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| **طرح نگهداشت و افزایش تولید 27 مخزن** | | | | | | |
| **MTO FOR LIGHTING & SMALL POWERS**  **نگهداشت و افزایش تولید میدان نفتی بینک** | | | | | | |
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| D00 | Dec. 2023 | IFI | H.Shakiba | M.Fakharian | S.Faramarzpour |  |
| **Rev.** | **Date** | **Purpose of Issue/Status** | **Prepared by:** | **Checked by:** | **Approved by:** | **Client Approval** |
| **Class:3** | | **Client Doc. Number: F8Z-709074** | | | | |
| **Status:** | **IDC: Inter-Discipline Check**  **IFC: Issued For Comment**  **IFA: Issued For Approval**  **AFD: Approved For Design**  **AFC: Approved For Construction**  **AFP: Approved For Purchase**  **AFQ: Approved For Quotation**  **IFI: Issued For Information**  **AB-R: As-Built for CLIENT Review**  **AB-A: As-Built –Approved** | | | | | |

**REVISION RECORD SHEET**

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| **PAGE** | **D00** | **D01** | **D02** | **D03** | **D04** |  | **PAGE** | **D00** | **D01** | **D02** | **D03** | **D04** |
| **1** | X |  |  |  |  | **51** |  |  |  |  |  |
| **2** | X |  |  |  |  | **52** |  |  |  |  |  |
| **3** | X |  |  |  |  | **53** |  |  |  |  |  |
| **4** | X |  |  |  |  | **54** |  |  |  |  |  |
| **5** | X |  |  |  |  | **55** |  |  |  |  |  |
| **6** | X |  |  |  |  | **56** |  |  |  |  |  |
| **7** | X |  |  |  |  | **57** |  |  |  |  |  |
| **8** | X |  |  |  |  | **58** |  |  |  |  |  |
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| **MTO FOR OUTDOOR AREA LIGHTING** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **ITEM No.** | **DESCRIPTION** | **Unit** | **QTY** | **Spare** | **TOTAL**  **QTY** |
|  | **Outdoor 15 Meters Tower With Ladder And Basket**  Supplied Complete With:   * 15m Hot Dip Galvanized Steel Pipe With Minimum 3mm Thickness * Weather Proof Aluminum Junction Boxes ,IP55, Door Lock With External and Internal Erath Lug * Switch Fuse Box : Cable Gland for 5X10 mm2, CU/XLPE/LC/SWA/PVC * Terminal Box (on Basket) : Cable Gland for 3x2.5mm², CU/PVC/PVC * Other Requirements Based on Our Drawing: Area Lighting & Small Power Layout   (BK-GCS-PEDCO-120-EL-PY-0003)   * Base Plate and 4Nos. Anchor Bolts, Nuts and Washers for Tower * Suitable Earth Lug for Tower. * Tower shall be Equipped with Platform, Ladder, Guard, etc. Based on DWG No. BK-GNRAL-PEDCO-000-EL-DW-0003 | No. | 7 | 0 | 7 |
|  | **Outdoor Floodlight Fixtures**  Weather proof /IP65 /230V,50HZ, Metal halide lamp with 400 W lamp Holder and Terminal With Igniter, Ballast and Also Bracket/Support for Installation Enclosure With Alloy Aluminum or Die cast and Anodized Aluminum Reflector Suitable Cable Gland for 3x2.5 mm² CU/PVC/PVC | No. | 32 | 3 | 35 |
