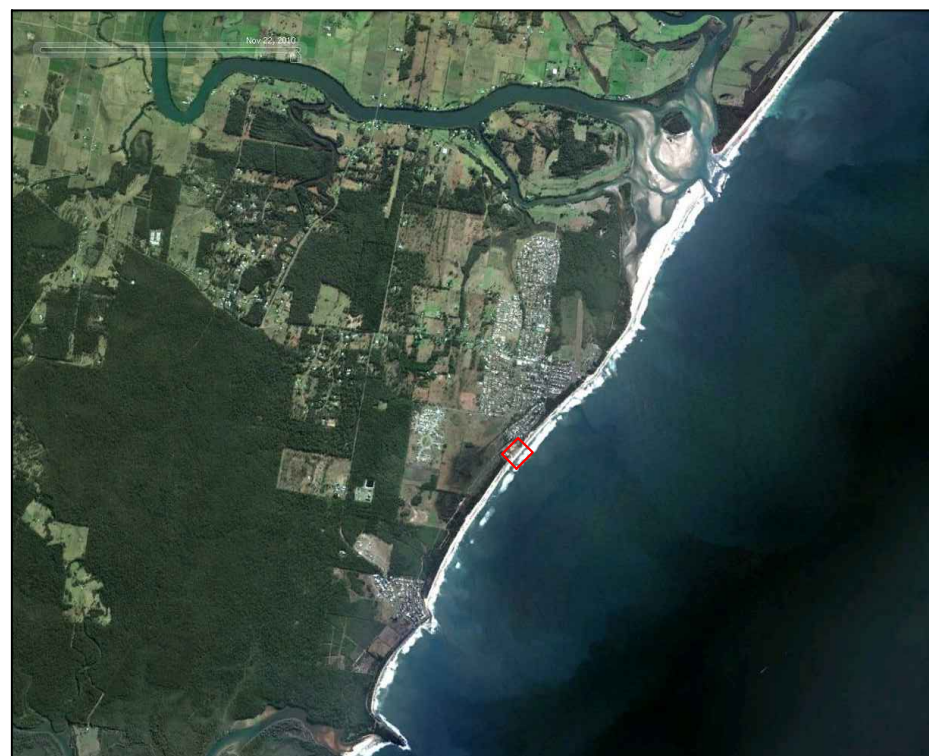




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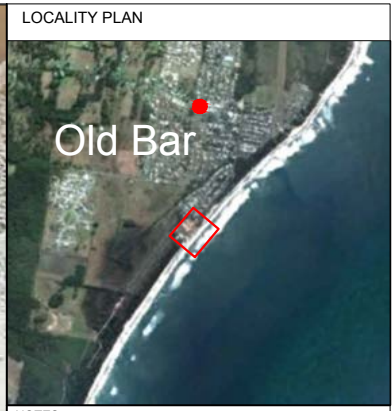
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OLD BAR EROSION PROTECTION WORKS

DRAWING REGISTER

OB-EPW-001 B	- GENERAL PLAN & RP INFO
OB-EPW-002 B	- LAYOUT INITIAL WORKS
OB-EPW-003 B	- CROSS SECTIONS A, B
OB-EPW-004 B	- TEMPORARY RETURN DETAIL
OB-EPW-005 B	- LAYOUT FUTURE EXTENSION
OB-EPW-006 B	- CROSS SECTION C



NOTES

1. Works to be entirely within the following properties:

RP Information - Lewis Street, Old Bar 2430	
Address	Title Reference
24	1/DP524933
26	1/DP617961
32	SP61034
34	B/DP381295
36	C/DP381295
38	SP76533
40	DP1028979

2. Extent shows initial works the subject of this approval. As erosion progresses, additional approvals may be obtained to allow the erosion protection works to be extended (for proposed alignment see drawing OB-EPW-005).

