

HILBROW HEALTH PRECINCT

JOHANNESBURG DEVELOPMENT AGENCY

Technical Services - Feasibility Study



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1. INTRODUCTION

PD Naidoo & Associates (Pty) Ltd were appointed in consortium with GAPP, by the Johannesburg Development Agency, to submit inputs for a Development Feasibility Report (Draft Business Plan) for the area known as the Hillbrow Health Precinct, and bounded by Kotze Street to the north, Klein Street to the east, Smit Street to the south, and Rissik / Joubert Street to the west.

This document explores feasible studies of the Technical services feasibility study for the Health Precinct, Johannesburg. The associated studies are for the entire precinct and concentrates on the bulk services.

The health precinct site is located in the inner city of Johannesburg. The site forms part of a series of large institutional land uses running in a north south direction.

The services that was explored are:

1. Civil Engineering Services
 - a. *Water supply and reticulation*
 - b. *Sewage reticulation and disposal*
 - c. *Stormwater Management*
 - d. *Roads including sidewalks and street furniture*
 - e. *Gas (as supplied by Egoli Gas (Pty) Ltd*
2. Electrical Services (Bulk)
 - a. *Bulk Electrical Supply*
 - b. *Communication*
 - c. *Street lighting*
 - d. *Security*
3. Traffic and Transportation (Separate Report)
4. Structural Assessment of Buildings within Precinct (Separate Report)

The "Investigation of Existing Services" report produced by Arup (Pty) Ltd, dated March 2004, was used as a basis for the inputs herein, with visual inspections in loco.

2 CIVIL ENGINEERING SERVICES

The bulk supply mains, outfall sewers and stormwater drains are located within the road reserve. All the buildings in the Precinct have at least one connection to the above named services.

For the most part the services were installed during construction of the buildings and are therefore old. It is apparent that some of the building services may have been changed during alterations to the buildings but not recorded on drawings, in consequence of which the bulk of the internal services may have to be replaced or upgraded.

2.1. Water Supply and Reticulation

According to the Arup report, the Precinct is in the Yeoville Reservoir pumped area, which has adequate storage for the supply area. The static water pressure averages 3 bar. The supply mains to the area are currently under investigation for sufficiency. As far as can be determined from personnel of Johannesburg Water (Pty) Ltd (JW) the reticulation in the area, while old, does not experience abnormal maintenance problems.

It was observed that in some areas valves and hydrants leak onto sidewalks probably requiring routine maintenance of the seals and diaphragms. Some valve and hydrant chamber covers are missing.

The condition and positions of individual connections to each building is unknown but it can be assumed that due to the age of the buildings the connections will be of a similar age and condition. This should be taken into account in the future when buildings are replaced.

2.2. Sewerage Reticulation and Disposal

The sewerage system was analysed in 1997 and upgrades undertaken in 2002/03. Further upgrades in the area are proposed the extent of which will be subject to funding. From all accounts from JW officials, however, there is currently sufficient capacity in the system for the existing development. Should the zoning and density of development in the Precinct increase the capacity of the system will need to be re-examined. The sewer gradients are such that capacity is not envisaged as being a problem in the future.

JW has a regular maintenance programme while clearing of blockages and any damage to the sewers is done on a reactive basis. From reports, no abnormal maintenance has to be carried out in the Precinct but it must be borne in mind that the reticulation is every bit as old as the area.

The Precinct catchment is within the JW Central region which contributes to the Klipspruit Sewage Treatment Works.

2.3. Stormwater Management

The authority for stormwater management in the area is the Johannesburg Roads Agency (Pty) Ltd (JRA), which agency attends to any necessary maintenance.

The stormwater runoff from the existing roads and buildings within the footprint of the Precinct, is collected via strategically placed kerb and grid inlets that discharge into the minor stormwater system. In some instances rain water from buildings discharges through 100 mm and 150 mm diameter pipes, under the sidewalk, through the face of the kerb, into the roadside gutter. The whole systems drains to the south of the Precinct.

The relatively small pipes (100 mm and 150 mm) will need to be inspected to ensure they are meeting their intended purpose. Being of small diameter they are easily blocked and will need to be cleaned out or replaced where new buildings are being erected to replace demolished buildings.

2.4. Roads Including Sidewalks, Street Furniture & Waste Management

The roads in the Precinct, for which the JRA is responsible, are in a reasonably good condition although in a few areas the wearing surface is showing signs of distress mainly through turning and stopping action. The JRA reacts only to needs such as repairing trenches across roads due to the activity of some other authority, eg power, cables, gas pipes, etc. Very little other maintenance is evident.

Sidewalks, surfaced mainly with asphalt premix, have been extensively patched with both concrete and asphalt. Predominantly deciduous Plain and Jacaranda trees have been planted along most of the sidewalks which provide effective shade in summer. Plain trees are renowned for their root system at a shallow depth. This has caused extensive damage to the sidewalks, deformed kerb lines and lifted road surfacing. Where tree rings have been used the trees have outgrown the rings which have either become dislodged or, worse still, become embedded in the trunk of the tree. In time these trees should be replaced with suitable indigenous trees.

Covers and frames to many manholes on sidewalks are either missing or have been severely damaged and are a safety hazard to pedestrians. These manholes need to be upgraded.

There are numbers of disused property entrances complete with kerbed bellmouths. The entrances have been blocked off either through the extension of boundary walls or old locked and chained gates. These disused entrances occur on both major and minor roads.

