



Proposed Battery Energy Storage System, Mary Street, Glasgow

Transport & Access Statement

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Comments



Comments

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1. Introduction

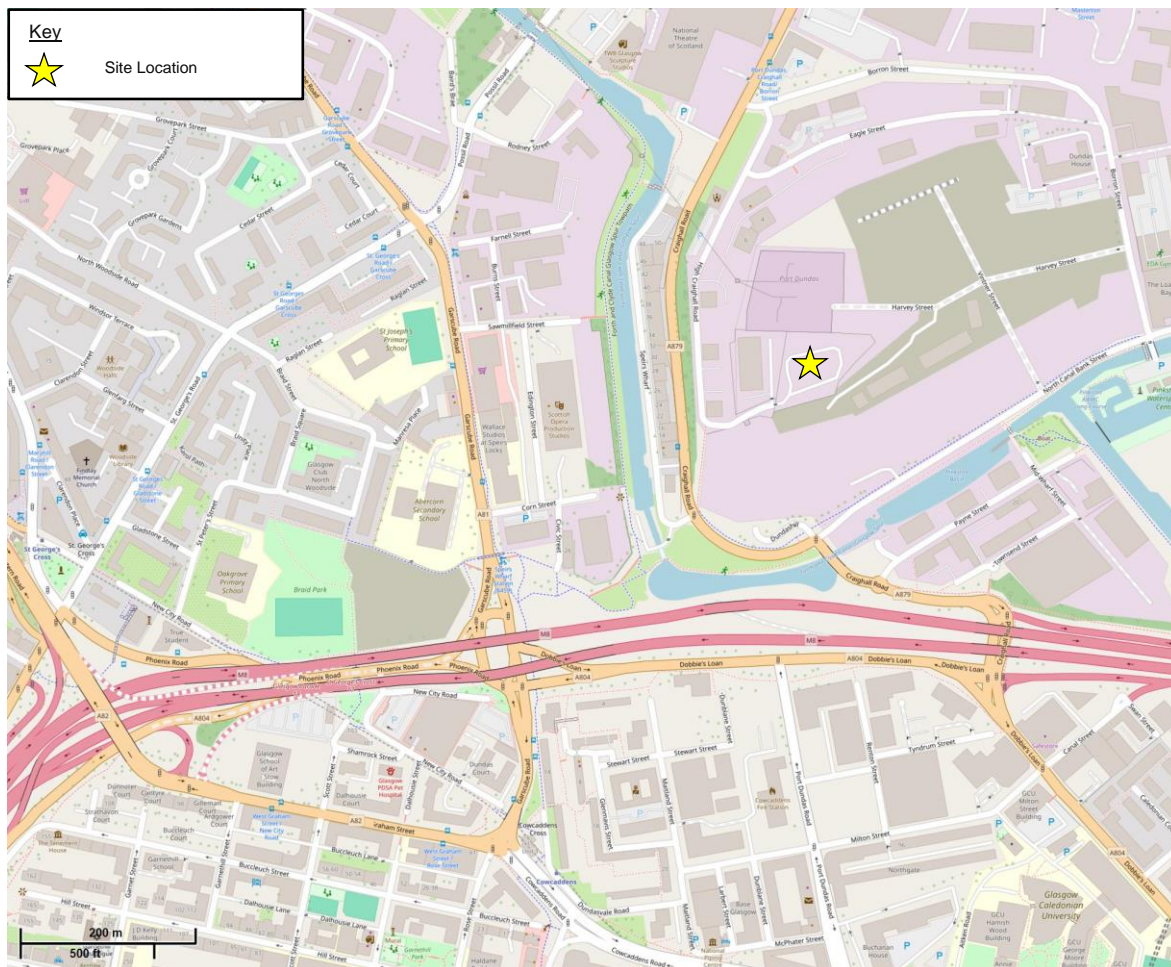
- 1.1. ECS Transport Planning (ECS) has been commissioned by Fig Power Limited to prepare a Transport and Access Statement in support of a proposed battery energy storage system (BESS) and associated infrastructure on land at Mary Street, Glasgow.
- 1.2. This study has been undertaken to provide details of the proposed traffic management measures that are to be implemented during the construction, operation and decommissioning phases of the development. These measures seek to mitigate any impacts related to development traffic.
- 1.3. The findings of this study are based on a site visit by team members, existing infrastructure observations and an understanding of Glasgow City Council (GCC) planning requirements with respect to transportation. Consideration has also been given to the requirements of local and national government transport planning guidance and policies.
- 1.4. This study includes a construction management strategy to enable and manage all types of Heavy Goods Vehicles (HGV) to and from the site during construction; this is to improve the safety and reliability of deliveries to a site, reducing congestion and minimising the environmental impact. The routing and volume of traffic has been assessed at each stage together with the access requirements and potential impacts on key receptors.
- 1.5. The subsequent chapters of this report are structured as follows:-
 - Proposed Development & Access Strategy;
 - Construction – Traffic & Routing;
 - Environment Impact Assessment;
 - Construction Traffic Management Plan;
 - Residual Impacts; and
 - Summary & Conclusions.