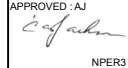
LEGEND

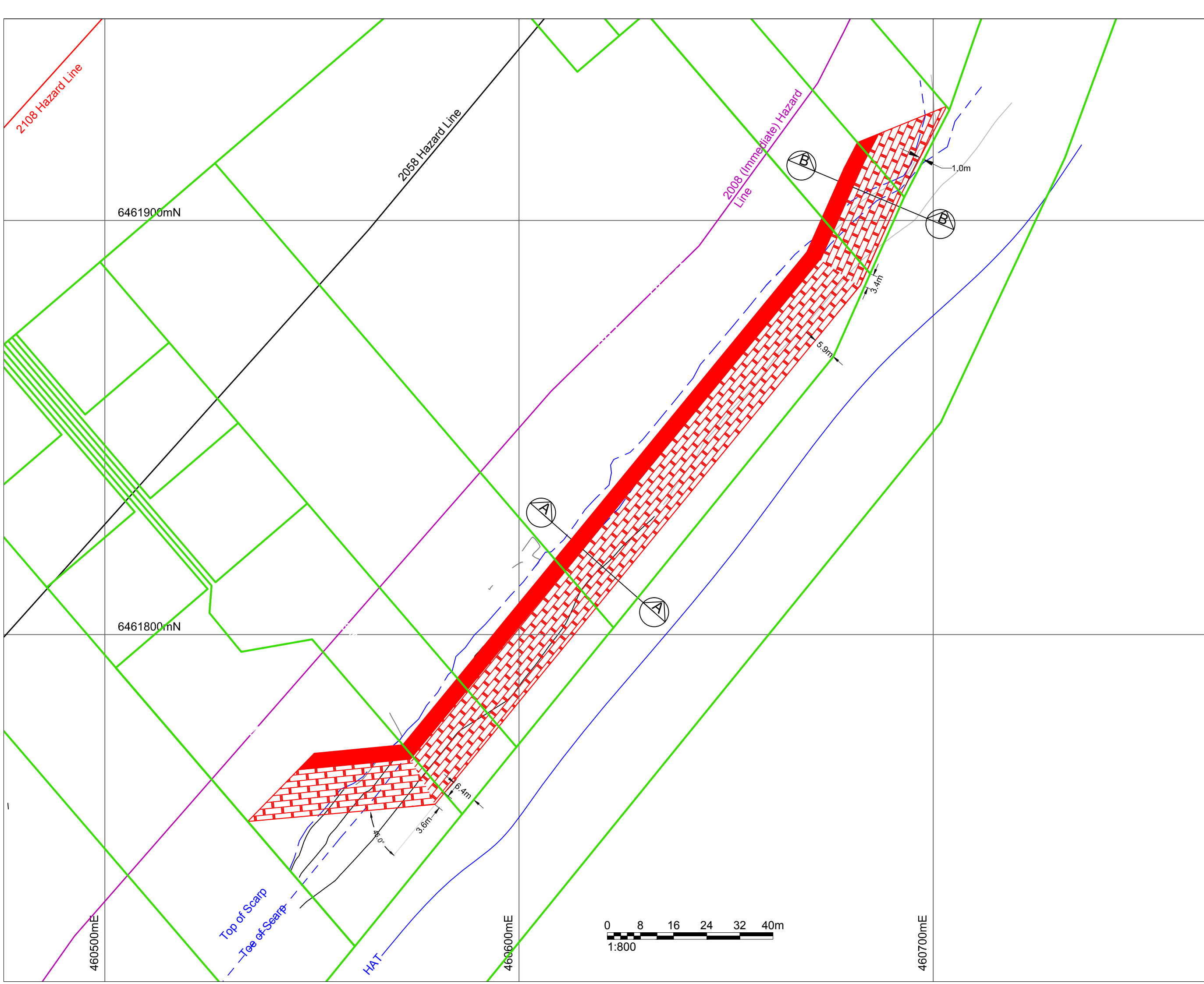
	Property Boundary
	Crest of Sand-filled Geotextile Container Wall
	Toe of Sand-filled Geotextile Container Wall

VERTICAL DATUM: AHD		HORIZONTAL DATUM: MGA				
REVISION REGISTER						
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B	14.6.13	Amended alignment		BC	BC	AJ
A	07/11/12	Design revision		MM	BC	AJ
REV.NO.	DATE	DESCRIPTION		BY	ENG.	APP.

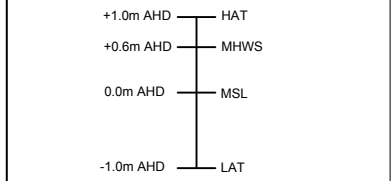


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PROJECT NAME OLD BAR - EROSION PROTECTION WORKS	
DRAWING TITLE GENERAL PLAN & RP INFO.	
DRAWING No. OB-EPW-001	REVISION: B
DRAWN : AB	CHECKED : BC
APPROVED : AJ  NPER3	
SIZE: A3	SCALE: 1:1000
DATE: 14 Jun, 2013	



- NOTES
- Offshore 100yr ARI Design Conditions [Worley Parsons Coastline Hazard Definition Study 2010]
 - Hs = 7.8m
 - Tp = 9.7sec
 - Surge = 1.5m AHD
 - Design Conditions at structure
 - Hs = 1.5m [allowing for erosion to 0.0m AHD]
 - Tp = 9.7sec
 - Surge + wave setup = 2.7m AHD
 - SLR = 0.9m
 - Max wave runup level 6.2m AHD
 - Survey by Mark Seales Consulting Surveyors 6th July 2010.
 - Alignment based on back of proposed crest along 2010 surveyed +6m AHD contour. It is expected that there has been some erosion since survey was undertaken.
 - Wall to be completely within private property.
 - For cross section, see drawing OB-EPW-003.
 - It is preferable for entire works to be constructed as a single project. This may not be possible. As such, works may be staged, with individual properties constructed independently if required. In this case, a temporary return will need to be constructed at intermediate boundaries in the interim. For detail of temporary return, see drawing OB-EPW-004.
 - Maintenance to be undertaken as required. This may include re-stacking after large events and repair / replacement of containers as required.



