

**Bowen Hills Government
Office Building, Hudd
Street, Bowen Hills –
Infrastructure Delivery**

8 December, 2011

Laing O'Rourke

PLANS AND DOCUMENTS
referred to in the ULDA
APPROVAL dated 30/ 4 /2012

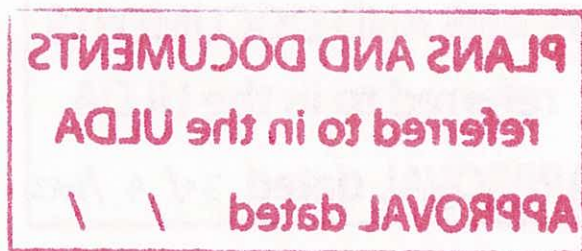
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Revision	Details	Date	Amended By
00	Original	30 September, 2011	C Netherway
01	Amendment to sewer estimate	5 October, 2011	C Netherway
02	Amendment to GFA	7 December, 2011	C Netherway
03	Inclusion of min bridge clearance	13 December, 2011	C Netherway

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1. Site description

The development site for stage 1 within proposed Lot includes an area of approximately 5,000 sq.m within a total site area of 12,600 sq.m bounded by Mayne Street to the west, Hudd Street to the south, QR rail line and Bowen Hills Station to the east and the Inner City Bypass to the north. The whole of the development site is currently utilised as car parking servicing the Bowen Hills station. The car parking is at grade on two terraced levels and has a fully sealed surface. The land grades from the Hudd Street, Mayne Street intersection to a low point on the north eastern boundary with slopes of approximately 5% over the stage 1 area. The whole development site includes lots 5 RP9895, lots 1,2 & 3 RP9896, Lot 7 RP885888 and lot 103 SP155738, Stage 1 is generally located within lots 1,2 &3 RP9896 and part Lot 103 SP155738. The site contains vegetation in the northern portion of Lot 103 as shading and screening associated with the operation of the QR car park.



2. Water

The development site is currently serviced by two 100 mm water mains in Mayne Street and an 80mm main in Hudd Street. The current mains service the existing QR development on Lot 101 contained within the development site, the Bowen Hills Station and the properties fronting Hudd Street. Preliminary analysis undertaken within the Bowen Hills UDA Master Plan has recommended that this system be augmented with the replacement of the 100mm mains in Mayne Street with a 225mm main to service the ultimate development of this area.

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Site Allocation Mid 2012

BOWEN HILLS QUEENSLAND RAIL SITE

LAING O'ROURKE

21 September 2011

① CO:K

2. Water

The development site is currently serviced by two 100 mm water mains in Mayne Street and an 80mm main in Hudd Street. The current mains service the existing QR development on Lot 101 contained within the development site, the Bowen Hills Station and the properties fronting Hudd Street. Preliminary analysis undertaken within the Bowen Hills UDA Master Plan has recommended that this system be augmented with the replacement of the 100mm mains in Mayne Street with a 225mm main to service the ultimate development of this area.

The development of stage 1 proposes the creation of 35,448 sq.m GFA office and retail space . Reference to the BCC calculation methodology for infrastructure contributions adopts a conversions rate of 0.006 ET per sq.m GFA for commercial/retail development (Note: the draft policy has reduced the rate to 0.0024 ET per sq.m). Application of the conversion rate produces a demand of 212 ET (85 ET draft Policy) applicable to both water supply and sewer reticulation.



Discussion with QUU has confirmed that there is no spare capacity to support the proposed site development. The site is not provided with sufficient flows, pressures or alternative feeds to meet minimum fire fighting and service requirements. It is understood that significant parts of the whole network must be upgraded to provide for the planned UDA growth. The development site is on the periphery of the network with small main sizes and dead ends. The interim solution, ahead of a full network upgrade, will require the installation of a 225 mm ring main connected at Campbell Street , along Mayne Street and Hudd Street and connected back to the either Campbell Street or to Abbotsford Road. This system should supply the required flows and pressures to the development site and provide a redundancy to the supply in the event of a failure of either supply source. The above recommendation is the result of preliminary discussions with QUU, further detailed modelling of flows and pressures will be required with the detailed design to achieve the optimum alignment and service configuration. Modelling and design will be undertaken with the assistance of QUU to ensure that an agreed strategy is presented to ULDA for approval of operational works.