2. Proposed Development and Access Strategy

Existing Site & Surrounding Area

- 2.1. The development area relates to a brownfield site currently used by Breedon as a concrete plant accessed directly from Mary Street in the Port Dundas area of Glasgow. The site is bounded by Port Dundas Sub-Station to the north, Harvey Street and the residential dwellings accessible from the route to the east and south and a commercial unit and Mary Street to the west. The location of the site is shown by the yellow star within *Figure 1* below.

Figure 1: Site Location



- 2.2. The site currently benefits from a gated access from the eastern extent of Mary Street which is used by HGV's associated with the concrete batching plant in addition to the daily staff movements. Cement mixer trucks access the site throughout the day as do tipper trucks with raw materials used to make the cement. As a result, the site has a well established history of generating large vehicle movements on the wider adopted road network.

- 2.3. *Figures 2 & 3 below present the site in its current form. Figure 2 displays a view of the site looking east from Mary Street, with Figure 3 showing the standard of Mary Street from the junction with High Craighall Road.*

Figure 2: View of Site Looking East



Figure 3: Mary Street



Development Proposals

- 2.4. The proposed development is the installation of a grid battery energy storage facility (up to 90MW), with associated infrastructure which will be accessed by the existing gated access from Mary Street.
- 2.5. Once operational, the development will be monitored remotely and will only require infrequent maintenance visits which are unlikely to be any more common than once a month.
- 2.6. A security fence including CCTV will be provided around the site to protect the facility from theft, vandalism or damage.
- 2.7. The site layout is illustrated in the drawings contained within *Appendix A*.

Vehicle Access

- 2.8. As the existing access to the site is suitable for HGV traffic it is proposed to maintain the access from Mary Street for both construction and operational traffic. From the access with Mary Street an internal access track will extend to the north of the site where a turning head is provided to ensure that vehicles can enter and exit the site in a forward gear. The various rows of battery packs will be positioned either side of the access track to ensure these can be easily accessed.

3. Construction - Traffic & Routing

- 3.1. On-site works, including pre-construction activities, will include the following:-
- Laying of the access track and setting up the construction compound;
 - Construction of a gated entrance and security fence;
 - Forming cable trenches,
 - Installing transformer station foundations,
 - Laying underground cables and electrical connections;
 - Commissioning; and
 - Site clean-up.
- 3.2. All construction traffic will access the site via the main entrance from Mary Street. Temporary contractors parking and compound areas will be erected nearby the site access. The compound will provide storage for plant and equipment. The compound will also contain a set down area for deliveries and facilities for employees.
- 3.3. Wheel wash facilities will be positioned in close proximity to the entrance / exit to prevent any dust and dirt being deposited on the adopted road network.
- 3.4. Hours of operation at the site are likely to be limited to typical working hours (0800:18:00) Monday to Saturday.

