Brewster Hjorth Pty Ltd

Australian Institute of Police Management Preferred Project Report

Marine Ecology Assessment

December 2008

Alison Hunt and Associates Pty Ltd

TERRESTRIAL | MARINE | AQUATIC

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1 INTRODUCTION

1.1 Purpose

Alison Hunt & Associates Pty Ltd was commissioned by Brewster Hjorth Pty Ltd to prepare an Ecological Assessment Report to accompany the Preferred Project Report for the Australian Institute of Police Management (AIPM) Redevelopment of a site located at Collins Road, Manly NSW (Figure 1). The site is listed as State Significant Site under Schedule 3 of the NSW *State Environmental Planning Policy (Major Projects) 2005*.

A Project Application and Environmental Assessment (EA) were provided to the Department of Planning under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) in November 2007. Comments received have been incorporated into a redesigned proposal submitted with the Preferred Project Report (Figure 2).

As a part of this reassessment, consideration of the off-site and on-site impacts on the adjacent marine environment as a consequence of the redevelopment is required especially in relation to those species listed under the Schedules of the NSW *Fisheries Management Act 1994* (FM Act) and NSW *Threatened Species Conservation Act 1995* (TSC Act). This report is submitted with the Preferred Project Report.

1.2 Background

A number of designs have been considered for this project. Each version has resulted in the masterplan being altered and revised until the final plan (20816-10.DD03-06 10 November 2008) (Figure 2), on which this Preferred Project Scheme is based, was reached. This Preferred Project Scheme has been attained through consultation with government departments and other stakeholders to achieve the current design values aimed at protecting biodiversity across the site and within the Sydney Harbour National Park (SHNP) and in particular the endangered populations of the Long-nosed Bandicoot and the Little Penguin.

1.3 Stakeholder Considerations

Following the exhibition of the Part 3A Major Project Application, public submissions and comments by agencies and stakeholders were submitted to the NSW Department of Planning (DoP). Table 1 summarises the main stakeholder considerations relevant to marine impacts.

Table 1 Response to Submissions

Respondent	Summary of Ecological Concerns	Location in Report
NSW Maritime	Integrity of the foreshore and intertidal area is to be fully protected for the duration of the works. No access to site from via waterway / foreshore.	Section 3 & 4
Individual submission	Impacts to the adjacent aquatic reserve.	Section 3 & 4
Individual submission	Development will occur on the shores of Sydney Harbour's only Aquatic Reserve of National Significance	Section 3 & 4

1.4 Proposal

The AIPM is proposing to redevelop their site at Collins Beach, North Head (Figure 1). Redevelopment will result in an altered layout of the site, involve the demolition of a number of existing structures and the construction of new buildings including additional overnight accommodation. The plan is a design scheme prepared as a result of comments received on the Project Application and Environmental Assessment. The revised plan (20816-10.DD03-06 10 November 2008)) (Figure 2) involves removal of the proposed cottages and common room along the northern section of the site but retains light construction techniques as well as other light and noise considerations so as to minimise nocturnal disturbance.

1.5 Site Description

The AIPM covers an area of approximately 1.7 hectares (ha) and is situated at the end of Collins Beach Road, Manly NSW (Figure 1). Sydney Harbour National Park (SHNP) bounds the site on the south, east and west and the northern boundary is formed by the sandstone cliffs of Spring Cove. The site is predominantly maintained lawns with scattered native trees as well as a native garden in the south east of the site which incorporates mature Smooth-barked Apple (*Angophora costata*) trees. A drainage line flows south from the adjacent SHNP across the site in a northerly direction.

The site is used as a classroom based training facility for the Australian Federal Police and private entities. It provides accommodation for trainees as well as associated administrative, living and studying facilities. The site is generally restricted and has limited public access.

1.6 Existing Ecological Factors

There are a number of threatened species known to inhabit the SHNP and the North Head area. Of particular importance to this proposal are the endangered populations listed under the TSC Act:

- *Little Penguin population in the Manly point area*; and

  The Little Penguin (*Eudyptula minor*) population at Manly is the only known breeding population on mainland NSW. This species breeds along the foreshore that bounds the AIPM within Spring Cove and some of this area forms part of the Critical Habitat which has been declared for this population.

- *Long-nosed Bandicoot population at North Head*.

  An Endangered Population of the Long-nosed Bandicoot (*Perameles nasuta*) is also known to occur throughout North Head. This species uses the open grassy areas of the AIPM for foraging but there is no known breeding habitat for this species within the AIPM site.

The redevelopment has been designed so as to minimise direct and indirect impacts on these Endangered Populations.

1.7 Legislative Framework

A number of legislative requirements in relation to the biodiversity of the site are relevant. These include but are not necessarily limited to those listed below.

- The site has been listed as State Significant Site under Schedule 3 of the *State Environmental Planning Policy (Major Projects) 2005* and subject to assessment under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act);
- Flora and fauna issues listed under the FM Act and TSC Act were considered using the Draft *Guidelines for Threatened Species Assessment* (DEC & DPI 2005) as required under Part 3A of the EP&A Act; and
- A Bilateral Agreement between the Commonwealth of Australia and the state of NSW has allowed this proposal to be subject to a one-off accredited assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Consequently, this proposal does not require assessment under the EPBC Act as it would be undertaken in the manner specified in Schedule 1 of the Bilateral Agreement. However, consideration has been given to those species and populations which are listed under this Act and with the potential to occur within the locality (i.e. 10 km radius).

C:\GIS\AHA Ecology\2707 BHA Part 3A.wor GV 12/10/2007

0 250 500

Metres

Figure 1 Site Location

AHA Ecology

LEGEND

MAIN HERITAGE BUILDING
- B1 CLASSROOM
- B2 MEETING ROOM
- B3 DINING
- B4 RECEPTION/ TROPHY ROOM
- B5 SENIOR COMMON ROOM
- B6 BAR
- B7 SENIOR COMMON ROOM LOUNGE
- B8 KITCHEN (EXISTING)
- B9 OFFICE
- B10 DRY STORE
- B11 ACCESSIBLE AMENITIES

ACCOMODATION/ CLASSROOM
- R1 CLASSROOM 1
- R2 ACCESSIBLE AMENITIES
- R3 CENTRAL LAUNDRY
- R4 BEDROOM
- R5 ENSUITE
- R6 ACCESSIBLE ENSUITE
- R7 ACCESSIBLE BEDROOM
- R8 LIFT
- R9 STAIRS
- R10 GENERAL STORE
- R11 ELECTRICAL
- R12 CLEANER'S ROOM
- R13 HYDRANT PUMP ROOM
- R14 CLEANER
- R15 STORE
- R16 COMMS
- R17 STORE