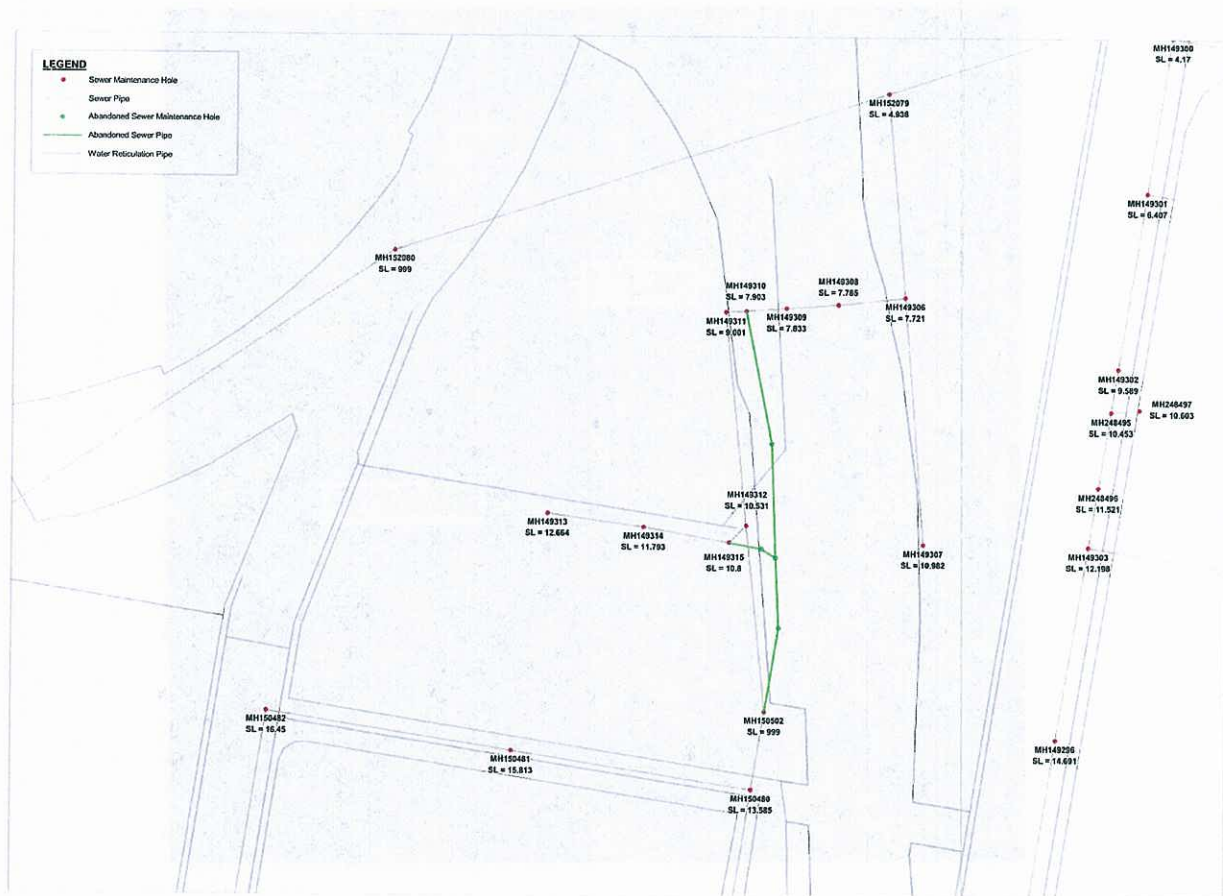


3. Sewer

The development is serviced with an existing 150mm EW sewer collecting from MH150480 in Hudd Street and laid along the eastern common boundary with the rail line, exiting the site from MH149311 and crossing beneath the rail to join the trunk main at MH152079. There is a service connection to the sewer within Lot 103 to serve the QR building on Lot 101. Preliminary analysis undertaken within the Bowen Hills UDA Master Plan has recommended that the complete line between MH150480 and MH152079 will require upgrading to a 300mm dia sewer to carry the ultimate design population.

Lot 103 is also traversed by the 675mm trunk sewer connecting at MH152079. This sewer has not been identified for upgrade within the Master Plan, but is located beneath the footprint of the future stages of development. This sewer is therefore outside of the scope of the investigation for stage 1 works but will require identification and protection for future stages of development.

Discussion with QUU has indicated that there is no spare capacity within the existing reticulated sewer network to accept the proposed development. It is anticipated, outside of a flow/network analysis, that the line downstream of MH 150480 must be upgraded to 300 mm dia connection to the 675mm trunk main. The existing sewer downstream of MH149311 runs beneath the rail lines and beneath industrial building fronting Abbotsford Road. Alternatives for upgrading the sewer must include construction a new sewer on a similar alignment to the existing and beneath the rail line. A more direct route could intercept the 675mm trunk main upstream of the rail crossing. The sewer here is very deep and will require an approximately 14.0 metre vertical bored shaft to intercept it.