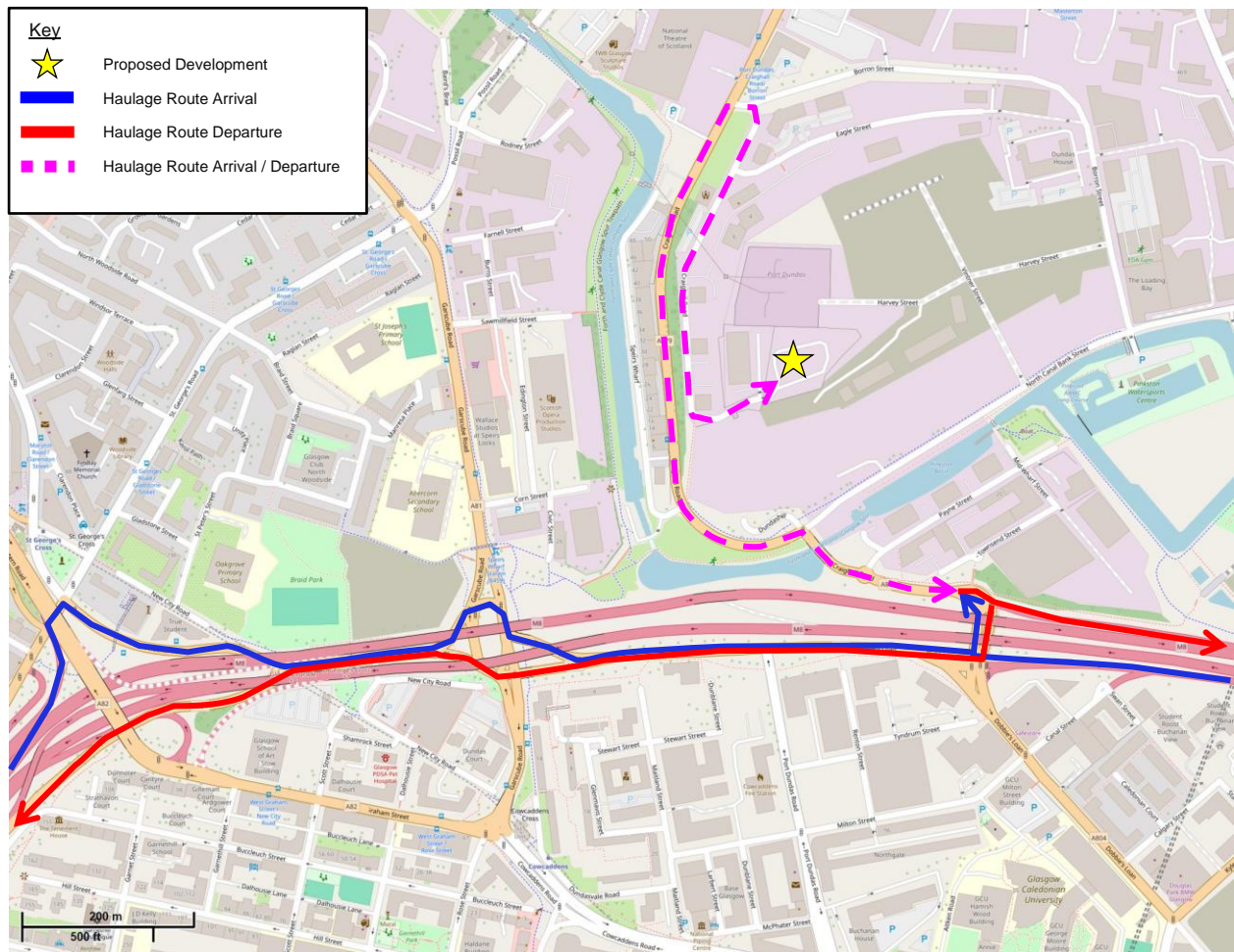
Traffic Routing

- 3.5. The shortest and most appropriate route to the strategic road network is to access Junctions 16 or 18 of the M8 via Mary Street, High Craighall Road and Craighall Road. High Craighall Road and Craighall Road provide access to large commercial areas to the north of the site which ensures that they are capable of accommodating HGV traffic.
- 3.6. Junction 16 of the M8 provides direct access to / from the east while traffic to / from the west will have to utilise Junction 18 under normal conditions. Transport Scotland are undertaking long term maintenance to the Woodside Viaduct which has resulted in diversions for traffic utilising Junction 17 & 18. If these roadworks are still in place at the time of construction it may be necessary for traffic to utilise Junction 15 to the east to ultimately travel west.
- 3.7. The proposed haulage route is detailed in *Figure 2*, overleaf.
- 3.8. Although the haulage route is located within an urban area there are no recognised sensitive receptors on the route between the site and the M8(T) which ensures that any impact as a result on construction traffic will be minimal.

Pedestrian Considerations

- 3.9. Mary Street benefits from a footway on the northern side of the carriageway which provides access to a new segregated footway to Harvey Street and onwards to North Canal Bank Street. An alternative and more direct pedestrian route is available from High Craighall Road to Speirs Wharf and onwards to the city centre which is likely to be a more popular route given it serves the primary desire line in a more direct fashion.

Figure 4: Traffic Routes



3.10. Nevertheless, it is evident that there are pedestrian routes and desire lines which cross the haulage route, as such, the interaction with pedestrians will have to be addressed within a Construction Traffic Management Plan to ensure road safety is considered in detail and to the satisfaction of GCC Roads.

Mitigation – Junction Widenings

- 3.11. The haulage route follows distributor standard roads which have been designed to accommodate HGV movements. In addition, the existing use on the site receives regular HGV deliveries which can be accommodated on the road network without incident.
- 3.12. The haulage route review did not identify any material constraints which would require detailed investigation.

