



Yorke Peninsula Council

30th May 2017

Point Turton Sea Wall Separate Rate Consultation Report June 2017



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| Consultation Endorsed by Council: | |

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INTRODUCTION

Raising of Separate Rate

Section 154 of the act permits Council to raise a separate rate on rateable properties, which will, or which it is intended will, benefit from a project or undertaking. The main legislative features of a separate rate are:

- It can be applied to rateable properties that benefit from the purpose of raising the separate rate;
- Money raised by these means cannot be put to any other use; and
- The separate rate must cease when the purpose has been completed and paid for.

In terms of the process, The Local Government Act, at **Section 151(5)(c)** provides that before the Council changes the imposition of rates on land by declaring a (new) separate rate, it is required to prepare a prescribed report on the proposed change and follow the steps set out in its public consultation policy. The report, which forms the basis of the consultation, is prescribed at Section **151(6)** of the Act and is required to address at least:

- The reasons for the proposed separate rate;
- The relationship of the proposal to the Councils overall rates structures and policies;
- Insofar as is reasonably practicable, the likely impact on the ratepayers; and
- Issues concerning community equity.

This consultation report is provided as information for the proposed specific part funding by Council of the Point Turton Sea Wall project as requested by the Point Turton Shack Owners Group and the subsequent declaration of a separate rate against specific properties within the area impacted as agreed.

In effect this process involves the granting of a fixed rate, fixed term loan by Council to specific shack owners who are unable to, or unwilling to, meet their portion of the costs of construction as determined by the majority of the group with all principal, interest and associated costs to be recovered via a separate rate declared on those same properties.

The separate rate will constitute the mechanism through which Council can recover the principal loaned, interest and associated costs should Council agree to provide the requested funding.



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A public notice has been placed in the YP Country Times advising the proposed declaration of a separate rate and inviting interested parties to:

- Access and consider the content of this report;
- Provide a written submission to Council; and/or
- Provide feedback at a public meeting

The consultation period opens on Thursday 15th June 2017 at 8.30am with all submissions to be received by Wednesday 5th July 2017 at 5.00pm.

The public meeting is to be held in the Minlaton Council Chamber at 6.00pm on Wednesday 21st June 2017.

Advice of the consultation will also be made available on Council's web site and social media site as well as letters sent to Progress Associations in the district and to each shack owner affected at Point Turton.

BACKGROUND

A request has been received from the Point Turton Shack Owners group via their appointed representative Mrs Caroline Roennfeldt in regard to the proposed sea wall construction project for which plans have been submitted compliant with approved Development Application 544/1446/2016.

This seawall is seen by the vast majority of the shack owners as urgent and mandatory following damage sustained to the foreshore at Point Turton during recent storm events in May and September 2016. The damage suffered to the cliff face is very severe and, in their opinion, threatens the existence of a number of the local dwellings should preventative measures not be undertaken as a matter of urgency. The group is certainly keen to reach a resolution on the matter as soon as possible.

The group engaged a professional engineer to design the required sea wall and have held several meetings and discussions aimed at gaining agreement on both the sea wall construction and the sharing of all costs. The sea wall is to be constructed on Crown Land and has the approval of the Coastal Protection Board. A copy of the report prepared by the professional engineer is attached as Appendix 1 along with the design document as Appendix 2.

The request from the Shack Owners group to Council is specifically for funding to be provided to certain shack owners who have indicated they cannot, or will not, source their allocated share of the total cost from their own resources at this time. This funding is requested in the form of a fixed interest, fixed term loan over either a 10 or 15 year period to be secured by a separate rate declared by Council on the properties that are unable to meet their agreed share of costs at this time.

From documentation supplied by the Shack Owners representative the total cost of the project is \$514,249 inclusive of GST of which the shack owners group have indicated they need to borrow a

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total amount of \$181,643 incl. GST across 6 properties – costs for the remaining 8 shacks will be met directly by the shack owners.

The total project cost has been sourced by the group through a tender process and formal quotes have been received.

It should be noted that Council is not being requested to contribute to the project either financially or in a project management, or any other, capacity. Council is not being asked to be responsible for the upkeep of any part of the sea wall in to the future, nor is it requested that Council accept any liability for risk or insurance relating to the sea wall. The request at this stage is simply for funding as outlined.

Details of the funding required by the group and agreed by 13 of 14 members of the group, is attached as Appendix 3 to this report with Lot numbers and names removed for privacy reasons.



DISCUSSION

ACTIVITY

1. Should Council agree to provide funding as requested (to be decided at Council's July 2017 meeting) a separate rate is proposed to be declared on those properties requiring funding from Council. The purpose of the separate rate will be to recover all principal advanced plus interest at a rate to be determined over a 10 year period, plus any agreed associated costs. Should Council agree to provide funding as requested the funds will be borrowed from the LGA Finance Authority at a fixed interest rate to be determined at the time of borrowing over a fixed term of 10 years as requested by the group.

REASONS FOR THE PROPOSED SEPARATE RATE

2. The Point Turton Shack Owners group have approached Council in regard to providing funding to specific shack owners for the purpose of construction of the approved sea wall, which the majority of the group see as urgent and essential to ensure their properties are adequately protected against damage from further storm events.
3. The separate rate on those properties who receive funding from Council will be declared to recover all principal, interest and any associated costs over a period equal to the term of the loan from which funding will be sourced.
4. While the sea wall is to be built on Crown land, Council are assessing how they can assist members of the community by possibly providing funding for the project at no cost to Council.
5. Given the sea wall is to be constructed on Crown land Council will not consider undertaking any role in the construction of the sea wall. Council considers that the existing rates base is inadequate to meet any costs for this project.
6. As such Council looks to the separate rate on affected properties to meet costs of the borrowings in order to protect all existing ratepayers from any excessive rate increases that may evolve should Council consider meeting any costs associated with this project.

RELATIONSHIP TO COUNCIL'S OVERALL RATES STRUCTURE AND POLICIES

7. Council's existing rates structure cannot cater for the proposed build of this sea wall nor costs associated with any borrowings to fund specific shack owner's contributions to the project.
8. Current rating structures have historically funded existing Council services in place today.
9. Council will not accept any responsibility going forward for maintenance, upkeep, rehabilitation, insurance, public liability for the sea wall as to do so would place pressure on Councils financial sustainability and in turn on existing and future ratepayers.



10. The proposed separate rate is independent from, and in addition to, the existing rating structure and is being introduced for the single purpose of recovering all costs of any funding provided for specific shack owners to cover a proportion of overall project costs.

LIKELY IMPACT ON RATEPAYERS

11. The separate rate will be declared only if funding is approved by Council as requested.
12. The separate rate will be declared to apply from the 2017/2018 financial year.
13. The separate rate will be declared for a period of 10 financial years based on the term of the loan secured from the LGA Financing Authority.
14. The separate rate will be declared as an amount equal to the amount repayable on the loan from the LGA Financing Authority plus any associated costs agreed with the specific ratepayers requiring funding.
15. Only ratepayers specified in any funding agreement relative to the construction of the Point Turton Sea Wall will be required to pay this separate rate.
16. Should ratepayers dispose of any property which is subject to the separate rate the amount payable for the separate rate shall be apportioned between the seller and the buyer in the normal manner at settlement date. The buyer will then assume liability for the remaining period of the separate rate.

ISSUES CONCERNING COMMUNITY EQUITY

17. Reliance on the Benefits Received principle suggests that (all other things being equal) a person who receives more benefits should pay a higher share of tax. The proposed separate rate will be applicable only to ratepayers who accept funding from Council and will be commensurate with the amount of funding provided to each ratepayer.
18. The proposed split of costs for the sea wall among the fourteen (14) properties situated at Point Turton and receiving benefit from the project has been determined by the Point Turton Shack Owners group.
19. The amount of funding required by specific ratepayers is determined by subtracting from the determined share of costs for each ratepayer any amounts being met directly by each ratepayer.

FUNDING PROPOSAL (if approved)

20. If Council agree to provide the requested funding following the consultation period all advances would be funded via loan from the LGA Finance Authority at fixed interest over a fixed ten (10) with the applicable interest rate determined by the LGA Finance Authority. Council will not need to allocate any amounts from existing reserves or revenue.
21. As is the usual process, interest rates applicable to the loan are to be determined at the time of drawing down of funds however the following table is provided as indicative of



repayments per \$10,000 borrowed for 10 year loans at an indicative rate of 4.25% p.a. (rate currently on offer)

22. Separate rates, when and if declared, will be calculated to recover 100% of these amounts plus any agreed associated costs. Each separate rate will be declared against each specific property for the determined period as per the final agreed allocation.

| | |
|--------------------------------------|------------------------------------------------------------|
| Per \$10,000 Borrowed | 10 year period Per Annum including Interest |
| \$10,000 | \$1,237.94 p.a. |

AREA

23. The separate rate shall be declared only for ratepayers who agree to specific funding agreements with Council or who decline to meet their designated share of costs for the proposed project.

BASIS OF CHARGING

24. The separate rate will be declared on a per allotment basis.
25. The separate rate will be declared to recover repayments including interest and any agreed associated costs in proportion with the amount of funding provided for each allotment.
26. The current proposed split of costs for the sea wall among the ratepayers situated at Point Turton is has been determined and agreed by the majority of the Point Turton Shack Owners group.
27. The amount of funding required by specific ratepayers is determined by subtracting from the determined share of costs for each ratepayer, any amounts being met directly by each ratepayer.

PERIOD OF RATING

28. To be discussed during the consultation period however will be equal to the term of any loan sourced from the LGA Finance Authority. This term has been requested by the representative of the Point Turton Shack Owners group to be ten (10) years.
29. The separate rate can be declared for a specified period (e.g. the term applicable to any relevant loan sourced for the purpose) and may be declared for a period exceeding one year.
30. It is proposed that the separate rate will be declared for the duration of the loan sourced to provide agreed funding as an equal charge each financial year.



POSTPONEMENT OF PAYMENT

31. It is not proposed that the separate rate will be postponed. It will be due and payable (annually or quarterly under normal conditions of payment of rates) immediately following declaration.
32. In accordance with usual conveyancing practices, if an allotment over which a separate rate has been declared is sold, the full year's rate will be adjusted as between the vendor and purchaser. The purchaser will then assume liability for any remaining separate rate amount for the term of the separate rate under the same conditions.
33. Should any ratepayer liable for the separate rate, at any time, believe that the payment of this rate causes undue hardship for them they can apply to Council for consideration under Section 182 of the Local Government Act 1999. Section 183 details that if Council is satisfied on the application of a ratepayer that payment of rates in accordance with the Act would cause hardship, the Council may postpone payment on whole or in part for such period as the Council thinks fit.
34. This application can only occur after the declaration of the separate rate.

REMISSION

35. No remissions shall apply to the separate rate once it is declared.

REBATES

36. A Council may grant a discretionary rebate of rates or service charges in specific circumstances on such conditions as the Council sees fit. Council will give reasonable consideration to the granting of rebates on merit. Council complies with the provisions in relation to the Local Government Act 1999 in regard to rebates and has an existing policy: PO 060 Rates Relief Policy.

CONSULTATION PLAN TIMETABLE

- | | |
|--------------------------------------------------------|-----------------|
| • Council Meeting to endorse Community Consultation | 14 June 2017 |
| • Advertise consultation | 15 June 2017 |
| • Public Meeting as Information Forum and Debate | 21 June 2017 |
| • Additional Public Meeting | TBA if required |
| • Cut-off date for written submissions (at 5.00pm) | 5 July 2017 |
| • Council Meeting to Consider Feedback & Separate Rate | 12 July 2017 |

FEEDBACK ON PROPOSED FUNDING AND PROPOSED SEPARATE RATE(S)

Written submissions are being sought on the proposed declaration of separate rates on rateable land situated at Point Turton identified as requiring funding from Council to assist in meeting of costs as determined by the Point Turton Shack Owners group for the purpose of construction of



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a specified sea wall and associated infrastructure. Such separate rate will only be declared if Council agrees to provide such funding – to be determined at Council’s July 2017 Council Meeting.

