LANDCOM

ROYAL NEWCASTLE HOSPITAL SITE SUBDIVISION INFRASTRUCTURE INVESTIGATION CONCEPT DESIGN REPORT

Issue No. 1
AUGUST 2006

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consulting engineers

LANDCOM

Royal Newcastle Hospital Infrastructure Investigation – Subdivision Concept Design Report

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Document Amendment and Approval Record

Issue	Description of Amendment	Prepared by [date]	Verified by [date]	Approved by [date]
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1 BACKGROUND

1.1 INTRODUCTION

The proposed redevelopment of the Royal Newcastle Hospital (RNH) site will comprise the demolition of the two main wings – the Nickson Wing and the McCaffrey Wing. The newer David Maddison Building (DMB) fronting Watt Street, will remain operational for some unspecified time after the other two wings are demolished. This will require the DMB to be serviced independently of the other buildings and where possible in a manner which will not encumber the re-development of the site with easements for services. Patterson Britton & Partners were commissioned by Landcom to prepare concept designs for the isolation of the DMB. The objectives of this concept design phase are;

- To support the project applications for subdivision and demolition,
- To isolate the services to the RNH,
- To maintain services to the DMB during its extended period of occupation,

1.2 NATURE & EXTENT OF THE INVESTIGATION

This investigation was undertaken by way of review of existing site survey (provided by Monteath & Powys), service authority plans, hospital building and service plans (provided by National Project Consultants) and also from visual site inspections and discussions with the Hospital Engineering Manager. The investigation to date has not yielded sufficient information to accurately identify the position, depth and size of all services into the site due to the lack of available work as executed information. It is therefore expected that, where required, further information on certain services would need to be obtained to confirm exact locations at the time of detailed design and documentation as well as by the Contractor immediately prior to commencement.

2 EXISTING SERVICES

A brief outline of the main trunk service connections for the buildings on and adjacent to the RNH site is provided below. Drawing 6047-01 and 02 contained in **Appendix A** of this report shows the major service lines into the Hospital site that have been identified by this investigation. It should be noted that this plan does not show all internal services within the site.

2.1 WASTEWATER

The Hospital site drains to existing sewer lines in Shortland Esplanade, Watt Street and King Street. The DMB has connections to sewer lines in both Watt and King Streets.

The North Wing and York apartment buildings are also independent of the Nickson & McCaffrey Wing buildings, with a separate wastewater connection at the corner of Ocean Street and Shortland Esplanade.

The removal of the Nickson and McCaffrey wings and associated sewer lines would not impact on the DMB.

2.2 WATER

Potable water is supplied to the Nickson & McCaffrey Wings from two points in King Street. The DMB is not serviced from either of these connections, an additional water connection is located on Watt Street to service the DMB.

There is no available evidence suggesting that the North Wing & York apartment buildings are connected to the Hospitals water supply system. Water supply assets for the North Wing are visible on the southern side of the building along the access road from Pacific Street. Further investigation work would be required to confirm the connection point for this building.

An additional large water service is located on the southern side of the hospital site, off Shortland Esplanade. This service is near a small security hut at the entry to carparking and appears to supply taps and fire hoses throughout the carpark. No plans are currently available which show the extent of supply from this water meter.

The removal of the Nickson and McCaffrey Wings and associated potable water connections would not impact on the DMB based on information currently available.

2.3 ELECTRICITY

Energy Australia (EA) assets on the site consist of three sub-stations, one each for the Nickson Wing, McCaffrey Wing and the DMB. The feeder lines for these substations are connected to EA assets in Shortland Esplanade (DMB, Nickson & McCaffrey Wing substations) and King Street (Nickson & McCaffrey Wing substations). The high voltage lines for the DMB substation appear

to be located underneath the southern tip of the McCaffrey Wing building. Hospital building plans support this with drawings showing electrical conduits attached to the underside of floor slabs.

The removal of the Nickson and McCaffrey wings and associated electrical assets would first require new feeder lines for the DMB substation to be designed and installed. Initial discussions with Energy Australia indicate that it is likely that new underground lines would come from King Street, however this needs to be confirmed as part of the design process.

A small security hut and boom gate for the access to the carparking structure located off Shortland Esplanade appears to be serviced from electrical assets in Shortland Esplanade. It is also likely that some lighting within the carpark structure is supplied from this point.

The North Wing & York Apartment buildings are serviced from a substation on the southern side of the building. This is connected directly to EA assets in Pacific Street.

2.4 STORMWATER

Stormwater drainage for the Nickson and McCaffrey Wing buildings is connected to Council stormwater drainage assets in either Shortland Esplanade or King Street. A drainage easement currently exists on the hospital site for drainage from the access road (easement for access to North Wing & York buildings 5.75m wide) south of the North Wing apartment building. The existing drainage pipe runs south from the North Wing, through the carpark behind the Nickson Wing and then connects to Councils drainage line in Shortland Esplanade.

In addition to taking the existing piped drainage line into account for future development proposals, it is also possible that an overland flow path would need to be provided over the Hospital site. This overland flow path would only be required if it could not be provided along the driveway between the North Wing and York Apartment buildings which connects to Ocean Street.

An additional trunk stormwater drainage line which is located in the driveway between the McCaffrey Wing and DMB collects stormwater from the existing carpark located south of the McCaffrey Wing, the McCaffrey Wing building itself and also impervious areas along the south, west and northern sides of the McCaffrey Wing. No evidence is available to suggest that roof drainage from the DMB is connected to this drainage; however this is a possibility. This stormwater line can be retained as the accessway along the eastern side of the DMB is expected to be retained for vehicle access to the service area located along the eastern side of the building.

2.5 TELECOMMUNICATIONS

Telecommunication assets enter the site via Telstra pits in King and Pacific Streets. The DMB is serviced via the PABX room within the McCaffrey Wing, and as such will require an alternate connection before removal of the McCaffrey Wing. The North Wing apartment building appears to be linked to a Telstra pit on the hospital site which also services the Nickson Wing, it is expected that this existing Telstra pit can be retained in its current position.

A small security hut for the access to the carparking structure located off Shortland Esplanade appears to be serviced from assets in Shortland Esplanade. This should only consist of a small stand alone service which could be terminated without impact to any other buildings.