Estimated Vehicle Generation

- 3.13. Traffic generation has been estimated using information from contractors with experience of BESS installation.

- 3.14. All subcontractors will stipulate to the site manager their vehicle size, times for deliveries, access route and site access arrangement prior to delivery.
- 3.15. The construction programme is likely to extend over two years with weekday operating hours of 08:00 - 18:00 and 08:00 – 13:30pm on Saturdays. *Table 1* indicates the total number of two-way trips over the construction period, categorised by purpose of trip. It is evident that the number of trips per month will vary with the greatest demand likely to be in the first two months when site clearance, platforming and foundation works are undertaken.

Table 1: Estimated Vehicle Movements During Construction Period

Purpose of Trip	Total No. Vehs (one-way trips)
Tipper Truck (Stone Delivery)	690
On Site Delivery PCS and MV Skid units	18
Battery Delivery	48
Substation Delivery & Container	2
Cable Delivery	12
Concrete Delivery	48
Duct Delivery	24
Fence Delivery	8
Construction Personnel (Vans & Cars)	650
Total One-Way Trips	1,500 (during construction period)
Total Two-Way Trips	3,000 (during construction period)

- 3.16. *Table 1* indicates that there would be a total of 3,000 two-way vehicle trips generated by the Proposed Development during its construction phase. No abnormal loads will be required to facilitate construction. With the exception of construction personnel trips, all other trips are expected to be made via HGVs. HGVs will arrive and depart from the Site at regular intervals during Site working hours, and will avoid peak periods and school start / close times where possible.
- 3.17. In the absence of a detailed construction programme, it has been assumed that the estimated total number of vehicle trips will be spread evenly across the twelve-month construction period. This would equate to approximately 250 monthly two-way vehicle trips being generated by the Proposed Development.
- 3.18. Assuming a 4 week month, this would equate to 63 weekly two-way vehicle trips, and assuming a 5.5 day working week this would equate to approximately 11 daily two-way vehicle trips. Approximately 6 of these two-way vehicle trips would be made by HGVs.