|  | **Outdoor Three Phases Socket Outlets (Hazardous)**  Welding Outlets, ISO threads, Cable entry from Bottom, With Internal and External Earth Lugs, Surface mounted (on stand), one outlet (to be Supplied Complete With Mounting Box), Explosion Proof with Plug, “EXd IIB T3”, min IP55, With built-in Switch (400VAC, 50Hz, 63A), With padlocking facility in “OFF” position, 5Pin(3Phase+N+E) 5 Wires, 2 cable entry (1 stopping Plug, brass nickel plated), Aluminum Material, Gland Size M25 Suitable for armored and lead sheath cable Internal terminals for 5x10 mm² cable CU/XLPE/LC/SWA/PVC,  WS-PR-01 WS-PR-03 WS-PR-05 WS-PR-02 WS-PR-054 | No. | 5 | - | 5 |
|  | **Outdoor Three Phases Junction Box (Hazardous)**  Junction Box, Aluminum or alloy Aluminum Material Enclosure, With Internal & External Earth Lugs, Surface mounted, hazardous Area “EXd IIB T3”, min IP55, 400 VAC 50 Hz, Stainless Steel Nameplate, with Terminals & Required jumper-link, Gland Material Nickel Plated Brass with PVC Shroud, Sealing Washer & lock nut Satiable for Armored & Lead Sheath Cable |  |  |  |  |
| * 4 Way   Incoming & 1Outgoing cable 3x50+25+25 CU/XLPE/LC/SWA/PVC  Outgoing Cable-2: 5x10 CU/XLPE/LC/SWA/PVC  Outgoing cable-3: 3x4 CU/PVC/PVC,  Junction Box tag number: WS-PR-01 WS-PR-03 WS-PR-04 | No. | 3 | - | 3 |
| * 3 Way, Incoming cable 3x50+25+25 CU/XLPE/LC/SWA/PVC   Outgoing cable-1: 5x10 CU/XLPE/LC/SWA/PVC  Outgoing cable-2: 3x4 CU/PVC/PVC  Outlet socket including Junction Box tag number  WS-PR-02 WS-PR-05 | No. | 2 | - | 2 |
|  | **Outdoor Single Phase Socket Outlet with 2 Way Junction Box (Hazardous)**   * Welding Outlets, ISO threads, Cable entry from Top, With Internal and External Earth Lugs, Surface mounted, one outlet (To be Supplied Complete With Mounting Box), Explosion Proof with Plug, “EXd IIB T3”, min IP55, With built-in 2 pole Switch (230VAC, 50Hz, 16A), With padlocking facility in “OFF” position, 3Pin (1Phase+N+E) 3 Wires, 2 cable entry (1 stopping Plug, brass nickel plated), Gland Size M20 Suitable for armored and lead, sheath cable Internal terminals for 3x4 mm² cable CU/PVC/PVC, Aluminum Material.   Outlet socket tag number  SC-PR-01 SC-PR-02 SC-PR-03 SC-PR-04 SC-PR-05 | No. | 5 | - | 5 |
| * Junction Box, Aluminum or alloy Aluminum Material enclosure, With Internal and External Earth Lugs, Surface mounted, hazardous Area “EXd IIB T3”, min IP55, 230 VAC 50 Hz, Stainless steel nameplate, 2 Way, Incoming cable 3x4 CU/PVC/PVC, Outgoing cable-1: 3x4 CU/PVC/PVC, with terminals, Gland material Nickel plated brass with PVC shroud, sealing washer & lock nut   Junction Box tag number  SC-PR-01 SC-PR-02 SC-PR-03 SC-PR-04 SC-PR-05 | No. | 5 | - | 5 |
|  | **Outdoor Three Phases Socket Outlets with 3 Way Junction Box (Safe Area)**   * Welding Outlets, ISO threads, Cable entry from Bottom, With Internal and External Earth Lugs, Surface mounted, one outlet (to be Supplied Complete With Mounting Box), Weather Proof, min IP55, With built-in Switch (400VAC, 50Hz, 63A), With padlocking facility in “OFF” position, 5Pin (3Phase+N+E) 5 Wires, 2 cable entry (1 stopping Plug, brass nickel plated), Gland Size M25 Suitable for armored and lead, sheath cable Internal terminals for 5x10 mm² cable CU/XLPE/LC/SWA/PVC, Aluminum Material.   Outlet Socket Tag Number  WS-UT-01 WS-UT-02 | No. | 2 | - | 2 |
