



# **Black Watch Pass Rock Face Erosion Control**

Bermuda

## **Annex D Drawings and Reference Documents**

Date: October 23, 2017

Project No. 41-71-77



OVERVIEW PHOTO OF SHOTCRETE AREA

AREA REQUIRING SHOTCRETE



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THIS DRAWING ILLUSTRATES SUPPORTING INFORMATION SPECIFIC TO A STANTEC CONSULTING LTD. REPORT AND MUST NOT BE USED FOR OTHER PURPOSES.

Reference:  
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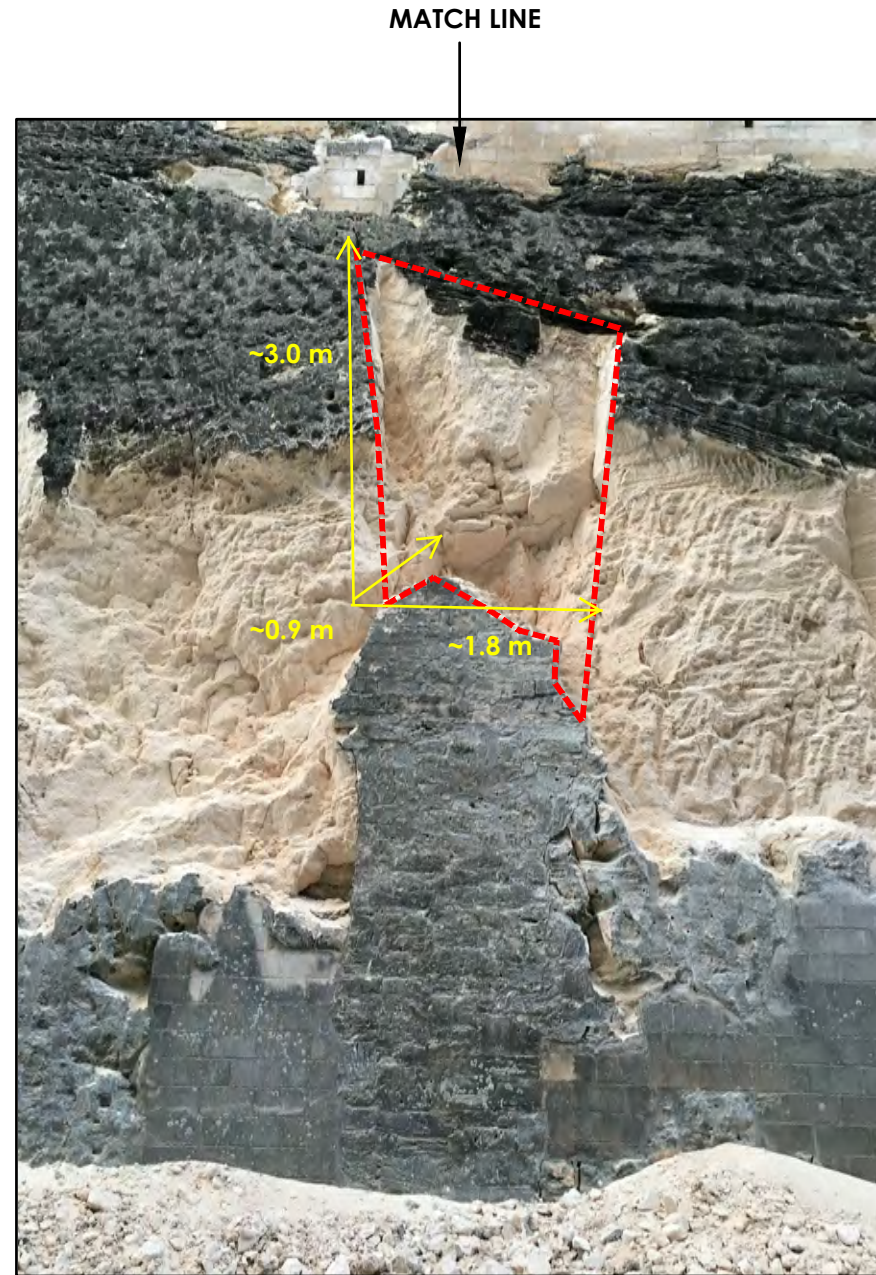
<p><b>SHOTCRETE AREA</b> BLACK WATCH PASS ROCK SLOPE STABILIZATION PEMBROKE PARISH, BERMUDA</p>	
Client:	GOVERNMENT OF BERMUDA

