CONSTRUCTION OF AN EFFLUENT WATER PUMP BACK SYSTEM THAT WILL COLLECT WASTEWATER FROM FISH REARING PONDS AND PUMP IT BACK INTO LAKE DIVERSION; INCLUDES THE FOLLOWING:

(A) 24" FUSIBLE PVC GRAVITY MAIN
(B) JUNCTION STRUCTURES
(C) PUMP STATION
(D) 16" FORCE MAIN
(E) DISCHARGE IN LAKE DIVERSION

INDEX OF DRAWINGS

SCOPE OF WORK

BUILDING CODE SUMMARY

INDEPENDENT CERTIFICATION

TPWD TEAM

TPWD DESIGN TEAM

TPWD ENGINEER

BGE, INC.

PARK AND WILDLIFE

INFRASTRUCTURE DIVISION

4200 SMITH SCHOOL ROAD  AUSTIN, TEXAS 78744-3292

G-01

SET NO.
### TAG NUMBER SCHEDULES

<table>
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<tr>
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### INDEX 1 OF 3

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**Legend**
- **Sheet Title:** Dundee Fish Hatchery Water Reuse - Effluent Pump Back
- **Sheet Number:** 5 of 70
- **TPWD No.:** 1110061
- **Position:** 3 of 3
- **BGE, Inc. TBPE Registration No.:** F-1046
- **Website:** www.bgeinc.com
- **Contact:** 469-621-3200

**Temporary Pipe 01**
- **1110061-G-02A:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02B:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02C:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02D:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02E:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02F:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02G:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02H:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02I:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02J:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns

**Temporary Pipe 02**
- **1110061-G-02K:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02L:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02M:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02N:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02O:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02P:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02Q:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02R:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
- **1110061-G-02S:** 100 ft, 50 diam, 0.25 wall thickness, D-0.125 cap, 30841 specns
1. **Conduit Pipe**
- Diameter: 8" (203 mm)
- Elevation: 12" (305 mm)
- Length: 12' (3600 mm)

2. **Manhole Detail**
- Diameter: 8" (203 mm)
- Elevation: 12" (305 mm)
- Length: 12' (3600 mm)

3. **Concrete Pipe Support Detail**
- Diameter: 8" (203 mm)
- Elevation: 12" (305 mm)
- Length: 12' (3600 mm)

4. **Note:**
- All concrete shall be C250 (6000 psi) Portland cement concrete.
1. The sloping of the sides of the dam should be constructed so that the horizontal surface on the crest of the dam shall be parallel to the horizontal surface on the toe of the dam.

2. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

3. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

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6. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

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9. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

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15. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

16. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

17. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

18. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

19. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.

20. The aggregate shall extend to a depth of at least 18 inches from the top of the dam and shall be at least 2 feet from the side of the dam.
ELEVATION VIEW
CONSTRUCTION EXIT TYPE 1
ROUGH CONSTRUCTION (LONG TERM)

ELEVATION VIEW
CONSTRUCTION EXIT TYPE 2
TINDER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 2)
1. The length of the type 2 construction exit shall be as indicated on the plan, but not less than 20 ft.
2. The approach ramp shall be located 3 ft from the type 2 construction exit.
3. The approach ramp shall be no steeper than 2:1 and shall be constructed of steel.
4. The approach ramp shall be no more than 3 ft wide and shall be covered with a minimum of 2-20 ft.
5. The approach ramp shall be constructed of steel.
6. The approach ramp shall be covered with a minimum of 2-20 ft.
7. The approach ramp shall be covered with a minimum of 2-20 ft.

GENERAL NOTES (TYPE 3)
1. The length of the type 3 construction exit shall be as indicated on the plan, but not less than 20 ft.
2. The approach ramp shall be located 3 ft from the type 3 construction exit.
3. The approach ramp shall be no steeper than 2:1 and shall be constructed of steel.
4. The approach ramp shall be no more than 3 ft wide and shall be covered with a minimum of 2-20 ft.
5. The approach ramp shall be constructed of steel.
6. The approach ramp shall be covered with a minimum of 2-20 ft.
7. The approach ramp shall be covered with a minimum of 2-20 ft.

