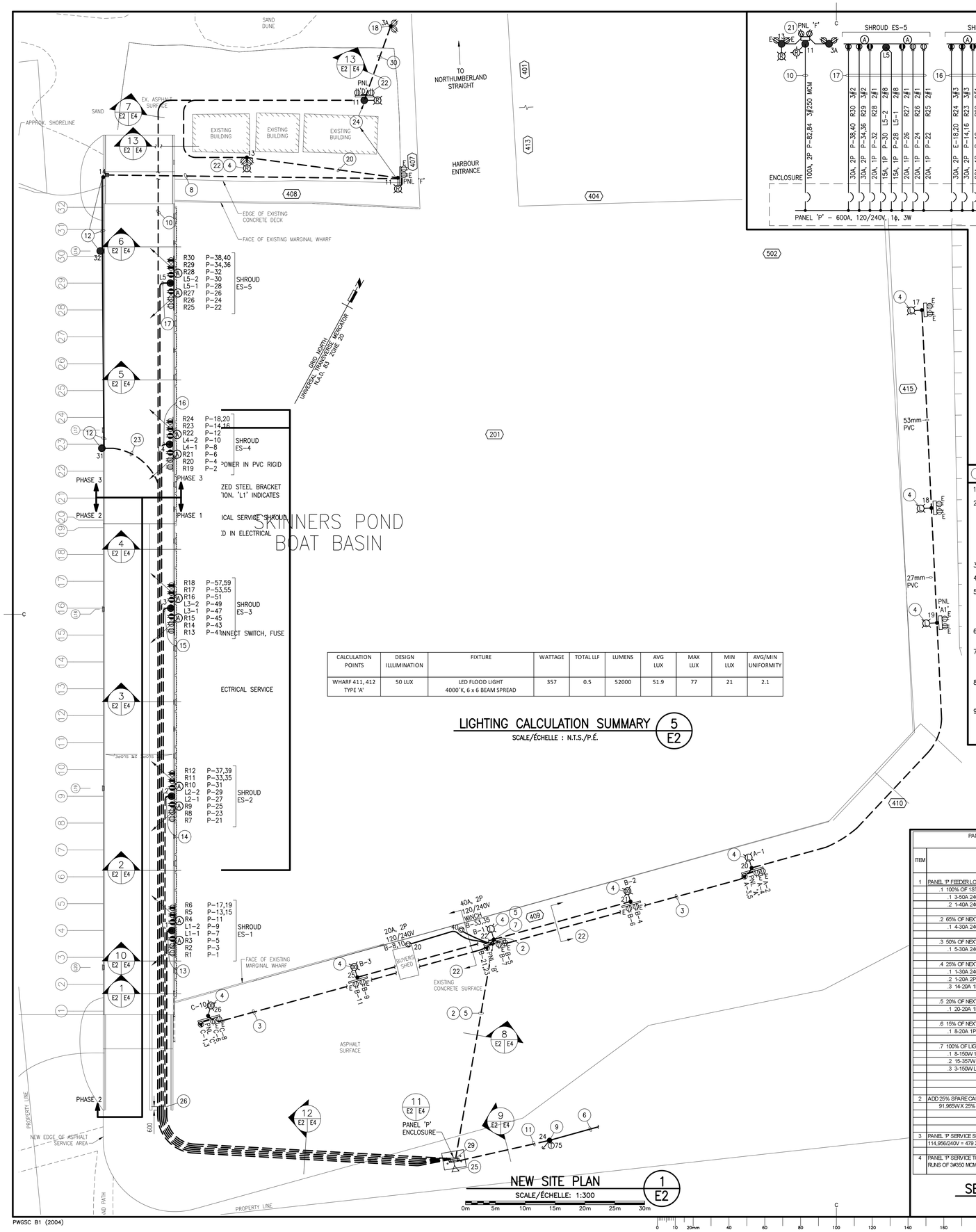


## NEW SITE PLAN (1 / E2)

SCALE/ÉCHELLE: 1:300

## NEW SINGLE LINE POWER RISER DIAGRAM (2 / E2)

SCALE/ÉCHELLE : N.T.S./P.É.

| CALCULATION POINTS | DESIGN ILLUMINATION | FIXTURE | WATTAGE | TOTAL LLF | LUMENS | AVG LUX | MAX LUX | MIN LUX | AVG/MIN UNIFORMITY |
|---|---|---|---|---|---|---|---|---|---|
| WHARF 411, 412 TYPE 'A' | 50 LUX | LED FLOOD LIGHT 4000°K, 6 x 6 BEAM SPREAD | 357 | 0.5 | 52000 | 51.9 | 77 | 21 | 2.1 |

## LIGHTING CALCULATION SUMMARY (5 / E2)

SCALE/ÉCHELLE : N.T.S./P.É.