2.6 FUEL

The Nickson, McCaffrey and DM Buildings have diesel backup generators for emergency power. Presently, the DMB obtains diesel fuel from the McCaffrey Wing building via an underground conduit to fill a day-storage tank within the building. Only an approximate location of the conduit is known and this is shown on the services plan.

The removal of the Nickson and McCaffrey wings would require the decommissioning of the existing fuel line between the McCaffrey and DM Buildings and a new diesel fuel storage tank for the DMB. Provision for re-filling the DMB diesel storage tanks by fuel truck would be required.

2.7 GAS

The Nickson & McCaffrey Wings are serviced from a gas meterage point located at the corner of King and Pacific Streets. An additional service line exists in King Street just east of the DMB for the McCaffrey Wing, however Agility advise that this service line is not in use (to be confirmed by Agility on site). The DMB obtains gas from a connection point in Watt Street.

The removal of the Nickson and McCaffrey wings and associated gas reticulation connections would not impact on the DMB.

3 CONCEPT DESIGNS

The following provides a brief outline of the concept design details for each of the services requiring relocation as well as for the structural demolition components. Drawing 6047-04 in **Appendix A** shows the overall site with the new service lines.

3.1 ELECTRICAL RETICULATION

The design process for the new high voltage supply to the DMB substation and also the decommissioning of the two existing Hospital substations initially requires the preparation of a design information package by Energy Australia. Following the preparation of the design information package the design and documentation can proceed.

Based on discussions with Energy Australia it was assumed that the new high voltage cables would come from existing assets on the northern side of King Street. Drawing 6047-03 in **Appendix A** shows the assumed cable route from King Street to the DMB substation. The new cable route is located wholly within the access road east of the DMB which is expected to remain after the other Hospital buildings are removed.

The detailed design process should be initiated at least six months prior to demolition works to allow sufficient time for Energy Australia approvals and also due to cable supply lead times.

3.2 TELECOMMUNICATIONS

The approach taken to the preparation of a concept plan for the relocation of telecommunications to the DMB is similar to that mentioned above for the electrical reticulation. Initial discussions with Telstra indicate that new cables would be brought in from the southern side of King Street and along the access road east of the DMB. The new cables would then likely be joined to the existing cables as shown on the drawing 6047-03 in **Appendix A**. This concept will need to be confirmed as a suitable option by Telstra at the detailed design stage.

It is recommended (similarly to that for the electrical design) that the detailed design process be started early to avoid delays to demolition works on the site.

3.3 STORMWATER DRAINAGE

The relocation options for the existing stormwater drainage line which runs south-east across the Hospital site from the back of the North Wing Apartment Building to Shortland Esplanade relies significantly on the proposed future building footprints on the Hospital site. Based on masterplanning information available at the time of writing this report, an option for relocation of the drainage line has been documented on drawing 6047-05 contained in **Appendix A**. The relocation option assumes that the existing retaining wall along the boundary of Shortland Esplanade will be removed as part of the re-development works. The new drainage line will connect to existing drainage assets in Shortland Esplanade.

Alternative connection points in Ocean Street and Pacific Street were investigated, however no other viable alternatives could be identified.

3.4 FUEL STORAGE

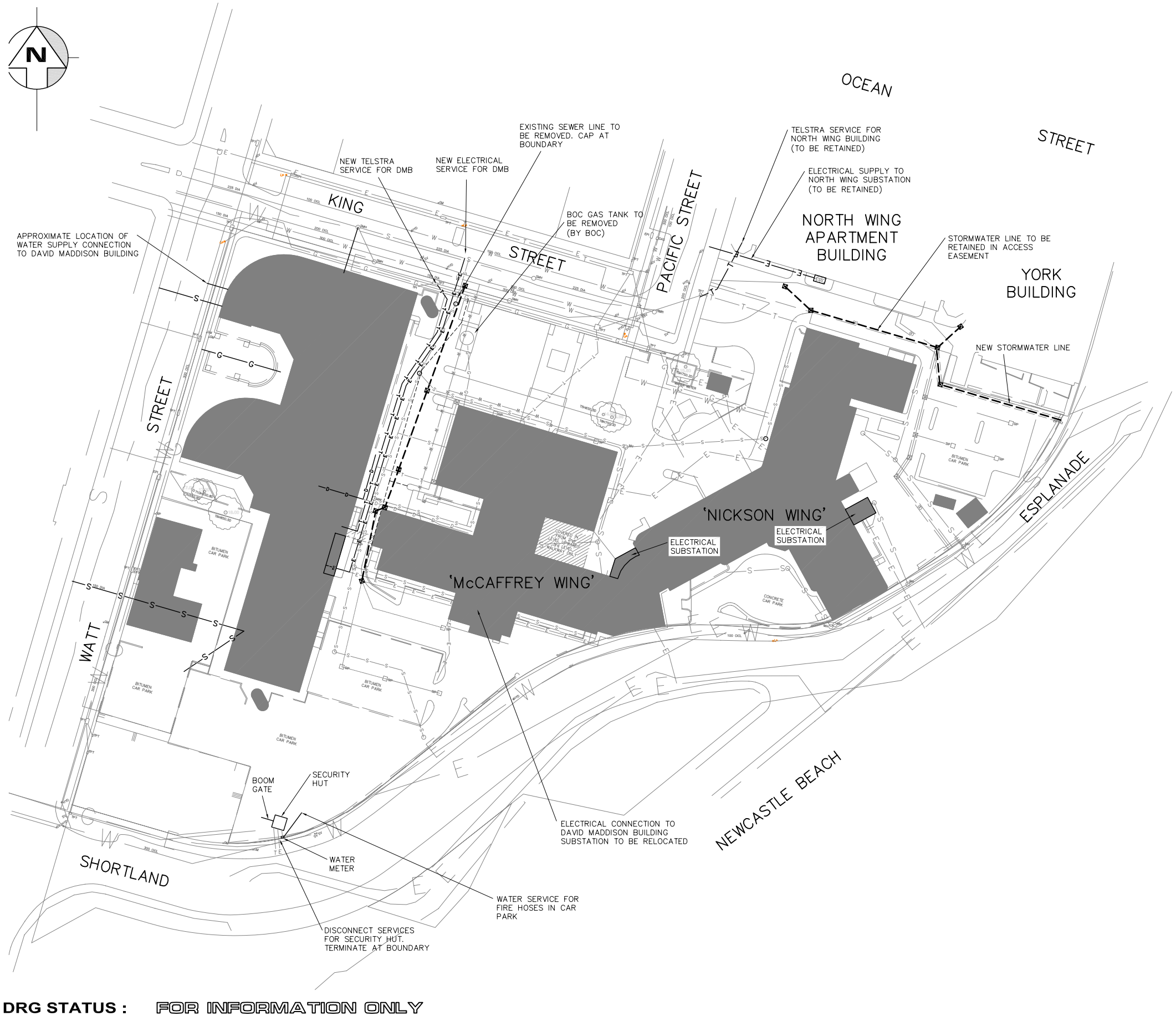
An above ground tank is proposed to be located at the southern end of the DMB basement carpark, with a refilling point located in the access road just east of the building.

