



**CITY OF DULUTH**  
PURCHASING DIVISION  
Room 100 City Hall  
411 West First Street  
Duluth, Minnesota 55802-1199  
218/730-5340 218/730-5922 FAX  
[purchasing@duluthmn.gov](mailto:purchasing@duluthmn.gov)

**Addendum # 1**  
**File # 16-0499 (REBID)**  
**Energy Efficiency Lighting Project**

An update to the specifications and drawings is attached.

Please acknowledge receipt of this Addendum by initialing and dating Addendum #1 below the bid form on the invitation for bids.

Posted: August 30, 2016

**ADDENDUM**

THE FOLLOWING DRAWINGS ARE  
ATTACHED HERETO:

**ADDENDUM NO. 1**

**PROJECT:** City of Duluth Energy  
Efficiency Lighting Project

G&M Project No. 84493

**OWNER:**  
City of Duluth

**DATE:**  
August 30, 2016

**Sent from:**

☐ **St. Paul Office**  
700 Rosedale Tower  
1700 Highway 36 West  
St. Paul, MN 55113  
Phone: 651-639-9606  
FAX: 651-639-9618

☒ **Duluth Office**  
Suite 310  
501 South Lake Avenue  
Duluth, MN 55802  
Phone: 218-722-2555  
FAX: 218-722-9306

☐ **Santa Clarita Office**  
Suite 205  
26415 Carl Boyer Drive  
Santa Clarita, CA 91350  
Phone: 661-291-1978  
FAX: 661-291-6213

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To: Prime Contract Bidders and all others to whom the Project Manual and the Project Drawings have been issued by the Architect/Engineer or Contractor.

This Addendum is a Contract Document and may apply to any or all Contracts and subcontracts. Unless otherwise specified herein or shown on the attached drawings (if any), all work required by this Addendum shall be in complete accord with the Contract Documents and subsequent Addenda thereto.

The items listed in this Addendum are not in any order in regard to the Project Drawings or the Project Manual. All contractors are cautioned to examine each and every item of this Addendum.

The bidder shall insert the Addendum number in the space indicated on the Project Proposal Form. Failure to comply may result in the bid being rejected.

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<u>ITEM</u>	<u>REFERENCE</u>	<u>CHANGE/COMMENTS</u>
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CHANGES TO ELECTRICAL SPECIFICATIONS

- |    |   |  |
|----|---|--|
| 1. | Section 260943 Part<br>2-E-4 – Unit Costs | Revise unit costs to include the following:<br><br>NPN- One Year Support License: \$500.00<br><br>100127 -EMB900- S – RF Fixture Control Module: \$170.00<br><br>OEMFS305LU- PIR Motion Sensor: \$90.00<br><br>100106 – RF Photocell Sensor: \$190.00<br><br>Echelon 20001002 – Lumensight Desktop CMS Software: \$1975.00<br><br>100198- 120 – RF + PLC Network Integration Gateway with EIA<br>Enclosure: \$2475.00<br><br>100140 – RF Network Gateway with EIA Enclosure: \$1475.00 |
|----|---|--|

2. Section 260943 Part 2- E- 2 Replace '(One required per site)' with '(One or more required per site)'.

CHANGES TO ELECTRICAL DRAWINGS

1. Sheet E100
  - Add numbered notes 4 and 5 as shown clouded on plan.
  - Add occupancy sensors as shown clouded on plan.
  - Revise lighting control matrix as shown clouded on plan.
  - Revise numbered note 1 as shown clouded on plan.
2. Sheets E101
  - Add numbered note 6 as shown clouded on plan.
  - Add occupancy sensors as shown clouded on plan.
  - Revise lighting control matrix as shown clouded on plan.
  - Revise numbered notes 1 and 2 as shown clouded on plan.
3. Sheet E102
  - Add numbered notes 5 and 6 as shown clouded on plan.
  - Add occupancy sensors as shown clouded on plan.
  - Revise lighting control matrix as shown clouded on plan.
  - Revise numbered notes 1 and 2 as shown clouded on plan.
4. Sheet E103
  - Add numbered notes 5 and 6 as shown clouded on plan.
  - Add occupancy sensors as shown clouded on plan.
  - Revise lighting control matrix as shown clouded on plan.
  - Revise numbered notes 1 and 2 as shown clouded on plan.
5. Sheet E104
  - Add numbered notes 2, 3 and 4 as shown clouded on plan.
  - Add occupancy sensors as shown clouded on plan.
  - Revise numbered note 1 as shown clouded on plan.
  - Revise lighting control matrix as shown clouded on plan.

- |     |            |   |
|-----|------------|---|
| 6.  | Sheet E105 | <ul style="list-style-type: none"><li>• Add numbered notes 4 and 5 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered note 1 as shown clouded on plan.</li></ul>        |
| 7.  | Sheet E106 | <ul style="list-style-type: none"><li>• Add numbered note 7 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered notes 1 and 2 as shown clouded on plan.</li></ul>        |
| 8.  | Sheet E107 | <ul style="list-style-type: none"><li>• Add numbered notes 5 and 6 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered notes 1 and 2 as shown clouded on plan.</li></ul> |
| 9.  | Sheet E108 | <ul style="list-style-type: none"><li>• Add numbered notes 5 and 6 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered notes 1 and 2 as shown clouded on plan.</li></ul> |
| 10. | Sheet E109 | <ul style="list-style-type: none"><li>• Add numbered notes 5 and 6 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered notes 1 and 2 as shown clouded on plan.</li></ul> |



- |     |            |   |
|-----|------------|---|
| 11. | Sheet E110 | <ul style="list-style-type: none"><li>• Add numbered notes 2, 3 and 4 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered note 1 as shown clouded on plan.</li></ul> |
| 12. | Sheet E111 | <ul style="list-style-type: none"><li>• Add numbered notes 4 and 5 as shown clouded on plan.</li><li>• Add occupancy sensors as shown clouded on plan.</li><li>• Revise lighting control matrix as shown clouded on plan.</li><li>• Revise numbered note 1 as shown clouded on plan.</li></ul>    |

13.      Sheet E112

Revise numbered note 3 as follows:

‘Provide lighting control bridge device as required to interconnect multiple services as required. Contractor to field verify location and quantity of services feeding lighting in this area.’