### NOTES

1. 32mm GALVANIZED STEEL CONDUIT.
2. THREE (3) 53mm PVC CONDUITS TO POLE #22; ONE (1) C/W 3#1 + 1#8 GND TO PANEL 'A', ONE (1) C/W 3#1/0 + 1#6 GND TO PANEL 'B' AND ONE (1) C/W 3#1 + 1#8 GND TO PANEL 'C'. SUPPLY AND INSTALL TWO NEW 300x300X150mm PVC JUNCTION BOXES AT BASE OF POLE 22 TO SPLICE EXISTING FEEDERS TO EXISTING PANEL 'A' AND PANEL 'C'.
3. EXISTING 41mm PVC FOR PANEL FEEDER TO REMAIN.
4. EXISTING LUMINAIRE TO REMAIN.
5. NEW FEEDER/PVC CONDUIT TO BE ROUTED TO POLE #22. EXISTING FEEDER/CONDUIT FROM PANEL 'B' TO BE DISCONNECTED FROM PANEL 'B' AND REFED WITH NEW FEEDER FROM PANEL 'P'.
6. EXISTING M.E.C.L. 7200V 1ϕ 3W O/H POWER LINE TO REMAIN.
7. EXISTING 100A 4 JAW METER BASE AND METER #142264 TO BE REMOVED AND REPLACED WITH JUNCTION BOX FOR NEW PANEL 'P' FEEDER.
8. EXISTING 3#2 RW90 IN 32mm RIGID PVC TO BE REMOVED IN PHASE 3. REMOVE WIRE AND TERMINATE CONDUIT 600mm BELOW GRADE.
9. EXISTING M.E.C.L. 10KVA 7200–120/240V 1ϕ 3W POLE MOUNTED TRANSFORMER TO BE UPGRADED TO 75kVA 7200–120/240V 1ϕ 3W.
10. 3#250 MCM + 1#4 GND RW90 IN 78mm RIGID PVC, 1–78mm RIGID PVC SPARE.
11. 2 RUNS OF 3#350 MCM RW90 COPPER IN 103mm RIGID PVC CONDUIT FROM PANEL 'P' TO POLE 24 C/W WIRE, CONDUIT AND WEATHERHEAD UP POLE TO M.E.C.L. STANDARDS.
12. POLE AND O/H WIRING TO REMAIN DURING PHASE 1 AND 2 FOR SERVICE TO WHARF 407/408. TO BE REMOVED IN PHASE 3.
13. 4#10, 8#4, 6#6 + 1#12 GND RW90 IN 63mm RIGID PVC, 1–63mm RIGID PVC SPARE IN DECK.
14. 4#10, 6#4, 8#3 + 1#12 GND RW90 IN 63mm RIGID PVC, 1–63mm RIGID PVC SPAR IN DECK.
15. 4#8, 8#2, 6#3 + 1#12 GND RW90 IN 63mm RIGID PVC, 1–63mm RIGID PVC SPARE IN DECK.
16. 4#8, 8#1, 6#3 + 1#12 GND RW90 IN 63mm RIGID PVC, 1–63mm RIGID PVC SPARE IN DECK.
17. 4#8, 8#1, 6#2 + 1#12 GND RW90 IN 78mm RIGID PVC, 1–78mm RIGID PVC SPA IN DECK.
18. EXISTING RECEPTACLES AND WIRE TO BE REPLACED WITH NEW, RE–USE EXISTING BOXES.
19. 600A 2P ENCLOSED MAIN CIRCUIT BREAKER IN NEMA 4X ALUMINUM ENCLOSURE.
20. EXISTING 21mm PVC UNDERGROUND C/W WIRE TO BE REMOVED IN PHASE 3. REMOVE WIRE AND TERMINATE CONDUIT 600mm BELOW GRADE.
21. NEW RECEPTACLES TO BE INSTALLED ON POLE 11 AND 13.
22. EXISTING TO REMAIN BEYOND THIS POINT. TRENCH DETAILS UNKNOWN.
23. TEMPORARY CONDUIT/WIRING TO POLE #31 FOR SERVICE TO WHARF 407/408. TO BE REMOVED IN PHASE 3.
24. POLE 11 TO BE RELOCATED TO THIS LOCATION C/W LUMINAIRE. INSTALL NEW PANEL 'F' AND RECEPTACLES.
25. SEE DETAIL 2 ON E2 FOR GROUNDING.
26. TRANSITION DUCT BANK FROM DETAIL 12 TO DETAIL 1 ON DRAWING E4 TO DIRECT U/G DUCTS TO CENTER OF CONCRETE RAMP.
27. NEMA 3R METER SOCKET TO M.E.C.L. STANDARDS.
28. ALUMINUM 4X ENCLOSURE FOR 2–600/5A CTS AND 2–240/120V PTS, 762mmH X 762mmW X 254mmD TO M.E.C.L. STANDARDS.
29. AREA AROUND PANEL 'P' ENCLOSURE IS BEING RAISED TO LEVEL OF NEW WHARF. TRENCH WILL RISE UP IN AREA OF ENCLOSURE WITH 1 METER WORKING SPACE AT NEW LEVEL AROUND ALL "SIDES" OF ENCLOSURE.
30. 4#12 + 1#12 GND RW90 IN 53mm RIGID PVC CONDUIT.

