

BCS 1813

MONITORING REPORT

RATTLECHAIN TIP

SUMMARY OF ACTIVITIES AT RATTLECHAIN

GIBB Environmental
Development House, Rood End Road
Oldbury, Warley, West Midlands, B69 4HW
Tel: 021-544 5575 Fax: 021-511 1235

1 INTRODUCTION

GIBB were verbally requested by BCDC to provide a report outlining development on the Rattlechain site from the time GIBB was first involved to the present day.

The Rattlechain site comprises three main areas, the Tivdale sewage works known as Area 1, Duports Tip known as Area 2, and land east of Rose Lane, known as Area 3, see Figure 1.

2 HISTORICAL

The following information was taken from a document entitled 'Rattlechain, Site Investigation Proposals - Mintworth/BWB Land'.

Tivdale Sewage Works

The Tivdale Sewage Works was developed in about 1900. There was little modification of the works from about 1938 until closure in 1988 when a new trunk sewer was installed. The plant and structures of the works were located to the western side with the eastern side being used for sludge dumping.

Three boreholes were drilled for the Black Country Trunk Sewer in August 1985 which revealed the following strata: made ground underlain by glacial soils which are in turn underlain by Etruria Marl.

Mining for coal and ironstone has taken place beneath the site from the adjacent Hallbridge Colliery.

Duports Tip

Duports Tip occupies one of the former marl pits belonging to the abandoned Rattlechain Brickworks, the other pit serves as the Albright and Wilson lagoon. Duports marl pit was filled in three phases:

- Waste from the Vono bedding works including scrap from manufacturing processes including mattress filling. Tipping ceased in 1977.
- In 1977, the tip was infilled with inert foundry sand. Prior to this most of the Vono wastes were removed from the base of the tip. This was layered and compacted into new fill. Remnants of Vono waste remain in the base of the tip. The levels were raised to 128.5 m AOD by this method.
- A wide range of industrial wastes including plastic, metal, wood and foundry sand were tipped effectively introducing a capping waste up to 10 m deep.

A large ridge of unworked marl was left between the two Rattlechain Pits. Spoil from Tivdale Colliery was tipped on Duports Land although much of this may have been dispersed by subsequent reworking and tipping.

Coal and ironstone mining took place beneath the site at depth. Two possible mineshafts may exist on the Albright and Wilson lagoon boundary.

Four boreholes were drilled for Mintworth in August 1988, and gas monitoring equipment installed. In November 1988, a series of 27 trial pits was excavated.

Land east of Rose Lane

The land between the edge of Duports Tip and the River Tame comprises mostly natural ground with a superficial layer of rubble and colliery spoil. The site of the former Tividale No 4 colliery lies immediately east of Rose Lane.

Mining has taken place at depth and three shafts are present on the site which were treated by Johnson Poole and Bloomer in the late 1970's.

In March 1990, Mintworth were granted conditional planning permission to reclaim the Sewage Works. BCS905.

Planning Applications and Waste Disposal Licences

BCS 905 granted in March 1990 for land reclamation and drainage works, including off site relocation of fills and importation of substitute materials.

BCS 1804 granted in April 1992, variation of condition 2 of BCS 905 expires February 1995.

BCS 1813 granted in July 92, reclamation of sewage works and Duports Tip and importation of fill.

BCS 2206 granted in May 1993, development of land without compliance with conditions 3, 9, 18 and 19 of BCS 1813.

BCS 2407 granted in September 1993, variation of conditions 9 + 18 of BCS 1813. All work to be implemented within 19 months and a leachate disposal system installed within 19 months i.e completed by the end of April 1995.

In December 1992 a Waste Disposal Licence (SL947) was granted to operate a landfill site at Rattlechain.

1990

GIBB were commissioned by the BCDC in October 1990 to monitor the works on site and to ensure that the developers proposals are being achieved in situ and within the limits set out in the conditions attached to the planning consents. They were also required to give advice to the Corporation on development matters which are not covered by other organisations such as Building Control or the Hazardous Waste Unit.

Prior to this, GIBB has records of various involvements with the site, including interpretation of a limited chemical analysis of the proposed material used to form a baffle bund on site, which GIBB considered to be contaminated (June 1990). Investigation of a complaint of structural damage associated with the formation of the baffle bund from a resident in Gladstone Drive. Advice concerning the stability of excavation slopes into Duports Tip. A site visit in July 1990 noted that there were two excavations through waste in the larger Marl Pit up to 10 m deep, corrugated fencing being put in place and work on the environmental bund taking place. It was noted that the bund had no toe drain.

In August, GIBB were informed of a new source of material for use in the bund.

In November, GIBB were asked by BCDC to comment on the Preliminary Land Reclamation Proposals prepared by Rendell Palmer and Tritton (RPT) on behalf of Mintworth. The RPT proposals differed from earlier proposals by Land Concepts (LC) which were considered by BCDC when they granted Planning Permission BCS 905 on 13 March 1990. Various concerns were raised including the need for a licence to tip, inadequate passive gas vent detail, insufficient leachate measures and the possibility of methane migration into the sewage works area.

