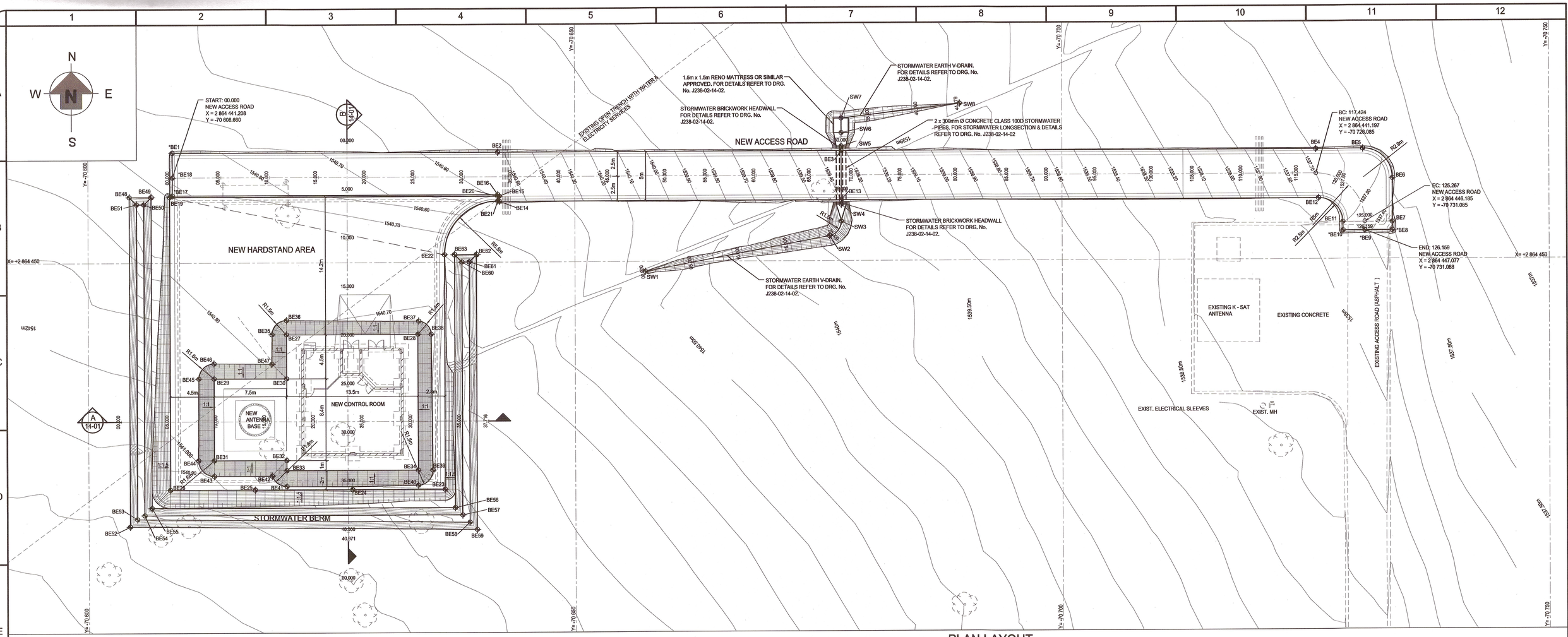


BULK EARTHWORKS SETTING-OUT POINTS

POINT	YCOORD	XCOORD	LEVEL
*BE1	-70608.660	2864438.684	1540.850
BE2	-70642.086	2864438.684	1540.521
BE3	-70677.333	2864438.684	1539.316
BE4	-70726.086	2864438.684	1537.649
BE5	-70730.882	2864438.684	1537.541
BE6	-70733.916	2864441.725	1537.451
BE7	-70733.904	2864446.205	1537.350
*BE8	-70733.901	2864447.073	1537.342
*BE9	-70731.088	2864447.077	1537.420
*BE10	-70728.860	2864447.091	1537.488
BE11	-70728.837	2864446.210	1537.505
BE12	-70726.362	2864443.734	1537.729
BE13	-70677.333	2864443.734	1539.396
BE14	-70642.249	2864443.734	1540.595
BE15	-70642.242	2864443.208	1540.587
BE16	-70642.086	2864443.049	1540.590
*BE17	-70608.661	2864443.047	1540.919
*BE18	-70608.660	2864441.208	1540.890
BE19	-70608.385	2864443.208	1540.760
BE20	-70642.086	2864443.208	1540.431
BE21	-70642.086	2864443.708	1540.431

