# Illinois Tollway Standard Drawing Revisions

## Section H  Base Sheet Drawings

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<td>Removed sand from conduit trench.</td>
</tr>
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<td></td>
<td>Ground rod shown in elevation view.</td>
</tr>
<tr>
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<td>Service Pole and Pedestal Details</td>
</tr>
<tr>
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<td>Added combined lighting and ITS service pedestal configuration.</td>
</tr>
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<td></td>
<td>Added breaker for servicing surge protection device.</td>
</tr>
</tbody>
</table>
LIGHT STANDARD FOUNDATION DETAILS - CONCRETE
(GROUND MOUNTED UNITS)

NOTES:

1. AT LOCATIONS NOT SHIELDED BY GUARDRAIL, THE LIGHT POLE FOUNDATION SHALL BE flush with surrounding grades on all sides. The surrounding area shall be a level graded area constructed of aggregate shoulders with filter fabric, type B, 4".

2. PROVIDE SEEDING, POTTASMOX FERTILIZER, AND EROSION control blanket as required.

3. THE TOP OF FOUNDATION SHALL BE AT THE SAME ELEVATION AS THE ADJACENT TOP OF GRADE OR WHEN ADJACENT TO AGGREGATE SHOULDERS, AT THE SAME ELEVATION AS THE OUTSIDE EDGE OF AGGREGATE SHOULDER ELONG A MAXIMUM 6" DIA FROM THE PAVED SHOULDER.

4. ALL SLOPES ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).

5. ALL GROUND MOUNTED LIGHT POLES SHALL BE PROVIDED WITH AN ACCEPTED FHWA BREAKAWAY BASE OR DEVICE PER THE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATIONS SECTION 1070.

6. FOR DETAILS OF FUSE HOLDER, POLE BASE WIRING AND CONDUCTOR SPACING SEE STANDARD H2.

7. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.

8. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

9. FOR MEDIAN BARRIER FOUNDATIONS, THE ANCHOR BOLTS HAN COMMUNICATED AROUND THE MEDIAN BARRIER WALL CENTERLINE.

10. PROVIDE SEEDING, POTASSIUM FERTILIZER, AND EROSION CONTROL Blanket AS REQUIRED.
BASE ATTACHMENT DETAIL

ISOMETRIC

ELEVATION

LIGHT STANDARD FOUNDATION DETAILS - HELIX
(GROUND MOUNTED UNITS)

NOTE 1

SEE BASE ATTACHMENT DETAIL THIS SHEET

SEE BASE ATTACHMENT DETAIL, SHEET 1 OF THIS SERIES FOR NOTES.
LIGHT STANDARD FOUNDATION DETAILS - GRADING W/ FORESLOPE
(GROUND MOUNTED UNITS)

NOTE:
(SEE NOTE 1)
LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO AGGREGATE SHOULDER

LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO AGGREGATE SHOULDER

LIGHT STANDARD FOUNDATION - HELIX
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION - CONCRETE
ADJACENT TO GUTTER

LIGHT STANDARD FOUNDATION DETAILS - ADJACENT TO GUARDRAIL
(GROUND MOUNTED UNITS)

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
LIGHT STANDARD FOUNDATION DETAILS - SINGLE FACE BARRIER

NOTES:

1. ALL BARS SHALL BE EPOXY COATED.
2. CONCRETE, REINFORCEMENT, BOLTS, AND ALL OTHER COMPONENTS OF THE LIGHT POLE FOUNDATION ARE INCLINED IN THE COST OF LIGHT POLE FOUNDATION (ROADWAY) 44" BARRIER.

EXJECTION BAR SCHEDULE

<table>
<thead>
<tr>
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<th>#</th>
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<th>WT.</th>
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</tbody>
</table>

ANCHOR BOLT DETAIL

PLAN VIEW

ELEVATION

DETAIL A

SECTION A-A

SECTION B-B

NOTES:

1. ALL BARS SHALL BE EPOXY COATED.
2. CONCRETE, REINFORCEMENT, BOLTS, AND ALL OTHER COMPONENTS OF THE LIGHT POLE FOUNDATION ARE INCLINED IN THE COST OF LIGHT POLE FOUNDATION (ROADWAY) 44" BARRIER.

EXJECTION BAR SCHEDULE

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ANCHOR BOLT DETAIL

PLAN VIEW

ELEVATION

DETAIL A

SECTION A-A

SECTION B-B

NOTES:

1. ALL BARS SHALL BE EPOXY COATED.
2. CONCRETE, REINFORCEMENT, BOLTS, AND ALL OTHER COMPONENTS OF THE LIGHT POLE FOUNDATION ARE INCLINED IN THE COST OF LIGHT POLE FOUNDATION (ROADWAY) 44" BARRIER.
**Light Standard Mounting Details**

### Light Standard Mounting Detail (Ground Mounted Units)
- **1" Diameter Bolt** as required for application (typ. for 4)
- **2-5/8" O.D. x 0.25" Wall** galvanized washers on both sides
- **2.5" O.D. x 2/5" Wall** isolation washer
- **Cast Aluminum Non-Breakaway**
  - Pole Base 4.00" Diameter Bolt Circle
  - Hex Isolation Pad sized to match pole wall mounted units
  - **1/2" Diameter Anchor Bolt** (typ. for 4)
  - **2-5/8" O.D. x 0.25" Wall** isolation washer
  - **1-1/4" Diameter Hex Nut** with washer
  - **1" 10d Leveling Hex Nut**