[illegible]

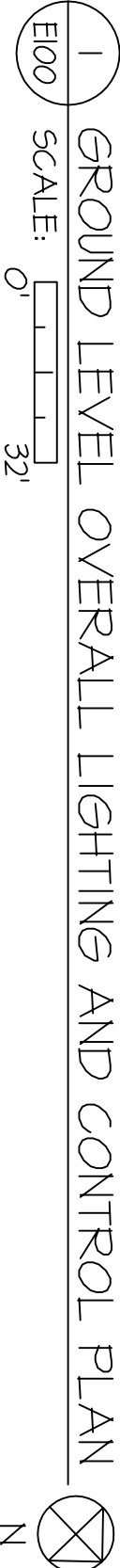
A. TYPICAL, DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'A1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.

B. TYPICAL, REPLACE LIGHT FIXTURE TYPES 'A', 'A1' AND 'B' WITH OWNER FURNISHED LED TYPE GARAGE STYLE FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.

C. EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.

D. THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 TYPICAL. RECORD DRAWINGS INDICATE 'N/L' FIXTURES TO BE ON A NIGHT LIGHT CIRCUIT. UNLESS NOTED OTHERWISE, CONTROL THESE LIGHTS WITH OTHER LIGHTS IN THE SAME ZONE.
- 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ACUTITY BRANDS CONTROLS OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 4 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
- 5 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL, WITH 20A SPARE BREAKER) AND VOICED/DATA/TALENT OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



**Gausman  
& Moore**  
Mechanical and  
Electrical Engineers

# E100

# East First Street Medical Parking Ramp Ground Level Lighting Plan

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

*Dave T. Blume*

Dave T. Blume

LIGHTING CONTROL MATRIX									
SYSTEM INPUTS		SYSTEM OUTPUTS							
		CONTROLLED BY WIRELESS OCCUPANCY SENSOR(S)				CONTROLLED BY LOCAL PHOTOCELL DEVICE			
		CONTROLLED BY A SET TIME ON/OFF				CONTROLLED BY WIRELESS INTEGRAL EXTERNAL CONTROL MODULE			
ZONE 3-MP (Z3)		•	•	•	•				
ZONE 4-MP (Z4)				•	•				
ZONE 5-MP (Z5)				•	•				
ZONE 6-MP (Z6)				•	•				
ZONE 7-MP (Z7)					•				
ZONE 8-MP (Z8)					•				

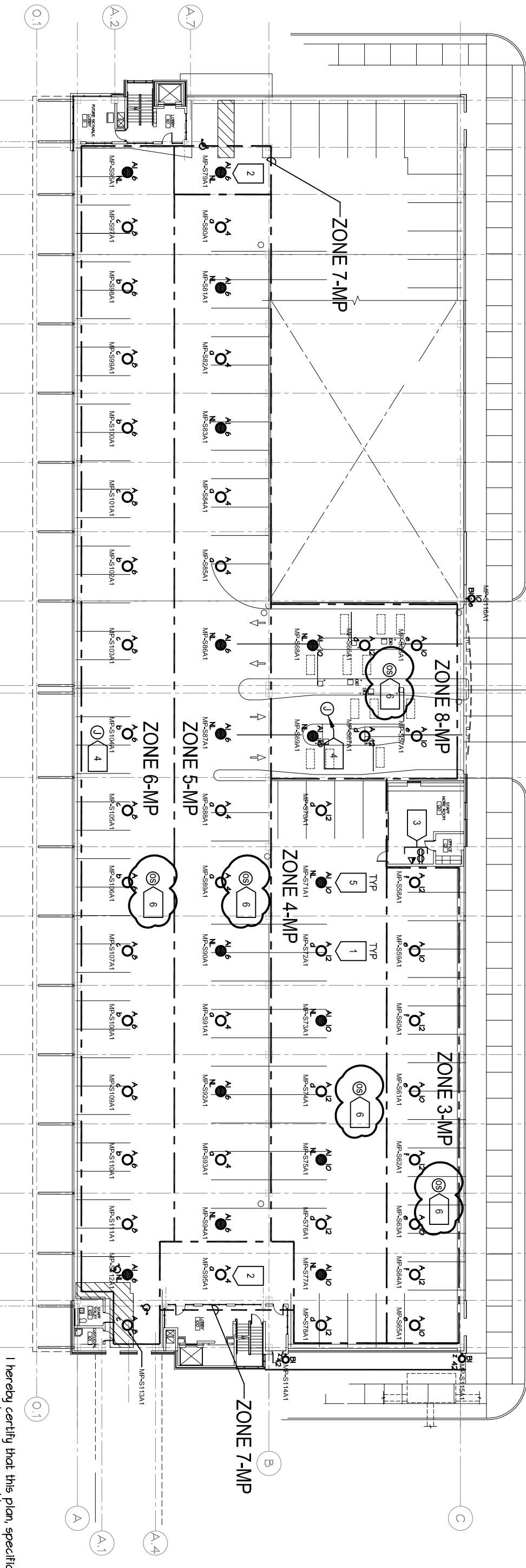
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

GENERAL NOTES:

- A TYPICAL, DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'A1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
- B TYPICAL, REPLACE LIGHT FIXTURE TYPES 'A', 'A1' AND 'B1' WITH OWNER FURNISHED LED TYPE GARAGE STYLE FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
- C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
- D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

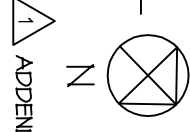
NUMBERED NOTES:

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE AS MANUFACTURED BY ECHOLON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE FOR 24/7 N.I. OPERATION AS MANUFACTURED BY ECHOLON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 3 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICEDATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHOLON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.
- 4 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHOLON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 5 TYPICAL. RECORD DRAWINGS INDICATE 'NL' FIXTURES TO BE ON A NIGHT LIGHT CIRCUIT. UNLESS NOTED OTHERWISE, CONTROL THESE LIGHTS WITH OTHER LIGHTS IN THE SAME ZONE.
- 6 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.



