Conybeare Morrison

Pasminco Cockle Creek Smelter Site, Boolaroo NSW

Visual Assessment of Proposed Expansion of Containment Cell

September 2012

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Prepared for PCCS subject to deed of company arrangement

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Revision	Date	Description	By	Chk	App
01	Sept 12	Final Draft Report	AT		
02	Sept 12	Final Report	AT		

CONTENTS

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VISUAL ASSESSMENT OF PROPOSED EXPANSION OF CONTAINMENT CELL ON PASMINCO COCKLE CREEK SMELTER SITE, BOOLAROO, NSW

1.0 INTRODUCTION

The Pasminco Cockle Creek Smelter (PCCS) and the Incitec Fertilisers Pty Ltd (IFL) sites are located approximately 13km south-west of Newcastle and 2km north of Lake Macquarie adjacent to the township of Boolaroo, NSW. The site is bounded to the south by First Street, to the west by Main Road, to the north by the Main Northern Railway line and to the east by the slopes of Munibung Hill.

The Pasminco Cockle Creek Smelter site at Cockle Creek had been in operation for over 100 years with the plant closing for operation in September 2003. Since the plant's closure, the site has been undergoing demolition of its industrial buildings and extensive remediation.

Both PCCS and IFL have received separate approvals under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act) to remediate their contiguous contaminated sites at Boolaroo. Each remediation plan included the excavation of contaminated soil and its placement in two containment cells, one on each site. Remediation of the PCCS site is well underway and estimated for completion in 2013. The IFL site has not undertaken any substantial soil remediation works.

PCCS and IFL have recently reached an agreement whereby the soil excavated from the IFL site could be contained within the PCCS containment cell, obviating the need for the IFL cell.

This Visual Assessment Report is in support of a s75W – *Modification to Minister's approval* under the *Environmental Planning & Assessment Act 1979*, which seeks:

- to provide a combined remediation strategy to not construct the IFL cell; and
- to increase the volume of the PCCS approved cell, and thereby its height to no more than 4m in height.

2.0 THE SITE

The PCCS and IFL sites are located at the base of the north and north-western slopes of Munibung Hill, north of the township of Boolaroo and east of Cockle Creek as shown on Figure 1.

Figure.1: Aerial view from the east of the PCCS and IFL sites, Boolaroo (1998), with industrial buildings on both sites

2.1 Existing Visual Environment

Development Application for the demolition of the site's industrial buildings was approved in **March 2005** with removal of the buildings (except for the Old Laboratory, Main Administration Building, Gatehouse and the Effluent Treatment Plan) completed in **October 2006**.

Approval of the Environmental Assessment for the site's remediation works approved in **February 2007**, under the Part 3A approval process, which allowed remedial works to commence.

The most appropriate remediation methodology for the site's slag materials and contaminated soils and waste material was to contain them within a cell at the central portion of the site. The design and documentation of the containment cell was approved by the Site Auditor and the Office of Environment and Heritage. Construction of the containment cell commenced in the first quarter of 2009 with approximately 60% of contaminated material placed in the cell by the end of the first quarter of 2011.

Figure.2: Aerial view from the east of the PCCS and IFL sites, Boolaroo (2012), with industrial buildings demolished and remediation of the site and Munibung Hill underway

2.2 Proposed Expansion to Containment Cell

PCCS has approval to remediate its land principally by excavating contaminated material from the various land areas containing contaminated material and placing the excavated material in a capped containment cell located on the central portion of the site. Figure 3 shows the location of the cell.

The final top surface of the cell, which will be relatively flat in profile, but graded, will be self-draining.

The remediated areas of the site will be refilled, stabilised and regraded for future development.

Figure 3: Aerial view (1998) of the PCCS & IFL sites illustrating footprint of the proposed cell

A proposal was developed in mid-2012 to include contaminated material from the IFL site located on the lower western slopes of Munibung Hill. This proposal will increase the containment cell by 3.15m in height (from approximately RL 34 to RL 37.15), but in any case not exceeding a 4m height increase.

