DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

for the

PROPOSED CONSTRUCTION OF A FILLING STATION ON ERF 15673, STRETFORD, ORANGE FARM, JOHANNESBURG METROPOLITAN MUNICIPALITY, GAUTENG

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1. INTRODUCTION AND BACKGROUND

Envirolution Consulting (Pty) Ltd (Envirolution Consulting) has been appointed by BP Southern Africa as an independent environmental consultancy to undertake the Basic Assessment (BA) for the proposed construction of a filling station on Erf 15673, Stretford in Orange Farm, within City of Johannesburg Metropolitan Municipality, Gauteng.

The proposed development entails the construction of a filling station, a refreshment area, a convenience store and a potential car wash facility. The filling station will have 3 x 46kl and 1 x 23kl underground storage tanks (total capacity 161kl).

It is understood that any development can pose various risks to the environment as well as the residents or businesses in the surrounding area. These possible risks should be taken into account during the planning phase of the development. An Environmental Management Programme (EMPr) is required for the proposed project as per the NEMA EIA Regulations, 2010 (as amended). The implementation of this EMPr, through the appointed contractor, remains the responsibility of the applicant, BP Southern Africa (Pty) Ltd.

In general, the purpose of this EMPr is to formulate mitigatory measures that should be made binding to all contractors during construction of the proposed development, as well as measures that should be implemented during the operational phase.

The EMPr is thus required to protect the natural, social and socio-economic environment during construction. This EMPr is intended for the management of the impacts of construction of the proposed filling station. This EMPr is, therefore, a stand-alone document, which must be used on site during each phase of the development (planning, construction and operational phases).

This document should be flexible so as to allow the contractor and developer to conform to the management commitments without being prescriptive. The management commitments prove that the anticipated risks on the environment will be minimised if they are adhered to consistently. The onus set out in the EMPr rests with the developer, main Contractor and subcontractors, which promotes responsibility and commitment. Any parties responsible for transgression of the underlying management measures outlined in this document will be held responsible of non-compliances and will be dealt with accordingly.

All the Environmental specifications and the procedures discussed in this document were developed in accordance with the relevant legislation applicable to the proposed development.

2. PHASES OF THE PROJECT

The process which was followed in compiling this EMPr is in compliance with NEMA EIA Regulations 2010 (as amended), and applies the principles of Integrated Environmental Management (IEM). The purpose of this EMPr is to formulate mitigation measures that are made binding on all contractors during the construction phase as well as during the operational phase.

The point of departure for this EMPr is to take a pro-active route by addressing potential problems before they occur. This should limit corrective measures needed during the construction and operational phases of the development. Additional mitigation will be included throughout the project's various phases, as required and if necessary.

This EMPr deals with the following phases as detailed below:

2.1. The Planning Phase

This EMPr offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development.

Pro-active environmental measures minimize the chance of impacts taking place during the construction and operational phase. There is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g. this EMPr) during the planning phase, the necessary corrective action can be taken to further limit potential impacts.

2.2. The Construction Phase

The bulk of the impacts during this phase will have immediate effects (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts can then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from the developer.

2.3. The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

3. RESPONSIBILITIES OF THE ROLE PLAYERS

3.1. Developer

The developer remains ultimately responsible for ensuring that the development is implemented according to the requirements of this EMPr. Although the developer appoints specific role players to perform functions on his/her behalf, this responsibility is delegated. The developer is responsible for ensuring that sufficient resources (time, financial, human, equipment, etc.) are available to the other role players (e.g. the ECO, ELO and Contractor) to efficiently perform their tasks in terms of the EMPr. The developer is liable for restoring the environment in the event of negligence leading to damage to the environment.

The developer must ensure that the EMPr is included in the tender documentation so that the contractor who is appointed is bound to the conditions of the EMPr.

The developer must appoint an independent Environmental Control Officer (ECO) during the construction phase to oversee all the environmental aspects relating to the development.

3.2. Contractor

The contractor, as the developer's agent on site, is bound to the EMPr conditions through his/her contract with the developer, and is responsible for ensuring that he/she adheres to all the conditions of the EMPr. The contractor must thoroughly familiarise him/herself with the EMPr requirements before construction begins and must request clarification on any aspect of these documents, should they be unclear. The contractor must ensure that he/she has provided sufficient budget for complying with all EMPr conditions at the tender stage.

The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site engineer in terms of the EMPr.