LIBRARY
- L1 LIBRARY COLLECTION
- L2 REFERENCE LIBRARIAN
- L3 LIBRARY MANAGER
- L4 LOANS
- L5 MEDIA AREA
- L6 COMPUTER ACCESS
- L7 SYNDICATE/ MEETING ROOM
- L8 WORK ROOM

ADMINISTRATION
- A1 COURSE PARTICIPANT ROOM
- A2 IT WORKROON & STORE
- A3 FIRST AID
- A4 CLEANER
- A5 ACCESSIBLE AMENITIES
- A6 SERVER ROOMS
- A7 GYMNASIUM
- A8 MALE/ FEMALE AMENITIES
- A9 SHOWER/ CHANGE
- A10 STUDENT RECORDS / CENTRAL FILING
- A11 WAITING
- A12 RECEPTION
- A13 OFFICE
- A14 MEETING ROOM
- A15 STORE
- A16 UTILITIY ROOM
- A17 LIFT
- A18 LOBBY

SYNDICATE BUILDING
- S1 LARGE SYNDICATE ROOM
- S2 SMALL SYNDICATE ROOM
- S3 SMALL SYNDICATE ROOM
- S4 PHOTOCOPYING
- S5 COLLATING & STORAGE
- S6 SUPPORT

AMENITIES / STORES BUILDING
- D1 MALE AMENITIES
- D2 FEMALE AMENITIES
- D3 ACCESSIBLE AMENITIES
- D4 HOUSE STORE
- D5 LINEN STORE
- D6 CLEANER'S STORE
- D7 WINE STORE

SEWERAGE PUMP HOUSE TO BE RETAINED

GARDEN STORE FFL 11.40

KOOKABURRA COTTAGE FFL 12.70

SPRING COVE COTTAGE FFL 12.66

EXISTING DECK RL 14.09

MAIN HERITAGE BUILDING FFL 14.25

EXISTING KITCHEN FFL 14.22

FFL 15.37

RAMP 1:5

NEW ACCOMMODATION FFL 14.25

HARBOUR COTTAGE FFL 13.18

DRYING COURT FFL 13.60

A/C PLANT

NEW ACCOMMODATION FFL 15.45

GARDEN COTTAGE FFL 14.20

NEW LIBRARY EXTENSION FFL 15.56

LIBRARY REFURBISHMENT FFL 15.56

DELIVERIES/PARKING

ADMINISTRATION BUILDING FFL 15.30

GARBAGE STORE

NEW FACE BLOCKWORK WALLS. MIN 2000mm HIGH ABOVE ADJACENT GROUND LEVEL

AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT
for The Australian Federal Police

SITE GROUND FLOOR PLAN

SCALE 1:200 @ B1

0 2m 5m 10m

brewster hjorth ARCHITECTS

A04

NOVEMBER 2008
20816-10.DD03-06
PRINT DATE: 10.11.08

2 METHODS

This assessment of the potential impacts associated with the construction and operational phase of the redevelopment was undertaken through site review, literature evaluation and assessment of the measures outlined in:

- Site Stormwater Report produced by CR Welsby Engineering Pty Ltd (CRW 2008); and
- Stormwater drainage Preferred Project Scheme prepared by JJ Marino & Associates (08-147 SW1A3, SW2A3 & SW3A3) (Figure 3 – SW2A3); and
- Erosion and Sedimentation Control Preferred Project Scheme prepared by JJ Marino & Associates (EA1A3, EA2AE) (Figure 4 and Figure 5).

The likely impacts were assessed through consideration of current site drainage, adjacent ecosystems and the impacts on these systems as a consequence of changes to drainage patterns across the site.

3 FINDINGS

3.1 Marine Environment

Sydney Harbour supports a diverse and wide range of estuarine and marine habitats, including beaches, rock platforms, seagrass and commercial fisheries. The AIPM site is located within Spring Cove much of which has been declared critical habitat for the Little Penguin. Areas directly adjacent to the AIPM site comprise Collins Beach to the east and rock platforms and rocky reefs at the base of the escarpment on which the Little Penguin breeds.

The site and locality (i.e. 10 km radius) have a number of features considered to be of conservation significance and these are outlined below.

3.1.1 Wetlands of International Significance

Towra Point is a Wetland of International Significance (Ramsar Site) and is listed as occurring within the same catchment as the proposal. Towra Point is located approximately 30 km south of North Head and is unlikely to be impacted by this proposal.

3.1.2 Protected Marine Species and Vegetation

A range of Syngnathiformes may occur within the locality and this group of seahorses and their relatives are all protected under the FM Act and the EPBC Act. Off the NSW coast Syngnathiformes are found in a variety of habitats ranging from deep reefs to coastal algae, weed or seagrass habitats, or around man-made structures such as jetties or mesh nets (DPI Fisheries).

All marine vegetation is protected under the FM Act, including seagrass, mangroves and seaweed due to their importance as species rich habitats which offer shelter to numerous species of fish and invertebrates, especially during the juvenile phase. The marine environments off Collins Beach and the wider Sydney Harbour are known to support representatives from all of these marine vegetation groups.

3.1.3 Threatened Species, Populations and Communities

The Little Penguin (*Eudyptula minor*) population at Manly is the only known breeding population on mainland NSW and is therefore listed as an Endangered Population under the TSC Act. This species breeds along the foreshore that bounds the AIPM within Spring Cove and some of this area forms part of the Critical Habitat which has been declared for this population. An impact assessment for this population has been undertaken and is provided in the terrestrial ecological assessment report produced by Alison Hunt & Associates Pty Ltd (2008).

A number of other threatened, protected and important species are known from the area. Threatened marine species listed under the TSC Act and FM Act which have been recorded within the locality (i.e. 10 km radius) are listed in Table 2. These include the Southern Right Whale and the Humpback Whale which are recorded annually moving along the east coast of

Australia. The Australian Fur-seal may forage within Sydney Harbour but breeds in colonies at Seal Rocks and Montague Island (DECC 2007). The Green Turtle and Leathery Turtle have also been recorded within or near to Sydney Harbour. Recognised threats for the turtles and seal species include accidental entanglement in nets, traps, longline and other fishing gear, oil spills, human disturbance of breeding colonies and collision with boats and other marine traffic.

