

**EXHIBIT**  
**"A"**

**CITY OF ROUND ROCK AGREEMENT FOR  
PURCHASE OF DRIVING RANGE LIGHTING AND  
INSTALLATION SERVICES AT FOREST CREEK GOLF COURSE  
WITH  
MUSCO SPORTS LIGHTING, LLC**

**THE STATE OF TEXAS** §  
§  
**CITY OF ROUND ROCK** § **KNOW ALL BY THESE PRESENTS:**  
§  
**COUNTY OF WILLIAMSON** §  
**COUNTY OF TRAVIS** §

THAT THIS AGREEMENT for the purchase of driving range lighting and installation services at Forest Creek Golf Course located in Round Rock, Texas, and for related goods and services (referred to herein as the "Agreement"), is made and entered into on this the \_\_\_\_ day of the month of January, 2018 by and between the CITY OF ROUND ROCK, a Texas home-rule municipality, whose offices are located at 221 East Main Street, Round Rock, Texas 78664-5299 (referred to herein as the "City"), and MUSCO SPORTS LIGHTING, LLC, whose offices are located at 100 1<sup>st</sup> Avenue West, P.O. Box 806, Oskaloosa, Iowa 52577 (referred to herein as "Vendor").

**RECITALS:**

WHEREAS, City desires to purchase certain services, driving range lighting and installation services for the Forest Creek Golf Course, and City desires to procure same from Vendor; and

WHEREAS, City is a member of the Buy Board Cooperative Purchasing Program ("Buy Board") and Vendor is an approved Buy Board vendor through Buy Board Contract # 512-16; and

WHEREAS, City desires to purchase certain goods and services from Vendor through Buy Board as set forth herein; and

WHEREAS, the parties desire to enter into this Agreement to set forth in writing their respective rights, duties, and obligations;

**NOW, THEREFORE, WITNESSETH:**

That for and in consideration of the mutual promises contained herein and other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, it is mutually agreed between the parties as follows:

## 1.01 DEFINITIONS

A. **Agreement** means the binding legal contract between City and Vendor whereby City is obligated to buy specified services and Vendor is obligated to provide said services. The Agreement includes Vendor's Proposal dated December 13, 2017 (attached as Exhibit "A").

B. **City** means the City of Round Rock, Williamson and Travis Counties, Texas.

C. **Effective Date** means the date upon which the binding signatures of both parties to this Agreement are affixed.

D. **Force Majeure** means acts of God, strikes, lockouts, or other industrial disturbances, acts of the public enemy, orders of any kind from the government of the United States or the State of Texas or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, restraint of the government and the people, civil disturbances, explosions, or other causes not reasonably within the control of the party claiming such inability.

E. **Goods** mean the specified supplies, materials, commodities, or equipment.

F. **Services** mean work performed to meet a demand or effort by Vendor to comply with promised delivery dates, specifications, and technical assistance specified.

## 2.01 EFFECTIVE DATE, TERM, ALLOWABLE RENEWALS, PRICES FIRM

A. This Agreement shall be effective on the date this Agreement has been signed by each party hereto, and shall remain in full force and effect unless and until it expires by operation of the term indicated herein, or is terminated or extended as provided herein.

B. This Agreement shall terminate upon the purchase and installation of all goods and services as described in Exhibit "A."

C. Prices shall be firm for the duration of this Agreement. No separate line item charges shall be permitted for invoicing purposes, including but not limited to equipment rental, demurrage, costs associated with obtaining permits, or any other extraneous charges.

D. City reserves the right to review the relationship with Vendor at any time, and may elect to terminate this Agreement with or without cause or may elect to continue.

## 3.01 CONTRACT DOCUMENTS AND EXHIBITS

The goods and services which are the subject matter of this Agreement are described in Exhibit "A" and, together with this Agreement, comprise the Contract Documents. Any

inconsistencies or conflicts in the contract documents shall be resolved by giving preference to the terms and conditions set forth in pages one (1) through nine (9) of this Agreement.

#### **4.01 SCOPE OF WORK**

Vendor shall satisfactorily complete all services described in Vendor's Proposal, Exhibit "A," attached hereto and incorporated herein.

This Agreement shall evidence the entire understanding and agreement between the parties and shall supersede any prior proposals, correspondence or discussions.

Vendor shall satisfactorily provide all deliverables and services described in Exhibit "A" within the contract term specified. A change in the Scope of Services or any term of this Agreement, including bonding requirements, must be negotiated and agreed to in all relevant details, and must be embodied in a valid Supplemental Agreement as described herein.

#### **5.01 CONTRACT AMOUNT**

In consideration for the deliverables and services related to the deliverables, the City agrees to pay Vendor **One Hundred Seventy-Seven Thousand and No/100 Dollars (\$177,000.00)** for the goods and services set forth in Exhibit "A."

#### **6.01 INVOICES**

All invoices shall include, at a minimum, the following information:

- A. Name and address of Vendor;
- B. Purchase Order Number;
- C. Description and quantity of items received or services provided; and
- D. Delivery or performance dates.

#### **7.01 NON-APPROPRIATION AND FISCAL FUNDING**

This Agreement is a commitment of City's current revenues only. It is understood and agreed that City shall have the right to terminate this Agreement at the end of any City fiscal year if the governing body of City does not appropriate funds sufficient to purchase the services as determined by City's budget for the fiscal year in question. City may effect such termination by giving Vendor a written notice of termination at the end of its then current fiscal year.

## **8.01 PROMPT PAYMENT POLICY**

In accordance with Chapter 2251, V.T.C.A., Texas Government Code, payment to Vendor will be made within thirty (30) days of the day on which City receives the performance, supplies, materials, equipment, and/or deliverables, or within thirty (30) days of the day on which the performance of services was complete, or within thirty (30) days of the day on which City receives a correct invoice for the performance and/or deliverables or services, whichever is later. Vendor may charge interest on an overdue payment at the “rate in effect” on September 1 of the fiscal year in which the payment becomes overdue, in accordance with V.T.C.A., Texas Government Code, Section 2251.025(b); however, this Policy does not apply to payments made by City in the event:

- A. There is a bona fide dispute between City and Vendor, a contractor, subcontractor or supplier about the goods delivered or the service performed that cause the payment to be late; or
- B. The terms of a federal contract, grant, regulation, or statute prevent City from making a timely payment with federal funds; or
- C. There is a bona fide dispute between Vendor and a subcontractor or between a subcontractor and its supplier about the goods delivered or the service performed that causes the payment to be late; or
- D. Invoices are not mailed to City in strict accordance with instructions, if any, on the purchase order or the Agreement or other such contractual agreement.

## **9.01 GRATUITIES AND BRIBES**

City may, by written notice to Vendor, cancel this Agreement without liability to Vendor if it is determined by City that gratuities or bribes in the form of entertainment, gifts, or otherwise were offered or given by Vendor or its agents or representatives to any City officer, employee or elected representative with respect to the performance of this Agreement. In addition, Vendor may be subject to penalties stated in Title 8 of the Texas Penal Code.

## **10.01 TAXES**

City is exempt from Federal Excise and State Sales Tax; therefore, tax shall not be included in Vendor’s charges.

## **11.01 ORDERS PLACED WITH ALTERNATE SERVICES PROVIDERS**

If Vendor cannot provide the goods as specified, City reserves the right and option to obtain the products from another supplier or suppliers

## **12.01 CITY'S REPRESENTATIVE**

City hereby designates the following representative authorized to act in its behalf with regard to this Agreement:

Brian Stillman  
Sports Facilities & Operations Manager  
Sports Management and Tourism  
221 East Main Street  
Round Rock, Texas 78664  
(512) 218-6607

## **13.01 INSURANCE**

Vendor shall meet all City of Round Rock Insurance Requirements as set forth at: [http://www.roundrocktexas.gov/wp-content/uploads/2014/12/corr\\_insurance\\_07.20112.pdf](http://www.roundrocktexas.gov/wp-content/uploads/2014/12/corr_insurance_07.20112.pdf).

## **14.01 RIGHT TO ASSURANCE**

Whenever either party to this Agreement, in good faith, has reason to question the other party's intent to perform hereunder, then demand may be made to the other party for written assurance of the intent to perform. In the event that no written assurance is given within the reasonable time specified when demand is made, then and in that event the demanding party may treat such failure as an anticipatory repudiation of this Agreement.

## **15.01 DEFAULT**

If Vendor abandons or defaults under this Agreement and is a cause of City purchasing the specified goods elsewhere, Vendor agrees that it may be charged the difference in cost, if any, and that it will not be considered in the re-advertisement of the service and that it may not be considered in future bids for the same type of work unless the scope of work is significantly changed.

Vendor shall be declared in default of this Agreement if it does any of the following:

- A. Fails to fully, timely and faithfully perform any of its material obligations under this Agreement;
- B. Fails to provide adequate assurance of performance under the "Right to Assurance" section herein; or
- C. Becomes insolvent or seeks relief under the bankruptcy laws of the United States.

## **16.01 TERMINATION AND SUSPENSION**

A. City has the right to terminate this Agreement, in whole or in part, for convenience and without cause, at any time upon thirty (30) days' written notice to Vendor.

B. In the event of any default by Vendor, City has the right to terminate this Agreement for cause, upon ten (10) days' written notice to Vendor.

C. Vendor has the right to terminate this Agreement only for cause, that being in the event of a material and substantial breach by City, or by mutual agreement to terminate evidenced in writing by and between the parties.

D. In the event City terminates under subsections (A) or (B) of this section, the following shall apply: Upon City's delivery of the referenced notice to Vendor, Vendor shall discontinue all services in connection with the performance of this Agreement and shall proceed to cancel promptly all existing orders and contracts insofar as such orders and contracts are chargeable to this Agreement. Within thirty (30) days after such notice of termination, Vendor shall submit a statement showing in detail the goods and/or services satisfactorily performed under this Agreement to the date of termination. City shall then pay Vendor that portion of the charges, if undisputed. The parties agree that Vendor is not entitled to compensation for services it would have performed under the remaining term of the Agreement except as provided herein.

