

MINISTERIAL STATEMENT

**To The Honourable The House of Assembly
by the Hon. Ronald DaC. Jones, J.P., M.P.,
Minister of Education, Science, Technology and Innovation
On
Issues Affecting the Combermere School and Initiatives Taken
To Return The School To Full Operation**

Tuesday, February 7, 2017

The Combermere School facility at Waterford is one of the older secondary school plants in operation, given it has occupied its present site since 1958. The school is surrounded to the north and eastern sides by former plantation properties, that to the east now accommodating some industrial activity and a horse paddock all separated from the school by busy roadways. A village hugs the south-western boundary. The user group is large with a student roll of some 1,130 students, 61 teaching staff, 13 non-teaching staff and 13 ancillary staff. A significant portion of the plant is of coral stone construction, including the main and largest classroom block on the site. The plant is heavily used by the surrounding and wider Barbadian community at large for a multiplicity of activities year round. The services infrastructure of the plant is also definitely at a stage where various elements could be expected to manifest weaknesses, or fail and require subsequent further upgrade.

Mr. Speaker Sir, in May 2014, natural gas odours were reported and after investigation by the National Petroleum Corporation, pipeline leaks were identified and resolved during the summer period. This included replacing an entire old pipe traversing the compound. However, in February 2015 the school was disrupted by strong odours coming across the compound into the foyer of the school. On investigation, the smell was found to be emanating from a property east of the school where trees were being cleared. The trees were confirmed to be the source of these strong odours and arrangements eventually made with the owners to avoid disturbing the trees during school periods due to the impact of their resulting emissions. Specialists consulted on this species, confirmed the potentially offensive and toxic odours associated with the trees when damaged or disturbed.

At the same time, the internal ventilation of areas of the Administration Section was under scrutiny especially with discomfort being reported particularly in the Deputy Principal's office and to some extent the Secretary Treasurer's office. To provide additional accommodation in this area, subsequent expansion of the Administration section of the building had increased the distance from windows, limited original air flows and required some dependence on air-conditioning. It would be concluded that lack of adequate air exchange in these areas was in itself a separate ongoing issue but which could also be exacerbated by any odours entering the rooms. The Deputy Principal was relocated for an extended time during the overall period until ventilation was improved with installation of extractor fans. The removal of copying equipment from the immediate vicinity of staff was also necessary along with ensuring the simple practice of allowing windows to be partially opened for periods of the day.

During March to April of 2015, complaints of intermittent odours affecting the entrance to the school, the Administrative areas and some classrooms continued. Also in April, 2015, the septic tank south of the Principal's Office and east of the main classroom block (henceforth referred to in this Statement as "Septic 1") was tested with fog inserted by the Ministry of Health. At this point, a number of critical leaks were evidenced. Excavation of the sewerage lines to Septic 1 identified breaks in joints and on further fog tests, a vent pipe from that tank running to roof level within the wall of the Principal's lunchroom was found to have been punctured. This has evidently occurred during previous coring through the wall to facilitate installation of electrical conduits allowing gases to leak directly into that room. These various breaches were remedied and after testing for contaminants, the surrounding soil fill was also replaced as a precaution. By May 4, 2015 however, the school had been relocated in response to the need to resolve concerns and provide a satisfactory environment for the users. Air quality and surface tests were commissioned and conducted by REA Envirohealth within the building at this time and confirmed no harmful levels of any contaminants. Also, no presence of extraordinary levels of other chemical gases was found.

However, Mr. Speaker, for good measure at this time, the other septic tanks and manholes of the school plant were inspected, cleaned where required, repaired where any defects were found and covers re-

sealed. During the review of the plant, a number of these issues were identified for action. These included:

- Lab chemicals for disposal needed to be better stored.
- Broken and rusted roof gutters needing replacement.
- The entire plant in need of a more rigorous cleaning.
- Significant pigeon nesting and related issues of concern.
- Obsolete IT equipment stored in classrooms and basement areas.
- Roof leaks on the Home Economics and Art Room blocks.
- Leaking water storage tank under Industrial Arts Block causing damp and related effects.