### Light Standard Mounting Detail (Bridge Mounted Units)
- **1" Diameter Bolt** as required for application (typ. for 4)
- **2-5/8" O.D. x 0.25" Wall** and cover entire slot in pole base
- **Cast Aluminum Non-Breakaway**
  - Pole Base 4.00" Diameter Bolt Circle
  - Hex Nut with washers
  - **1" Diameter Bolt with Hex Head**
  - Heavy washer as specified by manufacturer (typ. for 4)
  - Finia approved Breakaway device
  - **1" Diameter Bolt with Hex Head** (typ. for 4)
  - Provide 4-1/2" Galvanized shim plates for leveling, no more than 1/4" shimming is permitted on any individual anchor bolt.
  - Finished Grade

### Light Standard Mounting Detail (Barrier Wall Mounted Units)
- **1" Diameter Bolt** as required for application (typ. for 4)
- **2-5/8" O.D. x 0.25" Wall** isolation washer
- **Cast Aluminum Non-Breakaway**
  - Pole Base 4.00" Diameter Bolt Circle
  - **1" Diameter Anchor Bolt** (typ. for 4)
  - **1" Diameter Bolt** as required for application (typ. for 4)
  - **2-5/8" O.D. x 0.25" Wall** isolation washer
  - **1" Diameter Anchor Bolt** (typ. for 4)
  - **Concrete Foundation**

**NOTE:**
- See sheet 1 of this series for notes.
- **Light Pole**
  - Hex 6"-6" Wandehle minimum sized
  - Mast Arm as specified on plans
  - See Orientation Detail
  - **Direction of Traffic**
  - **Mast Arm as specified on plans**

**Light Standard Mounting Details**

**Light Standard Details**

**Standard H2-08**
LIGHT STANDARD WIRING DETAIL
(GROUND MOUNTED UNITS)

1/2 N. BARE COPPER
GROUND WIRE

1/2 N. BARE COPPER
GROUND WIRE

1/2 N. BARE COPPER
GROUND WIRE

LIGHT POLE GROUND
LUG

LIGHT STANDARD WIRING DETAIL
(STRUCTURAL AND BARRIER WALL MOUNTED UNITS)

1/2 N. BARE COPPER
GROUND WIRE

1/2 N. BARE COPPER
GROUND WIRE

1/2 N. BARE COPPER
GROUND WIRE

LIGHT POLE GROUND
LUG

IN-LINE FUSE HOLDER WITH
BREAKAWAY FEATURE DETAIL

LIGHT STANDARD WIRING DETAILS

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTES:
1. FOR STRUCTURAL PARAPET FOUNDATION DETAILS, SEE STRUCTURAL PLANS.
2. THE END 4'-0" SECTION OF PARAPET/PARAPET SHALL BE KEPT FREE FROM ANY ATTACHMENTS TO AVOID CONFLICT FROM TRAFFIC BARRIER TERMINAL.
3. ALL CONDUIT, JUNCTION BOXES AND APPURTENANCES MOUNTED TO STRUCTURE SHALL BE OFFSET FROM THE FACE OF THE STRUCTURE A MINIMUM OF ONE (1) INCH BY MEANS OF A STAINLESS STEEL C-CHANNEL. C-CHANNEL SHALL BE SECURED TO BRIDGE PARAPET WITH ø3/8" EXPANSION ANCHORS MIN. 3" LONG. EXPANSION ANCHORS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION AND SHALL BE MADE BY PARABOLT, KWICK-BOLT OR WEJ-IT. CONDUIT SHALL BE SECURED WITH APPROVED CLAMPS A MINIMUM OF 3 FEET FROM CENTER AND A MINIMUM OF 2 FEET FROM ANY CHANGE IN DIRECTION OR JUNCTION BOX.
5. EXPANSION/DEFLECTION JOINTS SHALL BE PROVIDED AT ALL BRIDGE EXPANSION JOINTS.
6. ALL CLAMPS AND HARDWARE FOR CONDUIT MOUNTING SHALL BE OF LIKE MATERIAL AS THE CONDUIT.
7. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ON APPROACH PAVEMENT)

UNIT DUCT INSTALLATION (3" DIA. MIN.)
UNIT DUCT IN CONDUIT TO STAINLESS STEEL JUNCTION BOX
UNIT DUCT SIZE SIZED PER PLANS
TERMINAL TRAFFIC BARRIER
NOTE 2

UNIT DUCT INSTALLATION SIZED TO ACCOMODATE NON-METALLIC CONDUIT
LIQUIDTIGHT FLEXIBLE UNIT DUCT INSTALLATION
SIZED TO ACCOMODATE RIGID CONDUIT ELBOW
LARGE RADIUS STAINLESS STEEL RIGID CONDUIT ELBOW SIZED TO ACCOMODATE UNIT DUCT INSTALLATION (3" DIA. MIN.)

CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(JOINTED ABUTMENT WITH PARAPET ON APPROACH PAVEMENT)
CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ENDING ON BRIDGE DECK)

PLAN

SECTION A-A

ELEVATION

CONDUIT EMBEDDED IN BRIDGE PARAPET WALLS
(INTEGRAL/SEMI-INTEGRAL ABUTMENT WITH PARAPET ENDING ON BRIDGE DECK)

NOTE:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
PLAN VIEW

SECTION A-A

ELEVATION OF TYPICAL WINGWALL CONDUIT TRANSITION

CONDUIT ATTACHED TO BRIDGE PARAPET

NOTE: SEE SHEET 1 OF THIS SERIES FOR NOTES.
HEAVY-DUTY HANDHOLE DETAILS

1. HEAVY-DUTY HANDHOLE, LOCATED IN UNPAVED AREAS AND NOT SHIELDED BY GUARDRAIL, SHALL BE CONSTRUCTED WITH THE TOP FLUSH WITH THE ADJACENT SLOPE.

