

# s75W Modification Application Environmental Assessment Report



## Edmondson Park

### Sewage Treatment Plan Decommissioning and Remediation

Submitted to Planning and Environment  
On Behalf of UrbanGrowth NSW

July 2016 ■ 16396

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A handwritten signature in blue ink that reads "T. Ward". The signature is written in a cursive, flowing style.

Tim Ward

8/07/2016

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# Executive Summary

## Introduction

This report has been prepared by JBA, on behalf of the proponent, UrbanGrowth NSW, to support a modification application to carry out decommissioning and remediation works at Edmondson Park South under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

## Background

The Edmondson Park South site is subject of a Concept Plan Approval which provides for the development of a new town centre, incorporating a mix of retail, commercial, business, civic, community, recreation, residential and mixed use employment. The Concept Plan Approval provided for some works, including some remediation works, to be carried out without the need for further environmental assessment.

## The Proposed Modification

Contamination issues at the former Sewage Treatment Plant (STP) site were not fully resolved during the preparation of the Concept Plan. Further contamination investigations have been carried out, and a Remedial Action Plan (RAP) prepared to address identified contamination.

Whilst the Concept Plan clearly provides for the decommissioning and remediation of the STP and oxidation ponds, it is unclear to what extent the Concept Plan Approval envisaged that further environmental assessment of these works should be required.

The purpose of this Modification Application is to address this uncertainty by modifying the scope of the Concept Plan Approval to ensure it clearly provides for the proposed STP decommissioning, demolition and remediation works to be carried out without further environmental assessment.

This proposed works will provide for the decommissioning of the STP, and associated sewage oxidation ponds, and remediation of the land impacted by the historical use of these pieces of infrastructure.

## Environmental Impacts

No significant environmental impacts have been identified. A RAP has been prepared, and appropriate mitigation and management measures have been set out for the remediation works – including noise, air quality and water management controls as well as monitoring during the works.

Remediation works will be subject of Validation Report, that will be prepared in general accordance with the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites documenting the works as completed.

If required, an Environmental Management Plan will be prepared to detail the ongoing management and monitoring requirements for individual parts of the site where a containment cell is located and/or residual impacts are located.

A Vegetation Management Plan (**Appendix E**) has been prepared that identifies specific biodiversity impacts and provides offset requirements and revegetation outcomes. Overall some 3ha of land will be revegetated as part of the decommissioning and remediation works.

Remediation will be carried out so that the land will comply with the relevant land use criteria for open space. The proposed modification will therefore ensure that the land is suitable for its intended future use as Regional Park and Regional Open Space, as set out in the Concept Plan and Conservation Agreement.

## 1.0 Introduction

This report has been prepared by JBA, on behalf of the proponent, UrbanGrowth NSW, to support a modification application to carry out decommissioning, demolition and remediation works at Edmondson Park South and is submitted under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

In accordance with Section 75W(3) of the EP&A Act, a request for the Secretary's Environmental Assessment Requirements (SEARs) for this proposed modification was lodged on 10 June 2016. The Secretary did not issue SEARs for the modification.

The report describes the site, its environs and the proposed development, and includes an environmental assessment of the proposal. It should be read in conjunction with the information referenced within and appended to this report.

This report includes the following information:

- An overview of the site and the proposed development.
- An outline of the planning framework.
- An assessment of the environmental issues associated with the proposal.
- An overview of consultation taken to date for the proposal.

### 1.1 Background

On 5 August 2011, the Minister for Planning gazetted an amendment to Schedule 3 of State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) to include 'Part 31 Edmondson Park South'. Amongst a number of things, the Schedule 3 amendment rezoned the site for a mix of residential, commercial and open space uses, identified heritage items, and established high-level built form and subdivision controls.

On 18 August 2011, the Planning Assessment Commission, as delegates of the Minister for Planning approved a Part 3A Concept Plan for 'Edmondson Park South'. The Concept Plan provided for development of the land for approximately 3,200 dwellings and a new Edmondson Park Town Centre incorporating a mix of retail, commercial, business, civic, community, recreation, residential and mixed use employment - up to approximately 45,000m<sup>2</sup> of retail, business and commercial floor space.

The Concept Plan area included land that was previously within Ingleburn Army Camp. The Ingleburn Army Camp contained a Sewage Treatment Plant (STP) and two associated oxidation ponds.

Amongst other things, the Concept Plan specifically approved:

- decommissioning of the existing Sewage Treatment Plant (STP) within the north-eastern portion of the subject site and provision of a new sewer carrier main to connect to the existing Ash Road Sewer Carrier.
- protection of approximately 150 hectares of conservation lands within regional parklands.
- the retention and protection of land for environmental conservation and / or management purposes including the creation of an approximately 150ha Regional Park.
- a Remediation Strategy for the site.

The Edmondson Park Concept Plan incorporated a Remediation Action Plan (RAP) prepared by Golder and Associates which indicated a preference for remediating asbestos containing materials on site. This approach was preferred as it limits transportation requirements, is technically feasible and results in a more sustainable outcome.

Pursuant to Section 75P(1)(c) of the EP&A Act the Concept Plan Approval included approval of a number of aspects of the Concept Plan for which no further environmental assessment was required, being:

- remediation works in accordance with the RAP relating to lots 1, 2 and part lot 7 and part lot 8 DP 1127652;
- remediation of unexpected contamination in accordance with the protocols set out in the Concept Plan;
- demolition of existing buildings and other structures including paved roadways as set out in the Concept Plan;
- construction of a temporary sales office; and
- temporary signage associated with the sale of the land.

Development of Edmondson Park South has progressed since this approval, and numerous further development applications for various aspects of the Concept Plan have been obtained, including superlot subdivision and development of the town centre. The Concept Plan has been modified once – to amend the timing for the preparation of a rehabilitation plan. A second modification is currently under assessment by the Department, for minor changes to the approved plans and signage for the sales and information centre.

## 1.2 Purpose of the Modification

Condition 1.7 of the Concept Plan Approval states:

### ***Decommissioning of Sewage Treatment Plant***

- 1.7 *The existing sewage treatment plant is to be decommissioned as soon as practicable following the connection of the Bambi Kindergarten and Ingleburn North Primary School to the proposed Ash Road Carrier Stage 1.*

The Remedial Action Plan (RAP) that was submitted and endorsed as part of the Concept Plan Approval (the Concept Plan RAP) identified the likely contamination associated with the STP and oxidation ponds and provided that further investigations were underway. Further, the Concept Plan RAP set out that an accredited Site Auditor would be engaged to review the investigation reports and the nominated remedial strategies, with a view to providing a Site Audit Statement confirming that the site is suitable for the proposed future uses.

The Environmental Assessment Report which accompanied the Concept Plan reiterated this approach, identifying procedures for ensuring that the necessary decommissioning and remediation works would be carried out at the STP and oxidation ponds, and that these would be properly verified by the issue of a Site Audit Statement for the works. This approach was included as Statement of Commitment No. 82.

A new RAP has subsequently been prepared that describes the remediation works now proposed in relation to the decommissioning and remediation of the STP and oxidation ponds (the STP RAP, see **Appendix B**).

Whilst the Concept Plan RAP and EAR clearly provides for the decommissioning and remediation of the STP and oxidation ponds, and provided procedures and commitments relating to the completion of decommissioning and remediation works, it is unclear exactly to what extent the Concept Plan Approval envisaged that further environmental assessment of these works should be required.