Table 2 Marine species of conservation significance recorded in the locality

Common Name/ Scientific Name	Conservation Status	Presence within the Locality
Southern Right Whale (*Eubalaena australis*)	V – TSC E - EPBC	Regularly recorded during migration along the eastern seaboard.
Humpback Whale (*Megaptera novaeangliae*)	V – TSC V - EPBC	Regularly recorded during migration along the eastern seaboard.
Australian Fur-seal (*Arctocephalus pusillus)*	V – TSC Mar - EPBC	Has been recorded in Sydney Harbour.
New Zealand Fur-seal (*Arctocephalus fosteri)*	V-TSC Mar - EPBC	Has been recorded in Sydney Harbour.
Green Turtle (*Chelonia mydas*)	V – TSC Mar - EPBC	Has been recorded in Sydney Harbour.
Leathery Turtle (*Dermochelys coriacea*)	V – TSC Mar - EPBC	Has been recorded along the coast off Sydney.
Note: TSC = NSW *Threatened Species Conservation Act 1995*, EPBC = Environment Protection and Biodiversity Conservation Act 1999, V = Vulnerable, E = Endangered, Mar = Marine species.		

A number of other marine species listed under the TSC Act and FM Act have the potential to occur within the locality and these may include:

- Black Cod (*Epinephelus daemelii*) which s a large, reef-dwelling, carnivorous grouper species usually found in caves, gutters and beneath bomboras on rocky reefs. It is listed as Vulnerable and may occur in the locality;
- Grey Nurse Shark (*Carcharias taurus*) is a demersal species found in inshore coastal waters along the coast of NSW and southern Queensland. There are a number of key habitat sites along the coast of NSW (including Maroubra) and southern Queensland where Grey Nurse Sharks are regularly found in groups. These sites generally have sandy-bottomed gutters or rocky caves and are in the vicinity of inshore rocky reefs or islands; and
- Great White Sharks (*Carcharadon carcharias*) are normally found in inshore waters around rocky reefs and islands often near seal colonies and are known from NSW coastal waters.

A range of additional species listed under the EPBC Act are listed as having the potential to occur within the locality and these include threatened species, migratory marine species and marine species. The majority of these are mobile species which may pass through the area regularly, on occasion or rarely and this proposal would have little relevance to these species. Those species which are of greatest relevance to this proposal include the Green Turtle, Leathery Turtle, Australian Fur-seal, New Zealand Fur-seal and a range of Syngnathiformes (Table 3).

Table 3 Species listed under the EPBC Act which are relevant to this proposal

Species	Conservation Status under EPBC Act
Green Turtle (*Chelonia mydas*)	Vulnerable, Migratory Marine, Marine
Leathery Turtle (*Dermochelys coriacea*)	Vulnerable, Migratory Marine, Marine
Australian Fur-seal (*Arctocephalus pusillus*)	Marine
New Zealand Fur-seal (*Arctocephalus forsteri*)	Marine
Syngnathiformes	Marine
Note: EPBC Act = Commonwealth *Environment Protection and Biodiversity Act 1999*.	

There are no threatened ecological communities listed under the EPBC Act are relevant to this proposal.

This proposal is unlikely to impact on any marine species listed under the TSC Act, FM Act and / or the EPBC Act as all associated works would be undertaken within the terrestrial environment of the AIPM site. Any potential impacts which may be associated with the redevelopment of the AIPM site would be through changes in drainage patterns and water quality associated with the site redevelopment and these are discussed below.

3.2 Drainage Patterns and Water Quality

Changes to the drainage patterns and water quality on the site as a consequence of construction and operational aspects of the redevelopment of the AIPM site could indirectly impact on these areas and the broader Sydney Harbour and these matters are considered below.

3.2.1 Existing Site Drainage

Existing site drainage is comprised of three main components (CRW 2008):

- A series of piped drainage systems which convey stormwater from the site to Sydney Harbour;
- A semi piped water course which allows upstream drainage through the site; and
- Landscape and bushland areas which freely drain overland to the harbour.

There are currently no stormwater on-site detention or retention facilities, or treatment facilities for contaminated stormwater.

3.2.2 Redevelopment of Site Drainage

A number of constraints guided the redevelopment of the site drainage including (CRW 2008):

- Redirection of all stormwater away from the natural watercourse which currently traverses the site; and
- The ecological sensitivity of the site as it provides habitat for two endangered populations listed as threatened under the NSW *Threatened Species Conservation Act 1995* (TSC Act). These include the Long-nosed Bandicoot (*Perameles nasuta*) which forages across the grassy areas, and the Little Penguin (*Eudyptula minor*) which nests along the northern boundary of the site which adjoins Sydney Harbour.

The redevelopment incorporates includes three storm water drainage systems (SWDS):

SWDS1 discharge outlet replaces an existing stormwater outlet in the north-east of the site. A humeceptor has been included in the design of SWDS1 to remove any contaminants picked up from parking areas and / or roadways on site before release into an anti-scour dissipation area to slow flows as it is released into the surrounding landscape.

SWDS2 is located to the west of the natural watercourse and discharges at the northern boundary of the site. It has been designed to reuse the existing outlet but with the added advantage of a humeceptor being fitted to remove any contaminants picked up from the site.

SWDS3 is a new drainage system which picks up stormwater from the western section of the site. Water would flow into an ant-scour dissipation area to slow flows before being released into the adjacent landscape.

CRW (2008) suggests that overall quality of water leaving the site would be higher than current water quality values due to treatment devices (i.e. humeceptors) being fitted to discharge points. Additionally, the introduction of stormwater retention to the site by capturing stormwater for reuse will result in levels of post-development stormwater discharge from the site effectively equalling the pre-development volumes.

3.2.3 Stormwater Run-off

Modification of the pattern of stormwater run-off could impact on species composition through changes to water quality or changes to salinity.

Alteration to stormwater discharge would be minimal due to the reuse of the two current discharge points. The introduction of a third discharge point in the west of the site is unlikely to substantially increase direct discharge of stormwater into Sydney Harbour as this area is vegetated and located back from the escarpment. Instead, stormwater would be discharged

through an antiscour / energy dissipation area into a grassed and vegetated section of the site.

CRW (2008) also estimates that volumes of water discharged would not be increased due to the on-site reuse of collected stormwater for such tasks as flushing of toilets.