Aggregate exposed concrete refuse bins are placed on sidewalks for pedestrians. Skip waste bins appear to be used for commercial properties and transportable refuse receptacles for domestic refuse.

2.5. Gas

Gas pipelines in the Precinct are operated by Egoli Gas. A bulk supply main circumscribes the Precinct while 150 mm diameter reticulates the area. Future

requirements within the Precinct may require an upgrading of the existing reticulation.

3. KEY DEVELOPMENT ISSUES – CONSTRAINTS, TECHNICAL BARRIERS

The following factors influencing the existing services will be considered when the development framework has been defined:

- Land use and zoning
- Building occupation ratios
- Requirements for connectivity within the Precinct (telcoms, driveways, walkways and pedestrianised areas and other services)
- New buildings and associated new services
- Demolition of buildings not worth restoring or making way for new developments (removal or abandonment of existing services)
- Type of solid waste generated by new tenants (special provision for refuse removal)

4. RECOMMENDED APPROACH

- i. The internal building services are old and should be replaced and formalized whenever a building is refurbished for occupation
- ii. Sidewalks need rehabilitation. Existing asphalt and concrete should be lifted and replaced with suitable paving blocks to enhance the environment
- iii. Disused vehicle entrances should be permanently closed and the sidewalks made good as described above, including repairs to the kerbing and gutters

- iv. Tree rings should be replaced with an aesthetically more pleasing treatment. Initially the Plain trees should be pruned and neatened up by a horticulturist but ultimately the exotica should be replaced with indigenous trees suitable for sidewalks
- v. Park like benches should be placed in shade zones for the weary, adjacent to the hospital and clinics
- vi. Manholes, fire hydrants, valve boxes, cable markers etc, should be made good to suit the upgrading and safe for pedestrians
- vii. Aesthetically pleasing waste bins should be strategically placed, eg taxi drop off points, etc
- viii. Street name plates should be erected where needed in a legible style and in keeping with the upgraded area

5. IMPLEMENTATION PROGRAMME AND TIMING

Work external to the Precinct, eg on the perimeter streets such as Kotze, Smit, etc can commence as soon as funding is available and the upgrading approved. However, to avoid damage to new work by construction vehicles and plant, external work should be delayed until most of the internal work has been completed.

Similarly, internal Precinct work should be undertaken when individual building refurbishment is practically complete.

Waste disposal facilities and methods should be taken up with the service provider to ensure the service is aesthetically acceptable and in keeping with the upgrading. This can only be finalized when the tenancy of occupation has been determined.

6. KEY TECHNICAL RISKS & MITIGATION THEREOF

The only key technical risk presently identified in the Precinct is a possible increase in density and diminishing of capacity of the services. Currently there is reportedly spare capacity. However, any risk which may arise due to increase in density can be managed provided the engineering team are timeously appraised of the intended increase. This is of significance in the residential component of the Precinct.

7. INDICATIVE COSTS & IDENTIFICATION OF FUNDING SOURCE (WHERE POSSIBLE)

Until agreement has been reached as to the extent of the upgrading of the engineering services relative to area, extent etc, it is impossible to provide an estimate of cost.

8. OTHER RELEVANT INFORMATION / QUALIFICATIONS AS APPROPRIATE

The recommendations made above should be reviewed when the framework for the project has been finalized. All proposed development within the Precinct must be subject to a design review of the relevant services.

9. ELECTRICAL SERVICES

9.1 Existing Bulk Electrical Infrastructure

PDNA have had discussions with City Power, Mr. Riaan Swanepoel, about the proposed precinct. The purpose of the discussions was to determine if any existing electrical infrastructure is available in the area. The outcome were as follows:

- Existing medium voltage (11kV) infrastructure surrounds the site and it would appear that spare capacity is available for future expansion.
 - Unfortunately, City Power could not verify the exact capacity available due to limited information.
- City Power also highlighted that the spare capacity is available on a “first come, first serve” basis and might vary at time of application to upgrade power to the proposed precinct.

It is important to note that we will get more accurate information from City Power when the project goes into a preliminary design stage where proper power calculations could be done.

9.2 Existing Communication Infrastructure – Status Quo

PDNA have had discussions with Telkom, Mr. Franscois Drenner about the proposed precinct. The feedback is as follows:

- The Braamfontein Exchange is on the southern side of the proposed site with optic fiber reticulation. Constitutional Hill on the northern side has got an 800 pair copper main feeder cable for reticulation around the area. There do currently exist primary users that feed from the Braamfontein Exchange, but spare capacity is available.
- In regard to the future links between Hillbrow Hospital, Johannesburg Hospital and Helen Joseph Hospital, the following infrastructure is available:
 - 144 pair optic fiber connection at Johannesburg Hospital
 - 12 pair optic fiber connection at Helen Joseph Hospital

9.3 Street Lighting

It would appear that the existing streetlights in this area are in a bad condition due to lack of maintenance. A high percentage of these streetlights will have to be replaced.

PDNA proposes that new streetlighting be provided and should follow the same type of theme that was used in Newtown, Braamfontein or Constitutional Hill. This would also contribute to the reduction of criminal activities.

9.4 Gas

This section is covered in the civils report.

9.5 Street Security

PDNA recommend that Business Against Crime should be called to upon to facilitate the rollout of the security cameras in order to improve safety within the precinct.

10. RESOURCES

Civil Dept	Elect Dept	Structual	Traffic and Transportation
Mr B Leech	Mr J Van Wyk	Mr S Joubert	Mr B Roberts
Mr G Rossouw	Mr A Potgieter	Mr D Townsend	Mr A Smit