- 3.19. As detailed previously, the daily vehicle movement may be slightly increased during the first two months but this would not result in a material increase which would impact on the operation of the road network. As the working hours for the site are 8am to 6pm during weekdays, site staff movements would not impact on the commuter peak periods or school start / end times. As demonstrated by *Table 1*, staff movement are by far the most onerous vehicle movements associated with the construction period.
- 3.20. Taking the level of trip generation, it is considered that the construction phase of the Proposed Development will not give rise to a significant number of daily additional vehicle trips. As such, the impact of traffic levels on the road network surrounding the Proposed Development will be negligible.
- 3.21. Traffic generated during the operation of the BESS scheme will be very low and associated with the monitoring, upkeep and cleaning of the site. Trips would typically be made by small van and limited to an average of 1 vehicle every month.
- 3.22. Due to the very low number of vehicle movements being made to and from the site during its operational period, the development will not impact on the local road network during the operational phase.
- 3.23. At the end of the operational lifetime of the BESS, it may be decommissioned, and the site reinstated. This would involve similar access requirements as the construction phase. It is unlikely that any access tracks would be removed; consequently, the number of HGV movements would be reduced compared with the construction phase. The construction phase is therefore the worst case scenario when considering the potential impact of development trips on the network.

4. Environmental Impact Assessment

- 4.1. In accordance with the Institute of Environmental Management Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic, a full impact assessment should be undertaken:
- On highway links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
 - Where traffic flows are predicted to increase by 10% or more in any other specifically sensitive areas.
- 4.2. In overall terms, the proposed development is not considered large enough to trigger a detailed assessment given that the maximum number of deliveries per day is anticipated to 3 by HGV with a further 2 staff arrivals. However, consideration has been given to the likely traffic impacts.

Development Traffic Flows

- 4.3. For the purpose of this assessment, a two year construction period has been assumed. Any extension or delay in the programme will have a reduced impact on the surrounding road network.
- 4.4. During the worst case period of construction impact, two-way vehicle generation is not expected to exceed 11 two-way movements per day with approximately 6 of these trips undertaken by HGV.
- 4.5. Based on the capacity of the local roads the predicted volume of construction associated with the proposed development is unlikely to cause any operational impacts.
- 4.6. An general overview of the IEMA assessment assuming no mitigation is in place has also been undertaken and is illustrated in *Table 2* below.

Table 2: Review of Development Impact

Receptor	Potential Effect	Magnitude	Comment
Existing Road Users	Severance	Low	No issue – Low volumes of traffic.
	Driver Delay	Low	No issue – Traffic generation will be managed out with peak periods.
	Pedestrian Delay	Low	No issue – Low volumes of traffic and low volumes of pedestrians. Construction will be managed outwith school periods.
	Pedestrian Amenity	Low	Impact will be low and outwith peak periods.
	Accidents and Safety	Low	Potential increase in interaction will be low.
	Dust and Debris	Low	Management and facilities will be in place to control impact on the local road network.
Ecology		Low	Visibility splays to be cleared of vegetation and tree canopies maintained will present a minimal and temporary impact.

5. Construction / Decommissioning Traffic Management Plan

- 5.1. A Construction Traffic Management Plan (CTMP) would be developed to ensure road safety for all road users during the construction period and to provide mitigation for the effects described in *Table 2*. The CTMP will be developed in consultation with the police and roads authorities and agreed before deliveries commence to the site.
- 5.2. A package of mitigation measures have been proposed to reduce the safety risks and minimise any effects on local residents and the local highway network as a result of construction traffic activities are as follows.

Approved Route

- 5.3. An off-site signing strategy from the M8(T) will be provided to guide construction and staff traffic to the development site via the approved route and to alert other road users of construction traffic.
- 5.4. All contractors and suppliers to the site will be advised of the approved route in advance.

Restricted Delivery Hours

- 5.5. Deliveries will be restricted to site working hours as set out above or otherwise agreed with GCC to reduce disruption to local businesses.

