

Refuse and sludge into compost at Leatherhead

FOR two years the Leatherhead Urban District Council have been operating a Refuse and Sewage Sludge Utilisation Plant for the dual purpose of a sanitary method of disposal for refuse and sludge and secondly, to produce a much-needed humus in a form that can be readily applied to the soil without inconvenience or nuisance. This plant was first installed in late 1960 and will handle the refuse from the whole of the Urban District and an estimated future population of 45,000 persons with an in-put of 9,000 tons of crude refuse per annum. This figure can be exceeded, depending on the hours of operation.

At present the U.D.C. area has a population of 36,000. The plant cost £73,000 to construct and operates with nine or ten people. Obviously, the principal return for this outlay is the sanitary disposal of refuse and sludge.

The plant was designed to have a capacity of 25 tons of refuse in an eight hour day. It consists of a refuse reception building, separation, salvage and baling building which is linked to a final separation building by a Dano bio-stabiliser. The buildings are of steel framework in-filled with brickwork. Incoming vehicles pass over a weigh-bridge and on directly to a reception hopper. This has a storage capacity of 55 cu. yds. and is constructed below ground level.

From the bottom of the hopper the refuse is transferred on a conveyor to first floor level and through screening and salvage buildings. At one end of this conveyor is a picking station for the removal of bottles. The refuse is then fed into a large horizontal rotary screen which is fitted internally with a helix to propel the refuse over perforated mesh plates. The first portion of the screen has suitable perforations for the separation of dust and in the second portion large mesh plates extract cinders. Blanking plates are provided so that the quantity of the material screened out can be adjusted according to requirements. The



The compost conveyor and glass extractor.

separated cinders gravitate into a large steel storage hopper of over 6 cu. yd. capacity, from which they are loaded through quick-opening discharge doors direct into trucks standing below.

From the screen the fine dust and tailings are carried forward on a rubber belt conveyor which is designed to display the refuse for sorting and picking and which conveys refuse to the stabiliser inlet. Recoverable materials, such as rags, glass and non-ferrous metals are deposited in chutes leading into bins on the ground floor to await further sorting before sale. Tins are baled by a mechanical process. Waste paper is collected and baled separately. The ferrous materials are removed from the conveyor by a magnetic separator and deposited in bins on the ground floor.

materials are turned into compost by heat fermentation and the self-grinding and abrasive action obtained by the mass of materials in rotation. During this stage air is introduced by an air pump through several air valves on the longitudinal access of the stabiliser.

A twin motor drive to the stabiliser allows it to be rotated at a suitable speed during the day when material is being fed and discharged and a lower speed at night.

The material, by the bio-chemical action and temperature rise, is reduced to an innocuous friable material and is conveyed to the final separation building.

The compost is separated from the inert matter by passing through $\frac{3}{4}$ in. and $\frac{3}{8}$ in. screens. An "egaliser" built in between the screen outlet and the compost



The "Dano" stabilizer and screening building.

The refuse tailings from the conveyor belt are discharged with fine dust into the Dano bio-stabiliser. This comprises a rotating drum approximately 10 ft. in diameter and 72 ft. long, with a special stationary inlet. As the tailings enter the stabiliser they are mixed with sewage sludge injected by a pump; the drum is thus kept substantially filled with tailings and sludge and as it slowly rotates the mixed materials move in a screw path towards the outer end. During this process—which takes about five days—the

conveyor from the fine screen rejects inert matter such as glass, nails, etc.

Some 3,000 to 4,000 tons of compost are produced annually. The compost is primarily humus and although rich in nitrogen and containing valuable trace elements it is not claimed to be a general fertiliser.

The Council do not possess the required sales organisation to market the compost and offers were invited on a contract basis from firms, organisations,

(Concluded on page 12)

BEATING THE WEATHER—*continued.*

can be removed physically from the pitch though this is usually very detrimental to the turf. The alternative of removing by chemicals has always proved damaging to the pitch so that

heat is still a useful way of getting the sort of pitch that is required.

(N.B.—Snow is itself a very good protection against frost and in frosty weather should not be too hastily removed in the absence of other protection against frost.)

REFUSE AND SLUDGE—*continued.*

agriculturists, etc. who might be interested in bulk purchase of up to 2,500 tons, sufficient compost being retained for local residents. It has not yet been possible to reach an agreement on this basis.

In September, 1962, the Borough Engineer requested authority to expand sales direct to the public—up to a 60 mile radius from Leatherhead, and to obtain the necessary publicity.

In the financial year to 31st March last, 849 tons were sold. During the period April to August 401 tons were sold and in September and October approximately 450 tons have been sold—a total of approximately 850 tons during the first seven months of this year. Two Leatherhead golf clubs use the compost.

In addition approximately 1,500 trial bags, holding approximately $\frac{1}{2}$ cwt., have been sold in the last 2/3 months.

A chemical analysis of the compost is as follows:—

	%
Moisture	32.7
Volatile Matter (other than moisture)	18.9
Non-Volatile Matter (mineral matter)	48.4

Total nitrogen in dry solids	0.82
Phosphoric acid (P_2O_5) in dry solids	0.64
Potash (K_2O) in dry solids	0.21
Calcium (CaO) in dry solids	2.83
pH of aqueous extract ...	7.6

It is too early to give a summary of income in relation to expenditure although the following prices are quoted by the Leatherhead Council.

PER TON

Radius	10 tons	5 tons	1 ton
5 miles	20/0	25/0	35/0
25 miles	31/0	36/0	
50 miles	39/0	44/0	

Five per cent. discount on orders from 20 to 50 tons. Special rate for Leatherhead residents: 1-3 tons at 30/0 per ton delivered.

The plant was designed and constructed by Heenan and Froud Ltd., and installed under the direction of A. F. Alexander, B.Sc., Engineer and Surveyor, Leatherhead U.D.C.

*With grateful acknowledgments to
Parks & Sportsgrounds.*

R. C. CRAIG

AND CO. LTD.

SPECIALISTS IN THE REPAIR AND
MAINTENANCE OF ALL TYPES OF MOWERS

★ Agents for: RANSOMES, SIMS &
JEFFERIES Ltd.

★ LLOYDS & Co. Ltd.
WEBBS LAWN MOWERS

★ Distributors: DENNIS BROS Ltd.

★ GANG MOWERS FOR HIRE

We will gladly call on you to
advise on your grass cutting
equipment or arrange demonstra-
tions. Ring us now.

**153 Arch Stamford Brook
Station, LONDON, W.6.**

RIVERSIDE 5415