The following actions were taken:

- Chemicals to be disposed were secured by the installation of a wrought iron gate to the storage area pending removal under Environmental Protection Department and its guidelines.
- Broken guttering was removed and replaced and downpipes off the main classroom block were routed together above ground level and to a well south of the building to minimize excessive moisture reaching the base of the building's coral stone walls.
- All buildings were industrially cleaned internally and power washed externally.
- Pigeon nesting areas were sealed, where feasible, to minimize the recurrence of nesting.
- Disposal of obsolete IT equipment was approved and completed.

In July of 2015, the team of consultants from the US National Institute for Occupational Safety and Health of the Centers for Disease Control and Prevention (NIOSH), facilitated through PAHO, proceeded to review the technical reports and steps taken to-date to assess the Indoor Environmental Quality at the school with a number of tests at the site. While concurring with the conclusions of the other studies done locally, including recommended improved maintenance, NIOSH considered that there were no environmental reasons why the buildings could not be re-occupied. The Division of Labour concurred with the satisfactory state of the plant and as a consequence Staff and students returned to the school at the beginning of the new school year in September, 2015.

The 2015-16 school year proceeded with very few reports of problems after re-opening and progress was made to rectify certain other outstanding matters of concern. The school's Board of Management repaired the Art Room and various windows and doors of the school. Also, repair of the underground water storage tank was completed. Soon after being invited to examine the school in March 2016, recommendations from Engineer, Mr. Grenville Phillips, Jr. included the move to install traps in student bathroom sinks to remedy possible leakage of gases back from the wells to these bathrooms and surrounding areas on the classroom block. This was also implemented in the course of eliminating any unintended sources of gases.

Sadly Mr. Speaker Sir, over the course of the two (2) year period from 2014, there were still intermittent user reports of ill health which included instances of dizziness, light headedness, nausea and skin irritation and which individuals associated with experiencing the odours or specific conditions in certain areas of the school. The school's operations were consequently interrupted with a full relocation during the third term of the 2014-2015 school year and again with closure during the latter part of the first term of the 2016-17 school year. Towards the end of the school year from May 17 to June 30, 2016, the Ministry of Health took the decision to station a Nursing Consultant at the school to assess and assist any incidents of ailments occurring and to document perceived causes. The Nurse's report stated that 13 persons were referred to Polyclinics and two to the Queen Elizabeth Hospital. However, of the 131 incidents documented, only three were assessed related to the environment of the school. The Nursing

Consultant noted that there was local irritation reported due to damaged desks and that there was a noticeable improvement with the application of the corrective measures.

During the Summer recess my Ministry undertook fog-testing of the sewerage systems in August 2016 and the cover of that tank south of the Principal's office, which was referred to as Septic 1, was resealed and tightened. However, after opening of the school in September 2016, there were again complaints of odours affecting sections of the main classroom block and also the Secretary/Treasurer's office. The following discoveries were made on investigation:

- On re-opening of the manhole of the septic tank, the tank's cover was found dislodged.
- On further examination of the area, a ground level vent pipe to the nearby sewerage well used to insert fog, which had been capped, was found to have been broken and the cap missing. Gases would have been escaping from this point as well.
- At the same time, a second floor vent pipe was noted to be leaking gas from a joint opening. This would have allowed gases to affect nearby third floor rooms which had in fact also recently complained of odours.
- Finally, on excavating the soil cover of a nearby sewerage pipe coming from upper floor toilets, as a part of the process of mapping the system, a puncture was found and leaking of effluent into the soil confirmed at a point immediately outside of the office of the Secretary/Treasurer. This leak would likely have given rise to an odour from the ground compromising the air reaching the Secretary/Treasurer's office from time-to-time.

All of these leaks were subsequently repaired and the tank cover resealed and its manhole cover secured with locks.