Job No.:	1276585786
Scale:	N.T.S.
Date:	2017 09 25
Dwn. By:	JL
App'd By:	JN

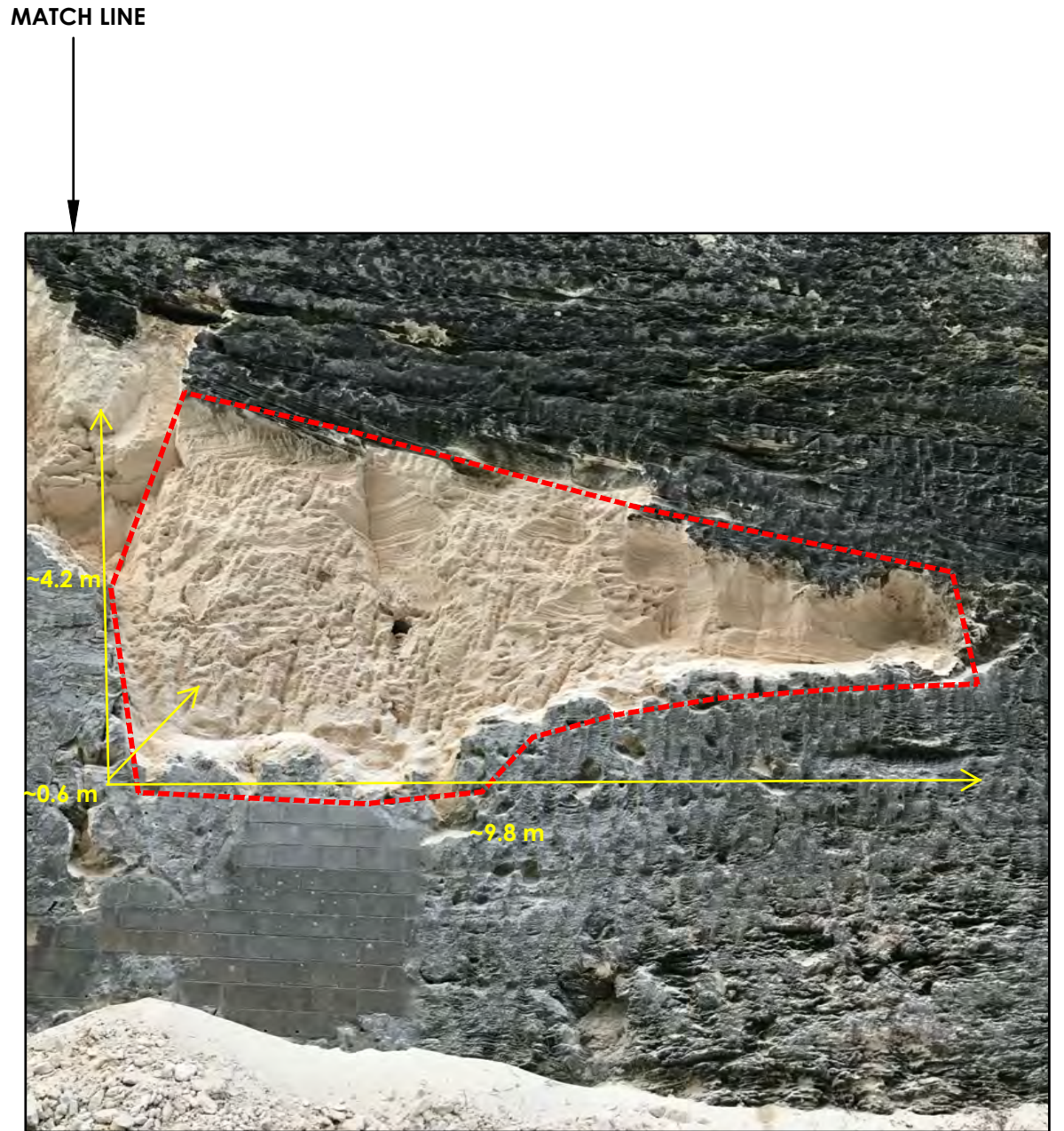
Dwg. No.:	1



ZONE 1



ZONE 2



ZONE 3

LEGEND

--- EXTENT OF SHOTCRETE AREA

NOTE:  
DIMENSIONS ARE APPROXIMATE ONLY AND SHOULD BE VERIFIED IN THE FIELD

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Reference:

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SHOTCRETE ZONES  
BLACK WATCH PASS ROCK SLOPE STABILIZATION  
PEMBROKE PARISH, BERMUDA

Client:

GOVERNMENT OF BERMUDA

Job No.: 1276585786

Scale: N.T.S.