The purpose of this Modification Application is to address this uncertainty by modifying the scope of the Concept Plan Approval to ensure it clearly provides for the proposed STP decommissioning, demolition and remediation works.

This proposed modification will provide for the decommissioning of the STP, and associated oxidation ponds, and remediation of the land impacted by the historical use of these pieces of infrastructure. The works will contribute to the rehabilitation of land identified in the Concept Plan as being for Regional Park or Regional Open Space, ultimately supporting those future uses.

Given that remediation of the Edmondson Park South site was approved by the Concept Plan Approval, and that remediation works in accordance with the Concept Plan RAP were already provided for under Section 75P(1)(c) as being an aspect of the Concept Plan for which further environmental assessment was not required, it is proposed to modify the Concept Plan Approval to:

- Confirm that all decommissioning, demolition and remediation works associated with the STP and oxidation ponds are included as aspects of the Concept Plan; and
- Provide that all decommissioning, demolition and remediation works associated with the STP and oxidation ponds are included as aspects of the Concept Plan for which no further environmental assessment is required.

Accordingly, this Modification Application has been submitted for consideration by the Minister for Planning under Section 75W of the EP&A Act.



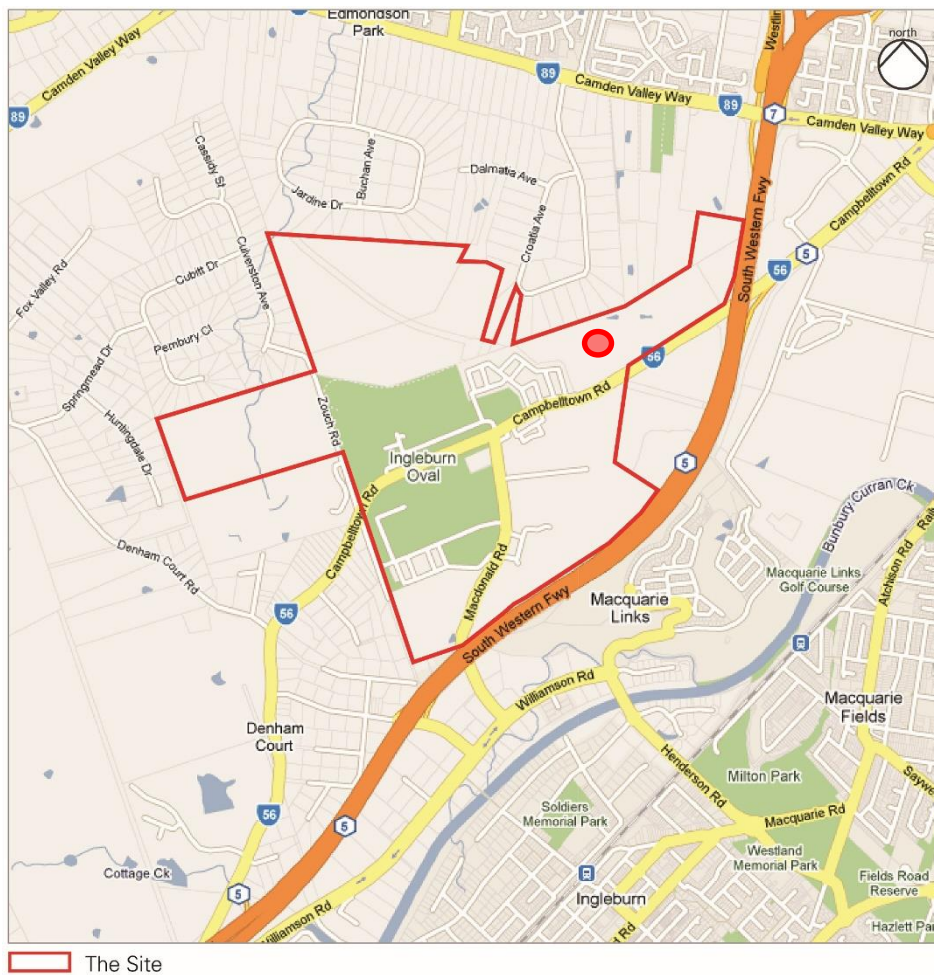
## 2.0 Site Analysis

### 2.1 Site Context

Edmondson Park is located within the South West Growth Centre of Sydney, north-west of the M5 Motorway and lies approximately 6km southwest of Liverpool. It is also approximately 4km north of Ingleburn, 14km north of Campbelltown and approximately 40km to the south west of Sydney CBD.

Edmondson Park South, which is the area subject of the Concept Plan Approval, forms part of the larger Edmondson Park Precinct which is located within the South West Priority Growth Precinct (formerly known as the South West Growth Centre).

The location of the Edmondson Park South site is shown in **Figure 1**.

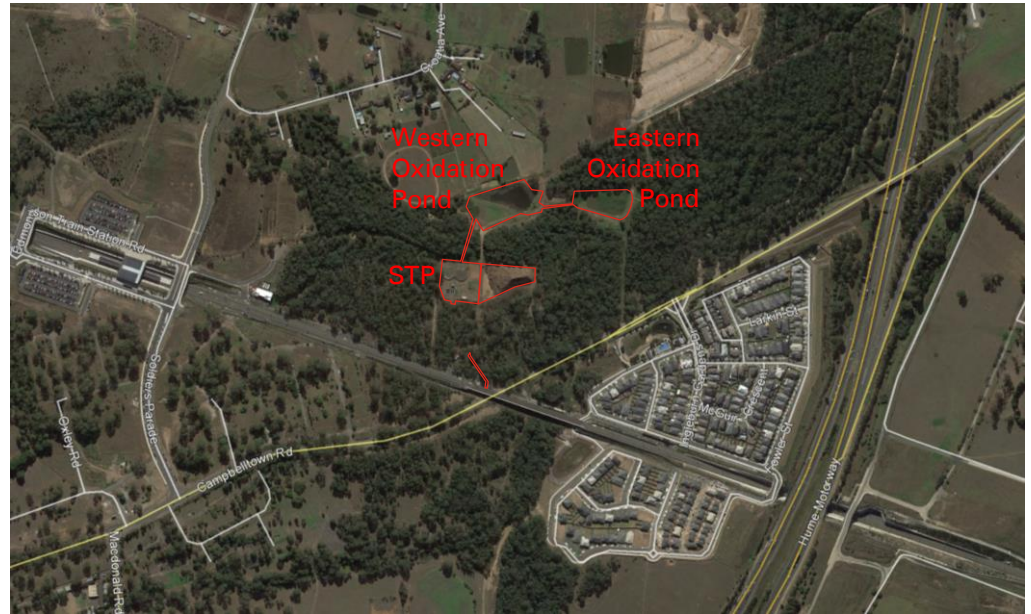


**Figure 1** – Location Plan

Source: Google Maps and JBA

## 2.2 Site Location

The STP and oxidation ponds are located in the north-eastern part of the Edmondson Park South site, within Lot 212 DP1186108 (formerly Lot 3 DP831152). The location of the STP and oxidation ponds in the context of the approved Concept Plan are shown at **Figure 2**. The STP and one of the ponds are identified in the Concept Plan as being within the Regional Park and the other pond is within the adjoining Local Public Open Space.



**Figure 2** – Aerial photo of the STP and associated oxidation Ponds

## 2.3 Site Description

### 2.3.1 Existing Condition

A plan showing the existing site is provided in **Appendix C** (note: the plan provided in Appendix C relates to Lot 3 DP 831152. The land is now described as Lot 212 DP 1186108). The STP comprises a square area, approximately 1.2 ha, within a wiremesh security fence. A partly sealed access road is located outside the eastern STP boundary, between the STP and the clearing east of the STP.