## **17.01 INDEMNIFICATION**

Vendor shall defend (at the option of City), indemnify, and hold City, its successors, assigns, officers, employees and elected officials harmless from and against all suits, actions, legal proceedings, claims, demands, damages, costs, expenses, attorney's fees, and any and all other costs or fees arising out of, or incident to, concerning or resulting from the fault of Vendor, or Vendor's agents, employees or subcontractors, in the performance of Vendor's obligations under this Agreement, no matter how, or to whom, such loss may occur. Nothing herein shall be deemed to limit the rights of City or Vendor (including, but not limited to the right to seek contribution) against any third party who may be liable for an indemnified claim.

## **18.01 COMPLIANCE WITH LAWS, CHARTER AND ORDINANCES**

A. Vendor, its agents, employees and subcontractors shall use best efforts to comply with all applicable federal and state laws, the Charter and Ordinances of the City of Round Rock, as amended, and with all applicable rules and regulations promulgated by local, state and national boards, bureaus and agencies.

B. Vendor acknowledges and understands that City has adopted a Storm Water Management Program (SWMP) and an Illicit Discharge Ordinance, Sections 14-139 through 14-152 of the City's Code of Ordinances, to manage the quality of the discharges from its Municipal

Separate Storm Sewer System (MS4) and to be in compliance with the requirements of the Texas Commission on Environmental Quality (TCEQ) and the Texas Pollutant Discharge Elimination System (TPDES). The Vendor agrees to perform all operations on City-owned facilities in compliance with the City's Illicit Discharge Ordinance to minimize the release of pollutants into the MS4. The Vendor agrees to comply with of the City's stormwater control measures, good housekeeping practices and any facility specific stormwater management operating procedures specific to a certain City facility. In addition, the Vendor agrees to comply with any applicable TCEQ Total Maximum Daily Load (TMDL) Requirements and/or I-Plan requirements.

C. In accordance with Chapter 2270, Texas Government Code, a governmental entity may not enter into a contract with a company for goods or services unless the contract contains written verification from the company that it: (1) does not boycott Israel; and (2) will not boycott Israel and will not boycott Israel during the term of this contract. The signatory executing this Agreement on behalf of Vendor verifies Vendor does not boycott Israel and will not boycott Israel during the term of this Agreement.

#### **19.01 ASSIGNMENT AND DELEGATION**

The parties each hereby bind themselves, their successors, assigns and legal representatives to each other with respect to the terms of this Agreement. Neither party shall assign, sublet or transfer any interest in this Agreement without prior written authorization of the other party.

#### **20.01 NOTICES**

All notices and other communications in connection with this Agreement shall be in writing and shall be considered given as follows:

1. When delivered personally to the recipient's address as stated in this Agreement;  
or
2. Three (3) days after being deposited in the United States mail, with postage prepaid to the recipient's address as stated in this Agreement.

#### **Notice to Vendor:**

Musco Sports Lighting, LLC  
100 1<sup>st</sup> Avenue West  
P.O. Box 808  
Oskaloosa, IA 52577

**Notice to City:**

City Manager  
221 East Main Street  
Round Rock, TX 78664

AND TO:

Stephan L. Sheets, City Attorney  
309 East Main Street  
Round Rock, TX 78664

Nothing contained herein shall be construed to restrict the transmission of routine communications between representatives of City and Vendor.

**21.01 APPLICABLE LAW; ENFORCEMENT AND VENUE**

This Agreement shall be enforceable in Round Rock, Texas, and if legal action is necessary by either party with respect to the enforcement of any or all of the terms or conditions herein, exclusive venue for same shall lie in Williamson County, Texas. This Agreement shall be governed by and construed in accordance with the laws and court decisions of the State of Texas.

**22.01 EXCLUSIVE AGREEMENT**

This document, and all appended documents, constitutes the entire Agreement between Vendor and City. This Agreement may only be amended or supplemented by mutual agreement of the parties hereto in writing, duly authorized by action of the City Manager or City Council.

**23.01 DISPUTE RESOLUTION**

City and Vendor hereby expressly agree that no claims or disputes between the parties arising out of or relating to this Agreement or a breach thereof shall be decided by any arbitration proceeding, including without limitation, any proceeding under the Federal Arbitration Act (9 USC Section 1-14) or any applicable state arbitration statute.

**24.01 SEVERABILITY**

The invalidity, illegality, or unenforceability of any provision of this Agreement or the occurrence of any event rendering any portion or provision of this Agreement void shall in no way affect the validity or enforceability of any other portion or provision of this Agreement. Any void provision shall be deemed severed from this Agreement, and the balance of this Agreement shall be construed and enforced as if this Agreement did not contain the particular portion or provision held to be void. The parties further agree to amend this Agreement to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this section shall not prevent this entire Agreement from being void should a provision which is of the essence of this Agreement be determined void.



## 25.01 MISCELLANEOUS PROVISIONS

**Standard of Care.** Vendor represents that it employs trained, experienced and competent persons to perform all of the services, responsibilities and duties specified herein and that such services, responsibilities and duties shall be performed in a manner according to generally accepted industry practices.

**Time is of the Essence.** Vendor understands and agrees that time is of the essence and that any failure of Vendor to fulfill obligations for each portion of this Agreement within the agreed timeframes will constitute a material breach of this Agreement. Vendor shall be fully responsible for its delays or for failures to use best efforts in accordance with the terms of this Agreement. Where damage is caused to City due to Vendor's failure to perform in these circumstances, City may pursue any remedy available without waiver of any of City's additional legal rights or remedies.

**Force Majeure.** Neither City nor Vendor shall be deemed in violation of this Agreement if it is prevented from performing any of its obligations hereunder by reasons for which it is not responsible as defined herein. However, notice of such impediment or delay in performance must be timely given and all reasonable efforts undertaken to mitigate its effects.

**Multiple Counterparts.** This Agreement may be executed in multiple counterparts, any one of which shall be considered an original of this document; and all of which, when taken together, shall constitute one and the same instrument.

[Signatures appear on the following page.]

IN WITNESS WHEREOF, City and Vendor have executed this Agreement on the dates indicated.

**City of Round Rock, Texas**

**Musco Sports Lighting, LLC**

By: \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Signed: \_\_\_\_\_

By: \_\_\_\_\_  
Printed Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date Signed: \_\_\_\_\_

**Attest:**

By: \_\_\_\_\_  
Sara L. White, City Clerk

**For City, Approved as to Form:**

By: \_\_\_\_\_  
Stephan L. Sheets, City Attorney

**Project: Forest Creek Driving Range**  
**Round Rock, TX**  
**Ref: 187376**  
**Date: December 13, 2017**

**BuyBoard**  
**Master Project: 146396, Contract Number: 512-16, Expiration: 09/30/2019**  
**Commodity: Parks/Rec & Field Lighting**

***Quotation Price – Materials Delivered to Job Site and Installation***

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**Driving Range - .....\$ 177,000**

*Sales tax (if applicable) is not included.*  
*Pricing furnished is effective for 60 days unless otherwise noted and is considered confidential.*

***Light-Structure System with Total Light Control – TLC for LED™ technology***

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**System Description** [Light-Structure System]

- (3) Pre-cast concrete bases with integrated lightning grounding
- (3) 60' Galvanized steel poles
- Factory wired and tested remote electrical component enclosures
- Pole length, factory assembled wire harnesses
- Factory wired poletop luminaire assemblies
- (29) Factory aimed and assembled luminaries, including BallTracker™ luminaires
- Berm mounted luminaire assemblies
- UL Listed as a complete system

**Control Systems and Services**

- Control-Link® System for remote on/off control and performance monitoring with 24/7 customer support

**Operation and Warranty Services**

- Reduction of energy and maintenance costs by 50% to 85% over typical 1500W metal halide equipment
- Product assurance and warranty program that covers materials and onsite labor, eliminating 100% of your maintenance costs for 25 years
- Support from Musco's Lighting Services Team – over 170 Team members dedicated to operating and maintaining your lighting system – plus a network of 1800+ contractors

***Installation Services Provided***

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See attached.

***Payment Terms***

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Musco's Credit Department will provide payment terms.

**Exhibit "A"**



### ***Delivery Timing***

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6 - 8 weeks for delivery of materials to the job site from the time of order, submittal approval, and confirmation of order details including voltage, phase, and pole locations.

Due to the built-in custom light control per luminaire, pole locations need to be confirmed prior to production. Changes to pole locations after the product is sent to production could result in additional charges.

### ***Notes***

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Quote is based on:

- Shipment of entire project together to one location
- Voltage and phasing to be confirmed prior to production
- Structural code and wind speed = 2012 IBC, 115 MPH, Importance Factor 1.0.
- Owner is responsible for getting electrical power to the site, coordination with the utility, and any power company fees
- Includes supply and installation of Musco system including underground wiring and conduit, service entrance panel board, and controls by a licensed contractor.
- Confirmation of pole locations prior to production

Thank you for considering Musco for your lighting needs. Please contact me with any questions or if you need additional details.