TEMPORARY EROSION, SEDIMENT, AND WATER POLLUTION CONTROL MEASURES
CONSTRUCTION EXITs
EC-3(3)-16

DUNDEE FISH HATCHERY
TPWD No. 1110061
WATER REUSE - EFFLUENT PUMP BACK

70
2700 North Pearl Street, Suite 2100
BGE, Inc.
6100
Dallas, TX 75201
TBPE Registration No. F-1046
Tel: 469-621-3200
● www.bgeinc.com

A
B
C
D
E

F-1046
C-21
EROSION CONTROL
SHEET 3 OF 5
1110061-C-24
27
**GENERAL NOTES:**

1. Erosion control logs shall be installed in accordance with manufacturer's recommendations, or as specified by the designer.

2. Erosion control logs shall be used in accordance with manufacturer's recommendations and as specified by the designer.

3. Unless otherwise specified, use high-quality, durable concrete for erosion control logs. All logs shall be placed as specified by the designer.

4. Full length and integrity of concrete for erosion control logs shall be maintained in accordance with the manufacturer's specifications.

5. Erosion control logs shall be placed on top of the log to ensure proper installation and placement.

6. Temporary erosion control logs shall be placed as specified by the designer.

7. Erosion control logs shall be placed as specified by the designer.

8. All temporary erosion control logs shall be placed as specified by the designer.

9. Erosion control logs shall be placed as specified by the designer.

10. Erosion control logs shall be placed as specified by the designer.

**DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS**

**SECTION A-B**

**Erosion Control Log at Back of Curb**

**SECTION C-D**

**Erosion Control Log at Edge of Right-of-Way**

**SEEDING BAND & MEASUREMENT OUTLINES**

- Seed bands shall be placed as specified in the plans.

- Seed bands shall be placed as specified in the plans.

- Seed bands shall be placed as specified in the plans.

**LEGEND**

- Erosion Control Log Dam
- Erosion Control Log at Back of Curb
- Erosion Control Log at Edge of Right-of-Way
- Erosion Control Logs on Slopes: State and Trenching Anchoring
- Erosion Control Logs on Slopes: State and Lashing Anchoring
- Erosion Control Log at Drop Inlet
- Erosion Control Log at Curb Inlet
- Erosion Control Log at Curb & Drain Inlet
**Structural Notes**

**Location:**

- **The contractor shall comply with the following structural design criteria:**
  - **The general building code used as the basis for the structural design is as follows:**
    - **International Building Code, 2013 Edition**
  - **Building Code Requirements for Reinforced Concrete:** American Concrete Institute (ACI) 318
  - **Building Code Requirements for Environmental Engineering Concrete Structures:** American Concrete Institute (ACI) 301
  - **Building Code Requirements for Structural Steel:** American Institute of Steel Construction (AISC)
  - **Building Code Requirements for Cold-formed Thin-Wall Structural Steel Design:** American Iron and Steel Institute (AISI)
  - **Building Code Requirements for Masonry Structures:** American National Standards Institute (ANSI)/American Concrete Institute (ACI) 530
  - **Building Code Requirements for Structural Fire Protection:** National Fire Protection Association (NFPA) 220
  - **Building Code Requirements for Structural Timber:** National Forestry Service (NFS) 220

**Structural Design:**

- **Loads:**
  - **Dead Loads:**
    - Ceiling and Mechanical at Roof: 10 psf
    - Floor and Mechanical at Floors: 10 psf
    - Mechanical at Floors: 50 psf
  - **Live Loads:**
    - Overhead crane: 100 psf
    - Electric Room: 100 psf, 2,000 sf/GMP ft
  - **Roof Snow Load:**
    - 20 N/sq m
  - **Roof Live Load:**
    - 20 psf

**Pressure:**

- **Pressures for tributary area of the building calculated for the roof are as follows:**
  - Positive pressures: 0 psf
  - Negative pressures: 0 psf

**Foundation:**

- **Foundation Type:**
  - Wood post foundation:
    - Posts 10 feet (3 m)
    - Spacing 6 feet (1.8 m)

