

Twynam Property Group

Stage 2 Environmental Site Assessment:
Lot 3 DP568613 & Lot 384 DP 755952
Mundamia, NSW.



ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT
MANAGEMENT



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Contents

1 INTRODUCTION.....	5
1.1 Overview	5
1.2 Objectives	5
1.3 Scope of Works	5
1.4 Abbreviations	6
2 SITE BACKGROUND INFORMATION.....	7
2.1 Location and Setting	7
3 AREAS OF ENVIRONMENTAL CONCERN.....	9
3.1 Summary of Stage 1 ESA	9
3.2 Extended Site Walkover	9
3.3 Areas of Environmental Concern	10
4 FIELD AND LABORATORY INVESTIGATIONS	12
4.1 Field Programme	12
4.2 Sampling Methodology and Quality Assurance / Quality Control	12
4.3 Laboratory Analytical Suite	13
5 ASSESSMENT CRITERIA.....	15
5.1 Soil Contamination Assessment Criteria	15
6 RESULTS.....	17
6.1 Field Observations	17
6.1.1 Soil / Rock Profile	17
6.2 Laboratory Analytical Results	18
6.2.1 Soil	18
7 DISCUSSION AND RECOMMENDATIONS	19
7.1 Discussion	19
7.2 Recommendations	19
8 LIMITATIONS.....	20
9 REFERENCES	21
10 ATTACHMENT A – SITE PLANS.....	22
11 ATTACHMENT B - LABORATORY ANALYTICAL CERTIFICATES AND CHAIN OF CUSTODY DOCUMENTATION.....	23
12 ATTACHMENT C – BOREHOLE LOGS.....	24
13 ATTACHMENT D – DATA VALIDATION REPORT.....	25

1 Introduction

1.1 Overview

This report prepared by Martens and Associates (MA), on behalf of the client (Twynam Property Group) documents a Stage 2 Environmental Site Assessment (ESA) completed to support an application for the subdivision of 'the site' being two adjacent lots: Lot 3, DP 568613 (northern lot) and Lot 384, DP 755952 (southern lot).

A Stage 1 ESA has been completed and the reported (Martens and Associates, 2008) and is to be read in conjunction with this Stage 2 ESA.

1.2 Objectives

The objective of this Stage 2 ESA is to assess site soil contamination in order to determine suitability for proposed subdivision and future residential land use.

1.3 Scope of Works

The scope of works included:

- Extended site walkover as recommended in previous Stage 1 ESA (MA 2008) to confirm areas of environmental concern (AEC) and associated chemicals of concern (COC).
- Review and update previously identified AEC and COC.
- Drilling of twelve boreholes (BH401-BH412) and collection of soil samples from across the site for laboratory analysis.
- Preparation of a report in general accordance with the relevant sections of NSW OEH (2011) and DEC (2006).

1.4 Abbreviations

AEC – Area of environmental concern

AST – Above ground storage tank

BTEX – Benzene, toluene, ethyl benzene, xylene

COC – Chemical of concern

DEC – NSW Department of Environment and Conservation

DBT – Dibutyltin

DP – Deposited Plan

EPA – NSW Environmental Protection Authority

ESA – Environmental site assessment

LOR – Limit of reporting

LGA – Local government area

NATA – National Association of Testing Authorities

OCP – Organochloride pesticides

OEH – NSW Office of Environment and Heritage

OPP – Organophosphate pesticides

PAH – Polycyclic aromatic hydrocarbons

PCB – Polychlorinated biphenyl

RAP – Remedial action plan

SOP – Standard operating procedure

TPH – Total petroleum hydrocarbons

TRH – Total recoverable hydrocarbons

TCLP – Toxicity characteristics leaching procedure

UST – Underground storage tank

2 Site Background Information

2.1 Location and Setting

Site information taken from previous ESA (MA 2008) is summarised in Table 1.

Table 1: Site background information

LGA	Shoalhaven City Council (SCC)
Zoning	1 (d) 'General Rural'
Site area	Approximately 43.5 ha
Current land use	Rural residential / agricultural / livestock grazing
Proposed land use	Residential
Surrounding land uses	Predominantly rural with some rural residential allotments to the west and north, residential developments to the south east
Topography	Elevations across the site range from 36 – 70 mAHd with a general fall to the east
Geology	Geological survey of NSW geology sheet (Wollongong 5609) maps the site as Nowra sandstone, a subgroup of the Megalong conglomerate geology
Sensitive receptors	The site drains to an unnamed creek to the east which eventually drains to the Shoal Haven River.

Site location is shown in Figure 1 and site features relevant to the investigation are shown Attachment A.



Figure 1: Subject site location outlined in yellow. (Google Maps 2012)

3 Areas of Environmental Concern

3.1 Summary of Stage 1 ESA

A brief summary of site history is presented below:

- Anecdotal evidence from site owners indicated that site paddocks had been used for agricultural purposes (growing turnips, tomatoes and oats) and more recently for livestock grazing (sheep and horses).
- Evidence from the owner of Lot 3 indicated that organic waste from the Shoalhaven Paper Mill was imported for site use as fertiliser.
- Aerial photography suggests site dwellings have been in place since at least 1961 with no major agricultural use observed until 1970 with land clearing and dam construction.
- A preliminary site walkover confirmed site agricultural use (grazing) as well as identification of rubbish piles, disused vehicles and dilapidated dwelling across the site (locations in Section 3.2)
- A review of OEH records under the Contaminated Land Management Act (1997) confirmed the site was not subject to an investigation or remediation order. SSC historical records identified two DA approvals for the site for the construction of residential dwellings.

3.2 Extended Site Walkover

Based on previous Stage 1 ESA recommendations, an extended site walkover was undertaken prior to site soil sampling. Findings from the preliminary site walkover were confirmed and AEC and COC were confirmed.

3.3 Areas of Environmental Concern

Assessed AEC and adopted COC for the site are presented in Table 2. A site plan showing specific AEC locations is available in Attachment A.

Table 2: Areas of Environmental Concern and Chemicals of Concern

AEC	Potential Contaminating Activity	COC	Likelihood of Contamination
Area A - Residential dwelling and shed on Lot 3 DP 568613	Possible use of OCP/OPP pesticides (termite control) in construction of dwelling. Storage of hydrocarbons, pesticides, herbicides and paint in shed.	TRH, BTEX, PAH, heavy metals, OCP/OPP and herbicides.	Medium
Area B – Iron shed on Lot 3 DP 568613 south of residential dwelling	Soil staining noted. Evidence of mechanical repairs and disused motor vehicles. General refuse in area includes tyres, empty fuel and lubricant cans, car batteries, plastics, glass and metal.	TRH, BTEX, PAH, heavy metals.	High
Area C - Residential dwelling and shed on Lot 3 DP 568613	Possible use of OCP/OPP pesticides (termite control) in construction of dwelling. General refuse around shed includes building material, plastics, tyres and paint.	OCP/OPP and heavy metals.	Low
Area D - Heavily dilapidated residential dwelling and shed, Lot 384 DP 755952	Possible use of OCP/OPP pesticides (termite control) in construction of dwelling. General refuse around shed includes plastics, building material and bricks.	OCP/OPP and heavy metals.	Low
Area E – Concrete slab of former residential dwelling, , Lot 384 DP 755952	Possible use of OCP/OPP pesticides (termite control) in construction of dwelling.	OCP/OPP, and heavy metals.	Low