In December, it was noted by Walsall Metropolitan Borough Council that there were differences between the working plan in the Waste Disposal Licence application and the planning consent. One of the main differences between the two plans was that the original plans showed that the contaminated material would be moved off site whereas the most recent plans showed that no materials were to be removed from site.

Site visits in November and December noted a dozer filling in trial pits but very little site activity.

1991

There continued to be only a small amount of activity on site in the early part of 1991 during which time the Operator fenced the site and continued work on the construction of the environmental bund.

In May, GIBB produced a catalogue of available information concerning the Rattlechain site for BCDC.

Information from BCDC correspondence concerning the Rendel, Palmer & Tritton report entitled 'Land Reclamation Recommendations' dated September 1991 gives details of borehole data and gas monitoring carried out on four occasions in December and January 1991. One of the three boreholes had elevated methane and carbon dioxide concentrations. GIBB has no further gas monitoring data on record. GIBB also commented on the report entitled 'Rattlechain Tip - Proposals for Reclamation'. Various items of correspondence are on record concerning the proposed reclamation scheme. Also of note is a letter referring to the presence of landfill gas from the Brades Hall IV site which adjoins the Temple Way housing area and the Rattlechain site.

In October, works recommenced at a more intensive pace. Additional machines were moved on to site to dig a drainage trench at the site boundary and fill it with rubble.

During November, Mintworth started removing tanks on the old sewage treatment works (subsequently referred to as Area 1). This work continued at a fairly slow rate throughout 1992 and was completed in September 1992. Once the tanks had been removed, the underlying marl was excavated to a depth of ten metres (in areas). The holes were subsequently filled with foundry sand and tracked over by excavator. The marl and sludge cake removed was stockpiled on the former Duports Tip part of the site adjacent to the canal (subsequently referred to as Area 2).

1992

In January, gas standpipes were installed in Area 2, and work intensified on removing the settlement tanks resulting in an increased stockpile of soil and sewage sludge in Area 2. Also, the filter drain on the south side of the bund was completed.

In March, the environmental bund was partially removed to allow access for a drilling rig for the installation of gas monitoring standpipes. Also in March, a letter was sent from BCDC to Mintworth advising them that a waste disposal license will be required prior to importing foundry sand into Area 1.

During May, importation of foundry sand onto Area 1 commenced and preparation work commenced for the site entrance in the NW corner of Area 1.

During July, construction of a new internal haul road started.

By September, all Area 1 up to the sludge beds was cleared down to clay level, and a track into Area 2 excavated.

Improved fencing was installed in October and completed in December.

By December, foundry sand was being imported either into Area 2 or straight into excavations in Area 1 and has continued to date.

1993

The importation of building rubble and foundry sand continued in January 1993 and this material together with the screenings from the foundry sand was deposited on Area 2.

During February, activities were noted to be fairly intense with the importation of foundry sand and building rubble. The Operator also started screening the sand and placing only the screened material in Area 1.

In April, a drainage ditch was dug along an internal road adjacent to the Albright and Wilson lagoon. Between May and August, a weigh bridge and plant maintenance building were constructed.

In June, building rubble and sand was used to construct a vehicular access ramp from Area 2 into Area 3 (land east of Rose Lane), and in July manholes serving the sewer which runs across the east part of Area 1 was partly raised to compensate for increased levels following completion of the reclamation.

By October, importation of foundry sand was mainly into Area 2 with only occasional loads into Area 1. On Area 1, foundry sand was compacted by means of tracking in by a large bulldozer. No other compaction was used.

In November, a layer of sand was spread over approximately 50% of Area 1. GIBB were told that this was to mark the level above which better compaction would take place. No additional compaction has been witnessed, however. The height of the mound on Area 2 was noted to be level with the bund.

In December, the Operator started placing unscreened foundry sand on Area 1. GIBB were told that it will be screened at a later date as weather conditions made screening difficult and the land was waterlogged. The placing of unscreened material in this area continued until June 1994. In February, the height of the stockpile in Area 1 was noted to be approximately 5 m above the level of the surrounding ground. Extension rings to the sewer manholes were added. Surface water was seen running directly into the sewer during wet periods.

1994

Importation of foundry sand and building rubble to Area 2 continued throughout 1993.

In March, GIBB commented on Planning Application BCS 2585 and reasons for not having complied with conditions 9 and 18 in the approved timescale. These conditions relate to the implementation of gas control measures and the installation and operation of a leachate management system. At the end of March, GIBB expressed concern to BCDC over the height of the stockpile on Area 1, as it was not indicated on any of the plans relating to the proposals for reclamation in GIBB's possession.