| * Junction Box, Aluminum or alloy Aluminum Material enclosure, With Internal & External Earth Lugs, Surface mounted, safe Area, min IP55, 400 VAC 50 Hz, Stainless Steel Nameplate, 3way, Incoming cable 3x50+25+25 CU/XLPE/LC/SWA/PVC, Outgoing cable-1: 5x10 CU/XLPE/LC/SWA/PVC, Outgoing cable-2: 3x4 CU/PVC/PVC, with terminals & required jumper-link, Gland material Nickel Plated Brass with PVC Shroud, Sealing Washer & Lock nut satiable for armored & lead sheath cable   Junction Box Tag Number  WS-UT-01 WS-UT-02 | No. | 2 | - | 2 |
|  | **Outdoor Single Phase Socket Outlet with 2 Way Junction Box (Safe Area)**   * Welding Outlets, ISO threads, Cable entry from Top, With Internal and External Earth Lugs, Surface mounted, one outlet (To be Supplied Complete With Mounting Box), Weather Proof, min IP55, with Plug, With built-in 2 pole Switch (230VAC, 50Hz, 16A), With padlocking facility in “OFF” position, 3Pin (1Phase+N+E) 3 Wires, 2 cable entry (1 stopping Plug, brass nickel plated), Gland Size M20 Suitable for armored and lead, sheath cable Internal terminals for 3x4 mm² cable CU/PVC/PVC, Aluminum Material.   Outlet Socket Tag Number  SC-UT-01 SC-UT-02 | No. | 2 | - | 2 |
| * Junction Box, Aluminum or alloy Aluminum Material enclosure, With Internal and External Earth Lugs, Surface mounted, hazardous Area “EXd IIB T3”, min IP55, 230 VAC 50 Hz, Stainless steel nameplate, 2 Way, Incoming cable 3x4 CU/PVC/PVC, Outgoing cable 1: 3x4 CU/PVC/PVC,   with terminals, Gland material Nickel plated brass with PVC shroud, sealing washer & lock nut Junction Box Tag Number  SC-UT-01 SC-UT-02 | No. | 2 | - | 2 |
|  | **Outdoor Fluorescent Lighting Fixtures (Safe Area)**   * Fluorescent 1x18w, Pole Mounted, 230V, 50HZ, Weather Proof min IP55, With Lamp, Terminal and Poly Carbonate Cover or Glass Cover, Dust & Moisture Proof PC Diffuser, Enclosure With Painted Metal Material, With Starter and Electronic Ballast (High Power Factor>=0.9, Rapid Start With A2 Energy Class), Heat Resistant Internal Wiring (PH+N+E) & Required Accessories for Installation, Suitable Cable Gland for 3x2.5mm² CU/PVC/PVC   FLC-UT-F1/01 FLC-UT-F4/04 FLC-UT-F5/02 FLC-UT-F5/07  FLC-UT-F1/02 FLC-UT-F4/05 FLC-UT-F5/03 FLC-UT-F2/01  FLC-UT-F4/01 FLC-UT-F4/06 FLC-UT-F5/04 FLC-UT-F3/01  FLC-UT-F4/02 FLC-UT-F4/07 FLC-UT-F5/05  FLC-UT-F4/03 FLC-UT-F5/01 FLC-UT-F5/06 | No. | 18 | 2 | 20 |
|  | **Single Phase Junction Box for lighting (Safe Area)**  Junction Box, Aluminum or alloy Aluminum Material enclosure, with min 2 points for support installation on the back side of Junction box Body, With Earth Bar & Required Accessories for Installation, Weather Proof, min IP55. | No. |  |  |  |
| 3 Way  Incoming cable 3x2.5 CU/PVC/PVC Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  FLC-UT-F4/02 FLC-UT-F5/02  FLC-UT-F4/03 FLC-UT-F5/03  FLC-UT-F4/04 FLC-UT-F5/04  FLC-UT-F4/05 FLC-UT-F5/05  FLC-UT-F4/06 FLC-UT-F5/06 | No. | 10 | 2 | 12 |
| 3 Way  Incoming Cable: 3x6 CU/XLPE/SWA/PVC Outgoing Cables 1&2: 3x2.5 CU/PVC/PVC,  Junction Box Tag Number:  FLC-UT-F1/01 FLC-UT-F4/01 FLC-UT-F5/01 | No. | 3 | - | 3 |