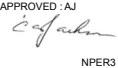


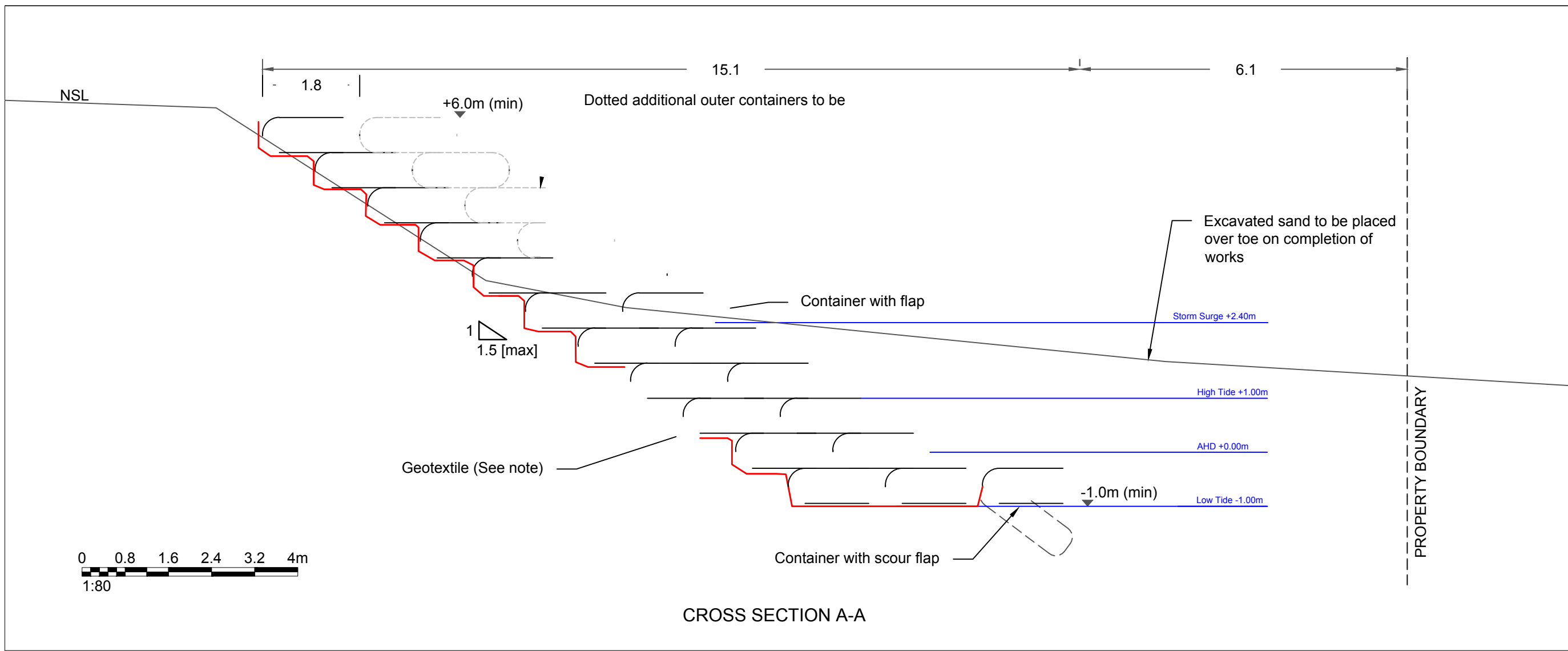
- LEGEND
- Property Boundary (green line)
 - Crest of Sand-filled Geotextile Container Wall (red hatched area)
 - Toe of Sand-filled Geotextile Container Wall (dashed blue line)

VERTICAL DATUM: AHD		HORIZONTAL DATUM: MGA			
REVISION REGISTER					
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B	14.6.13	Amended alignment	BC	BC	AJ
A	07/11/12	Design Revision	MM	BC	AJ
REV NO.	DATE	DESCRIPTION	BY	ENG.	APP.