4 SUMMARY

The investigation identified several services requiring relocation to enable subdivision. The new service lines for the David Maddison Building have conceptually been located in the access road to the east of the building. This roadway will be retained for vehicle access to the eastern side of the building as well as for the provision of the additional services. The access road is located within the David Maddison Building property boundary, and as such will not impact on any short term development works on the Hospital site.

The detailed documentation of service relocations will need to be coordinated to take into account authority approval times and construction lead times. The detailed documentation stage will also provide a better indication of the budget requirements for the works.

APPENDIX A – CONCEPT DRAWINGS



NOTES

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6. CONTOUR INTERVAL = 0.5m.
7. SERVICE LOCATIONS SHOWN ON THIS PLAN ARE INDICATIVE ONLY. ALL SERVICES HAVE NOT BEEN LOCATED IN THE FIELD. ADDITIONAL FIELD INVESTIGATION BY QUALIFIED SERVICE LOCATORS WILL BE REQUIRED.

(E) – EASEMENT TO DRAIN WATER 1.0m WIDE
(G) – RIGHT OF CARRIAGEWAY 5.75 WIDE & VARIABLE (DP 1026764)

LEGEND

TREES

TR	TREES
H	HEIGHT
S	SPREAD
D	DIAMETER

SERVICES

KIP	KERB INLET PIT
LP	LIGHT POLE
TPT	TELSTRA PIT
IPS	SEWER INSPECTION POINT
HYD	HYDRANT
SV	STOP VALVE
GV	GAS VALVE
GTE	GRATE
ESS	ELECTRICITY SUB STATION
SGN	SIGN POST
DIP	DRAINAGE INLET PIT
EPI	ELECTRICITY PILLAR

SERVICES OUTSIDE SITE

- ELECTRICITY
- GAS
- SEWER
- TELSTRA
- WATER

SERVICES INSIDE SITE TO BE RETAINED / NEW CONSTRUCTION

- E — ELECTRICITY
- G — GAS
- S — SEWER
- T — TELSTRA
- W — WATER
- D — FUEL LINE (GENERATORS)
- STORMWATER

SERVICES TO BE REMOVED

WARNING

"DIAL BEFORE YOU DIG" - 1100

IT IS ESSENTIAL THAT BEFORE ANY EXCAVATION WORK IS UNDERTAKEN, FURTHER INVESTIGATION INTO THE LOCATION OF SERVICES SHOULD BE CARRIED OUT WITH THE RELEVANT AUTHORITY.

0 10 20 30 40 50m
1:500 (A1) 1:1000 (A3)

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Issue	Details of Issue	Des'd	Drn	Chk'd	Approved	Date
C	STORMWATER AMENDED – RE-ISSUED FOR DA APPROVAL	MS	SW	MS	AHP	3.08.06
B	ISSUED FOR DA APPROVAL	MS	SW	MS	AHP	2.08.06
A	ISSUED FOR REVIEW	GS		GS		20.10.05

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Client: LANDCOM

Project: ROYAL NEWCASTLE HOSPITAL INFRASTRUCTURE INVESTIGATION

Title: INDICATIVE HOSPITAL SITE SERVICES LAYOUT PROPOSED SEVICE LOCATIONS

Drawing No. 6047-04

Issue C

Cad File No.

Xref.(s)

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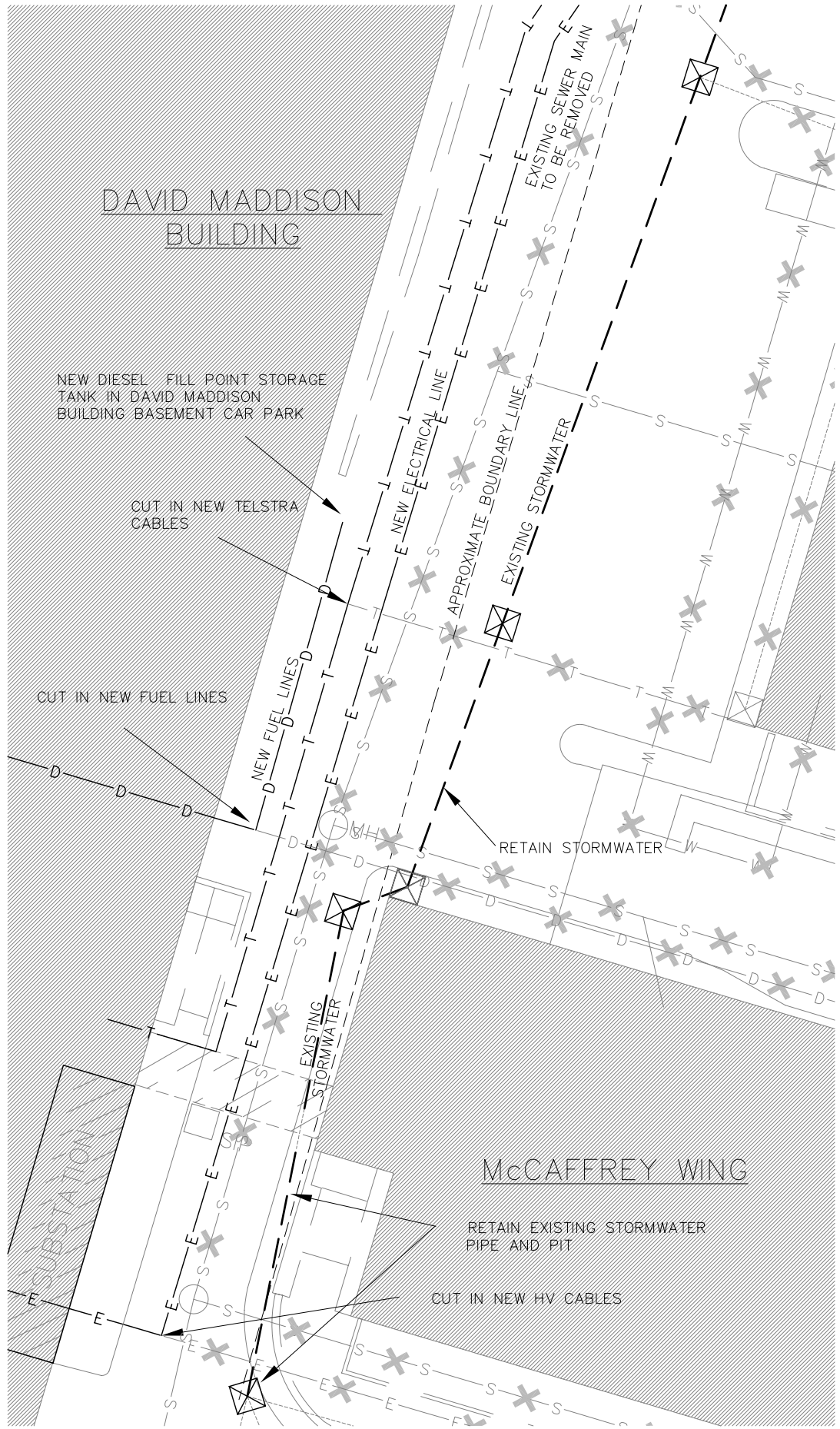