BULK EARTHWORKS SETTING-OUT POINTS

POINT	YCOORD	XCOORD	LEVEL
BE22	-70636.586	2864449.208	1540.790
BE23	-70636.586	2864473.338	1540.910
BE24	-70627.086	2864473.338	1540.960
BE25	-70617.085	2864473.336	1540.910
BE26	-70608.385	2864473.339	1540.910
BE27	-70620.336	2864457.368	1539.290
BE28	-70633.836	2864457.368	1539.290
BE29	-70612.885	2864461.909	1539.290
BE30	-70620.336	2864461.909	1539.290
BE31	-70612.885	2864470.309	1539.290
BE32	-70620.336	2864470.309	1539.290
BE33	-70620.336	2864471.358	1539.290
BE34	-70633.836	2864471.358	1539.290
BE35	-70618.857	2864457.368	1540.768
BE36	-70620.336	2864455.916	1540.743
BE37	-70633.909	2864456.008	1540.653
BE38	-70635.189	2864457.369	1540.643
BE39	-70635.332	2864471.359	1540.787
BE40	-70633.836	2864472.899	1540.831
BE41	-70620.336	2864472.988	1540.919
BE42	-70618.833	2864471.910	1540.891

BULK EARTHWORKS SETTING-OUT POINTS

POINT	YCOORD	XCOORD	LEVEL
BE43	-70612.885	2864471.919	1540.900
BE44	-70611.281	2864470.309	1540.895
BE45	-70611.322	2864461.909	1540.853
BE46	-70612.885	2864460.353	1540.845
BE47	-70618.833	2864460.406	1540.792
BE48	-70604.226	2864443.208	1541.184
BE49	-70606.476	2864443.208	1541.137
BE50	-70605.726	2864443.958	1541.637
BE51	-70604.976	2864443.958	1541.684
BE52	-70604.226	2864477.101	1542.308
BE53	-70604.976	2864476.359	1542.808
BE54	-70605.726	2864475.949	1542.706
BE55	-70606.476	2864475.200	1542.206
BE56	-70637.629	2864475.213	1541.652
BE57	-70638.379	2864475.963	1542.152
BE58	-70639.129	2864476.705	1542.135
BE59	-70639.879	2864477.463	1541.635
BE60	-70638.379	2864449.958	1541.261
BE61	-70639.129	2864449.958	1541.219
BE62	-70639.879	2864449.208	1540.719
BE63	-70637.629	2864449.208	1540.761

STORMWATER SETTING-OUT POINTS

POINT	YCOORD	XCOORD	LEVEL
SW1	-70657.214	2864451.026	1540.400
SW2	-70676.113	2864447.420	1539.043
SW3	-70677.332	2864445.947	1538.896
SW4	-70677.332	2864444.210	1539.063
SW5	-70677.333	2864438.209	1539.033
SW6	-70677.333	2864436.836	1538.833
SW7	-70677.333	2864435.336	1538.818
SW8	-70689.498	2864433.866	1538.695

NOTE:

* LEVELS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION

PLAN LAYOUT

SCALE 1:200

QUANTITIES:

CUT TOPSOIL TO SPOIL (ASSUME 150mm THICK)	285 m³
CUT TO BERM & SPOIL	1035 m³
FILL FROM EXCAVATION FOR BERM	68 m³

ABBREVIATIONS:

N.G.L. - NATURAL GROUND LEVEL
B.E.L. - BULK EARTHWORKS LEVEL
F.S.L. - FINISHED SURFACE LEVEL
S.O.P. - SETTING-OUT POINT
U.O.N. - UNLESS OTHERWISE NOTED