3.3. Resident Engineer (RE)

The Resident Engineer (RE) will be appointed by the 'Consultant' and will be required to oversee the construction programme and construction activities performed by the Contractor. The RE is expected to liaise with the Contractor and ECO on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences. He/she will oversee the general compliance of the Contractor with the EMPr and other pertinent site specifications. The RE will also be required to be familiar with the EMPr specifications and further monitor the Contractor's compliance with the Environmental Specifications on a daily basis, through the Site Diary, and enforce compliance.

3.4. Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is appointed by the developer as an independent monitor of the implementation of the EMPr. He/she must form part of the project team and be involved in all aspects of project planning that can influence environmental conditions on the site. The ECO must attend relevant project meetings, conduct inspections to assess compliance with the EMPr and be responsible for providing feedback on potential environmental problems associated with the development. In addition, the ECO is responsible for:

- Liaison with relevant authorities;
- Liaison with contractors regarding environmental management; and
- Undertaking routine monitoring and appointing a competent person/institution to be responsible for specialist monitoring, if necessary.

The ECO has the right to enter the site and do monitoring and auditing at any time, subject to compliance with health and safety requirements applicable to the site (e.g. wearing of safety boots and protective head gear).

(a) Liaison with Authorities

The ECO will be responsible for liaising with GDARD and other environmental authorities. The ECO must submit environmental audit reports to the authorities should they be required for the project. These audit reports must contain information on the contractor and developer's levels of compliance with the EMPr. The audit report must also include a description of the general state of the site, with specific reference to sensitive areas and areas of non-conformance. The ECO must indicate suggested corrective action measures to eliminate the cause of the non-conformance incidents. In order to keep a record of any impacts, an Environmental Log Sheet (refer to **Appendix 2**) is to be kept and updated on a continual basis.

(b) Liaison with Contractors

The ECO is responsible for informing the contractors of any decisions that are taken concerning environmental management during the construction phase. This would also include informing the contractors of the necessary corrective actions to be taken.

3.5. Environmental Liaison Officer (ELO)

The contractor must appoint an Environmental Liaison Officer (ELO) to assist with day-to-day monitoring of the construction activities. Any issues raised by the ECO will be routed to the ELO for the contractors' attention. The ELO shall be permanently on

site during the construction phase to ensure daily environmental compliance with the EMPr and should ideally also be a senior and respected member of the construction crew. Past experience has revealed that ELO's that can relate to the work force are the most effective for information transfer and ensuring compliance with the EMPr. All the responsible parties mentioned in this section are responsible for ensuring the implementation of the EMPr and WMP procedures outlined in the Tables overleaf for the duration of the project.

4. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

The following table forms the core of this EMPr for the construction and operational phases of the development. This table should be used as a checklist on site, especially during the construction phase. Compliance with this EMPr must be audited monthly during the construction phase and once immediately following completion of construction. This must be followed up with annual audits for a period of two years during the operational phase.

Table 1: Planning Environmental Management Programme for the proposed BP Stretford filling station

Activity / issue	Action required	Responsible party	Frequency
Planning	The construction must conform to both the permit conditions and the Minimum Requirements associated with the site classification.	Developer	Continuous
	It is the duty of the responsible person to ensure that the Minimum Requirements for the operation of the filling station are applied to the degree equal with its class to the satisfaction of the Gauteng Department of Agriculture and Rural Development.	Developer	Continuous
	There must be sufficient facilities and resources to ensure that the filling station's operation can conform to both the permit conditions and relevant Minimum Requirements. For example, there should be sufficient trained staff to monitor, control and record incoming waste where required.	Developer	Continuous
	Concrete markers must be placed to indicate the locality of the proposed boundary	Developer and Contractor	Once off
	All construction activities must be limited to daylight hours	Contractor	Continuous
Appointment and Duties of ECO	The Developer must appoint an independent Environmental Control Officer (ECO) who must monitor the contractor's compliance with the EMPr.	Developer	Once-off
	The developer must provide the ECO and contractor with a copy of the EMPr.	Developer	Once-off
	The priority of the ECO is to maintain the integrity of the development conditions outlined in the EMPr.	ECO	Continuous
	The ECO must form part of the project management team and attend all project meetings.	ECO	Continuous