**Exterior Walls:**

- **Insulation:**
  - R-25 in R-19 in

**Roof:**

- **Roof Type:**
  - 2,000 square feet (185 square meters)
  - 2,000 cubic feet (56.8 cubic meters)

**Fire Protection:**

- **Fire Rating:**
  - 90 minutes

**Materials:**

- **Materials:**
  - Wood: 2x6
  - Steel: 1/4" thick

**Electrical:**

- **Electrical System:**
  - 208 volt-3 phase-4 wire

**Mechanical:**

- **Mechanical System:**
  - Heating: forced air
  - Cooling: central air

**Construction:**

- **Construction Schedule:**
  - Start: January 1, 2013
  - Completion: December 31, 2013

**Safety:**

- **Safety Measures:**
  - Hard hats required
  - Steel-toed shoes required

**Access:**

- **Access Control:**
  - Access restricted to authorized personnel only

**Site Conditions:**

- **Site Conditions:**
  - Level site
  - Soil type: clay

**Environmental Impact:**

- **Environmental Impact:**
  - Minimal impact

**Permits:**

- **Permits:**
  - Zoning permit
  - Building permit

**Contractor:**

- **Contractor:**
  - John P. Johnson, Contractor

**Consultants:**

- **Consultants:**
  - Structural Engineer: ABC Engineering
  - Architect: DEF Architects
### SPECIAL INSPECTION TABLES FOR STRUCTURAL ELEMENTS - 2015

#### SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH CHAPTER 17.C. OF THE 2016 INTERNATIONAL BUILDING CODE BY A SPECIAL INSPECTOR LICENSED IN THE STATE TO PERFORM THE SPECIAL INSPECTIONS. THE SPECIAL INSPECTOR SHALL BE QUALIFIED BY AN APPROVED AND ACCREDITED INSTITUTE AND SPECIFIED IN AS 3610-10. SPECIAL INSPECTIONS ARE REQUIRED TO BE PERFORMED ON THE FOLLOWING STRUCTURAL ELEMENTS ONLY.

<table>
<thead>
<tr>
<th>SPECIAL INSPECTION REQUIRED</th>
<th>VERIFICATION AND INSPECTION</th>
<th>INSPECTION FREQUENCIES</th>
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#### VERIFICATIONS AND INSPECTIONS TO BE PERFORMED AT CHECK INSTRUCTIONS

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<tr>
<td>A. INSPECTORS SHALL RECORD THE RESULTS OF THE INSPECTION IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.</td>
<td>AS 3610-10 Table 6.A.1</td>
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</table>

#### WELDING PROCEDURES

1. WELDING PROCEDURES TO BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE SHALL BE AS PERMITTED UNDER THE WELDING PROCEDURE SPECIFICATIONS PERMITTED BY THE SPECIAL INSPECTORS.

#### WELDING EQUIPMENT

1. WELDING EQUIPMENT SHOULDN'T BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE until it has been approved by the special inspector.

#### WELDING TECHNIQUES

1. WELDING TECHNIQUES SHOULDN'T BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE until it has been approved by the special inspector.

#### WELDING QUALITY CONTROL

1. WELDING QUALITY CONTROL SHOULDN'T BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE until it has been approved by the special inspector.

#### WELDING INTERMITTENT TESTING

1. WELDING INTERMITTENT TESTING SHOULDN'T BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE until it has been approved by the special inspector.

#### SPECIAL INSPECTION REQUIREMENTS

1. SPECIAL INSPECTION REQUIREMENTS SHOULDN'T BE USED FOR THE STRUCTURAL ELEMENTS MENTIONED ABOVE until it has been approved by the special inspector.