2. HEAVY-DUTY HANDHOLE SHALL BE CONSTRUCTED IN NON-PAVED AREAS. THE FRAME AND HINGED COVER SHALL BE EITHER NEENAH FOUNDRY R-6662-PS OR EAST JORDAN IRON WORKS EJ 8216 WITH TYPE G LIFTING HANDLE. THE COVER SHALL BE FULLY REMOVABLE. THE COVER SHALL ALSO BE ABLE TO BE MADE FULLY REMOVABLE. THE FRAME COVER SHALL BE INSTALLED WITH THE HINGES TO THE SIDE FACING APPROACHING TRAFFIC.

3. AGGREGATE FOR FOUNDATION SHALL BE PER ARTICLE 10 OF THE STANDARD SPECIFICATIONS.

4. 10 FEET OF EXTRA CABLE SHALL BE COILED IN EACH HANDHOLE.

5. ALL METALLIC COMPONENTS OF THE HANDHOLE SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

6. THE HANDHOLE COVER SHALL BE LETTERED "ELECTRIC". LETTERING SHALL BE 6. NATIONAL ELECTRICAL SAFETY CODE.

STANDARD H4-05

NOTES:

1. HEAVY-DUTY HANDHOLE, LOCATED IN UNPAVED AREAS AND NOT SHIELDED BY GUARDRAIL, SHALL BE CONSTRUCTED WITH THE TOP FLUSH WITH THE ADJACENT SLOPE.

2. HEAVY-DUTY HANDHOLE SHALL BE CONSTRUCTED IN NON-PAVED AREAS. THE FRAME AND HINGED COVER SHALL BE EITHER NEENAH FOUNDRY R-6662-PS OR EAST JORDAN IRON WORKS EJ 8216 WITH TYPE G LIFTING HANDLE. THE COVER SHALL BE FULLY REMOVABLE. THE COVER SHALL ALSO BE ABLE TO BE MADE FULLY REMOVABLE. THE FRAME COVER SHALL BE INSTALLED WITH THE HINGES TO THE SIDE FACING APPROACHING TRAFFIC.

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5. ALL METALLIC COMPONENTS OF THE HANDHOLE SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL SAFETY CODE, THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

6. THE HANDHOLE COVER SHALL BE LETTERED "ELECTRIC". LETTERING SHALL BE 6. NATIONAL ELECTRICAL SAFETY CODE.

STANDARD H4-05
NOTES:
1. METER HOUSING SHALL BE MOUNTED TO BACK WALL OF CONTROL CABINET. PROVIDE A GATE IN FENCE TO ALLOW UTILITY ACCESS TO READ THE METER.
2. CABLES FROM METER HOUSING SHALL PASS THROUGH BACK WALL OF CONTROL CABINET.
3. CONTRACTOR MUST COORDINATE WITH PEDESTAL BASE SUPPLIER AND FURNISH THE NECESSARY ANCHOR RODS.
4. PROVIDE A 2" SCHEDULE 40 PVC CONDUIT HUB, 2¼" NIPPLE AND 2½" TO 3" CONDUIT REDUCER FITTING.
5. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
2. Surge protection device.
3. Circuit breaker, 200 ampere, 2-pole, 600 volt rated.
4. Grounding and/or neutral bus.
5. Circuit breaker, 30 ampere, 2-pole, 600 volt rated.

NOTES:
1. Electric service conductors from meter housing.
2. Electric service conductors to lighting control panel as indicated on the plans.
3. Surge Protection Device conductors size shall be according to manufacturer's recommendation.
4. Electric Conductors shown with minimum sizes. Larger sizes shall be used as required or as shown on the plans.
5. Cables shall be maximum #4 and/or 3/0 as required for circuit breaker.

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EQUIPMENT LAYOUT & WIRING DIAGRAM
ROADWAY LIGHTING

EQUIPMENT LAYOUT & WIRING DIAGRAM
ROADWAY ITS

NOTE 1
NOTE 2
NOTE 3
NOTE 4
NOTE 5

1. CIRCUIT BREAKER, 200 AMPERE, 2-POLE, 600 VOLT RATED

2. CIRCUIT BREAKER, 30 AMPERE (OR AS REQUIRED BY CONSTRUCTION PLAN), 2-POLE, 600 VOLT RATED

3. GROUNDING AND/OR NEUTRAL BUS

4. CIRCUIT BREAKER, 30 AMPERE, 2-POLE, 600 VOLT RATED
**NOTE 1**

Equipment Layout & Wiring Diagram

**NOTE 2**

Service Pedestal Interior Electric

Combined Roadway Lighting / ITS

**NOTE 3**

**NOTE 4**

**NOTE 5**

**ITEM DESCRIPTION**

1. Power distribution/terminal block, with ingress protection rating IP20.
2. Surge protection device.
3. Circuit breaker, 200 ampere, 2-pole, 600 volt rated.
4. Grounding and/or neutral bus.
5. Circuit breaker, 30 ampere, 2-pole, 600 volt rated.