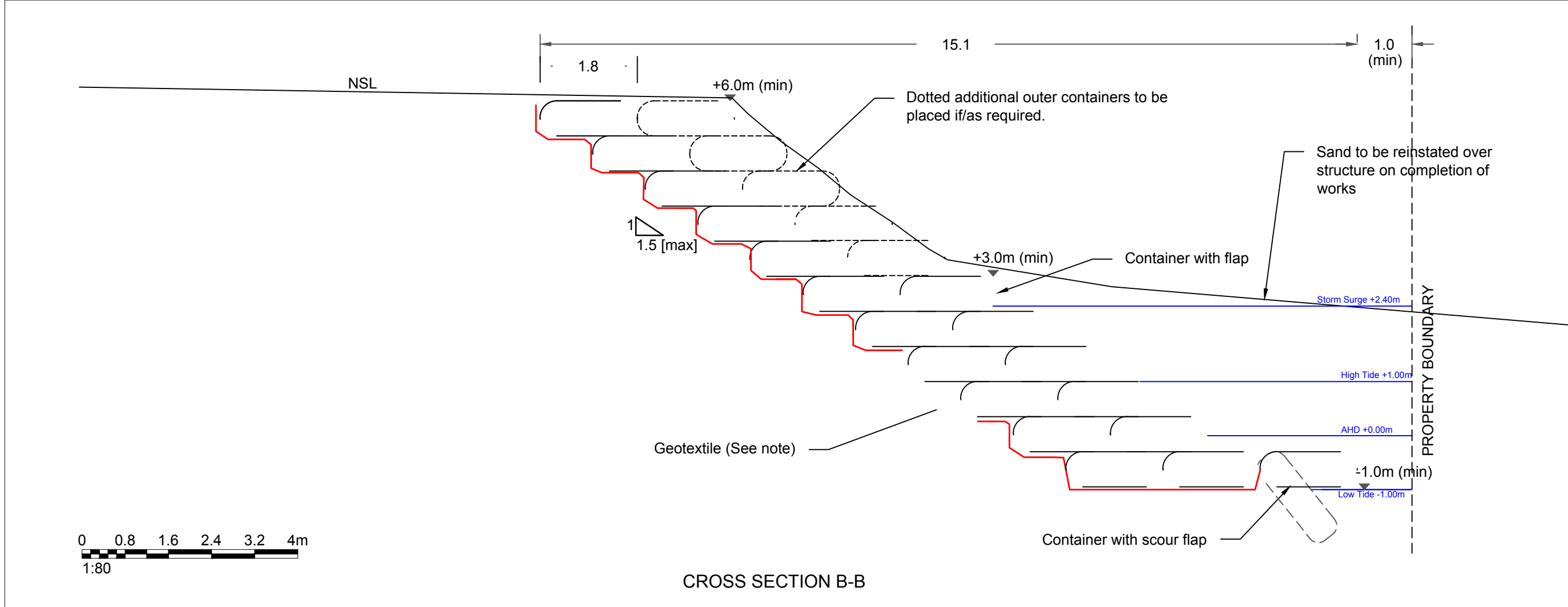


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PROJECT NAME OLD BAR - EROSION PROTECTION WORKS		
DRAWING TITLE LAYOUT - INITIAL WORKS		
DRAWING No. OB-EPW-002		REVISION: B
DRAWN : MM 	CHECKED : BC 	APPROVED : AJ  NPER3
SIZE: A3	SCALE: 1:800	DATE: 14 Jun, 2013



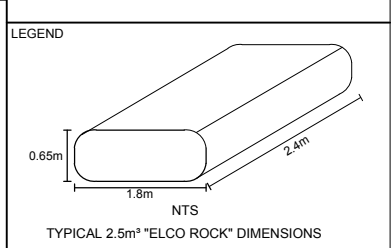
CROSS SECTION A-A



CROSS SECTION B-B



- NOTES
- All measurements are in meters.
 - Profile from Survey by Mark Seales Consulting Surveyors 6th July 2010.
 - For wall alignment, see drawing OB-EPW-002.
 - If excavation reveals substantial rock outcrops, containers may be founded on rock if approved by certifying engineer on site.
 - Geotextile underlay
 - To be ELCOMax 600R (or approved equivalent).
 - Each section to be overlapped 1m (min).
 - Sand filled Containers to be ELCORock (2.5m3) or suitable alternative.
 - To be fabricated using 1209RP geotextile (or approved equivalent). Containers which are not exposed may be fabricated using 1200R (or approved equivalent).
 - Containers to be sloped such that the landward side is 0-200mm lower than seaward side.
 - To be hydraulically filled using manufacturer's filling frame (or approved equivalent) and placed to manufacturer's specifications.
 - May be rotated to ensure independent interlocking and butted joints (like bricks).
 - To be laid so that filling ports are not exposed.
 - Re-handling to be minimised where possible.
 - Sand fill
 - Imported material to be clean sand free of organics and with a low fine content.
 - Containers to be filled using imported sand.
 - Backfill to be undertaken using imported sand.
 - Any excess sand (from importing or from excavation) to be placed on the beach in a natural profile.
 - Revegetation
 - Upon completion of the structure, any remaining scarp above the top of the structure is to be reprofiled to a stable batter without compromising the stability of adjacent structures.
 - Reprofiled areas should be stabilised with vegetation.
 - Maintenance
 - maintenance inspection to be undertaken at least yearly and after storm events.
 - wall to be maintained/repared regularly.