Date: 2017 09 25

Dwn. By: JL

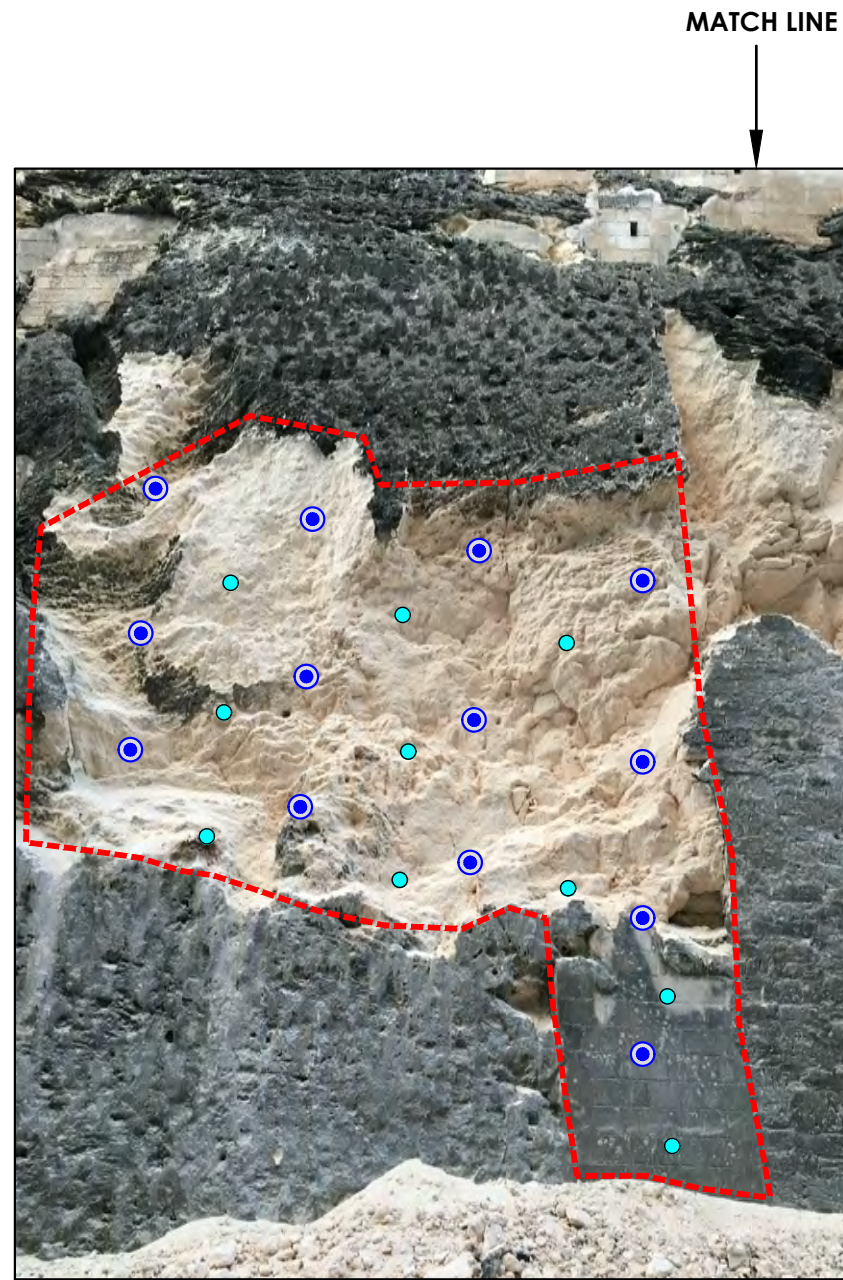
App'd By: JN

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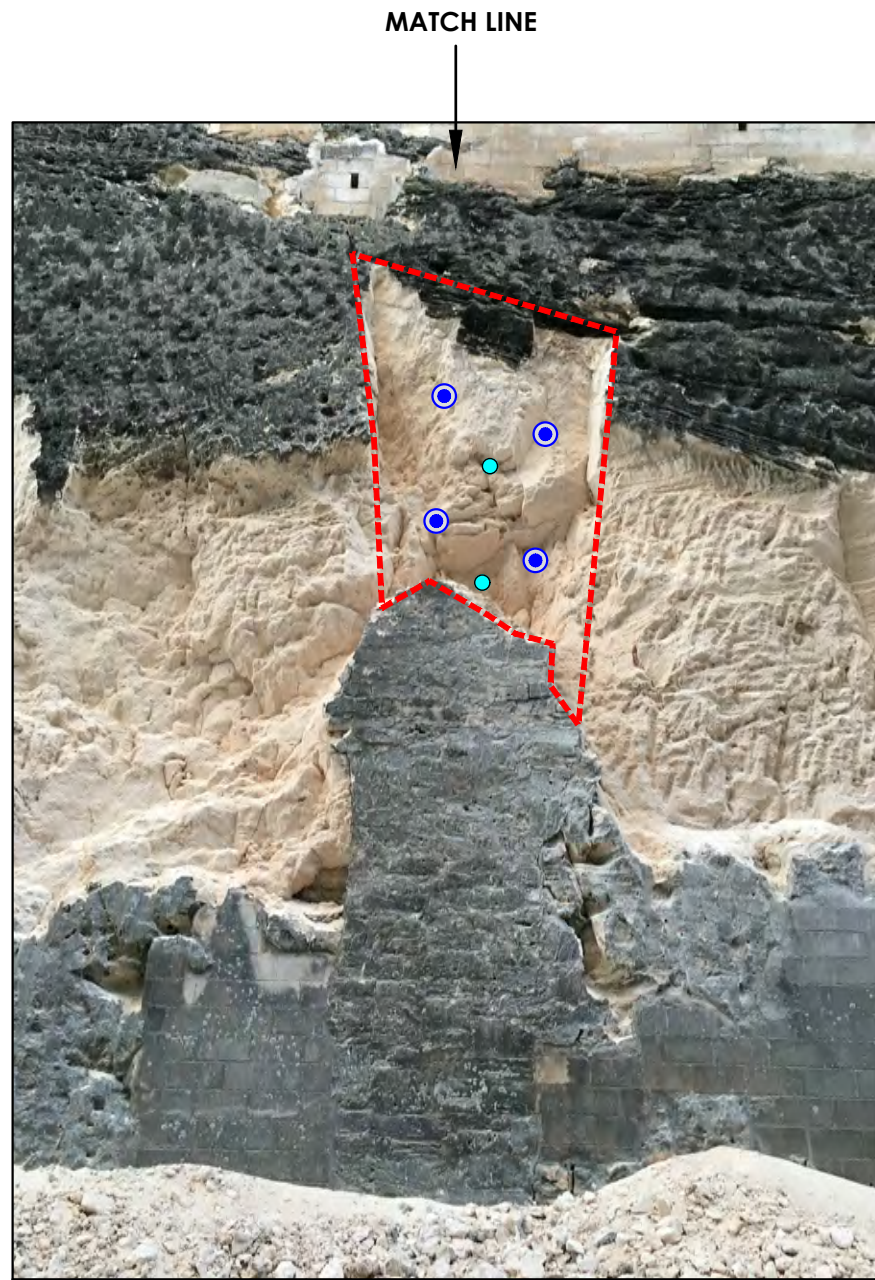
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ZONE 1



ZONE 2



ZONE 3

LEGEND

- EXTENT OF SHOTCRETE
- ROCK ANCHOR
- DRAIN HOLES

NOTES:

1. DO NOT SCALE FROM DRAWING
2. ANCHOR LOCATIONS AS SHOWN ARE APPROXIMATE ONLY
3. NOMINAL ANCHOR AND DRAIN HOLE SPACING  $\square$  1.5 m

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Reference:

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APPROXIMATE ROCK ANCHOR LOCATIONS  
BLACK WATCH PASS ROCK SLOPE STABILIZATION  
PEMBROKE PARISH, BERMUDA

Client:

GOVERNMENT OF BERMUDA

Job No.: 1276585786

Scale: N.T.S.