| PANEL 'P' SERVICE CALCULATIONS - (C.E.C. SECTION 78) F | | | |
|---|---|---|---|
| ITEM | DESCRIPTION | LOAD WATTS | TOTAL LOAD WATTS |
| 1 | PANEL 'P' FEEDER LOADS: | | |
| | .1 100% OF 1ST FOUR (4) LARGEST LOADS: | | |
| | .1 3-50A 240V WHARF OUTLETS (3-40A x 240V x 100%) | 28,800 | |
| | .2 1-40A 240V WINCH (1-32A x 240V x 100%) | 7,680 | 36,480 |
| | .2 65% OF NEXT FOUR (4) LARGEST LOADS: | | |
| | .1 4-30A 240V RECEPT (4-24A x 240V x 65%) | 14,976 | 14,976 |
| | .3 50% OF NEXT FIVE (5) LARGEST LOADS: | | |
| | .1 5-30A 240V RECEPT (5-24A x 240V x 50%) | 14,400 | 14,400 |
| | .4 25% OF NEXT 16 LARGEST LOADS: | | |
| | .1 1-30A 240V RECEPT (1-24A x 240V x 25%) | 1,440 | |
| | .2 1-20A 2P BUYERS SHED (1 x 16 x 240V x 25%) | 960 | |
| | .3 14-20A 1P RECEPTS (14 x 16 x 120V x 25%) | 6,720 | 9,120 |
| | .5 20% OF NEXT 20 LARGEST LOADS: | | |
| | .1 20-20A 1P RECEPT (20 x 16 x 120V x 20%) | 7,680 | 7,680 |
| | .6 15% OF NEXT TWENTY LARGEST LOADS: | | |
| | .1 8-20A 1P RECEPT (8 x 16 x 120V x 15%) | 2,304 | 2,304 |
| | .7 100% OF LIGHTING LOADS: | | |
| | .1 8-150W 120V LED + DD LIGHTS | 1,200 | |
| | .2 15-357W LED LIGHTS | 5,355 | |
| | .3 3-150W LED LIGHTS | 450 | 7,005 |
| | | TOTAL: | 91,965 |
| 2 | ADD 25% SPARE CAPACITY FOR FUTURE GROWTH: | | |
| | 91,965W X 25% | 22,991 | 22,991 |
| | | TOTAL DEMAND LOAD: | 114,956 |
| 3 | PANEL 'P' SERVICE SIZE: | | |
| | 114,956/240V = 479 X 1.25 = 599A | | |
| 4 | PANEL 'P' SERVICE TO BE 600A 120/240V 1PH 3W. PANEL 'P' FEEDER TO BE 2 RUNS OF 3#350 MCM RW90 CU IN 103mm RIGID PVC CONDUIT. | | |

## SERVICE CALCULATION (3 / E2)

SCALE/ÉCHELLE : N.T.S./P.É.