Booked Delivery Times

- 5.6. Construction deliveries will be planned with booking slots and will not be allowed on site outside of these time slots.
- 5.7. Drivers of inbound delivery vehicles will be required to stop outwith the city limits and contact the Site Manager by mobile telephone to advise of their approach. If there is a conflict on the site with another delivery they may be required to layover for a period to allow an outbound vehicle to clear. This will ensure minimal delays to other road traffic.

Speed Limit

- 5.8. The developer will ensure that all deliveries abide by local speed limits and a site speed limit will be established and enforced at 10 mph, with signage indicating such and all persons made aware of this requirement at the site induction.

Banksman

- 5.9. Banksman will be provided for all HGV movements into and out of the site to minimise the potential impact on the public highway.

Wheel Washing

- 5.10. Wheel washing facilities are to be provided. These will be located on the egress of the site on an area of hard standing concrete. Jet washing wheels will be carried out by a traffic marshal or contracted labour.

Road Cleansing

- 5.11. The developer will ensure that the roads and footways surrounding the site are swept on a daily basis. This process is to ensure that any debris or dirt from the construction vehicles avoids getting transferred around the road network.

Dust and Noise suppression

- 5.12. The Site Manager will take reasonable steps to minimise noise and suppress dust, dirt and debris generated by the scheme, working to the relevant British Standards and best working practices.
- 5.13. 'Silenced' plant and equipment will be used on-site wherever possible.

Considerate Contractors Scheme

- 5.14. The main contractor and sub-contractors will subscribe to the "Considerate Contractors Scheme" and adhere to the guidelines set out by the scheme.

Mobile Phones

- 5.15. No plant or delivery drivers will be permitted to use mobile phones or similar whilst driving vehicles or plant.

Project / Site Managers Checklist

- 5.16. Both the Project Manager and Site Manager will utilise the checklists contained within *Appendix B* to ensure the safest methods are applied throughout the construction phase.

6. Residual Impacts

- 6.1. There would be a temporary adverse impact on the local road network resulting from the construction traffic. However, the mitigation measures outlined within the Construction Traffic Management Plan with offset and minimise any potential negligible impact.
- 6.2. Due to the increased HGV movements, it is possible construction could deteriorate the carriageway surface on Mary Street. It is expected that wear and tear would be managed through a Road Condition Survey at the beginning and end of works. This could form a formal condition of any planning consent.
- 6.3. In general, the impacts are minor and therefore not significant and will be confined to the construction period only.

7. Summary & Conclusions

Summary

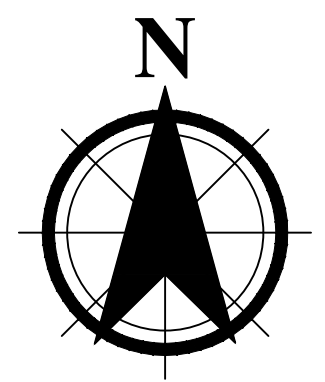
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- 7.2. This study has been undertaken to provide details of the proposed traffic management measures that are to be implemented during the construction, operation and decommissioning phases of the development. These measures seek to mitigate any impacts related to development traffic.
- 7.3. The findings of this study are based on a site visit by team members, existing infrastructure observations and an understanding of Glasgow City Council (GCC) planning requirements with respect to transportation. Consideration has also been given to the requirements of local and national government transport planning guidance and policies.
- 7.4. This study includes a construction management strategy to enable and manage all types of Heavy Goods Vehicles (HGV) to and from the site during construction; this is to improve the safety and reliability of deliveries to a site, reducing congestion and minimising the environmental impact. The routing and volume of traffic has been assessed at each stage together with the access requirements and potential impacts on key receptors.
- 7.5. The proposed development is the installation of a grid battery energy storage facility (up to 90MW), with associated infrastructure which will be accessed by form the existing gated access form Mary Street.
- 7.6. Once operational, the development will be monitored remotely and will only require infrequent maintenance visits which are unlikely to be any more common that once a month.
- 7.7. A security fence including CCTV will be provided around the site to protect the facility from theft, vandalism or damage.
- 7.8. Access for the proposed BESS development has been investigated and it has been established that there is a feasible access route. The traffic flows on roads local to the site will be subject to minor increases during the construction period, but this will be a temporary effect, distributed over some 12 months. Traffic generated during normal operation of the BESS will be minor and would not result in any significant effect. The development proposals will be accessed by utilising the existing access from Mary Street which is established and currently safely accommodating HGV traffic.

