. We will report back with readings on the current noise levels and what the equipment proposed will be at.

Q: Will there be a third-party inspection and enforcement for the noise levels? What happens if you aren't as quiet as you say you are and we (adjacent area residents) are living with a louder substation?

A: There will not be a third-party inspection of the noise level at PASS. It is also within MEA's best interest to have low noise levels, as low noise directly correlates to better efficiency which is important.

Q: What will the vibration of the new substation be like compared to what is there now? We want to see the numbers to ensure you aren't increasing impact to the residents.

A: We do not have the exact measurements or projected numbers with us, but we will look into it and report back to you.

Q: Where will drainage go?

A: We are required to keep all storm water drainage on-site. The PASS site has to also convey off-site drainage from the elevated hill along the southern property boundary through a perimeter drainage swale on the south, west and north side of the property. The site slopes towards the northwest. All water will be either infiltrated where it falls, or collected in drainage swales along the south, west and north boundaries which will hold and direct water to a large swale at the property's low point where it will be held until it infiltrates into the ground.

Q: Is there a risk of contamination from the site? What if storm water or groundwater gets contaminated? We have wells on-site in the area and I'm worried about our water quality.

A: We are required to ensure there will be contamination controls that are specific to the equipment we use to ensure there are no contaminants that could be transferred off site or into the soils/groundwater.

Q: Is there an existing, built substation that has the same equipment as what you are proposing for the Parks substation?

A: Yes, the substation on O'Malley, east of the Seward Hwy in Anchorage was recently built in 2016 (estimated) by Chugach Electric. It has similar equipment to what we are proposing for Parks and has a 10-foot-tall cedar fence for screening. It does not however, have as much additional landscaping for visual enhancement or buffering from the street. This substation is next to a residential area, adjacent to the Greek Orthodox Church. O'Malley Road has a rural context like Birchwood, without street lights. Please feel free to take a drive out there and stand near the site to get an idea of the anticipated levels of noise, vibration, and site lighting, but be aware that we are proposing to increase the fence height and significant amounts of landscaping that the O'Malley substation does not feature. The proposed fence and landscaping at PASS will have a direct mitigating effect on noise, sight, and off-site light levels.

SITE SELECTION STUDY / LOCATION OF PARKS SUBSTATION

Q: Why aren't you looking at other locations? We want to keep the substation out of residential neighborhoods

A: Some residents expressed a desire to reconsider other sites and take a deeper look into them, while others expressed understanding and support for the current location because it would be less impactful to the greater community per requirements for not only the substation but the feeder lines to tie into the main transmission lines as well (50-100ft utility corridors would need to be established).

Q: Why are you so willing to spend the money buying the adjacent property (Lot 93) to make the current location work, but not use that money to buy a new property?

A: The existing lot that the substation is on does not provide enough land to meet the requirements of the new Title 21. To meet the requirements of the new Title 21, MEA is in the process of purchasing the adjacent property. To purchase property in another location would have a significant impact to members because of the relocation of transmission and distribution (feeder) circuits.

Q: Since the Powder Ridge development in Eklutna is being planned for substation development, can this location be pushed forward sooner and make it large enough to include the capacity and redundancy proposed for PASS? Essentially 'relocate' PASS by having Powder Ridge carry the load.

A: The Powder Ridge location is too far away to support all members currently being served by Justine Parks Substation. Both distance and load impact how far away a substation can be from the load. Another factor is the ability to back up adjacent substations. Typically, when an outage occurs at Reed Substation in Eklutna, PASS is one of the substations that picks up the Eagle River load, so power is restored quickly. If PASS was relocated to Powder Ridge, the distance would be too far to pick up the Eklutna load, resulting in extended outages to the area.

PARKS LOT SIZE, COVERAGE, BUFFERING

Q: Can the substation be smaller? It seems like it's 1000% increase in size from the current equipment and that's a serious issue for me.

A: To increase reliability and capacity, yes it does need to be the size we are proposing. MEA has a significant interest in keeping it at a smaller scale as well because this equipment and development of the land is expensive, so the smaller it is, the cheaper it is for us and our members. But for safety, efficiency, and to meet the electricity needs in the area, it does have to be this size.

Q: What is the size of the substation equipment now (the footprint)? What will the increase be? Karen wants to see the square footage of the existing substation be compared to the proposed upgraded substation.

A: width and height questions – we did not have specific numbers on us to adequately respond.

Title 21 allows for lot coverage of this site to be 30%. The proposed improvements will only cover 6% of the lot, which is approximately 5,948 square feet, based on the site being 2.25 acres. The calculations for the lot coverage include structures only such as switchgear and poles.

Q: Why is the setback on the east and south property lines larger than on the west and north property boundaries, where there are adjacent residences? There should be more buffering and landscaping on the west side especially for the back yard.

A: The setbacks on all sides meet or exceed title 21 requirements. The existing substation is south of the planned upgrade and MEA is planning to keep the existing substation online during construction. This means the upgrade cannot shift south. However, MEA will meet the setback requirements of Title 21 on the north side. There is a significant topography difference between MEA's property and the adjacent property to the west. If MEA were to remove the house on the property to the west and move the upgrade west, the pad for the substation would be significantly raised on the west side impacting the viewshed of adjacent property owners to the northwest and southwest. This would also move the substation closer to the neighbors to the northwest.