#### SPECIAL INSPECTION FOR THE ENSUREMENT OF THE INSPECTION

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## SPECIAL INSPECTION TABLES FOR STRUCTURAL ELEMENTS - 2015

### SYMBOLS LEGEND

- **BEAM SIZE**
- **NO OF STUDS**
- **COMPOSITE FLOOR BEAM**
- **REACTION (SERVICE LOAD)**
- **PER TIE PLATE**
- **CONCRETE PIER**
- **STEEL COLUMN**
- **CONCRETE COLUMN**
- **STEEL PLATE**
- **TIE PLATE**
- **CONCRETE WALL**
- **STEEL BEAM SPOKE**
- **STEEL BEAM SPRING**
- **STEEL CENTER**
- **STEEL CONNECTOR**
- **STEEL PLATE**

### SPECIAL INSPECTION TABLES FOR STRUCTURAL ELEMENTS

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<td>30&quot;</td>
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<td>PANEL</td>
<td>Concrete</td>
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<td>12'-0&quot;</td>
<td>ACI 318</td>
</tr>
<tr>
<td>GIRDER</td>
<td>Steel</td>
<td>3'-0&quot;</td>
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<td>AISC 360</td>
</tr>
</tbody>
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### SPECIAL INSPECTION REQUIREMENTS

- **Inspection Required**
- **Inspection Conducted**
- **Inspection Passed**
- **Inspection Failed**

### SPECIAL INSPECTION TABLES FOR STRUCTURAL ELEMENTS

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JUNCTION STRUCTURE NOTES:

1. Gate mounting wall thimble to be 'F' type for gates GL1-08B-NA-JS, GL1-01B-NA-JS, and AT1-01B-NA-JS.

2. Gate mounting wall thimble to be 'E' type with extended circular opening for gates GL1-08A-NA-JS, GL1-01A-NA-JS, and AT1-01A-NA-JS.

3. Wall thimble flange to be connected to fusible PVC pipe by 24" EBAA iron 2100 megaflange or approved equal.

4. Wall thimble flange to be connected to steel pipe by Victaulic style 741 flange adapter or approved equal.

BACKFLUSHING ATTACHMENTS

W/QUICK DISCONNECT

AIR RELEASE VALVE

BLOW OFF VALVE

INLET VALVE

2" AIR RELEASE VALVE

TYP CABLE HOLDER ASSEMBLY

TYP PUMP LIFTING & CABLED DETAIL

ADJUSTABLE PIPE SUPPORT

PUMP POWER & CONTROL

CABLE SUPPORT

STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT

STAINLESS STEEL CHAIN, LENGTH AS REQUIRED.

PUMP GUIDE LOCATION

CABLE HOLDER LOCATION

2" WIRE GEDNEY GSBE SEAL

ELEC CONDUITS, SEE ELEC DWGS

CONDUITS W/FIELD CUT THREADS

STAINLESS STEEL CHAIN SLING, LENGTH AS REQUIRED.

LOOP ANY EXCESS CABLE AROUND HOIST HOOK PROVIDED ON CABLE HOLDER (EXCESS CABLE NOT SHOWN LOOPED)

STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT

PUMP GUIDE LOCATION

PUMP GUIDE LOCATION

ADJUSTABLE PIPE SUPPORT ASSEMBLY TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. COLD GALVANIZING COMPOUND TO BE USED AS TOUCH UP AFTER INSTALLATION.

AT CONTRACTOR'S OPTION, THE ADJUSTABLE PIPE SUPPORT MAY BE AN EQUAL PURCHASED PRODUCT AS MANUFACTURED BY ANVIL INTERNATIONAL INC, OR EQUAL.

ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGN WEIGHTS TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS SHOWN IN TABLE A.

PROVIDE A MINIMUM OF ONE ADJUSTABLE PIPE SUPPORT PER PIPE SEGMENT.

CONCRETE WALL

PENETRATING PIPE

(EXTEND INTO WET WELL 3" MAX.)

WATER STOP PIPE COLLAR

FILL WALL CAVITY WITH NON-SHRINK GROUT

WET WELL WALL PENETRATION

1'-6" 3/8"Ø TYPE 316 SS CONC ANCHOR BOLTS & HARDWARE W/ MIN 6" EMBEDMENT.

SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.

1/2" THK SS PLATE

TYP CABLE HOLDER ASSEMBLY

TYP ADJUSTABLE PIPE SUPPORT

PUMP tip 860

STAINLESS STEEL CABLE HOLDER, SEE DETAIL THIS SHEET.

MOUNT TO WALL OF WET WELL (PER HANGER DETAIL) AS SHOWN.