Brant Troutman  
Senior Sales Representative  
Musco Sports Lighting, LLC  
Phone: 512-914-9500  
E-mail: brant.troutman@musco.com

## Exhibit "A"



### Turnkey Scope of Work

#### Owner Responsibilities:

1. Complete access to the site for construction using standard 2 wheel drive rubber tire equipment.
2. Locate existing underground utilities not covered by "One Call" and irrigation systems and sprinkler heads. Musco or Subcontractor will not be responsible for repairs to unmarked utilities.
3. Locate and mark reference points per Musco supplied layout.
4. Pay for extra costs associated with foundation excavation in non-standard soils (rock, caliche, high water table, collapsing holes, etc.). Standard soils are defined as soils that can be excavated using standard earth auguring equipment.
5. Owner responsible for any power company fees and requirements. (If necessary).
6. Provide area on site for disposal of spoils from foundation excavation.
7. Provide sealed Electrical Plans. (If required)

#### Musco Responsibilities:

1. Provide required poles, fixtures, and foundations.
2. Provide layout of pole locations and aiming diagram.
3. Provide Project Management as required.
4. Provide stamped foundation designs based on 2500psf soils.
5. Provide Payment and Performance Bonding. ( If required, Not included in the quote)

#### Musco Subcontractor Responsibilities:

1. Provide equipment and materials to off load equipment at jobsite per scheduled delivery.
2. Provide storage containers for material, (including ballast boxes), as necessary and waste disposal.
3. Provide adequate security to protect Musco delivered products from theft, vandalism or damage during the installation.
4. Obtain any required permitting.
5. Provide materials and equipment to install electrical service panels as required or necessary.
6. Provide materials and equipment to install all underground conduit, wiring, pull boxes etc. and terminate wiring as required per electrical design.
7. Confirm the existing underground utilities and irrigation systems have been located and are clearly marked so as to avoid damage from construction equipment. Repair any such damage during construction.
8. Provide materials and equipment to install (3) LSS foundations as specified on Layout.
9. Remove spoils to owner designated location at jobsite.
10. Provide materials and equipment to assemble LED fixtures and terminate all necessary wiring.
11. Provide equipment and materials to assemble and erect (3) LSS Poles.
12. Provide equipment and materials to install (6) concrete foundations and berm fixture assemblies per Musco cutsheet information.
13. Provide equipment and materials to install (1) Lighting Contactor Cabinet and terminate all necessary wiring.
14. Provide step down transformer for 120v control circuit if not available.
15. Contractor will commission Control Link by contacting Control Link Central at (877-347-3319).
16. Check all Zones to make sure they work in both auto and manual mode.
17. 1 hour comprehensive burn of all lights on each zone.
18. Set base line for the DAS (Diagnostic Acquisition System)
19. Keep all heavy equipment off of playing fields when possible. Repair damage to grounds which exceeds that which would be expected. Indentations caused by heavy equipment traveling over dry ground would be an example of expected damage. Ruts and sod damage caused by equipment traveling over wet grounds would be an example of damage requiring repair.
20. Provide startup and aiming as required to provide complete and operating sports lighting system.
21. Provide as built drawings on completion of installation.

## Exhibit "A"





# Control System Summary

## Project Specific Notes:

## Project Information

Project #: 187376  
 Project Name: Forest Creek Driving Range  
 Date: 11/17/17  
 Project Engineer: J Van Soelen  
 Sales Representative: Brant Troutman  
 Control System Type: Control and Monitoring  
 Communication Type: Digital Cellular  
 Scan: 187376R2  
 Document ID: 187376P1V2-1117144550  
 Distribution Panel Location or ID: Driving Range  
 Total # of Distribution Panel Locations for Project: 1  
 Design Voltage/Hertz/Phase: 480/60/3  
 Control Voltage: 120

## Equipment Listing

DESCRIPTION	APPROXIMATE SIZE	
1. Control and Monitoring Cabinet	24 X 72	
	QTY	SIZE
Total Contactors	10	30 AMP
Total Off/On/Auto Switches:	2	

## Materials Checklist

### Contractor/Customer Supplied:

- A single control circuit must be supplied per distribution panel location.
  - If the control voltage is NOT available, a control transformer is required.
- Electrical distribution panel to provide overcurrent protection for circuits
  - Thermal/Magnetic circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- Wiring:
  - Dedicated control power circuit
  - Power circuit to and from lighting contactors
  - Harnesses for cabinets at remote locations
  - Means of grounding, including lightning ground protection
- Electrical conduit wireway system
  - Entrance hubs rated NEMA 4: must be die-cast zinc, PVC, or copper-free die-cast aluminum
- Mounting hardware for cabinets
- Control circuit lock-on device to prevent unauthorized power interruption to control power
- Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours

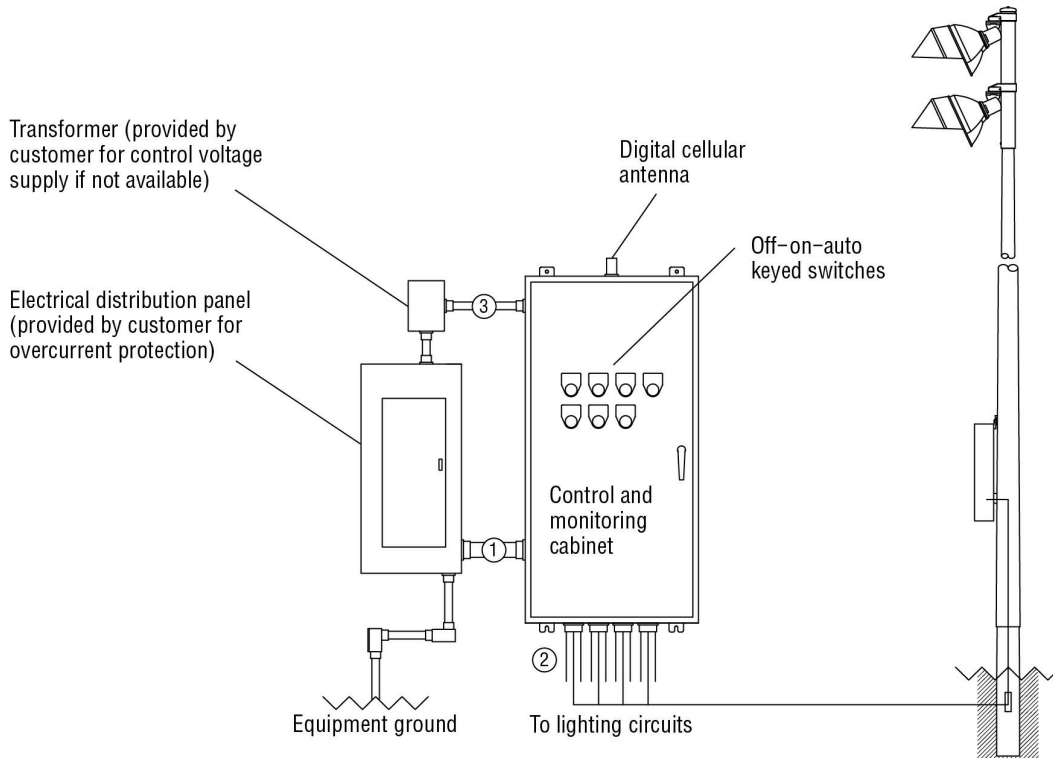
Preliminary Plans  
 Confirm all Details - voltage,  
 # of distribution panels, etc.

## IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's ballast enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are UL 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

**Exhibit "A"** *Installation Instructions for more details on equipment information and the installation requirements*

## Control•Link® Control and Monitoring System



Wire	Description	# of Wires	Typ. Wire Size (AWG)	Max. Wire Length (FT)	Wire from Musco	Notes
1	Line power to contactors, and equipment grounding conductor	Note A	Note B	27	No	A – E
2	Load power to lighting circuits	Note A	Note B	N/A	No	A – D
3	Control power (dedicated, 20A)	3	12	N/A	No	C, D

R60-32-00\_C

- Notes:
- A. Voltage and phasing per the notes on cover page.
  - B. Calculate per load and voltage drop.
  - C. All conduit diameters should be per code.
  - D. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.
  - E. Contact Musco if maximum wire length from circuit breaker to contactor exceeds value in chart.

**IMPORTANT:** Control (3) wires must be in separate conduit from line and load power wiring (1, 2).

## Exhibit "A"



# Control System Summary

Forest Creek Driving Range / 187376 - 187376R2  
Driving Range - Page 3 of 4

## SWITCHING SCHEDULE

Field/Zone Description	Zones
Driving Range	1
Putting / Chipping Greens	2

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 3038.0
	SEALED: 350.8

## CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
B1	Driving Range	3	3	3.1	30	C1	1
B2	Driving Range	3	3	3.1	30	C2	1
B3	Driving Range	3	3	3.1	30	C3	1
B4	Driving Range	3	3	3.1	30	C4	1
B5	Driving Range	3	3	3.1	30	C5	1
B6	Driving Range	3	3	3.1	30	C6	1
P1	Driving Range	5	5	8.2	30	C7	1
P2	Driving Range	5	5	8.2	30	C8	1
P3	Driving Range	5	5	8.2	30	C9	1
P1,P3	Putting / Chipping Greens	2	1	5.1	30	C10	2

\*Full Load Amps based on amps per driver.