The clearing to the east of the STP was a sewage sludge disposal area, where sewage sludge was disposed during the STP operation period. This area was remediated by the Department of Defence, and was subject of *Site Audit Report – Defence Ingleburn Site*, prepared for Department of Defence by AECOM Australia Pty Ltd, 25 July 2011 and an associated Site Audit Statement.

The STP area slopes to the north and northeast, other than flat areas presumably excavated level for placement of STP infrastructure, which includes several buildings, primary oxidation ponds, pipes, tanks, two large circular trickle filters and associated infrastructure.

Surfaces are largely unsealed and vegetated (grass and minor trees) other than where there are concrete paths between structures and immediately surrounding the base of most structures.

Structures at the site comprise hazardous building materials including asbestos containing material (ACM). Other hazardous materials identified or considered to be likely in the structures include lead based paints, chlorine gas cylinders, capacitors in light fittings containing polychlorinated biphenyls and materials containing synthetic mineral fibres.

The oxidation ponds are located approximately 150 m north and northeast of the STP, and were used to store treated water.

The western (primary) and eastern (secondary) oxidation ponds are separated by a narrow cleared area. At the eastern end of the western pond is a small pumping station, with an underground concrete pipe connecting the two ponds.

### 2.3.2 Surrounding Land Uses

The STP is generally surrounded by existing bushland with the exception of a clearing immediately to the east (the clearing is shown in **Figure 2**). The oxidation ponds are generally surrounded by future regional park and open space areas, except for the land to the north of the western oxidation pond which adjoins future residential subdivision developments.

### 2.3.3 Zoning

The STP and eastern oxidation pond is zoned E1 Environmental Conservation under the *Liverpool Local Environment Plan 2008*, the same zoning applies to a large area of existing bushland in the surrounding area. These areas form part of the future Regional Park, and will be dedicated to the National Parks and Wildlife Service (NPWS) (Note: NPWS is part of the Office of Environment and Heritage (OEH)), in accordance with a Conservation Agreement that has been endorsed under the Concept Plan Approval.

The western oxidation pond is located on land zoned RE1 Public Recreation. This land is intended to be retained as Local Open Space under the Concept Plan and transferred to Council.

### 2.3.4 Topography and Drainage

The STP generally follows regional topography, sloping generally towards the north and northeast.

Maxwells Creek is located north of the STP, which flows in an easterly direction towards the eastern oxidation pond, and from there to the east into bushland and then north-easterly towards Campbelltown Road. Maxwells Creek drains north along the Hume Highway then discharges into Cabramatta Creek west of the City Centre of Liverpool. Cabramatta Creek drains into the Georges River at Chipping Norton approximately 12.5 km north-east of the site. Parts of the Maxwells Creek drainage corridor are affected by flooding from the 100 year ARI and Probable Maximum Flood (PMF) storm events.

The area immediately surrounding the oxidation ponds is relatively level, and is inundated during the 100 year ARI and PMF flood events. The STP compound is outside the flood extent.

### 2.3.5 Geology and Hydrogeology

The site is located over Bringelly Shale, part of the Wianamatta Group being the uppermost unit of the Sydney Basin. The Bringelly Shale is reported to comprise shale, carbonaceous claystone, laminate, fine to medium grained lithic sandstone, rare coal and tuff. The site-specific geology is summarised below:

- A layer of fill or topsoil covers the STP area, overlying natural clay and weathered shale and shale bedrock, with bedrock at depths between 1.3 and 4 m below ground surface (bgs);
- Within a former sludge drying bed in the east of the STP, a thin layer of silty sewage sludge (0.05 m bgs) underlain by coarse grained sand to 0.3 m bgs and very coarse gravel to 0.5 m bgs was encountered over natural clays at 0.5 m bgs;
- Within the oxidation ponds there was an upper layer of dark brown silty 'sludge' over silty clay, clayey silt or clayey sand, with stiff natural clay between 0.4 m and 0.8 m bgs.

Strong organic/sulphurous odours (not hydrocarbon) were observed in shale or weathered shale at depths from 5 m to 8 m bgs in three locations in the north and northwest of the STP. These are not considered to be associated with hydrocarbons, but rather hydrogen sulphide production.

Regional groundwater occurs within the shales with principle flow through fissures and joints within the bedrock, although with low potential for movement.

Groundwater has been encountered at two of five borehole locations in the STP area between 4 m bgs and 5.3 m bgs. Final water levels following installation of monitoring wells at the five locations ranged from 2.2 m to 5.8 m bgs, with predicted groundwater contours indicating groundwater flow to the east / northeast.

Groundwater is reported to be somewhat saline and typically hard. Groundwater was under reducing and low dissolved oxygen (DO) conditions, except at the southeast corner, with organic/sulphurous odours noted in groundwater at two locations, consistent with similar odours in shales at depths where water ingress is expected.

### 2.3.6 Heritage and Archaeology

As part of the Concept Plan detailed investigations of European and Aboriginal heritage were carried out.

European heritage was predominantly related to the former use of parts of the Edmondson Park South site for the Ingleburn Army Camp. Whilst the STP and associated oxidation ponds are related to the Ingleburn Army Camp they are not identified as being of heritage significance. The Concept Plan included commitments relating to the retention of all buildings within the Ingleburn Military Heritage Precinct, relocation and retention in an open space part of the site of representative samples of prefabricated cottages within the Ingleburn Village heritage site, and the implementation of a Heritage Interpretation Strategy. The proposed decommissioning and remediation works will not compromise these commitments.

In relation to Aboriginal heritage, the Concept Plan EAR was supported by a detailed Aboriginal Cultural Heritage Assessment that identified that large portions of Edmondson Park South have been severely impacted by the construction and activities within the Ingleburn Military Camp during its operation. One open artefact scatter has been identified in close proximity to the STP and oxidation ponds, being a scatter of four artefacts on Maxwells Creek, of moderate significance and some archaeological potential. This artefact scatter is located just to the north of the eastern oxidation pond and is recorded as being heavily disturbed.

High points overlooking Maxwells Creek as well as the middle and southern arms of Maxwells Creek were identified as having high sensitivity in relation to



Aboriginal heritage. Statements of cultural significance confirmed these areas of high archaeological sensitivity were also areas of high cultural value.

### 2.3.7 Flora and Fauna

Vegetation in the area of the STP is a mown grassland with one exotic tree in the north east corner and some woody weed infestations along the northern boundary. Vegetation to the north of this area is River Flat Eucalypt Forest (RFEF) which is heavily infested by weeds, including some noxious species. The vegetation to the south and west is Cumberland Plain Woodland (CPW) in varying conditions with weed infestations highest along the western boundary.

The sewage sludge disposal area consists of a mown grassland area to the east of the STP. This area has been remediated and is now an exotic grassland containing approximately six scattered *Acacia decurrens* saplings and one mature *Melaleuca styphelioides* on the northern boundary. CPW vegetation borders this section along the southern and south eastern edges and RFEF vegetation borders in the north. The condition of both these vegetation communities is moderate with weed densities high in the ground layer.

The oxidation ponds currently contain both exotic and native aquatic vegetation including one noxious weed species. RFEF borders the oxidation ponds.

The CPW and RFEF bordering STP area are in moderate condition, however the ground layer typically has a high weed density.