The upgraded sewer, downstream of MH150480, will be capable of carrying the flows from the fully developed catchment, in excess of the requirements of the proposed development. The above recommendation is the result of preliminary discussions with QUU, further detailed discussion with QUU and possible utilisation of their network modelling will be required with the detailed design to achieve the optimum alignment and service configuration. Modelling and design will be undertaken with the assistance of QUU to ensure that an agreed strategy is presented to ULDA for approval of operational works.



4. Stormwater and flooding

Stormwater is conveyed by piped drainage in Hudd Street then along the eastern boundary of the development site to culverts beneath the rail line then to a downstream piped system. The upstream catchment is approximately 3.2 ha with the development site contributing a further 1.7 ha delivers 4.9 ha to the rail culverts. The whole catchment is built out and the proposed development catchment is almost completely sealed as a car park. As the site is currently fully sealed, the future development of the site cannot create any increase the stormwater discharge for the site.

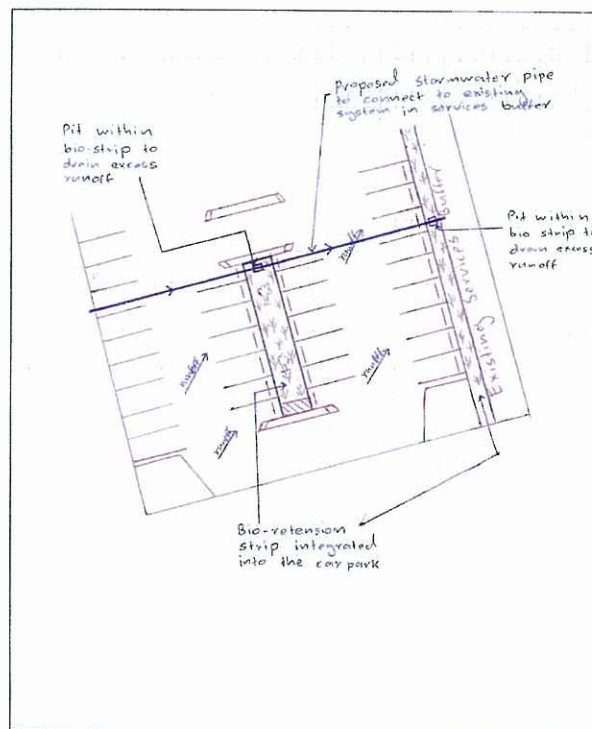
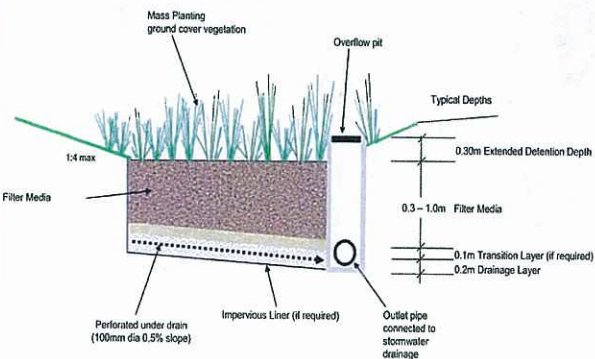
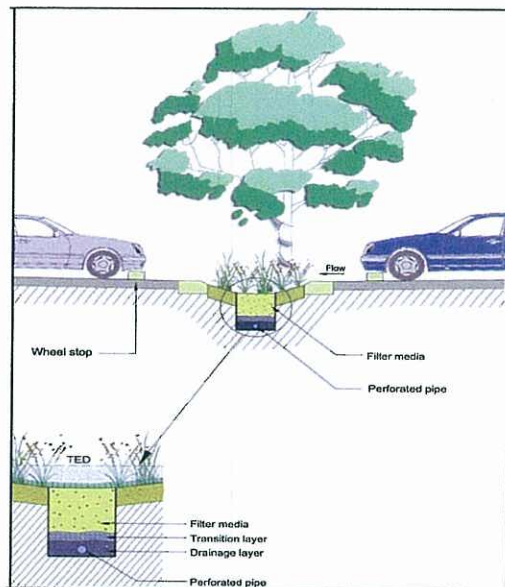


The Bowen Hills UDA Master Plan seeks to employ WSUD principals within all new development. New development must seek to reduce the consumption of reticulated potable water, the discharge of wastewater and encourage the treatment and re-use of stormwater. While stormwater from the upstream catchment will be conveyed through the site to the point of discharge, water falling and collected within the site will be treated to meet minimal discharge characteristics and utilised, where possible satisfy landscape irrigation requirements.