The footprint and the outer area of the cell are not to be changed but the top of the cell will increase in height and reduce in area. The batters of the cell (sloped at 1 in 5) will be vegetated for slope stability. The cell will be capped with geofabric and clay, with approximately 1m of clean fill over. The top of the cell will be landscaped with turf and small shrubs, and used as open space.

The containment cell, originally to have an approximate footprint of 19.4 hectares, will remain unchanged with the integration of the IFL's contaminated waste. The top of the cell was originally approximately 12 hectares in area. With the addition of the IFL material, this will be reduced to approximately 8.4 hectares in area.

The batters on the western side of the cell will be 12-24m in height above proposed surrounding ground levels. The batters on the eastern side of the cell will be 9-12m in height above proposed surrounding ground levels.

Adjacent to the northern portion of the cell is the north-western spur of Munibung Hill, with a ridge height of approximately RL 35, with a small localised high point at the north-western tip rising to RL 37. The backdrop of Munibung Hill, to the east, rises to approximately RL 60.

Figure 4: Aerial view from the north-west to the site in the foreground of Munibung Hill (2012)

3.0 SITE VISIBILITY

The visual assessment is of the potential impact of the containment cell as a change to the approved landform on the site. The contaminated cell, in its present, but unfinished form, and height of cell at RL 34, is used to assess the impact of the additional height proposed by this submission.

The procedure for assessing the site visibility involves:

- Determination of various categories of viewing situation (from outside the site); and
- Identification of those viewing situations outside and inside the site where the cell will be able to be easily viewed.

Locations have been identified, as shown on Figure 5:

Figure 5: Location of views

3.1 Long Distance Views

From the *Visual Assessment of Cell Structure – PCCS Site* (June 2005) on the original cell structure, the cell was not visible from long distance views into the site from surrounding development, due to distance, topography and surrounding vegetation, particularly around Cockle Creek.

As seen from Figures 2 and 4, and Figure 6 below, of the constructed cell at RL 33-34, the cell, as seen against its backdrop of surrounding landscape and Munibung Hill.

Figure 6: Aerial view of the site and containment cell from Munibung Hill

3.2 Medium Distance Views

Location 1

From the entry road to Cockle Creek railway station opposite the entrance to the PCCS site, with lack of vegetation along the Lake Road frontage, the containment cell is clearly visible from this vantage point (Photos 1A & 1B). **Photo 1A** is of the containment cell with its height up to RL 34. **Photo 1B** provides a photomontage of the cell height reaching RL 37.15 and landscaped.

Photo 1A: View of the site and containment cell from entry road to Cockle Creek station

Photo 1B: Same view of containment cell with height of cell raised by up to 4m (to RL 38), with landscape cover over cell and slopes

Location 2

From Jack Edwards Oval to the west of the site, the containment cell is just visible from this location (Photos 2A & 2B). **Photo 2A** is of the containment cell with its height up to RL 34. **Photo 2B** provides a photomontage of the cell height reaching RL 37 and landscaped.

Photo 2A: View of site and containment cell from Jack Edwards Oval, west of the site

Photo 2B: Same view of the containment cell with height of cell raised by up to 4m (to RL 38), with landscape cover over cell and slopes

Location 3

From Kindyarra Park to the west of the site, the cell is just visible from this vantage point (Photos 3A & 3B). **Photo 3A** is of the cell when it was still a slag stockpile in 2005 (black cell). **Photo 3B** is of the cell in 2012. Increase in height of 4m to the cell will not be of significant visual impact due to trees obscuring the view of the cell.

Photo 3A: View of site and slag stockpile from Kindyarra Park, north of Jack Edwards Oval, west of the site (taken in 2005)

Photo 3B: View of site from the same vantage point in 2012, blending into the backdrop of Munibung Hill

Location 4

From the mid-slopes of Munibung Hill, east of the site, the entire containment cell is clearly visible from this location (Photos 4A & 4B).