**NOTES:**

1. Electric service conductors from meter housing.
2. Electric service conductors to lighting control panel, size as indicated on the plans.
3. Surge protection device conductors size shall be according to manufacturer's recommendation.
4. Electric conductors shown with minimum sizes. Larger sizes shall be used as required or as shown on the plans.
5. Cables shall be minimum #4 AWG or as required for circuit breaker.
1. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

2. 30'-0" maximum height above grade.

3. Not used.

4. 2-1/2" PVC conduit in concrete. See foundation details (standard H6).

5. Continuous hinged no. 2 bare stranded copper ground cable to ground rod.

6. To service pedestal as indicated on plans.

7. Not used.

8. Continuous stainless steel piano hinges.

9. 3-01-2018

10. 3-31-2016

11. 3-31-2014

12. 3-31-2017

13. 3-11-2015

14. 2" x 8" aid tray with 3-3" nipples.

15. 8'-0" main panelboard (item 10) in NEMA 4X stainless steel enclosure.

16. 200 watt, 120 volt cabinet heater with integral thermostat.

17. 8'-0" x 6'-0" x 4'-0" junction box & cover with cover without knockouts.

18. Item 3 is mounted in the cover.

19. Internal conduit and fittings shall be 1/4" minimum.

20. 65,000 ampere, 600 volt, single pole, 30 second, standard 150,000 ampere circuit breaker with suitable color coding to be approved by the engineer before construction.

21. 200 MCB, 120 volt cabinet heater with integral thermostat.

22. Service safety switch, 200 amp, 600 volt, non-fused, NEMA 4X stainless steel enclosure.

23. NEMA type 1, 8" x 4" x 1/4" junction box & cover without knockouts.

24. Item 3 is mounted in the cover.

25. Internal conduit and fittings shall be 1/4" minimum.

26. 8'-0" aid tray with 3-3" nipples.

27. Defi outlet.

**NOTES:**

 REVISED CONDUITS TO STAINLESS STEEL.

 REMOVED METER HOUSING.

 2' - 9".

 APPROVED INTERIOR EQUIPMENT LAYOUT

 18 - 12 - 9 - 7.

 CHIEF ENGINEERING OFFICER

 9 - 13 - 10 - 6 - 4 - 3 - 2 - 1.

 DATE

 2-7-2012

 SHEET 1 OF 2
NOTES:
1. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
2. TO SERVICE PEDESTAL 480/240V, 1 PHASE, 3 WIRE, GROUNDED, SEE STANDARD H5.
3. ITEM NUMBERS REFER TO EQUIPMENT LIST ON SHEET 1 OF THIS SERIES.
4. PROVIDE CIRCUIT BREAKERS PER SCHEDULE ON CONTRACT PLAN BIDWORK OR TO.
5. FOR INTERIOR EQUIPMENT LAYOUT SEE SHEET 1 OF THIS SERIES.
**NOTES:**

1. Exposed concrete edges shall have ½" x 45° chamfers except where shown otherwise; chamfers on vertical edges shall be continued a minimum of one foot below finished ground level.

2. All reinforcement bars shall be epoxy coated (E) and shall conform to the requirements of AASHTO M-31 (ASTM A615), Grade 60 deformed bars.


4. Reinforcement bar bending dimensions are out to out.

5. Cover from the face of concrete to face of reinforcement bars shall be 3" for all surfaces unless otherwise shown.

6. For clarity, control console and railings are not shown in plan view.

7. All equipment shall be organized and sized in accordance with the National Electrical Code and the National Electrical Safety Code.

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**BILL OF MATERIAL**

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<tr>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QUANTITY</th>
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<td>REINF. BARS, EPOXY COATED</td>
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**CLASS "SI" CONCRETE**

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<tr>
<th>DESCRIPTION</th>
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<tr>
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**REINFORCEMENT BARS SCHEDULE**

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<td>&quot;-&quot;</td>
<td>5'-3&quot;</td>
<td>10</td>
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</tbody>
</table>

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**ILLINOIS TOLLWAY**

Approved by: MARK K. SANKA, P.E. Date: 2-07-2012
1. Provide power utility co. meter housing as indicated on plans.
2. 5’-0” maximum height above grade.
3. Stainless steel conduit to utility service as indicated on plans.
4. ¾” PVC conduit.
5. Exothermic weld no. 2 bare tinned copper ground cable to ground rod 12”-24” below grade.
6. To power utility company, service as indicated on plans.
7. Conduit and cable between meter fitting and disconnect switch, conduit and cable shall be the same as the service.
8. Label all equipment as "roadway lighting" + device and building # if applicable.
9. For wiring diagram see sheet 2 of this series.
10. All equipment shall be grounded and bonded in accordance with the National Electrical Code and the National Electrical Safety Code.