All submissions should be submitted to:

Point Turton Sea Wall Funding Consultation
Yorke Peninsula Council
PO Box 57, Maitland SA 5573

or:

admin@yorke.sa.gov.au With “Attention Director CCS – Point Turton Separate Rate” in the heading

By no later than 5.00pm on 5 July 2017

If you have any queries in relation to this Consultation Report please contact David Harding, Director Corporate & Community Services on 08 8832 000 or email: david.harding@yorke.sa.gov.au

ANDREW CAMERON

CHIEF EXECUTIVE OFFICER

Yorke Peninsula Council

Point Turton Sea Wall Separate Rate Consultation Report

COASTAL EROSION ASSESSMENT

at

90-124 NORTH COAST ROAD

POINT TURTON

for

SHACK OWNERS

Project No: 16254
September, 2016

GENERAL

The properties at 90-124 North Coast Road are located at the top of a cliff, facing north towards the sea. The beach is at the base of the cliff. The northern boundaries are 10-15m from the bottom of the cliff. Property frontages vary from 16m to 33m. North Coast Road runs approximately east/west at the rear (southern side) of the properties.

The houses are generally single storey of various constructions.

The majority of the properties have existing steps down the face of the beach. The bottom sections of many of these steps have been damaged due to erosion and wave action. There is significant erosion of the ground adjacent in a number of cases.

Some property owners have installed rocks or concrete at the base of the cliff in an effort to reduce erosion at the base of the cliff.

The entire cliff face and beach are located on crown land.



WATER LEVELS AT SITE

Water levels at site, as referenced from the Tide Tables for South Australian Ports published by Flinders Ports are:

| | |
|--------------------------|--------|
| | AHD |
| Mean Higher High Water | + 0.44 |
| Mean Sea Level | - 0.16 |
| Lowest Astronomical Tide | - 0.96 |

The 1 in 100 year Average Return Interval (ARI) High Water level for the area is approximately 2.0m AHD.

These levels have been adjusted relative to Australian Height Datum (AHD).

The 1 in 100 year ARI High Water Level is the average highest water level which would occur once in a one hundred year period, or the level which has a probability of exceedance of 1% in any one year. It is determined from water level records by The National Tidal Facility of the Bureau of Facility.

These levels are in AHD, which is the same datum as the site levels shown on the attached survey by Mosel Steed Surveyors.

In addition to this, sea level rise at the site is expected to be 0.3m to 2050 and up to an additional 0.7m to 2100. These are additional to the figures above.

BEACH AND CLIFF FACE LEVELS

The top of the cliff face is at around 6 to 9m AHD. The base of the cliff at the beach is at around 1.2 to 2.65m AHD.

Generally the base of the cliff has a layer of harder sandstone approximately 0.5m thick, outcropping at the top of beach. This harder layer is undercut in some places.

ROCK/CLAY LAYER LEVELS

A geotechnical investigation was conducted to determine the depth to a solid stratum that will resist erosion, to found the base of the rock wall on. A suitable base is hard clay or rock. The level of this layer varied substantially along the beach, from -0.65m AHD to 1.9m AHD. Refer to geotechnical investigation and chainage sections on drawings 16254-7-8.

CURRENT EROSION OF CLIFF FACE

The following photos show the cliff face and the extent of the erosion damage in front of each property starting from the eastern end (at time of geotechnical investigation, 28th July 2016).



Figure 1- Severe erosion of lower half of cliff in front of the eastern carpark.



Figure 2- Severe erosion and undercutting adjacent the concrete steps in front of the eastern carpark.



Figure 3- Severe erosion in front of block 92 (Crown land).



Figure 4- Severe erosion in front of shack 94.



Figure 5- Severe erosion in front of block 96 (Crown land).



Figure 6- Temporary concrete protection in front of shack 98, some undercutting evident.



Figure 7- Rock/concrete retaining wall in front of shack 100, erosion adjacent.



Figure 8- Severe erosion of bottom half of cliff in front of shack 102.



Figure 9- Rock/concrete retaining wall in front of shack 104, slumping/erosion of cliff adjacent.



Figure 10- Severe slumping/erosion of bottom section of cliff in front of shack 106, lower section of concrete steps broken off.



Figure 11- Severe slumping/erosion of bottom section of cliff in front of Crown land and shack 108.



Figure 12- Erosion of cliff in front of shack 110. Cliff face is clay as oppose to sand. Many large rocks on beach around base of cliff.



Figure 13- Moderate erosion in lower section of cliff front of shack 112.



Figure 14- Moderate erosion in lower section of cliff front of shack 114.



Figure 15- Moderate erosion in lower section of cliff and undercut sandstone at base, in front of shack 116.



Figure 16- Moderate erosion in lower section of cliff and undercut sandstone at base, in front of shack 120 and in front of 118 (Crown Land) adjacent.



Figure 17- Severe erosion in lower half of cliff with rocks at base, in front of block 122 (Crown Land).



Figure 18- Moderate erosion in lower section of cliff and undercut sandstone at base, in front of shack 124.



Figure 19- Rock/concrete erosion protection at base of cliff in front of shack 126.

The cliff face generally is uncompacted dune sand. In these areas the lower half of the cliff is substantially unvegetated and is loose and collapsing sand. The upper half of the cliff face is either vegetated or covered in a loose rock scree.

The cliff face is generally 1:1 (horizontal:vertical) to 1:2 slope, but some local areas are steeper than 1:1. The steeper areas are a result of erosion of the lower half of the cliff, causing collapse of the cliff over. It is critical that these sections are protected from further erosion of the cliff.

The beach in front of the cliff is generally flat and shows a slope of 1 in 20 generally. The beach is sand with gravel over. There are large areas of sandstone outcropping that occurs on the beach as well as at the water line. Although it appears hard, the geotechnical investigation proved the layer could be broken through using hand drilling methods. This sandstone layer may not be erosion resistant during heavy wave action in the longer timeframe.

There are many areas of rocky reef on the beach, as shown on the survey on drawing 16254-2-5. This rocky reef is prominent at the eastern end in front of the carpark and at the western end in front of shack 124. The beach should not erode in these areas and provides a good place to tie in the seawall at the end.

DISCUSSION- CAUSE OF EROSION ON SITE

The erosion on the cliff face in front of 90-124 North Coast Road is of two different types. The erosion at the base of the cliff is from wave action. This can be seen in the undercutting of the outcropping sandstone.

The tide levels in the area reach to 0.44m AHD at Mean Higher High Water, which is well below the bottom edge of the cliff face at the top of the beach. Hence, wave action will only reach the cliff base in times of severe storm action, when the water level is artificially raised and waves are superimposed onto this higher water level.

It should also be noted that the site is north facing and generally subject to locally generated wind waves from the northern quadrant. These will only occur when the northerly winds tend to push the water south, and out of the gulf. This will tend to lower the local water level. The site is well protected from approach by swell waves entering from the south through the mouth of Spencer Gulf.

The majority of the beach itself is well protected from further erosion by the outcropping of areas of sandstone and reef. This implies that the beach will not lower. However, the geotechnical investigation shows a number of sections of the beach to have fine grained sand in the top layer. This has the potential to erode and may lower the beach level in some areas. We have allowed for this when considering the maximum wave height at the base of the cliff.

The erosion further up the slope, generally from halfway down to the bottom of the slope is from slumping sand, de-vegetation and wind effects. This is generally destabilized sand dune, which is too steep to revegetate naturally. This slumping can be seen around the concrete steps in front of the carpark at the eastern end, and in front of shacks 92 to 96.

The erosion of the upper sections of the cliff face is exacerbated by the stormwater runoff over the top edge of the cliff, as can be seen in front of the carpark area.

RECOMMENDED WORKS

Due to the limited wave attack on the base of the cliff, the following is proposed:

1. Edge the base of the cliff in rock protection up to 3.0m AHD to prevent wave erosion. This is undertaken by:
 - Remove and dispose of existing steps and erosion protection (rocks/concrete) at base of cliff, as required.
 - installation of geofabric to prevent washout of sand under/behind the wall
 - installation of smaller secondary armour rock
 - installation of larger primary armour rock to resist wave attack.

This rock armour has been designed to resist wave attack of waves up to 1.0m high (above still water level) and a water level of 2m AHD. The waves in this instance are depth limited. Details of the rock armour are shown on our drawing 16254-6.

If sea level rises to the levels predicted to 2100, it will be possible to place additional geofabric, secondary armour and primary armour over the top of the wall when necessary. This will include removal of all private stairway access from the cliff top to the beach.

2. Stabilize the front cliff face generally as follows:
 - Add new compacted fill where required, to achieve a cliff slope of 1:1 or flatter.
 - add top soil to devegetated areas and on top of new fill.
 - seed the areas which have been top soiled and/or devoid of vegetation.
 - install a double thickness layer of Geofabrics Jute Mesh over the areas of slope which have had top soil added and/or are devoid of vegetation. Install Jute Mesh with propriety metal pins 30mm x 300mm x 4mm Ø, at the rate of 5 pins/m² ensuring that all laps of Jute are fully pinned
 - water to promote germination and plant growth.

Refer to Magryn drawings and technical specification for further details on landscaping/planting.

3. Upgrade the stormwater disposal from the eastern carpark (old swimming centre) as follows:
 - Add new compacted fill where required adjacent the western side of the existing concrete steps, to achieve a cliff slope of 1:1 or flatter.
 - Excavate trench for new concrete pipe, shotcrete bottom of trench to provide base for pipe.

- Install new 450x450mm concrete sump connected to a new 225mm diameter concrete stormwater pipe, discharge to toe of rock armour at the base of the cliff.
- Re-grade carpark area to collect runoff water to new pit.
- Provide a 3x3m rip rap apron on geotextile for scour protection at the pipe outlet.

Refer to Magryn drawings and technical specification for further details on stormwater.

For Magryn & Associates Pty Ltd



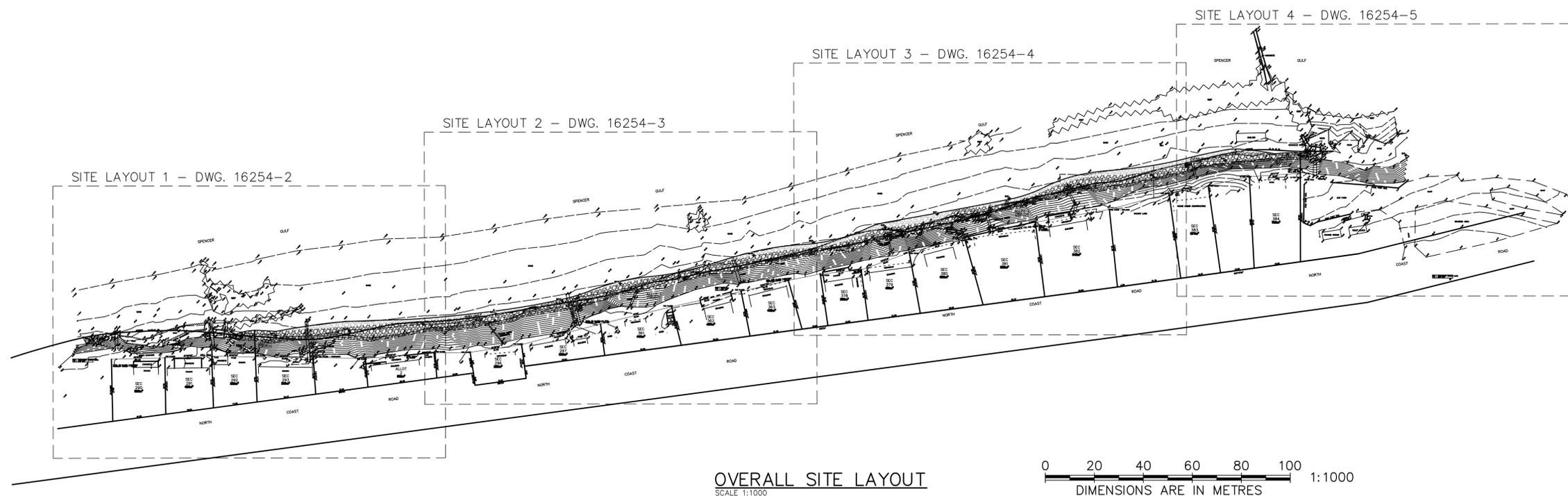
Will Souter
B.Eng

Attachments:

- Magryn drawing 16254-1-8 revision B, including base survey by Mosel Steed Surveyors.
- Magryn technical specification
- Geofabrics Jute Mesh & Pinning installation sheets

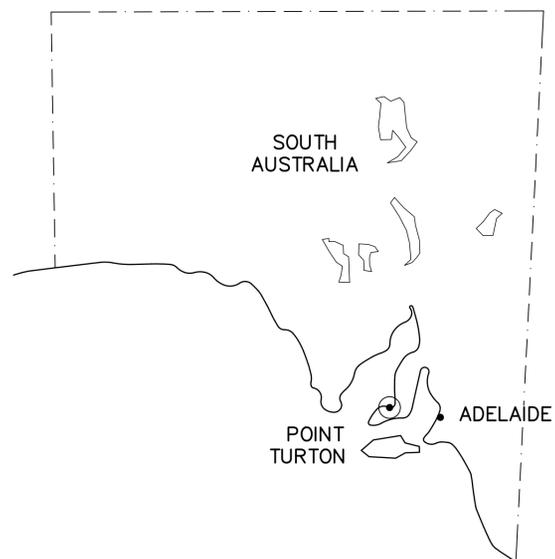
SEAWALL DESIGN

POINT TURTON, SOUTH AUSTRALIA.