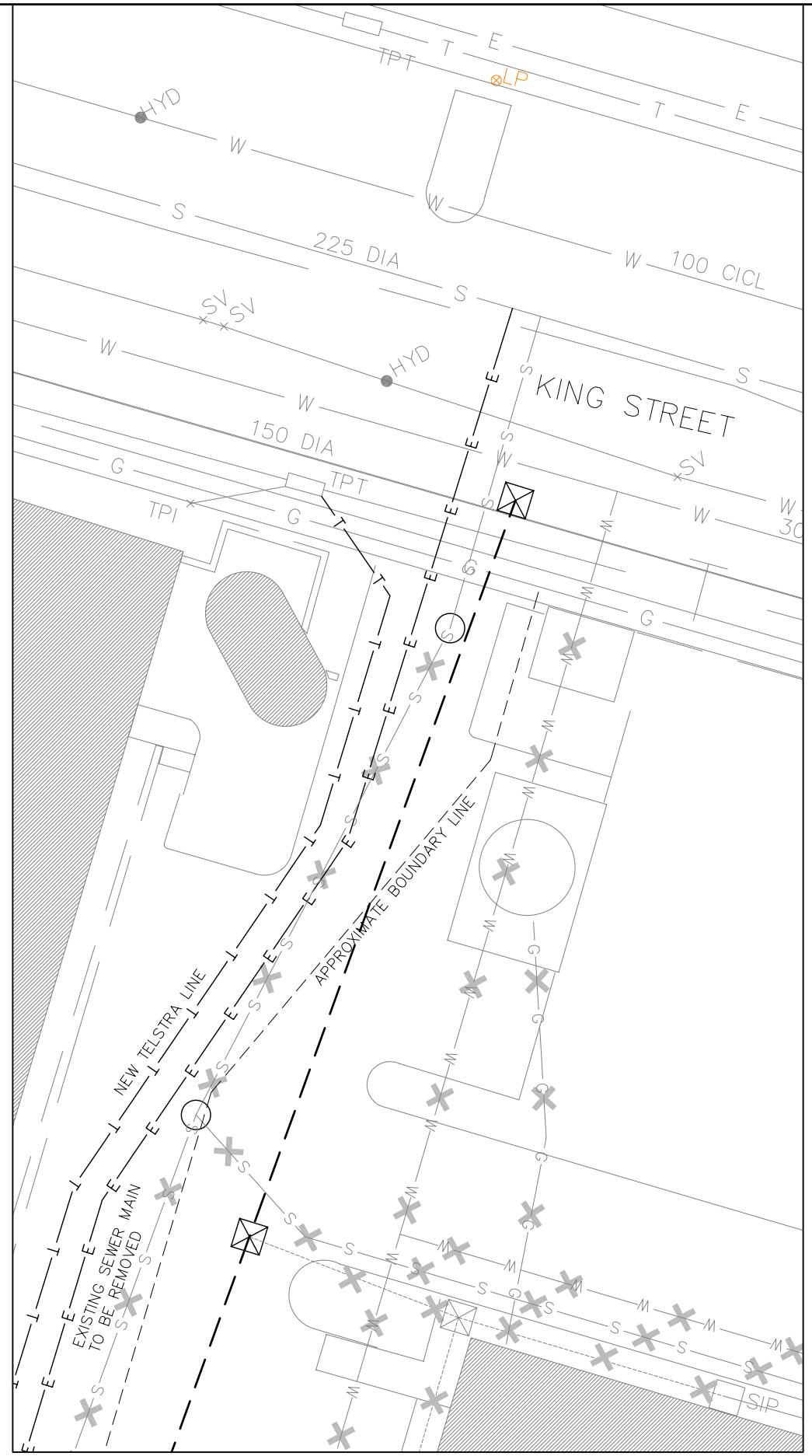

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Client: LANDCOM

Project: ROYAL NEWCASTLE HOSPITAL INFRASTRUCTURE INVESTIGATION

Title: **DAVID MADDISON BUILDING AND McCAFFREY WING PROPOSED SEVICE LOCATIONS DETAIL PLAN**

Drawing No. 6047-03
Issue D
Cad File No.
Xref.(s)