**Notes**

**Item**

**Description**

1. Meter Housing, Milbank U8436-D.
2. Secondary surge arresters, 2 pole, 600 volt.
3. Main panelboard in Nema 1 enclosure, 600/240 volt, 1 phase, 2 section, 200 amp, 2 pole main circuit breaker panel mains. Symmetrical, interrupting capacity with circuit breakers per schedule on plans, door devices on right side.
4. Lighting contactor, electrically held, 480 volt, 200 amp, 2 pole, 120 volt control, with 250 volt, 15 amp control line fuse in a Nema 3 enclosure.
5. Secondary breaker, 15 Ampere trip, 120 volt, single pole, 65,000 amperes symmetrical interrupting capacity in a Nema 3 surface mounted enclosure.
6. Step-down transformer, 1500 va, 480 volt primary, 120 volt secondary, single phase, 60 hertz, dry type, Nema 4X enclosure.
7. ¾” x ¾” C-channel (Unistrut) for all equipment standoff
8. ½” equipment mounting panel (6” X 8” X 12”)
9. Hand-off-auto selector switch with legend plate, mounted in the cover of item 11.
10. Routed to building ground system, to no ground available contractor shall provide ¾” or 2” long ground rod within ground well.
12. Photoelectric control switch mounted on south exterior side of building (view unobstructed).
13. 8”x8” wireway with 3-3” nipples.
14. Internal control mounting panel (6” X 8” X 12”) and, standards, insulated hinged type transformers rated 600 volt, with suitable cover color to be approved by the engineer before construction.
15. 2” stainless steel conduit from service safety switch to lighting controller wireway.
17. Nema type 1, 8”x6”x4” junction box & cover without knockout. Item 9 is mounted in the cover.
18. Internal conduit and fittings shall be ¾” minimum.
19. 2” stainless steel conduit to lighting controller wireway, refer to site plan for location.
20. GFCI outlet.
CONTROL CONSOLE DETAILS

(CONTROL CONSOLE WIRING DIAGRAM)

NOTES:
1. TO UTILITY SERVICE, 480/240V, 1 PHASE, 3 WIRE, GROUNDED. WHEN A METER HOUSING IS REQUIRED (FED FROM PAD MOUNTED UTILITY TRANSFORMER WITHIN ILLINOIS TOLLWAY RIGHT-OF-WAY).
2. TO SERVICE PEDESTAL, 480/240V, 1 PHASE, 3 WIRE, GROUNDED. SEE STANDARD HB-03.
3. ITEM NUMBERS REFER TO EQUIPMENT LIST ON SHEET 1 OF THIS SERIES.
4. PROVIDE CIRCUIT BREAKERS PER SCHEDULE ON THE CONTRACT PLANS (MINIMUM OF 15).
5. FOR INTERIOR EQUIPMENT LAYOUT SEE SHEET 1 OF THIS SERIES.
6. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
7. CONDUIT AND CABLE BETWEEN METER FITTING AND DISCONNECT SWITCH ROUTED BETWEEN CONTROL CONSOLE AND CONCRETE FOUNDATION. WHEN A METER HOUSING IS REQUIRED, CONDUIT AND CABLE SHALL BE THE SAME AS THE SERVICE.
NOTES:

1. USE OF THIS STANDARD DETAIL IS LIMITED TO THE INSTALLATION OF LIGHT EMITTING DIODE LUMINAIRES ONLY. FOR INSTALLATION OF OTHER LIGHT SOURCE TYPES, REFER TO PLAN DETAILS.

2. LIQUID-TIGHT FLEXIBLE CONDUIT, MAXIMUM LENGTH 6'-0", TYPICAL FOR EACH INSTANCE AS SHOWN, PROVIDE SUFFICIENT LENGTH OF LIQUID-TIGHT RIGID GALVANIZED STEEL CONDUIT AS REQUIRED CONDUIT AS REQUIRED TO THE MAXIMUM LENGTH OF REQUIRED LIQUID-TIGHT DOES NOT EXCEED 6'-0", LIQUID-TIGHT FLEXIBLE CONDUIT.

3. PROVIDE TWO (2) OR 200 AMP 600 VOLT CIRCUIT BREAKERS (EATON OR EQUIVALENT) AND TWO (2) OF THE ABOVE PROTECTION DEVICES (IN ACCORDANCE WITH ARTICLE 365 OF THE STANDARD SPECIFICATIONS) AND SIX (6) 1/0 SEP. NO. 2 GROUND WIRE TERMINAL BLOCKS TO 600-600 VOLT CIRCUIT BREAKER TO TWO (2) NO. 2 GROUND WIRES FOR EACH LUMINAIRE.

4. MOUNTING PLATES N-2 AND L/C NO. 2 GROUND WIRE TO GROUND CONDUIT AS REQUIRED PER PLAN DETAILS.

5. THE CONTRACTOR SHALL PROVIDE EXPANSION/DEFLECTION FITTINGS (O-Z/GEDNEY TYPE) AND WHERE CONDUITS CROSS STRUCTURE EXPANSION JOINTS.

6. IN NEW BRIDGE DECKS, PROVIDE STAINLESS STEEL SINGLE GRAIL PLATED ROD INSERTS CAST IN THE DECK FOR DIAMETER STAINLESS STEEL THREADED RODS. IN EXISTING BRIDGE DECKS, PROVIDE STAINLESS STEEL EXPANSION TYPE ANCHORS FOR DIAMETER STAINLESS STEEL THREADED RODS. EXPANSION TYPE ANCHORS SHALL HAVE A MINIMUM OF 500 POUNDS CAPACITY EACH.

7. NOT SHOWN.

8. ALL ITEMS MOUNTED TO BRIDGE PIER SHALL BE DETECTED FROM THE STRUCTURE A MINIMUM OF ONE (1) INCH BY USE OF STAINLESS STEEL C-CHANNEL.


10. DETAILS SHOWN ARE FOR UNDERPASS LIGHTING INSTALLATIONS FEED FROM THE MEDIAN BARRIER WALL FOR INSTALLATIONS FEED FROM A BRIDGE ABUTMENT, REFER TO THE PLAN DETAILS.