OVERALL SITE LAYOUT
SCALE 1:1000

0 20 40 60 80 100 1:1000
DIMENSIONS ARE IN METRES



PROJECT DRAWINGS

- 16254-0 REV D - COVER SHEET
- 16254-1 REV D - NOTES
- 16254-2 REV D - SITE LAYOUT 1
- 16254-3 REV D - SITE LAYOUT 2
- 16254-4 REV D - SITE LAYOUT 3
- 16254-5 REV D - SITE LAYOUT 4
- 16254-6 REV D - TYPICAL SECTION & DETAILS
- 16254-7 REV D - CHAINAGE SECTIONS
- 16254-8 REV D - CHAINAGE SECTIONS

| | | |
|-------|-------------------|-------------|
| D | NO CHANGES | WS 01.11.16 |
| C | NO CHANGES | AW 12.10.16 |
| B | NO CHANGES | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
| ISSUE | AMENDMENTS | INT./DATE |

PRELIMINARY
THE ARRANGEMENT SHOWN IS FOR DISCUSSION PURPOSES ONLY.
IT MUST NOT BE USED FOR CONSTRUCTION.

| | | | |
|---------------------------------------------------------------------------|-----------------------------------|--------------------------|----------------------------------------------------------------------|
| TITLE: OVERALL SITE LAYOUT | | | CLIENT: SHACK OWNERS GROUP |
| DATE: AUG. 2016 | | | PROJECT: SEAWALL |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | SCALE: AS SHOWN | DESIGN: WS | |
| REVISION: D | DRAWING NUMBER: 16254-0 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON |

ENGINEERING CONSULTANTS

- > MINING
- > STRUCTURAL
- > COASTAL
- > CIVIL

267 BRIGHTON ROAD
SOMERTON PARK, SA 5044
TELEPHONE: (08) 8295 8677
www.magryn.com.au



GENERAL NOTES

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH SITE INSTRUCTIONS AS MAY BE ISSUED.
- G2. ANY DISCREPANCY BETWEEN DRAWINGS OR SPECIFICATIONS SHALL BE REPORTED TO THE SUPERINTENDENT BEFORE WORK PROCEEDS.
- G3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE, DRAWINGS SHALL NOT BE SCALED.
- G4. ALL CONSTRUCTION SHALL BE MAINTAINED IN A STABLE CONDITION DURING ERECTION AND OVERSTRESSING SHALL BE PREVENTED. WHERE NECESSARY PROVIDE ALL TEMPORARY BRACING. LEVELS ARE SHOWN TO AUSTRALIAN HEIGHT DATUM AND ARE IN METRES.
- G5. DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- G6. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE RELEVANT SAA CODES INCLUDING ALL AMENDMENTS, AND THE LOCAL STATUTORY AUTHORITIES EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- G8. NO SUBSTITUTIONS SHALL BE MADE OR SIZES OF STRUCTURAL MEMBERS VARIED WITHOUT OBTAINING THE APPROVAL OF THE ENGINEER, THE APPROVAL OF SUBSTITUTION FROM THE ENGINEER SHALL NOT BE AN AUTHORISATION FOR AN EXTRA. AUTHORISATION FOR ANY VARIATION SHALL BE OBTAINED FROM THE SUPERINTENDENT IN WRITING PRIOR TO ANY WORK COMMENCING.

CO-ORDINATION

THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION WITH GOVERNMENT INSTRUMENTALITIES AND PROVISION OF THEIR SERVICES (TELEPHONE, WATER SUPPLY, SEWER, ELECTRICITY) AND WITH THE SUPERINTENDENT.

THE CONTRACTOR SHALL PROVIDE 24 HOURS NOTICE TO THE SUPERINTENDENT SO THAT HE MAY ARRANGE INSPECTION OF THE FOLLOWING STAGES OF WORK:

- COMPLETION OF EXCAVATION PRIOR TO PLACING OF FILL.
- COMPLETION OF COMPACTED FILL AND PLACEMENT OF GEOTEXTILE, PRIOR TO PLACEMENT OF ROCK ARMOUR.
- COMPLETION OF PLACEMENT OF ROCK ARMOUR.
- AS OTHERWISE NOTED IN THE SPECIFICATION OR REQUESTED BY THE SUPERINTENDENT.
- COMPLETION OF PLACEMENT OF FILL AND TOPSOIL ON EMBANKMENT, PRIOR TO PLACEMENT OF JUTE MESH.

SURVEY

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING SURVEY WORKS TO BE CARRIED OUT BY A LICENSED SURVEYOR:

- SETTING OUT THE WORKS.
- "AS CONSTRUCTED" SURVEY, WHICH SHALL BE SUBMITTED TO THE SUPERINTENDENT PRIOR TO DEMOBILISING FROM SITE.

THE CONTRACTOR SHALL SUPPLY A SET OF AS CONSTRUCTED DRAWINGS TO THE SUPERINTENDENT ELECTRONICALLY IN FORMAT AUTOCAD INDICATING ALL VARIATIONS AND DEPARTURES FROM THE CONTRACT DRAWINGS OR WHERE PARTICULAR LOCATIONS OR INFORMATION HAVE NOT BEEN SHOWN.

EXISTING SERVICES

ALL EXISTING SERVICES ARE TO BE LOCATED PRIOR TO CONSTRUCTION COMMENCING. ALL SERVICES TO EXISTING BUILDINGS MUST BE MAINTAINED AT ALL TIMES, EXCEPT WHEN IT BECOMES NECESSARY TO CUT INTO OR ALTER THEM; IN WHICH CASE THE CONTRACTOR WILL BE REQUIRED TO CONFER WITH THE SUPERINTENDENT TO OBTAIN THE MOST SUITABLE TIMES TO CARRY OUT SUCH WORK. THE CONTRACTOR MUST ALLOW FOR ALL COST, WHICH MAY BE INCURRED OR TEMPORARY SERVICES TO CARRY OUT THE ABOVE.

HOURS OF WORK

THE CONTRACTOR SHALL NOT UNDERTAKE WORK ON SITE PRIOR TO 7AM OR AFTER 6PM, OR ANYTIME ON A SUNDAY, OR PUBLIC HOLIDAY WITHOUT PRIOR WRITTEN PERMISSION FROM THE SUPERINTENDENT.

INSURANCES

THE CONTRACTOR SHALL OBTAIN ALL INSURANCES AS REQUIRED BY THE CONTRACT PRIOR TO COMMENCING ON SITE, AND SHALL FORWARD CERTIFICATES OF CURRENCY OF THESE TO THE SUPERINTENDENT PRIOR TO TAKING POSSESSION OF THE SITE.

FENCING AND SECURITY

THE CONTRACTOR SHALL ERECT FENCING AROUND THE SITE AND SHALL ENSURE IT IS SECURE FROM UNAUTHORISED ENTRY BY THE PUBLIC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY.

SEAWALL NOTES

- B1. RUBBLE AND ROCK ARMOUR IS TO BE DURABLE, HARD, ANGULAR AND ROUGH BROKEN. A SAMPLE OF ROCK TO BE SUBMITTED FOR APPROVAL. (UNIT WEIGHT = 26kN/m³ MIN.)
- B2. ROCK SIZES SHOWN IN LAYER ARE NOMINAL MINIMUM SIZES.
- B3. ALL ROCK TO BE ROUGH STACKED AND RANDOMLY PLACED. CONTRACTOR IS TO AVOID EVEN OR SMOOTH PLACEMENT.
- B4. GEOTEXTILE IS TO BE PLACED OVER THE SURFACE PRIOR TO ARMOUR PLACEMENT IN ALL CASES.
- B5. GEOTEXTILE IS TO BE TERRAFIX 1200R OR EQUAL APPROVED.
- B6. LAP JOINTS OF GEOTEXTILE 400mm MINIMUM.

DEMOLITION NOTES

THE FOLLOWING IS TO BE DEMOLISHED BEFORE CONSTRUCTION OF THE SEAWALL.

- EXISTING ACCESS STEPS FROM PRIVATE PROPERTIES.
- BOAT LAUNCHING RAILS.
- EXISTING TEMPORARY EROSION CONTROL ALONG BASE OF CLIFF SUCH AS ROCKS, CONCRETE, RETAINING WALLS. CLEAN ROCK MAY BE REUSED IF SUITABLE.

ALL WASTE MATERIALS TO BE REMOVED FROM SITE AND DISPOSED OF APPROPRIATELY.

SITE WORKS

FILLING AND COMPACTION

- SW6. FILL MATERIAL SHALL BE FREE OF ORGANIC MATTER, TREE STUMPS, ROOTS, RUBBISH, LARGE STONES, BUILDING MATERIAL AND EXCESSIVE CLAY OR SILT.
- SW7. QUARRY RUBBLE SHALL BE 40mm RUBBLE WHICH SHALL COMPLY IN ALL RESPECTS WITH THE TRANSPORT SA SPECIFICATION NUMBER PM3/400G. FINE CRUSHED ROCK SHALL COMPLY IN ALL RESPECTS WITH THE TRANSPORT SA SPECIFICATION NUMBER PM1/200G.
- SW8. COMPACTIONS NOTED ARE % MDD (MAXIMUM DRY DENSITY) (MODIFIED) IN ACCORDANCE WITH AS 1289.
- SW9. FILLING SHALL BE UNDERTAKEN IN LAYERS NOT EXCEEDING 200mm THICKNESS (COMPACTED DEPTH). QUARRY RUBBLE SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY (MODIFIED). CRUSHED ROCK SHALL BE COMPACTED TO 98% DRY DENSITY (MODIFIED). EACH LAYER SHALL BE COMPACTED AND APPROVED PRIOR TO THE NEXT LAYER BEING LAID OVER. ALL COMPACTION TESTS TO AS1289.
- SW10. TO ACHIEVE THE ABOVE COMPACTION, VIBRATING SMOOTH DRUM ROLLERS (FOR GRANULAR MATERIAL) OF VIBRATING SHEEPS FOOT ROLLERS (FOR CLAYS) ARE REQUIRED. CONTRACTOR TO TAKE CARE WITH VIBRATING ROLLERS AROUND EXISTING STRUCTURES.
- SW11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR QUALITY CONTROL TO ENSURE THAT ALL WORKS COMPLY WITH THE DRAWINGS AND SPECIFICATION. WHEN, IN THE OPINION OF THE CONTRACTOR, THE SPECIFIED COMPACTION HAS BEEN ACHIEVED HE SHALL ARRANGE FOR COMPACTION TESTING TO BE UNDERTAKEN. THE SUPERINTENDENT SHALL HAVE THE RIGHT TO NOMINATE THE EXACT LOCATION AT WHICH SAMPLES SHALL BE TAKEN. THE COST OF ALL TESTING SHALL BE AT THE CONTRACTORS EXPENSE. THE TESTING SHALL BE UNDERTAKEN BY A NATA REGISTERED LABORATORY.
- SW12. NO RUBBLE SHALL BE PLACED UNTIL APPROVED BY THE SUPERINTENDENT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL GRADING CURVES AND TECHNICAL INFORMATION AS REQUIRED.