Q: Why didn't/don't you bite the bullet and use Lot 93, the whole property, for buffering instead of taking just a small portion of it?

A: Please see the above questions and answer.

LANDSCAPE DESIGN

Q: What landscaping is being proposed and how big will the trees be when they are first planted?

A: Buffer landscaping is being provided around the entire substation. 30' wide landscaping beds will be on the east and south sides, and 20' wide beds will be on the west and north property boundaries. A 12' Trex fence will provide significant screening, an increase of two feet from the 10' fence proposed at last month's meeting because of our conversation with you, and a combination of

122 conifer trees and 488 shrubs will be planted to further screen the substation. Trees will be six to eight feet high at the time of planting. (reference to landscape rendering figures).

LAND USE PERMITTING PROCESS

Q: Why are you here asking/telling us about the project tonight? It appears all the decisions have been made and "MEA is going to do what MEA is going to do," and this meeting feels dishonest.

A: The Conditional Use Permit (CUP) application has not been submitted to the Municipality for review. We wanted to address any comments or concerns about the Title 21 permitting requirements, design and buffer landscaping prior to submitting the CUP Application by the deadline of March 23.

Debbie also responded that community members have tonight and up until the public hearing itself to provide input on the CUP which includes the design. Call the Planning Department and leave a comment or you can show up to the public hearing.

SCHEDULE AND COST

Q: Once you start the project, how long will we see construction activities?

A: We are working through the permitting process this year, in 2020 and finalizing design through the fall and winter with construction anticipated for 2021. You can expect to hear construction for about 6 months as the site work is being conducted and the new equipment is installed. Construction will be about 8 months total with the last two months being primarily programming type work, so you will see staff at the substation with their test equipment getting the equipment online.

Q: What is the cost of this project and what is the cost to the MEA customers? What will this project do to my monthly bill?

A: The project cost is estimated at 11.3 Million. MEA has a rotating debt cycle each year for capital projects, so each year some debt is retired (lessening costs to customers) but we also assume new debt for projects like this. Our current equity plan has MEA retiring more debt than we are assuming so this project will not increase member's rates. There will not be an increase in your monthly bill as a direct result of this project.

ACTION ITEMS:

Additional information from MEA has been requested by the BCC to be presented at the next meeting. Their concerns and requests are summarized as follows:

1. Concerned about **noise levels**.

a. *What is the current noise level and what will the proposed substation be?*

On March 17th, 2020, the noise level of the current Parks Substation 10 MVA transformer, with a 3 MVA load, was measured using the *Decibel X* app. The noise level test was taken 170 feet away from the transformer, along Steffes Street and measured at 42.9 dBA (decibels). In addition, a noise level test was done at Hospital Substation, located approximately 0.5 miles north of Mat-Su Regional Medical Center in Wasilla. Hospital Substation was completed in 2013-2014 and utilizes a 20 MVA transformer, which is proposed for Justine Parks Substation, with a 6.4 MVA load. The noise level test was taken 100 ft away from the transformer and measured at 46.3 dBA. Thus, the noise level from a 20 MVA transformer with twice as much load (which is the proposed Parks upgrade) was only 3.4 dBA louder than the current Parks Substation 10 MVA transformer.

In addition, a noise analysis was done by an environmental consulting firm for the proposed upgraded Justine Parks Substation 20 MVA transformer at maximum loads. The noise analysis takes into consideration where the 20 MVA transformer will be physically located in the proposed design and the standard audible noise levels determined in the National Electrical Manufacturers Association (NEMA) TR 1-2013 Table 1. The study was done in accordance with November 21, 2019 Anchorage Municipal Code, Section 15.70.060 B.14, *Prohibited Acts and Conditions; Public Service Utilities*. Anchorage Municipal Code states electrical substations shall not produce noise exceeding 65 dBA (hourly average) at the residential property boundaries. The following are the results of the noise analysis for the proposed 20 MVA transformer at Justine Parks Substation:

North Property Boundary: 54.64 dBA

East Property Boundary: 51.31 dBA

South Property Boundary: 53.74 dBA

West Property Boundary: 59.11 dBA

At each property boundary the noise level is less than what the Anchorage Municipal Code requires. In addition, the fence was not taken into consideration in the noise analysis, which depending on material type and height could reduce the noise level.

b. *Will there be any enforcement if noise after construction is louder than we were told?*

There will not be a third-party inspection of the noise level at PASS. The Municipality works on a response/complaint when it comes to noise level enforcement. A complaint would need to be made then enforced.

2. Concern about **lighting (off-site light pollution)**

- a. *What are the proposed lumens for the on-site lighting (consistent site lighting and while maintenance staff is on site)?*

All lighting installations will be inside the substation fence. The lighting system will be comprised of *CREE Edge* LED luminaires of varying intensities and will be mounted on 30-foot poles or below the horizon of the 12-foot fence (specifications can be provided on request). All lights will be pointed inward and placed at a minimum 30 feet from property lines. There will be 2 lighting stages, security and maintenance lighting. Security lighting will be photocell controlled and only provide enough lighting to get personnel from the fence gate to the electrical equipment safely. Figure 1 shows the security light trespass at the property lines. Maintenance lighting will be applicable when MEA personnel are in the substation and ambient light is insufficient to perform operations in the facilities. The electrical code requires 2 footcandles (22 Lux) of illumination at ground level and at equipment locations. Figure 2 shows the maintenance light trespass at the property lines. For either light stage, security and/or maintenance lighting, 0.0 footcandles (0 Lux) will be present along the North, West, and South property lines, while the East property line, along Steffes Street, will be at a maximum of 1.2 footcandles.