11. UNDERPASS LUMINAIRES MOUNTED FROM BRIDGE DECK SHALL BE INSTALLED CENTERED BETWEEN THE BRIDGE BEAMS. THE LUMINAIRES SHALL BE LOCATED SUCH THAT THE MEDIAN PIER MOUNTED LUMINAIRE SHALL BE LOCATED SUCH THAT IT IS SETBACK A MINIMUM OF 1 FOOT FROM THE OUTSIDE EDGE OF THE SHOULDER PAVEMENT IN NEW BRIDGE DECKS. IN NO CASE SHALL ANY PORTION OF THE SUSPENDED LUMINAIRE ON SUPPORTING HARDWARE BE LOWER THAN 14'-6" WHEN MEASURED TO THE OUTSIDE EDGE OF THE MEDIAN PIER MOUNTED LUMINAIRE.

12. IN NO INSTANCE SHALL ANY UNDERPASS LUMINAIRE OR ANY OTHER ELECTRICAL EQUIPMENT BE LOCATED BELOW THE ELECTRICAL CIRCUIT BREAKER TO THE BOTTOM OF THE BRIDGE BEAM. ALL UNDERPASS LUMINAIRES MOUNTED TO THE MEDIAN PIER AT WHICH CASE THE MINIMUM HEIGHT SHALL BE 16'-0" AND MEASURED TO THE LOWEST PORTION OF THE LUMINAIRE OR SUPPORTING HARDWARE.

13. LUMINAIRE MOUNTING PLATE FOR LUMINAIRES MOUNTED FROM BRIDGE DECK SHALL BE OF THE DIMENSIONS NECESSARY AND FIELD DRILLED TO ACCOMMODATE THE SPECIFIC LEFT EMERGENCY LIGHT SOURCE PROVIDE AND ASSOCIATE LUMINAIRE MOUNTED ASSEMBLIES.

14. SEE PLANS FOR UNDERPASS LUMINAIRE LOCATIONS AND MOUNTING HEIGHTS.

15. SEE STRUCTURAL DRAWINGS FOR SPECIFIC STRUCTURE DETAILS.

16. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.

UNDERPASS LIGHTING
(MEDIAN PIER MOUNTED LUMINAIRE & FEEDER INSTALLATION)

Sheets 1 of 3
SECTION A-A

MEDIAN PIER JUNCTION BOX MOUNTING PLATE DETAIL

UNDERPASS LIGHTING
(MEDIAN PIER MOUNTED LUMINAIRE & FEEDER INSTALLATION)

NOTE:
For notes see Sheet 1 of this series.

STANDARD HS-01
BRIDGE MOUNTED SIGN LIGHTING
(BRIDGE PIER MOUNTED FEEDER INSTALLATION)

NOTES:
1. FOR SIGN STRUCTURE INSTALLATION DETAILS SEE SHEET 2 OF 3 IN THIS SERIES.
2. FOR SIGN LUMINARI INSTALLATION AND WIRING AND FOR INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNELS, SEE STANDARD HE0-04.
3. FOR TYPICAL SIGN CONTROL PANEL DETAILS SEE SHEET 2 OF 3 IN THIS SERIES.
4. DETAILS SHOWN ON THIS SHEET ARE WITHOUT FLASHING BEACON. INSTALLATION OF FLASHING BEACON REQUIRES ADDITIONAL WORK AS SHOWN ON TYPICAL SIGN CONTROL PANEL DETAIL SHEET 2 OF 3 IN THIS SERIES.
5. LUMINARI SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN THE SIGN IS TO BE ILLUMINATED. MAINLINE TOLL PLAZA APPROACH SIGNS SHALL BE ILLUMINATED.
6. PROVIDE 12" FLASHING BEACON ONLY WHERE INDICATED ON PLANS. FLASHING BEACON TO BE ATTACHED TO SUPPORT WITH STAINLESS STEEL SCREWS AND NEOPRENE SPACERS. DRILLED SCREW HOLES TO BE SEALED WATER-TIGHT.
7. SEE STRUCTURAL DRAWINGS FOR DETAILS OF SIGN SUPPORTS AND FIXTURE SUPPORT CHANNELS.
8. CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO STEEL STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM, PVC COATED GALVANIZED STEEL CONDUITS, CONDUIT FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO STEEL STRUCTURAL SUPPORTS OR WHERE ATTACHED TO CONCRETE STRUCTU RES UNLESS NOTED OTHERWISE METALS BETWEEN DISSIMILAR METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.
9. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
**Sheet 2 of 3**

**Channel Spacing**
- Typical: 6" 
- 12" 
- 4'-0" 

**Lighting Details**
- Bridge Mounted Sign Lighting
  - (Bridge Abutment Mounted Feeder Installation)

**Approved Date:**
- Chief Engineering Officer: 2-7-2012

**Legend:**
- A
- 3
- 2
- 1

**Notes:**
- See Sheet 1 of this series for notes.
- (Bridge Abutment Mounted Feeder Installation)

**Typical Sign Control Panel Detail**
- For typical wiring diagram see Standard H0-04

**Typical Sign Control Panel Detail**
- See far side abutment end elevation detail

**Elevation Details**
- Section A-A

**Plan**
- Illinois Tollway &
- Bridge Order
- Sign Structure
- See note 1

**Diagram Details**
- Bridge Abutment
- Sign Light Circuits
- Sign Control Panel
- Service or Service Extension per Plans where required