Vegetation within the RE1 zoned land is subject of a Biocertification Order issued under the Threatened Species Conservation Act 1995. As such, the impacts of any activity that affects or requires the removal of this vegetation has already been assessed and appropriate offsets obtained. Vegetation within the E1 zoned land is not covered by the Biocertification Order.

## 2.4 Contamination

A detailed site Environmental and Geotechnical Site Investigation has been carried out by JBS&G for the site (see **Appendix A**). Whilst the concentration of chemicals of potential concern (COPCs) were below the relevant criteria in most samples collected from the STP and oxidation ponds, the following contamination issues at the site:

- One sediment sample in the west oxidation pond has been identified as having a concentration of lead that exceeded the NEPC (2013) health based investigation levels (HIL) and adopted ecological investigation levels (EIL) for urban residential and public open space landuse(s).
- The oxidation ponds contained E.Coli above the NSW EPA Use and Disposal of Biosolids Products guidelines.
- ACM was located within soil at one location within the fill material on the bank of the eastern oxidation pond.
- One location within the western oxidation pond contained lead 2.5 times the adopted site criteria.
- Elevated concentrations of Total Petroleum Hydrocarbons (TPH) (C<sub>10</sub>-C<sub>36</sub>) and E.Coli in the sewage sludge drying beds within the STP.
- Elevated concentrations of ammonia above the ANZECC 2004 guidelines in groundwater have been identified at one of the four groundwater sampling locations and surface water from the western oxidation pond. Elevated concentrations of ammonia were reported within one groundwater monitoring well (MW04), located within the STP area and one surface water sample collected from the western oxidation pond.

Based on these assessment findings, JBS&G conclude that the site can be made suitable for the proposed use subject to implementation of an appropriate site management strategy to address site contamination issues including the heavy metal, asbestos and E.coli impacts.

A RAP (the STP RAP) has been developed to address the identified contamination issues to render the site suitable for the proposed open space use, and is provided in **Appendix B**.

## 3.0 Description of Proposed Modification

A detailed works plan is provided at **Appendix D**. The following sections describe the proposed works.

### 3.1 Access Road Construction

The works will involve the construction of a temporary access road to the STP site. The new section of road joins Campbelltown Road with an existing road leading to the STP and is required because access to the STP was severed by the South West Rail Link. The access road is approximately 3m wide and 60m in length, and its location is shown in **Figure 2**.

The construction of this section of road would avoid mature trees representative of CPW however a number of juvenile Eucalypts and shrub and groundcover vegetation will need to be removed or impacted.

### 3.2 Decommissioning and Demolition

It is proposed to dismantle and demolish all buildings and structures at the STP site, including the pump house and other structures located adjacent to the oxidation ponds.

This includes removal of some relatively deep structures in the STP area, including the primary settling tanks which extend to approximately 8 to 10 m bgs, sludge digestors which extend to approximately 6 to 8 m bgs, and pump house which extends to approximately 6 to 8 m bgs.

Demolition waste will be stockpiled in the cleared area located to the east of the STP, known as the sewage sludge disposal area. Concrete will be processed at the site, by being either hammered or pulverised to extract the steel reinforcement – enabling recycling of both the concrete and the steel components.

A Hazardous Materials Survey (**Appendix F**) has been prepared to inform the decommissioning and demolition works, which provides recommendations about the handling and disposal of hazardous materials.

Demolition materials containing ACM or other hazardous materials or contaminants would not be mixed with other demolition materials that are not impacted.

Where no hazardous materials have been identified in the structures the concrete could be crushed and utilised at the site or placed within containment cells.

### 3.3 Oxidation Pond Dewatering

Water remaining in the oxidation ponds will be removed by discharging to the intermittent creek. The oxidation ponds currently overflow (when full) to the intermittent creek. The Environmental and Geotechnical Site Investigation report (**Appendix A**) considers that heavy metal and organic contaminant concentrations in oxidation pond surface water were considered not to represent an unacceptable risk to sensitive receptors at, or downgradient of the site.

The water would be tested prior to discharge to confirm that it would not result in pollution of the creek. Treatment of the water prior to discharge may be required. Subsequent testing of the treated water would be completed prior to

discharge. Appropriate sediment and erosion controls would also be implemented prior to discharge to the creek. Fauna will be monitored during dewatering by appointment of an ecologist.

### 3.4 Sediment Removal

After the removal of the water from the oxidation ponds, the sediment within the ponds will require aeration. If water does not ingress into the ponds, the material can be dried out within the ponds, alternately a cleared area will be required to be set up for drying. The proposed sediment stockpile and drying area is located in a cleared area immediately south-west of the western oxidation pond.

Further validation assessment will be carried out to provide better characterisation of the distribution of contaminants through the sediments in each pond.

Aeration of the sediment will be achieved by the spreading and turning regularly of the sediment until the appropriate moisture content reduction is achieved. Once dried appropriately, resampling will be completed to assess for biologicals and metals. Any impacted sediments will require separation from the non-impacted material where practicable prior to on-site reuse, containment or off-site disposal.

### 3.5 Remediation Strategy

#### 3.5.1 Remediation Goal

The primary remediation goal is to reduce the risks to future site users and the environment posed by the identified soil contamination at the site to acceptable levels to enable the proposed redevelopment of the site for open space use to proceed.

#### 3.5.2 Remediation Extent

The extent of remediation set out in the STP RAP is:

- ACM fragments on the ground surface within the STP and within the soil in the eastern oxidation pond wall, as well as confirmation there is no remaining ACM in the vicinity observed during the previous investigations.
- The TPH impacted soil within the STP compound identified as part of the previous assessment.
- The lead impacted soil within the western oxidation pond.
- The *E.Coli* impacted sediments within the oxidation ponds and from within the STP compound.

#### 3.5.3 Preferred Remediation Method

Depending on final volumes of contaminated material the STP RAP identifies that the preferred remedial option is to excavate impacted fill materials for potential onsite containment with management under an Environmental Management Plan (EMP); and onsite treatment and retention of biologically impacted materials.

Details of the preferred remedial option are as follows:

- Excavation of asbestos impacted material and onsite containment in a dedicated containment cell (physical separation by covering), or removal for off-site disposal at appropriately licensed facilities;



- On-site containment of asbestos impacted material from the site, and from other Edmondson Park development areas, within the containment cell;
- Excavation of areas of metal impacted soil/sediment requiring removal;
- On-site containment of lead impacted material from the site within the containment cell;
- Excavation and on-site treatment of biologically (E.Coli) impacted soil/sediments and on site treatment via landfarming/aeration, followed by on-site reuse, potentially as part of the capping media, or off-site disposal;
- Ongoing management via the development and implementation of an EMP for the management of contaminated materials within containment cells where constructed and utilised.

Where there is insufficient material to warrant on-site containment, then material will be disposed off-site at appropriately licensed facilities.

### 3.6 Remedial Works – Containment

An unlined containment cell is proposed to be constructed on the site of the existing STP compound. The containment cell would be constructed to a depth of 5m below existing ground level with a containment volume of approximately 34,000m<sup>3</sup>.

Excavated asbestos materials, lead, biological and other contaminated material assessed as suitable for such containment would be placed, compacted and then capped with a suitable capping layer.

Approximately 25,000m<sup>3</sup> of asbestos impacted materials have been identified from other parts of the Edmondson Park site which are also proposed to be placed in the containment cell.

No leachable materials will be contained so the proposed containment cell does not need impermeable liners, leachate collection and treatment systems or groundwater monitoring.