3.2.4 Water Quality

Overall quality of the stormwater discharged into the environment is predicted to be of higher quality than current water quality due to the introduction of treatment devices including gross pollutant traps and humeceptors being incorporated into the design.

Clumped plantings of low-growing native vegetation would be established in along the northern boundary of the Heritage Track to intercept and settle minor surface runoff before spilling this out to filter across the grassed area.

3.2.5 Sediment Run-off

The collection of stormwater for reuse and the use of anti-scour devices to dissipate the energy of stormwater across the site would reduce the opportunity for sediment run-off into the adjacent marine environment during operation.

A range of erosion and sediment controls would also be implemented during construction and these are outlined in the Construction Environmental Management Plan (CEMP) (Gondwana Consulting Pty Ltd 2008). An Erosion and Sedimentation Control Plan would be implemented before construction begins and would broadly include controls such as sedimentation fences, vehicle wash down and shake down areas, and the maintenance of vegetated areas. The details of these measures are shown in Figure 4 and Figure 5 (JJ Marino & Associates 2008)

NOTES:

1. ALL WORKS TO BE INSTALLED IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND LOCAL GOVERNING AUTHORITY REQUIREMENTS.
2. ALLOW TO COORDINATE ALL PIPEWORK WITH ALL STRUCTURAL COMPONENTS AND OTHER BUILDING SERVICES. ALLOW ALL OFFSETS, BENDS AND DIVERSIONS AS MAY BE REQUIRED.
3. ALLOW TO PAY ALL FEES AND CHARGES AS NECESSARY TO COMPLETE THE WORK.
4. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, STRUCTURAL AND OTHER SERVICES DOCUMENTATION.
5. THE LOCATION AND SET OUT OF ALL FITTINGS AND FIXTURES IS TO BE FULLY COORDINATED WITH THE ARCHITECTS DETAIL DOCUMENTATION.
6. ALL EXISTING STORMWATER INFRASTRUCTURE TO BE CONFIRMED ON SITE. RELOCATING / DIVERSION WORKS MAY BE REQUIRED FOR ACTIVE INFRASTRUCTURE ON THE SITE.
7. ALL EXISTING STORMWATER DRAINAGE, PITS AND GRATES TO BE CLEAN OF ALL SEDIMENT.
8. ALLOW TO DISCONNECT, SEAL AND MAKE GOOD ALL REDUNDANT STORMWATER INFRASTURE.
9. ALL SRO'S TO BE 225mm SQ.
10. ALLOW TO LOCATE AND CONNECT ALL EXISTING DOWNPIPES INTO NEW STORMWATER SYSTEM.
11. PIPEWORK TO INDIVIDUAL DP'S & RAIN WATER TANK O/F TO BE 100mm MIN. UNLESS OTHERWISE INDICATED.
12. RAINWATER RE-USE TANKS DOES NOT FORM PART OF THIS SCOPE OF CIVIL WORKS.
13. ALL OPEN STORMWATER DRAINAGE DURING DEMOLITION PHASE SHALL BE TEMPORARY CONNECTED TO NEAREST DOWNSTREAM STORMWATER INFRASTRUCTURE.
14. ALL CLEAROUTS (CO) LOCATED IN AREAS SUBJECTED TO VEHICULAR LOADS SHALL BE NICKEL BRONZE WITH BOLTED TRAP SCREWS.
15. ALLOW TO LOCATE AND CONNECT ALL ACTIVE EXISTING DOWNPIPES INTO NEW STW DRAINAGE WHERE APPLICABLE. CONTRACTOR TO DETERMINE ON SITE.

NOTE: ALL LOCATIONS OF EXISTING STORMWATER INFRASTURE ARE APPROXIMATE ONLY. LOCATION TO BE CONFIRMED PRIOR TO COMMENCING ANY WORKS.

SCALE 1:200
0 2 4 6 8 10m

ISSUE	DATE	AMENDMENT
01	20.11.08	ISSUED FOR DRAFT REPORT

ARCHITECT
brewster hjorth
ARCHITECTS
LEVEL 1, 85 COMMONWEALTH STREET
SURRY HILLS NSW 2010
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PROJECT
AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT
FOR THE AUSTRALIAN FEDERAL POLICE

DRAWING TITLE:
STORMWATER DRAINAGE MASTERPLAN

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DISCIPLINE	STORMWATER		
NORTH	DRAWN TP	DESIGNED JM	
	DATE 20.11.07	SCALE 1:200	
	APPROVED FOR CONSTRUCTION		
JOB No. 08-147	DRAWING No. SW2	ISSUE 01	

AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT

FOR THE AUSTRALIAN FEDERAL POLICE

EROSION AND SEDIMENT CONTROL

LEGEND

SYMBOLS

- SUBSOIL PUMP (TEMPORARY)
- BLUE METAL GROYNE (SAUSAGE)
- STAKED HAY BALES
- STAKED HAY BALES / BLUE METAL GROYNE

LINETYPES

- BLUE METAL GROYNE
- W — W — WIND FENCE
- SWRM — STORMWATER RISING MAIN (TEMPORARY)
- SILT FENCES
- FB — FLOATING BOOM

NOTES

MINIMUM REQUIREMENTS

GENERAL

PROVIDE ON SITE CONTROLS THROUGHOUT THE ENTIRE WORKS TO ENSURE MINIMUM EROSION AND SEDIMENT LOSS.

ENSURE LEAST DISTURBANCE TO SITE.

AS EACH AREA IS COMPLETED, THAT AREA IS TO BE IMMEDIATELY/PROGRESSIVELY SEEDED AND FERTILISED. SILT FENCES, STRAW BALES OR OTHER CONTROLS NEED TO BE PROVIDED UNTIL THE SITE IS STABLE. SHOULD THIS APPROACH NOT BE PRACTICAL THE PROGRESSIVE REVEGETATION OF INDIVIDUAL AREAS WILL BE REQUIRED.

WHERE THERE IS GRADE ON OTHER AREAS OF THE SITE THAT MAY LEAD TO EROSION, FURTHER APPROPRIATE TREATMENT IS TO BE LOCATED TO CONTROL EROSION i.e. STRAW BALES

THE PROVISION AND MAINTENANCE OF (SEDIMENT) SILT FENCES WILL BE NECESSARY DURING THE CONSTRUCTION PHASE. PROGRESSIVELY REMOVE INDIVIDUAL SECTIONS OF SILT FENCES FOR CLEANING. CLEANING OF FENCES TO BE CARRIED OUT DURING PERIODS OF DRY WEATHER.