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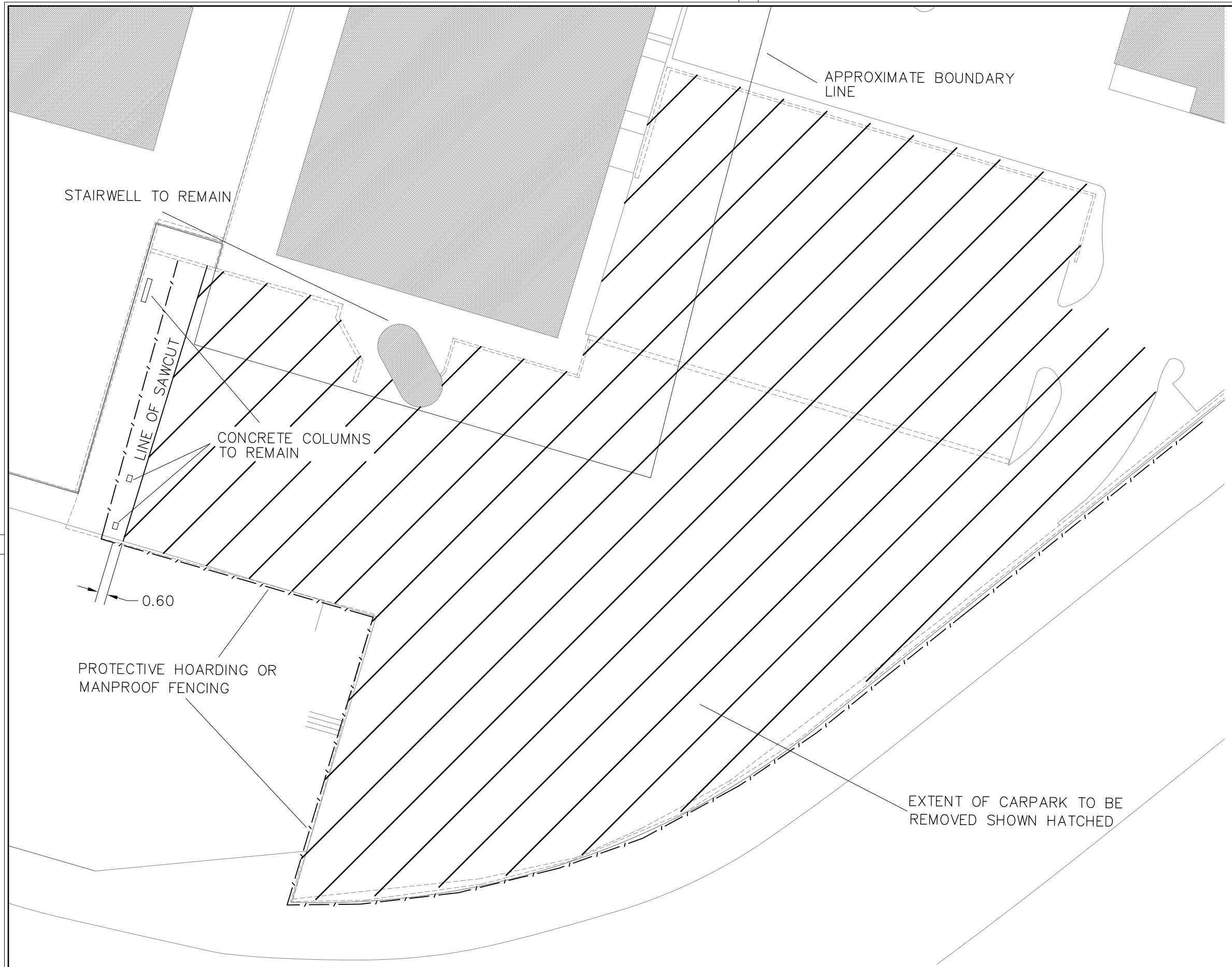

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Client: LANDCOM

Project: ROYAL NEWCASTLE HOSPITAL INFRASTRUCTURE INVESTIGATION

Title: CONCEPT CARPARK REMOVAL PLAN

Drawing No. 6047-06
Issue C
Cad File No.
Xref.(s)

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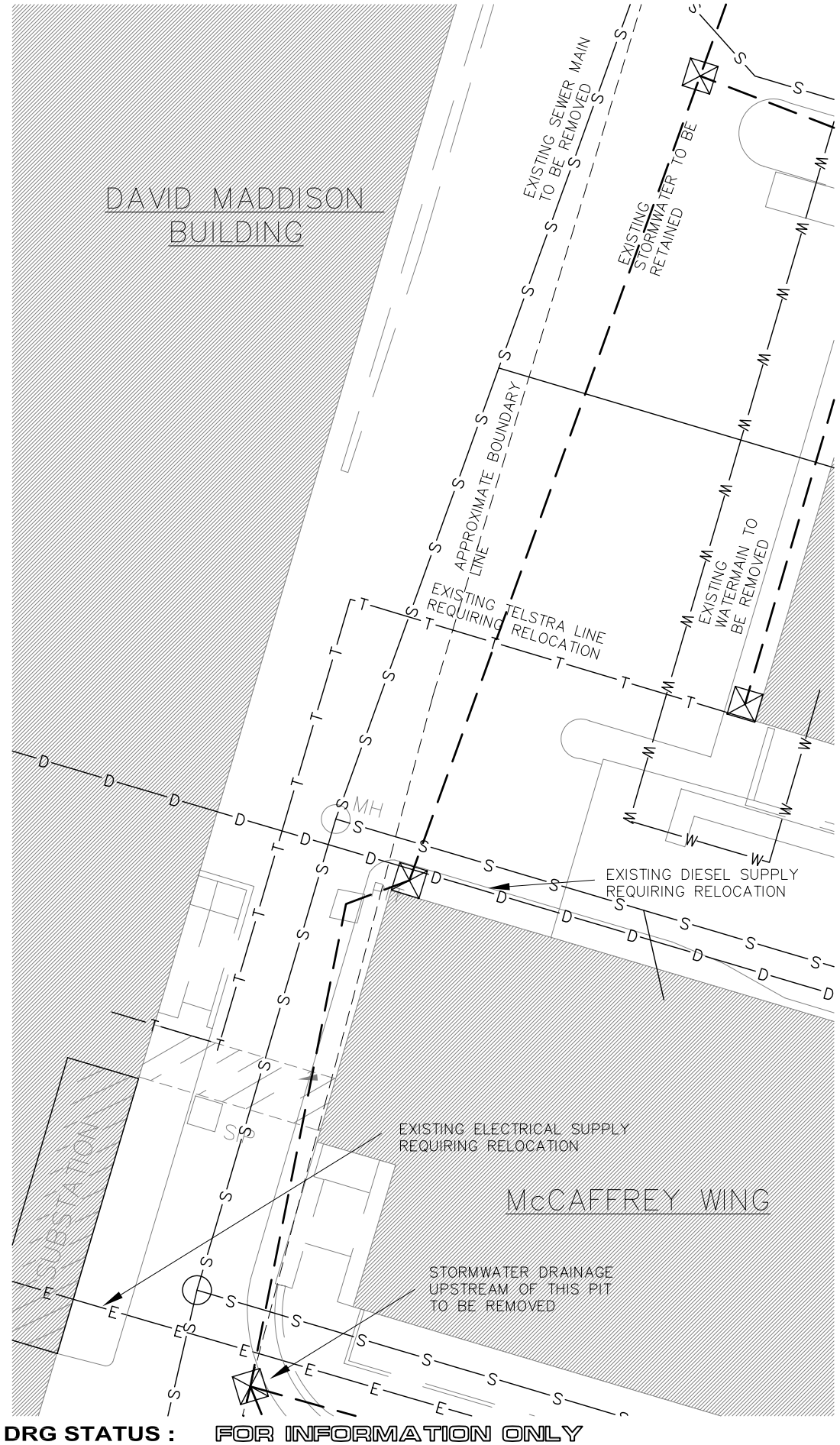