FIRST LEVEL OVERALL LIGHTING AND CONTROL PLAN

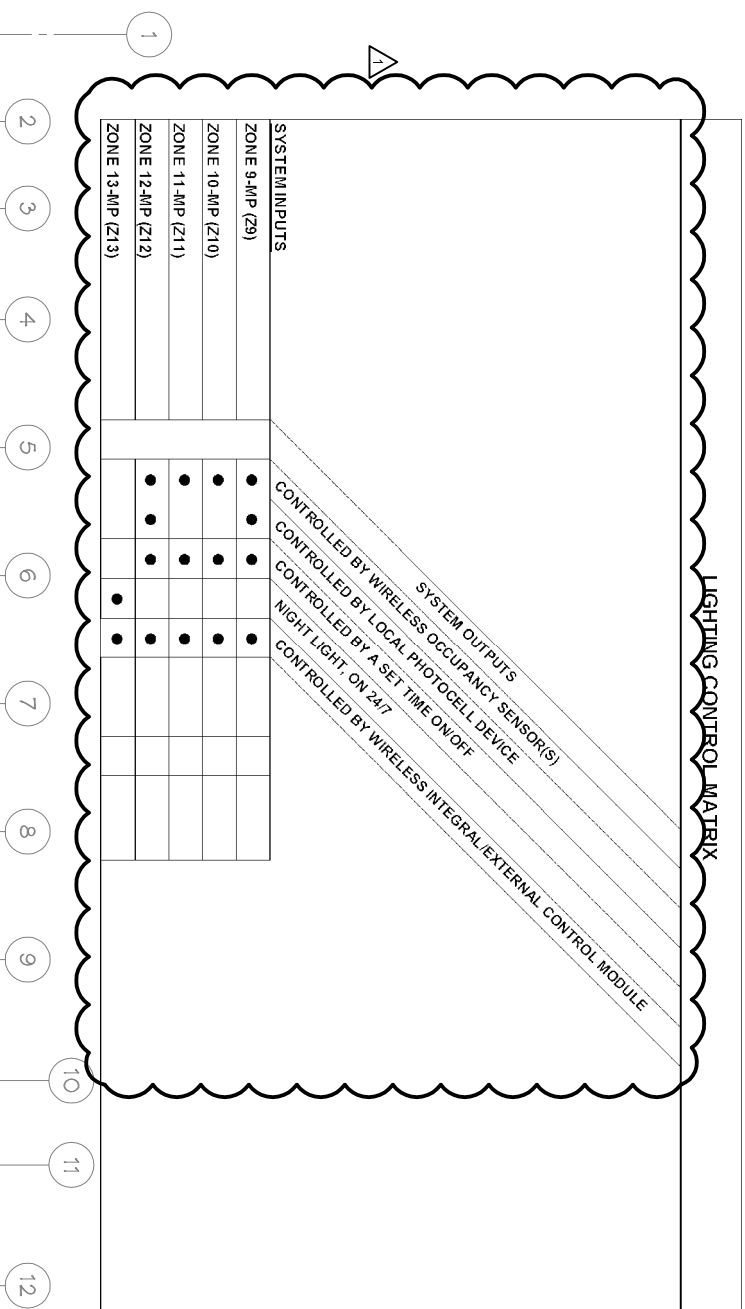
E101 SCALE: 0' 32'



APPENDUM #1 - 08/30/16

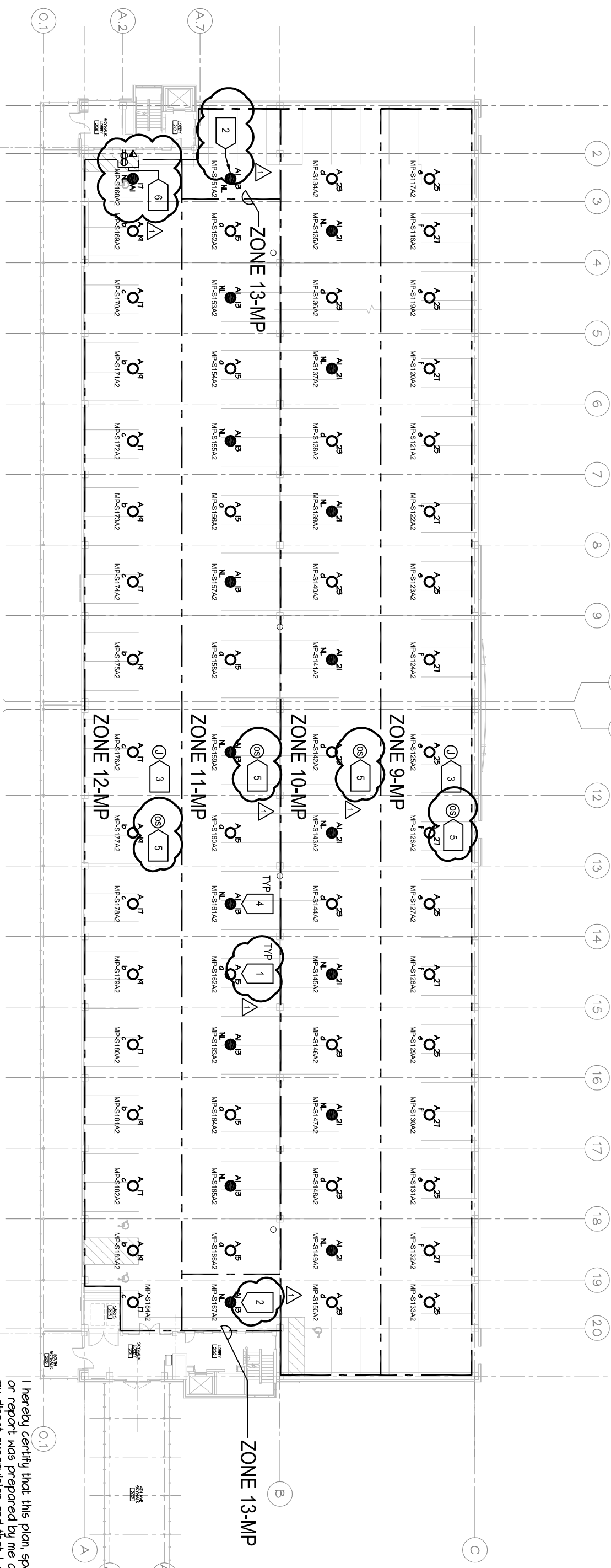
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Dave T. Blume  
Date: 07/22/2016 Reg No: 24671



- ## GENERAL NOTES:
- A. DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'A1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
  - B. REPLACE LIGHT FIXTURE TYPES 'A' AND 'A1' WITH OWNER FURNISHED LED TYPE GARAGE STYLE FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
  - C. EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
  - D. THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

- # NUMBERED NOTES.
- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A-1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
  - 2 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A-1' LIGHT FIXTURE FOR 24/7 NL OPERATION AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
  - 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
  - 4 TYPICAL. ALL FIXTURES INDICATED WITH 'NL' WILL NOT BE NIGHT LIGHTS UNLESS NOTED OTHERWISE.
  - 5 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
  - 6 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICEDATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



## SECOND LEVEL OVERALL LIGHTING AND CONTROL PLAN

E|02

SCALE:

A vertical number line with tick marks at 0, 8, 16, 24, and 32.