| 2 Way  Incoming Cable: 3x6 CU/XLPE/SWA/PVC Outgoing Cable: 3x2.5 CU/PVC/PVC,  Junction Box Tag Number:  FLC-UT-F2/01 FLC-UT-F3/01 | No. | 2 | - | 2 |
| 2 Way  Incoming Cable 3x2.5: CU/PVC /PVC Outgoing Cable: 3x2.5 CU/PVC/PVC  Junction Box tag number:  FLC-UT-F1/02 FLC-UT-F4/07 FLC-UT-F5/07 | No. | 3 | - | 3 |
|  | **Pole to Mount on Hand Rail**  For 1x18 Fluorescent Lighting Fixtures, Hot Dip Galvanize Steel Pipe, , & the Height of Vertical Part Shall be 2000m & Horizontal Part (arm) 850, Completed with 2 U-Type Bolt (M8) for Support Pipe, Nut & Washer & Full Accessories. Thickness 2mm. | No. | 18  +  47 | 5 | 70 |
|  | **Bracket to Mount on Concrete Column or Steel Structure**  For 1x18 Fluorescent Lighting Fixtures, Hot dip Galvanize Steel Pipe, , & the Height of Vertical Part shall be 500m & Horizontal Part (arm) 850, Completed with 2 U-Type Bolt (M8) for Support Pipe, Nut & Washer & Full Accessories. Thickness 2mm. | No. | 18 | 2 | 20 |
|  | **Outdoor Fluorescent Lighting Fixtures (Hazardous)**  Fluorescent 1x18w, Pole Mounted, 230V, 50HZ, Explosion Proof with Plug, “EXd IIB T3”, min IP55, With Lamp, Terminal and Poly Carbonate Cover or Glass Cover, Dust & moisture Proof PC Diffuser, Enclosure With Painted Metal Material, With Starter and Electronic Ballast (High Power Factor>=0.9, Rapid Start With A2 Energy Class), Heat Resistant Internal Wiring (PH+N+E) and Required Accessories for Installation, Suitable Cable Gland for 3x2.5mm² CU/PVC/PVC | No. | 65 | 5 | 70 |
|  | **Single Phase Junction Box for Lighting (Hazardous)**  Junction Box, Aluminum or alloy Aluminum Material enclosure, with min 2 points for support installation on the back side of junction box body, with earth bar and required accessories for installation, Explosion Proof, “EXd IIB T3”, min IP55. |  |  |  |  |
| 4 Way:  Incoming Cable: 3X6mm2, CU/XLPE/LC/SWA/PVC  Outgoing Cable 1&2: 3X6mm2, CU/XLPE/LC/SWA/PVC  Outgoing cable 3: 3X2.5mm2, CU/PVC/PVC | No. | 2 | - | 2 |
| 3 way  Incoming Cable: 3X6mm2 CU/XLPE/LC/SWA/PVC  Outgoing Cable 1&2: 3X2.5mm2, CU/PVC/PVC | No. | 15 | 2 | 17 |
| 3 way  Incoming & Outgoing Cable: 3X2.5mm2, CU/PVC/PVC | No. | 40 | 3 | 43 |
| 2 way  Incoming & Outgoing Cable: 3X2.5mm2, CU/PVC/PVC | No. | 8 | - | 8 |

| **MTO FOR SHELTERs LIGHTING** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **ITEM No.** | **DESCRIPTION** | **Unit** | **QTY** | **Spare** | **Total**  **Qty** |
|  | **Lighting Fixture for Shelters with Junction Box (Safe Area)**   * 250W Metal Halid High-Bay, Suspended Ceiling Mounted with Chain & Required Mounting Accessories, Weather (Dust & Moisture) Proof, IP 65, High Power Factor with Ballast, with Stripped anodized Copper Free aluminum reflector with guard, 230V, 50Hz, M20 Entry, terminal size suitable for cable 3x2.5 mm² CU/PVC/PVC with Grounding Terminal, Internal Wiring.   High Bay Lighting Fixture Tag Number: E-HB-01 ~12 | No. | 12 | 2 | 14 |