# Exhibit "A"





# Control System Summary

Forest Creek Driving Range / 187376 - 187376R2  
 Driving Range - Page 4 of 4

PANEL SUMMARY						
CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole B1	3.05		
1	1	C2	Pole B2	3.05		
1	1	C3	Pole B3	3.05		
1	1	C4	Pole B4	3.05		
1	1	C5	Pole B5	3.05		
1	1	C6	Pole B6	3.05		
1	1	C7	Pole P1	8.18		
1	1	C8	Pole P2	8.18		
1	1	C9	Pole P3	8.18		
1	1	C10	Pole P1,P3	5.13		

ZONE SCHEDULE				
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	Driving Range	B1	C1
			B2	C2
			B3	C3
			B4	C4
			B5	C5
			B6	C6
			P1	C7
			P2	C8
			P3	C9
Zone 2	2	Putting / Chipping Greens	P1	C10
			P3	C10

## Exhibit "A"

# Forest Creek Driving Range

Round Rock, TX

## Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Group
B1-B6	3'	3'	3	TLC-BT-675	2.03 kW	A
P1, P3	60'	15'	2	TLC-BT-675	1.35 kW	A
		60'	3	TLC-LED-1150	3.45 kW	A
		60'	1	TLC-LED-1150	1.15 kW	B
P2	60'	15'	2	TLC-BT-675	1.35 kW	A
		60'	3	TLC-LED-1150	3.45 kW	A
<b>9</b>			<b>35</b>		<b>28.85 kW</b>	

Group Summary				
Group	Description	Avg Load	Max Load	Fixture Qty
A	Driving Range	26.55 kW	26.55 kW	33
B	Put / Chip Greens	2.3 kW	2.3 kW	2

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1150	LED 5700K - 75 CRI	1150W	121,000	>51,000	>51,000	>51,000	11
TLC-BT-675	LED 5700K - 75 CRI	675W	48,000	>51,000	>51,000	>51,000	24

## Light Level Summary

Calculation Grid Summary							
Grid Name	Calculation Metric	Illumination				Groups	Fixture Qty
		Ave	Min	Max	Max/Min		
200yds Down range	Arbitrary Illuminance	4.84	1.64	6.39	3.91	A	33
200yds Down range	Horizontal	0	0	0	1.43	A	33
200yds Down range	Max Vertical Illuminance Metric	4.96	1.92	6.39	3.33	A	33
Chipping Green	Horizontal	5.13	0	17	401.45	B	2
Driving Range 120'	Tee Box 120'	4.66	0	7	203.03	A	33
Driving Range 40'	Tee Box 40'	13.3	0	79	176.29	A	33
Driving Range 80'	Tee Box 80'	7.31	0	11	67.63	A	33
Driving Range	Horizontal Illuminance	3.60	0	38	14870.94	A	33
Putting Green	Horizontal	5.82	0	19	363.26	B	2
Tee Box	Horizontal Illuminance	21.1	10	38	3.89	A	33
Trajectory	Max Vertical Illuminance Metric	13.3	1.55	36.4	23.45	A	33
Trajectory	Player	12.4	1.55	26.1	16.79	A	33

## From Hometown to Professional

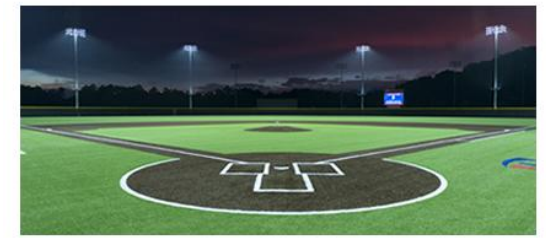


Exhibit "A"



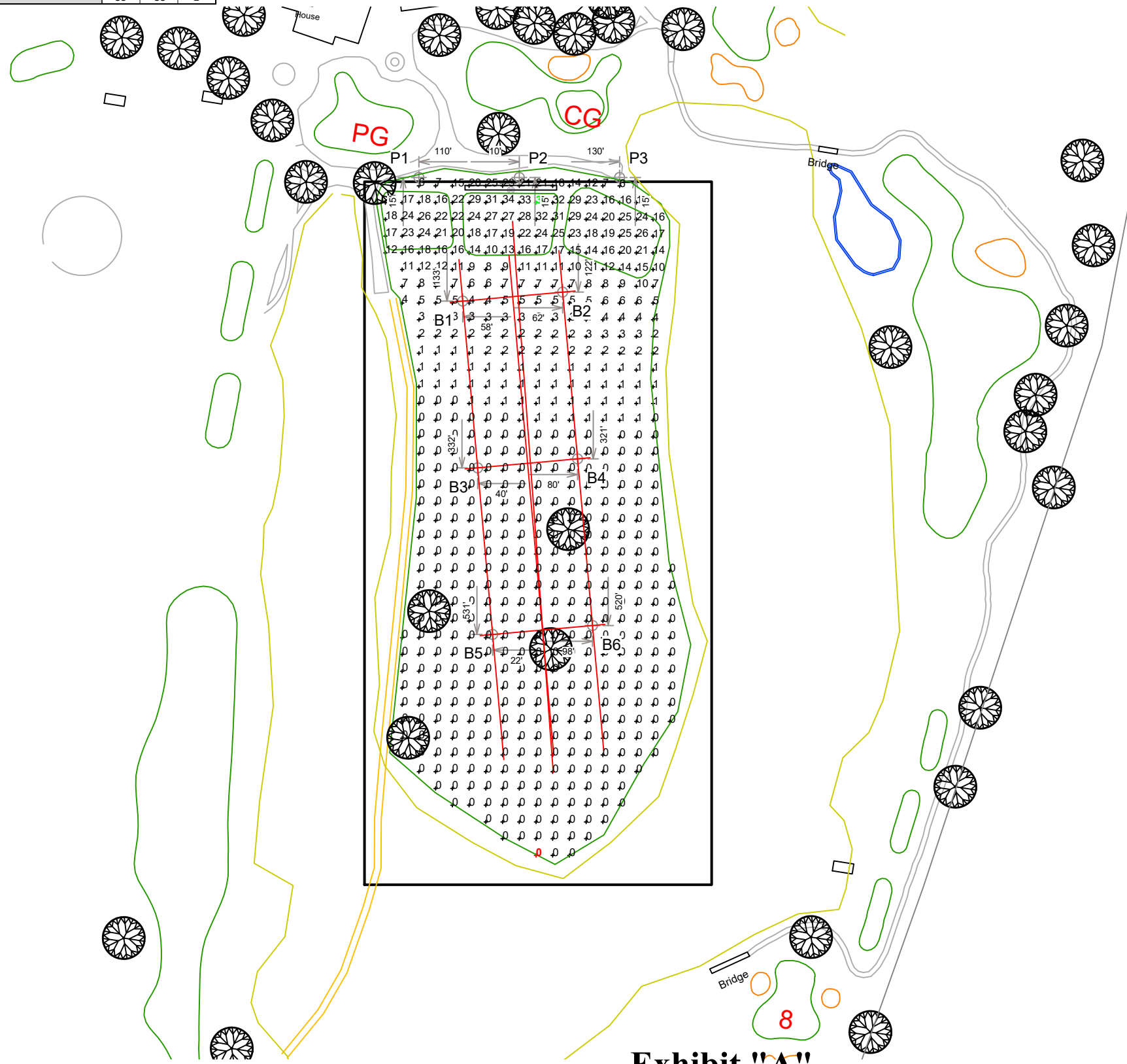
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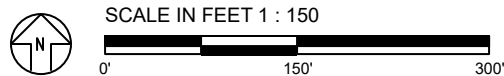
**EQUIPMENT LIST FOR AREAS SHOWN**

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\* This structure utilizes a back-to-back mounting configuration



**Exhibit "A"**



Pole location(s) ⚓ dimensions are relative to 0,0 reference point(s) ⊗

**Forest Creek Driving Range**

Round Rock, TX

GRID SUMMARY	
Name:	Driving Range
Size:	415' x 840'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	3.60		
Maximum:	38		
Minimum:	0		
Avg / Min:	1392.03		
Max / Min:	14870.94		
UG (adjacent pts):	2.78		
No. of Points:	604		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

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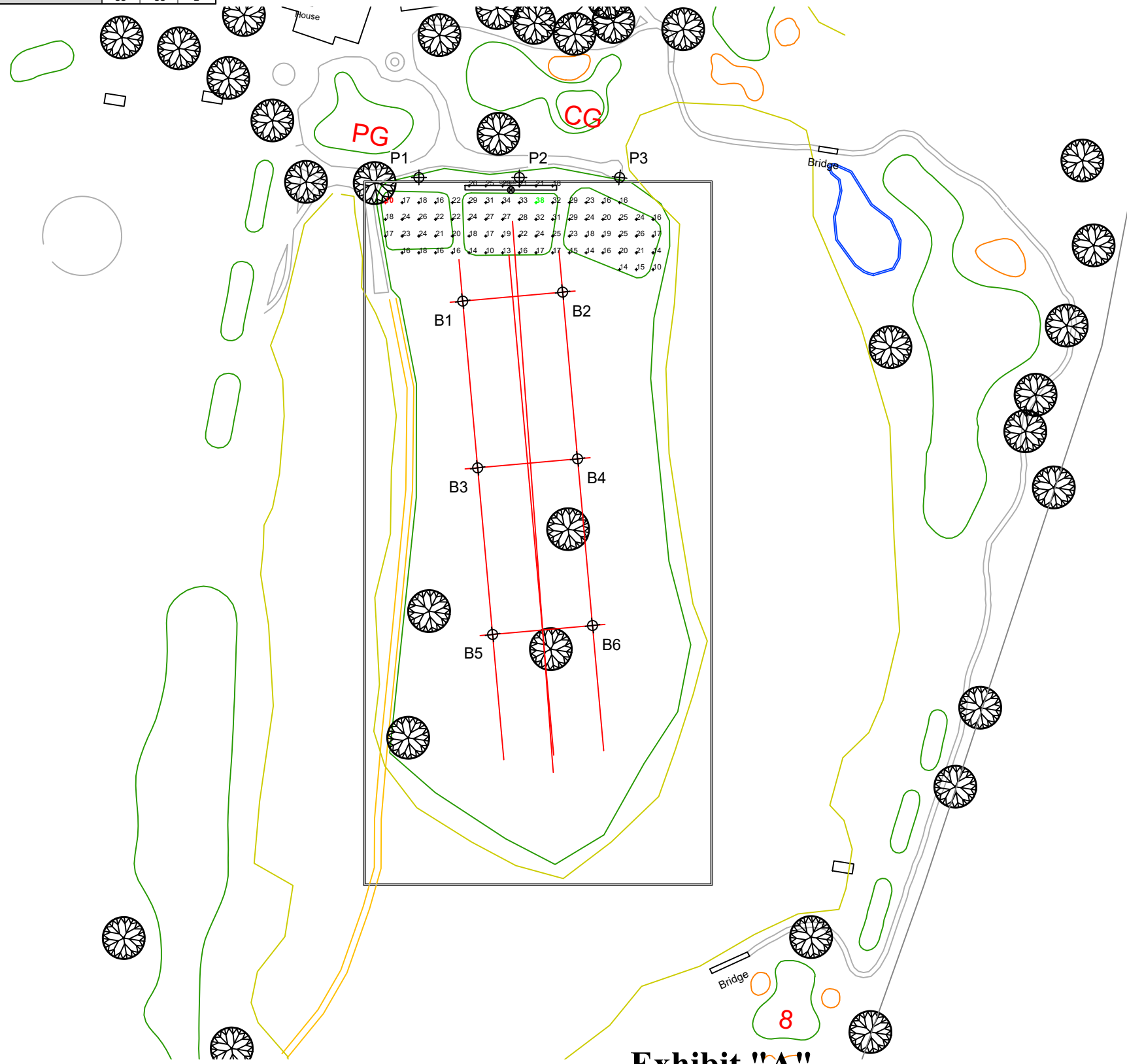
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**ILLUMINATION SUMMARY**