	The contractor must ensure that the construction crew attend an environmental briefing and training session presented by the ECO prior to commencing activities on site.	ECO, Contractor	Once-off
Appointment and Duties of ELO	The contractor must appoint an Environmental Liaison Officer (ELO). This person will be required to monitor the situation with a direct hands-on approach, and ensure compliance and co-operation of all personnel. He should be fluent in the languages of the employees.	Contractor	Once-off
EMPr	This EMPr must be made binding to the main contractor as well as individual contractors and should be included in tender documentation for the construction contract.	Developer, ECO	Once-off
Permits and Permissions	The Contractor shall ensure that all pertinent permits, certificates and permissions have been obtained prior to any activities commencing on site and ensure that they are strictly enforced/adhered to. This includes, for example, clearance certificates (obtained from the Department of Labour).	Contractor, Developer	Continous
	The Contractor shall maintain a database of all pertinent permits and permissions required for the contract as a whole and for critical activities for the duration of the contract.	Contractor, Developer. ECO	Continous
Method Statements	The Contractor shall submit written Method Statements to the RE for the activities identified by the RE or ECO. Activities that will require method statements include: • Concrete pre-cast and batching operation • Storage facilities for any hazardous substances • Emergency procedures	Contractor, RE, ECO	As necessary

	• Materials, equipment and staffing requirements • Transporting the materials and/or equipment to, from and within the site • The storage provisions for the materials and/or equipment • The proposed construction procedure designed to implement the relevant Environmental Specifications • Other information deemed necessary by the RE and/or ECO. Method Statements shall be submitted at least ten working days prior to the proposed commencement of work on an activity to allow the RE (and/or ECO) time to study and approve the method statement.		
	The Contractor shall not commence work on that activity until such time as the Method Statement has been approved in writing by the RE.	Contractor, RE, ECO	Continous
	The Contractor shall carry out the activities in accordance with the approved Method Statement.	Contractor, RE, ECO	Continous

	Under certain circumstances, the RE may require changes to an approved Method Statement. In such cases the proposed changes must be agreed upon in writing between the Contractor and the RE, and appropriate records retained.	Contractor, RE, ECO	Continous
	Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the EMP specifications.	Contractor, Developer	Continous
Existing Services and Infrastructure	The Contractor shall ensure that existing services (e.g. roads, pipelines, powerlines and telephone services) are not damaged or disrupted unless required by the contract and with the permission of the RE.	Contractor, RE, ECO	Continous .
	The Contractor shall be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted.	Contractor	As necessary
	Such repair or reinstatement will be to the Contractor's cost and shall receive top priority over all other activities.	Contractor	Continous
	A time limit for the repairs may be stipulated by the RE in consultation with the Contractor	Contractor, RE, ECO	Continous
Environmental incidents	The contractor must take corrective action to mitigate an incident appropriate to the nature and scale of the incident and must also rehabilitate any residual environmental damage caused by the incident or by the mitigation measures themselves.	ELO, ECO, Contractor	Continuous

Table 2: Construction Environmental Management Programme for proposed BP Stretford filling station

Activity / issue	Action required	Responsible party	Frequency
Recruitment of labour	The contractor must make use of local labour where possible in order to stimulate the local economy.	Contractor	Once off
	The contractor must appoint one of his employees to act as an Environmental Liaison Officer. This person will be required to monitor the situation with a direct hands-on approach.	Contractor	Once off
Site establishment	The contractor must establish a construction camp in an area as agreed with the ECO if required. The site for the construction camp must not be in an environmentally sensitive area such where indigenous vegetation exists, on a steep slope or on erosive soils. The area must be properly demarcated prior to establishment to prevent the construction camp from being unnecessarily large. The camp must be properly fenced. The ELO must liaise with surrounding parties to ensure that the construction camp is not located in an area where it will cause a nuisance.	ECO, Contractor	Once off
	The working width of the construction area must be clearly demarcated by the installation of coloured pegs prior to construction. Particularly sensitive areas (e.g. areas with vegetation to be preserved) must be demarcated with danger tape.	ECO, Contractor	Once off, monitor weekly
	The lateral spread of the construction must be monitored on a weekly basis.	ECO, ELO, Contractor	Monitor monthly
	The ELO will also be required to monitor unauthorised movement of construction crew.	ELO, Contractor	Once off, monitor daily
Site establishment			

Activity / issue	Action required	Responsible party	Frequency
	The developer should provide dustbins to be used during site preparation and surveying.	Developer	Once off, monthly
	To prevent excessive disturbance of natural vegetation, the contractor should use existing disturbed or paved areas wherever possible.	ECO, Contractor	Once off, monitor weekly
	To prevent the deterioration of surface water quality, the contractor must provide adequate ablution facilities. Toilets are to be emptied regularly throughout the construction phase. Every effort must be made to prevent the contamination of surface or sub-surface water.	Contractor	Bi-weekly inspections
Site Housekeeping	The Construction site and surrounds are to be maintained in a clean orderly and presentable condition at all times.	Contractor	Monitor Daily
	Regular inspections by the Contractor (and ECO) will be undertaken using checklists to ensure a minimum standard of orderliness is maintained.	Contractor, ECO	Weekly
	Construction activities shall avoid causing unnecessary disruption and nuisance to adjacent landowners and the public as a whole.	Contractor	Continuous
General: waste	Litter generated by the construction crew must be collected in rubbish bins and disposed of weekly at registered waste disposal sites.	ELO, Contractor	Weekly
	All building rubble, solid and liquid waste etc must be disposed of as necessary at an appropriately licensed refuse facility.	ELO, Contractor	Once off, as necessary
	Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site, unless in designated areas approved by the ECO	ELO, Contractor	Monitor daily