$$Z$$

ADDENDUM #1 - 08/30/16

Date: 07/22/2016 Reg No: 246711

Dave T. Blume

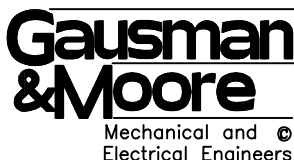
I hereby certify that this plan, specification,  
or report was prepared by me or under  
my direct supervision and that I am a duly  
Licensed Professional Engineer  
under the laws of the State of Minnesota

*Dave T. Blume*

Dave T. Blume

# City of Duluth Energy Efficiency Lighting Project - Bid Package #1

# East First Street Medical Parking Ramp 2nd Level Lighting Plan



Date:	07/22/16
Drawn:	LAH
Checked:	SLH
Proj.No.:	84493

# E102

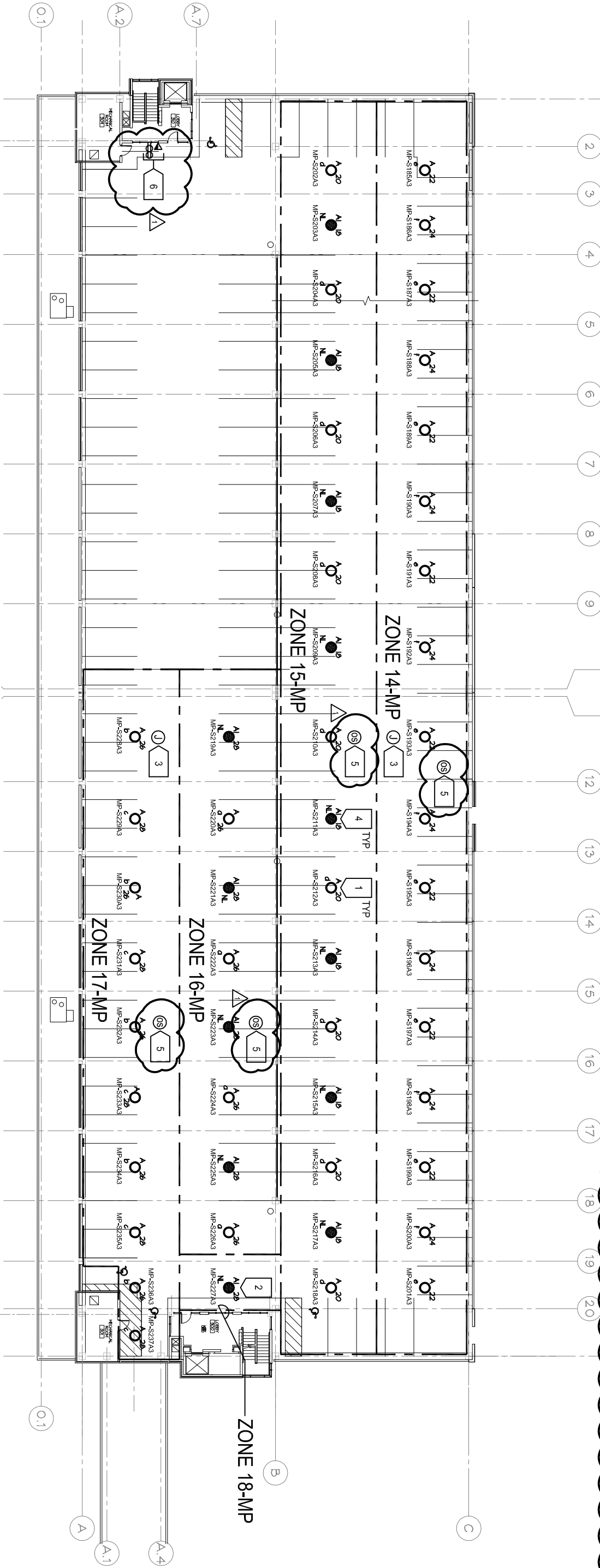
LIGHTING CONTROL MATRIX									
SYSTEM OUTPUTS									
CONTROLLED BY WIRELESS OCCUPANCY SENSOR(S)									
CONTROLLED BY LOCAL PHOTOCELL DEVICE									
NIGHT LIGHT ON 24/7									
CONTROLLED BY WIRELESS INTEGRAL/EXTERNAL CONTROL MODULE									
SYSTEM INPUTS									
ZONE 14-MP (Z14)									
ZONE 15-MP (Z15)									
ZONE 16-MP (Z16)									
ZONE 17-MP (Z17)									
ZONE 18-MP (Z18)									

GENERAL NOTES:

- A DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'A1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
- B REPLACE LIGHT FIXTURE TYPES 'A' AND 'A1' WITH OWNER FURNISHED LED TYPE GARAGE STYLE FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
- C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
- D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

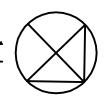
NUMBERED NOTES:

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE FOR 24/7 NL OPERATION AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 4 TYPICAL. RECORD DRAWINGS INDICATE 'NL' FIXTURES TO BE ON A NIGHT LIGHT CIRCUIT. UNLESS NOTED OTHERWISE, CONTROL THESE LIGHTS WITH OTHER LIGHTS IN THE SAME ZONE.
- 5 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
- 6 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICE/DATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