**PANEL 'P' - VOLTAGE DROP/WIRE SIZE CALCULATIONS**

| POWER CENTER | RECEPTACLE/ LOAD WATTS | RATING AMPS | VOLTS | CIRCUIT | RATED CURRENT | METERS (M) | VOLTAGE DROP | WIRE SIZE |
|---|---|---|---|---|---|---|---|---|
| POLE L1 SHROUD ES-1 | R1/1920 | 20 | 120 | P-1 | 16 | 90 | <3% | 2#4 |
| | R2/1920 | 20 | 120 | P-3 | 16 | 90 | <3% | 2#4 |
| | R3/1920 | 20 | 120 | P-5 | 16 | 90 | <3% | 2#4 |
| | R4/1920 | 20 | 120 | P-11 | 16 | 90 | <3% | 2#4 |
| | R5/2880 | 30 | 240 | P-13,15 | 24 | 90 | <3% | 3#6 |
| | R6/9600 | 30 | 240 | P-17,19 | 24 | 90 | <3% | 3#6 |
| POLE L2 SHROUD ES-2 | R7/1920 | 20 | 120 | P-21 | 16 | 120 | <3% | 2#3 |
| | R8/1920 | 20 | 120 | P-23 | 16 | 120 | <3% | 2#3 |
| | R9/1920 | 20 | 120 | P-25 | 16 | 120 | <3% | 2#3 |
| | R10/1920 | 20 | 120 | P-31 | 16 | 120 | <3% | 2#3 |
| | R11/2880 | 30 | 240 | P-33,35 | 24 | 120 | <3% | 3#4 |
| | R12/2880 | 30 | 240 | P-37,39 | 24 | 120 | <3% | 3#4 |
| POLE L3 SHROUD ES-3 | R13/1920 | 20 | 120 | P-41 | 16 | 150 | <3% | 2#2 |
| | R14/1920 | 20 | 120 | P-43 | 16 | 150 | <3% | 2#2 |
| | R15/1920 | 20 | 120 | P-45 | 16 | 150 | <3% | 2#2 |
| | R16/1920 | 20 | 120 | P-51 | 16 | 150 | <3% | 2#2 |
| | R17/2880 | 30 | 240 | P-53,55 | 24 | 150 | <3% | 3#3 |
| | R18/2880 | 30 | 240 | P-57,59 | 24 | 150 | <3% | 3#3 |
| POLE L4 SHROUD ES-4 | R19/1950 | 20 | 120 | P-2 | 16 | 180 | <3% | 2#1 |
| | R20/1920 | 20 | 120 | P-4 | 16 | 180 | <3% | 2#1 |
| | R21/1920 | 20 | 120 | P-6 | 16 | 180 | <3% | 2#1 |
| | R22/1920 | 20 | 120 | P-12 | 16 | 180 | <3% | 2#1 |
| | R23/2880 | 30 | 240 | P-14,16 | 24 | 180 | <3% | 3#3 |
| | R24/2880 | 30 | 240 | P-18,20 | 24 | 180 | <3% | 3#3 |
| POLE L5 SHROUD ES-5 | R25/1920 | 20 | 120 | P-22 | 16 | 210 | <3% | 2#1 |
| | R26/1920 | 20 | 120 | P-24 | 16 | 210 | <3% | 2#1 |
| | R27/1920 | 20 | 120 | P-26 | 16 | 210 | <3% | 2#1 |
| | R28/1920 | 20 | 120 | P-32 | 16 | 210 | <3% | 2#1 |
| | R29/2880 | 30 | 240 | P-34,36 | 24 | 210 | <3% | 3#2 |
| | R30/2880 | 30 | 240 | P-38,40 | 24 | 210 | <3% | 3#2 |
| LIGHT POLE L1 | L1-1/357 | 15 | 120 | P-7 | 3 | 100 | <3% | 2#10 |
| | L1-2/357 | 15 | 120 | P-9 | 3 | 100 | <3% | 2#10 |
| LIGHT POLE L2 | L2-1/357 | 15 | 120 | P-27 | 3 | 130 | <3% | 2#10 |
| | L2-2/357 | 15 | 120 | P-29 | 3 | 130 | <3% | 2#10 |
| LIGHT POLE L3 | L3-1/357 | 15 | 120 | P-47 | 3 | 160 | <3% | 2#8 |
| | L3-2/357 | 15 | 120 | P-49 | 3 | 160 | <3% | 2#8 |
| LIGHT POLE L4 | L4-1/357 | 15 | 120 | P-8 | 3 | 190 | <3% | 2#8 |
| | L4-2/357 | 15 | 120 | P-10 | 3 | 190 | <3% | 2#8 |
| LIGHT POLE L5 | L5-1/357 | 15 | 120 | P-28 | 3 | 220 | <3% | 2#8 |
| | L5-2/357 | 15 | 120 | P-30 | 3 | 220 | <3% | 2#8 |
| WHARF 408 | LIGHTS, RECEPTACLES SHEDS | 100 | 240 | P-82,84 | 80 | 270 | <3% | 3#250MCM |

## VOLTAGE DROP (4 / E2)

SCALE/ÉCHELLE : N.T.S./P.É.


Public Service and Procurement Canada / Services Publics et Approvisionnement Canada

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Stamp / Etampe

THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND
VALID FOR THE YEAR 2021
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| 0 | ISSUED FOR TENDER | 2021.12.10 |

project / projet

**WHARF CONSTRUCTION 411 & 412 SKINNERS POND SCH PRINCE COUNTY PRINCE EDWARD ISLAND**

drawing / dessin

**ELECTRICAL NEW SITE PLAN, SCHEDULES & POWER RISER**

designed / conçu: RALPH SMITH
date: 2021.12.10
drawn / dessiné: JODI PARKER
date: 2021.12.10
approved / approuvé: TRACEY MCDADE
date: 2021.12.10
Tender / Soumission
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project number / no. du projet: R.118006.001
drawing no. / no. du dessin: E2 of 5