SAFETY-IN-DESIGN REVIEW

MAGRYN & ASSOCIATES (MAGRYN) HAVE CONDUCTED A PRELIMINARY SAFETY-IN-DESIGN REVIEW OF THE DESIGN SHOWN ON THESE DRAWINGS. THE REVIEW IS BASED GENERALLY ON THE PROCEDURE OUTLINED IN THE SAFE WORK AUSTRALIA PUBLICATION "SAFE DESIGN OF STRUCTURES CODE OF PRACTICE"(JULY 2012).

THE DESIGN HAS NOT BEEN REVIEWED WITH A CONTRACTOR/BUILDER AT THE TIME OF ISSUE FOR TENDER OR CONSTRUCTION. CONSTRUCTION METHODS VARY BETWEEN CONTRACTORS SO IT IS NOT POSSIBLE FOR MAGRYN TO PERFORM AN EXHAUSTIVE SAFETY-IN-DESIGN OR SAFETY-IN-CONSTRUCTION REVIEW. ONCE APPOINTED, THE CONTRACTOR IS REQUIRED TO UNDERTAKE A THOROUGH REVIEW OF THE DESIGN WITH THEIR SUB-CONTRACTORS TO IDENTIFY SAFETY RISKS DURING CONSTRUCTION.

EXCAVATIONS

1. BATTER SLOPES SHALL BE IN ACCORDANCE WITH GEOTECHNICAL RECOMMENDATIONS AND SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER TO CONFIRM ADEQUACY (INCLUDING REVIEW OF PROPOSED DURATION OF BATTER).
2. EXCAVATIONS GREATER THAN 1.0m DEEP REQUIRE SHORING AND SHALL NOT BE ACCESSED BY PERSONNEL WITHOUT APPROPRIATE CONFINED SPACE TRAINING.
3. PROVIDE BARRIERS TO ALL EXCAVATIONS TO PREVENT FALLS.
4. ENSURE MEASURES TO PROTECT ADJACENT PROPERTY / STRUCTURES ARE FOLLOWED STRICTLY IN ACCORDANCE WITH THESE DRAWINGS. IF IN DOUBT CONTACT MAGRYN.
5. CONTACT MAGRYN AND THE GEOTECHNICAL ENGINEER IF GROUND WATER IS ENCOUNTERED DURING EXCAVATION.

VERIFICATION OF SOIL CONDITIONS

1. THE GEOTECHNICAL INVESTIGATION WAS BASED ON A LIMITED SURVEY VIA BORE HOLES IN DISCRETE LOCATIONS AROUND THE SITE (REFER TO THE GEOTECHNICAL REPORT REFERENCED ON THESE DRAWINGS). THE CONTRACTOR SHALL HAVE THE SOIL DESIGN PARAMETERS VERIFIED DURING EXCAVATION. ALLOW TO ENGAGE THE GEOTECHNICAL ENGINEER TO CONDUCT A REVIEW OF THE SOIL DURING CLEARING / EXCAVATION OF THE SITE.

PLANTING/LANDSCAPING NOTES

INSTALLATION OF JUTE MESH EROSION CONTROL MATTING

GEOTEXTILES JUTE MESH SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. INSTALL WITH PROPRIETARY METAL PINS 30MM X 300MM X 4MM Ø, AT THE RATE OF 5 PINS/M2 ENSURING THAT ALL LAPS OF JUTE ARE FULLY PINNED.

SITE PREPARATION FOR PLANTING

PLANTING AREAS INCLUDE SECTIONS OF THE EMBANKMENT ABOVE THE SEAWALL THAT ARE DE-VOID OF VEGETATION, AND WHERE NEW FILL/TOPSOIL HAS BEEN SPECIFIED FOR EROSION CONTROL. REFER TYPICAL SECTION ON DWG. 16254-6.

ALL PLANTS ARE TO BE PLANTED AS TUBE STOCK, AND PROTECTED WITH DRY, WELL WASHED SEAWEED MULCH. PLANTS ARE TO BE PLANTED AT A RATE OF TWO PLANTS PER SQUARE METRE ON AVERAGE IN AREAS WITH NO VEGETATION. INFILL THE PLANTS BETWEEN EXISTING SHRUBS WHERE REQUIRED. DO NOT REMOVE OR DAMAGE EXISTING VEGETATION.

ALL PLANTS ARE TO BE WATERED AND TENDERED FOR THE FIRST SIX WEEKS AFTER PLANTING. ANY PLANTS WHICH ARE DISEASED OR DIE DURING THIS PERIOD ARE TO BE REPLACED.

REFER TO TECHNICAL SPECIFICATION FOR FURTHER DETAILS ON THE FOLLOWING:

- PREPARATION FOR PLANTING AREAS
- IMPORTED TOPSOIL REQUIREMENTS
- PLANT SUPPLY
- ESTABLISHMENT PERIOD
- MAINTENANCE CONTRACT

PLANT SPECIES GUIDE

GROUNDCOVERS, HERBS AND SMALL SHRUBS

MUNTRIES (KUNZEA POMIFERA)

GROUND-HUGGING SHRUB WITH BRANCHES EXTENDING OVER SEVERAL METRES. THICK BRIGHT GREEN LEAVES, SHOWY WHITE FLUFFY FLOWERS IN SPRING AND EARLY SUMMER. PURPLE BERRIES. SPACE FILLER. SUITABLE FOR POTS AND HANGING BASKETS. FULL-SUN TO SEMI-SHADE. RIPE FRUITS ARE EDIBLE.

CUSHION BUSH (LEUCOPYHTA BROWNII)

COMPACT, ROUNDED SHRUB TO 1M. SILVER-GREY FOLIAGE, PALE YELLOW BALL-SHAPED FLOWERS IN SUMMER. GREAT STRUCTURAL FORM, PROVIDES COLOUR AND TEXTURE CONTRAST. RESPONDS WELL TO REGULAR PRUNING. FULL-SUN.

NATIVE PELARGONIUM (PELARGONIUM AUSTRALE)

HERB TO KNEE HIGH. LARGE GREEN VELVETY LEAVES, PALE PINK FLOWERS WITH PURPLE STRIPE OCCUR SPRING TO SUMMER. PRETTY PLANT, GREAT IN COTTAGE OR BUSHLAND GARDEN. PRUNE AFTER FLOWERING. FULL-SUN TO SEMI-SHADE.

NATIVE PIGFACE (CARPOBROTUS ROSSII)

THICK, FLESHY GROUNDCOVER. GREEN LEAVES TRIANGULAR IN CROSS-SECTION, LARGE BRIGHT PINK FLOWERS OCCUR IN SPRING. ATTRACTIVE GROUND-COVER, SOIL STABILIZER. SUITABLE AS TRAILING PLANT FOR POTS OR DOWN WALLS. RIPE FRUITS ARE EDIBLE.

ROUND-LEAF PIGFACE (DISPHYMA CRASSIFOLIUM)

SUCCULENT GROUNDCOVER PLANT. GREEN LEAVES ROUND IN CROSS SECTION, BRIGHT PINK FLOWERS IN SPRING. ATTRACTIVE GROUND-COVER, SOIL STABILIZER. TRAIL OVER ROCK WALLS. TOLERATES SALINE SOILS. FULL-SUN TO SHADE.

RUBY SALT BUSH (ENCHYLAENA TOMENTOSA)

LOW SHRUB TO 1M. LEAVES SMALL, BLUE-GREEN, FLESHY. YELLOW TO RED FLESHY FRUITS PRODUCED THROUGH-OUT THE YEAR. ATTRACTS NATIVE WILDLIFE. RESPONDS WELL TO PRUNING (CAN PRUNE SEASONALLY IF STARTS TO DOMINATE GARDEN BED). FULL-SUN TO SEMI-SHADE. RIPE FRUITS ARE EDIBLE.

GRASSES AND SEDGES

WALLABY GRASS (AUSTRODANTHONIA SP)

CLUMPING GRASS TO KNEE HIGH, FLUFFY WHITE SEED HEADS IN SUMMER. PLANT IN CLUMPS, GOOD IN BUSH GARDEN SETTING. ATTRACTS WILDLIFE INCLUDING BUTTERFLIES.

KNOBBY CLUB-RUSH (ISOLEPIS NODOSA)

ATTRACTIVE EVERGREEN CLUMPING PLANT TO 1M HIGH. LEAVES DARK-GREEN, CYLINDRICAL AND UP-RIGHT, FLOWER HEADS BROWN BALL-SHAPED, OCCUR ALL YEAR. VERSATILE PLANT. USE AS ACCENT, GROUP PLANTINGS, POT-PLANTS, AROUND PONDS. TOLERATES SALT SPRAY AND WET ZONES. ATTRACTS BUTTERFLIES. FULL-SUN TO SEMI-SHADE.

COAST SPEAR-GRASS (AUSTROSTIPA SPP)

TUSSOCK GRASS SPECIES OF VARYING HEIGHTS, WITH FLOWERING STEMS TO 1M. USE COASTAL SPECIES A. FLAVESCENS (TALL) AND A. ELAGANTISSIMA (SMALL AND COMPACT). PLANT IN CLUMPS, SUITABLE FOR MASS PLANTINGS. SHOWY WHEN IN FLOWER. FILL IN SPACES OR BORDER PLANTINGS. ATTRACTS BUTTERFLIES.

WORD SEDGE (LEPIDOSPERMA GLADIATUM)

SEDGE TO 1M HIGH WITH WIDE, FLAT LEAVES (LIKE A GLADIATOR'S SWORD!) BROWN FLOWER HEADS PRESENT WINTER TO SUMMER. PLANT IN LARGE OR SMALL CLUMPS. GOOD ACCENT PLANT, USE IN BORDERS, FOLIAGE CONTRAST. SUITABLE POT-PLANT. IF UNAVAILABLE, SUBSTITUTE WITH KNOBBY CLUB-RUSH OR SHORT-STEM FLAX-LILY.

COAST TUSSOCK-GRASS (POA POIFORMIS)

TUSSOCK GRASS GROWING TO KNEE HIGH. THIN BLUE-GREEN LEAVES, BLOWN-YELLOW FLOWER HEADS. TIGHT FOLIAGE. GREAT IN SMALL OR LARGE GROUP PLANTINGS, ALSO ROCKERIES, BORDERS AND POTS. FULL-SUN.

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|-------|-------------------|-------------|
| D | NO CHANGES | WS 01.11.16 |
| C | NOTE UPDATE | AW 12.10.16 |
| B | NO CHANGES | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
| ISSUE | AMENDMENTS | INT./DATE |

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|---------------------------------------------------------------------------|-----------------------------------|--------------------------|----------------------------------------------------------------------|--|--|
| TITLE: NOTES | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | PROJECT: SEAWALL | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | | | |
| REVISION: D | DRAWING NUMBER: 16254-1 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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PRELIMINARY

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SEAWALL SETOUT TABLE

| CHAINAGE | LEVEL OF TOE | WIDTH OF SEAWALL (m) | DISTANCE OF TOP OF SEAWALL FROM PROPERTY BOUNDARY (m) |
|----------|--------------|----------------------|-------------------------------------------------------|
| 15m | 0.70 AHD | 4.14 | 6.36 |
| 45m | -0.40 AHD | 6.45 | 8.00 |
| 75m | 0.20 AHD | 5.24 | 9.19 |

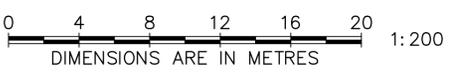
| | | |
|-----------------------------|------------------|---------------------|
| INV = INVERT | BUILDING | CONTOUR |
| CONC = CONCRETE | SHED | BOTTOM OF BANK |
| SWIP = SEWER IP | VERANDAH/PERGOLA | TOP OF BANK |
| STOBIE POLE | GUTTER/EAVES | G.I.FENCE |
| SIN | EDGE OF CONCRETE | BOUNDARY |
| NATURAL SURFACE | EDGE OF PAVERS | ROCK/REEF |
| MP = METAL PIN | EDGE OF PATH | BOAT LAUNCHING RAIL |
| PSM = PERMANENT SURVEY MARK | RETAINING WALL | TRACK |
| NEW PEG | | |

SURVEY BY MOSEL STEED SURVEYING LAND SOLUTIONS
 LEVEL DATUM AUSTRALIAN HEIGHT DATUM TAKEN FROM PSM 6328/1538 RL4.55m
 COORDINATE DATUM, MGA 94 ZONE 53 DERIVED PSM6328/1538
 CONTOUR INTERVAL 0.5m
 CONTOURS SHOWN ON THE STEEP CLIFF FACES ARE INDICATIVE ONLY AS INSUFFICIENT DATA WAS RECORDED TO OBTAIN A TRUE REPRESENTATION OF THE GROUND SURFACE.