Photo 4A shows the containment cell constructed to RL 34 and grassed along its slopes and top. **Photo 4B** shows the landscaped containment cell raised to RL 37. The rise of 3m has low visual impact when seen against the site's open landscape environment and back drop of hills beyond.

Photo 4A: View of site and containment cell from Munibung Hill, east of the site

Photo 4B: Same view of the containment cell with height of cell raised by up to 4m (up to RL 38), with landscape cover over cell and slopes

Location 5

View from First Street, Boolaroo, south of the site, into the PCCS site (Photos 5A & 5B).

Due to the topography of the site and the presence of fill, the containment cell is barely visible from this vantage point. With the siting of future buildings and landscape of trees within the site, the landscaped containment cell will not be visible from this residential vantage point.

Photo 5A: View north-west to the PCCS site from First Street, Boolaroo.

Photo 5B: View north-east to the PCCS site from First Street, Boolaroo

3.3 Intermediate Views

Location 6

From within the site, behind the Former Laboratory building, which has been retained on the site, located on the main internal access roadway, the cell structure is seen from this location (Photos 6A & 6B). **Photo 6A** is of the containment cell with its height up to RL 34. **Photo 6B** provides a photomontage of the cell height reaching RL 37 and landscaped.

Photo 6A: View within the PCCS site behind the former Laboratory building, looking northwards towards the containment cell

Photo 6B: Same view of the containment cell with height of cell raised by up to 4m (to RL 38), with landscape cover over cell and slopes

Location 7

From within the site, view of the containment cell in progress can be seen from the western side of the site (Photos 7A & 7B). **Photo 7A** indicates the containment cell at the height of RL 34. **Photo 7B** provides a photomontage of the cell height reaching RL 37 and landscaped.

Photo 7A: View of the containment cell from within the site

Photo 7B: Same view of the containment cell with height of cell raised by up to 4m (to RL 34), with landscape cover over cell and slopes

4.0 INCITEC FERTILISER PTY LTD CONTAINMENT CELL

The Incitec Fertiliser Pty Ltd (IFL) remediation plan approved under Part 3A of the EP&A Act sites the IFL containment cell at the northern portion of the IFL site, along the base of Munibung Hill.