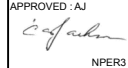


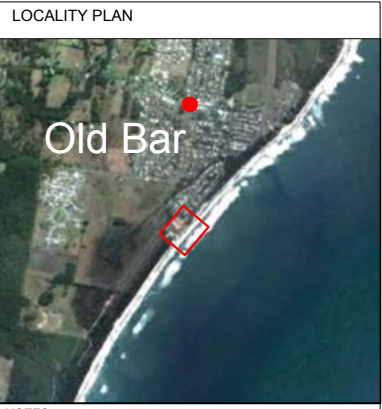
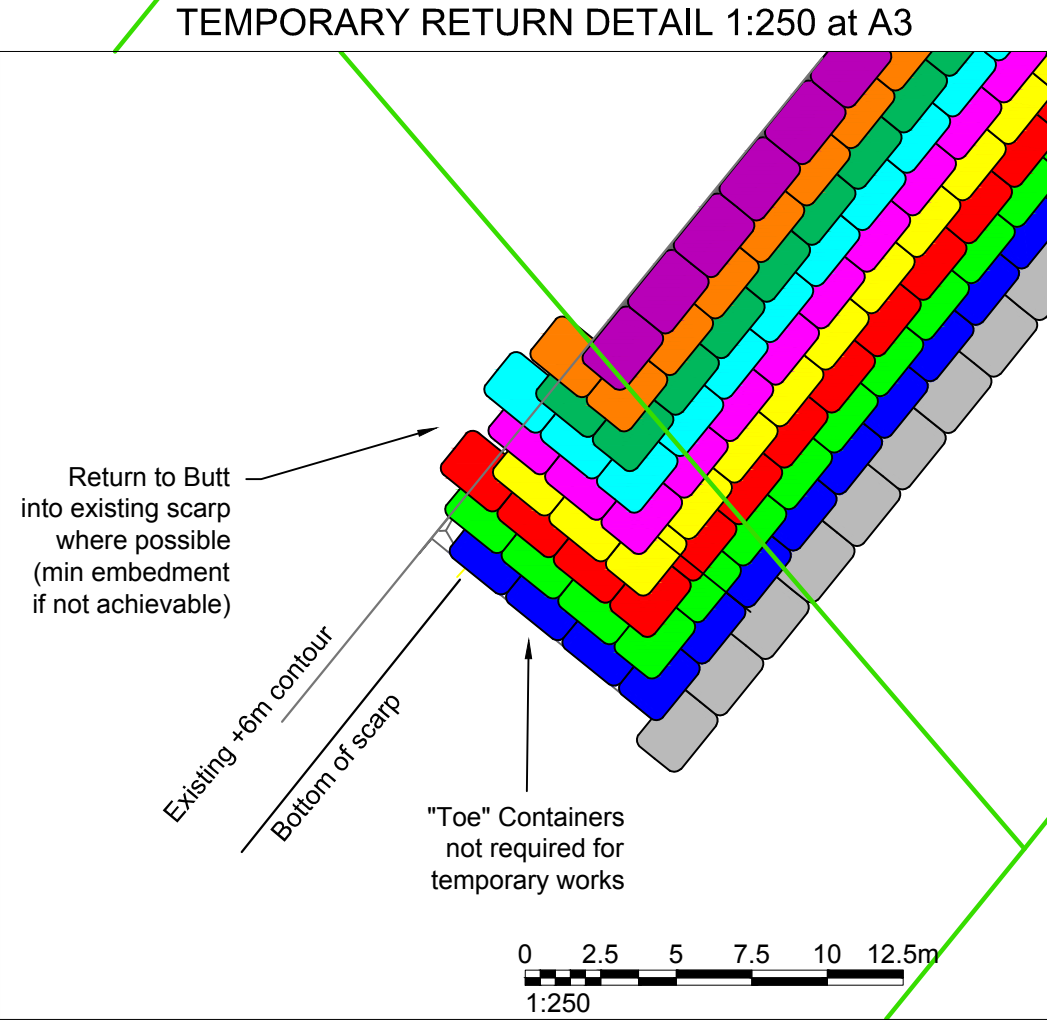
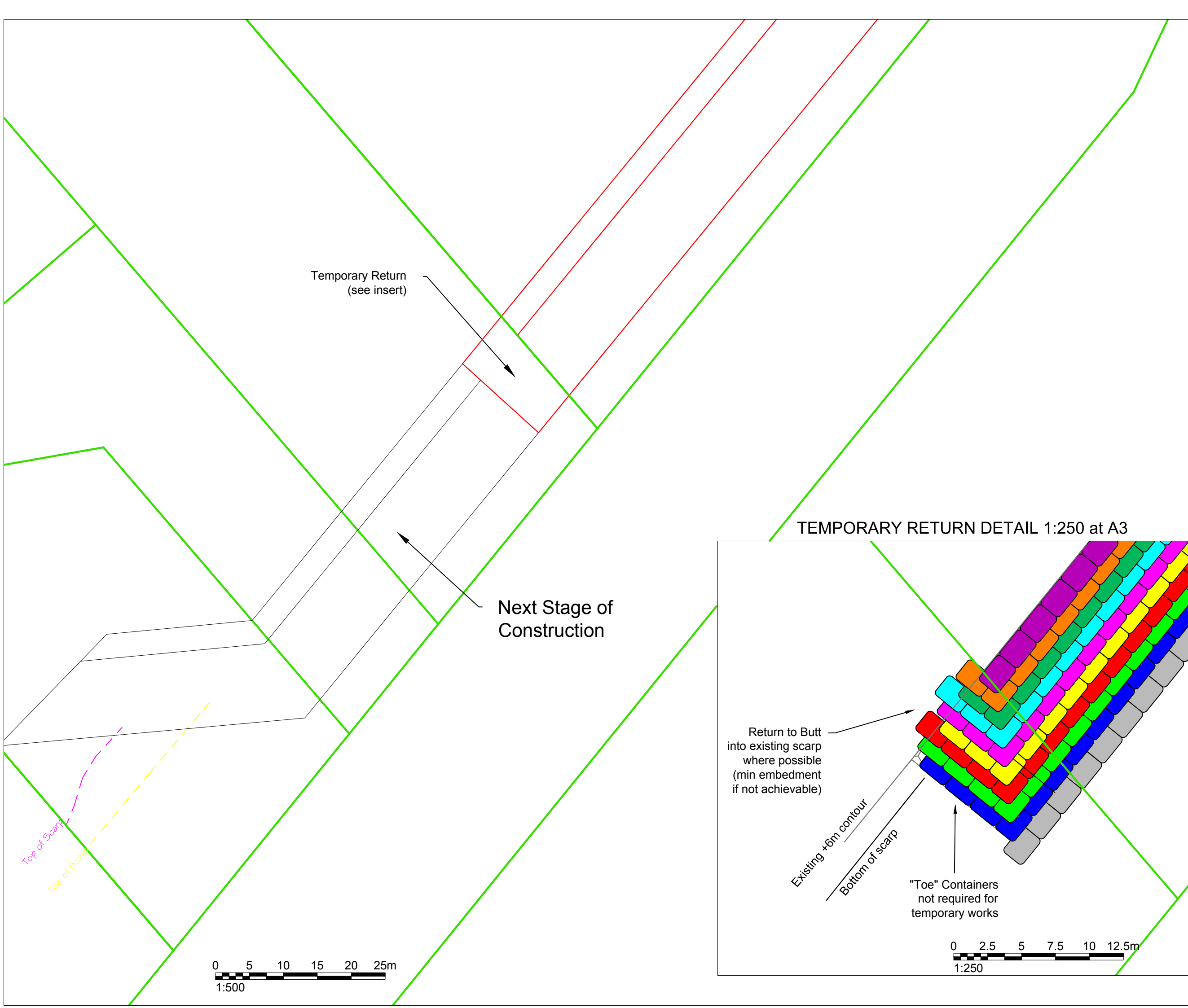
VERTICAL DATUM: AHD		HORIZONTAL DATUM: MGA			
REVISION REGISTER					
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B	14.6.13	Amended Alignment	BC	BC	AJ
A	07/11/12	Design Revision	MM	BC	AJ
REV.NO.	DATE	DESCRIPTION	BY	ENG.	APP.