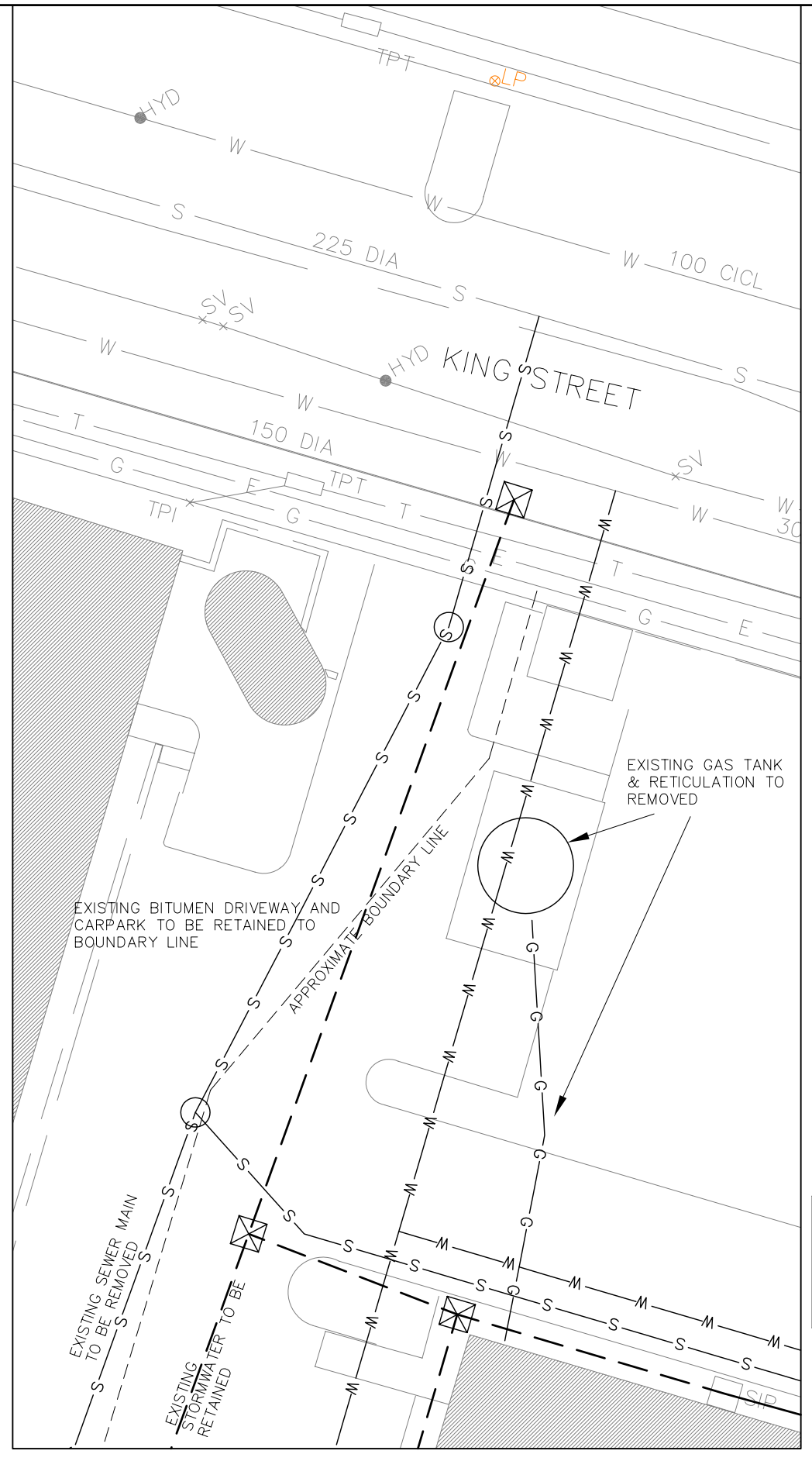

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Drawing No. 6047-02
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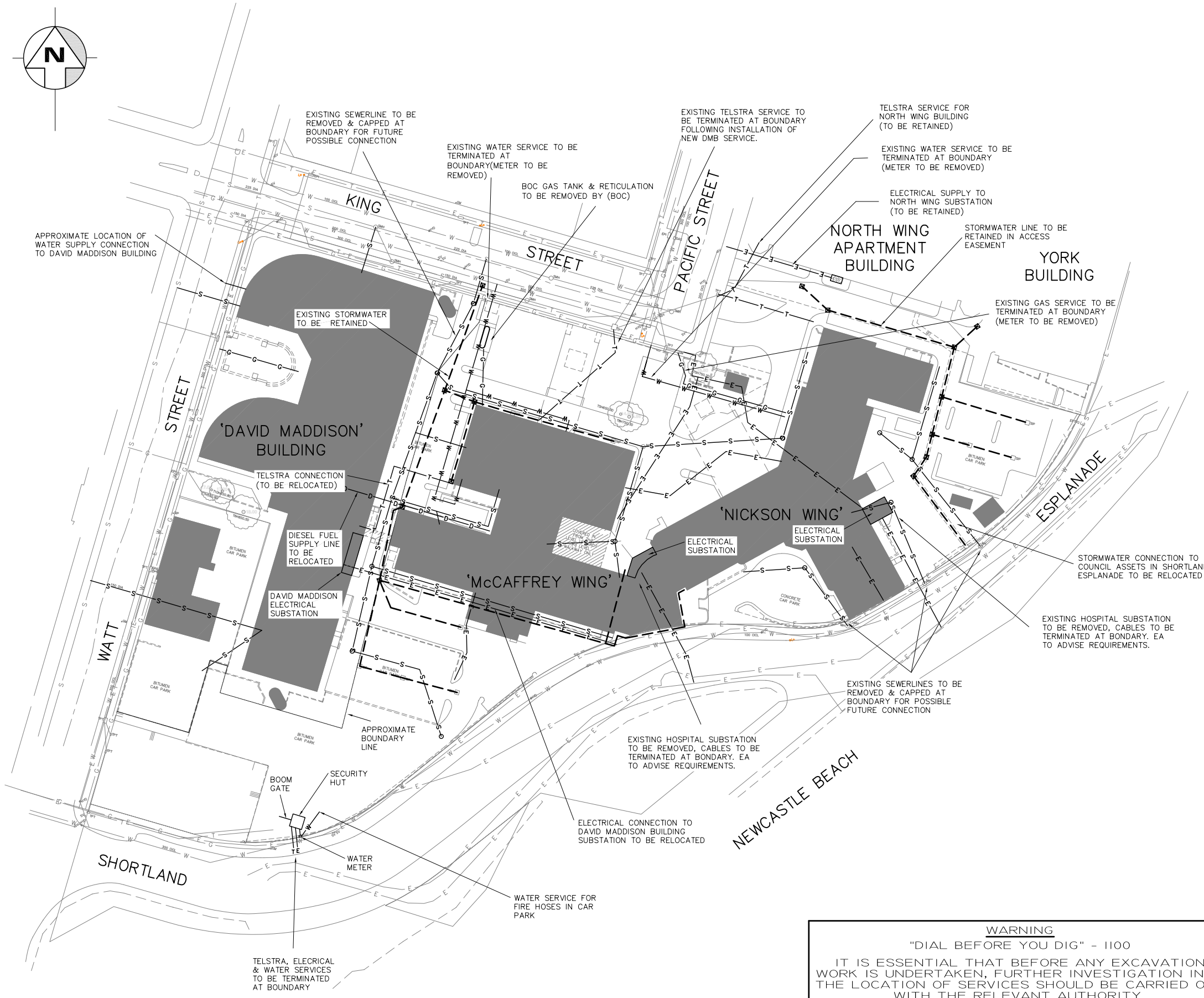

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5. ONLY VISIBLE SERVICES HAVE BEEN LOCATED BY SURVEY. THE POSITION OF UNDERGROUND SERVICES IS APPROXIMATE ONLY AND HAVE BEEN SCALED FROM THE RELEVANT AUTHORITIES SERVICES PLANS.
6. CONTOUR INTERVAL = 0.5m.
7. SERVICE LOCATIONS SHOWN ON THIS PLAN ARE INDICATIVE ONLY. ALL SERVICES HAVE NOT BEEN LOCATED IN THE FIELD. ADDITIONAL FIELD INVESTIGATION BY QUALIFIED SERVICE LOCATORS WILL BE REQUIRED.

(E) – EASEMENT TO DRAIN WATER 1.0m WIDE
(G) – RIGHT OF CARRIAGEWAY 5.75 WIDE & VARIABLE (DP 1026764)

LEGEND

TREES

TR	TREES
H	HEIGHT
S	SPREAD
D	DIAMETER

SERVICES

KIP	KERB INLET PIT
LP	LIGHT POLE
TPT	TELSTRA PIT
IPS	SEWER INSPECTION POINT
HYD	HYDRANT
SV	STOP VALVE
GV	GAS VALVE
GTE	GRATE
ESS	ELECTRICITY SUB STATION
SGN	SIGN POST
DIP	DRAINAGE INLET PIT
EPI	ELECTRICITY PILLAR

SERVICES OUTSIDE SITE

	ELECTRICITY
G	GAS
	SEWER
	TELSTRA
W	WATER

SERVICES INSIDE SITE