Additionally, in consideration of reports of an incident of odours and notable skin irritation affecting persons in the school hall also during

the 2016/17 Michaelmas term or the first term of the 2016/17 year. further attention was given to nearby drainage with the intention of also of completing the system mapping process in this area. After closure in November 2016, the path of drainage from the sinks of the main Science Block was fully examined. At this point it was discovered by Mr. Phillips and confirmed by the Independent Team that this effluent passed through an open grill covered drain which ran parallel to the east windows of the Hall. The preceding manhole was also found to be clogged with a very pungent smelling sludge making passage of fluids slow and clearly a source of possible irritants. Further work was therefore immediately undertaken to clear this drain and redirect it within an enclosed pipe to a well north of the labs. This discovery answered the questions surrounding occasional reports of odours and skin irritation being experienced in the Hall.

On further consideration of the reports of odours in some upstairs rooms, recommendations were also made by the engineers to raise or relocate specific vent pipes on the buildings to prevent any drift of fumes into rooms at the upper levels. The vent pipes were all raised to minimum required levels to ensure adequate dispersion away from the buildings.

Given that the original plumbing drawings for this school (which was built in 1954) appear to have been destroyed due to damage in storage some years ago, and various changes have been made over time, engineer Grenville Phillips, Jr. was commissioned to complete an updated plan of the school's overall drainage and sewerage systems to ensure that there is a current guide to the systems serving all areas of the school. This mapping work has also been completed. Recommendations have also been provided for improvement of the drainage infrastructure of the school at a number of points which will be addressed on a prioritized basis.

One key area is that of rainwater drainage off the main classroom block. Previous steps taken to direct rainwater away from the base of this building are to be further enhanced. A plan is to be implemented with the support of the Alumni to capture some of this water in a tank system which will minimize flooding and settlement of water to the south-west of the building. An additional well is also proposed to assist management of this runoff.

The independent team of voluntary experts, facilitated by the school's Old Scholars after the second closing occurred in November 2016, were approved by the Ministry of Education, Science, technology and Innovation to carry out a thorough review of the school and the initiatives taken in response to the current issues. The team comprised an Environmental Engineer (Brian Reece), a Chemist (Dr. Leah Garner-O'Neal), a Civil Engineer (Greg Parris) and an Industrial Hygienist (Ian Weekes). The conclusions of this team are provided in a separate report presented to the Ministry on January 23, 2017. The report's conclusions generally concur with the findings and recommendations made by Engineer, Mr. Grenville Phillips Jr. and the process of rectifying problems and returning the buildings to a satisfactory state was also very well informed by the team's further observations and continued involvement and feedback on that process.

Starting their investigation after the school had again been closed for a period (about 3 weeks), the internal ventilation and potential moisture issues affecting some indoor areas were noted to have been exacerbated by the lack of normal daily airflow through the rooms. As a result, mould build-up was found within the Administration areas, Sick Bay, Storerooms, Staff Room and the standard fabric covered teacher's chairs in classrooms. The History Room, notable for its absence of windows on its western side which would better allow for more ventilation, was also notably affected by evidence of mould. This general proliferation of mould build-up during the closure evidenced the need for continuous management, particularly of the schools sizeable coral stone sections to ensure adequate ventilation year round. Fabric surfaces must also be routinely cleaned to remove the build-up of oils and moisture that facilitate mould.

When the Independent Team and Ministry officials examined the school's Science Labs in late 2016, the poor state of the old laminated wood lab counters was again noted. Some had broken away from around the sinks and the formerly white laminate was brown with the years of exposure to harsh substances. However, added to this, it was evident that various chemicals that should be disposed remained in the labs themselves and some of these off-gassing due to exposure to the warm air. As a consequence, the Independent Team and Ministry officials determined that there was an urgent need for attention to the training of the lab assistants and the adherence to best practice protocols for the management of the labs to ensure the safety of all

users of the facilities. Additionally, there was a need to accelerate the removal of all expired and unwanted chemicals from the school. Plans were activated to hire the necessary professionals to carry this out and for provision of an interim storage point to allow for removal offsite immediately pending shipment abroad.