Capping the containment cell is required to minimise infiltration of surface/storm water into contaminated materials and to prevent contaminant exposure to human and ecological receptors on the surface. Capping consistent with existing encapsulation and capping of immobile (asbestos) and relatively immobile (lead associated with small arms ammunition) contaminated materials in other areas of former Defence land in Edmondson Park, is considered to be appropriate. The capping would comprise the following minimum requirements:

- A readily identifiable marker layer to identify the top of contained material (and base of capping) provide adequate visual warning during any future ground disturbance.
- A capping layer of minimum 400 mm thick compacted clay. The clay should have low to medium plasticity resulting in very low permeability when compacted to required specification.
- A growing medium (topsoil) layer of minimum 200 mm thickness placed over the clay capping layer. This topsoil layer thickness could be vegetated with shallow rooted grasses and/or low shrubs. An additional 200 mm of topsoil (e.g. total depth of 400 mm topsoil) will be placed under access tracks.

At the completion of the remedial works a Validation Report will be prepared in general accordance with the NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites* documenting the works as completed. The validation criteria

for the site are based on the relevant health and environmental levels for public open space under:

- Contaminated Sites: *Guidelines for NSW Site Auditor Scheme, April 2006.*
- National Environment Protection (Assessment of Site Contamination) *Amendment Measure 2013 (No. 1), National Environment Protection Council, 2013.*

### 3.7 Final Landform and Future Uses

The final landform would maintain the existing ground levels (or in the case of the oxidation ponds the nominal pre-existing ground levels) such that alterations to current topography and drainage are minimised as much as possible.

The STP remediation area falls within land that has been identified as future Regional Open Space and Regional Park under the Concept Plan.

The STP RAP confirms that carrying out remediation as set out in the STP RAP will ensure that the land will comply with the relevant land use criteria and is not expected to compromise future use of the Site for recreational land uses.

Under the preferred on-site containment remediation strategy for the site, ongoing monitoring and management of contained impacted fill based soils will be required to ensure the continued protection of human health and the environment. An EMP will be prepared to detail the ongoing management and monitoring requirements for individual parts of the site where a containment cell is located and/or residual impacts are located, however, the precise nature and extent of the management/monitoring requirements will not be known until intrusive remediation works are conducted and an assessment of the residual impact is quantified.

The EMP will contain the following elements:

- Description of the residual contamination issue(s) required to be managed, including the type of contamination and location on the site (including a plan prepared by a registered surveyor);
- Description of the environmental controls to manage the residual contamination issue(s);
- Description of responsibilities for implementing various elements of the provisions contained in the EMP;
- Timeframe for implementing the provisions contained in the EMP;
- Health and safety requirements for potential future sub-surface activities in proximity of impacted fill materials and within the containment cells;
- A program of review and audits including assessment of the condition of the containment cell construction measure prior to fulfilment of the reported design life to assess the need for renewal of management measures.

The above elements are consistent with the adopted EMP for the containment cell installed as part of the remediation works carried out by the Department of Defence in the Ingleburn North precinct of the future Regional Park.

### 3.8 Timing

The STP decommissioning works would commence immediately after the granting of consent. Filling of containment cell would continue for approximately 6 months.

### 3.9 Proposed Modifications to Approval

The proposed decommissioning and remediation works do not require any specific amendments to the Concept Plan Approval, other than to include the scope of works into the development as described in the development consent being (new text underlined and in bold and text to be deleted shown as ~~bold struck through~~):

The Planning Assessment Commission under the Environmental Planning and Assessment Act ("the Act") determines:

- (c) pursuant to Section 75P(1)(c) of the Act, that the following aspects of the concept plan require no further environmental assessment and approve this development under Section 75J of the Act (subject to the conditions set out in Schedule 3 of this approval):
- remediation works in accordance with ~~remediation~~ **remedial action plan** relating to lots 1, 2, part lot 7 and part lot 8 DP 1127652;
  - **remediation works in accordance with remedial action plan relating to part of former Lot 3 DP 831152 (currently Lot 212 DP 1186108) for the former sewage treatment plant;**
  - remediation of unexpected contamination in accordance with the protocols set out in the concept plan;
  - demolition of existing buildings and other structure including paved roadways as set out in the concept plan **(as modified)**;
  - construction and use of a temporary sales office; and
  - temporary signage associated with the sale of the land; and

#### SCHEDULE 3

#### CONDITIONS OF PROJECT APPROVAL

#### PART A – ADMINISTRATIVE CONDITIONS

##### Development Description

Project Approval is granted only to carrying out the works associated with the:

- implementation of the ~~Remediation Remedial~~ **Action Plan** (Golder and Associates 2010);
- **implementation of the Remedial Action Plan (JBS&G 2015);**
- remediation of unexpected contamination fines in accordance with the protocols set out **in the** Contamination Management Plan (Golder and Associates 2010);
- the demolition of existing structures across the Site; and
- the construction of a temporary sales office and temporary signage associated with the sale of land at Edmondson Park.

##### Development in Accordance with Plans and Documentation

The development shall be in accordance with the following plans, documentation and recommendation made therein:

- the ~~Remediation Remedial~~ **Action Plan** and the Environmental Management Plan prepared by Golder and Associates and included in Appendix G of the Environmental Assessment;
- **the Remedial Action Plan prepared by JBS&G and included in Appendix B of Modification 3;**
- **the Vegetation Management Plan prepared by Eco Logical Australia and included in Appendix E of Modification 3**

- the Contamination Management Plan prepared by Golder and Associates and included in Appendix G of the Environmental Assessment;
- the demolition plan provided at Appendix H of the preferred project report and the STP Works Plan provided at Appendix D of Modification 3; and
- the temporary sales office plans at Appendix S of the environmental assessment and the sales and information centre signage plans at appendix J of the preferred project report.

No additional conditions are expected to be required and no existing conditions in Schedule 3 are affected.

## 4.0 Statutory Requirements

### 4.1 Legislation

#### 4.1.1 Environmental Planning and Assessment Act 1979

Section 75W of the EP&A Act was repealed in 2011, as part of the broader repeal of Part 3A of the EP&A Act. However, as part of the repeal of Part 3A, transitional arrangements were inserted. Clause 3C of Schedule 6A of the EP&A Act specifically provides that section 75W continues to apply to modifications of a concept plan, and so continues to apply in respect of this modification application.

#### 4.1.2 Environmental Planning and Assessment Regulation 2000

Sourcing of contaminated materials would be entirely from the Edmondson Park South site and the containment of these contaminated materials would also occur within Edmondson Park South. Filling of the proposed containment cell with materials sourced from the site is not considered to be a 'waste management facility and waste management works' as defined in clause 32 of Schedule 3 of the EP&A Regulation. Rather the proposed containment cell is considered to be remediation as it relates to the containment of contaminated materials sourced from the site. As such, the proposed containment cell would not be 'designated development' even if they weren't subject to Part 3A of the EP&A Act.

#### 4.1.3 Protection of the Environment Operations Act 1997

Sourcing of contaminated material and the containment of contaminated materials would take place entirely on the Edmondson Park South site and so establishment of the containment cell is not considered to be 'waste disposal (application to land)' or 'waste storage' as defined in clauses 39 and 42 of Schedule 1 of the POEO Act. As such, an Environment Protection Licence from the Environment Protection Authority (EPA) is not required.