According to The National Optical Astronomy Observatory (NOAO), the East property line will be comparable to Twilight, which is 1 footcandle (10.8 Lux). At the North, West, and South property lines, it will be comparable to a quarter moon night or darker, which is 0.001 footcandle (0.0108 Lux).

3. Concern about **vibration**

- a. *What are the current levels of vibration and what will they be with the proposed equipment? (provide comparisons if possible)*

On March 17th, 2020, the vibration level of the current Parks Substation 10 MVA transformer was measured, using the *Vibrometer* app. The vibration test was taken 88 feet away from the transformer, on the fence line, and collected for 30 seconds. The acceleration found at the current Parks Substation is 0.00 m/s². In addition, a vibration test was done at a similar substation to the proposed Parks Substation 20 MVA transformer. The vibration test was taken 94 feet away from the transformer, on the fence line, and collected for 30 seconds. The acceleration found at Hospital substation is 0.03 m/s².

4. Concern about **location**

- a. *The substation should not be in a residential neighborhood; you should look at other sites that are in more commercial areas.*

A Substation needs to be near the load center to provide safe, reliable and economic power to the area it serves. The load center in this area includes the residential neighborhoods. Based on feedback from the community, a site selection study was conducted in 2015 to assess whether there are other more suitable locations to relocate the substation. The size of a lot, its configuration, access, proximity to the load, ease of connecting existing powerline to the new location, and topography are all factors to consider when locating a substation. The other two sites, one near the Glenn Highway and one near Chugiak Elementary, required either transmission lines be dragged over private properties requiring large easements through people's yards or extra distribution lines, in addition to other significant site improvements. The study found that the current location of the substation is the least impactful of the sites that were studied so this project is moving forward with the current site.

- b. *Why can't this be located anywhere else? Could PASS downsize or be eliminated by shifting the load to a larger Power Reserve if it were to be built sooner?*

The Powder Ridge location is too far away to be supported by PASS. Both distance and load impact how far away a substation can be from the load center. Another factor is the ability to back up adjacent substations. Typically, when an outage occurs at Reed Substation in Eklutna, PASS is one of the substations that picks up the Eagle River load, so power is restored quickly. If PASS was relocated to Powder Ridge, the distance would be too far to pick up the Eklutna load. This would result in extended outages to the Eklutna area.

5. Concern about **size**

- a. *What is the size of the current substation equipment and what is the proposed equipment size (square footage of foundations on the ground)?*

The current substation has approximately 800 square feet of concrete foundations. The Proposed substation will be less than 6% coverage on the proposed site, which is 5,948 square feet of a 99,132 square foot lot. The New Title 21 code allows up to 30% coverage of property.

6. Concern about **location of equipment on site**

- a. *Why is the proposed equipment located farther north than the existing equipment? Can you move the proposed farther to the south and/or east to increase space from the residences to the west and north?*

The setbacks on all sides meet or exceed title 21 requirements. The existing substation is south of the planned upgrade and MEA is planning to keep the existing substation online during construction so that members can continue to be served during construction. This means the

upgrade cannot shift south. MEA will meet the setback requirements of Title 21 on the north side. There is a significant topography difference between MEA's property and the adjacent property to the west. If MEA were to remove the house on the property to the west and move the upgrade west, the pad for the substation would be significantly raised on the west side impacting the viewshed of adjacent property owners to the northwest and southwest. The substation would also then be located closer to residents on the northwest.

7. Concern about **buffering/setbacks from area residences**

- a. *What are the setbacks on the property, and can you increase the space between the substation equipment and the adjacent house to the west?*

Setbacks: setbacks meet or exceed New Title 21 requirements from all sides. Front yard and side yard setbacks are 25 feet in the CE-R-6 zoning district. Front yards are considered any which abut developed or dedicated (undeveloped) rights-of-way, which applies to the east and south property boundaries of Justine Parks Substation. Therefore, there are no rear yards to the substation lot or adjacent Lot 93. The substation west boundary (and the east boundary of Lot 93) is considered a side yard requiring the 25-foot setback.

North- The north setback from the property line to the 12-foot fence is 25 feet

East- The east setback from the property line to the 12-foot fence is 75 feet from center of road (Steffes Street) rights-of-way.

South- The south setback from the property line to the 12-foot fence is about 140 feet

West- The west setback from the adjusted property line to the 12-foot fence is 30 feet.

The setbacks are calculated from the fence, however the majority of electrical equipment inside the fence is more than 20 feet inward from the fence line. This allows drivable access for substation personnel to operate and/or maintain our electrical equipment.

- b. *Can there be more buffering between the adjacent residential properties?*

The proposed design meets or exceeds Anchorage Municipal Code Title 21 code on setbacks. MEA also incorporated feedback from BCC's February 12th meeting into the design. We increased our landscape buffering to 122 trees and 488 shrubs which exceeds Title 21 landscape requirement of 87 trees and 257 shrubs. We also increased the height of the fence from the 10-foot-high that is required by electrical code to 12-feet to increase screening of the electrical equipment from adjacent residential properties.