The Independent Team's Leader, Brian Reece and Civil Engineer, Greg Parris in conjunction with Engineer, Grenville Phillips, senior Ministry Project Unit Officer, Andrew Parris and school Artisan, Rukti Parris all worked tirelessly to review and address identifiable weaknesses in the schools sewerage and drainage systems. The vigilance and record keeping of events by the school's Principal, Mr. Vere Parris, was also critical to informing the technical group, understanding circumstances and responding to issues arising. Careful attention to the comments of those, particularly sensitive teachers and staff in general, also contributed importantly to understanding what was happening during operation of the school and its systems. A number of detailed recommendations have been noted in the reports of both Engineer Phillips and that of the Independent Team, the most critical items have now been addressed. Additionally, various drainage recommendations are also provided that speak to instances of temporary flooding in certain areas and water ponding which are to be dealt with on a prioritized basis.

For the period of the first closure in 2015, approximately \$400,000 was spent on testing, guttering, general repairs, examination and cleaning of septic tanks and various manholes, and overall cleaning of the school. To address those matters noted and arising during the Michaelmas 2016 Term (last term), another \$450,000 was explicitly allocated by the Government and will finally be spent as set out below. The major items executed were:

- ❖ Offsite storage and professional removal of old chemicals - \$40,000
- ❖ Additional toilets for female students - \$40,000*
- ❖ New composite countertops for four of the Science Labs - \$105,000

- ❖ Repairs so far of one prefab for additional teaching space - \$42,000
- ❖ Overall cleaning of the plant internally and externally inclusive of mould remediation for specific rooms. - \$80,000
- ❖ An outstanding matter for the school frequently referred to by the Barbados Secondary Teachers Union for attention, was the provision of additional toilets for the schools now larger female student population. Designs for this installation, effectively doubling the compliment, were prepared in early 2016 by the Ministry's Project Unit and with the additional budget mobilised, the project was commissioned and completed for operation by the re-opening of school in January 2017.

The following matters requiring attention are to be addressed with the remaining funds immediately provided to the school:

- (i) Installation of roof guttering to control flooding north of the Science block.
- (ii) Replacement of the fume chamber stacks on the Science Block to ensure adequate dispersion above roof level.
- (iii) Replacement of the existing kitchen grease trap which is undersized.
- (iv) Further elevation and completed cleaning of the Kitchen's vent stack.
- (v) Relocation of the extractor fan installations to improve and to rectify the ventilation of the school's Sick Bay and Secretary Treasurer's office.
- (vi) Replacement of various termite affected doors, student desktops and repair of the laminate on three other Science labs to be done.

- (vii) Removal of the Almond trees which continue to threaten the sewerage pipes to and from Septic tank 1 and the nearby wells.
- (viii) Repair of second prefab to add two more classrooms.

Mr. Speaker, the situation at Combermere is still being actively monitored and we are presently giving consideration to undertaking the following additional works during the next financial year:

- (a) Possible relocation of the refuse collection and pickup area.
- (b) Provision of a larger septic tank to serve the female student toilets.
- (c) Further drainage improvements around the buildings.
- (d) Improved configuration/ventilation of the school's cafeteria.

In conclusion Sir, Combermere School was confronted with a series of environmental issues impacting users due to various factors from May 2014 to December 2016. These included isolated externally sourced events of odours including nearby toxic trees, burning of refuse, indiscriminate use of pesticides and/or cleaning of grease traps by neighbours. These incidents served to exacerbate anxiety, fuel uninformed speculation and at times despite the diligent effort to find solutions, complicated attempts to assess those issues attributable to the plant including conditions specifically associated with the natural gas supply, sewerage and drainage systems, interior ventilation and the general maintenance management of the school.

In response, several entities assisted the Ministry, its Project Unit and the school's management and maintenance staff through the process of investigation and resolution. These included personnel from the Health and Safety Section of the Ministry of Labour, the Ministry of Health, the Environmental Protection Department and private Environmental Consultants, REA Envirohealth International. Additionally, in 2015, at the request of the Cabinet, the Pan American Health Organization (PAHO) obtained the services of a team of Consultants from the National Institute for Occupational Safety and Health of the Centers for Disease Control and Prevention (NIOSH) to investigate the

Indoor Environmental Quality at the school. From March 2016, consulting Environmental Engineer, Mr. Grenville Phillips, Jr., participated in providing solutions after further assessing the circumstances and issues arising and also completed a full mapping of the sewerage and drainage systems of the school. Also, from November 2016, another team of local professionals, largely Alumni, were approved by the Ministry to independently review the history and solutions being applied in order to bring a second tier of analysis to final recommendations being made. These entities and specialists collaborated closely and tirelessly in the final steps taken to bring resolution to the most recent challenges.

