Notes
General Notes for slurry storage tank

The slurry storage tank will fully comply with the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003, CIRIA Guide C759 part 1 and CIRIA Guide C759 part 2 Design and Construction.

The slurry storage tank will fully comply with the Water Environment (Controlled Activities) (Scotland) Amendment Regulations 2021 which amalgamated the requirements of the SSAFO which are now revoked into CAR. These are now GBR 32-The storage of slurry. In addition, GBR 34 was introduced to control the storage of liquid digestate where not already covered by regulations.

No trees will be cut back or felled.

No agricultural dwellings out with the applicant control within 75m.

Foundations
The base of the slurry storage tank should be free from ground water all year round, test holes should be dug to ascertain ground water levels, if the ground water is within 1.5m of the proposed base of the slurry storage tank this must be immediately recorded and reported to Agri Design, Drainage cannot be used to de-water the excavations as this is against SEPA regulations.

All topsoils, vegetable matter and loose sub soil must be removed down to firm sub soil prior to construction.
Topsoil shall wherever practicable be used immediately after its stripping and if not shall be stored in stockpiles of heights not exceeding 2m. Ground levels around site should prevent pooling and divert surface water away from the site.
Spoil will be spread within low lying ground in the surrounding fields to increase levels.
Site to be covered in a geotextile before the site is built up to proposed levels in 150mm layers. Layers to be compacted before next layer is placed. Hardcore below concrete to be blinded with fines and graded to levels.
External slopes should be max 1 in 3 but the shallower the slope the better.
The external slopes should be covered evenly with 150 mm of topsoil and seeded with grass to prevent erosion. Creeping bent and rough stalk meadow grasses are suitable. This grass cover has to be kept short.

Valves should be checked regularly and maintained in full working order. Pipes to be fitted with suitable connectors at outlets likely a Bauer coupler. It is recommend that at the outlets a sign is erected to remind users of the importance of locking the valves as well as a contact number in case of emergencies.

Slurry Tanks
Above ground steel slurry tanks to be designed to BS 5502 Part 50 and BS EN ISO 28765:2011. This structure is designed as a 'Class 2' structure to have a design life of 20 years with proper maintenance.

Slurry tanks to be cylindrical and constructed form Glass-Fused-to-Steel sheets or Epoxy Fusion to steel, panels to be lapped and seam bolted. Slurry tanks should be erected by suitably qualified personnel taking care not to over tighten bolts, miss washers, apply insufficient sealant and over stress joints.

Below-ground/below slat storage

Tanks, channels and transfer systems constructed of concrete with the whole structure designed and constructed to be impermeable. The construction of the above ground storage facilities are less complicated than that of below ground structures, with greater choice of construction materials. The design of below ground stores and the base of all facilities requires specialist knowledge. Good design and workmanship are essential. It is prudent to design and construct in full accordance with BS 8007: The design of liquid retaining structures.

The full impact of the COPA Regs are observed when setting the design criteria for the waste storage facility.

General Notes

The slurry tower should not be constructed either whole or partly below ground level, they should not be backfilled against throughout the slurry tanks whole life.

No part of the facility shall be situated within 10 metres of any inland or coastal waters (watercourses or drains) to which slurry or silage effluent (or other pollutants) could enter if it were to escape from the facility.

Access to a slurry tank rim for contents inspection may be by a portable ladder, a combination of portable and fixed access ladder or a fixed access ladder with ladder guard to prevent unauthorized access on which the lowest rung is not less than 2.4m or more than 3m above the ground or paving level and the topmost rung is not less than 1.2m below the slurry tank.

Safety and warning notices should be displayed in accordance with BS 5502-20.
In addition signs warning that a structure may contain dangerous gases should be placed at or near all access points to a slurry tank or reception pit.
'No smoking' and 'no naked flames' signs should be displayed.
A sign should be displayed in a prominent position on the structure showing the class of structure and date of erection.