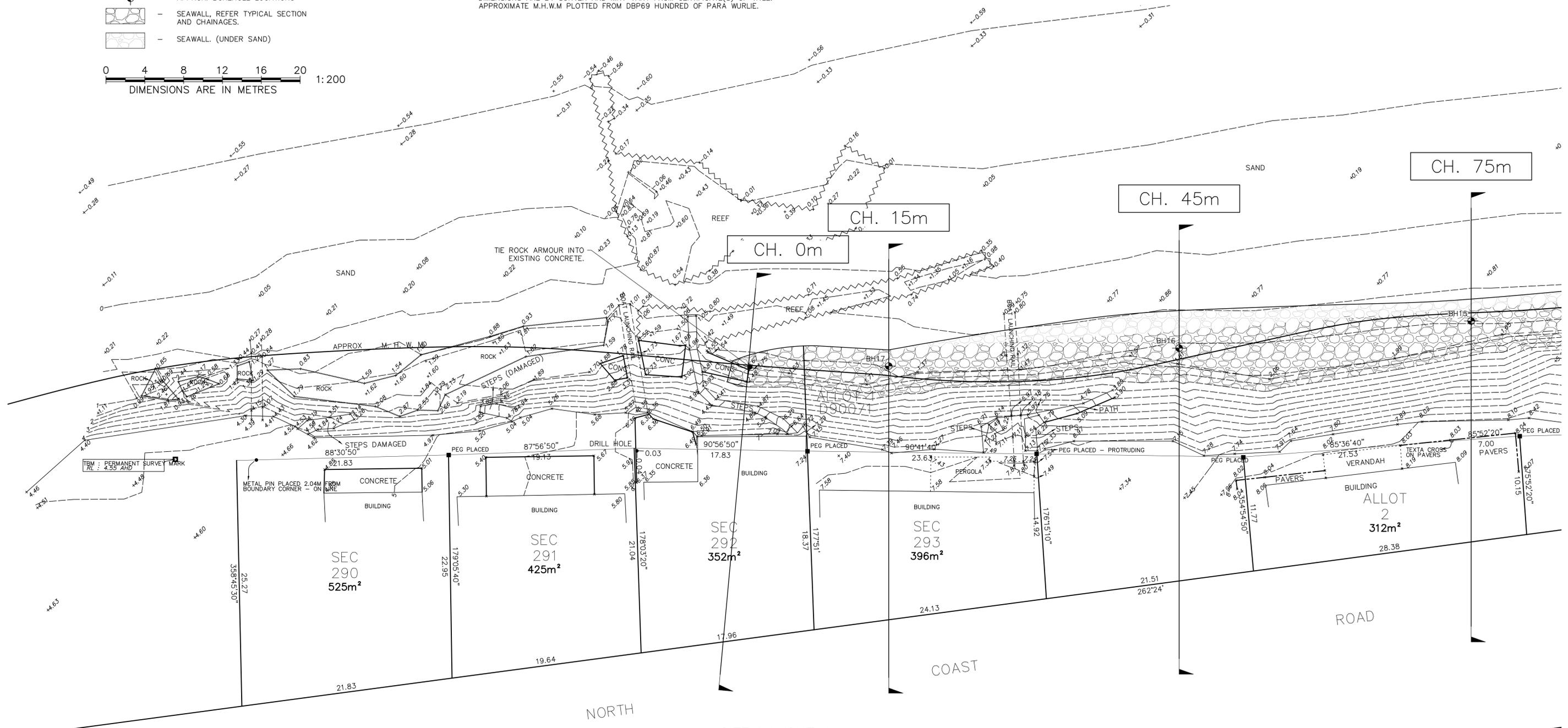
IDENTIFICATION & SITE SURVEY
 PART SECTIONS 290-293,
 296, 297, 361-363, 378-384 &
 PART ALLOTMENT 2 IN D90071
 POINT TURTON
 HUNDRED OF PARA WURLIE
 SURVEY DATE: 04/07/16 & 05/07/16

LEGEND

- APPROX. BOREHOLE LOCATIONS
- SEAWALL, REFER TYPICAL SECTION AND CHAINAGES.
- SEAWALL, (UNDER SAND)



NOTES:
 EASEMENTS NOT SHOWN. REFER TO CERTIFICATE(S) OF TITLE FOR DISPOSITION OF ANY EASEMENTS.
 DIMENSIONS ARE BY SURVER AND MAY VARY FROM CERTIFICATE(S) OF TITLE.
 APPROXIMATE M.H.W.M PLOTTED FROM DBP69 HUNDRED OF PARA WURLIE.



NOTE: EXISTING AND NEW VEGETATION NOT SHOWN ON PLANS. NEW PLANTS TO BE PROVIDED ON THE EMBANKMENT ABOVE THE SEAWALL IN AREAS DE-VOID OF VEGETATION AND WHERE NEW FILL AND TOPSOIL IS SPECIFIED, AS PER TYPICAL SECTION ON DWG. 16254-6 AND RELEVANT CHAINAGE SECTIONS.

SITE LAYOUT 1
 SCALE 1:200

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| TITLE: SITE LAYOUT 1 | | | CLIENT: SHACK OWNERS GROUP | | |
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| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-2 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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| D | PROPERTY NUMBERS REMOVED | WS 01.11.16 |
| C | NO CHANGES | AW 12.10.16 |
| B | NO CHANGES | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
| ISSUE | AMENDMENTS | INT./DATE |



SEAWALL SETOUT TABLE

| CHAINAGE | LEVEL OF TOE | WIDTH OF SEA WALL (m) | DISTANCE OF TOP OF SEAWALL FROM PROPERTY BOUNDARY (m) |
|----------|--------------|-----------------------|-------------------------------------------------------|
| 105m | 0.20 AHD | 5.24 | 10.05 |
| 133m | 0.80 AHD | 3.99 | 10.14 |
| 158m | 0.15 AHD | 5.24 | 10.13 |
| 184m | 0.90 AHD | 4.14 | 9.20 |
| 214m | -0.20 AHD | 6.36 | 8.63 |

| | | |
|-------------------------------|------------------|---------------------|
| INV = INVERT | BUILDING | CONTOUR |
| CONC = CONCRETE | SHED | BOTTOM OF BANK |
| ● SEWER IP | VERANDAH/PERGOLA | TOP OF BANK |
| ○ STOBIE POLE | GUTTER/EAVES | G.I.FENCE |
| ○ SIGN | EDGE OF CONCRETE | BOUNDARY |
| × NATURAL SURFACE | EDGE OF PAVERS | ROCK/REEF |
| ● MP = METAL PIN | EDGE OF PATH | BOAT LAUNCHING RAIL |
| ■ PSM = PERMANENT SURVEY MARK | RETAINING WALL | |
| ■ NEW PEG | TRACK | |

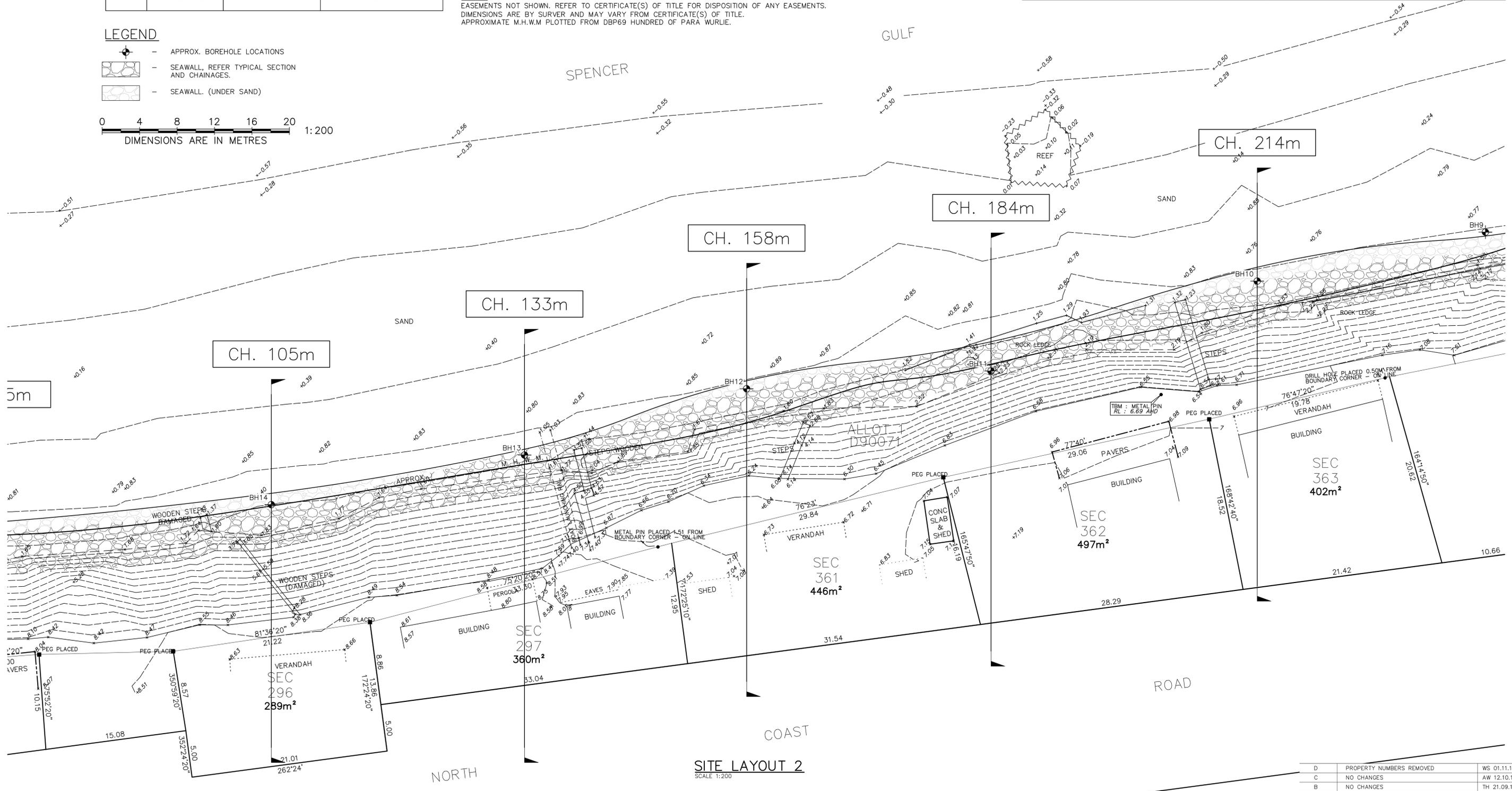
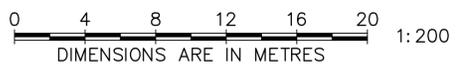
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 APPROXIMATE M.H.W.M PLOTTED FROM DBP69 HUNDRED OF PARA WURLIE.

SURVEY BY MOSEL STEED SURVEYING LAND SOLUTIONS
 LEVEL DATUM AUSTRALIAN HEIGHT DATUM TAKEN FROM PSM 6328/1538 RL4.55m
 COORDINATE DATUM, MGA 94 ZONE 53 DERIVED PSM6328/1538
 CONTOUR INTERVAL 0.5m
 CONTOURS SHOWN ON THE STEEP CLIFF FACES ARE INDICATIVE ONLY AS INSUFFICIENT DATA WAS RECORDED TO OBTAIN A TRUE REPRESENTATION OF THE GROUND SURFACE.