The entire series of events at Combermere School have provided an extended and multi-faceted set of lessons related to the management of a mature school plant. The combination of factors noted provided a test of know-how, patience and endurance for all involved. It is with some satisfaction, however, that with the collaborative effort mobilized, the mysteries, attendant speculation and associated anxieties have been put to bed and that notwithstanding those who may have suggested an unwillingness to respond, that there has been a consistent effort to systematically investigate, identify and eliminate the causes of negative impacts.

More generally, it must also be noted that we are increasingly dealing with the challenge of the rise of respiratory sensitivity and the need to exercise best practice in the environmental management of facilities. Additionally, the challenge of effectively managing aging infrastructure is also clearly before us. However, the challenge of improving the process of ongoing cleaning is one that faces this school, as well as every other in the island. There is no substitute for the necessary diligence of those who have responsibility for this routine task. The need to follow the necessary daily protocol even during breaks of airing rooms, being prudent with the use of water, and attending to adequate dust and grime control are even more critical for such older buildings and must be improved in order to minimize the need for inordinate resort to the expense of frequent extensive commercial cleaning, however necessary this may be, at the right intervals. It must also be accepted by users that naturally ventilated buildings will allow some moisture intrusion from the weather and odours from external activities from time-to-time. However, the need to permit continued adequate ventilation is also necessary to recover from

these intrusions to rooms. Air conditioned rooms must also be vented adequately to control moisture/mould build-up and for fresh air entry.

The Ministry of Education, Science, Technology and Innovation and this school community are indebted to all who participated in the process of resolving the problems and who continue to vigilantly assist the school with monitoring the plant. These include the partner Government agencies whose personnel, particularly those of the Safety and Health Section of the Ministry of Labour headed by Ms. Alison Elcock and the Senior Environmental Health Officer of the Ministry of Health, Mr. Basil Pilgrim have stayed the course with us throughout.

Special mention must, however, be made of those private professionals who have given of their time entirely free and without demand for compensation in the process. In this regard mention must be made of the voluntary work of Engineer, Grenville Phillips and the Independent Team of Brian Reece, Greg Parris, Dr. Leah Garner-O'Neal and Ian Weekes who have all been unflinching in their efforts. The willingness of these individuals to give of their time and expertise on an extended basis is a testament also to the generous community spirit possessed by these professionals. Mr. Speaker we thank them again.

Let me say Sir, two of our own, the Senior Draughtsman of this Ministry's Project Implementation Unit – a gentleman by the name of Mr. Andrew Parris and the school's own talented Artisan, Mr. Rukti Parris, must also be commended for their unswerving dedication to getting the job done and putting in extended personal time and effort at every stage. The work of all the foregoing persons has been invaluable and has been the silver lining behind this temporary cloud that hung over Combermere - but which has now, we trust, by dint of diligent collaborative effort, effectively been removed. We can be confident that with the continued cooperation from all concerned, there will be no untamed mysteries compromising operations of the school.

Mr. Speaker, I wish to close by stating that since the conclusion of these various reports and activities the attention of the Ministry and partners has been drawn to what appears as a deliberate attempt to sabotage the work which has taken place over the last several months. On Thursday, 26th January, 2017 hand-towels and children book leaves were found to be blocking drainage pipes from a toilet in the area where some complaints had originated. This act would have allowed sewage

gases to have been released into those spaces if they were not identified and corrected by an external plumber and artisan of the school. On Monday, the 31st January a similar incident occurred, which would have had the same effect. I'm sad Sir, to report that last week we found after closure of one of the labs, where natural gas is present in that lab, that on return of the teacher to that lab, it was found - and that was some 45 minutes after her exit - that two of those natural gas pipes were turned on and left on in that lab. Vigilance has ensured that its impact on the school was nullified.

Thank you very much, Mr. Speaker.