Date: 2017 09 25

Dwn. By: JL

App'd By: JN

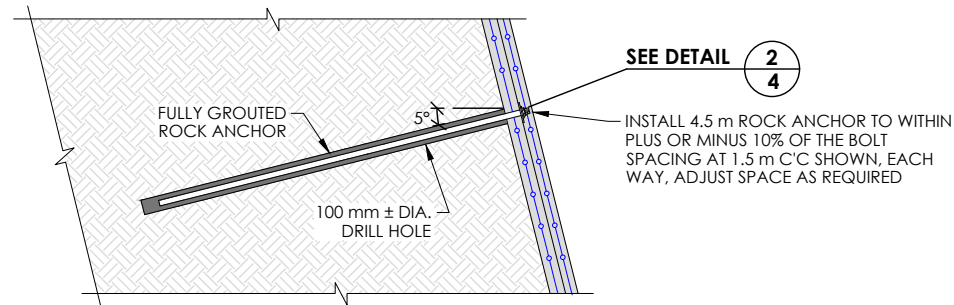
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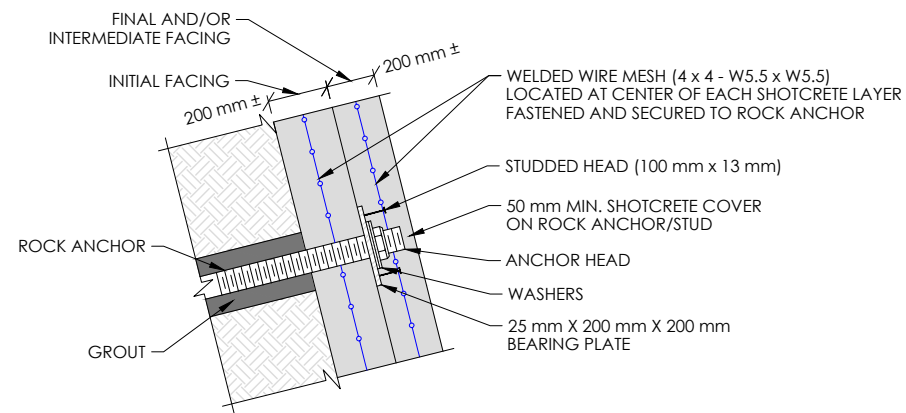
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**NOTES:**