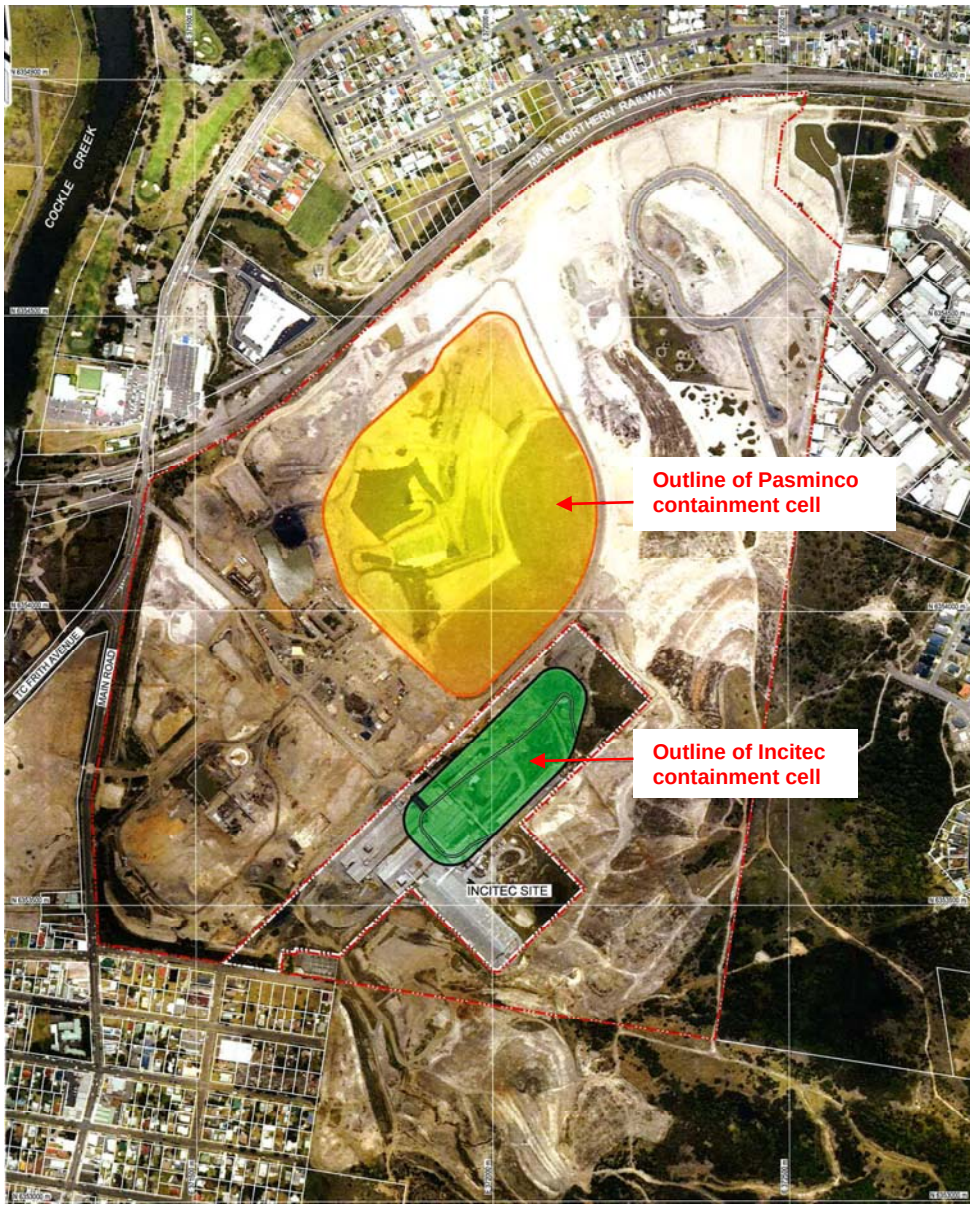

Figure 7: Map of Incitec site and proposed location of its containment cell

The top of the cell was proposed to be at RL 45 with batters sloped at 1 in 5. The cell was proposed to have a height of 10m along its eastern side (towards Munibung Hill) and 20m along its western side. The cell encompasses close to 50% of the IFL site, thereby rendering a good portion of the site unfit for habitable land uses.

The singular cell on the Incitec site would provide an additional 6-7 hectares of land on the site for development and occupation that would otherwise be sterilised and would only be useful as open space.

Visually, a single cell, whilst having greater volume and height, would be more sensitive in its placement than the location of two cells on the site.

The following photomontages of the site illustrate PCCS and IFL containment cells (Photos 8 and 9).

Photo 8A: Aerial view of the PCCS and IFL site from the north-east (2012)

Photo 8B: Aerial photomontage of the proposed PCCS and IFL containment cells from the north-east, as approved, with usable open space at the top of the cell delineated by the proposed ring of vegetation.

Photo 8C: Aerial photomontage of a single containment cell from the north-east, with height of cell raised by approx. 4m (to RL 38), with landscape cover over cell and slopes. Usable open space delineated by proposed ring of vegetation.

Photo 9A: Aerial view of the PCCS and IFL site from the west (2012)

Photo 9B: Aerial photomontage of the proposed PCCS and IFL containment cells from the west, as approved with usable open space at the top of the cell delineated by the proposed ring of vegetation.

Photo 9C: Aerial photomontage of a single containment cell from the west, with height of cell raised by approx. 4m (to RL 38), with landscape cover over cell and slopes. Usable open space delineated by proposed ring of vegetation.