#### 4.1.4 Water Management Act 2000

Remediation and landforming works would take place within 40m of the bank of Maxwells Creek. However, Part 3A of the EP&A Act continues to apply to approved projects, and pursuant to Section 75U of the EP&A Act (now repealed) an activity approval under Section 91 of the *Water Management Act 2000* is not required in respect of an approved project.

### 4.2 Environmental Planning Instruments

The relevant environmental planning instruments that apply to the site and/or the proposed development are:

- *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55).

Consideration of the provisions of these environmental planning instruments is provided below.

### 4.2.1 SEPP 55 – Remediation of Land

*State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) and its associated contaminated land planning guidelines establish the requirements for the investigation and remediation of contaminated land as part of the development of land in NSW.

Clause 7 of SEPP 55 effectively states that a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated, and it is satisfied that the land is suitable in its present state, or will be made suitable after remediation, for the proposed land use.

The future land use as approved by the Concept Plan is for public open space, part of which is subject of a Conservation Agreement with NPWS for transfer as a Regional Park. However, at the time of the Concept Plan Approval further investigations were required to address possible contamination of the STP site.

The contamination at the STP site has now been better characterised, and a STP RAP prepared to remediate the identified contamination. This Modification Application seeks approval for the remediation works set out in the STP RAP.

## 4.3 Strategic Plans

The delivery of Edmondson Park South will achieve a new centre for housing, employment and recreational uses as part of the South West Priority Growth Precinct, which is a key component of *A Plan for Growing Sydney*.

The proposed modification does not affect the final approved land uses. Further, whilst the proposed containment cells may result in limitations of what kinds of development and/or vegetation can be established above it, it will not jeopardise the use of the land (on the surface) for future open space or parkland.

As such, the local, regional and State strategic planning documents have no bearing on the proposed works, other than that the proposed modification provides for STP decommissioning and remediation works. These works are required to be undertaken prior to the land being transferred to NPWS and as such they facilitate the efficient and effective delivery of the Regional Park to NPWS in accordance with the Conservation Agreement.

## 5.0 Environmental Assessment

### 5.1 Soils, Groundwater, Geotechnical

As detailed in Section 2.2 of this report, the existing geotechnical conditions of the site have been documented in a detailed Environmental and Geotechnical Site Investigation, which is provided in **Appendix A**.

#### 5.1.1 Suitability of Contaminated Materials

Prior to placement of the material within the containment cell, further assessment of the contaminated material will be needed to demonstrate that there is no off-site migration of contamination from the site, or that where there is off-site migration or its potential, that contamination within the site is managed or monitored so that it does not present an unacceptable risk to either the on-site or off-site environments.

As such, a data gap investigation will be implemented to demonstrate chemical contaminant concentrations within the asbestos impacted material are suitable for placement within the proposed containment cell such that at the completion of the cell construction works a validation report may document that the site is considered suitable for recreational open space subject to maintenance of the containment cell cap as proposed in the STP RAP.

The data gap assessment will include the following:

- A desktop review of historical site assessment reports to confirm contaminants of potential concern;
- Evaluation of the identified sample analysis results via comparison with adopted STP site validation criteria and urban area contaminant background concentrations identified in NEPC (2013);
- Identification of data gaps and development (where required) of a sampling, analysis and quality plan to address the characterisation data gaps for the review and approval of the site auditor prior to implementation; and
- Subsequent implementation of the sampling, analysis and quality plan, to characterise contaminant concentrations (as total soil and leachable concentrations) such that it may be concluded the material conditions are suitable to be placed within the proposed containment cell.

Site characterisation/validation criteria to be implemented have been derived from the *National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)*, including:

- Health investigation levels (HIL-C): Public open space such as parks, playgrounds, playing fields (e.g. ovals), secondary schools and footpaths;
- Health screening level (HSL-C): recreational / open space (broadly equivalent to the HIL A, HIL B and HIL C land use scenarios); and
- Ecological investigation/screening levels – urban residential and public open space.

To evaluate the potential leachability of potentially mobile contaminants, samples will be the subject of Australian Standard Leaching Procedure tests and compared to the EPA endorsed criteria established for site surface waters (see Section 5.2).

If required, further evaluation of potential attenuation and dilution factors will be completed to assess the potential for contaminant concentrations in soil to result

in material changes to groundwater seepage concentrations at the site and so determine the suitability of the material for on-site containment.

### 5.1.2 Soils and Geotechnical

The base of containment cell would be limited to 5m below ground level.

Further geotechnical investigations may be warranted to verify the depth to the hard Shale unit and to obtain greater detail regarding depths to which conventional earthworks equipment is able to excavate before ripping or rock breaking is required, where the top of this unit is encountered at shallower depths.

The containment cell will be capped by very low permeability compacted clay of 400mm thickness minimum which will form a physical barrier above the contaminated materials placed in the containment cell. A minimum of 200mm of topsoil would be placed overlying the clay capping layer, with a topsoil of up to 2m where deeper rooting trees are sought under the final landform.

The surrounding landscape of the consolidation area will undergo land forming and compaction to stabilise the structure, with a view to ensuring it is suitable for future public open space land uses. Specific land uses and the nature and extent of development and revegetation above the residual materials consolidation area will be determined in the future in consultation with NPWS.

### 5.1.3 Groundwater

A series of existing groundwater bores has been established across the Edmondson Park South site. The depth of the proposed containment cell is intended to be above the groundwater level. No groundwater dewatering is proposed.

Given that the base of the containment cell will generally be above the underlying groundwater level, and that the sides and base of the containment cell are not proposed to be lined with impermeable clay, the proposed modification will not impact on existing groundwater flows.

The contaminated materials proposed to be contained are relatively stable in the natural environment and are not characteristic of products that generate contaminated leachate. Further, the clay capping layer will minimise the amount of water infiltrating into the containment cell and so will minimise the amount of water coming into contact with buried contaminated materials.

### 5.1.4 Management and Monitoring

Materials retained on site will have regard to the requirements outlined in the ANZECC Guidelines for the Assessment of On-site Containment of Contaminated Soil and any ongoing management provisions shall meet the requirements outlined in the Contaminated Sites Guidelines for the NSW Site Auditor Scheme.

Implementation of the ongoing EMP will manage risks associated with disturbance of the contained material.

Ongoing groundwater monitoring, if required, will be documented in the EMP that will be prepared for the site at the completion of remediation works.

## 5.2 Hydrology and Surface Water Quality

Maxwells Creek is located north of the STP. It flows to the east intermittently after periods of heavy rain. It is proposed that the oxidation ponds be discharged into an unnamed tributary of Maxwells Creek.



The Environmental and Geotechnical Site Investigation (**Appendix A**) reported that heavy metal and organic contaminant concentrations in the oxidation pond surface water were considered not to represent an unacceptable risk to sensitive receptors at, or downgradient of the site.

At the completion of decommissioning and remediation works it is intended to reproduce the existing (or pre-existing) ground levels in order to minimise impacts to the surface water drainage regime around the site. The final landform will therefore ensure that water from the site will continue to drain into Maxwells Creek.

## 5.2.1 Management and Monitoring

To confirm the suitability of the water in the oxidation ponds for discharge to Maxwells Creek it will be required that an assessment of current water quality be completed. This will include representative sampling, subsequent laboratory analysis of the water for identified chemicals of potential concern and comparison of the data against appropriate water quality criteria to demonstrate that discharge of the water will result in no adverse impacts to water quality of the off-site receiving water body.