FILL AREAS

RUN-OFF AND SEDIMENT LOSS FROM THE AREAS OF FILL MUST BE CONTROLLED DURING AND AFTER CONSTRUCTION, BEFORE REVEGETATION TAKES PLACE USING SILT FENCES AND OR STRAW BALES AS INSTRUCTED BY THE PROJECT MANAGER TO DIRECT WATER FROM THE DISTURBED AREA. OTHER MEASURES SHALL BE CARRIED OUT AS DIRECTED BY THE PROJECT MANAGER AND/OR AS SHOWN ON THE PLANS.

STOCK PILES

THE STOCK PILE LOCATION SHOWN ON THE PLAN IS PRELIMINARY. SHOULD THE BUILDER WISH TO RELOCATE THE STOCKPILE, HE SHALL OBTAIN APPROVAL FROM PROJECT MANAGER PRIOR TO COMMENCEMENT OF WORKS. THE BUILDER SHALL PRODUCE DRAWINGS INDICATING THE LOCATION OF STOCK PILES.

STOCK PILE SITES SHALL BE LOCATED AWAY FROM EXISTING OR PROPOSED DRAINAGE LINES OR AREAS LIKELY TO BE DISTURBED DURING CONSTRUCTION. STOCK PILE SITES SHALL NOT BE LOCATED WITHIN THE DRIP ZONE OF TREES.

STOCK PILE SITES MUST BE PROTECTED FROM EROSION AND SEDIMENT LOSS BY THE INSTALLATION OF SILT FENCES/STRAW BALES OR OTHER CONTROLS APPROVED BY PROJECT MANAGER.

WIND EROSION

TO MINIMISE WIND EROSION DURING CONSTRUCTION, THE GROUND SURFACE SHOULD BE KEPT DAMP (NOT WET). THE SURFACE SHOULD BE LEFT IN A ROUGH CLODDY CONDITION TO INCREASE ROUGHNESS AND SLOW SURFACE WIND SPEED.

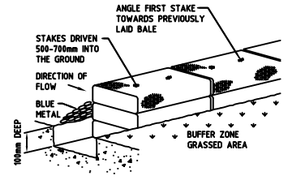
LOCATION

LOCATION OF SEDIMENT CONTROL METHODS ie. SILT FENCES ARE SHOWN DIAGRAMMATICALLY ONLY ON DRAWING FINAL LOCATION. EXTENT AND TYPE OF SEDIMENT CONTROL METHODS SHALL BE TO THE SATISFACTION OF PROJECT MANAGER.

THE CONTRACTOR, UNDER SECTION 16 OF THE CLEAN WATERS ACT, IS LIABLE FOR THE DEPOSITION OF ANY CONTAMINANTS DEPOSITED ON ROADWAYS AFTER LEAVING THE CONSTRUCTION SITE.

DRAWING SCHEDULE

DWG No	DESCRIPTION
ES1	PROJECT INFORMATION AND DETAIL SHEET
ES2	EROSION & SEDIMENT CONTROL MASTER PLAN



DETAIL - STRAW BALE BARRIERS

DESCRIPTION
A TEMPORARY BARRIER OF STRAW BALES PLACED AROUND THE PERIMETER OF A DISTURBED AREA.

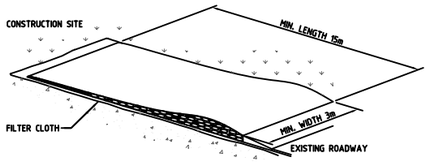
USAGE
STRAW BALE BARRIERS ARE USED TO DESILT CONTAMINATED WATER

INSTALLATION
STRAW BALES ARE ONLY EFFECTIVE ON SITES OF LESS THAN HALF A HECTARE. THE BALES MUST BE PLACED LENGTHWISE IN 100mm DEEP TRENCHES WITH THEIR BINDING ROPE HORIZONTAL TO THE GROUND.

THE BALES MUST BE CONNECTED AND ANCHORED TO THE GROUND BY DRIVING TWO STAR PICKETS OR POSTS THROUGH EACH BALE. THE FIRST STAKE MUST BE DRIVEN TOWARDS THE ADJOINING BALE AT A 45° ANGLE TO FORCE THE BALES TOGETHER.

MAINTENANCE
AFTER RAINFALL STRAW BALE BARRIERS MUST BE INSPECTED AND SEDIMENT REMOVED. DAMAGED BALES SHOULD BE REPAIRED OR REPLACED BALES HAVE A LIFE EXPECTANCY OF THREE TO SIX MONTHS.

NOTE
THE LOCATION OF STRAW BALES ON THE ABOVE SITE PLAN IS DIAGRAMMATIC ONLY. THE REQUIREMENT FOR THE USAGE OF STRAW BALES IS TO BE AS A SUPPLEMENTARY MEASURE TO ASSIST THE SILT FENCES. FINAL LOCATIONS AND EXTENT OF STRAW BALES TO BE DETERMINED BY THE PROJECT MANAGER.



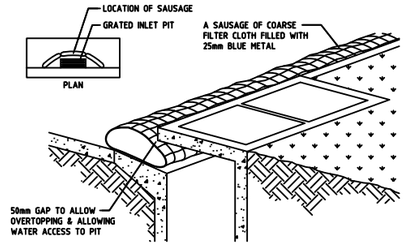
DETAIL - SHAKE DOWN AREA/ACCESS STABLISATION

DESCRIPTION
STABLISED ACCESS SHALL BE A BED OF AGGREGATE ON FILTER CLOTH. GRADE THE ENTRANCE SO THAT IT IS AT LEAST 15 METRES LONG WITH A MINIMUM WIDTH OF 3 METRES FOR A ONE WAY ENTRANCE AND 6 METRES FOR A TWO WAY ENTRANCE. PLACE FILTER CLOTH OVER THE ENTIRE AREA AND COVER IT WITH 150mm MINIMUM THICKNESS OF 50mm AGGREGATE RIVER GRAVEL OR A RECYCLED OR RECLAIMED CONCRETE EQUIVALENT.

USAGE
SUCH STRUCTURES SHALL BE USED AT ALL POINTS WHERE CONSTRUCTION VEHICLES ENTER OR LEAVE THE SITE AND EXISTING ROADWAYS.