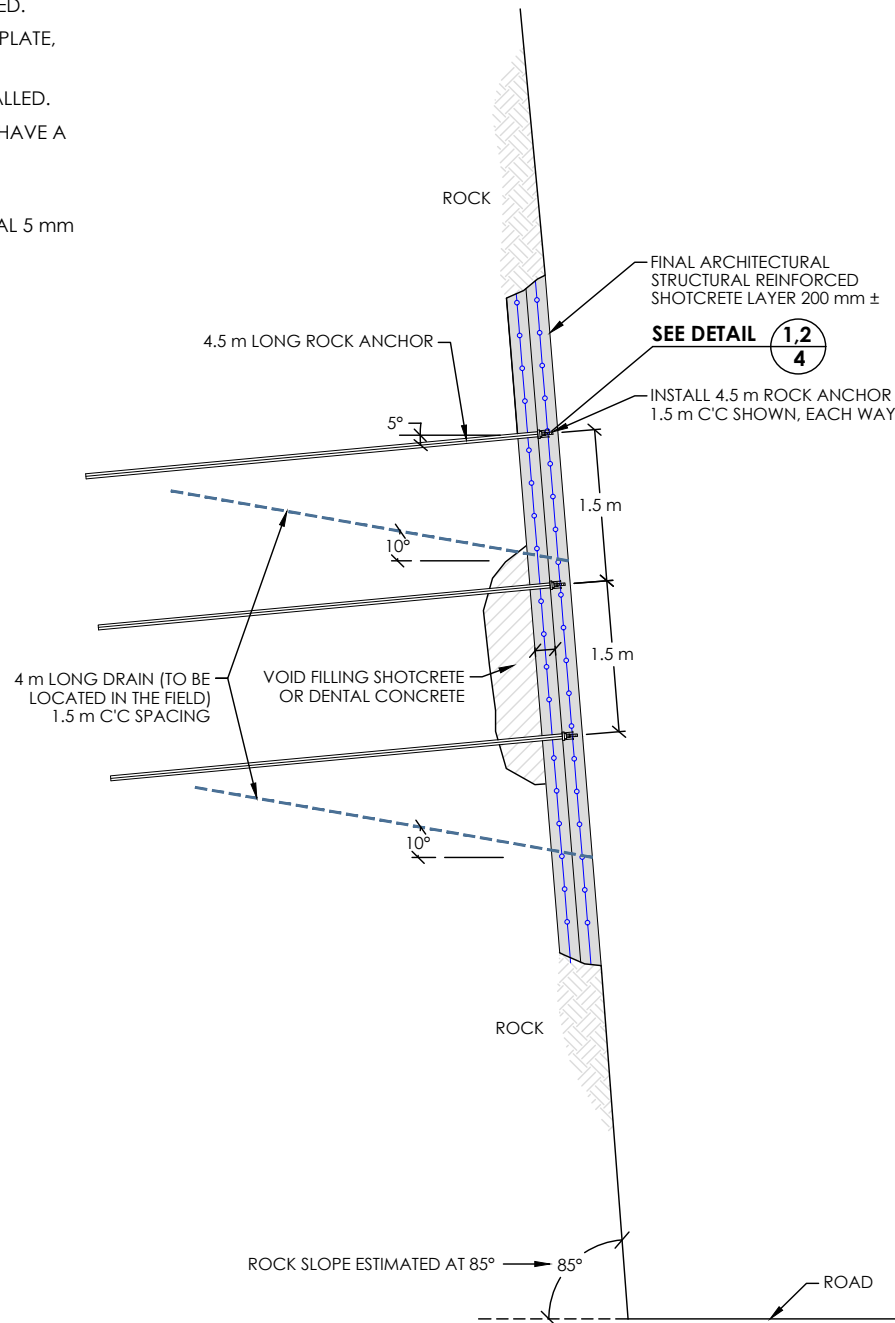
1. INSTALL ROCK ANCHORS AT LOCATIONS AS PER SPECIFICATIONS AND DRAWINGS. FACE PLATES AND TENSIONING NOT COMPLETED AT THIS STAGE. ENSURE ROCK ANCHORS ARE INSTALLED TO DEPTHS ENSURING FREE LENGTH END IS WITHIN  $\pm 50$  mm OF THE FINAL SHOTCRETE FACE. REFER TO ANCHOR DETAIL 2/4.
2. FILL VOIDS WITH SHOTCRETE OR DENTAL CONCRETE AT LOCALIZED DEEP CAVITIES WHERE REQUIRED. PLACE VOID FILLING SHOTCRETE IN MULTIPLE LAYERS IN  $\pm 200$  mm LAYERS. DO NOT ENCROACH WITHIN STRUCTURAL LAYER. LOCATION TO BE DETERMINED IN THE FIELD.
3. FOLLOWING PLACEMENT AND CURE OF VOID FILL, FIRST LAYER OF STRUCTURAL SHOTCRETE SHOULD BE INSTALLED.
4. FOLLOWING INSTALLATION OF INITIAL SHOTCRETE LAYER, COMPLETE ROCK ANCHOR INSTALLATION WITH FACE PLATE, WASHERS, AND NUTS. TENSION ROCK ANCHORS TO NOMINAL 45 KN AS PER SPECIFICATION.
5. ADDITIONAL LAYERS OF STRUCTURAL SHOTCRETE, AS REQUIRED AS SHOWN ON THE DRAWING SHOULD BE INSTALLED.
6. FINAL LAYER OF SHOTCRETE REFERRED TO AS "ARCHITECTURAL SHOTCRETE", MEANING THE FINAL LAYER SHALL HAVE A COLOUR AND FACE TEXTURE/PATTERN AS PER THE SPECIFICATIONS.
7. DRAIN HOLES DRAINAGE PIPES SHOULD BE INSTALLED AFTER ARCHITECTURAL SHOTCRETE IS CURED.
8. DRAIN HOLES SHALL BE COVERED WITH A GALVANIZED WIRE MESH NETTING (BIRD SCREENS) HAVING A NOMINAL 5 mm OPENING TO PREVENT BIRDS FROM ENTERING THE HOLES.