IDENTIFICATION & SITE SURVEY
 PART SECTIONS 290-293,
 296, 297, 361-363, 378-384 &
 PART ALLOTMENT 2 IN D90071
 POINT TURTON
 HUNDRED OF PARA WURLIE
 SURVEY DATE: 04/07/16 & 05/07/16

LEGEND

- - APPROX. BOREHOLE LOCATIONS
- ▨ - SEAWALL, REFER TYPICAL SECTION AND CHAINAGES.
- ▨ - SEAWALL, (UNDER SAND)



5m

NORTH

SITE LAYOUT 2
 SCALE 1:200

| | | |
|-------|--------------------------|-------------|
| D | PROPERTY NUMBERS REMOVED | WS 01.11.16 |
| C | NO CHANGES | AW 12.10.16 |
| B | NO CHANGES | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
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| TITLE: SITE LAYOUT 2 | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-3 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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SEAWALL SETOUT TABLE

| CHAINAGE | LEVEL OF TOE | WIDTH OF SEA WALL (m) | DISTANCE OF TOP OF SEAWALL FROM PROPERTY BOUNDARY (m) |
|----------|--------------|-----------------------|-------------------------------------------------------|
| 250m | -0.20 AHD | 6.36 | 7.34 |
| 269m | -0.40 AHD | 6.44 | 9.33 |
| 290m | -0.65 AHD | 6.68 | 6.66 |
| 320m | 0.60 AHD | 3.96 | 7.68 |
| 351m | -0.35 AHD | 6.44 | 9.77 |
| 381m | -0.20 AHD | 6.36 | 6.75 |

| | | |
|-----------------------------|------------------|---------------------|
| INV = INVERT | BUILDING | CONTOUR |
| CONC = CONCRETE | SHED | BOTTOM OF BANK |
| SEWER IP | VERANDAH/PERGOLA | TOP OF BANK |
| STOBIE POLE | GUTTER/EAVES | G.I.FENCE |
| BIN | EDGE OF CONCRETE | BOUNDARY |
| SIGN | EDGE OF PAVERS | ROCK/REEF |
| NATURAL SURFACE | EDGE OF PATH | BOAT LAUNCHING RAIL |
| MP = METAL PIN | RETAINING WALL | |
| PSM = PERMANENT SURVEY MARK | TRACK | |
| NEW PEG | | |

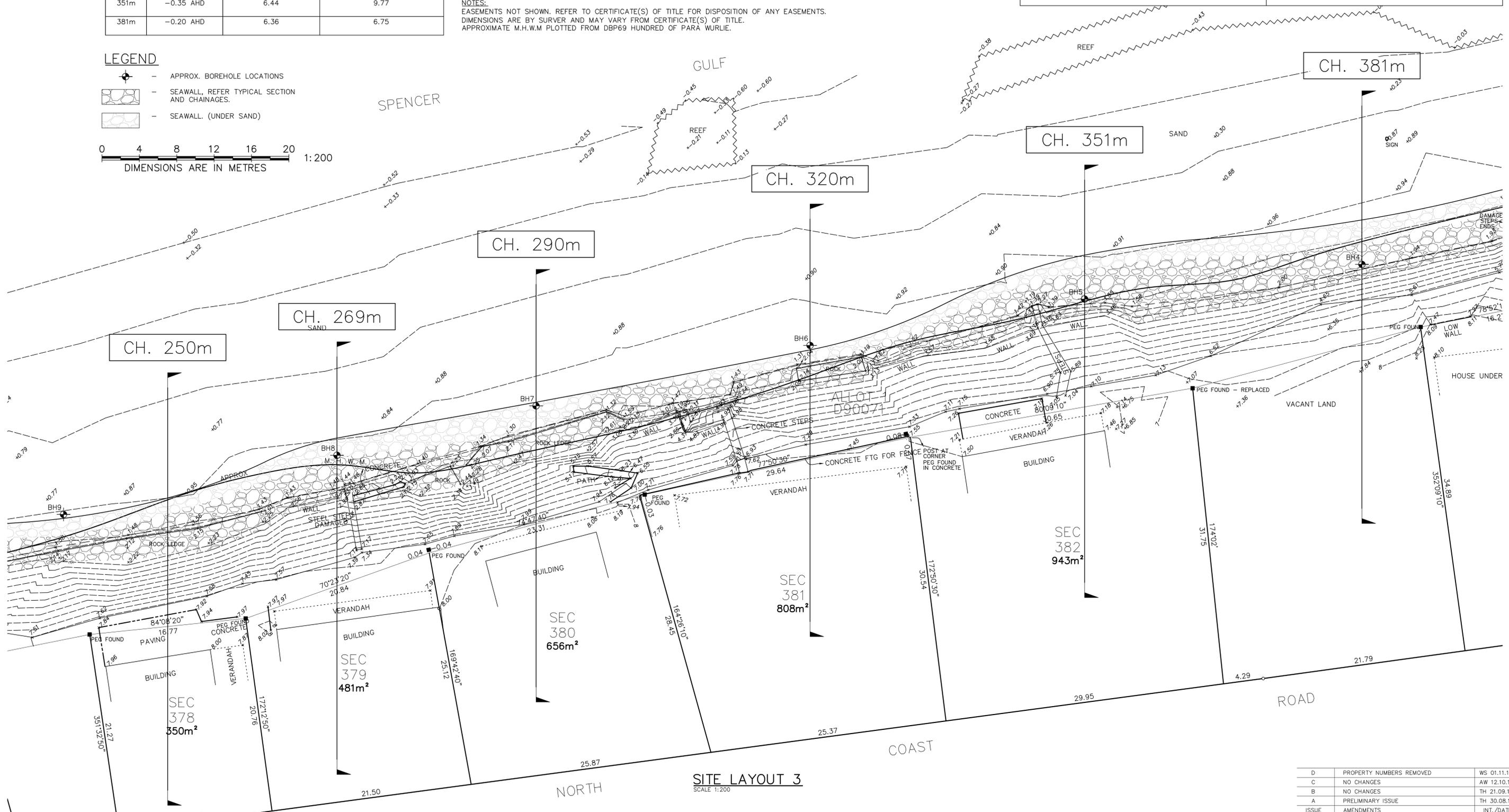
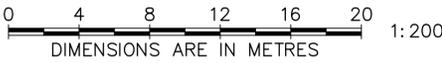
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IDENTIFICATION & SITE SURVEY
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SURVEY DATE: 04/07/16 & 05/07/16

LEGEND

- APPROX. BOREHOLE LOCATIONS
- SEAWALL, REFER TYPICAL SECTION AND CHAINAGES.
- SEAWALL (UNDER SAND)



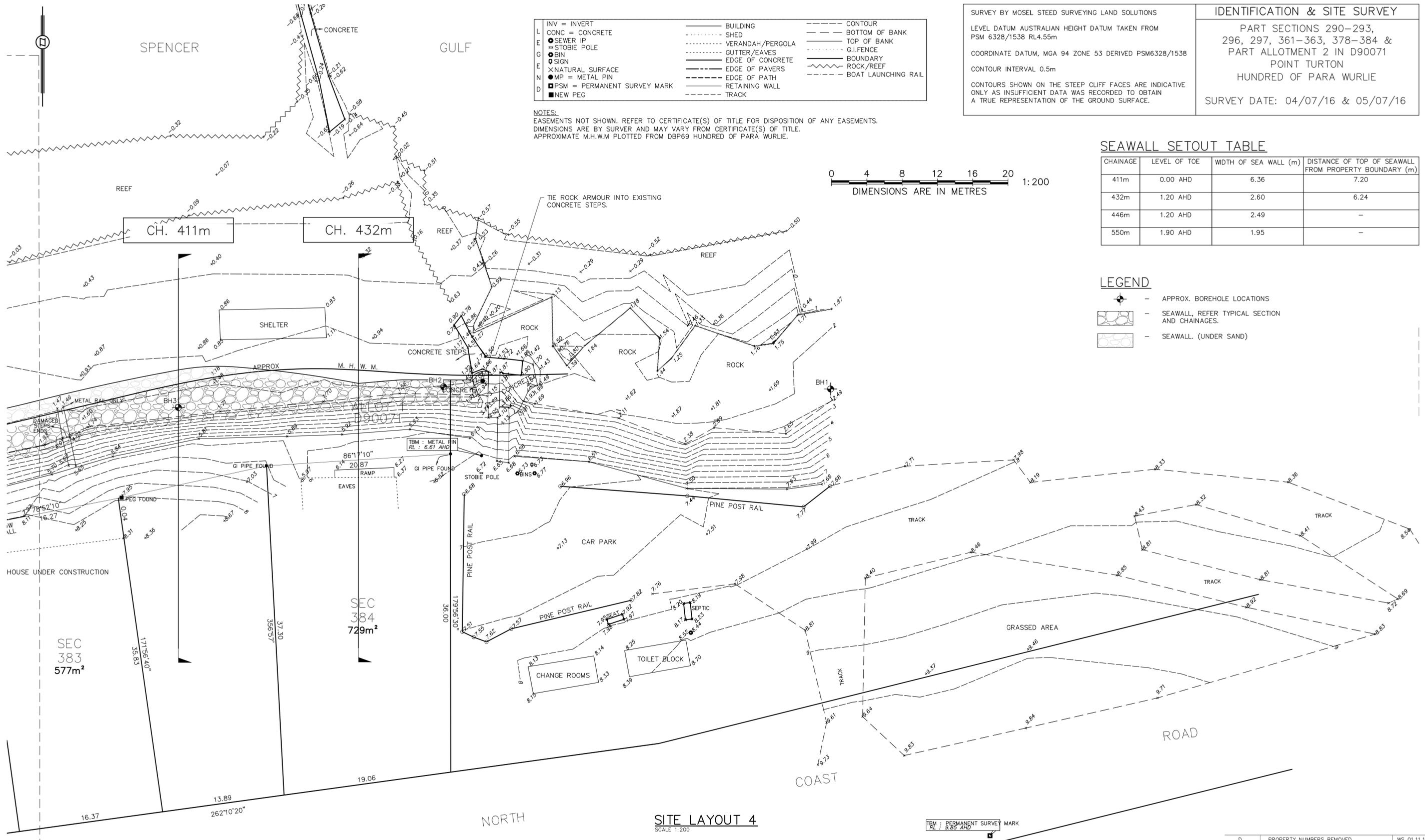
PRELIMINARY
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|---------------------------------------------------------------------------|----------------------------|-------------------|--------------------------------------------------------------|--|--|
| TITLE: SITE LAYOUT 3 | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-4 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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| | | |
|-------|--------------------------|-------------|
| D | PROPERTY NUMBERS REMOVED | WS 01.11.16 |
| C | NO CHANGES | AW 12.10.16 |
| B | NO CHANGES | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
| ISSUE | AMENDMENTS | INT./DATE |





| | | |
|-----------------------------|------------------|---------------------|
| INV = INVERT | BUILDING | CONTOUR |
| CONC = CONCRETE | SHED | BOTTOM OF BANK |
| SEWER IP | VERANDAH/PERGOLA | TOP OF BANK |
| STOBIE POLE | GUTTER/EAVES | G.I.FENCE |
| BIN | EDGE OF CONCRETE | BOUNDARY |
| SIGN | EDGE OF PAVERS | ROCK/REEF |
| NATURAL SURFACE | EDGE OF PATH | BOAT LAUNCHING RAIL |
| MP = METAL PIN | RETAINING WALL | |
| PSM = PERMANENT SURVEY MARK | TRACK | |
| NEW PEG | | |

NOTES:
 EASEMENTS NOT SHOWN. REFER TO CERTIFICATE(S) OF TITLE FOR DISPOSITION OF ANY EASEMENTS.
 DIMENSIONS ARE BY SURVER AND MAY VARY FROM CERTIFICATE(S) OF TITLE.
 APPROXIMATE M.H.W.M PLOTTED FROM DBP69 HUNDRED OF PARA WURLIE.

SURVEY BY MOSEL STEED SURVEYING LAND SOLUTIONS
 LEVEL DATUM AUSTRALIAN HEIGHT DATUM TAKEN FROM
 PSM 6328/1538 RL4.55m
 COORDINATE DATUM, MGA 94 ZONE 53 DERIVED PSM6328/1538
 CONTOUR INTERVAL 0.5m
 CONTOURS SHOWN ON THE STEEP CLIFF FACES ARE INDICATIVE
 ONLY AS INSUFFICIENT DATA WAS RECORDED TO OBTAIN
 A TRUE REPRESENTATION OF THE GROUND SURFACE.