E E	ELECTRICITY
G G	GAS
S S	SEWER
T T	TELSTRA
W W	WATER
D D	FUEL LINE (GENERATORS)
	STORMWATER

WARNING

"DIAL BEFORE YOU DIG" - 1100

IT IS ESSENTIAL THAT BEFORE ANY EXCAVATION WORK IS UNDERTAKEN, FURTHER INVESTIGATION INTO THE LOCATION OF SERVICES SHOULD BE CARRIED OUT WITH THE RELEVANT AUTHORITY.

0 10 20 30 40 50m
1:500 (A1) 1:1000 (A3)

DRG STATUS : FOR INFORMATION ONLY

Issue	Details of Issue	Des'd	Drn	Chk'd	Approved	Date
D	ISSUED FOR DA APPROVAL	MS	SW	MS	AHP	2.08.06
C	RE-ISSUED FOR REVIEW	GS		GS		20.10.05
B	RE-ISSUED FOR REVIEW	GS		GS		14.10.05
A	ISSUED FOR REVIEW	GS	SW	GS		8.08.05

INITIALS SHOWN IN THE ADJACENT ISSUE RECORDS INDICATE THE STAGES UNDERTAKEN IN THE DRAWING APPROVAL PROCESS. DRAWINGS ARE ONLY TO BE USED WHEN APPROVED BY PATTERSON BRITTON & PARTNERS AND THEN ONLY AS NOTED FOR DRG STATUS. THE ORIGINAL SIGNATURES CAN BE FOUND ON THE REVERSE SIDE OF THE ORIGINAL OF THE DRG REGISTER/TRANSMITTAL FORM No.5.2.2. HELD BY PATTERSON BRITTON & PARTNERS

14 Telford Street
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Patterson Britton & Partners Pty Ltd
consulting engineers