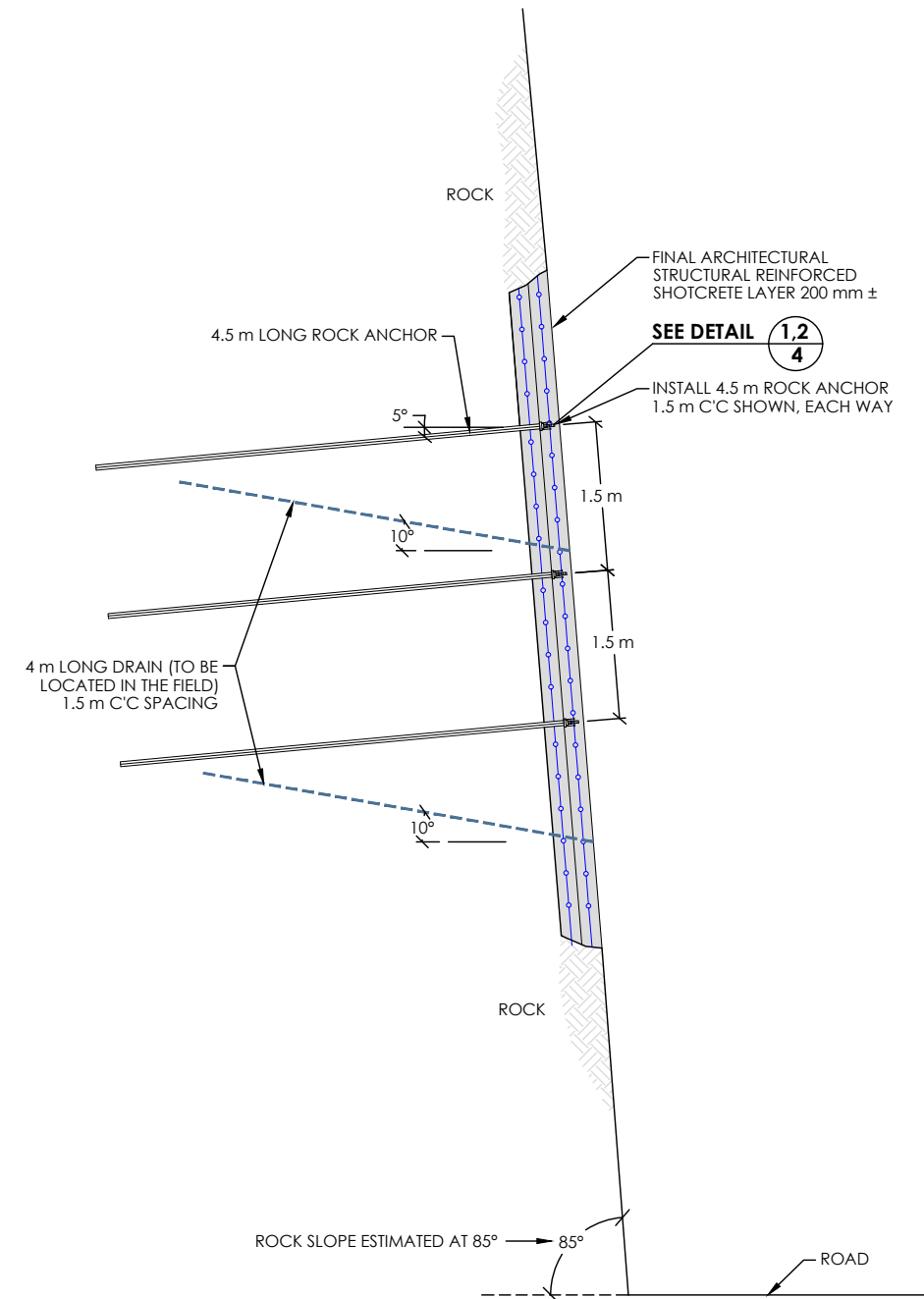
**TYPICAL ROCK ANCHOR DETAIL 1/4**  
N.T.S.



**ANCHOR DETAIL 2/4**  
N.T.S.



**TYPICAL SHOTCRETE SECTION DETAIL WITH VOID FILLING SHOTCRETE OR DENTAL CONCRETE 3/4**  
N.T.S.



**TYPICAL SHOTCRETE SECTION DETAIL 4/4**  
N.T.S.

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Reference:

**SHOTCRETE AND ROCK ANCHOR DETAILS**  
BLACK WATCH PASS ROCK SLOPE STABILIZATION  
PEMBROKE PARISH, BERMUDA

Client:

GOVERNMENT OF BERMUDA

Job No.: 1276585786

Scale: N.T.S.

Date: 2017 09 28

Dwn. By: JL

App'd By: JN

Dwg. No.:

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