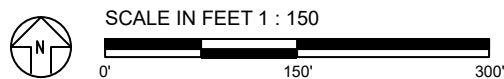
**EQUIPMENT LIST FOR AREAS SHOWN**

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\* This structure utilizes a back-to-back mounting configuration



**Exhibit "A"**



ENGINEERED DESIGN By: Justin Van Soelen • File #187376R2 • 17-Nov-17

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

**Forest Creek Driving Range**

Round Rock, TX

GRID SUMMARY	
Name:	Tee Box
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	21.10		
Maximum:	38		
Minimum:	10		
Avg / Min:	2.13		
Max / Min:	3.89		
UG (adjacent pts):	1.87		
No. of Points:	74		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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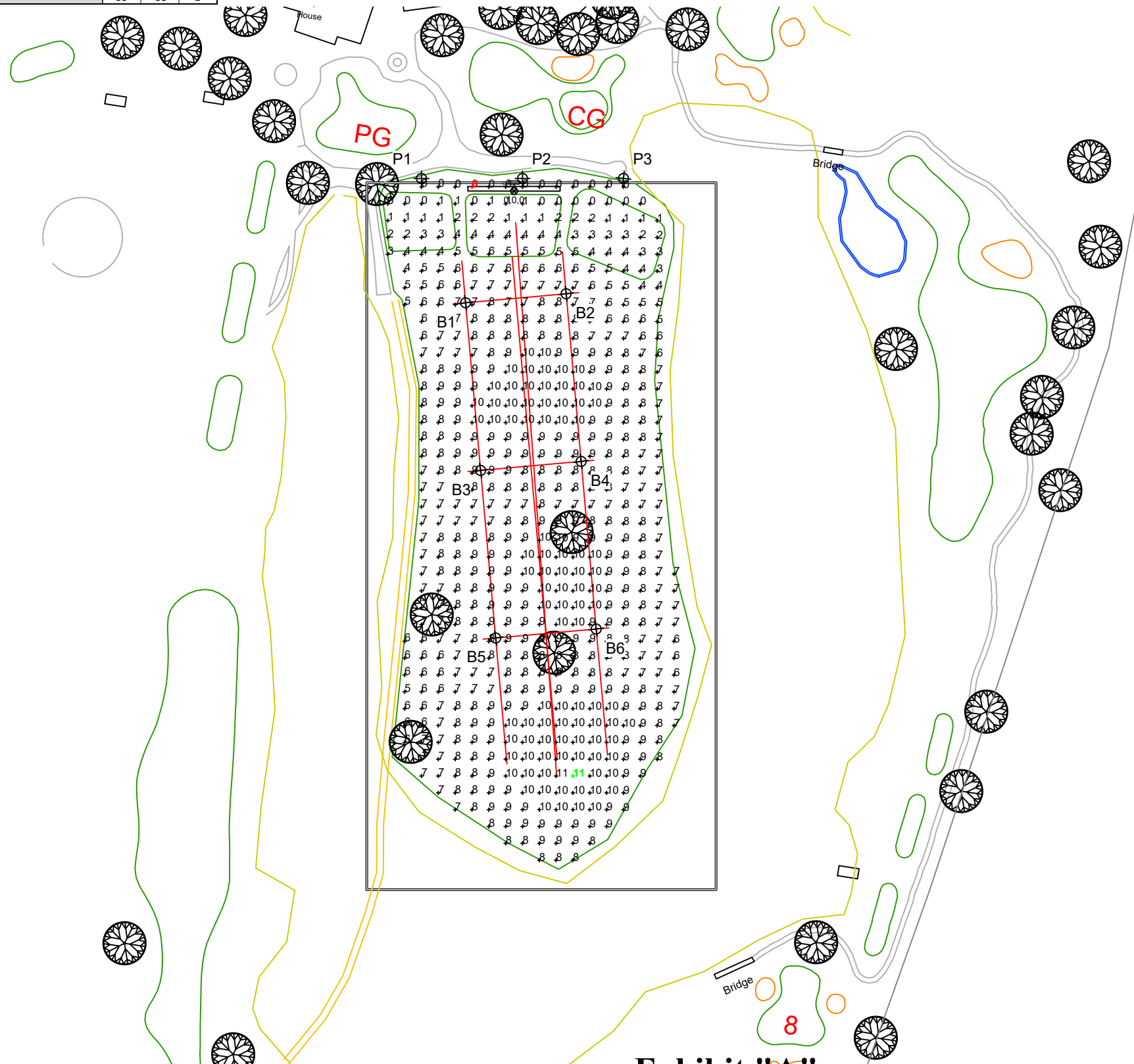
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**ILLUMINATION SUMMARY**

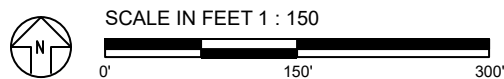
**EQUIPMENT LIST FOR AREAS SHOWN**

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\* This structure utilizes a back-to-back mounting configuration



**Exhibit "A"**



ENGINEERED DESIGN By: Justin Van Soelen • File #187376R2 • 17-Nov-17

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

**Forest Creek Driving Range**

Round Rock, TX

GRID SUMMARY	
Name:	Driving Range 80'
Spacing:	20.0' x 20.0'
Height:	83.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED TV FOOTCANDLES: Tee Box 80'			
Entire Grid			
Scan Average:	7.31		
Maximum:	11		
Minimum:	0		
Avg / Min:	46.88		
Max / Min:	67.63		
UG (adjacent pts):	4.45		
No. of Points:	604		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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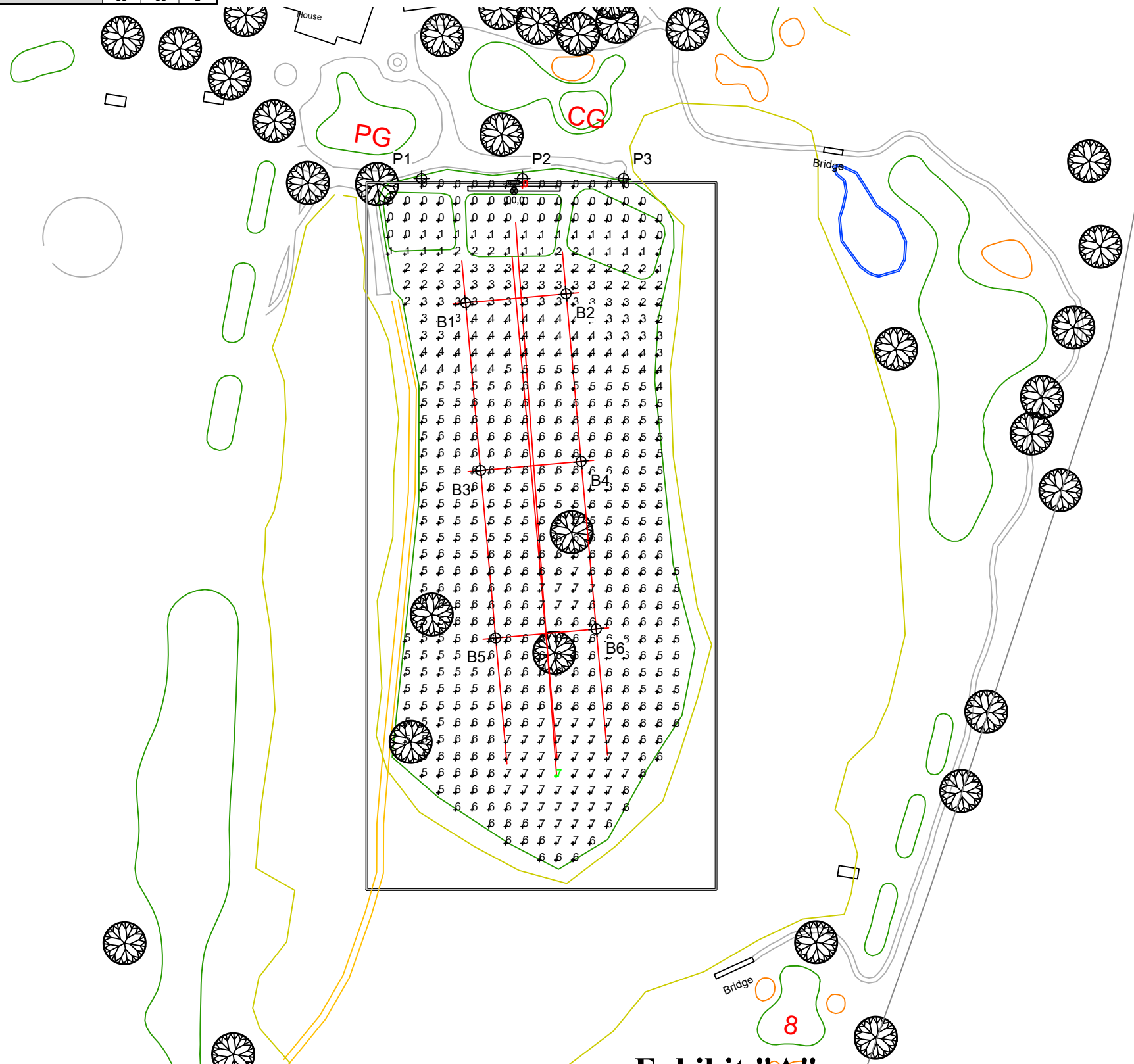
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**ILLUMINATION SUMMARY**