OZ GEDNEY GSBE SEAL

ELEC CONDUITS, SEE ELEC DWGS

CONDUITS W/FIELD CUT THREADS

LOOP ANY EXCESS CABLE AROUND HOIST HOOK PROVIDED ON CABLE HOLDER (EXCESS CABLE NOT SHOWN LOOPED)

STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT

PUMP POWER & CONTROL

CABLE SUPPORT

STAINLESS STEEL SPLIT SLEEVE CABLE SUPPORT

PUMP GUIDE LOCATION

PUMP GUIDE LOCATION

ADJUSTABLE PIPE SUPPORT ASSEMBLY TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. COLD GALVANIZING COMPOUND TO BE USED AS TOUCH UP AFTER INSTALLATION.

AT CONTRACTOR'S OPTION, THE ADJUSTABLE PIPE SUPPORT MAY BE AN EQUAL PURCHASED PRODUCT AS MANUFACTURED BY ANVIL INTERNATIONAL INC, OR EQUAL.

ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGN WEIGHTS TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS SHOWN IN TABLE A.

PROVIDE A MINIMUM OF ONE ADJUSTABLE PIPE SUPPORT PER PIPE SEGMENT.

CONCRETE WALL

PENETRATING PIPE

(EXTEND INTO WET WELL 3" MAX.)

WATER STOP PIPE COLLAR

FILL WALL CAVITY WITH NON-SHRINK GROUT

WET WELL WALL PENETRATION

1'-6" 3/8"Ø TYPE 316 SS CONC ANCHOR BOLTS & HARDWARE W/ MIN 6" EMBEDMENT.

SET 1/4" NEOPRENE GASKET ON WALL SURFACE IN SIKA 1A (OR EQUAL) SEALANT.

1/2" THK SS PLATE

TYP CABLE HOLDER ASSEMBLY

TYP ADJUSTABLE PIPE SUPPORT

PUMP tip 860
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<th>DESCRIPTION</th>
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<td>G-B-NK</td>
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<td>F-AMP</td>
<td>FUSE, AMPERE RATING AS NOTED</td>
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<td>I-IND</td>
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<td>NM-NO</td>
<td>CONTACT, NORMALLY OPEN (NO)</td>
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<td>SLP</td>
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<td>KEY INTERLOCK</td>
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<td>VM</td>
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<tr>
<td>AM</td>
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<tr>
<td>WHM</td>
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<td>WHDM</td>
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<tr>
<td>WHDR</td>
<td>WHDR- WATTHOUR DEMAND RECORDER</td>
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<tr>
<td>TRN</td>
<td>TRANSDUCER</td>
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<tr>
<td>TDL</td>
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<tr>
<td>AX-CT</td>
<td>AX- CURRENT TRANSDUCER</td>
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<td>TD</td>
<td>TIME DELAY AFTER DE-ENERGIZATION-OFF DELAY</td>
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<tr>
<td>FVR</td>
<td>FVR-FULL VOLTAGE REVERSING</td>
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<td>2S2W</td>
<td>2S2W-TWO SPEED, TWO WINDING</td>
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<tr>
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<td>51N- TIME OVERCURRENT RELAY, RESIDUAL TYPE</td>
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<td>62</td>
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<tr>
<td>MLI</td>
<td>MOTOR ISOLATION SWITCH, HORSEPOWER RATED</td>
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<td>TB</td>
<td>TEMPERATURE SWITCH OR THERMOSTAT</td>
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<td>KB</td>
<td>K FACTOR OF 13.</td>
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<tr>
<td>LC</td>
<td>LIQUID LEVEL (FLOAT) SWITCH</td>
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<td>ST</td>
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<tr>
<td>T</td>
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<tr>
<td>X</td>
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<tr>
<td>BV</td>
<td>B- SUFFIX INDICATES &quot;BUS&quot;</td>
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<td>ADJUSTABLE FREQUENCY</td>
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<td>POWER TRANSMITTER</td>
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<tr>
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<td>RESISTANT FREQUENCY INTERRUPTER</td>
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<tr>
<td>FOB</td>
<td>FUSE OPEN-CIRCUIT BREAKER</td>
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<tr>
<td>BOC</td>
<td>BLOW-OFF CIRCUIT</td>
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<tr>
<td>CBO</td>
<td>CONTACT BLOW-OFF</td>
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<tr>
<td>RFO</td>
<td>REACTOR OPEN-CIRCUIT BREAKER</td>
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<td>REI</td>
<td>REACTOR SHORT-CIRCUIT INTERRUPTER</td>
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<tr>
<td>MLI</td>
<td>MOTOR ISOLATION SWITCH</td>
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<tr>
<td>NR</td>
<td>THERMAL RELAY</td>
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</tbody>
</table>
| NF | SENSIBLE AIR 