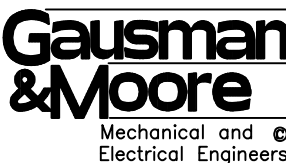
1  
E103

THIRD LEVEL OVERALL LIGHTING AND CONTROL PLAN



I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Dave T. Blume



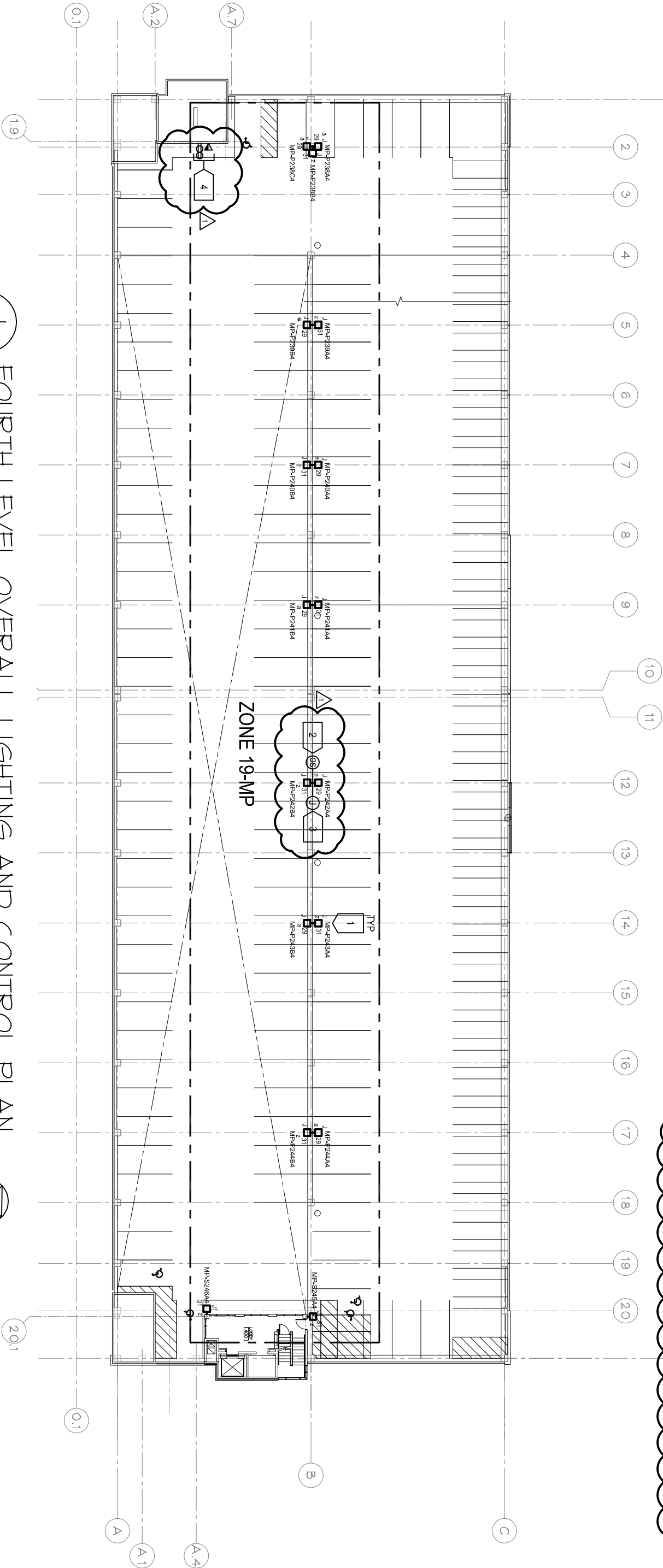
LIGHTING CONTROL MATRIX											
SYSTEM OUTPUTS											
ZONE 19-MP (2/19)											
CONTROLLED BY WIRELESS INTEGRAL EXTERNAL OCCUPANCY SENSOR											
CONTROLLED BY WIRELESS PHOTOCELL											
CONTROLLED BY WIRELESS INTEGRAL EXTERNAL CONTROL MODULE											

GENERAL NOTES:

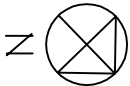
- A DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPES 'J', AND 'J1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
- B LIGHT FIXTURE TYPES 'J' AND 'J1' TO BE REPLACED WITH OWNER FURNISHED LED TYPE POLE MOUNTED FIXTURE, REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
- C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
- D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

NUMBERED NOTES:

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'J' OR 'J1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 PROVIDE WIRELESS OR HARD-WIRED OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL AS MANUFACTURED BY ECHELON CONTROLS OR APPROVED EQUIVALENT. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
- 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 4 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICE/DATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