TREATMENT/MAINTENANCE

SURFACE WATER FLOWING TO THE ENTRANCE MUST BE PIPED UNDER THE ENTRANCE, OR A BERM CONSTRUCTED TO DIRECT SURFACE FLOW AWAY FROM THE ROAD. ALL DEPOSITS ARE TO BE REGULARLY CLEARED FROM SITE ACCESS. THE DRAWBAR, TAILGATE ETC OF ANY VEHICLE INVOLVED IN THE TRANSPORT OF GRAVEL ETC TO A CONSTRUCTION SITE MUST BE MANUALLY CLEANED OF MATERIAL BEFORE THE VEHICLE LEAVES THE SITE. SHOULD THE MATERIAL BE DEPOSITED ON THE ROADWAY ETC, SUCH MATERIAL SHALL BE SWEPT AND REMOVED FROM THE ROADWAY.

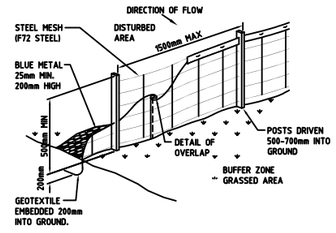


DETAIL - BLUE METAL GROYNE (SAUSAGE)

DESCRIPTION
THE GROYNE COMPRISES A SAUSAGE OF SHADE CLOTH OR OTHER PREVIOUS FABRIC, SOME 200mm DIAMETER, FILLED WITH 25mm BLUE METAL AND CLOSED BOTH ENDS.

INSTALLATION
THE SAUSAGE IS LAID ON THE GROUND ON THE CONTOUR SIMILAR TO A SILT FENCE. GENERALLY THE SAUSAGE SHOULD BE LAID TWO HIGH TO OBTAIN ENOUGH FILTER AREA.

LOCATION
THE GROYNES SHOULD BE LOCATED ACROSS THE ENTRY DRIVEWAY TO THE SITE AND AROUND THE NEAREST DOWNSTREAM KERB ENTRY PITS.



DETAIL - SILT FENCES

SILT FENCES

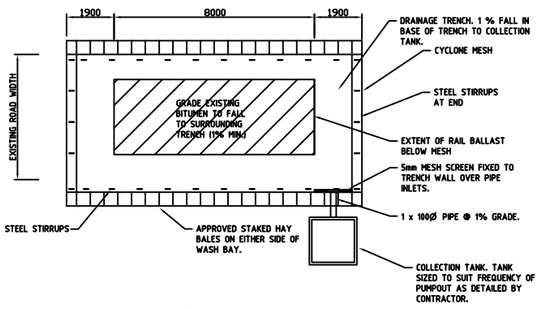
DESCRIPTION
SILT FENCES ARE TEMPORARY BARRIERS MADE FROM A COMBINATION OF FILTER CLOTH AND BLUE METAL

USAGE
SILT FENCES FILTER RUN-OFF LEAVING THE SITE TRAPPING THE SEDIMENT AND ALLOWING CLEAN FILTERED WATER TO PASS. SILT FENCES ARE TO BE PLACED ON THE CONTOUR OR SLIGHTLY CONVEX TO THE CONTOUR. IF ON THE CONTOUR, EACH END OF THE FENCE SHOULD BE TURNED UP TO CREATE A 'STILLING POND' UP SLOPE OF THE FENCE. WHERE POSSIBLE, A SILT FENCE SYSTEM SHOULD BE NO LONGER THAN ABOUT 20 METRES. THEY SHOULD NOT INTERCEPT LARGE CONCENTRATED OR CHANNELISED FLOWS.

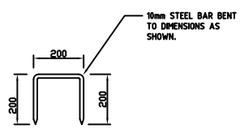
INSTALLATION
THE AREA BELOW A SILT FENCE MUST BE UNDISTURBED ON STABLISED GROUND.

MAINTENANCE
SILT FENCES REQUIRE REGULAR MAINTENANCE. TRAPPED SEDIMENTS SHOULD BE REMOVED, PICKETS STRAIGHTENED, FILTER CLOTH RESECURED AND TIGHTENED AND BLUE METAL REPLACED WHEN HEAVILY CONTAMINATED WITH SILT.

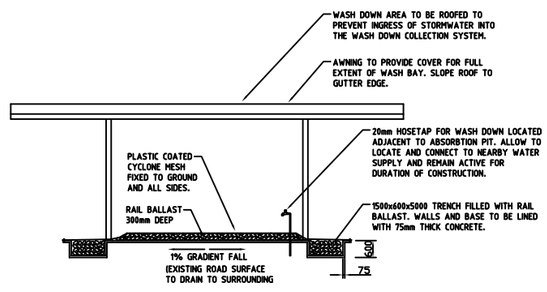
NOTE
FILTER FABRIC SHALL BE EQUIVALENT TO 'GEOLAB' AND BE CAPABLE OF INTERCEPTING SILT PARTICLES DOWN TO 2 MICRON IN SIZE.



VEHICULAR WASH DOWN BAY
PLAN
N.T.S.



STEEL STIRRUP DETAIL
N.T.S.



VEHICULAR WASH DOWN BAY
SECTION
N.T.S.

ISSUE	DATE	AMENDMENT
03	20.11.08	ISSUED FOR DRAFT REPORT
02	6.11.08	PRELIMINARY ISSUE
01	6.11.08	ISSUED FOR INFORMATION

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PROJECT
AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT
FOR THE AUSTRALIAN FEDERAL POLICE

DRAWING TITLE:
PROJECT INFORMATION AND DETAIL SHEET

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DISCIPLINE: EROSION & SEDIMENT CONTROL

NORTH	DRAWN TP	DESIGNED JM
	DATE 20.11.08	SCALE AS SHOWN
	APPROVED FOR CONSTRUCTION	
JOB No. 08-147	DRAWING No. ES1	ISSUE 03

SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) OR APPROVED STAKED HAY BALES FOR DURATION OF CONSTRUCTION.

SILT FENCE LOCATED DIAGRAMATICALLY ONLY - MAINTAIN FENCING AND GROYNE / HAY BALES 3m FROM LINE OF EXISTING BUILDINGS

SILT FENCE AND HAY BALES RELOCATED FROM SOUTH SIDE OF EXISTING ACCOMMODATION BUILDING ONCE DEMOLITION OF LOCAL EXISTING BUILDING COMMENCES.

SILT FENCE AND HAY BALES RELOCATED FROM SOUTH SIDE OF EXISTING ACCOMMODATION BUILDING ONCE DEMOLITION OF LOCAL EXISTING BUILDING COMMENCES.