IDENTIFICATION & SITE SURVEY
 PART SECTIONS 290-293,
 296, 297, 361-363, 378-384 &
 PART ALLOTMENT 2 IN D90071
 POINT TURTON
 HUNDRED OF PARA WURLIE
 SURVEY DATE: 04/07/16 & 05/07/16

SEAWALL SETOUT TABLE

| CHAINAGE | LEVEL OF TOE | WIDTH OF SEA WALL (m) | DISTANCE OF TOP OF SEAWALL FROM PROPERTY BOUNDARY (m) |
|----------|--------------|-----------------------|-------------------------------------------------------|
| 411m | 0.00 AHD | 6.36 | 7.20 |
| 432m | 1.20 AHD | 2.60 | 6.24 |
| 446m | 1.20 AHD | 2.49 | - |
| 550m | 1.90 AHD | 1.95 | - |



LEGEND

- APPROX. BOREHOLE LOCATIONS
- SEAWALL, REFER TYPICAL SECTION AND CHAINAGES.
- SEAWALL (UNDER SAND)

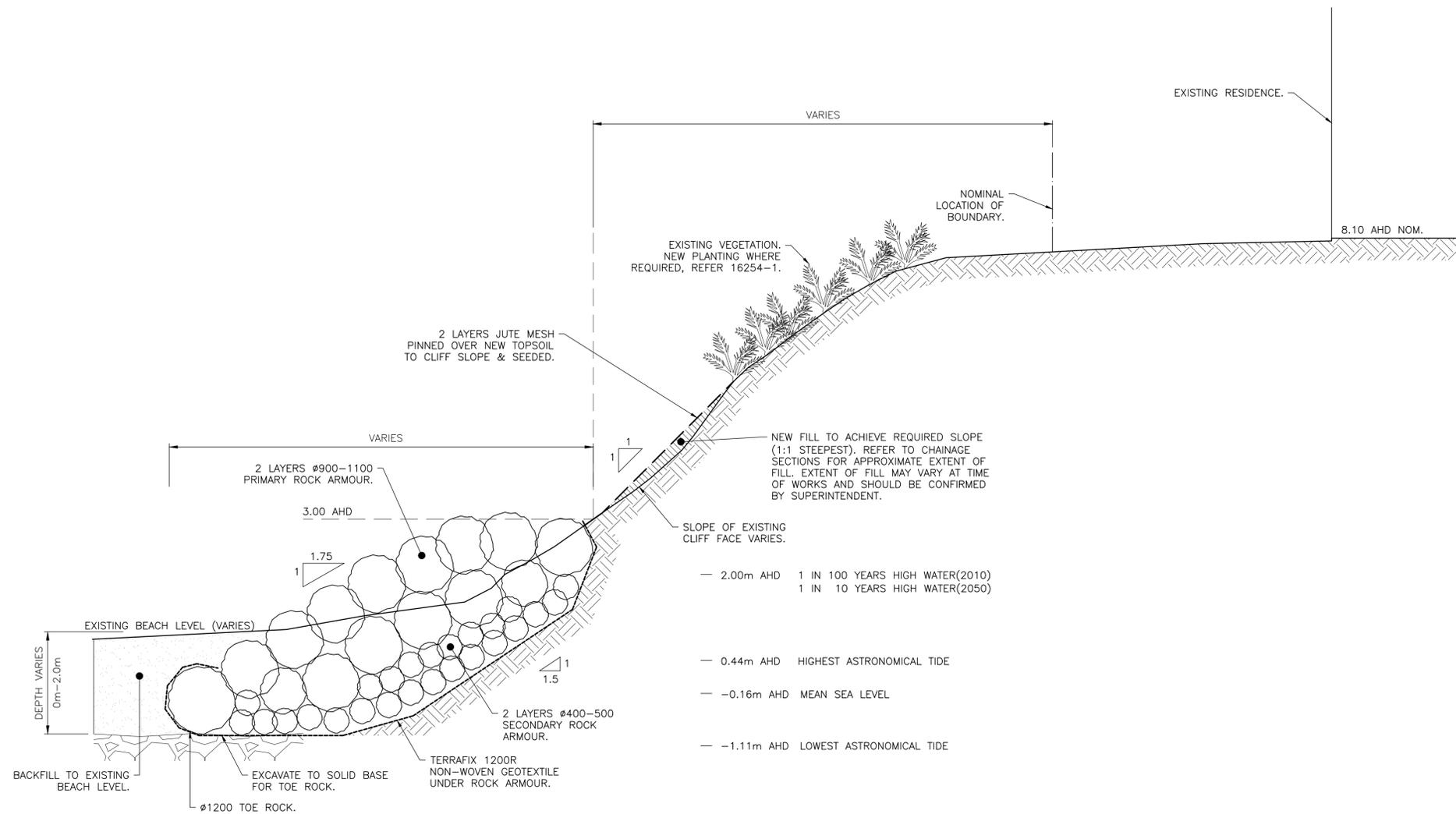
PRELIMINARY
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 IT MUST NOT BE USED FOR CONSTRUCTION.

| | | | | | |
|---------------------------------------------------------------------------|----------------------------|-------------------|--------------------------------------------------------------|--|--|
| TITLE: SITE LAYOUT 4 | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-5 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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| | | |
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TYPICAL SEAWALL SECTION

SCALE 1:50

NOTE: REFER TO CHAINAGE SECTIONS FOR ROCK WALL DIMENSIONS IN FRONT OF EACH PROPERTY. ROCK ARMOUR SHALL BE DURABLE, HARD, ANGULAR AND ROUGH BROKEN, WITH A MINIMUM DENSITY OF 2.6 TONNE/m³ (BLUESTONE).

NOTE: ALTERNATIVELY, LIMESTONE ROCK MAY BE USED (ALTHOUGH IT IS NOT RECOMMENDED). LIMESTONE ROCKS TO HAVE MINIMUM DENSITY OF 2 TONNE/m³. 2 LAYERS PRIMARY ARMOUR ROCKS Ø1500-1700. 2 LAYERS SECONDARY ARMOUR ROCKS Ø700-800, Ø1800 TOE ROCK.

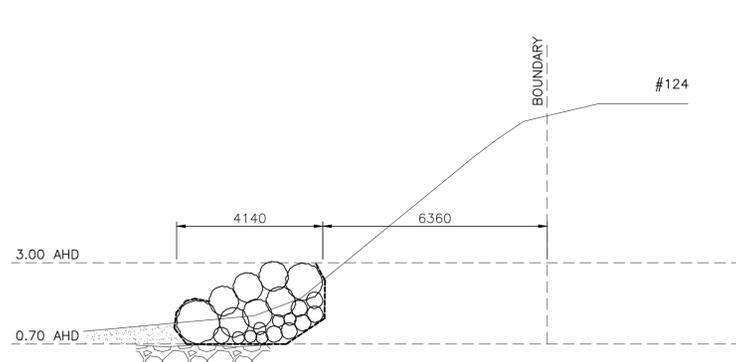
| | | |
|-------|----------------------|-------------|
| D | NO CHANGES | WS 01.11.16 |
| C | AMENDMENT TO DETAILS | AW 12.10.16 |
| B | ROCK SIZE AMENDED | TH 21.09.16 |
| A | PRELIMINARY ISSUE | TH 30.08.16 |
| ISSUE | AMENDMENTS | INT./DATE |

PRELIMINARY
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|---------------------------------------------------------------------------|-----------------------------------|--------------------------|---------------------------------------------------------------------|--|--|
| TITLE: TYPICAL SECTION & DETAILS | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-6 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

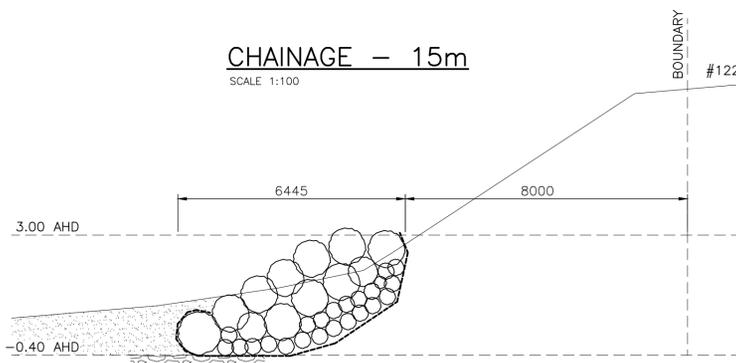
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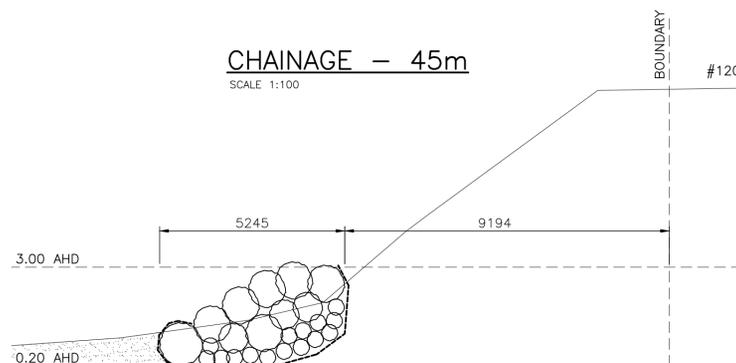
CHAINAGE - 15m