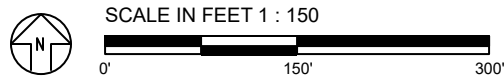
**EQUIPMENT LIST FOR AREAS SHOWN**

Pole		Luminaires						
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\* This structure utilizes a back-to-back mounting configuration



**Exhibit "A"**



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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

**Forest Creek Driving Range**

Round Rock, TX

GRID SUMMARY	
Name:	Driving Range 120'
Spacing:	20.0' x 20.0'
Height:	120.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED TV FOOTCANDLES: Tee Box 120'			
Entire Grid			
Scan Average:	4.66		
Maximum:	7		
Minimum:	0		
Avg / Min:	131.70		
Max / Min:	203.03		
UG (adjacent pts):	4.52		
No. of Points:	604		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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**ILLUMINATION SUMMARY**

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\*This structure utilizes a back-to-back mounting configuration

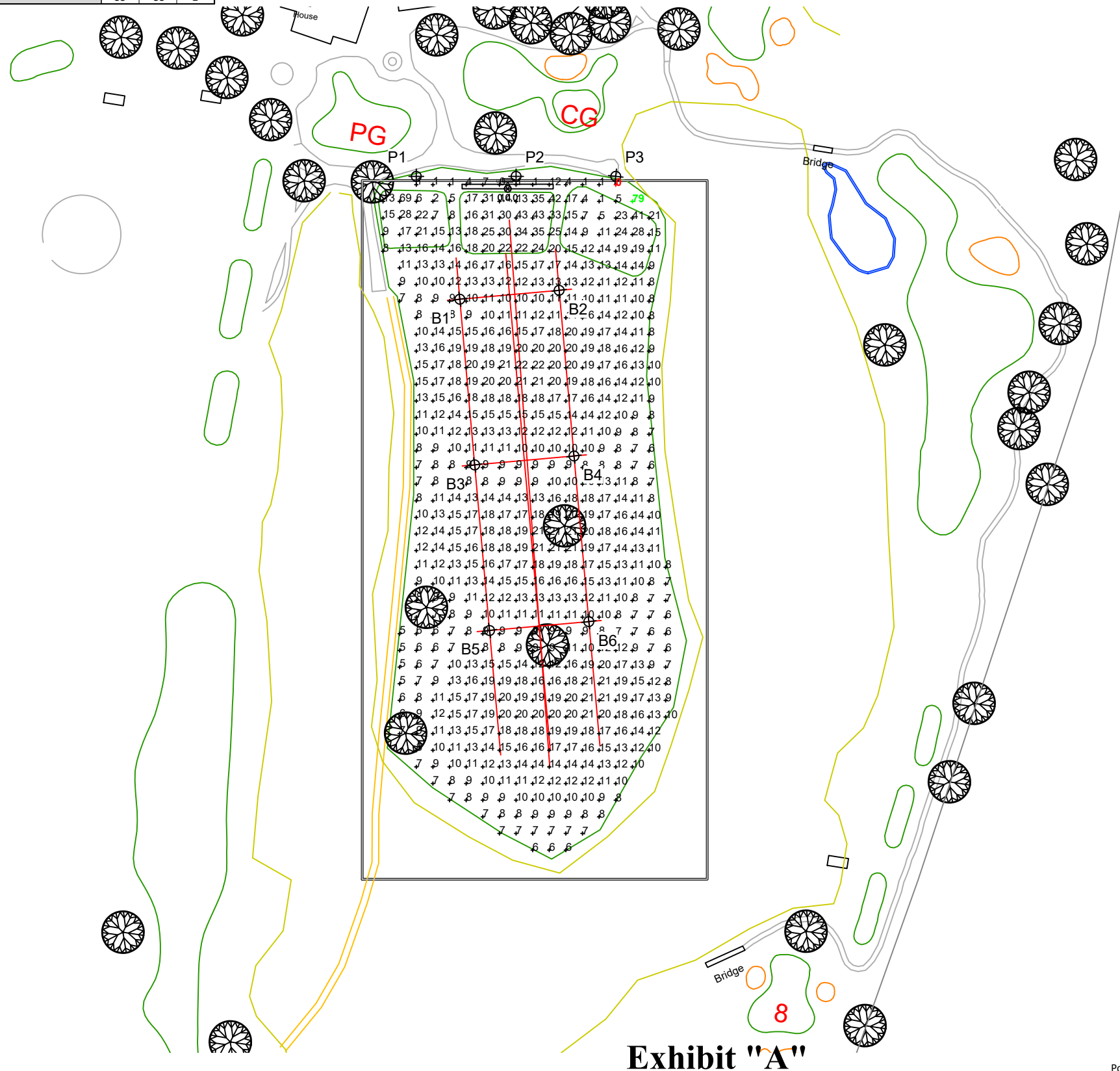
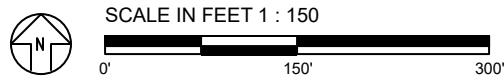


Exhibit "A"



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Pole location(s) ⚡ dimensions are relative to 0,0 reference point(s) ⊗

## Forest Creek Driving Range

Round Rock, TX

GRID SUMMARY	
Name:	Driving Range 40'
Spacing:	20.0' x 20.0'
Height:	43.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED TV FOOTCANDLES: Tee Box 40'			
Entire Grid			
Scan Average:	13.33		
Maximum:	79		
Minimum:	0		
Avg / Min:	29.87		
Max / Min:	176.29		
UG (adjacent pts):	54.46		
No. of Points:	604		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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## ILLUMINATION SUMMARY

EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	P1, P3	60'	-	15'	TLC-BT-675	2	0	2
				60'	TLC-LED-1150	3/1*	1	3
TOTALS						12	2	10

\* This structure utilizes a back-to-back mounting configuration

## Forest Creek Driving Range

Round Rock, TX

GRID SUMMARY	
Name:	Putting Green
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
		Entire Grid	
Scan Average:	5.82		
Maximum:	19		
Minimum:	0		
Avg / Min:	110.71		
Max / Min:	363.26		
UG (adjacent pts):	4.80		
No. of Points:	167		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 lumens		
No. of Luminaires:	2		
Total Load:	2.3 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000

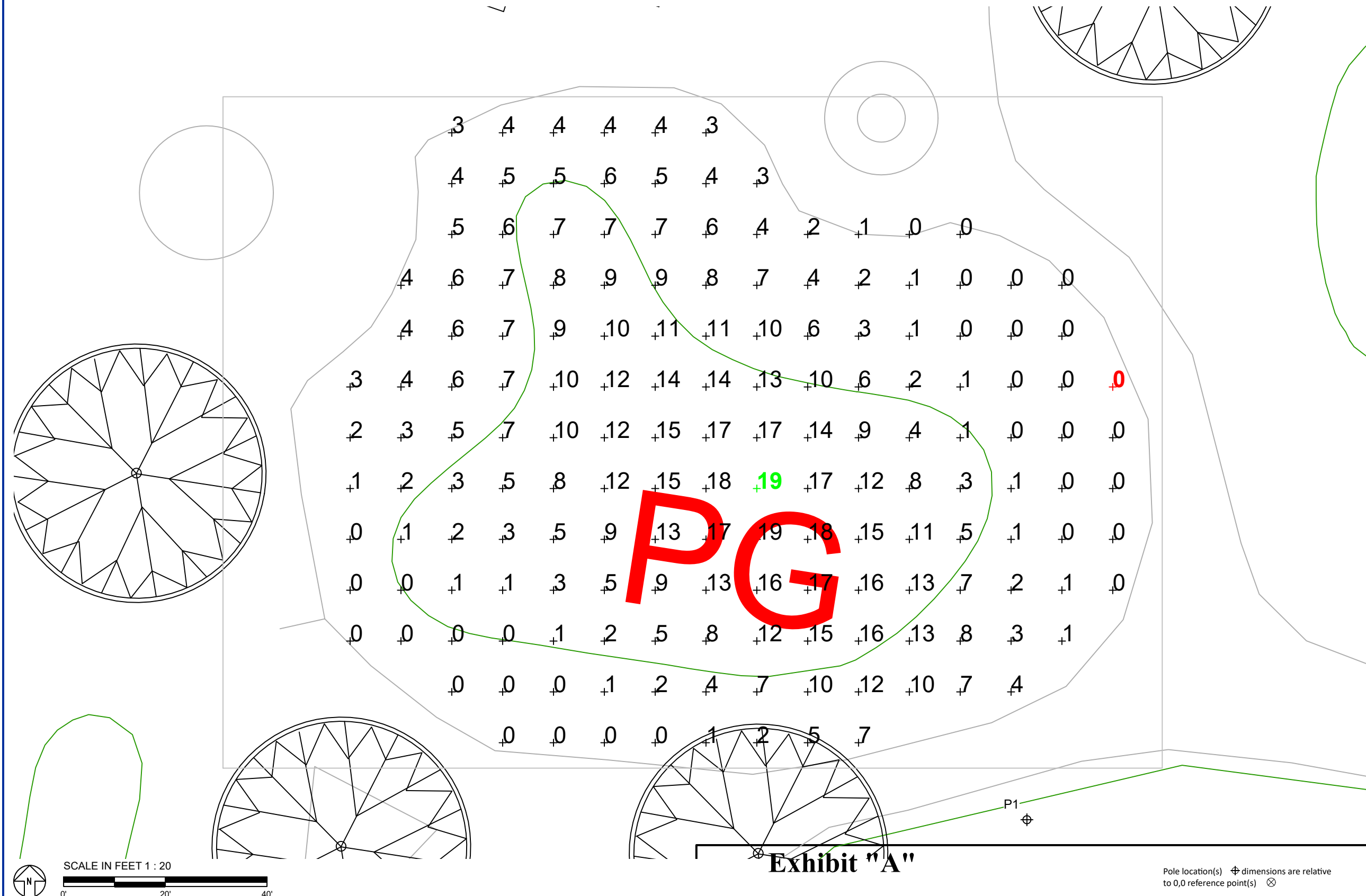
Reported per TM-21-11. See luminaire datasheet for details.