**NOTES:**
- **K** indicate instrument type defined on loop sheets.
- **##** - Indicates loop no.
- **-** Indicates bus or other group.
- **-** Indicates the presence of conductors or conduits crossing paths but not electrically connected.
FOR EQUIPMENT SUCH AS MOTOR CONTROL CENTER, SWITCHGEAR, VFDS, AND OTHER STAND-ALONE MOTOR STARTER REFER TO DRAWINGS.

NEMA 1 ENCLOSURES ARE TO BE NEMA 1 GASKETED.
CONCRETE ENCASEMENT (TYP.)

ROUGHEN ALL JOINT SURFACES AND APPLY 1 EPOXY BONDING AGENT (TYP.).

CONDUIT ASSIGNED LETTER STROKES TO BE 1/2" WIDE AND 1/4" DEEP IMPRESSED IN CONCRETE CURB WITH DIAMETER AS REQUIRED, \( \frac{1}{8} \)" MIN. HOUSE DIAMETER AS SPECIFIED WITH WATER STOP, SLEEVE ALL CUT EDGES TO BE FILED SMOOTH BY SEAL MANUFACTURER.

NEW CONSTRUCTION MASONRY, CMU, OR CONCRETE BELOW GRADE - WATERSTOP CONDUIT PENETRATION INSTALLATION CONCRETE SLAB BELOW GRADE - WATERTIGHT CONDUIT PENETRATION INSTALLATION.

1. PROVIDE THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.
2. PROVIDE FINAL INSTALLATION LEVEL.
3. PROVIDE THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.
4. CONCEAL CONDUIT PENETRATION THROUGH FLOOR AND EQUIPMENT PAD WITH STRUCTURAL DESIGN.
5. EQUIPMENT PAD SHALL BE \( \frac{3}{16} \)" MORE IN LENGTH THAN THE EQUIPMENT TO BE PLACED, AND \( \frac{3}{16} \)" MORE IN WIDTH THAN THE EQUIPMENT TO BE PLACED, AND IF EQUIPMENT IS PLACED UP AGAINST THE WALL, THERE SHALL NOT BE A 3" GAP BETWEEN THE WALL AND THE EQUIPMENT PAD. IF EQUIPMENT IS PLACED UP AGAINST THE WALL, THERE SHALL NOT BE A 3" GAP BETWEEN THE WALL AND THE EQUIPMENT PAD.

NOTES BY SYMBOL "        ":
1. PROVIDE MIN. 3 INCHES CONCRETE COVER OVER AND SIDE.
2. SELECT FILL TO A MINIMUM OF 2 FT. ABOVE DUCTBANK FLOOR OR SLAB MINIMUM OF 6".
3. REFER TO SPEC SECTION 16600 [26 05 43] FOR ADDITIONAL REQUIREMENTS.
4. REFER TO CONCRETE SPECIFICATIONS FOR MIX DESIGN.
5. RED DYE TO BE MIXED IN CONCRETE BEFORE PLACEMENT.
6. 3"X3" CMU BLOCK TWO ON EACH SIDE MINIMUM TO SUPPORT REBAR CASE PLACED 5'-0" ON CENTER.
7. REBAR EMBEDDED IN EQUIPMENT PAD OR CONCRETE FLOOR MINIMUM OF 6".