No stormwater upgrades have been identified within the Bowen Hills UDA Master Plan for this site.

The development site is currently used as secure car parking for QR staff. The car park is fully bitumen sealed and the lower areas are provided with a stormwater collection system. The proposed redevelopment of the site for commercial offices will in no way increase the impervious area contributing to the existing drainage system. The development therefore does not generate any increase in adverse impact of the drainage system or adjoining land but is obliged to connect to a legal point of discharge. The legal point of discharge is the existing stormwater drain on the southern boundary.

It is understood that as a part of the development of this site, the QR car park adjacent to the southern boundary will be reconstructed. There may be an opportunity within this construction to establish a landscape buffer to the rail line and within this area, some bio-retention stormwater treatment for run-off from the developed site.



In summary the development does not generate any increase in stormwater discharge from the site and thus no requirement to upgrade the receiving system. The development must connect its stormwater drainage system to a legal point of discharge and that is available on the southern boundary. The construction of the QR car park may provide opportunities to treat stormwater from the development within landscaped bio-retention areas before discharging to the existing system.

The proposed development site is not impacted by the Q100 flood event (refer below). It is estimated, from the publicly made available flood information associated with the current Airport Link project, that the Q10,000 flood level is approximately 6.5m AHD for the Bowen Hills region. The stage 1 development land is above RL 11.0 AHD and therefore significantly higher than the specified Q500 flood level.



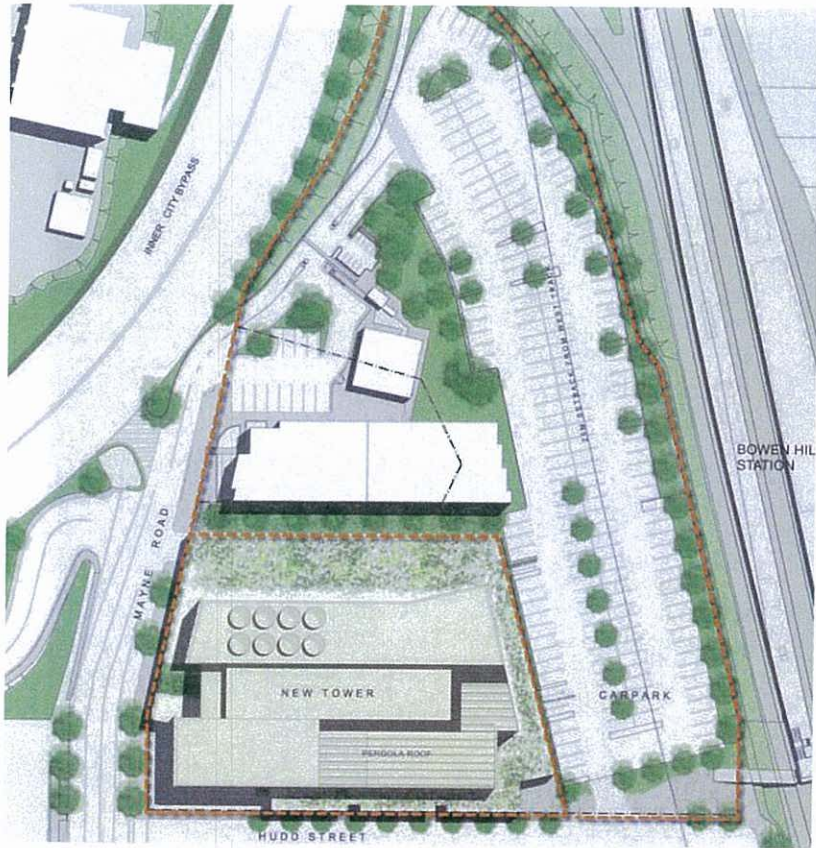
BCC Flood Flag Map (Bowen Hills)

5. Access

The stage 1 development site has direct road frontage and access via Mayne Street and Hudd Street. It is anticipated that the frontage roads verge/footpath will be reconstructed as a part of the landscape works associated with the development of the site.



The Bowen Hills UDA Master Plan considers the long term development of the area and need for the extension of Hudd Street, bridging over the rail line to connect with Abbotsford Road. This substantial work is not required to satisfy the service requirements of this development but does have a direct impact on the frontage and elevations of the proposed building. A preliminary alignment has been considered with regard to the existing rail corridor and to provide for a minimum clearance (as agreed with QR) of 6.9 metres between rail track and soffit of proposed bridge. The following indicates the changes to road level in Hudd Street associated with this scenario:





The preliminary sketch plan indicates that the new car park will extend from the car park east of the QR building up to Hudd Street with only emergency vehicle access available.