1 FOURTH LEVEL OVERALL LIGHTING AND CONTROL PLAN  
E104 SCALE: 0' = 32'

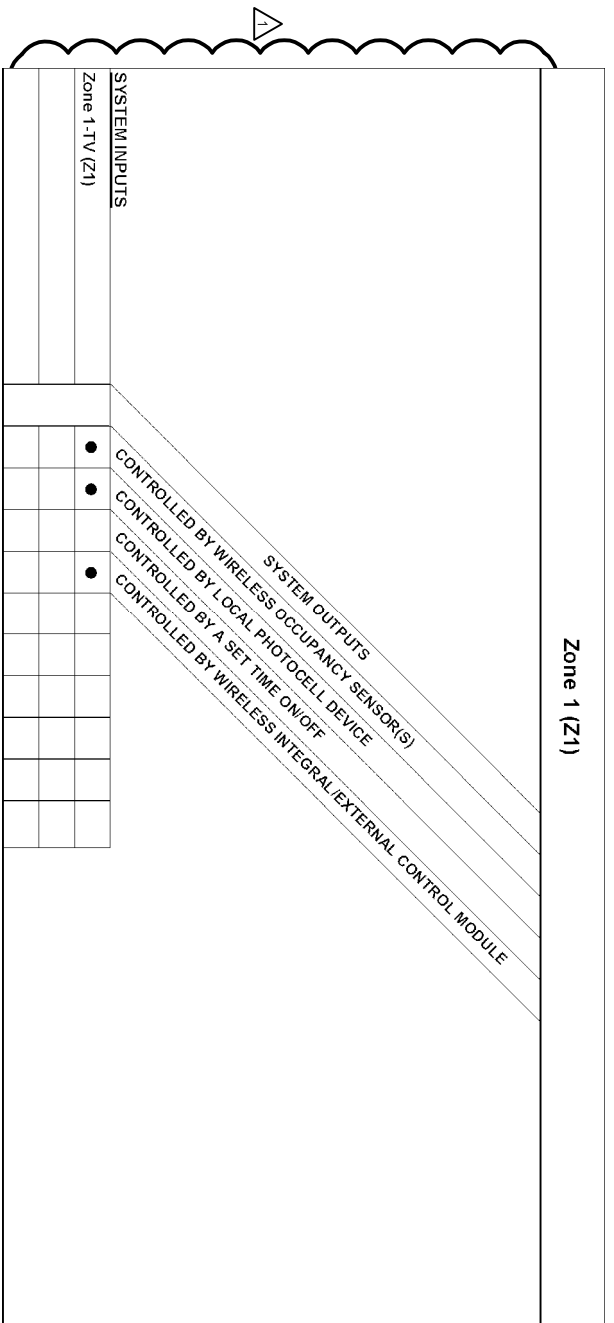


1 ADDENDUM #1 - 08/30/16

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Dave T. Blume

Date: 07/22/2016 Reg No. 246711

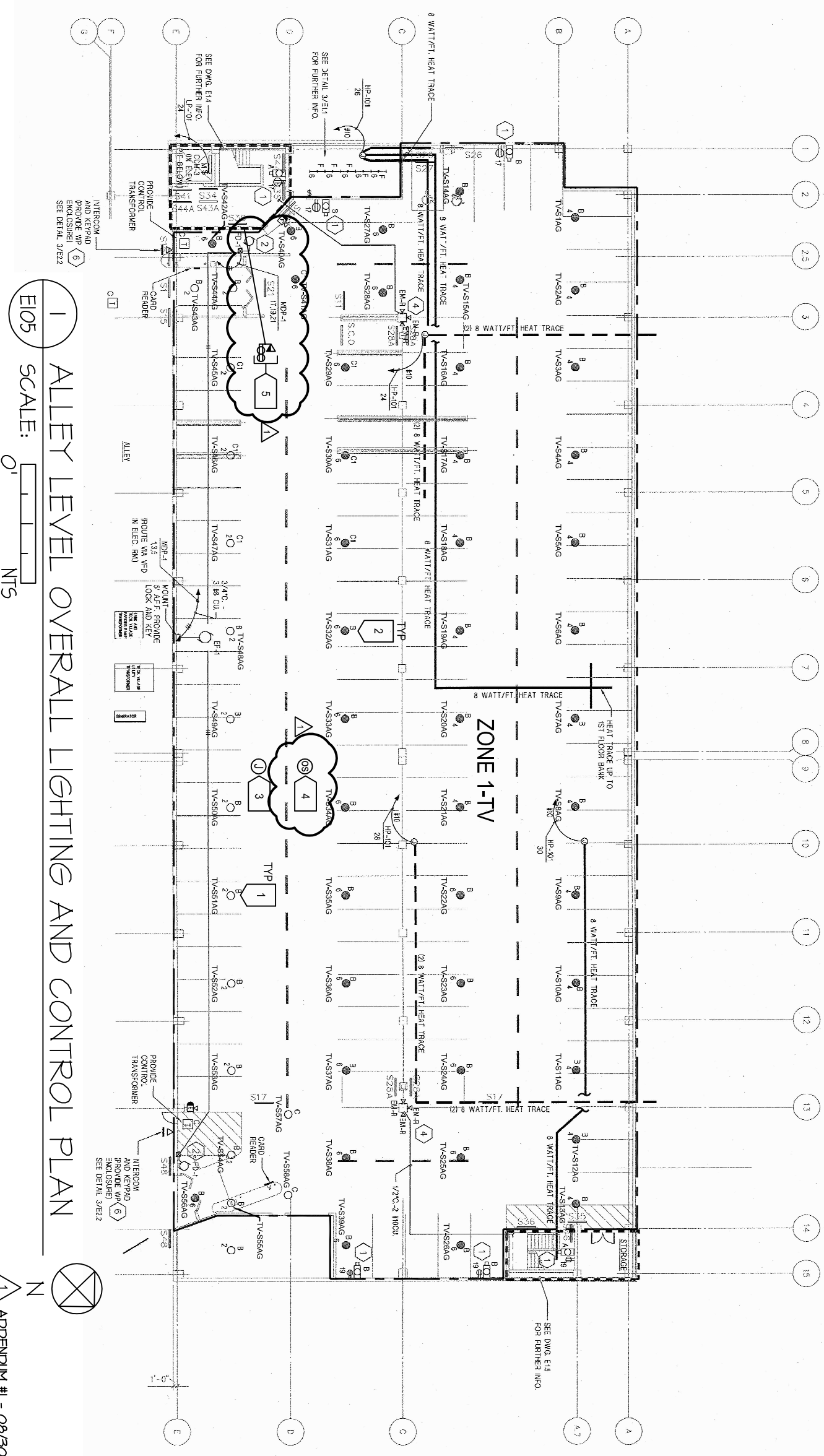


GENERAL NOTES:

- A DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'B', 'C' AND 'C1' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
- B REPLACE LIGHT FIXTURE TYPES 'B', 'C' AND 'C1' WITH OWNER FURNISHED LED TYPE GARAGE STYLE FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
- C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
- D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

NUMBERED NOTES:

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'B', 'C' OR 'C1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 TYPICAL. RECORD DRAWINGS INDICATE SHADED FIXTURES TO BE ON A NIGHT LIGHT CIRCUIT. UNLESS NOTED OTHERWISE, CONTROL THESE LIGHTS WITH OTHER LIGHTS IN THE SAME ZONE.
- 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 4 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL AS MANUFACTURED BY ECHELON, LUMEWAVE SERIES OR APPROVED EQUIVALENT. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
- 5 PROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICE/DATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