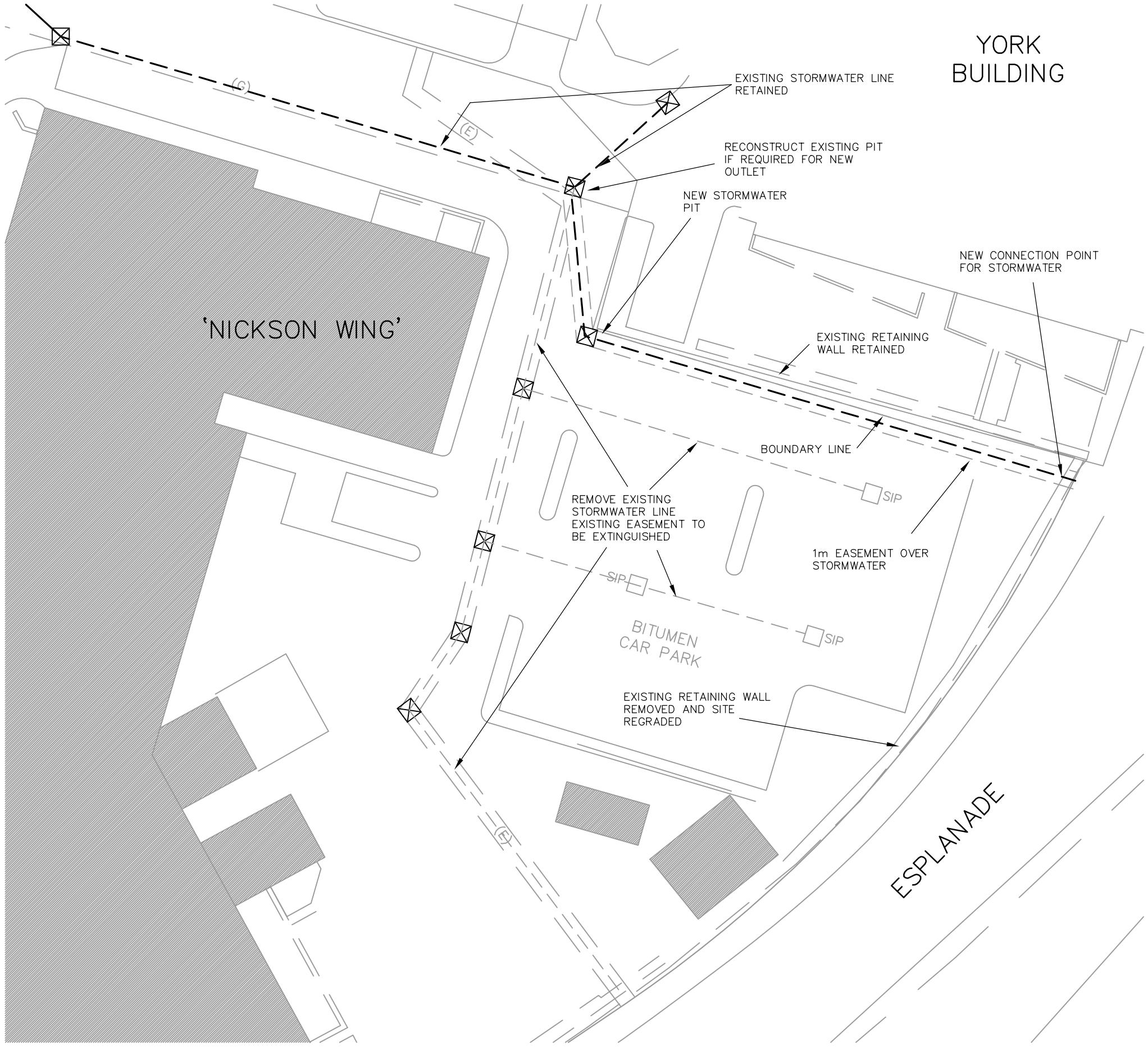
Client: LANDCOM

Project: ROYAL NEWCASTLE HOSPITAL INFRASTRUCTURE INVESTIGATION

Title: INDICATIVE HOSPITAL SITE SERVICES LAYOUT

Drawing No. 6047-01
Issue D
Cad File No.
Xref.(s)

A1



NOTES

1. THE SURVEY IS ON M.G.A..
2. ALL REDUCED LEVELS ARE BASED ON AUSTRALIAN HEIGHT DATUM (A.H.D)
3. ORIGIN OF LEVELS PM 30038 RL 11.295 (A.H.D)
4. LEVELS ON THE KERB ARE AT THE FRONT FACE AND ON THE TOP OF THE KERB. DRIVEWAY LEVELS ARE AS SHOWN.
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(G) – RIGHT OF CARRIAGEWAY 5.75 WIDE & VARIABLE (DP 1026764)

LEGEND

TREES

TR	TREES
H	HEIGHT
S	SPREAD
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SERVICES

KIP	KERB INLET PIT
LP	LIGHT POLE
TPT	TELSTRA PIT
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SGN	SIGN POST
DIP	DRAINAGE INLET PIT
EPI	ELECTRICITY PILLAR

SERVICES OUTSIDE SITE

	ELECTRICITY
—G—	GAS
	SEWER
	TELSTRA
	WATER

SERVICES INSIDE SITE

	ELECTRICITY
—G—G—	GAS
	SEWER
—T—T—	TELSTRA
—W—W—	WATER
—D—D—	FUEL LINE (GENERATORS)
— — — —	STORMWATER

WARNING

"DIAL BEFORE YOU DIG" - 1100

IT IS ESSENTIAL THAT BEFORE ANY EXCAVATION WORK IS UNDERTAKEN, FURTHER INVESTIGATION INTO THE LOCATION OF SERVICES SHOULD BE CARRIED OUT WITH THE RELEVANT AUTHORITY.

0 10 20 30 40 50m
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B	RE-ISSUED FOR REVIEW	GS		GS		20.10.05
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Patterson Britton & Partners Pty Ltd
consulting engineers

Client: LANDCOM

Project: ROYAL NEWCASTLE HOSPITAL INFRASTRUCTURE INVESTIGATION

Title: INDICATIVE HOSPITAL SITE SERVICES STORMWATER DIVERSION CONCEPT OPTION 1

Drawing No. 6047-05
Issue B
Cad File No.
Xref.(s)

A1