Activity / issue	Action required	Responsible party	Frequency
	The construction site must be kept in a clean and orderly state at all times.	Contractor, Construction crew	Monitor daily
	Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period of the project are disposed of at dumping site as approved by the Council.	ELO, Contractor	Monitor daily - weekly
Fire Prevention and Control	The Contractor shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started as a consequence of his activities on site.	Contractor	Daily
	The Contractor shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local Emergency Services	Contractor, ECO	Continuous
	The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to: • Regular fire prevention talks • Posting of regular reminders to staff.	Contractor, ECO	Continous
	Any accidental fires, which occur, shall be reported to the City of Johannesburg Environmental Management immediately and then to the relevant authorities.	Contractor	Continous

Activity / issue	Action required	Responsible party	Frequency
Emergency Procedures	The Contractor shall submit Method Statements covering the procedures and response plan for the main activities, which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to: • Accidental fires • Accidental leaks and spillages • Vehicle and plant accidents • Blasting (if required)	Contractor	As necessary
	Accidental leaks and spillages • The Contractor shall ensure that his employees are aware of the procedure for dealing with spills and leaks. • The Contractor shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is available on site at all times.	Contractor	Continous
	Hydrocarbon spills • The source of the spill shall be isolated and the spillage contained using sand berms, sandbags, sawdust, absorbent material and/or other materials approved by the RE. • The area shall be cordoned off and secured. • The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown the spill. • The Contractor shall notify the relevant authorities of any spills that occurs.	Contractor	As necessary

Activity / issue	Action required	Responsible party	Frequency
	The Contractor shall assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures.	Contractor	Weekly
Hazardous Substances	If potentially hazardous substances are to be stored on site, the Contractor shall provide a Method Statement detailing the substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.	Contractor,	Monitor daily - weekly
	Hazardous chemical substances used during construction shall be stored in secondary containers.	Contractor	Monitor daily - weekly
	The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation.	Contractor	Monitor daily - weekly
	The Contractor must ensure that all hazardous chemical substances are labelled, packed, transported and stored in order to avoid the spread of contamination.	Contractor & Developer	Monitor daily - weekly
	All hazardous chemical substance waste must be disposed of in accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).	Contractor & Developer	Monitor daily - weekly

Activity / issue	Action required	Responsible party	Frequency
	The waste, resulting from the use of hazardous materials, shall be disposed of at a hazardous waste disposal site as approved by the RE. Storage and disposal of waste is regulated through other legislation, which should be complied with i.e. the Occupational Health and Safety Act.	Contractor, RE	Monitor daily - weekly
Health and Safety	The Contractor shall comply with all standard and legally required health and safety regulations as promulgated under the Occupational Health and Safety Act and associated regulations.	Contractor, RE	Daily
	The Developer must provide and maintain personal protective equipment and facilities to employees working with hazardous chemical substances.	Developer, Contractor	Daily
	Official training in the correct fit, use, care, storage and limitations of all Personal Protective Clothing, Respiratory and Hearing Equipment must be given to the employees.	Developer, Contractor	Daily
	The Contractor shall provide a standard first aid kit at the site office of each camp and/or at additional identified locations where needed.	Contractor	Daily
Air Pollution	All forms of dust/air pollution must be managed in terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), this includes the control of noxious and offensive gases, smoke, dust and vehicular emissions. Under no circumstances may heavy smoke be released into the air.	Developer, Contractor	Daily
	Unsurfaced roads and temporary roads must be regularly graded and watered to control dust.	Contractor	As and when necessary