5.0 IMPACT ASSESSMENT

At the completion of site remediation and prior to future development on the site, the whole of the site will be grassed to stabilise the surface. The containment cell, which will resemble a hillock, will be capped with geofabric and clay, grassed on top and along the battered slopes. The proposed integrated PCCS and IFL containment cell, when viewed from surrounding areas external to the site, blends into the backdrop of the surrounding ridges of Munibung Hill.

The batters are highest on the western side of the cell (Photo 7A & 7B), with heights varying from 12-24m above the proposed surrounding ground levels. The eastern batter is lower (Photos 4A & 4B), with batter height ranging from 9-12m above proposed surrounding ground levels.[1]

5.1 Mitigation Measures

To ameliorate the appearance of the containment cell, the cell will be sloped back (1 in 5) and landscaped with turf and low shrubs. While serving a functional purpose of stabilising the slopes/ batters and providing a relatively low maintenance environment, the landscaping will act as a visual mitigation measure.

Despite the size of the footprint of this introduced hill, viewers will perceive it as part of the landscape, blending into the lower spurs of Munibung Hill. The cell will form part of the landscape with the top of the cell/ hill to be used for recreational purposes as a playing field.

It is anticipated that as part of the future development of the site, the new internal roads will be landscaped with street trees, which will assist in softening the appearance of the overall site and the landscaped hill.

5.2 Visual Sensitivity

Visual sensitivity is a measure of the level of concern attached by a user group to a change in the existing landscape. It is largely determined by visibility and the distance from viewing areas, but is also influenced by the pre-development disposition of the viewing to development of that type.

The visual importance of Munibung Hill is well established, but for over 100 years, the views of the PCCS and IFL sites have been representative of heavy industrial buildings, equipment and associated activities.

The transformation of the site by demolition of buildings and equipment, remediation of the site, and the revegetation of the slopes of Munibung Hill as well as the site, will represent a major change in the local perception of this former heavy industrialised and polluted site. The integration of the PCCS and IFL site in its remediation strategy of the provision of a combined containment cell that will be landscaped will provide a more sensitive outcome than two containment cells. The raising of the cell by an overall 3-4m will not have severe visual impact as the increased height will be battered back from its surrounding roads. Additionally, the vastness of the site and its

[1] Golder Associates, Concept Design Report – Expansion of Pasminco Cockle Creek Smelter Containment Cell (September 2012)

backdrop of the linear ridges of Munibung Hill enable the landscaped cell to be visually integrated into its surrounding environment.

5.3 Assessment of Visual Impact

The original PCCS containment cell (the 2008 Approved Cell Design) has been approved under Part 3A.

The locations as shown on Photos 1, 2, 3 and 4 are representative of viewpoints which is available to the community. Photos 6 and 7 are views of the landscaped cell structure from within the site. The corresponding montages of these photos illustrate the impact of a 3.15m rise to the originally approved containment cell. Site landscape with vegetation on the slopes and top of cell will greatly diminish the visual impact of the cell from immediate and surrounding locations. Despite the cell representing a major change in the local landform, its visual impact of an additional 3-4m will be relatively low from viewpoints external to and within the site.

Whilst acknowledging that the cell will result in a major change to the topography of the PCCS-IFL sites, the visual impact of the cell increasing by up to 4m in height, will be relatedly insignificant due to the mitigation measures outlined of battering and landscaping of the cell.

Views of the cell from long and medium distance views illustrate the cell blending into the backdrop of surrounding hills, with increase in height visually unperceivable. Intermediate views of the cell from within the site of its increase in height are of low visual impact.

Aerial views of the site and containment cell erected up to RL 38, and landscaped, indicate the landscaped cell has little overall visual impact on the site and its surrounding environs.

In evaluating views of the cell from any view point, it would be difficult to perceive the difference from the currently approved cell height.