Conclusions

- 7.9. In conclusion, the report demonstrates that the proposed development can be supported on the existing road network with minor impact to the network. Construction traffic will be limited and temporary, with general maintenance infrequent. The impact on the road network will, therefore, be negligible.

APPENDICES

A. Site Layout



CRAIGHALL ROAD

54.9m

HIGH CRAIGHALL ROAD

50

Craighall House

Factory

60

El Sub Sta

Port Dundas Sub Station

El Sub Sta

Mast (Telecommunication)

Tank

HARVEY STREET

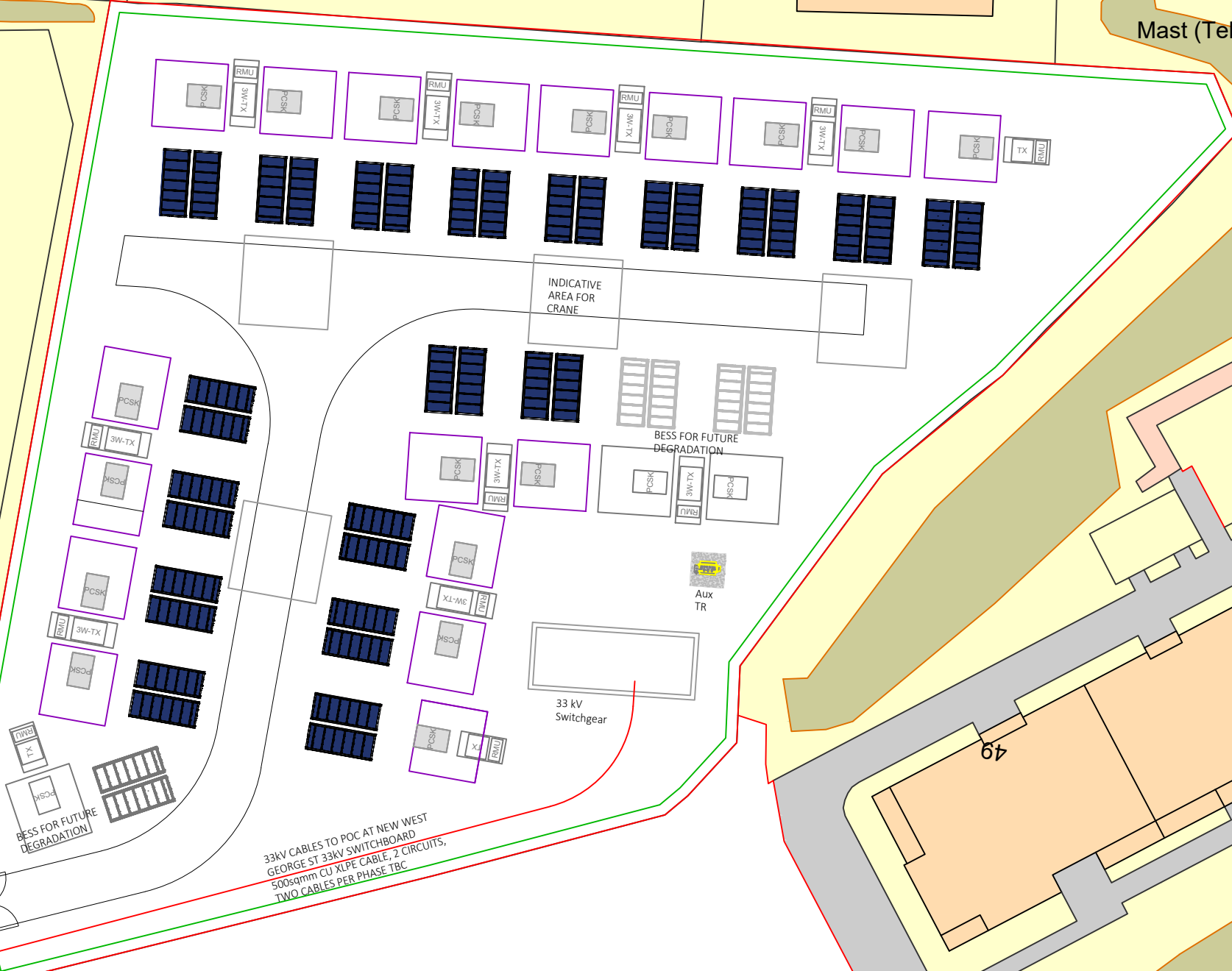
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43