Maxwell's Creek is the nearest surface water receptor. This creek comprises a fresh water system that whilst initially passes through bushland, then flows via a highly modified (in parts) channelized arrangement through a highly urbanised residential setting to discharge into the Georges River. On this basis it is suitable to compare the collected water sample quality to 'slightly to moderately' disturbed fresh water ecosystem criteria.

Representative samples of surface water from both oxidation ponds will be analysed for heavy metals, total recoverable hydrocarbons (TRH, including silica gel cleanup), monocyclic aromatic hydrocarbon (BTEX) compounds, semi-volatile organic compounds (VOCs) and biological contaminants (faecal coliforms), in addition to pH and total suspended solids (TSS)/turbidity.

Site specific water quality criteria for assessment of the resulting data will be developed with reference to:

- The POEO Act and the definition of pollution of waters;
- Environmental values as defined in ANZECC Australian and New Zealand Guidelines for Fresh and Marine Water Quality; and
- '*Environmental Objectives for Water Quality and River Flow*' as an appropriate source of environmental values for the Georges River catchment.

With consideration to the relatively short duration of the proposed dewatering program, the distance to the downstream water body i.e. Georges River) and the condition of the receiving waterbody, acceptance trigger values for water quality will be adopted as the ANZECC Trigger Values for Fresh Water Aquatic Ecosystems, 95% Protection of Species to ensure maintenance and/or improvement of the ecological condition of the receiving water body and associated riparian zone.

In addition to the chemicals of potential concern, the following will also be required to be met:

- turbidity/total suspended solids will be required to be less than 50 NTU/50 mg/L thresholds; and
- there will be no odours or visible sheen associated with the water prior to discharge.

Where initial water quality is considered to be acceptable with respect to the above, the water will be considered acceptable for discharge to the drainage channel.

Given that the dewatering activities are likely to occur over a period of days to weeks, where a significant rainfall event, or other condition that results in significant additional surface water input into the ponds occurs during the discharge period, additional characterisation testing of the water quality will be required prior to recommencement of discharge activities to demonstrate the quality remains suitable for discharge.

In addition, during discharge, monitoring of suspended sediment loads, odour and sheen observations will be required to ensure that discharge water quality continues to be appropriate. Observations will be undertaken on a twice daily basis by site staff using field turbidity equipment to evaluate suspended solids levels and record physical observations. Records of turbidity monitoring and associated observations will be maintained on-site at all times for review as appropriate.

To ensure water quality is suitable at all times during discharge, dewatering activities are to be limited to those periods where staff are on-site to monitor conditions (i.e. no out of hours pumping/discharge).

In the event that significant suspended sediment concentrations become apparent (i.e. cloudy/muddy water), application of colloidal or similar settling agents to the oxidation ponds will be required to reduce loads to acceptable levels as identified by field monitoring, at which time discharge may recommence.

Appropriate sediment and erosion controls would also be implemented prior to discharge to the creek, and a Soil and Water Management Plan is included in **Appendix D**.

### 5.3 Access, Transport and Traffic

Heavy vehicle movements will vary during the 6-month decommissioning and remediation program. During peak periods, such as the construction of the containment cell, truck movements are expected to be up to approximately 5 per hour, with up to approximately 50 truck movements per day.

A temporary access road will be constructed as part of the proposed modification, connecting Campbelltown Road with an existing internal site road leading to the STP.

The temporary access road will be used for access by staff and equipment required for the remediation works, including excavation and handling of contaminated materials, construction of the containment cell, and for heavy vehicles that will transport any waste materials to suitably licenced off-site treatment or disposal facilities.

It is highlighted that the onsite containment of contaminated materials sourced from elsewhere on the Edmondson Park South site would reduce the heavy vehicle demand on the local and regional road networks works from the Edmondson Park development.

### 5.4 Noise and Vibration

The proposal will include earthworks and the operation of construction equipment, including dump trucks, loaders and excavators. Compacting

equipment would also be used for short periods of time. No major rock breaking is expected to be required.

These activities are consistent with the approved earthworks and subdivision works throughout the Edmondson Park South site, and will take place during the approved hours of work. As such, the proposal is unlikely to generate additional noise impacts beyond that already approved at the nearest receivers.

The Concept Plan established construction noise goals for associated construction works, as set out in **Table 1**.

**Table 1** – Construction Noise Goals

Location	Construction Noise Management Level $L_{Aeq}$ (dBA)				Maximum Construction Noise Level $L_{Aeq}$ (dba)
	Day	Evening	Night	Saturday	
Existing residences	58	54	49	56	75

The proposed decommissioning and remediation works would be located within or adjacent to the future Regional Park. The closest receivers are located approximately 200m north of the western oxidation pond.

Due to the nature of the proposed works it is considered that the existing noise limits remain suitable and can be complied with using existing noise management measures.

The following noise management measures will be implemented to ensure noise impacts are minimised:

- Noise monitoring to be undertaken in response to complaints.
- All machinery and equipment used on site will be in good working order and with the fitted with appropriate silencers when necessary.
- Plant and equipment would be operated in a quiet and efficient manner.

## 5.5 Air Quality

### 5.5.1 Construction Management

As with any project which involves earthworks there is the potential for air quality impacts arising from the generation of dust and the emission of pollutants from plant and equipment.

The following mitigation measures would be implemented during the residual materials management works to ensure the development would be constructed in a manner that minimises dust and other air quality emissions from the site.

- All vehicle loads entering or leaving the site would be covered and secured.
- On site vehicle speed limits would be established and enforced.
- Access and haul roads would be watered via water cart or truck as required.
- Exposed stockpiles and unsealed areas would be sprayed or stabilised with mulch as soon as possible.
- Rehabilitation of the work area to be undertaken as soon as practicable, including progressive stabilisation/revegetation of exposed surfaces and landforms.

- During extreme weather events where dust generation cannot be effectively minimised, dust generating works would cease until adequate controls can be implemented to alleviate visible dust or until such weather conditions cease.

In addition to the above dust suppression measures, the following emission control measures would also be implemented:

- All emission controls used on vehicles and demolition equipment would comply with standards listed in Schedule 4 of the *Protection of the Environment Operations (Clean Air) Regulation 2010*.
- Vehicles and plant would be regularly serviced and maintained in good working order.
- Vehicles and plant would be switched off when not in use for extended periods of time.
- Concrete and brick stockpiles would be sprayed with water to prevent dust generation.
- During the concrete processing stage, where concrete is either hammered or pulverised to extract the steel reinforcement from the concrete, water will be sprayed over the processing area and stockpiles.

### 5.5.2 Asbestos Monitoring

During the remediation of the asbestos impacted areas, including importation of asbestos impacted material and placement within the containment cells, dust levels will be monitored and minimised by using mist sprays as necessary.

Monitoring by a licenced asbestos assessor would be conducted in accordance with the Safe Work Australia (2011) *How to Safely Remove Asbestos, Code of Practice 2011* and *Guidance Note on the Membrane Filter Method for the Estimating of Airborne Asbestos Fibres*.

The following trigger levels have been developed:

- If airborne fibre levels reach 0.01 fibres/mL the source of fibre release is to be found and rectified. Work in the affected area does not have to stop; and
- If airborne fibre levels reach 0.02 fibres/mL work in the work area should stop and additional controls measures employed. This will involve additional water spraying during excavations.

Air monitoring results will be obtained within 24 hours of sample collection. While this precludes “real time” monitoring, visual indications will be made during all excavation works and, if there is any visible dusts, light water sprays will be used to wet the excavation and prevent the release of any airborne asbestos fibres.