| * Junction Box, Aluminum or alloy Aluminum Material enclosure, with min 2 points for support installation on the back side of junction box body, with earth bar and required accessories for installation, weather proof, min IP55. |  |  |  |  |
| 3 Way  Incoming cable 3x4 CU/XLPE/SWA/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  E-HB-01 E-HB-09 | No. | 2 | - | 2 |
| 3 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  E-HB-02~07 E-HB-10~11 | No. | 8 | 2 | 10 |
| 2 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  E-HB-02~08 E-HB-10~12 | No. | 2 | - | 2 |
|  | **Push Button for Shelters (Safe Area)**   * On/Off Push Button Switch, Single Button & Spring Return Type, IP55, Surface Mounted, Cable Entry M20,   Incoming cable: 3x4 CU/XLPE/SWA/PVC  Outgoing cable:: 3x2.5 CU/PVC/PVC, | No. | 2 | - | 2 |
|  | **Lighting Fixture for Shelters with Junction Box (Hazardous)**   * 250W Metal Halid High-Bay, Suspended Ceiling Mounted with Chain & Required Mounting Accessories, EXd IIB T3, min IP 55, High Power Factor with Ballast, with Stripped anodized Copper Free aluminum reflector with guard, 230V, 50Hz, M20 Entry, terminal size suitable for cable 3x2.5 mm² CU/PVC/PVC with Grounding Terminal, Internal Wiring.   High Bay Lighting Fixture Tag Number:  N-HB-01 ~12 E-HB-01 ~08 | No. | 20 | 2 | 22 |
| * Junction Box, Aluminum or alloy Aluminum Material enclosure, With Internal and External Earth Lugs, Surface mounted, hazardous Area “EXd IIB T3”, min IP55, 230 VAC 50 Hz, Stainless steel nameplate, with terminals, Gland material Nickel plated brass with PVC shroud, sealing washer & lock nut |  |  |  |  |
| 3 Way  Incoming cable 3x4 CU/XLPE/SWA/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC  Junction Box tag number:  N-HB-01 N-HB-05 N-HB-09  E-HB-01 E-HB-05 E-HB-07 E-HB-09 | No. | 7 | 1 | 8 |
| 3 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-HB-02~03 N-HB-06~07 N-HB-10~11 | No. | 6 | 1 | 7 |
| 2 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-HB-04 N-HB-08 N-HB-12  E-HB-02 E-HB-04 E-HB-06 E-HB-08 | No. | 7 | - | 7 |
|  | **Push Button for Shelters (Hazardous)**   * On/Off Push Button Switch, Single Button & Spring Return Type, IP55, Surface Mounted, Cable Entry M20,   Incoming cable: 3x4 CU/XLPE/SWA/PVC  Outgoing cable:: 3x2.5 CU/PVC/PVC, | No. | 2 | - | 2 |

| **MTO FOR EXTENDED SWITCHGEAR LIGHTING** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **ITEM No.** | **DESCRIPTION** | **Unit** | **QTY** | **Spare** | **TOTAL**  **QTY** |
|  | **Indoor Fluorescent Lighting Fixtures with Junction Box (Safe Area)**   * Suspended Ceiling Mounted, Fluorescent Lighting Fixture with Lamp & Terminal, 2x36w, 230V, 5oHz, Anodized with Louver, Enclosure with Painted Metal Material, with starter & Electronic Ballast (High Power Factor>=0.9, rapid start), Heat Resistant Internal Wiring (PH+N+E) & required accessories for installation, suitable cable gland for 3x2.5 mm² CU/PVC/PVC   Tag Number: N-FLC-01~08 | No. | 8 | - | 8 |