Activity / issue	Action required	Responsible party	Frequency
	Active earth work areas, stockpiles and loads of soil being transported must be watered to reduce dust.	Contractor	As and when necessary
	Work must be stopped if excessive fugitive dust is observed, or phase down while the source is being actively investigated and suppression measures are implemented.	Contractor	As and when necessary
	All areas disturbed during construction that are not required for a specific activity must be revegetated.	Contractor	As and when necessary
	Disturbed soils, slopes and areas of open excavation must be minimised to avoid wind erosion.	Contractor	As and when necessary
	Diesel exhaust emissions from heavy machinery on site (excavators, front end loaders and hauling trucks) must be controlled and minimised.	Contractor	As and when necessary
Surface and ground water	No development will take place within a 100 year floodline.	Contractor	As necessary
	Spill kits must be available in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. The dispensing devices (pump heads) must be compatible with the vehicles to which they are dispensing. In addition the dispensing devices must be fitted with the necessary valves / apparatus that will ensure that the nozzles do not drip fuel after pumping has stopped. Refuelling should take place in a centrally located area and must comply with the Occupational Health and Safety Act (Act No. 85 of 1993).	Contractor, ECO	As necessary

Activity / issue	Action required	Responsible party	Frequency
	No uncontrolled discharges from the site / working area to depressions shall be permitted. All discharge points will require approval e.g. wastewater discharges include concrete mixing, vehicle washing etc.	Contractor	As necessary
	Should surface water in the surrounding area be polluted, and fauna and indigenous flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for the appropriate treatment and remedial procedures to be followed. The requirements for such input shall be agreed with the engineer. If liability is found to rest with the contractor, the costs of containment and rehabilitation shall be on the contractor's account, including the costs of specialist input.	Contractor	As necessary
	Construction activities must preferably take place during the dry winter months.	Developer	Once off
	Ensure that excavated and stockpiled soil material is stored and bermed on the higher lying areas. To prevent erosion of material that is stockpiled for long periods, the material must be retained in a bunded area.	ELO, Contractor	Once off
	Vegetation clearance must be kept to a minimum to reduce the risk of siltation.	ELO, Contractor	Once off
	Concrete shall be mixed on mixing trays only**, not on exposed soil**. Concrete shall be mixed only in areas, which have been specially demarcated for this purpose.	ECO, Contractor	Ongoing
	After all the concrete mixing is complete all waste concrete shall be removed from the batching area and disposed of at an approved dumpsite.	Contractor, ELO	Ongoing

Activity / issue	Action required	Responsible party	Frequency
	Stormwater shall not be allowed to flow through the batching area. Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the ECO.	Contractor, ECO	Ongoing
	All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring.	Contractor, ELO	Ongoing
	Storm water at the construction camps must be managed so as to reduce potential silt loads in storm water run-off. Measures must be implemented to distribute storm water as evenly as possible to avoid point sources of erosion.	Contractor, ELO	Ongoing
	Underground services should be designed in such a way so as to require minimum maintenance to avoid disturbance of the underground environment.	Contractor, ELO	Ongoing
	The contractor shall provide and maintain portable chemical toilets for construction crews. Maintenance must include their regular removal without sewage spillage.	Contractor, ELO	Ongoing
	Under no circumstances may ablutions occur outside of the provided facilities.	Contractor, ELO	Ongoing
	The contractor shall provide and maintain portable chemical toilets for construction crews. Maintenance must include their regular removal without sewage spillage.	Contractor, ELO	Ongoing
	Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. No servicing of vehicles is to be undertaken in close proximity to watercourses.	ELO, Contractor	Once off
	Construction and the use of construction machinery should be limited between 06h00 and 18h00 on weekdays only.	Developer, Contractor	Monitor daily

Activity / issue	Action required	Responsible party	Frequency
General: noisy activities	Institute noise control measures throughout the construction phase for all applicable activities, including the construction times.	ELO, Contractor	Once off, as necessary
	Inform residents of nearby residential areas of planned noisy activities outside the timeframes stated above.	ECO, ELO, Contractor	Once off, as necessary
	Construction activities must abide by the national noise laws and the municipal noise by-laws with regard to the abatement of noise caused by mechanical equipment. In the absence of bylaws, national regulations on noise control must be complied with.	Developer, ELO, Contractor	Continual
	Prior to blasting (if required), the contractor must inform the adjacent landowners at least a few days in advance.	ELO, Contractor	As necessary
	Ensure that the construction vehicles are under the control of competent personnel and are in proper working order.	Contractor	Before construction commences & continual
General: Crime, safety and security	Ensure that only suitably qualified personnel use construction vehicles	Contractors	Before construction commences & continual
	Ensure that the contact details of the police or security company and ambulance services are available on site.	Contractor	Once off, monitor weekly
	Limit access to the construction crew camp to construction workers through access control.	ELO, Contractor	Once off, Continual
	Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No.85 of 1993) requirements.	ELO, Contractor	Continual
	Ensure that the handling of equipment and materials is supervised and adequately instructed.	ELO, Contractor	Continual

