MALONE O'REGAN
CONSULTING ENGINEERS

STRATEGIC POWER PROJECTS

Proposed 220Kv Substation and grid connection to existing Louth Substation, Monvallet, Co. Louth

Engineering Planning Report

Job No: W21019
Date: Dec 2022

Contents Amendment Records

Document: Engineering Planning Report

Project: Proposed 220Kv Substation and grid connection to existing Monvallet Substation, Co. Louth

Client: Strategic Power Projects

Job Number: W21019

Prepared By: James Kirby Signed:

Checked By: Brian Mackey Signed:

Approved By: Brian Mackey Signed:

Revision Record

Revision	Date	Description	Prepared By	Checked By	Approved By
00	December 2022	Engineering Planning Report	JK	BM	BM

CONTENTS

1.0 INTRODUCTION 1
2.0 SITE DESCRIPTION 1
3.0 SURFACE WATER DRAINAGE 2
4.0 FOUL DRAINAGE 2
5.0 WATER..... 2
6.0 TRAFFIC 3

Appendix A.....4

1.0 INTRODUCTION

Strategic Power Projects Ltd. have received planning permission to develop a solar p.v farm for the generation of electricity at Toomes, Co. Louth, planning reference 21 631. The S.I.D application is to provide a 220Kv Substation and grid connection to the existing ESB networks Louth 275Kv Substation location in townland of Monvallet.

Malone O'Regan Consulting Engineers have been engaged to provide civil engineering consultancy services for the project. We have compiled this report as part of the SID submission.

2.0 SITE DESCRIPTION

The proposed development site is currently a Greenfield site 1.8 hectares in area.

Located close to the Louth / Monaghan County border, the site is positioned to the south of Ballykelly village off the L1143 regional road and is characterised as agricultural land. The site is a grassland field defined in part by low level fences and hedgerows.

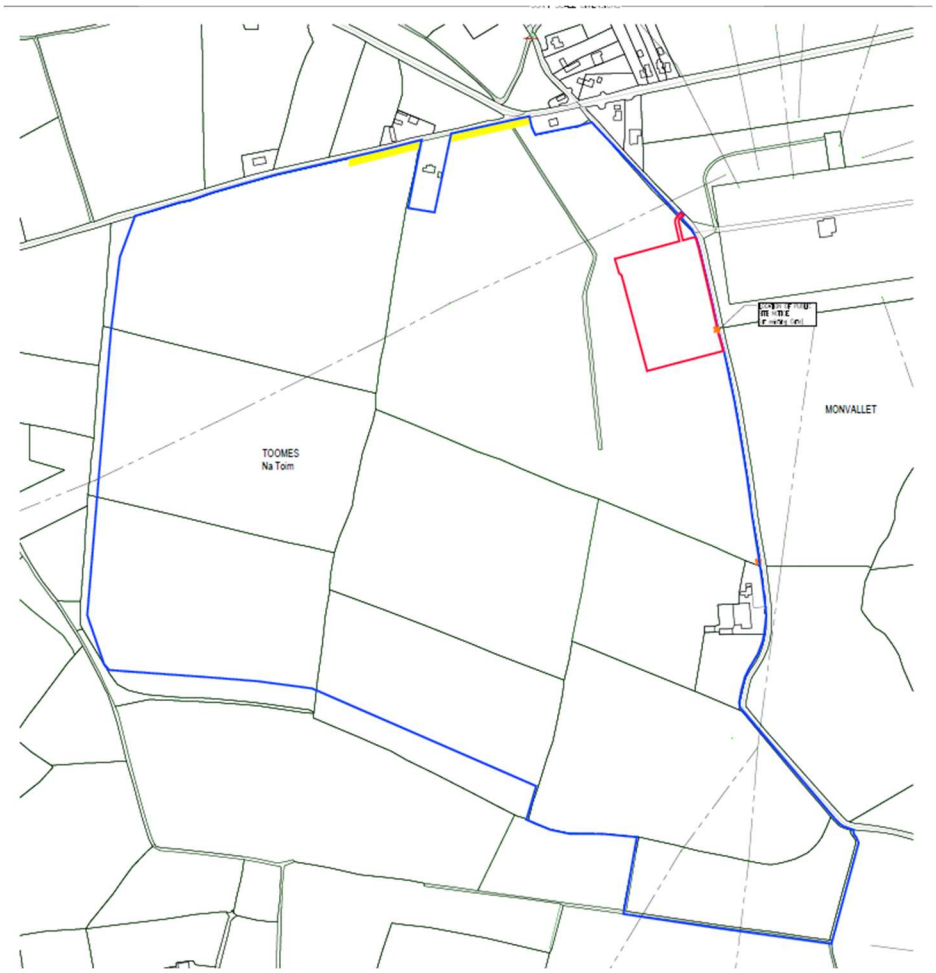

Figure 3 -Aerial map with red line of proposed Substation– Toomes, Co. Louth, Ireland

Note: There are pylons and high-tension power lines located close to the proposed site.