1 ALLEY LEVEL OVERALL LIGHTING AND CONTROL PLAN

E105 SCALE: 0' NTS

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Dave T. Blume

Date: 07/22/2016 Reg No. 24671







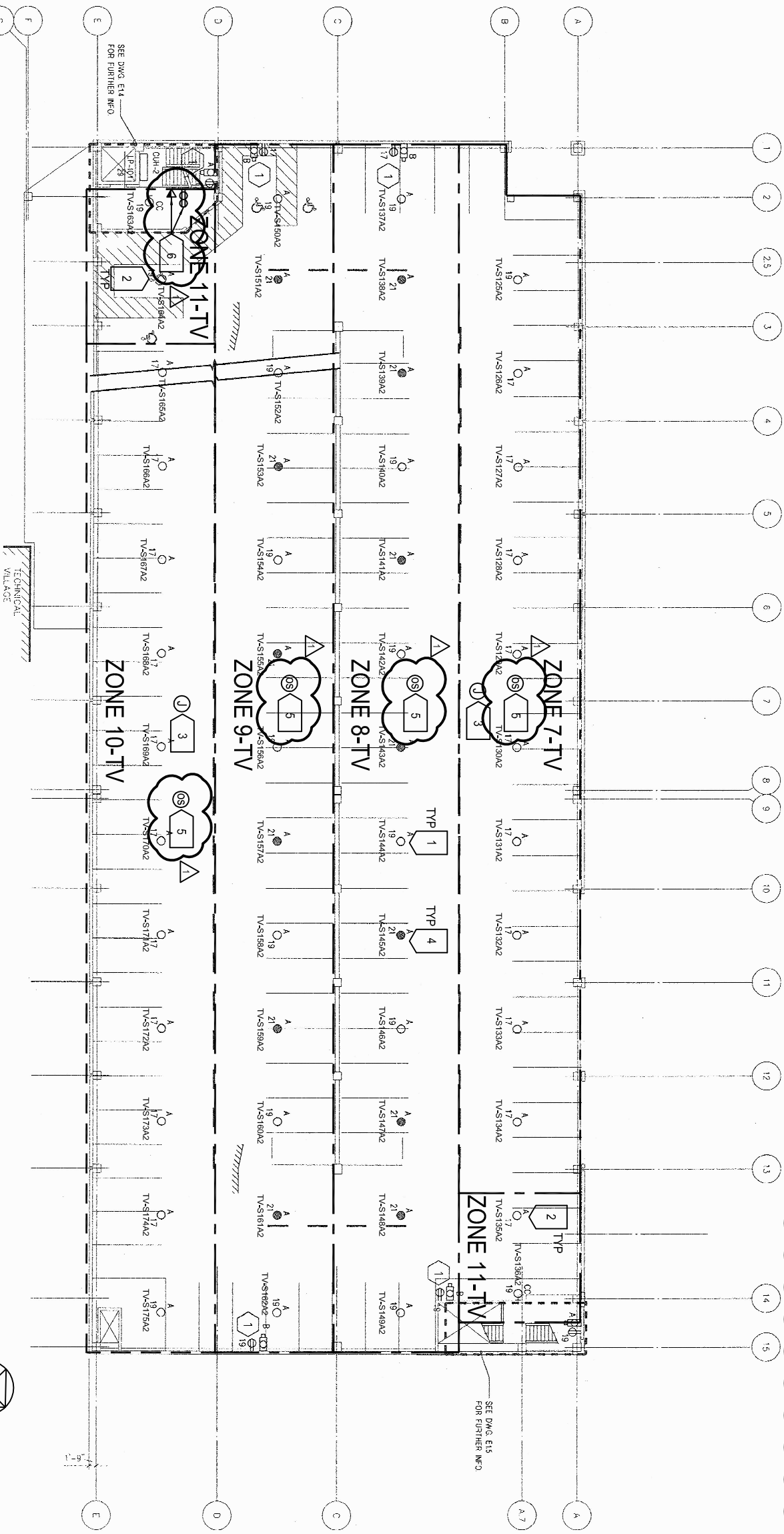
LIGHTING CONTROL MATRIX											
SYSTEM INPUTS						SYSTEM OUTPUTS					
ZONE 7-TV (Z7)						CONTROLLED BY WIRELESS OCCUPANCY SENSOR(S)					
ZONE 8-TV (Z8)						CONTROLLED BY LOCAL PHOTOCELL DEVICE					
ZONE 9-TV (Z9)						NIGHT LIGHT ON 24/7					
ZONE 10-TV (Z10)						CONTROLLED BY WIRELESS INTEGRAL EXTERNAL CONTROL MODULE					
ZONE 11-TV (Z11)											

GENERAL NOTES:

- A DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'CC' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
- B REPLACE LIGHT FIXTURE TYPES 'A' WITH OWNER FURNISHED LIGHT FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
- C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
- D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

NUMBERED NOTES:

- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A-1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 2 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A-1' LIGHT FIXTURE FOR 24/7 NL OPERATION AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
- 3 PROVIDE WIRELESS PHOTOCELL AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT. VERIFY EXACT LOCATION PRIOR TO INSTALLATION.
- 4 TYPICAL. RECORD DRAWINGS INDICATE SHADED FIXTURES TO BE ON A NIGHT LIGHT CIRCUIT. UNLESS NOTED OTHERWISE, CONTROL THESE LIGHTS WITH OTHER LIGHTS IN THE SAME ZONE.
- 5 PROVIDE WIRELESS OCCUPANCY SENSOR(S) ASSOCIATED WITH RESPECTIVE ZONE(S) FOR CONTROL. COORDINATE EXACT LOCATION AND QUANTITIES WITH LIGHTING CONTROL MANUFACTURER.
- 6 ROVIDE DEDICATED 120V, 20A QUAD RECEPTACLE (CONNECTED TO NEAREST 120/208V PANEL WITH 20A SPARE BREAKER) AND VOICEDATA OUTLET FOR WIRELESS LIGHTING CONTROL SYSTEM GATEWAY (ECHELON LUMEWAVE SYSTEM). VERIFY EXACT LOCATION OF GATEWAYS WITH OWNER PRIOR TO ROUGH-IN.



LEVEL 2 OVERALL LIGHTING AND CONTROL PLAN

E107

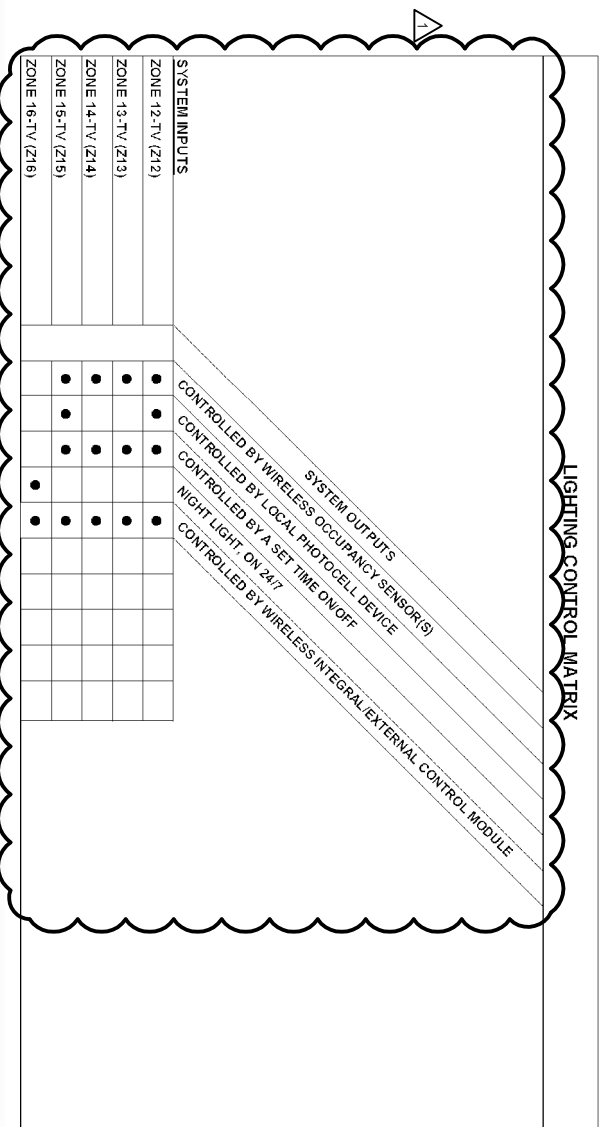
SCALE:



ADDENDUM #1 - 08/30/16

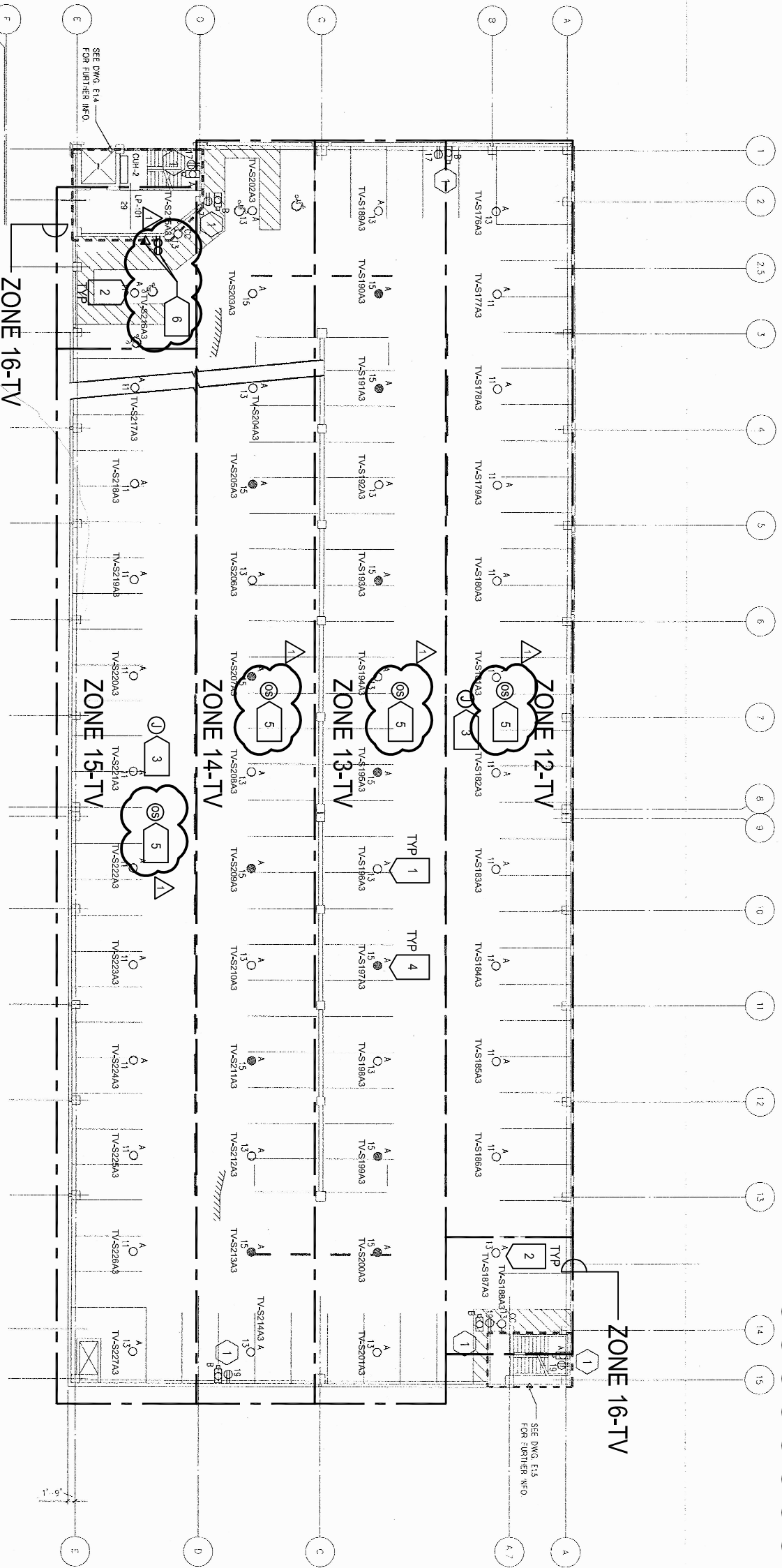
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

Dave T. Blume



- GENERAL NOTES:**
- A DISCONNECT AND REMOVE EXISTING LIGHTING CONTROLS ASSOCIATED WITH TYPE 'A' AND 'CC' LIGHT FIXTURES. LIGHTING CONTROLS TO REMAIN FOR ALL OTHER LIGHTING ASSOCIATED WITH PARKING RAMP BUILDING.
  - B REPLACE LIGHT FIXTURE TYPES 'A' AND 'CC' WITH OWNER FURNISHED LED TYPE LIGHT FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE INCLUDED IN SPECIFICATION.
  - C EXISTING CIRCUITS AND/OR SWITCHING SHOWN FOR REFERENCE ONLY. FIELD VERIFY EXISTING CONDITIONS PRIOR TO WORK.
  - D THIS PROJECT INCLUDES LIGHTING AND ASSOCIATED CONTROLS. MISCELLANEOUS ELECTRICAL ITEMS SHOWN ARE NOT PART OF THIS PROJECT SCOPE AND ARE SHOWN FOR REFERENCE ONLY UNLESS NOTED OTHERWISE.

- NUMBERED NOTES:**
- 1 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
  - 2 PROVIDE WIRELESS CONTROL MODULE MOUNTED EXTERNAL TO EACH TYPE 'A' OR 'A1' LIGHT FIXTURE FOR 24/7 NL OPERATION AS MANUFACTURED BY ECHELON CONTROLS LUMEWAVE SERIES OR APPROVED EQUIVALENT.
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1 LEVEL 3 OVERALL LIGHTING AND CONTROL PLAN  
E108 SCALE: 0' 15' NT5  
N

1 ADDENDUM #1 - 08/30/16

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota  
Dave T. Blume  
Date: 07/22/2016 Reg No. 246711

City of Duluth Energy  
Efficiency Lighting Project -  
Bid Package #1

Tech Village Parking  
Ramp Level 3 Lighting  
Plan



Gausman  
& Moore  
Mechanical and  
Electrical Engineers

Date: 07/22/16  
Drawn: LAH  
Checked: SLH  
Proj.No: 844493

E108

LIGHTING CONTROL MATRIX														
SYSTEM INPUTS					SYSTEM OUTPUTS									
					CONTROLLED BY WIRELESS OCCUPANCY SENSOR(S)					CONTROLLED BY LOCAL PHOTOCELL DEVICE				
					CONTROLLED BY A SET TIME ON/OFF					CONTROLLED BY WIRELESS INTEGRAL/EXTERNAL CONTROL MODULE				
ZONE 17-TV (Z17)														
ZONE 18-TV (Z18)														
ZONE 19-TV (Z19)														
ZONE 20-TV (Z20)														
ZONE 21-TV (Z21)														

GENERAL NOTES:

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