SPECIFICATIONS

Cree Edge® Series

LED Area/Flood Luminaire

Rev. I Date: V8 R2 08/29/2019

Product Description

The Cree Edge® Series has a slim, low profile design. Its rugged cast aluminum housing minimizes wind load requirements and features an integral, weathertight LED driver compartment and high performance aluminum heat sinks. Various mounting choices: Adjustable Arm, Direct Arm, Direct Arm Long, or Side Arm (details on page 2). Includes a leaf/debris guard.

Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

Performance Summary

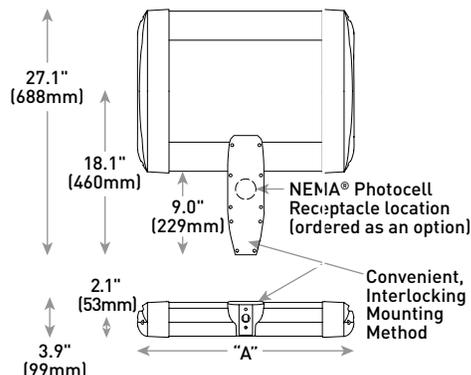
Patented NanoOptic® Product Technology
Assembled in the U.S.A. of U.S. and imported parts
CRI: Minimum 70 CRI
CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard
Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

*See <http://creelighting.com/warranty> for warranty terms

Accessories

Field-Installed	
Bird Spikes XA-BRDSPK	Backlight Control Shields XA-20BLS-4 - Four-pack - Unpainted stainless steel
Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required	

DA Mount



LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	21 lbs. (10kg)
04	12.1" (306mm)	24 lbs. (11kg)
06	14.1" (357mm)	27 lbs. (12kg)
08	16.1" (408mm)	28 lbs. (13kg)
10	18.1" (459mm)	32 lbs. (15kg)
12	20.1" (510mm)	34 lbs. (15kg)
14	22.1" (560mm)	37 lbs. (17kg)
16	24.1" (611mm)	41 lbs. (19kg)

AA/DL/SA Mount - see page 22 for weight & dimensions

QTY: 4	1	ARE-EDG	4MB	AA	14	E	UL	SV	350
QTY: 4	2	ARE-EDG	4MB	AA	12	E	UL	SV	350

Product	Optic	Mounting*	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options		
ARE-EDG	2M Type II Medium	3MB Type III Medium w/Partial	4MP Type IV Medium w/Partial	AA Adjustable Arm	02	E	UL Universal 120-277V	BK Black	350 350mA	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current - Not available with PML options HL Hi/Low (Dual Circuit Input) - Refer to HL spec sheet for details - Sensor not included P Photocell - Refer to PML spec sheet for availability with PML options - Available with UL voltage only PML Programmable Multi-Level, 20-40" Mounting Height - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt PML2 Programmable Multi-Level, 10-30" Mounting Height - Refer to PML spec sheet for details - Intended for downlight applications with maximum 45° tilt R NEMA® 3-Pin Photocell Receptacle - 3-pin receptacle per ANSI C136.10 - Intended for downlight applications with maximum 45° tilt - Photocell and shorting cap by others - Refer to PML spec sheet for availability with PML options 40K 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire
					04					
	06	UL Universal 347-480V	SV Silver	700 700mA						
	08		UL Universal 347-480V	WH White	- Available with 20-60 LEDs					
	10	UL Universal 347-480V								
	12		UL Universal 347-480V							
	14	UL Universal 347-480V								
	16		UL Universal 347-480V							
	FLD-EDG	25 25° Flood 40 40° Flood		70 70° Flood SN Sign	N6 NEMA® 6	AA Adjustable Arm				
			SA Side Arm - Available with 20-60 LEDs							

* Reference EPA and pole configuration suitability data beginning on page 19



US: creelighting.com (800) 236-6800
 Canada: creelighting-canada.com (800) 473-1234



Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance heat sinks
- DA and DL mount utilizes convenient interlocking mounting method. Mounting is rugged die cast aluminum, mounts to 3-6" (76-152mm) square or round pole and secures to pole with 5/16-18 UNC bolts spaced on 2" (51mm) centers
- AA and SA mounts are rugged die cast aluminum and mount to 2" (51mm) IP, 2.375" (60mm) O.D. tenons
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver, and white are available
- **Weight:** See Dimensions and Weight Charts on pages 1 and 22

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- DA and DL mounts designed with integral weathertight electrical box with terminal strips (12Ga-20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Consult factory if in-luminaire fusing is required
- **Maximum 10V Source Current:** 20 LED (350mA): 10mA; 20 LED (525 & 700mA) and 40-80 LED: 0.15mA; 100-160 LED: 0.30mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards when ordered with AA, DA and DL mounts
- ANSI C136.2 10kV surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified with select SKUs. Refer to <https://www.designlights.org/search/> for most current information
- Meets Buy American requirements within ARRA
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*							
LED Count (x10)	System Watts 120-480V	Total Current (A)					
		120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
14	158	1.32	0.77	0.68	0.62	0.47	0.35
16	179	1.49	0.87	0.77	0.68	0.53	0.39
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
10	171	1.43	0.83	0.74	0.66	0.50	0.38
12	202	1.69	0.98	0.86	0.77	0.59	0.44
14	232	1.94	1.12	0.98	0.87	0.68	0.50
16	263	2.21	1.27	1.11	0.97	0.77	0.56
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%