Where a channel or reception pit connects by pipe to another container of lesser capacity which can overflow, two valves must be fitted in the pipe to minimise the risk of overflow should a blockage occur preventing closure of one valve. These valves must be kept locked when not in use and should be spaced at least 1m apart to minimise the risk of both valves becoming jammed open at the same time.

The store owner / operator should also note the following
The store owner / operator must comply with the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003. See regulations extract opposite.

SEPA have to be notified at least 30 days before works start. Together with existing storage capacity should provide 22 weeks storage unless otherwise agreed with SEPA.

Prepare and implement a Manure Management Plan (also known as a Farm Waste Management Plan). This is mandatory if specified by SEPA in the terms of a Notice served under the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003.

Don't enter a slurry tank unless all recommended safety procedures have been followed.

The mixing of silage effluent and slurry can release toxic gases and odours very quickly.

Bacterial decomposition of wastes especially slurry produces a range of gases including hydrogen sulphide methane and carbon dioxide. These can be flammable, toxic or replaced oxygen in the air leading to an atmosphere that will not support life.

GBR32: The storage of slurry
Rules:

a. Where slurry is produced on the farm by housed livestock, the slurry must be stored in a slurry storage system, liquid digestate storage system, or slurry bags which have sufficient capacity to store the total quantity of slurry likely to be produced in—
(i) 26 weeks by housed pigs, or
(ii) 22 weeks by housed cattle,
taking account of any additional inputs to or exports from the storage as described in paragraph (c),

b. the total quantity of slurry referred to in paragraph (a) is to be calculated by adding up the figures produced for each type of livestock, as applicable, in accordance with the formula for housed pigs or housed cattle, contained in regulation 7(2) of the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2008,

c. in calculating the minimum storage capacity necessary to comply with paragraph (a), the following figures must be included in respect of the relevant 26 or 22 week period—
(i) the quantity of any rainfall (including any fall of snow, hail or sleet) that is likely to enter the system (directly or indirectly) including from dungsteads, silage pits or dirty yards,
(ii) the quantity of any cleaning water that is likely to enter the system or slurry bag,
(iii) the likely quantity of any imported slurries and liquid digestate added to the system or slurry bag,
(iv) the quantity of any slurry exported off farm,

d. where slurry is imported onto the farm, there must be sufficient storage capacity on the farm to store the quantities imported during periods when application is not authorised under GBR18 or would not comply with the requirements of the Action Programme for Nitrate Vulnerable Zones (Scotland) Regulations 2008,

e. the capacity of any facility used for the temporary storage of slurry before it is transferred to a slurry storage tank must be the equivalent of at least 1.5% of the minimum on farm storage capacity in accordance with paragraph (a),

f. the slurry storage system must—
(i) comply with paragraphs (g) to (l)
(ii) where constructed, or substantially reconstructed or enlarged, on or after 1 September 1991, comply, in addition to paragraph (f)(i), with paragraphs (m) and (n),
(iii) if new (including systems constructed from used materials), substantially reconstructed or enlarged, on or after 1 January 2022, have a life expectancy of at least 20 years with proper maintenance, from its construction, reconstruction or enlargement,

g. the base and walls of any slurry storage tank, any channels and reception pit, and the walls of any pipes, must be impermeable (except where the conditions in paragraph (j) are complied with) and free from any cracks or structural defects,

h. where slurry flows into a channel before discharging into a reception pit, and the flow is controlled by means of a sluice or valve, the capacity of the reception pit must be sufficient to store the maximum quantity of slurry which can be released by opening the sluice or valve,

i. the slurry storage tank, channels, pipes, valves, and reception pit must be operationally maintained to be free of any structural defects during their lifecycle,

j. where the walls of the slurry storage tank are not impermeable—
(i) the base of the tank must extend beyond its walls and be provided with channels designed and constructed so as to collect any slurry which may escape from the tank,
(ii) the tank must have adequate provision to collect, drain and store slurry from the channels to a slurry storage system,