In April, GIBB informed BCDC that Johns Lane was very muddy and the mud appeared to be coming from the Rattlechain site. Condition 17 of BCS 905 required vehicle washing facilities which BCDC waived on the understanding that Johns Lane was kept clean by other methods. Correspondence between GIBB and BCDC stated that the planning conditions relating to the gas control measures and the leachate disposal system (BCS 2407) give a deadline for completion of 30th April 1995.

At the end of April, GIBB wrote to Mintworth concerning holes in the fencing of the site boundary.

During May, GIBB requested that an independent survey of the levels on the site is carried out as Mr Hurst of Mintworth was unable to provide further information as to how the levels of the profiles had been determined on site. Repairs to the fence were carried out during May.

In June, the power screen began work on the stockpile in Area 1. Screened material was placed in layers of approximately 300 mm and compacted by road roller. Plate bearing tests have (according to the operator) been carried out on Area 1. By July, the height of the stockpile had reduced and was used to in fill the SW part of Area 1. The stockpile in Area 2 was graded on the south side, although the main bulk and height continued to grow.

In July, GIBB received (for information) a copy of a letter dated 30 June from Mintworth to Walsall Metropolitan Borough Council giving details of a working plan drawing (no. 4A) showing the extent of the temporary stockpiling and screening operations on Area 1.

During August, importation of foundry sand and building rubble was to Area 2 only and the height of the stockpile on Area 1. During September and October, the stockpile on Area 1 was reduced to a level below final completion height while the height of the mound on Area 2 increased to approximately 7 m above the bund.

During November and December, the stockpile on Area 1 was completely removed and any resulting holes filled in. The ramp at the back of Area 2 was completed and the main access route to the tipping areas. Mintworth informed us that they were about to submit two

planning applications one with respect to development on Area 1 and the other concerned with raising levels on land east of Rose Lane.

1995

Throughout 1995, importation of foundry sand and building rubble continued into Area 2. During January, a drainage ditch was constructed along the northern and western edge of Area 1. In October, provision of a raised section of storm drain took place under the supervision of Sandwell Metropolitan Borough Council.

The height of the mound on Area 2 continued to grow.

1996

Throughout 1996 importation of foundry sand and building rubble continued into Area 2.

During January a meeting with Mr Hurst revealed that attempts had been made to install a leachate barrier around the perimeter of Zone 2, but that due to unforeseen difficulties work had stopped. He also commented that if a planning application at BCDC is approved some of this material will be moved further east. GIBB drew the increasing height of the mound on Area 2, to BCDC's attention.

During February, preparatory work commenced on the landfill gas/leachate barrier system, with a trench being dug around the western boundary of Zone 2. Attempts were made by Mintworth to install the barrier using innovative methods but these were unsuccessful and in April they went out to tender for the work. In May, the western boundary of Area 2 had the landfill gas/leachate barrier installed by Landline.

In June, work preparatory work commenced on installation of the landfill gas/leachate barrier along the southern edge of the repository. This started with the removal of the bund alongside the housing.

In July, replacement of the last of the old surface water drainage pipes with pipes of a larger diameter commenced. This was completed in September. Breaking up of concrete into smaller pieces on the northern boundary of Area 2 also took place.

During September, they started to build a new haul road onto Area 2 which would allow more tipping over the northern edge of the mound. Work also continued on the formation of a trench along the southern side of the repository for installation of the landfill gas/leachate barrier.

In October, the new haul road was in operation and work on the trench on the southern side of Area 2 continued.

In November, the landfill gas/leachate membrane was installed in the southern edge of the repository. This does not join up with the membrane system alongside the western edge. According to discussions with Mr Hurst a linking triangular wedge will be constructed later joining the two together. He also referred to the fact that a Section 73 application has been made to extend the time period and also to modify the proposed capping of the repository. He is still awaiting discussions with the Environment Agency with respect to this.

During December, Mr Hurst mentioned that they will be digging trial pits within the southern part of the repository and would welcome a visit by GIBB to confirm their reaching the bottom of the marl. He also mentioned that only one borehole was left as the others had been damaged during the installation of the membrane. The one left (which is situated outside the site) was still giving methane readings of 11% from the borehole. He suggests the methane is probably coming from elsewhere (such as the Brades Hall IV site).

4 CONCLUSIONS

GIBB has monitored development at the Rattlechain site from 1990 to December 1996 and provided BCDC with monthly reports on progress. Advice has also been given on specific matters relating to planning conditions or the landfill gas/leachate membrane system as requested by BCDC.

During this 6 year period, the former Tividale Sewage Works site has been reclaimed and at present comprises flat land with a clay stockpile on top, for use as a capping material on the Duports Tip. The original plans for exporting the waste from Duports Tip were changed and foundry sand and builders rubble subsequently imported and continue to date. A landfill gas/leachate membrane is in the process of being installed around the southern and western sides of the tip.

Throughout this period various planning applications have been approved to take into account the changes in the proposed scheme of remediation and also to extend the time scale. A waste disposal license was also granted to operate a landfill site at the Rattlechain site.