Cree Edge® Series Ambient Adjusted Lumen Maintenance ¹					
Ambient	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
5°C (41°F)	1.04	1.01	0.99	0.98	0.96
10°C (50°F)	1.03	1.00	0.98	0.97	0.95
15°C (59°F)	1.02	0.99	0.97	0.96	0.94
20°C (68°F)	1.01	0.98	0.96	0.95	0.93
25°C (77°F)	1.00	0.97	0.95	0.94	0.92

¹ Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the [Temperature Zone Reference Document](#) for outdoor average nighttime ambient conditions

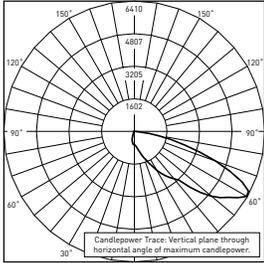
² In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED

³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED

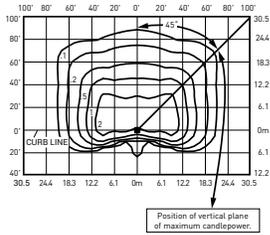
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/cree-edge-series-1>

4MB



RESTL Test Report #: PL01023-002B
 ARE-EDG-4MB-**-06-E-UL-525-40K
 Initial Delivered Lumens: 7,985



ARE-EDG-4MB-**-10-E-UL-525-40K
 Mounting Height: 25' (7.6m) A.F.G.
 Initial Delivered Lumens: 13,185
 Initial FC at grade

Type IV Medium Distribution w/BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,884	B0 U0 G1	1,921	B0 U0 G1
04	3,768	B1 U0 G1	3,843	B1 U0 G1
06	5,588	B1 U0 G1	5,698	B1 U0 G2
08	7,450	B1 U0 G2	7,598	B1 U0 G2
10	9,291	B1 U0 G2	9,475	B1 U0 G2
12	11,149	B1 U0 G2	11,370	B1 U0 G2
14	12,924	B1 U0 G2	13,181	B1 U0 G2
16	14,771	B2 U0 G2	15,063	B2 U0 G2
525mA				
02	2,674	B0 U0 G1	2,730	B0 U0 G1
04	5,348	B1 U0 G1	5,460	B1 U0 G1
06	7,930	B1 U0 G2	8,096	B1 U0 G2
08	10,573	B1 U0 G2	10,794	B1 U0 G2
10	13,185	B1 U0 G2	13,461	B1 U0 G2
12	15,821	B2 U0 G3	16,153	B2 U0 G3
14	18,341	B2 U0 G3	18,726	B2 U0 G3
16	20,962	B2 U0 G3	21,401	B2 U0 G3
700mA				
02	3,156	B1 U0 G1	3,220	B1 U0 G1
04	6,311	B1 U0 G2	6,440	B1 U0 G2
06	9,359	B1 U0 G2	9,549	B1 U0 G2

1
2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>

Cree Edge® Series

LED Security Wall Pack Luminaire

Rev. Date: V6 08/29/2019

Product Description

The Cree Edge® wall mount luminaire has a slim, low profile design. The luminaire end caps are made from rugged die cast aluminum with integral, weathertight LED driver compartments and high performance aluminum heat sinks specifically designed for LED applications. Housing is rugged aluminum. Includes a lightweight mounting box for installation over standard and mud ring single gang J-Boxes. Secures to wall with four 3/16" (5mm) screws (by others). Conduit entry from top, bottom, sides and rear. Allows mounting for uplight or downlight. Designed and approved for easy through-wiring. Includes leaf/debris guard.

Applications: General area and security lighting

Performance Summary

Patented NanoOptic® Product Technology

Assembled in the U.S.A. of U.S. and imported parts

CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard

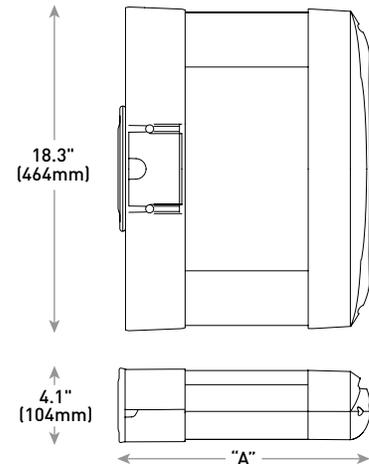
Limited Warranty*: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

*See <http://creelighting.com/warranty> for warranty terms

Accessories

Field-Installed		
Bird Spikes XA-BRDSPK	Beauty Plate WM-PLT12** - 12" (305mm) Square WM-PLT14** - 14" (356mm) Square - Covers holes left by incumbent wall packs	Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

**Must specify color



LED Count (x10)	Dim. "A"	Weight
02	9.9" (251mm)	20 lbs. (9.1kg)
04	11.9" (303mm)	22 lbs. (10.0kg)
06	13.9" (353mm)	25 lbs. (11.3kg)
08	15.9" (404mm)	27 lbs. (12.2kg)
10	17.9" (455mm)	31 lbs. (14.1kg)
12	19.9" (505mm)	32 lbs. (14.5kg)