k. where the slurry storage tank or reception pit is fitted with a drainage pipe—
(i) there must be two valves in series on the pipe and each valve must be capable of stopping the flow of slurry through the pipe and must be kept shut and locked in that position when not in use,
(ii) sub-paragraph (i) does not apply in relation to a slurry storage tank which drains through the pipe into another slurry storage tank of equal or greater capacity or where the tops of the tanks are at the same level,

l. where a slurry storage system has walls which are made of earth, the system must not be filled to a level which allows less than 750 millimetres of freeboard, and in all other cases the slurry storage tank must not be filled to a level which allows less than 300 millimetres of freeboard,

m. the base and walls of any slurry storage tank, channels and reception pit, valves, and the walls of any pipes, constructed, or substantially reconstructed or enlarged, on or after 1 September 1991 must be protected against corrosion in accordance with paragraph 7.2 of the Code of Practice on Buildings and Structures for Agriculture published by the British Standards Institution and numbered BS 5502- 50:1993+A2:2010,

n. the base and walls of any slurry storage tank and any reception pit constructed, or substantially reconstructed or enlarged, on or after 1 September 1991, must be capable of withstanding characteristic loads calculated on the assumptions and in the manner as set out in paragraph 5 of the Code of Practice on Buildings and Structures for Agriculture published by the British Standards Institution and numbered BS 5502-50:1993+A2:2010,

o. any slurry storage system, constructed, or substantially reconstructed or enlarged, on or after 1 January 2022, which has walls made of earth, must be lined with an impermeable sheet material which, with proper maintenance, slurry cannot permeate for a period of at least 20 years, a slurry storage system constructed on or after 1 January 2022 must not be situated within 10 metres of any surface water or opening into a surface water drain which slurry could enter into if it were to escape,

p. a slurry bag may only be used to store slurry if—
(i) the bag is constructed of impermeable material of sufficient strength and structural integrity such that it is unlikely to burst or leak in its ordinary use, and
(ii) it is situated in a bund which complies with the following requirements—
1) the bund must be of at least equivalent capacity to the slurry bag,
2) the bund must be lined with an impermeable sheet material which, with proper maintenance, slurry cannot permeate for a period of at least 20 years,
3) the bund must have a means of removing rainwater, and
4) other than as necessary to allow rainwater to be removed, the base and walls of the bund must not be penetrated by any valve, pipe or other opening,

r. where a slurry storage system (including a reception pit or channels) is to be constructed or to be substantially rebuilt or enlarged—
(i) the operator must notify SEPA no later than 30 days prior to commencing the works,
(ii) the notification under sub-paragraph (i) must be accompanied by an engineering plan for the works to be carried out,
(iii) the operator must retain the engineer's final sign-off certificate for the works for the lifetime of the slurry storage system, for inspection by SEPA on request,

s. slurry may be stored in a liquid digestate storage system which complies with GBR34 in relation to the storage of liquid digestate.

In relation to GBR32
(A) a slurry storage system which was exempt under regulation 5 of the Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) (Scotland) Regulations 2003 immediately before 1 January 2022 is not required to comply with the rules specified in paragraphs (e) to (l) until 1 January 2026
(B) a slurry storage system constructed before 1 January 2022, to which paragraph (A) does not apply, is not required to comply with the rules specified in paragraphs (e) to (n) until 1 January 2024,
(C) a slurry storage system in respect of which planning permission was granted before 1 January 2022, but which is not constructed before that date, is not required to comply with the rules specified in paragraphs (e) to (n) until 1 January 2024.
(D) the rules specified in paragraphs (a) to (c) do not apply where the activity takes place outside a nitrate vulnerable zone until 1 January 2026.

Notes

○ Sketch Dwg
● Planning Dwg
○ Building Warrant Dwg
○ Tender Dwg
○ As Built Dwg

Rev	Revision Description	By	Date

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Contract
Slurry tower
W & G Lawson
Parklee Farm
Carmunnock
Clarkston

Drawing Title
Notes

Drawing No.	Revision	Scale
202404-07		

Drawn	Date	Paper Size	Plot Date
D.Mair	Mar 2024	A2	13-Mar-24