EARTHWORKS NOTES

1. ALL EARTHWORKS TO BE CARRIED OUT IN ACCORDANCE WITH SABS 1200 D - 1988.
2. SELECTED LAYER (ON REDUCED BULK EXCAVATION BED) IN ACCORDANCE WITH SABS 1200 DM.
3. SMALL WORKS IN ACCORDANCE WITH SABS 1200 DB.
4. PIPE TRENCHES IN ACCORDANCE WITH SABS 1200 DB.
5. SITE CLEARANCE AND GRUBBING OPERATIONS SHALL BE CARRIED OUT IN ACCORDANCE WITH SABS 1200 C.
6. THE CONTRACTOR TO IDENTIFY AND EXPOSE, WHERE RELEVANT, ALL UNDERGROUND SERVICES ON SITE. HE SHOULD LIAISE WITH ALL RELEVANT AUTHORITIES FOR THE LOCATION AND PROTECTION OF THESE SERVICES.
7. ALL UNSUITABLE MATERIALS I.E. ROOTS, CONCRETE PIPES, OLD FOUNDATIONS, BUILDING RUBBLE SHALL BE DISPOSED OF TO A SUITABLE DUMPING SITE.
8. 150mm TOP SOIL TO BE STOCKPILED ON SITE FOR LATER USE UNLESS OTHERWISE SPECIFIED.
9. ALL APPROVED MATERIAL TO BE STOCKPILED SEPARATELY, AND LATER BE REUSED AS PER ARCHITECTS/ENGINEERS INSTRUCTIONS.
10. THE CONTRACTOR IS TO USE ONLY APPROVED FILL MATERIAL AS SPECIFIED BY THE ENGINEER.
11. ALL EXPOSED REDUCED EXCAVATION BEDS AND AREAS TO RECEIVE FILL SHALL BE CLEARED, RIPPED, WETTED AND COMPACTED TO 90% MOD. A.A.S.H.T.O. TO A DEPTH OF 150mm UNLESS NOTED OTHERWISE.
12. ALL AREAS IN CUT SHALL BE RIPPED, SCARIFIED TO A DEPTH OF 150mm AND RE-COMPACTED TO 90% MOD AASHTO AT 1% TO 2% BELOW OMC, UNLESS NOTED OTHERWISE.
13. THE CONTRACTOR SHALL TIMEOUSLY SUBMIT FIELD AND LABORATORY TEST RESULTS OF RELATIVE COMPACTION DENSITIES, CBR INDICATOR TESTS OR ANY OTHER TEST RESULTS AS REQUIRED, TO THE ENGINEER.
14. A) FIELD DENSITY TESTS SHOULD BE CARRIED OUT AT A RATE OF 1 TEST PER 150 SQ. METER PER LAYER.
    B) THE POSITION OF TESTS AND LAYERS TESTED TO BE INDICATED ON A KEY PLAN AND SUBMITTED WITH THE RESULTS TO THE ENGINEER.
    C) TESTS TO BE DONE BY AN INDEPENDENT LABORATORY APPROVED BY THE ENGINEER.
    D) POSITIONS OF TESTS TO BE APPROVED BY THE ENGINEER.
    E) ONE OF THE DENSITY TESTS SHOULD BE A SAND REPLACEMENT TEST / 10 TROXLER TESTS AND EVENLY SPREAD OVER ALL LAYERS.
15. THE CONTRACTOR SHOULD MAKE PROVISION FOR STORM WATER CONTROL.
16. MAXIMUM CUT SLOPES TO BE 1:1 AND FILL SLOPES TO BE 1:2 UNLESS OTHERWISE STATED.
17. AS BUILT SURVEY LEVELS TO BE ISSUED TO THE ENGINEER AFTER COMPLETION OF EARTHWORKS.

0m 5m 10m 15m 20m

SCALE 1:200

REFERENCE DRG	DESCRIPTION	REV	DATE	REVISION	BY	PEER CHECK
J238-02-14-01	BULK EARTHWORKS SECTIONS	0	2015-02-10	ISSUE FOR CONSTRUCTION	JVV	RB
J238-02-14-02	STORMWATER LONGSECTION & DETAILS					

NOTE:

- POSITIONS OF EXISTING SERVICES ARE INDICATIVE ONLY. EXACT LOCATIONS TO BE DETERMINED ON SITE.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH SABS 1200 AND THE JOHANNESBURG ROADS AGENCY (PTY) LTD.
- ALL TIE IN LEVELS AND COORDINATES TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION.

APPROVAL	NAME	SIGNATURE	DATE
PROJECT MANAGER			
PLANT MANAGER			
ENGINEER			
ENGINEERING MAN			
PR. ENGINEER	R.BAKKER		10/2/2015
REGISTRATION No	9570034		

CLIENT: SANSA SOUTH AFRICAN NATIONAL SPACE AGENCY

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ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.

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APPR: R BAKKER	
DATE: JANUARY 2015	
SCALE: 1 :200	
DRAWING NUMBER: J238-02-10-02	REV 0

DISCIPLINE: CIVIL	DRAWING SIZE: A1
SANSA	
HARTEBEESTHOEK	
CORMORAN-HBX ANTENNA&CONTROL RM.	
BULK EARTHWORKS LAYOUT	
LAYOUT AND SETTING OUT	