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ILLUMINATION SUMMARY



EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	P1, P3	60'	-	15'	TLC-BT-675	2	0	2
				60'	TLC-LED-1150	3/1*	1	3
TOTALS						12	2	10

\* This structure utilizes a back-to-back mounting configuration

## Forest Creek Driving Range

Round Rock, TX

GRID SUMMARY	
Name:	Chipping Green
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	5.13		
Maximum:	17		
Minimum:	0		
Avg / Min:	121.23		
Max / Min:	401.45		
UG (adjacent pts):	3.88		
No. of Points:	124		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 lumens		
No. of Luminaires:	2		
Total Load:	2.3 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

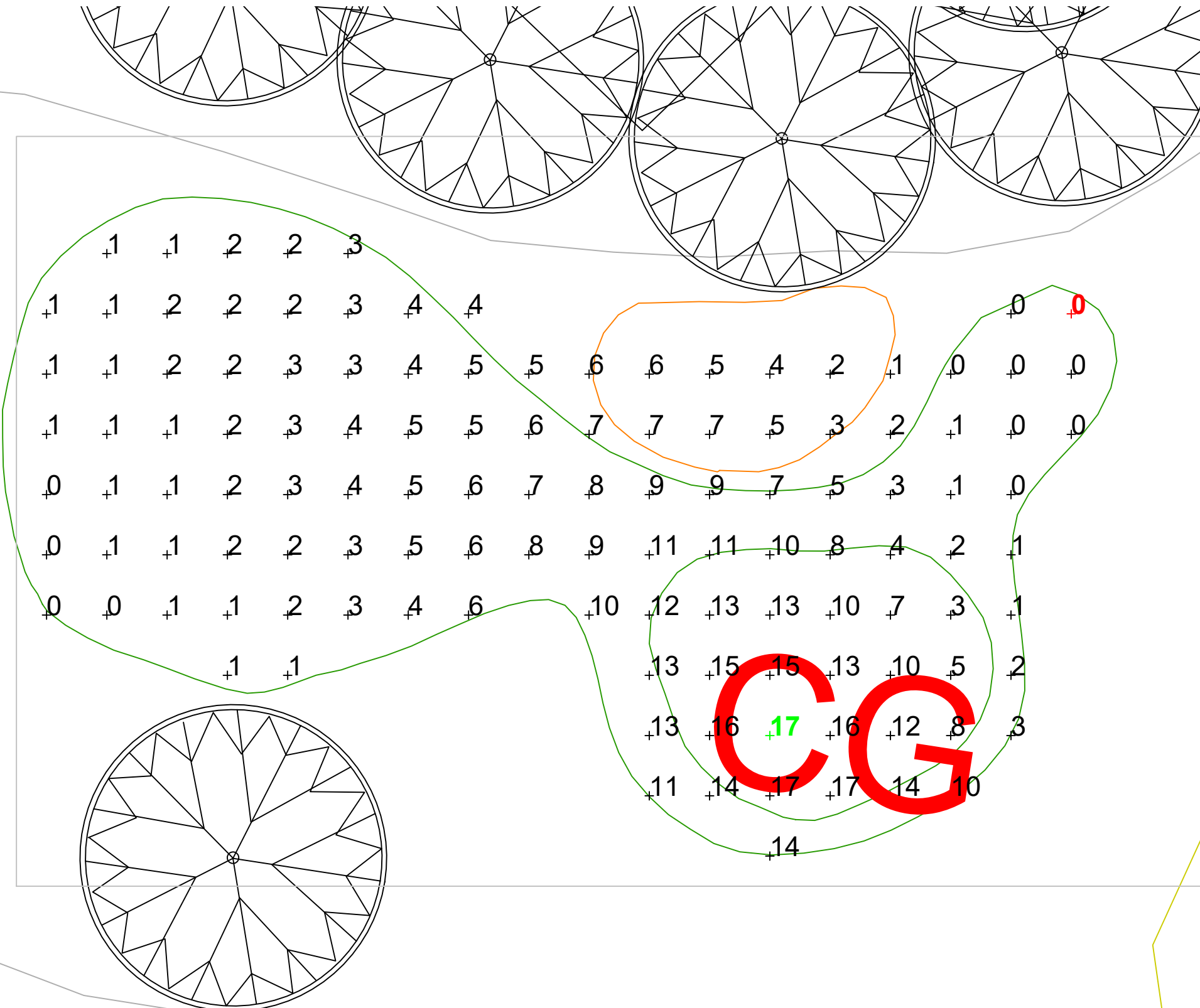


Exhibit "A"

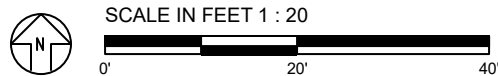
Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY



EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	B1-B6	3'	-	3'	TLC-BT-675	3	3	0
2	P1, P3	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3/1*	3	1
1	P2	60'	-	15'	TLC-BT-675	2	2	0
				60'	TLC-LED-1150	3	3	0
9	TOTALS					35	33	2

\* This structure utilizes a back-to-back mounting configuration

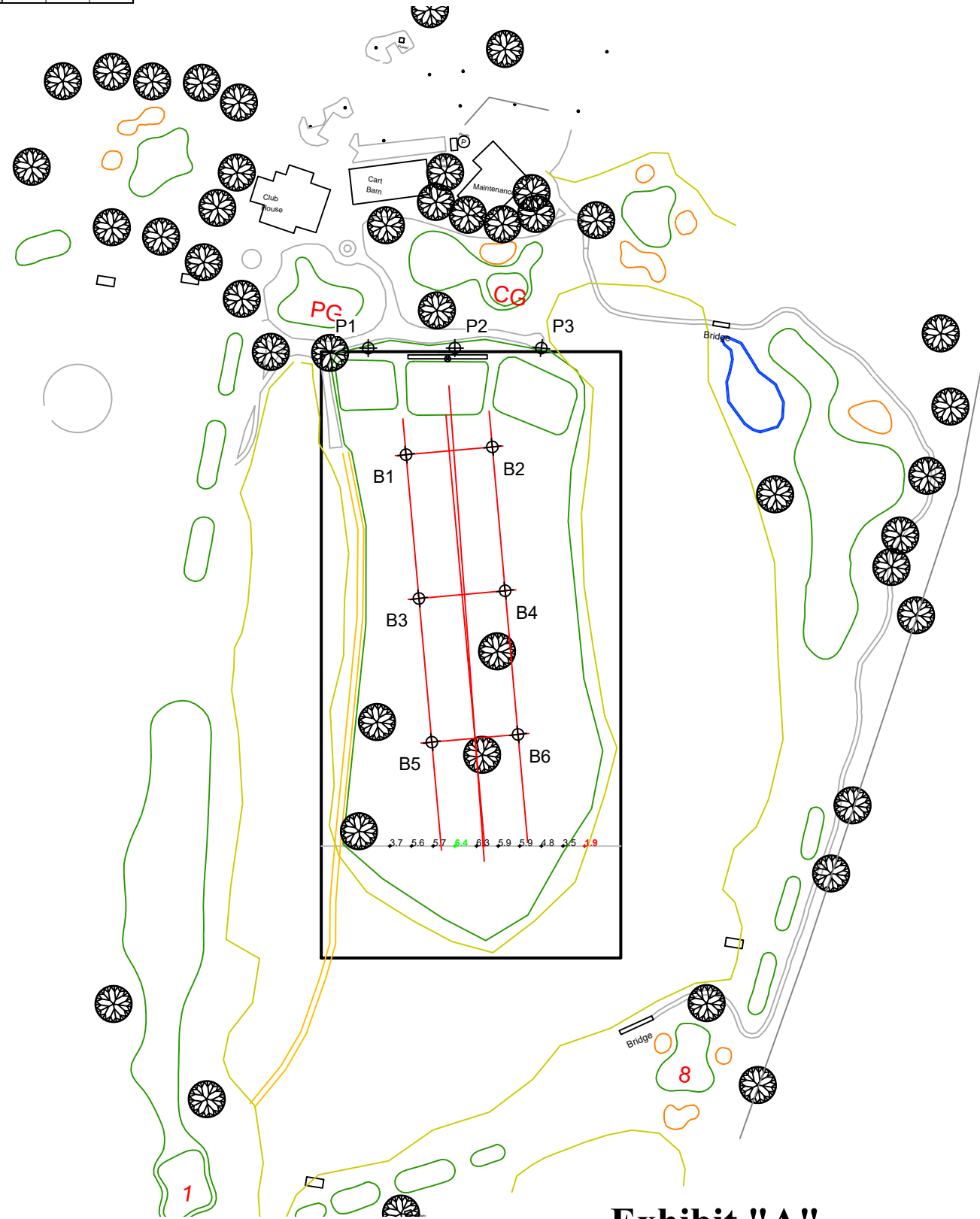


Exhibit "A"