Activity / issue	Action required	Responsible party	Frequency
	Vehicular traffic during construction activities must be limited to a maximum speed limit of 30 km/hr.	ELO, Contractor	Continual
	Site notices informing the public of the planned activities must be placed at visible locations a few days prior to any blasting.	ELO, Contractor	As necessary
	It is understood that based on the preferred footprint area chosen for the proposed filling station that certain trees and vegetation may need to be removed. In this case vegetation clearing should only be done where necessary and areas not required for construction should be preserved or avoided. Where possible established trees should be relocated if they have to be moved, or replaced with suitable indigenous species. There must be no net loss of tree numbers and planting of additional trees is recommended as well as suitable landscaping that will enhance the area leaving a positive impact as part of the construction and operational phase of the development.	Contractor, ECO, Suitable qualified specialist	As necessary
Tree/Vegetation removal	The working strip required for the construction of the filling station must be effectively monitored to prevent excessive vegetation removal. By maintaining the maximum amount of stabilising vegetation, the extent of erosive action will be contained.	ELO, Contractor	Monitor weekly
Stripping of vegetation	Should the construction phase occur in the rainy season, the erection of berms may be necessary in areas prone to erosion (e.g. steep slopes or erosive soils). These bermed areas must be monitored frequently for signs of erosion.	ELO, Contractor	Once off, monitor weekly
	Vegetation to be retained during the construction phase must be clearly demarcated with danger tape.	ELO, Contractor	Once off, as necessary

Activity / issue	Action required	Responsible party	Frequency
	The topsoil cleared must be retained. The topsoil contains most of the inorganic matter, decomposed organisms and nutrients, thus the removal of the topsoil constitutes a major loss in terms of ecosystem function. In order to ensure that the minimal amount of soil is removed with vegetation clearance, it is strongly advised that vegetation be harvested as close to ground level as possible before earthworks machinery is utilised. Soil removed in this manner will contain the existing seed bank, stolons, rhizomes and runners as well as an additional supply of organic matter that will be beneficial during the early stages of vegetation reinstatement. Harvested grass should be retained and used as a mulch to combat erosion.	ELO, ECO, Contractor	Once off, monitor weekly
Excavation	Topsoil and subsoil must be placed on opposite sides of the trench and must be kept separate throughout construction and rehabilitation.	ELO, ECO, Contractor	Monitor weekly
	Topsoil must not be stockpiled for an extensive period (> 3 months). This is to prevent the redundance of the existing seed bank as well as the alteration of the soil characteristics (permeability, bulk density etc.).	ELO, ECO, Contractor	Monitor weekly
	Erect signs and/or danger tape around the exposed excavations to warn the public of the inherent dangers.	ELO, Contractor	Continual
	Trucks removing excavated material can cause compaction of soil if new pathways are created. Vehicles should, therefore, use existing roads. If the creation of new roads is unavoidable, these temporary roads should be ripped and re-vegetated after use.	ECO, Contractor	Monitor weekly

Activity / issue	Action required	Responsible party	Frequency
Removal of excavated material	Ensure that excavated and stockpiled soil material is stored and bermed on the higher lying areas of the site and not in any storm water run-off channels or any other areas where it is likely to cause erosion or where water would naturally accumulate.	ECO, Contractor	Once off, Daily
Stockpiling soil	The areas where excavated soil will be stockpiled must be bordered by berms to prevent soil loss caused by rain.	ELO, Contractor	Once off, monitor weekly
	Archaeological material, by its very nature, occurs below ground. The Contractor should therefore keep in mind that archaeological sites might be exposed during construction. If any are noticed, construction personnel must be alert and must inform the local Council should they come across any cultural/archaeological findings.	Contractor	As necessary
Destruction/protection of heritage resources	Should any archaeological artefacts be exposed during excavation, work on the area where the artefacts were found, shall cease immediately and the ECO shall be notified as soon as possible.	ELO, Contractor	Monitor daily
	Upon receipt of such notification, the ECO will arrange for the excavation to be examined by an Archaeologist as soon as possible.	ECO, Contractor	As necessary
	Under no circumstances shall archaeological artefacts be removed, destroyed or interfered with.	ELO, Contractor	Continuous
	Any archaeological sites exposed during construction activities may not be disturbed prior to authorisation by the South African Heritage Resources Agency.	ECO, Contractor	As necessary
	Sensitive environments and natural features within and/or close to a construction site will be designated as ‘no-go’ areas and will be subject to the conditions described in the Environmental Specification	Contractor, ECO	As necessary