SECTION 1

DUCTBANK MARKER DETAIL LOW VOLTAGE CONDUCTORS

DETAIL E02

NOTICE BY SYMBOL "        ":
1. INSTALL AT 90' INTERVALS MAXIMUM OR ONE MARKER BETWEEN EACH MANHOLE OR HAND HOLE.
2. PROVIDE MID-SUPPORT WHERE REQUIRED BY MANUFACTURER.
3. INSTALL AT 90' INTERVALS MAXIMUM OR ONE MARKER BETWEEN EACH MANHOLE OR HAND HOLE.
4. REFER TO CONCRETE SPECIFICATIONS FOR MIX DESIGN.
5. RED DYE TO BE MIXED IN CONCRETE BEFORE PLACEMENT.
6. 3"X3" CMU BLOCK TWO ON EACH SIDE MINIMUM TO SUPPORT REBAR CASE PLACED 5'-0" ON CENTER.
7. REBAR EMBEDDED IN EQUIPMENT PAD OR CONCRETE FLOOR MINIMUM OF 6".

NEW CONSTRUCTION MASONRY, CMU, OR CONCRETE BELOW GRADE - WATERSTOP CONDUIT PENETRATION INSTALLATION CONCRETE SLAB BELOW GRADE - WATERTIGHT CONDUIT PENETRATION INSTALLATION.

1. PROVIDE THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.
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3. PROVIDE THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD.
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NEW CONSTRUCTION MASONRY, CMU, OR CONCRETE BELOW GRADE - WATERSTOP CONDUIT PENETRATION INSTALLATION CONCRETE SLAB BELOW GRADE - WATERTIGHT CONDUIT PENETRATION INSTALLATION.
OUTDOOR MOUNTED SWITCH (UNWIND AREA)

CONCRETE EQUIPMENT PAD

TOP VIEW

OUTDOOR EQUIPMENT MOUNTING (UNWIND AREA)

DETAILED

PLAN

SECTION 1

SECTION 2

NON-ROAD WAY ELECTRICAL HATCHERY (DMS)

EQUIPMENT PADS AS PER STRUCTURAL DETAILS

CONCRETE EQUIPMENT PAD

TOP VIEW

OUTDOOR MOUNTED SWITCH (UNWIND AREA)

DETAILED
GENERAL NOTES:

1. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.

2. THIS SHEET APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGEND SHEETS LICENSED FOR OTHER SHEETS.

3. IN GENERAL, THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON EQUIPMENT AND EQUIPMENT SYMBOLS WHICH HAVE BEEN MADE AS REQUIRED TO ACCOMMODATE THE PROJECT REQUIREMENTS.

4. SOME PROCESS PIPES SUCH AS ASSEMBLY ISOLATION VALVES, DISSIPERS ETC. WHICH ARE NOT CRITICAL FOR UNDERSTANDING THE INSTRUMENTATION AND CONTROL REQUIREMENTS ARE NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER.

5. SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN OR NOT PROVIDED BY THE INSTRUMENTATION SUPPLIER.


HAND SWITCH ABBREVIATIONS:

HR HAND/REMOTE
LM LOCAL/MANUAL
PB PUSHBUTTON
PUMP BACK SYSTEM
RSL RAISE/STOP/LOWER
S/S START/STOP
TBPE Registration No. F-1046
### Meaning of Designation/Letters

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<tr>
<th>First Letter</th>
<th>Second Letter</th>
<th>Meaning</th>
<th>Abbreviation</th>
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<tr>
<td>A</td>
<td>D</td>
<td>ANALOG OUTPUT</td>
<td>AO</td>
<td>READOUT OR PASSIVE</td>
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<td>B</td>
<td>F</td>
<td>BUTTERFLY VALVE</td>
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<td>METHANE</td>
<td>CH4</td>
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<td>D</td>
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<td>DENSITY</td>
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**Legend**

- **Color**: Red (Active Equipment), Green (Equipment Off), White (Power), Blue (Condition: Backwash in Progress)
- **Signs**:
  - 100 = Digit
  - 101 = Digit
  - 102 = Digit
- **Equipment/Loop Tagging**
- **Future Process Line**
- **Existing Process Line**
- **Major Process Line**
- **Alarm Pilot Light**
- **Suffix Letters**

**Notes**

- **MEANINGS OF IDENTIFICATION LETTERS**
- **Preliminary Designation and Symbol**
- **Block Diagram Value Arrangement**
- **Process Line/Bus Signal Crossing**