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

## Forest Creek Driving Range

Round Rock, TX

GRID SUMMARY	
Name:	200yds Down range
Spacing:	30.0'
Height:	13.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED MAX VERTICAL FOOTCANDLES			
Entire Grid			
Scan Average:	4.9636		
Maximum:	6.39		
Minimum:	1.92		
No. of Points:	10		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	33		
Total Load:	26.55 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

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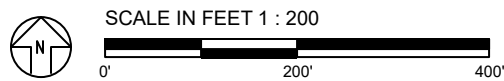
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ILLUMINATION SUMMARY



# Forest Creek Driving Range

Round Rock, TX

## EQUIPMENT LAYOUT

### INCLUDES:

· Driving Range

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

## EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	Pole		Luminaires			QTY / POLE
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE		
6	B1-B6	3'	-	3'	TLC-BT-675		3
2	P1, P3	60'	-	15'	TLC-BT-675		2
				60'	TLC-LED-1150		3/1*
1	P2	60'	-	15'	TLC-BT-675		2
				60'	TLC-LED-1150		3
TOTALS							35

\* This structure utilizes a back-to-back mounting configuration

## SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	6.8	6.5	5.9	5.1	4.1	3.7	3.0
TLC-LED-1150	6.8	6.5	5.9	5.1	4.1	3.7	3.0
TLC-BT-675	4.0	3.8	3.5	3.0	2.4	2.2	1.8

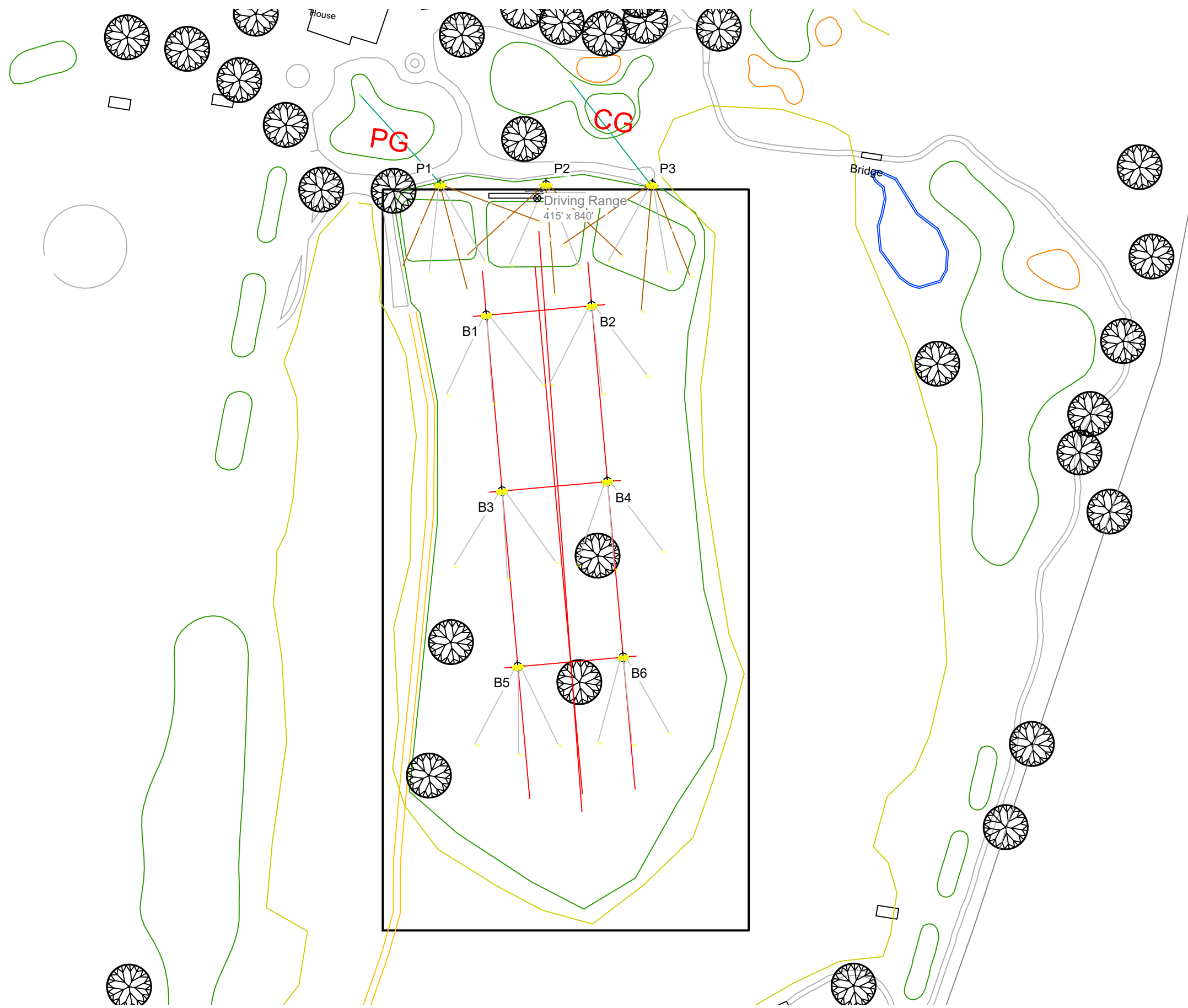
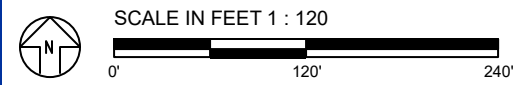


Exhibit "A"

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



# Forest Creek Driving Range

Round Rock, TX

## GLARE IMPACT

### Summary

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

## GLARE

### Candela Levels

#### High Glare: 150,000 or more candela

Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

#### Significant Glare: 25,000 to 75,000 candela

Equivalent to high beam headlights of a car.

#### Minimal to No Glare: 500 or less candela

Equivalent to 100W incandescent light bulb.

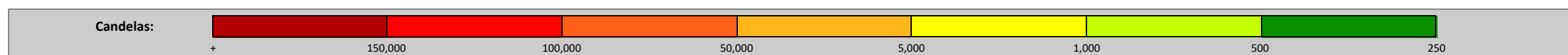
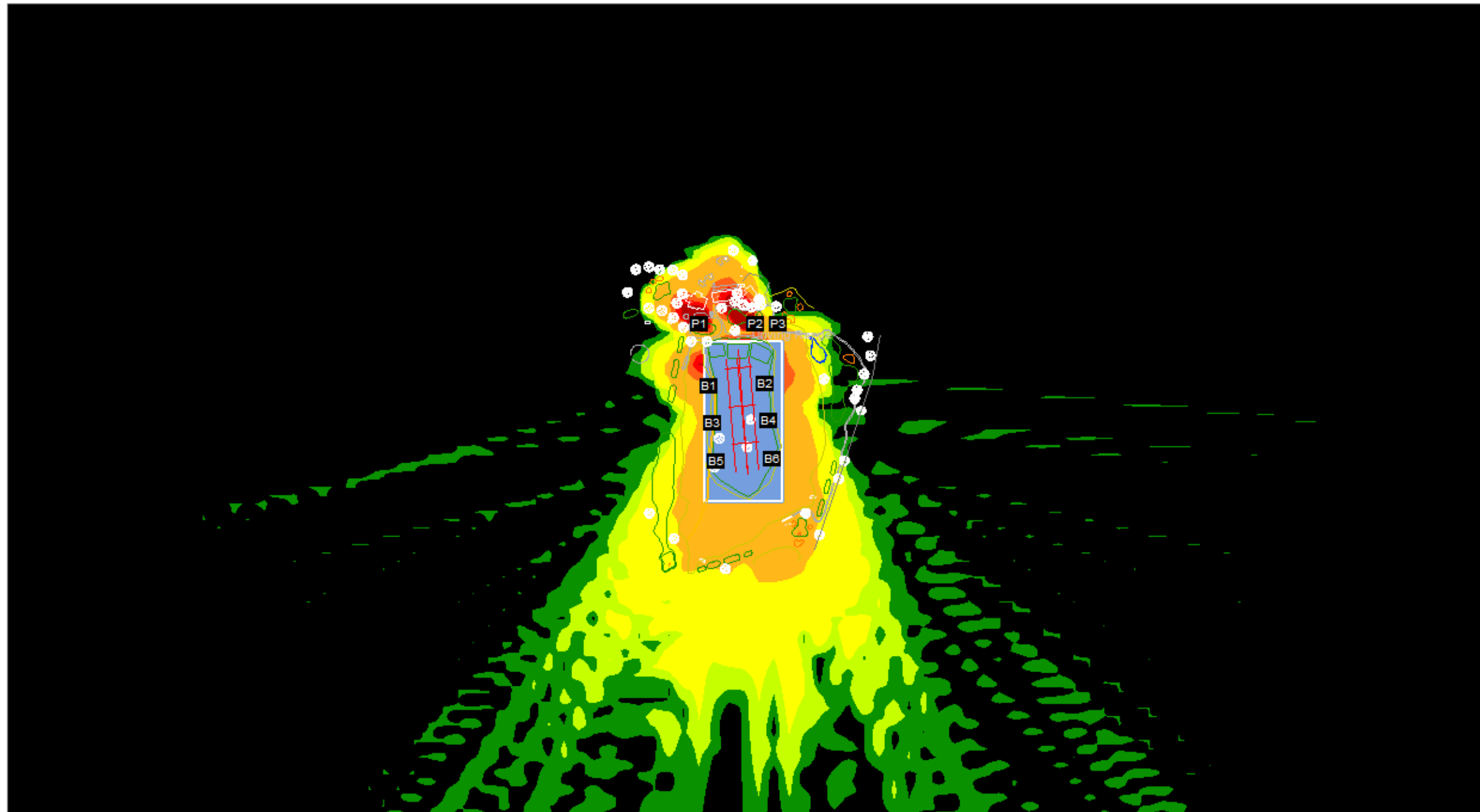


Exhibit "A"



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