| Junction Box, Aluminum or alloy Aluminum Material enclosure, with min 2 points for support installation on the back side of junction box body, with earth bar and required accessories for installation, IP42 |  |  |  |  |
| 3 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-FLC-01~03 N-FLC-05~07 | No. | 6 | - | 6 |
| 2 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-FLC-04 N-FLC-08 | No. | 2 | - | 2 |
|  | **Outdoor Fluorescent Lighting Fixtures with Junction Box (Safe Area)**   * Suspended Ceiling Mounted, Fluorescent Lighting Fixture with Lamp & Terminal, 2x36w, 230V, 5oHz, Weather Proof, IP 55, Enclosure with Painted Metal Material, with starter & Electronic Ballast (High Power Factor>=0.9, rapid start), Heat Resistant Internal Wiring (PH+N+E) & required accessories for installation, Suitable Cable Gland for 3x2.5 mm² CU/PVC/PVC   Tag Number: N-FLC-09~10 | No. | 2 | - | 2 |
| Junction Box, Aluminum or alloy Aluminum Material Enclosure, with min 2 points for Support Installation on the Back Side of Junction Box Body, with Earth bar & Required Accessories for Installation, Weather Proof, IP55 |  |  |  |  |
| 3 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable1&2: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-FLC-01~03 N-FLC-05~07 | No. | 8 | - | 8 |
| 2 Way  Incoming cable: 3x2.5 CU/PVC/PVC  Outgoing cable: 3x2.5 CU/PVC/PVC,  Junction Box tag number:  N-FLC-09~10 IL-03 IL-06 IL-09 IL-12 | No. | 6 | - | 6 |
|  | **Outdoor Incandescent Lighting Fixtures with Junction Box (Safe Area)**   * Wall Mounted, 1x18w, 230V, Painted Metal Material with Diffuser Cover & Terminal, Weather Proof, IP55, Suitable Cable Gland for 3x2.5mm² CU/PVC/PVC, | No. | 12 | - | 12 |
|  | **Single Phase Outlet Socket with Junction Box (Safe Area)**   * Socket Outlet Power 230V, 16A, 50Hz, (1Ph+N+PE), Surface Mounted, Water Proof, IP55, for Non-Armored Type Cable Gland, | No. | 4 | - | 4 |
| * Junction Box, Aluminum or alloy Aluminum Material Enclosure, with min 2 points for Support Installation on the Back Side of Junction Box Body, with Earth bar & Required Accessories for Installation, Water Proof, IP55 |  |  |  |  |
| 3 Way  Incoming cable: 3x4 CU/PVC/PVC  Outgoing cable1&2: 3x4 CU/PVC/PVC, | No. | 3 | - | 3 |
| 2 Way  Incoming cable: 3x4 CU/PVC/PVC  Outgoing cable: 3x4 CU/PVC/PVC, | No. | 1 | - | 1 |
|  | **Industrial Single Pole Switch**   * Single Pole Switch 230V, 50Hz, Indoor, IP42, 10A, Surface Mounted, Non-Armored Cable 3x2.5mm² CU/PVC/PVC | No. | 2 | - | 2 |
|  | **Industrial Single Pole Switch**   * Single Pole Switch 230V, 50Hz, Outdoor, Weather Proof, IP55, 10A, Surface Mounted, Non-Armored Cable 3x2.5mm² CU/PVC/PVC | No. | 6 | - | 6 |

Reference Document:

1. Typical Installation Details & Notes for Lighting System (BK-GNRAL-PEDCO-000-EL-DW-0003)
2. Area Lighting & Small Power Layout (BK-GCS-PEDCO-120-EL-PY-0003)
3. Electrical Power & Control Cable Schedule (BK-GCS-PEDCO-120-EL-LI-0002)
4. Distribution and Lighting Panels Single Line Diagram (BK-GCS-PEDCO-120-EL-SL-0004)
5. Lighting & Small Power Layout for Building & Shelter (BK-GCS-PEDCO-120-EL-PY-0004)