Ordering Information

Example: SEC-EDG-2M-WM-06-E-UL-SV-700

Product	Optic	Mounting	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options
SEC-EDG	2M Type II Medium 2MB Type II Medium w/BLS 2S Type II Short 2SB Type II Short w/BLS 3M Type III Medium 3MB Type III Medium w/BLS 4M Type IV Medium 4MB Type IV Medium w/BLS	WM Wall Mount	02 04 06 08 10 12	E	UL Universal 120-277V UH Universal 347-480V 34 347V	BK Black BZ Bronze SV Silver WH White	350 350mA 525 525mA -Available with 20-80 LEDs 700 700mA -Available with 20-60 LEDs	DIM 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current - Not available with PML option P Photocell - Must specify UL or 34 voltage PML Programmable Multi-Level - Refer to PML spec sheet for details - Intended for downlight applications with 0° tilt 40K 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire



US: creelighting.com (800) 236-6800

Canada: creelighting-canada.com (800) 473-1234

CREE LIGHTING

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile design
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance aluminum heat sinks specifically designed for LED applications
- Housing is rugged aluminum
- Furnished with low copper, light weight mounting box designed for installation over standard and mud ring single gang J-Boxes
- Luminaire can also be direct mounted to a wall and surface wired
- Secures to wall with four 3/16" (5mm) screws (by others)
- Conduit entry from top, bottom, sides, and rear
- Allows mounting for uplight or downlight
- Designed and approved for easy through-wiring
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultradurable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver and white are available
- **Weight:** See Dimensions and Weight Chart on page 1

ELECTRICAL SYSTEM

- **Input Voltage:** 120–277V or 347–480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral weathertight J-Box with leads (wire nuts) for easy power hook up
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Consult factory if in-luminaire fusing is required
- **Maximum 10V Source Current:** 20 LED (350mA): 10mA; 20LED (525 & 700 mA) and 40-120 LED: 0.15mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Enclosure rated IP66 per IEC 60529 when ordered without P or PML options
- ANSI C136.2 10kV surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified with select SKUs. Refer to <https://www.designlights.org/search/> for most current information
- Meets Buy American requirements within ARRA
-  **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov



Electrical Data*							
LED Count (x10)	System Watts 120-480V	Total Current (A)					
		120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%

Cree Edge® Series Ambient Adjusted Lumen Maintenance ¹					
Ambient	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
5°C (41°F)	1.04	1.01	0.99	0.98	0.96
10°C (50°F)	1.03	1.00	0.98	0.97	0.95
15°C (59°F)	1.02	0.99	0.97	0.96	0.94
20°C (68°F)	1.01	0.98	0.96	0.95	0.93
25°C (77°F)	1.00	0.97	0.95	0.94	0.92

¹ Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the [Temperature Zone Reference Document](#) for outdoor average nighttime ambient conditions.

² In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED

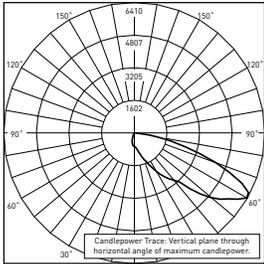
³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED

Cree Edge® LED Security Wall Pack Luminaire

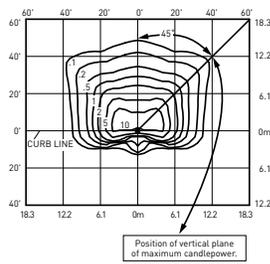
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/wall-mount/cree-edge-series-5>

4MB



RESTL Test Report #: PL01023-002B
 ARE-EDG-4MB-**-06-E-UL-525-40K
 Initial Delivered Lumens: 7,985



SEC-EDG-4MB-**-06-E-UL-700-40K
 Mounting Height: 10' (3.0m) A.F.G.
 Initial Delivered Lumens: 9,359
 Initial FC at grade