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PROJECT NAME OLD BAR - EROSION PROTECTION WORKS		
DRAWING TITLE CROSS SECTION A, B		
DRAWING No. OB-EPW-003		REVISION: B
DRAWN: MM 	CHECKED: BC 	APPROVED: AJ  NPER3
SIZE: A3	SCALE: 1:80	DATE: 14 Jun, 2013



- NOTES
1. This drawing shows the temporary return with respect to staging of the works. Design is to provide as much integrity as possible during construction. It is not intended to provide protection over an extended period or in response to storm events.
 2. Return to extend so that each layer of containers abuts the existing scarp. If feasible or delays in construction are anticipated, return should be extended behind scarp.
 3. After construction of the temporary return, existing natural surface levels are to be reinstated (i.e. the excavation for the return is to be fully backfilled).
 4. Excavation for temporary return not to extend beyond the scarp without the prior consent (in writing) of the adjacent owner. Excavation to ensure that integrity of existing structures are not compromised.
 5. When adjoining section of wall is constructed, works are to integrate smoothly with the existing structures. This may necessitate some restacking of containers to ensure adequate interlocking. Containers which form part of the temporary return may be removed and used as part of the main structure or may be left in place.



LEGEND

VERTICAL DATUM: AHD		HORIZONTAL DATUM: MGA			
REVISION REGISTER					
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B	14.6.13	Amended Alignment	BC	BC	AJ
A	07/11/12	DESIGN REVISIONS	MM	BC	AJ
REV NO.	DATE	DESCRIPTION	BY	ENG.	APP.



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PROJECT NAME OLD BAR - EROSION PROTECTION WORKS	
DRAWING TITLE TEMPORARY RETURN DETAIL	
DRAWING No. OB-EPW-004	REVISION: B
DRAWN : MM 	CHECKED : BC 
SIZE: A3	SCALE: as shown DATE: 14 Jun, 2013



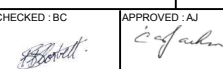
- NOTES
1. Ongoing erosion will threaten adjacent properties and Pacific Parade over time. A continuous and strategic approach to local protection is preferred and a suitable alignment has been nominated (red footprint) although additional approvals will be required to undertake these works.
 2. In the event that the proposed works are flanked and no adjacent works are undertaken the wall is to be extended as a return along the property boundary. Consideration will need to be given to presence of existing structures.
 3. See OB-EPW-006 for cross section C.

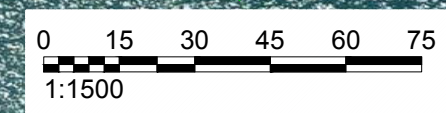
- LEGEND
- Property Boundary
 - Crest of Sand-filled Geotextile Container Wall
 - Geotextile Container Wall
 - Preferred future alignment of work (additional approval required).
 - Proposed return in the event that preferred alignment not pursued.

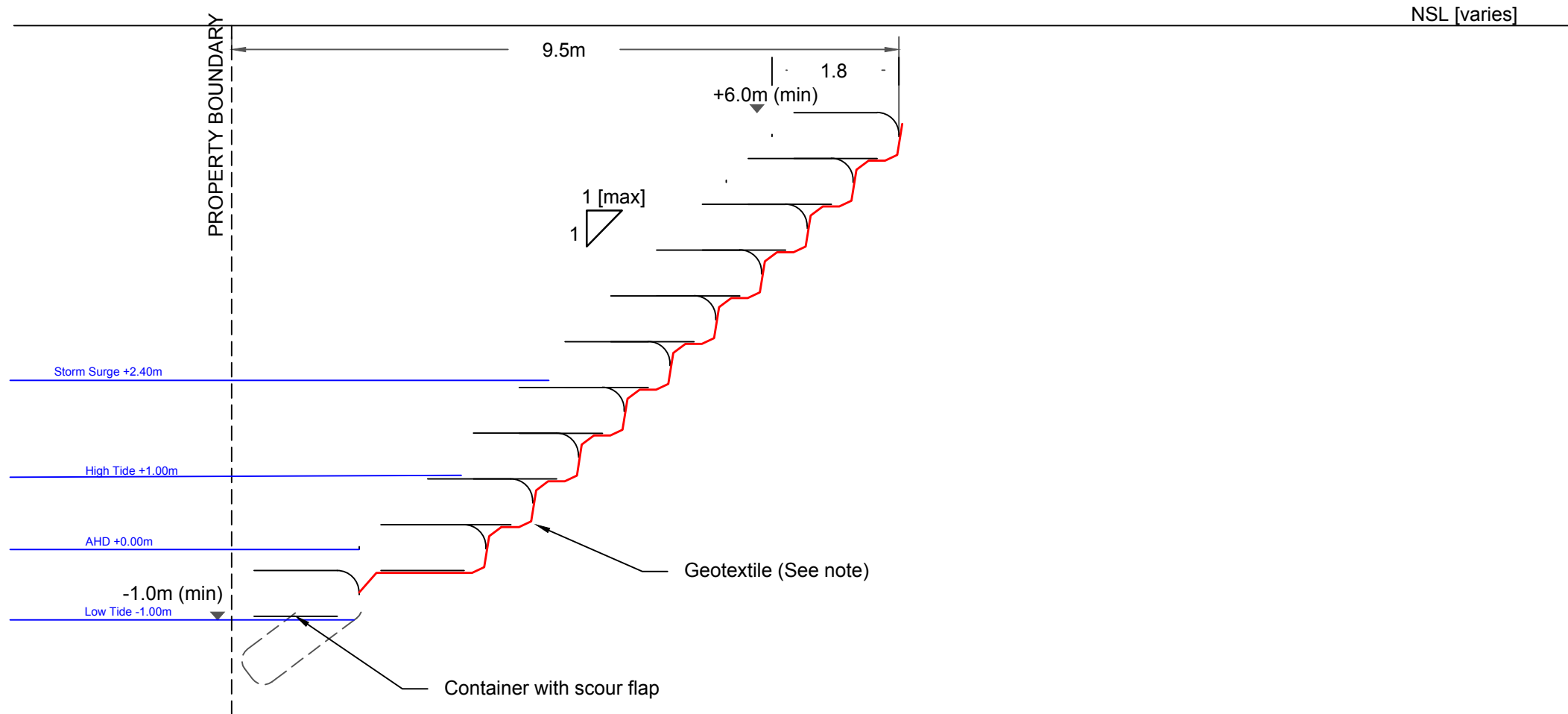
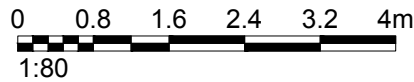
VERTICAL DATUM: AHD		HORIZONTAL DATUM: MGA			
REVISION REGISTER					
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B	14.6.13	Amended Alignment	BC	BC	AJ
A	16.1.13	Extent of Works Added	MM	BC	AJ
REV NO.	DATE	DESCRIPTION	BY	ENG	APP