**ILLINOIS TOLLWAY**
- PAVEMENT

**Requirements**
- 1/8" Stainless Steel Sign Control Panel Mounting Plate
- PVC Coated Steel Conduit as Required
- Grounding Bushing
- Stainless Steel Rigid Conduit Size to accommodate unit duct installation
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. Stainless Steel Rigid Conduit
- 1" Dia. Stainless Steel Rigid Conduit
- Copper Ground Wire
- 1/C No. 2 Bare Tinned Copper Ground Wire
- 1" Dia. PVC Coated Rigid Conduit with 30 A/Breaker
- 3" Dia. PVC Coated Rigid Conduit
- 8" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit

**Footings**
- Exothermic Weld
- 1/8" Dia., 10'-0" Ground Rod
- 9'-0" Dia. from structural footing

**Conduit Details**
- PVC Coated Steel Conduit
- Rigid Galvanized Steel 1" Dia. (Min.) PVC Coated Conduit
- 1/4" Dia. PVC Coated Conduit
- 1/2" Dia. PVC Coated Conduit
- 3/4" Dia. PVC Coated Conduit
- Flexible Non-Metallic Conduit
- 3/4" Dia. (Min.) Liquid-Tight PVC Coated Conduit

**Wiring Details**
- 1/4" Dia. PVC Coated Rigid Conduit with 30 A/Breaker
- 1/2" Dia. PVC Coated Rigid Conduit with 30 A/Breaker
- 3/4" Dia. PVC Coated Rigid Conduit with 30 A/Breaker
- 1" Dia. PVC Coated Rigid Conduit with 30 A/Breaker

**Pole Details**
- 48" Minimum
- Bridge Mounted Sign Lighting
- Flashing Beacon Controller

**Protection Device**
- In accordance with Article 1065.02

**Panel Details**
- 18"x18"x8" Stainless Steel Junction Box
- Sufficient 30 Ampere, 600 Volt Terminal Blocks to supply and volt varying from Sign Service Circuit
- 30 A/Breaker to Two No. 10 Wires for each luminaire
- 2-1/C No. 10 Wires for each luminaire
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit

**Grounding Details**
- Copper Ground Wire
- 1/C No. 2 Bare Tinned Copper Ground Wire
- 1/4" Dia. PVC Coated Rigid Conduit
- 1/2" Dia. PVC Coated Rigid Conduit
- 3/4" Dia. PVC Coated Rigid Conduit
- 1" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit
- 3" Dia. PVC Coated Rigid Conduit

**Service Details**
- Sign Lighting Service - CIRCUIT BREAKER (30 AMP/2 POLE)
- SPLIT 480 VOLT WIRING FROM SIGN SERVICE CIRCUIT
- PROVIDE SURGE PROTECTION DEVICE (IN ACCORDANCE WITH ARTICLE 1065.02 OF THE STANDARD SPECIFICATIONS).

**Figure Details**
- See sheet 1 of this series for notes.
SECTION A-A
(Steel bridge shown)

SECTION B-B
(Concrete bridge shown)

BRIDGE MOUNTED SIGN LIGHTING
(LUMINAIRE MOUNTING & CONDUIT DETAILS)

NOTES:
SEE SHEET 1 OF THIS SERIES FOR NOTES.
NOTES:
1. A GROUND WIRE NO. 12 AWG WILL BE RUN FROM THE GROUNDING BUSHING COVERED SUPPORT TO THE GROUNDING BUSHING IN THE JUNCTION BOX.
2. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
3. CONDUITS, FITTINGS, CLAMPS, AND APPURTENANCES ATTACHED TO ALUMINUM STRUCTURAL SUPPORTS SHALL BE PVC COATED ALUMINUM. PVC COATED GALVANIZED STEEL CONDUITS, FITTINGS, CLAMPS, AND APPURTENANCES SHALL BE UTILIZED WHERE ATTACHED TO STEEL STRUCTURAL supports OR WHERE ATTACHED TO CONCRETE STRUCTURES UNLESS NOTED OTHERWISE HEREIN. THREADED JOINTS BETWEEN TITANIUM METALS SHALL BE COATED WITH AN APPROVED THREAD LUBRICANT.
4. LUMINARIES SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN THE SIGN IS TO BE ILLUMINATED. MAINLINE Toll Plaza Approach Signs Shall Be Installed.
5. SEE STRUCTURAL DRAWINGS FOR DETAILS OF SIGN SUPPORTS AND FIXTURE SUPPORT CHANNELS.
6. FOR SIGN LUMINARIES INSTALLATION AND WIRING AND FOR INSTALLATION OF CONDUIT IN FIXTURE SUPPORT CHANNEL, SEE ILLINOIS TOLLWAY SUPPLEMENTAL SPECIFICATION SECTION 734.
7. ALL STEEL TO BE HOT DIPPED GALVANIZED AFTER WELDING PER STANDARD H14.
8. PROVIDE 1/8" FLASHING BEACON ONLY WHERE INDICATED ON PLANS. FLASHING BEACON TO BE ATTACHED TO SUPPORT WITH STAINLESS Steel SCREWS AND NEOPRENE SPACERS, GLUED WHEN MOUNTED TO BE SEALED WATERPROOF.

TYPICAL FRONT ELEVATION WITH FLASHING BEACON

LUMINARIES NOT SHOWN FOR CLARITY.
**SIGN LUMINAIRE INSTALLATION**

**TYPICAL SIDE ELEVATION**

(Read natural text for detailed specifications and notes)
RESERVED
NOTES:

1. POLE CAP TO BE REMOVED AND LUMINAIRE LED TO BE OPENED FOR PLACEMENT OF THE CABLE ASSEMBLY AND PUT BACK IN PLACE. NEW CAP SCREWS SHALL BE USED.