TEMPORARY SILT FENCE TO REMAIN IN PLACE UNTIL CONSTRUCTION OF LOCALISED AREA COMMENCES

TEMPORARY SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) OR APPROVED STAKED HAY BALES FOR DURATION OF CONSTRUCTION OF NEW PIPE DISCHARGE ONLY.

SILT FENCE AND HAY BALES RELOCATED FROM SOUTH SIDE OF EXISTING ACCOMMODATION BUILDING ONCE DEMOLITION OF LOCAL EXISTING BUILDING COMMENCES.

LINE OF SILT FENCE AND HAY BALES TO BE PLACED FOR DURATION OF WORKS. RELOCATE TO NORTH OF PROPOSED OUTLET WORKS AS SHOWN WHEN WORKS WITHIN THIS VICINITY COMMENCES.

LINE OF SILT FENCE AND HAY BALES TO BE PLACED FOR DURATION OF WORKS. RELOCATE TO NORTH SIDE OF EXISTING ACCOMMODATION BUILDINGS ONCE DEMOLITION OF ACCOMMODATION BUILDINGS COMMENCE.

SILT FENCE FOR DURATION OF CONSTRUCTION.

SILT FENCE FOR AND BLUE METAL GROYNE (SAUSAGE) OR APPROVED STAKED HAY BALES DURATION OF CONSTRUCTION.

SILT FENCE AND GROYNE / HAY BALES

SILT FENCE MAINTAINED UNTIL WORKS WITHIN IMMEDIATE VICINITY COMMENCES AND INTERFERES WITH CONSTRUCTION. FENCE LOCATED 500mm NORTH OF PROPOSED FOOTPATH.

SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) OR APPROVED STAKED HAY BALES FOR DURATION OF CONSTRUCTION.

SILT FENCE MAINTAINED UNTIL CONSTRUCTION WITHIN IMMEDIATE VICINITY COMMENCES AND INTERFERES WITH CONSTRUCTION.

SHAKE DOWN AREA ON DRIVEWAY FOR DURATION OF CONSTRUCTION.

WASHDOWN COLLECTION PIT. REFER TO DETAIL.

TEMPORARY SILT FENCE TO REMAIN IN PLACE UNTIL CONSTRUCTION OF LOCALISED AREA COMMENCES

SILT FENCE MAINTAINED UNTIL WORKS WITHIN IMMEDIATE VICINITY COMMENCES AND INTERFERES WITH CONSTRUCTION. FENCE LOCATION TO BE 500mm NORTH OF PROPOSED CARPARK RETAINING WALL.

TEMPORARY TOPSOIL STOCKPILE LOCATION

SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) AROUND PERIMETER OF STOCKPILE.

SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) FOR DURATION OF CONSTRUCTION.

SILT FENCE AND BLUE METAL GROYNE (SAUSAGE) OR APPROVED STAKED HAY BALES LOCATED ON EACH BANK OF WATER COURSE FOR DURATION OF CONSTRUCTION.

HEAVY VEHICLE / PERSONNEL WASH DOWN BAY. REFER TO DETAIL. REFER TO CEMP (CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN) FOR DETAILS.

NOTES:
1. THESE NOTES SHALL BE READ IN CONJUNCTION WITH THE PROJECTS CEMP (CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN), ARCHITECTURAL STRUCTURAL, ENVIRONMENTAL & FLOOD CONSULTANTS DOCUMENTATION.
2. PROVIDE BLUE METAL GROYNE (SAUSAGE) / HAY BALES AROUND ALL EXISTING STORMWATER PITS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT MEASURES FOR IMMEDIATE CLEAN UP OF ANY OIL, HYDRAULIC FLUID AND FUEL LEAKS FROM PLANT AND EQUIPMENT ON SITE. PRIOR TO COMMENCEMENT ON SITE, SUBMIT DETAILS TO THE SUPERINTENDENT OF METHODS AND PROCEDURES THAT ARE TO BE UTILISED.

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ARCHITECT
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SURRY HILLS NSW 2010
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PROJECT
AUSTRALIAN INSTITUTE OF POLICE MANAGEMENT
FOR THE AUSTRALIAN FEDERAL POLICE

DRAWING TITLE:
EROSION & SEDIMENT CONTROL MASTERPLAN

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DISCIPLINE EROSION & SEDIMENT CONTROL

NORTH	DRAWN TP	DESIGNED JM	
	DATE 20.11.08	SCALE 1:200	
	APPROVED FOR CONSTRUCTION		
JOB No. 08-147	DRAWING No. ES2	ISSUE 03	

4 IMPACT ASSESSMENT

4.1 NSW *Environmental Planning and Assessment Act 1979*

An assessment of the impacts of this proposal on species, populations and ecological communities listed under the TSC Act and FM Act has been undertaken. This impact assessment was undertaken in accordance with the *Draft Part 3A Guidelines for Threatened Species Assessment* (DEC & DPI 2005). Species considered include those species considered as potentially occurring within waters adjacent waters to the site and these are listed in Table 2. The assessment of the potential impacts on the Little Penguin population is contained within Alison Hunt & Associates Pty Ltd (2008).

How is the proposal likely to affect the lifecycle of a threatened species and/or population?

The lifecycle of these species are unlikely to be impacted by this proposal as all works associated with the redevelopment of the site would be undertaken within the AIMP site boundaries and set back from the marine environment. Consequently the lifecycle of a marine species is unlikely to be disrupted.

How is the proposal likely to affect the habitat of a threatened species, populations or ecological community?

Improvements in the stormwater drainage system and strict implementation of a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) would ensure that habitat for any marine species, population or community would not be impacted by this proposal.

Does the proposal affect any threatened species or populations at the limit of its known distribution?

None of these species are at the known limit of their distribution.

How is the proposal likely to affect current disturbance regimes?

Current disturbance regimes within the marine environment would not be substantially altered over current levels.

How is the proposal likely to affect habitat connectivity?

This proposal is unlikely to affect habitat connectivity for any marine species.

How is the proposal likely to affect critical habitat?

A key habitat site for the Grey Nurse Shark is located at Magic Point, Maroubra approximately 20 km to the south of North Head. This proposal is unlikely to affect this breeding habitat.

Conclusion

It is considered that impacts on any marine species are unlikely as all proposed development is set well back from the marine environment and any anticipated impacts could be managed through the implementation of a number of measures to protect these habitats.

4.2 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*

A range of species listed under the EPBC Act have the potential to occur within the locality. The majority of these are mobile species which may pass through the area during migration, on occasion or rarely and this proposal would have little relevance to these species. Those species considered under this assessment are listed in Table 3.