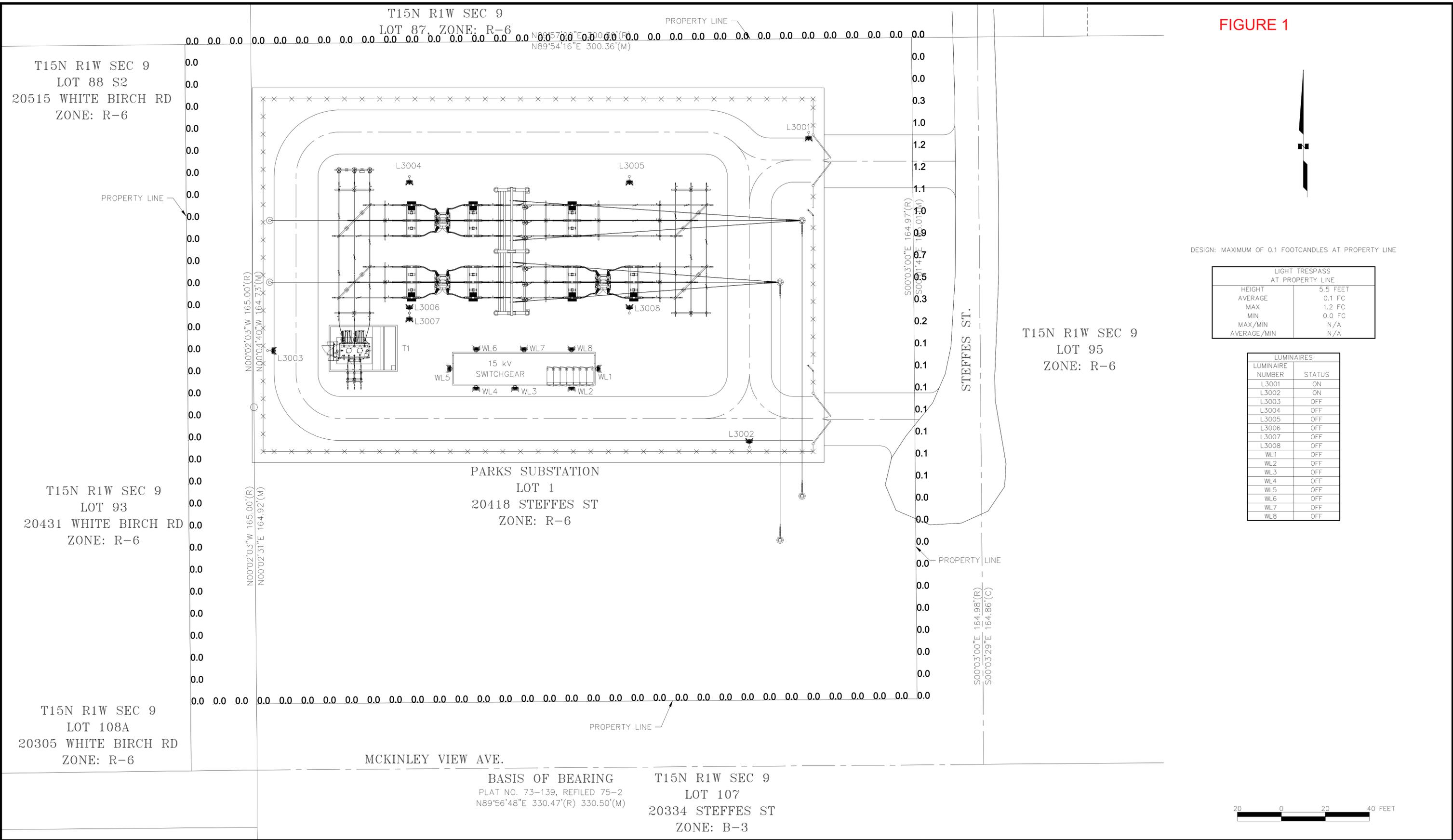
Type IV Medium Distribution w/BLS				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	1,884	B0 U0 G1	1,921	B0 U0 G1
04	3,768	B1 U0 G1	3,843	B1 U0 G1
06	5,588	B1 U0 G1	5,698	B1 U0 G2
08	7,450	B1 U0 G2	7,598	B1 U0 G2
10	9,291	B1 U0 G2	9,475	B1 U0 G2
12	11,149	B1 U0 G2	11,370	B1 U0 G2
525mA				
02	2,674	B0 U0 G1	2,730	B0 U0 G1
04	5,348	B1 U0 G1	5,460	B1 U0 G1
06	7,930	B1 U0 G2	8,096	B1 U0 G2
08	10,573	B1 U0 G2	10,794	B1 U0 G2
700mA				
02	3,156	B1 U0 G1	3,220	B1 U0 G1
04	6,311	B1 U0 G2	6,440	B1 U0 G2
06	9,359	B1 U0 G2	9,549	B1 U0 G2

3

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>

FIGURE 1



DESIGN: MAXIMUM OF 0.1 FOOTCANDLES AT PROPERTY LINE

LIGHT TRESPASS AT PROPERTY LINE	
HEIGHT	5.5 FEET
AVERAGE	0.1 FC
MAX	1.2 FC
MIN	0.0 FC
MAX/MIN	N/A
AVERAGE/MIN	N/A

LUMINAIRES	
LUMINAIRE NUMBER	STATUS
L3001	ON
L3002	ON
L3003	OFF
L3004	OFF
L3005	OFF
L3006	OFF
L3007	OFF
L3008	OFF
WL1	OFF
WL2	OFF
WL3	OFF
WL4	OFF
WL5	OFF
WL6	OFF
WL7	OFF
WL8	OFF



PROJECT TITLE: PARKS SUBSTATION UPGRADE							W.O. # 102855	
ENG./DESIGN.: HAILEIGH SEIL-MEA/TIM CONRAD-EPS							ENG. STAMP	
REV #	DESCRIPTION	DRAFTED BY	DATE DRAFTED	MGR./SUPEV. REVIEWED	DATE REVIEWED	DIRECTOR APPROVED	DATE APPROVED	
A	ISSUED FOR PERMITTING	KER	01/14/20	TCC	01/14/20			