Activity / issue	Action required	Responsible party	Frequency
Protection of Sensitive Environments and Natural Features	Remove vegetation only within the minimum width necessary for the excavation of the cable trench.	ELO, Contractor	Once off
Aesthetic / visual	Prevent unnecessary removal of vegetation outside the width of the working area by clearly demarcating the working area.	ELO, Contractor	Continual
	Remove spoil material from the area once the trench has been filled.	Contractor, Construction crew	Continual
	Remove vegetation and topsoil and stockpile separately from subsoil prior to excavation of the cable trench.	ELO, Contractor	Continual
	Revegetate disturbed ground in the working area by seeding and spreading of vegetation that has been removed from the trench at the start of construction.	ELO, Contractor	Continual
Vehicle equipment fuelling and maintenance	Spill kits must be available in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. The dispensing devices (pump heads) must be compatible with the vehicles to which they are dispensing. In addition the dispensing devices must be fitted with the necessary valves / apparatus that will ensure that the nozzles do not drip fuel after pumping has stopped.	ELO, Contractor	Continual
	In the event of a breakdown, immediate steps shall be taken to prevent any spillage.	ELO, Contractor	Continual

Activity / issue	Action required	Responsible party	Frequency
	Drip trays (minimum of 10cm deep) are to be placed under all vehicles if they stand for more than 3 hours. - The surface area of the drip trays will be dependent on the vehicle and must be large enough to catch any hydrocarbons that may leak from the vehicle while standing. - The depth of the drip tray must be determined considering the total amount / volume of oil in the vehicle. The drip tray must be able to contain 110% of the total amount / volume of oil in the vehicle.	ELO, Contractor	Continual

Table 3: Operational Environmental Management Programme for the proposed BP Stretford filling station

Activity / issue	Action required	Responsible party	Frequency
General	A maintenance plan for the filling station must be developed to ensuring that good working order is achieved.	Developer, ECO	Once-off
Vehicle entrainment from unpaved roads	Wet suppression or chemical stabilisation of unpaved roads.	Developer, Filling station operator	As necessary
	Ensure that unnecessary traffic is reduced.	Developer, Contractor	As necessary
	Employ speed control measures on roads to control dust and wearing of roads	Developer, Contractor	As necessary
	Employ extensive windbreaks around the filling station area can reduce the particle pollution in the surrounding areas of the facility.	Developer, Contractor	As necessary
Health & Safety	An emergency plan (including fire management) must be developed and implemented; the relevant authority must approve this plan. Ensure that all fire extinguishers are replaced on or before their expiry dates.	Developer, Filling station operator	Continous
	Site Safety checks should be carried out in accordance with the pertinent Occupational Health and Safety requirements prior to site closure.	Developer, Filling station operator	Continous
	Telephone numbers of emergency services shall be posted conspicuously in the office for use in emergency situations	Developer, Filling station operator	Continous
Air Pollution	All forms of dust/air pollution must be managed in terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), this includes the control of noxious and offensive gases, smoke, dust and vehicular emissions. Under no circumstances may heavy smoke be released into the air.	Developer, Filling station operator	Continous

Activity / issue	Action required	Responsible party	Frequency
Light pollution	Security lights are to be angled downwards to avoid disturbance to adjoining landowners. Illumination of the buildings must take into account the possible distraction glare might have on motorists.	Developer	Continous
	Night time light sources must be directed away from, conservation areas, naturally vegetated areas, as this may be the cause of ecological disturbance	Developer	Continous
Stormwater Management	Storm water, wherever possible, must be allowed to soak into the land in the area on which the water has been discharged.	Developer	Continous
	The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required.	Developer	Continous
	No waste or refuse must be allowed to access the storm water infrastructure	Developer	Continous
	Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the storm water management system.	Developer	Continous
	Excessive quantities of silt laden runoff water must not be allowed to access the storm water system. In the event that silt runoff occurs off the development site, the cause of this must be investigated and suitable mitigation measures employed. This may include the vegetation of bare areas, installing flow diversion channels in consultation with an engineer, installing velocity reducing structures etc.	Developer	Continous

Activity / issue	Action required	Responsible party	Frequency
	Where vegetation has been utilised as part of the storm water management system, it is important to ensure that the vegetation is maintained and does not die, as this is essential for effective infiltration.	Developer	Continous
	Where silt traps have been incorporated as part of the storm water management system these must be maintained as per the engineers requirements, the maintenance crew must be informed as to the correct procedure, in terms of the engineers specifications, how the silt trap is to be maintained. The silt trap must be monitored for efficiency; the management body must consult the engineers should the system not function adequately.	Developer	Continous
	Great care should be taken to make sure that the sumps do not overfill, such that they can spill to contaminate the environment.	Developer	Continous
Fire Prevention and Control	The Filling station operator shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started as a consequence of his activities on site.	Developer, Filling station operator	Daily
	The Filling station operator shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local Emergency Services	Developer, Filling station operator	Continuous