### 5.5.3 Post-Closure

No putrescible or organic materials will be placed into the containment cell and so no gas emissions will occur.

## 5.6 Waste Management

Demolition waste from decommissioning of the STP will comprise general waste, steel and other metals, and brick/concrete materials. These wastes will be dealt with as follows:

- General Waste – Approximately 80 tonnes is expected to be generated. This material will go to landfill at Enviroguard (Kemps Creek);

- Steel and Non-Ferrous Metals – Approximately 150 tonnes is expected to be generated, and will be recycled to local scrap;
- Brick and Concrete – Approximately 3,800 tonnes of waste concrete and 800 tonnes of bricks are expected to be generated, which will be sent to concrete recyclers at Camellia.

Concrete will need to be processed at the site. Concrete will either be hammered or pulverised to extract the steel reinforcement from the concrete. This enables the concrete and the steel components to be recycled.

The objective of the remediation works is to provide for the permanent on-site containment of hazardous materials and contaminated soils.

All contaminated materials placed in the proposed containment cell will be sourced from the Edmondson Park South site. No waste materials from off-site will be received or placed in the residual materials consolidation area.

It is not expected that substantial quantities of waste would be generated as a result of the remediation works. Any contaminated materials resulting from the remediation of the STP that are not appropriate for placing in the containment cell will be classified and managed in accordance with the Waste Classification Guidelines and disposed off-site at a suitably licensed facility.

## 5.7 Biodiversity, Flora and Fauna

### 5.7.1 Biodiversity Impacts

Approximately 300m<sup>2</sup> of CPW will be impacted by the establishment of a temporary access road. Removal of any vegetation associated with the access road will be undertaken in consultation with NPWS.

### 5.7.2 Offsets

Clearing of vegetation at the site is subject of a Biodiversity Certification Order under the *Threatened Species Conservation Act 1995*. Under the terms of the Biodiversity Certification Order, the vegetation impacted by this clearing is 'non' bio-certified, meaning that the impacts must be offset.

Further, the impacted vegetation is shown as 'red hatched' in the Biodiversity Certification order map, meaning that, pursuant to clause 12 of the Order, clearing existing native vegetation must be in accordance with a plan of management or agreed to by the DECC (now OEH). OEH (through NPWS) has been consulted and has agreed to the clearing.

The Biodiversity Certification Order acknowledges that some clearing of the 'non' bio-certified lands may take place during the ongoing development of the SWGC and provides procedures for clearing to be subject of additional offsets by:

- the protection of an equal or greater area of existing native vegetation elsewhere in the Growth Centres; and/or
- the revegetation and/or restoration of an area of land elsewhere in the Growth Centres, subject to satisfying a number of conditions, including an offset ratio of 3:1 to reflect the greater ecological risks relative to retaining existing native vegetation.

This impact is proposed to be offset by replanting of 1,500m<sup>2</sup> of CPW in Zone 4, which reflects an off-set ratio in excess of the specified 3:1 ratio.

### 5.7.3 Revegetation / Rehabilitation

A Vegetation Management Plan has been prepared that relates to the land within the future Regional Park (**Appendix E**). The Vegetation Management Plan sets out details in relation to a revegetation program, performance criteria, management standards, monitoring and reporting.

The relevant areas have been broken down into five zones, each with specific impacts and revegetation outcomes.

- **Zone 1 (Access Road):** This 0.05 ha area compromises the temporary access road and land immediately adjacent the temporary access road. It currently contains an unsealed road and some adjoining regenerating CPW with scattered trees. Revegetation of disturbed soil adjacent to the new road will be carried out and weed control measures implemented.
- **Zone 2 (CPW Grasslands):** This 0.57 ha area includes the STP site which currently contains exotic grassland and a limited number of small exotic trees. Zone 2 will be revegetated following remediation works to produce a native grassland, with a diversity of grass and herb species from the vegetation community CPW. Vegetation producing root structures which may threaten the integrity of the containment cell capping will not to be used.
- **Zone 3 (RFEF Grasslands/Woodland):** This 0.14 ha area borders the northern edge of Zone 4 and currently contains exotic grassland and a limited number of small exotic and juvenile native trees. The revegetation outcome may consist of RFEF or grassland. Vegetation adjoining this management zone is RFEF which is in moderate condition with significant density of groundcover weeds. Revegetation within this zone will aim to extend the adjoining woodland and provide species diversity in accordance with the listing for this community.
- **Zone 4 (CPW Grassland / Woodland):** This zone relates to the cleared area immediately to the east of the STP compound, and currently comprises exotic grassland. Adjoining vegetation is regenerating CPW which is in moderate condition. Revegetation within this zone will aim to extend the adjoining woodland and provide species diversity in accordance with the listing for this community. At least 1,500 m<sup>2</sup> will be revegetated to achieve a woodland structure to satisfy offset requirements for clearing CPW in Zone 1.
- **Zone 5 (Buffer Zone):** The buffer zone extends around the outside of Zones 1-4, and currently incorporates both CPW and RFEF in moderate condition. The Buffer Zone will be subject of weed control to limit the transfer of weeds from adjacent areas to the remediated areas, providing a greater probability of achieving the desired revegetation outcomes.
- **Management Zone 6 (RFEF Woodland):** This 0.83 ha area covers the north east oxidation pond and surrounding embankments which is surrounded currently surrounded by exotic grasses and weed species, with vegetation further away RFEF in moderate condition. Revegetation within this zone aims to produce a native woodland.

If required areas will be weeded prior to revegetation, and following seeding there will be continual visual monitoring and re-watering as required to ensure survival, as well as ongoing weed management.

In total, 29,000m<sup>2</sup> of land will be revegetated as part of the decommissioning and remediation works.

## 5.8 Heritage

No impacts to known Indigenous or non-Indigenous heritage items are expected.

## 5.9 Social and Economic Impacts

The proposed remediation works will ensure that the land is made suitable for the future uses as Regional Park and Local Open Space.

## 5.10 Consultation

Consultation with the NPWS has taken place. The NPWS has raised no specific concerns in relation to the proposed remediation works or the location of the containment cell within the Regional Park.

## 6.0 Conclusion

The proposed modification application provides for decommissioning and remediation works of the former STP site and associated oxidation ponds.

The proposal will impact on land that is located within the future Regional Park and adjoining Regional Open Space under the Edmondson Park South Concept Plan. The Concept Plan Approval is proposed to be modified to include the decommissioning and remediation works. All other conditions within Concept Plan Approval remain relevant and sufficient to the works.

A RAP has been prepared, and appropriate mitigation and management measures have been set out for the remediation works – including noise, air quality and water management controls as well as monitoring during the works.

Remediation works will be subject of Validation Report, that will be prepared in general accordance with the NSW EPA Guidelines for Consultants Reporting on Contaminated Sites documenting the works as completed.

Should containment proceed, or other residual impacts identified in the Validation Report that require management, an EMP will be prepared to detail the ongoing management and monitoring requirements for individual parts of the site where a containment cell is located and/or residual impacts are located.

A Vegetation Management Plan has been prepared that identifies specific biodiversity impacts and provides offset requirements and revegetation outcomes. Overall some 3ha of land will be revegetated as part of the decommissioning and remediation works.

Remediation will be carried out so that the land will comply with the relevant land use criteria for open space. The proposed modification will therefore not impact on the ultimate delivery of the land as Regional Park and Regional Open Space as set out in the Concept Plan and Conservation Agreement.