Matanuska Electric Association

163 East Industrial Way
Palmer, AK 99645
(907) 761-9300
WWW.MEA.COOP

REV #	RECORD REVISION DESCRIPTION	DRAFTED BY	TECH/ENG APPROVED	WORK ORDER APPROVED	APPROVED BY	DATE APPROVED

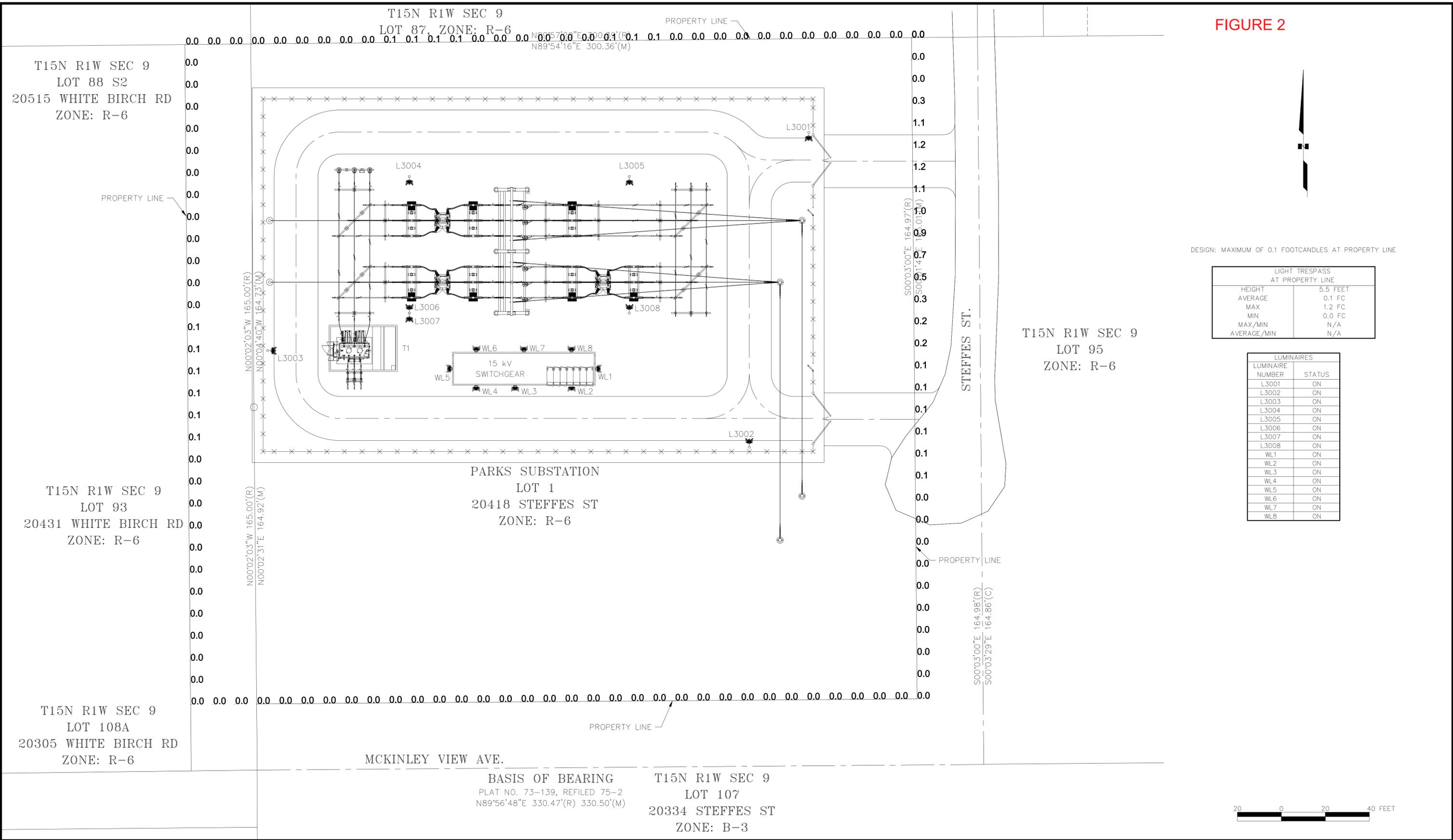
DRAWING NAME: **PARKS SUBSTATION SECURITY LIGHTING LIGHT TRESPASS EXHIBIT F GRID NUMBER 1358**

PREVIOUS DRAWING NUMBER: _____

DRAWING NUMBER: _____

SER. SHIT 1 OF 1
PKG. PG. OF

FIGURE 2



DESIGN: MAXIMUM OF 0.1 FOOTCANDLES AT PROPERTY LINE

LIGHT TRESPASS AT PROPERTY LINE	
HEIGHT	5.5 FEET
AVERAGE	0.1 FC
MAX	1.2 FC
MIN	0.0 FC
MAX/MIN	N/A
AVERAGE/MIN	N/A

LUMINAIRES	
LUMINAIRE NUMBER	STATUS
L3001	ON
L3002	ON
L3003	ON
L3004	ON
L3005	ON
L3006	ON
L3007	ON
L3008	ON
WL1	ON
WL2	ON
WL3	ON
WL4	ON
WL5	ON
WL6	ON
WL7	ON
WL8	ON



PROJECT TITLE: PARKS SUBSTATION UPGRADE							W.O. # 102855	
ENG./DESIGN.: HAILEIGH SEIL-MEA/TIM CONRAD-EPS								
REV #	DESIGN/CONSTRUCTION/ASBUILT REVISION	DRAFTED BY	DATE DRAFTED	MGR./SUPEV. REVIEWED	DATE REVIEWED	DIRECTOR APPROVED	DATE APPROVED	ENG. STAMP
A	ISSUED FOR PERMITTING	KER	01/14/20	TCC	01/14/20			

Matanuska Electric Association

163 East Industrial Way
Palmer, AK 99645
(907) 761-9300
WWW.MEA.COOP

REV #	RECORD REVISION DESCRIPTION	DRAFTED BY	TECH/ENG APPROVED	WORK ORDER APPROVED	APPROVED BY	DATE APPROVED

DRAWING NAME: **PARKS SUBSTATION MAINTENANCE LIGHTING LIGHT TRESPASS EXHIBIT E GRID NUMBER 1358**

PREVIOUS DRAWING NUMBER: _____

DRAWING NUMBER: _____

SER. SHIT _____ OF _____
PKG. PG. _____ OF _____