Activity / issue	Action required	Responsible party	Frequency
	The Filling station operator shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to: • Regular fire prevention talks • Posting of regular reminders to staff.	Developer, Filling station operator	Continuous
	Any accidental fires, which occur, shall be reported to the City of Johannesburg Environmental Management immediately and then to the relevant authorities.	Developer, Filling station operator	Continuous
Emergency Procedures	The Filling station operator shall submit Method Statements covering the procedures and response plan for the main activities, which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to: • Accidental fires • Accidental leaks and spillages • Vehicle and plant accidents • Blasting (if required)	Developer, Filling station operator	As necessary
	Accidental leaks and spillages • The Filling station operator shall ensure that his employees are aware of the procedure for dealing with spills and leaks. • The Filling station operator shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is available on site at all times.	Developer, Filling station operator	Continuous

Activity / issue	Action required	Responsible party	Frequency
	Hydrocarbon spills • The source of the spill shall be isolated and the spillage contained using sand berms, sandbags, sawdust, absorbent material and/or other materials approved by the RE. • The area shall be cordoned off and secured. • The Filling station operator shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown the spill. • The Filling station operator shall notify the relevant authorities of any spills that occur.	Developer, Filling station operator	As necessary
	The Filling station operator shall assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures.	Developer, Filling station operator	Weekly
Hazardous Substances	If potentially hazardous substances are to be stored on site, the Filing station operator shall provide a Method Statement detailing the substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.	Developer, Filling station operator	Monitor daily - weekly
	Hazardous chemical substances used shall be stored in secondary containers.	Developer, Filling station operator	Monitor daily - weekly
	The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation.	Developer, Filling station operator	Monitor daily - weekly

Activity / issue	Action required	Responsible party	Frequency
	The Filling station operator must ensure that all hazardous chemical substances are labelled, packed, transported and stored in order to avoid the spread of contamination.	Developer, Filling station operator	Monitor daily - weekly
	All hazardous chemical substance waste must be disposed of in accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).	Developer, Filling station operator	Monitor daily - weekly
	The waste, resulting from the use of hazardous materials, shall be disposed of at a hazardous waste disposal site as approved by the RE. Storage and disposal of waste is regulated through other legislation, which should be complied with i.e. the Occupational Health and Safety Act.	Developer, Filling station operator	Monitor daily - weekly

6. CONCLUSION

Provided this project is mitigated, as per the EMPr, the project will result in limited negative environmental impacts that can be mitigated through implementation of this EMPr. It is the applicant's responsibility to ensure that this EMPr is made binding on the contractor by including the EMPr in the contract documentation. The contractor should thoroughly familiarise himself with the requirements of the EMPr and appoint an environmental liaison officer (ELO) to oversee the implementation of the EMPr on a day-to-day basis.

Parties responsible for transgression of this EMPr should be held responsible for any rehabilitation that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour/negligence should receive penalties.

Key issues

- The Contractor and Developer must continuously apply all the relevant requirements by the OHSA Act and other legislations;
- Construction should take place in the dry season (where possible), leaving enough time for the germination of seeds and revegetation of barren areas before the onset of the rainy season;
- All hazardous waste must be disposed of at the hazardous waste site and registers be kept thereof;
- Proper warning tape (e.g. orange danger nets) must be erected to inform public of the inherent dangers; and
- Should blasting activities be required on certain areas during foundations excavations, it is important the relevant permits be obtained and that the adjacent landowners are informed of these planned activities a few days in advance and that site notices informing the public are strategically placed at visible locations.

APPENDIX 1: AN EXAMPLE OF INCIDENT AND ENVIRONMENTAL LOG

ENVIRONMENTAL INCIDENT LOG				
Date	**Env. Condition**	**Comments** *(Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)*	**Corrective Action Taken** (*Give details and attach documentation as far as possible)*	**Signature**

COMPLAINTS RECORD SHEET	**File Ref:**	**DATE:**
	Page of ….	**……**
COMPLAINT RAISED BY:		
CAPACITY OF COMPLAINANT:		
COMPLAINT RECORDED BY:		
COMPLAINT:		
PROPOSED REMEDIAL ACTION:		
ECO: _____ Date: _____		
NOTES BY ECO:		
ECO: _____ Date: _____ Site Manager: _____ Date: _____		