64

Cycle Way

Canal Glasgow Branch



KEY PLAN

NOTES

Any equipment shown is indicative of dimensions and general appearance and may be subject to minor amendments by the manufacturer or supplier

LEGEND

REVISIONS

PX	REVISION'S NAME XXXXXX					
	XX	XX	XX	XX	XX	XX
REV	REVISION NOTES/COMMENTS					
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE



firm, flexible energy

Finzels Reach
Counterslip
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BS1 6BX
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CLIENT

PROJECT
PORT DUNDAS

TITLE
PRELIMINARY LAYOUT

FIG POWER PROJECT NO. 000067	SCALE @ A1 1:500	PAGE NO. X:XXX
STATUS DESCRIPTION FOR INFORMATION		STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-TYPE-NUMBER) 00067-FIG-DR-0003		REVISION PX

B. Project / Site Manager Checklist

Project/Site Managers Checklist

Both the Project Manager and Site Manager will utilise the following checklists to ensure the safest method:

Checklist 1 - Site/Project Managers – Vehicle Routes Checklist

		YES	No	N/A
Q1	Are vehicle routes clearly separated from pedestrian routes? If 'No' see Action 1			
Q2	Do routes allow easy access to delivery areas? If 'No' see Action 2			
Q3	Are routes kept free of obstructions? If 'No' see Action 3			
Q4	Are routes clearly & suitably signed? If 'No' see Action 4			
Q5	Do routes reduce need to reverse? If 'No' see Action 5			
Q6	Will parking areas be required? If 'Yes' see Action 6			

Vehicle Routes – Actions to be Taken

		Action
1	Ensure routes are clearly designated and pedestrians protected	Routes clearly signed and segregated
2	Plan routes to allow safe access/egress	Assessed
3	Keep access routes clear	Check daily
4	Ensure sufficient signage is maintained	Check daily
5	Plan deliveries to reduce need for vehicles to reverse	Check during ordering process

Checklist 2 - Site/Project Managers – Vehicle Movements Checklist

		YES	No	N/A
Q1	Are highway routes planned to reduce need for excessive vehicle movement? If 'No' see Action 1			
Q2	Are vehicles fitted with audible reversing aid? If 'No' see Action 2			
Q3	May some vehicles reverse without audible aid? If 'Yes' see Action 3			
Q4	Can pedestrians have a clear view of traffic movements at crossings and at main access? If 'No' see Action 4			
Q5	Will vehicles run the risk of depositing mud on the highway? If 'Yes' see Action 5			
Q6	Will vehicles require sheeting? If 'Yes' see Action 6			

Vehicle Movements – Actions to be Taken

		Action
1	Ensure highway routing is suitable	Review daily
2	Request aids are fitted	Where available
3	Vehicles without aids must be banked when reversing	Appoint banksman
4	Ensure drivers are aware of pedestrians and give way – pedestrian signing where necessary	Contractor briefing of staff
5	Provide on-site wheel wash facilities	Contractor to arrange
6	Ensure provision of sheeting gantry if required	Vehicles to be sheeted.