3.0 SURFACE WATER DRAINAGE

The proposed substation and access road shall be surfaced with a layer of permeable stone hardcore. This free draining material will allow rainfall to permeate into the ground.

A SuDS approach is proposed for the surface water drainage. Rainfall runoff from the I.P.P. building and Eirgrid Control building roofs in the substation will be collected and piped to a rainwater harvesting tank for reuse. Any excess runoff which cannot be stored will drain to the sub-station area which will be largely constructed with permeable stone, effectively providing a large soak-pit for the rainfall on these areas. Assuming a very basic infiltration rate through the compound stone it is clear that the existing Greenfield condition will be maintained.

Internal concrete access roads (within the substation area) with gullies are to be provided. This surface water is collected and runs through a full retention oil separator, and rain harvesting tank, with excess surface water discharging into proposed soakaways.
See TLI drainage layout for details.

4.0 FOUL DRAINAGE

It is expected the I.P.P. and Control Buildings will be unoccupied for the majority of their service life. Maximum projected attendance at site and in these buildings is 2 to 3 people for one day every fortnight.

The irregular foul loading due to the sporadic occupancy of the buildings creates unsuitable conditions for a waste water treatment system. It is proposed in this case to pipe the foul water to a 2,800 litre tank for temporary holding storage. A maintenance agreement will be entered with a suitably licensed waste contractor for periodic (3 months) emptying of the tank.

The maximum expected flow into the tank every 3 months is:

3 people x 100 l/person/day (Factory with Canteen) = 300 l/day

300 l/day (1 day every 2 weeks) x 13 weeks period = 1,950 litres

Therefore, a 2,800 litre tank which will be emptied every 3 months will provide ample capacity to store the foul water.

5.0 WATER

Due to the infrequent use of the on-site buildings it is proposed to provide drinking water requirements by using bottled water.

Water for sanitary ware will be provided by a 1,500 litre rainwater harvesting tank which will be filled from roof runoff. Working with projected usage of the sanitary facilities of 1,950 litres every 13 weeks, the rainwater storage tank will provide for up to 10 weeks without receiving any rainfall.

The I.P.P and Control building combined roof area is approximately 411m². Rainfall data for Ballyhaise Weather Station, the nearest station to the site, indicates the driest month on average over the past 5 years is May. The mean rainfall for May during this period was 67.8mm.

Taking the mean rainfall value for May the roofs of the I.P.P. and control buildings can expect to harvest:

195+216m² x 0.0678m/month = 27.86³/month

This volume of runoff will be more than sufficient to fill a 2m³ storage tank.

Rainfall values for Ballyhaise are located in Appendix A.

6.0 TRAFFIC

A permanent site entrance is to be provided to south of the proposed substation site as per granted Planning Application Ref 21 631. This entrance is to be completed at the earliest stage of the proposed Construction stage. i.e before any construction materials are transported to site.

Note: the proposed underground electrical cable route will cross the existing local road to the north east of the SID Substation site. To ensure safe passage of public traffic at this location, trained flagmen will be assigned to control such movements in a safe manner. Flagmen must wear high visibility vests and use approved Stop/Go signs. The flagmen must be in visible contact and in voice communication with each other at all times.

Appendix A

Rainfall Values for Ballyhaise Weather station

Monthly values for BALLYHAISE up to 07-nov-2022

Total rainfall in millimetres for BALLYHAISE

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2022	43.7	122.9	32.7	62.6	76.0	76.2	39.5	52.0	135.8	205.2	41.4		888.0
2021	107.4	89.5	83.9	19.5	84.9	20.8	44.8	133.4	71.8	120.3	46.3	110.0	932.6
2020	59.2	212.8	77.8	32.8	26.2	99.5	129.7	138.4	60.4	113.3	100.7	111.0	1161.8
2019	43.7	54.3	149.3	64.1	35.9	115.6	52.4	164.5	164.3	83.5	103.0	84.1	1114.7
LTA	100.5	72.6	84.8	68.0	67.8	67.9	73.4	90.7	79.4	104.4	95.3	102.1	1006.9