The criteria detailed in the EPBC Act Policy Statement 1.1 Significant Impact Guidelines (DEH 2006) were used to assess the significance of likely impacts as a consequence of the proposal and this assessment is detailed below.

An action is likely to have a significant impact if there is a real chance or possibility that it will:

Lead to a long-term decrease in the size of an important population of a species

The nature of the proposal is such that all aspects of the proposal are set well back from the marine environment. Consequently the size of an important population of a species is unlikely to be affected especially given that stringent a CEMP and OEMP would be implemented as a part of this project and that improvements in water quality are likely to accrue from an update of the stormwater management system.

Reduce the area of occupancy of an important population

All development would be set well back from the marine environment and so no reduction in the areas of occupancy would occur as a consequence of this proposal.

Fragment an existing important population into two or more populations

All development would be set well back from the marine environment and so no fragmentation of populations is expected.

Adversely affect habitat critical to the survival of a species

There is no known habitat critical to the survival of any species present at the site.

Disrupt the breeding cycle of an important population

Disruption of the breeding cycle of an important population is not anticipated as minor potential impacts would be managed through stringent implementation of the CEMP and OEMP.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

It is considered that potential impacts could be managed and that all habitats for these species would be maintained.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

This proposal is not of the type that would increase the risk of the introduction and / or spread of invasive species.

Introduce disease that may cause the species to decline

This proposal is not of the type that would increase the risk of the introduction and / or spread of disease.

Interfere substantially with the recovery of the species

It is unlikely that this proposal would interfere substantially with the recovery of species as the proposed development is set well back from the marine environment and a range of mitigation measures are proposed to protect the habitat.

Conclusion

It is considered that impacts on any marine species are unlikely to be significant as all proposed development is set well back from the marine environment and any anticipated impacts could be managed through the implementation of a number of measures to protect these habitats.

5 MITIGATION MEASURES & RECOMMENDATIONS

The majority of potential direct and indirect impacts associated within the redevelopment of the AIPM site are terrestrial impacts. However, due to the site location at North Head and its vicinity to the surrounding marine environment and foreshore, a number of indirect impacts may affect the marine environment.

AFP has committed to a number of mitigation and management measures. These would assist in the protection and retention of the marine ecology of the adjacent environment and Sydney Harbour:

- Design features incorporated into the stormwater system would assist in maintaining current flows and improving water quality;
- The implementation of the Construction Environmental Management Plan (CEMP) (Gondwana Consulting Pty Ltd 2008) and Operational Environmental Management Plan (OEMP) (Gondwana Consulting Pty Ltd 2008); and
- The stringent implementation of an Erosion and Sedimentation Control Plan prior to construction.

However, failure to stringently implement the CEMP, OEMP or Erosion and Sedimentation Control Plan could result in impacts on adjacent environments including the Little Penguin breeding habitat and declared critical habitat which could put this population at risk of survival. Sedimentation of the rocky shore, reef and beach could also result in the smothering of existing marine fauna and marine vegetation resulting in a loss of biodiversity and a reduction in foraging resources for local fauna, including fish and coastal birds.

6 CONCLUSIONS

The AIPM site is located in an environmentally sensitive area especially with regard to its proximity to Sydney Harbour and declared critical habitat for the Little Penguin. Management of on site construction and operational issues through stringent ecological management should be given the highest priority.

It is considered unlikely that marine environments distant from Spring Cove have the potential to be impacted by this proposal as any potential adverse impacts would be relatively localised due to the nature of the proposal.

Redesign of several features of the stormwater system is likely to benefit water quality within Spring Cove. The redesign of the stormwater system which incorporates the existing system, the use of anti-scour / energy dissipation devices to minimise opportunities for erosion, reuse of stormwater on site and the installation of gross pollutant traps and Humeceptors to trap pollutants will result in no net increase in existing volumes of water being released whilst increasing water quality.

Stringent implementation of the measures outlined in the Construction Environmental Management Plan and Operational Environmental Management Plan (Gondwana Consulting Pty Ltd 2008) and implementation of an Erosion and Sedimentation Control Plan would ensure that the adjacent marine environments are not impacted through sedimentation and pollution events.

7 REFERENCES & CITED MATERIALS

Alison Hunt & Associates Pty Ltd 2008 **Australian Institute of Police Management Preferred Project Report. Ecological Assessment.** Prepared for Brewster Hjorth Pty Ltd.

CR Welsby Engineers Pty Ltd 2008 **Australian Institute of Police Management, North Head. Site Stormwater Assessment.** Prepared for the Australian Federal Police.

DEC & DPI 2005 **Draft Guidelines for Threatened Species Assessment**. Department of Environment and Conservation and Department of Primary Industries.

DECC 2007 **Threatened Species Profiles**. Department of Environment and Climate Change, Hurstville. http://www.threatenedspecies.environment.nsw.gov.au/index.aspx

DEH 2006 **EPBC Act Policy Statement 1.1 Significant Impact Guidelines**. Department of Heritage, Commonwealth of Australia, Canberra.

DEWHA 2008 **Protected Matters Search Tool – Matters of National Environmental Significance.** Online http://www.deh.gov.au/erin/ert/epbc/index.html.

JJ Marino & Associates 2008 **Stormwater Drainage Preferred Project Scheme**. 08-147 SW1A3, SW2A3 and SW3A3. Prepared for Brewster Hjorth Pty Ltd.

GHD Pty Ltd 2006 **Australian Institute of Police Management Facilities Upgrade – Ecological Assessment.** Prepared for United KFPW on behalf of the Australian Federal Police.

Gondwana Consulting Pty Ltd 2008 **Construction Environment Management Plan.** Prepared for Brewster Hjorth Pty Ltd on behalf of the Australian Federal Police.

Gondwana Consulting Pty Ltd 2008 **Operation Environment Management Plan.** Prepared for Brewster Hjorth Pty Ltd on behalf of the Australian Federal Police.

NSW NPWS 2000 **Endangered Little Penguins (*Eudyptula minor*) at Manly: Recovery Plan**. NSW National Parks and Wildlife Service, Hurstville.

NSW NPWS 2002 **Critical Habitat Declaration for the Endangered Population of Little Penguins (*Eudyptula minor*) at Manly (pursuant to s.40 and 43 of the Threatened Species Conservation Act 1995)**. NSW National Parks and Wildlife Service, Hurstville.

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