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PROJECT NAME OLD BAR - EROSION PROTECTION WORKS	
DRAWING TITLE LAYOUT - FUTURE EXTENSION	
DRAWING No. OB-EPW-005	REVISION: B
DRAWN: MM	CHECKED: BC
APPROVED: AJ  NPER3	
SIZE: A3	SCALE: 1:800
DATE: 14 Jun, 2013	





CROSS SECTION C-C

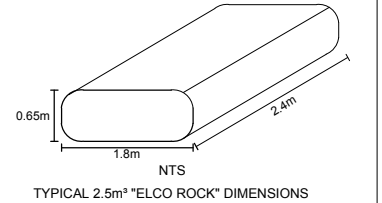
LOCALITY PLAN



NOTES

- All measurements are in meters.
- Profile from Survey by Mark Seales Consulting Surveyors 6th July 2010.
- For x-section location, see drawing OB-EPW-005.
- If excavation reveals substantial rock outcrops, containers may be founded on rock if approved by certifying engineer on site.
- Geotextile underlay
 - To be ELCOMax 600R (or approved equivalent).
 - Each section to be overlapped 1m (min).
- Sand filled Containers to be ELCORock (2.5m³) or suitable alternative.
 - To be fabricated using 1209RP geotextile (or approved equivalent). Containers which are not exposed may be fabricated using 1200R (or approved equivalent).
 - Containers to be sloped such that the landward side is level or lower than seaward side.
 - To be hydraulically filled using manufacturer's filling frame (or approved equivalent) and placed to manufacturer's specifications.
 - May be rotated to ensure independent interlocking and butted joints (like bricks).
 - To be laid so that filling ports are not exposed.
 - Re-handling to be minimised where possible.
- Sand fill
 - Imported material to be clean sand free of organics and with a low fine content.
 - Containers to be filled using imported sand.
 - Backfill to be undertaken using imported sand.
 - Any excess sand (from importing or from excavation) to be placed on the beach in a natural profile.
- Revegetation
 - Upon completion of the structure, any remaining scarp above the top of the structure is to be reprofiled to a stable batter without compromising the stability of adjacent structures.
 - Reprofiled areas should be stabilised with vegetation.
- Maintenance
 - maintenance inspection to be undertaken yearly and post storm events.
 - wall to be maintained/repared regularly.

LEGEND



VERTICAL DATUM: AHD HORIZONTAL DATUM: MGA

REVISION REGISTER

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REV NO	DATE	DESCRIPTION	BY	ENG	APP
A	07/11/12	Design Revision	MM	BC	AJ



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PROJECT NAME
OLD BAR - EROSION PROTECTION WORKS

DRAWING TITLE
CROSS SECTION C

DRAWING No. OB-EPW-006 REVISION: B

DRAWN : MM CHECKED : BC APPROVED : AJ
NPER3

SIZE: A3 SCALE: 1:80 DATE: 14 Jun, 2013