SCALE 1:100



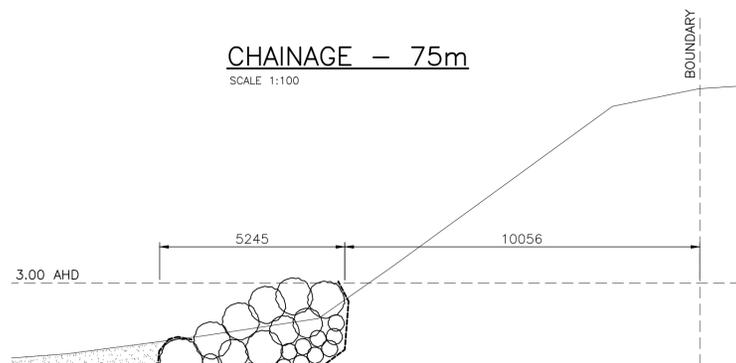
CHAINAGE - 45m

SCALE 1:100



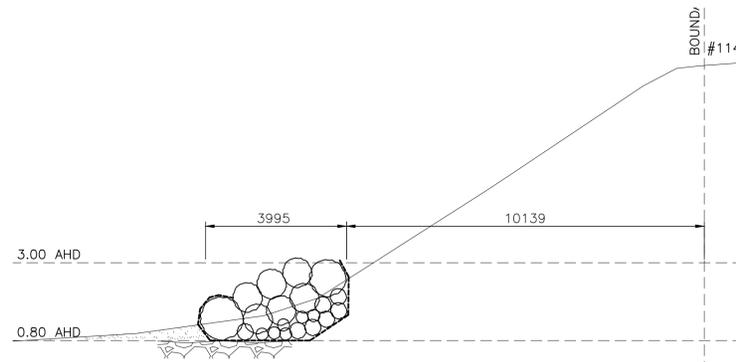
CHAINAGE - 75m

SCALE 1:100



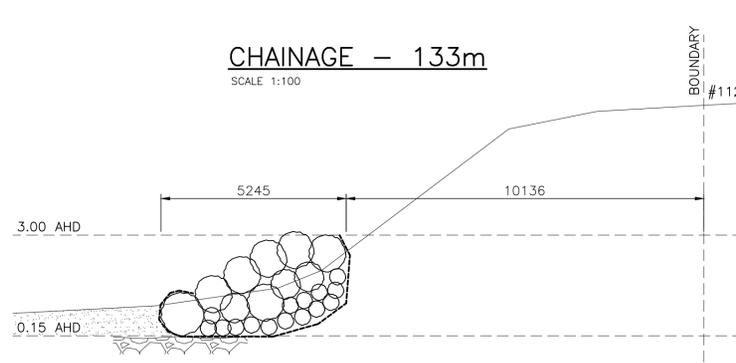
CHAINAGE - 105m

SCALE 1:100



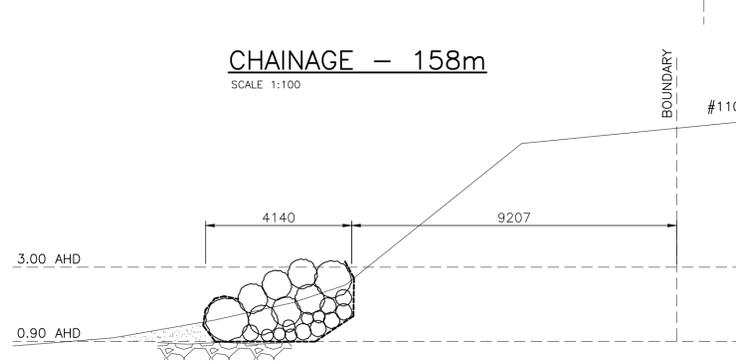
CHAINAGE - 133m

SCALE 1:100



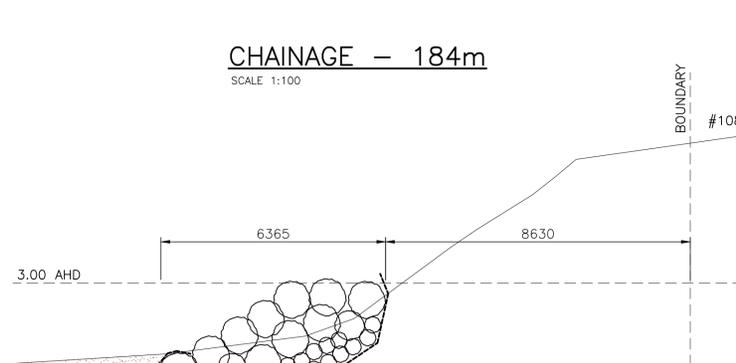
CHAINAGE - 158m

SCALE 1:100



CHAINAGE - 184m

SCALE 1:100



CHAINAGE - 214m

SCALE 1:100

LEGEND

- EXISTING BEACH SAND TO BE BACKFILLED TO MATCH EXISTING BEACH LEVEL.
- NEW COMPACTED FILL ON EMBANKMENT TO ACHIEVE 1:1 SLOPE (STEEPEST). INSTALL TOPSOIL, JUTEMESH AND RE-VEGETATE AS PER TYPICAL SECTION AND PLANTING NOTES.

| | | |
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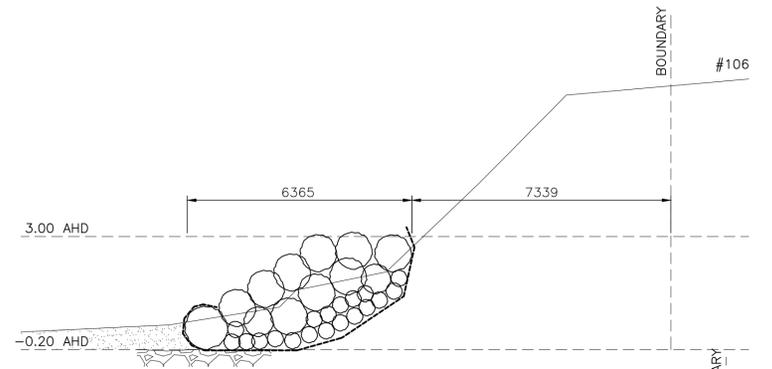
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| TITLE: CHAINAGE SECTIONS | | | CLIENT: SHACK OWNERS GROUP | | |
| CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION. | | | | | |
| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-7 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

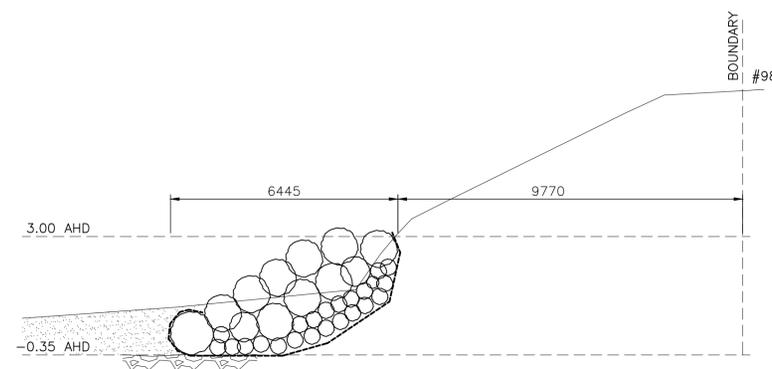
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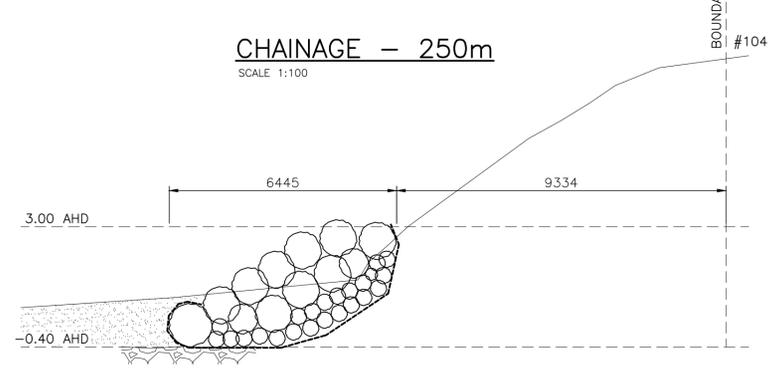




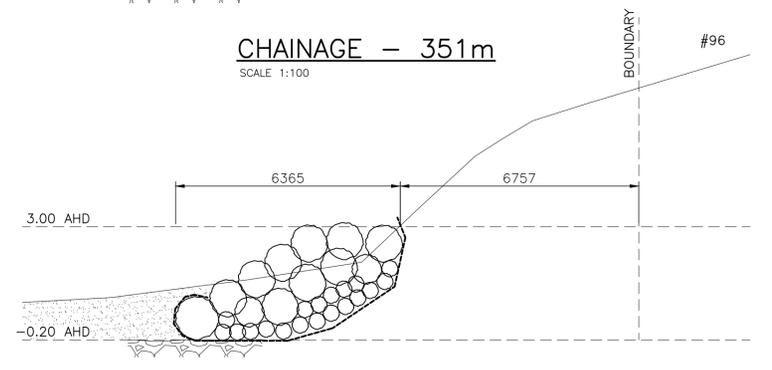
CHAINAGE – 250m
SCALE 1:100



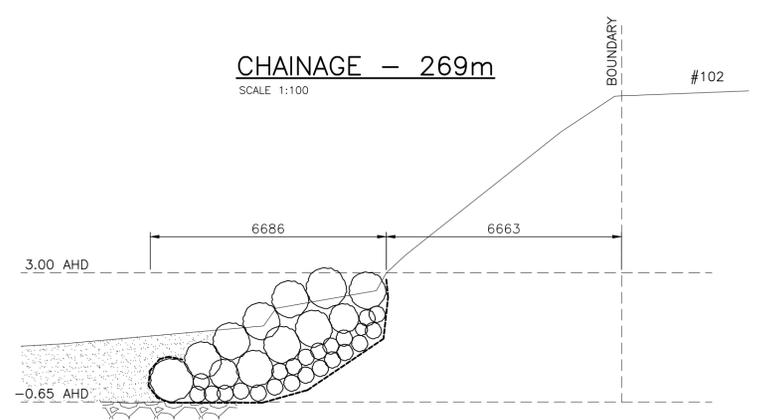
CHAINAGE – 351m
SCALE 1:100



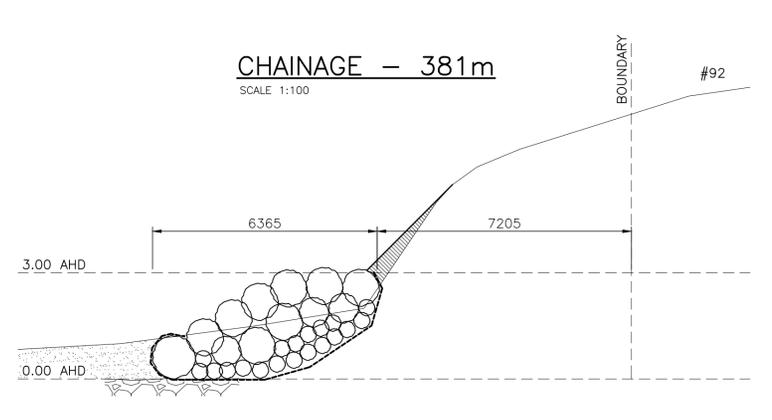
CHAINAGE – 269m
SCALE 1:100



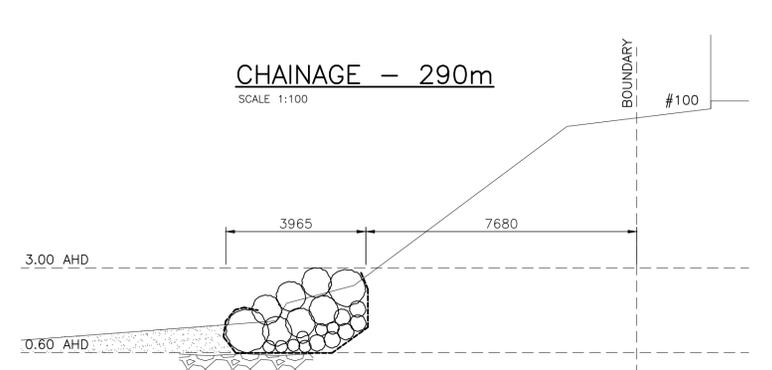
CHAINAGE – 381m
SCALE 1:100



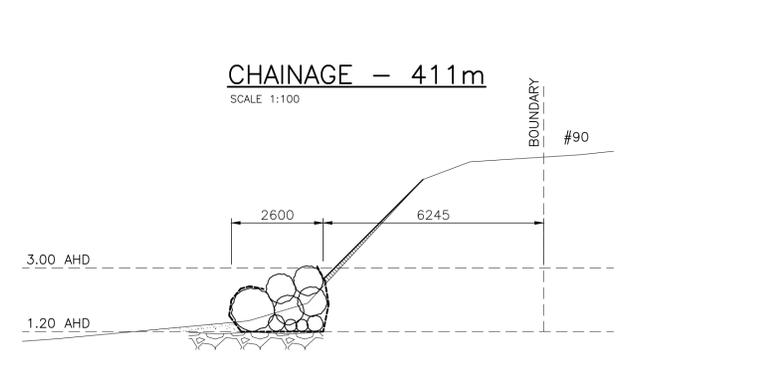
CHAINAGE – 290m
SCALE 1:100



CHAINAGE – 411m
SCALE 1:100



CHAINAGE – 320m
SCALE 1:100



CHAINAGE – 432m
SCALE 1:100

LEGEND

- EXISTING BEACH SAND TO BE BACKFILLED TO MATCH EXISTING BEACH LEVEL.
- NEW COMPACTED FILL ON EMBANKMENT TO ACHIEVE 1:1 SLOPE (STEEPEST). INSTALL TOPSOIL, JUTEMESH AND RE-VEGETATE AS PER TYPICAL SECTION AND PLANTING NOTES.

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| DATE: AUG. 2016 | SCALE: AS SHOWN | DESIGN: WS | PROJECT: SEAWALL | | |
| REVISION: D | DRAWING NUMBER: 16254-8 | SHEET SIZE: A1 | PROJECT ADDRESS: 90-124 NORTH COAST ROAD, POINT TURTON | | |

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| Property | Loan amount requested |
|----------|-----------------------|
| 1 | 0 |
| 2 | \$20 000 |
| 3 | \$35 000 |
| 4 | 0 |
| 5 | \$30 000 |
| 6 | \$30 000 |
| 7 | 0 |
| 8 | \$34 413 |
| 9 | \$32 230 |
| 10 | 0 |
| 11 | 0 |
| 12 | 0 |
| 13 | 0 |
| 14 | 0 |

We wish to apply to loan for a period of 10 years.

Thank you,

Caroline Roennfeldt

On behalf of Residents,

90 – 124 North Coast Road

Point Turton