2. THE BREAKING STRENGTH OF THE ASSEMBLED CABLE SHALL BE 1,700 POUNDS MINIMUM ALONG FOR 3" TO 12" SLACK IN THE CABLE.

3. ALUMINUM TAG WITH POLE IDENTIFICATION NUMBERS AS PER SPECIFICATION.

4. CONTRACTOR SHALL ROUTE CABLE WITHIN LUMINAIRE IN SUCH A MANNER THAT IT DOES NOT BECOME PINCHED BETWEEN THE MAST ARM AND MOUNTING BRACKETS.

5. CABLE LOOPS SHALL BE CLOSED SUCH THAT EACH END OF THE CABLE PASSES THROUGH CLIPS IN OPPOSING DIRECTIONS.

6. MINIMIZE SLACK WITHIN LUMINAIRE.

LIGHT STANDARD - TRUSS ARM
(TWIN TRUSS ARM SHOWN, TWIN MAST ARM SIMILAR)

DETAIL A

BOTTOM VIEW
N.T.S.
PLATE ATTACHMENT DETAIL

DETAIL B
(BRACKET CLAMPS OMITTED FOR CLARITY)

LIGHT STANDARD - TRUSS ARM
(SINGLE TRUSS ARM SHOWN, SINGLE MAST ARM SIMILAR)

NOTES:
1. POLE CAP TO BE REMOVED AND LUMINAIRE LED TO BE OPENED FOR PLACEMENT OF THE CABLE ASSEMBLY AND PUT BACK IN PLACE. NEW CAP SCREWS SHALL BE USED.
2. THE BREAKING STRENGTH OF THE ASSEMBLED CABLE SHALL BE 3,700 POUNDS MINIMUM FOR 9" TO 12" SLACK IN THE CABLE.
3. ALUMINUM TAG WITH POLE IDENTIFICATION NUMBERS AS PER SPECIAL PROVISIONS.
4. CONTRACTOR SHALL ROUTE CABLE WITHIN LUMINAIRE IN SUCH A WAY THAT IT DOES NOT BECOME PINCHED BETWEEN THE MAST ARM AND MOUNTING BRACKETS.
5. CABLE LOOPS SHALL BE CLOSED SUCH THAT EACH END OF THE CABLE PASSES THROUGH CLIPS IN OPPOSING DIRECTIONS.
6. MINIMIZE SLACK WITHIN LUMINAIRE.
7. ALL PLATE EDGES SHALL BE SMOOTH.

- ALUMINUM ALLOY (TYP.) TRUSS ARM, 6063-T6 TAPERED ELLIPTICAL
- STAINLESS STEEL CABLE CLIPS (TYP.)
- ALUMINUM ALLOY PLATE ATTACHMENT DETAIL

DETAIL A

DETAIL B
(BRACKET CLAMPS OMITTED FOR CLARITY)

CABLE TO BE ROUTED UNDER EXISTING MOUNTING BRACKETS AND ENCOMPASSING AT LEAST 2 BOLTS

- STAINLESS STEEL CABLE CLIPS (TYP.)
- EXISTING MOUNTING BRACKETS TO SECURE LUMINAIRE HOUSING TO MAST ARM

BOTTOM VIEW

CABLE TO BE ROUTED UNDER EXISTING PLATE AND ENCOMPASSING AT LEAST 2 BOLTS

- EXISTING MOUNTING BRACKET RELATD TO LUMINAIRE HOUSING

- POLYETHYLENE TUBE ROUTE STEEL CABLE OUTSIDE

- " HEX HEAD SCREWS TO POLE WITH THREE 1/2" HEX HEAD SCREWS

- ALUMINUM TAG WITH POLE IDENTIFICATION NUMBERS AS PER SPECIAL PROVISIONS

- " DIA. HOLE. (SEE NOTE 7)

- 4"X2"X" STAINLESS STEEL PLATE TYPE 304 OR 316 WITH 1/2" REA HOLE. (SEE NOTE 8)

- " ALUMINUM ALLOY POLE CAP SECURED TO POLE WITH THREE 1/4" HEX HEAD SCREWS (SEE NOTE 10)

- TAPERED ELLIPTICAL TRUSS ARM, 6063-T6 ALUMINUM ALLOY (TYP.)

- " STAINLESS STEEL AIRCRAFT CABLE

- CABLE CLIPS (TYP.) STAINLESS STEEL

- ALUMINUM ALLOY POLE CAP SECURED TO POLE WITH THREE 1/4" HEX HEAD SCREWS (SEE NOTE 10)

- " STAINLESS STEEL ALUMINUM TAG (TYP.)

- PLATE TYPE 304 OR 316 WITH 4"X2"X" STAINLESS STEEL POLYETHYLENE TUBE

- ROUTE STEEL CABLE OUTSIDE
NOTES:
1. FOR DETAILS OF FUSE HOLDERS, POLE BASE, WIRING AND CONDUCTOR SPLICE SEE STANDARD H2.
2. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.
3. ALL EQUIPMENT SHALL BE GROUNDED AND BONDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND THE NATIONAL ELECTRICAL SAFETY CODE.
4. POLES SHALL BE MOUNTED AND WIRED PER DETAIL FOR "BARRIER WALL MOUNTED UNITS" ON LIGHT STANDARD DETAILS (STANDARD H2)