



SDI Review Form 1.6

PART 1:

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	MS: 2012/BJAST/1818
Title of the Manuscript:	Investigation of Variation in Resistivity with Depth and Soil Compaction in parts of River State, Southern Nigeria.

General guideline for Peer Review process is available in this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



SDI Review Form 1.6

PART 2: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	This paper presents efforts in measuring soil electrical properties: soil electrical resistivity, and dielectric constant. But it is difficult to understand why the work was carried out: what hypothesis was it trying to test? I think there is an important need to clarify the aim of the study and to explain exactly what new information or insights have been gained from this work. Is it a study about soil compaction or soil constituent? Or, did you test new methods? The readability of the paper needs to be markedly improved. Context of the study is not clear: civil constructions or agriculture? References need to be added in the introduction, the material and methods (concerning the methods employed) and the discussion. The text is confusing as concerned the material and methods employed and the results presented. There is a general problem of form presentation. The overall division should be more detailed and organised. Results and discussion should be more detailed and connected with the objective(s) of the study. <u>Title :</u> The study doesn't present a relation between soil electrical resistivity and compaction whereas it is clearly mentioned in the title.	All the Reviewer's comments have been looked into and corrections effected appropriately on the manuscript. These corrections are highlighted on RED colour. The title of the paper has been slightly adjusted in line with the study.



SDI Review Form 1.6

	<u>Abstract :</u> L23-26: the abstract should give the main result. There is no result here about soil compaction. What is the main result(s)? <u>Introduction:</u> The overall should be change: context, problematic, objectives and then methods used and area studied. L51-56: elements of context should be at the beginning of the introduction. Should be completed by reference from literature. L58-61: objective. What link between soil compaction and chemical content? I don't understand in what objective this study was carrying out? <u>Geological description:</u> This part should be included in the "material and method" part and a more detailed description about the 3 sites should be added: where are they located? What depth of soils is excavated? The reason why you studied these kind of soil? You could design a scheme of the experiment. <u>Methodology</u> Overall division should be improved. I suggest you: 1) experimental area 2) Electrical resistivity measurements 3) Dielectric constant measurements. L86 : I don't really understand why you used the Proctor method. Finally, the method Proctor served as tool for compressing soil samples but you don't present Proctor curves. L104: why 3% for the soil moisture content? in agricultural context this value doesn't exist. L129: justify the use of the Shlumberger configuration. What do you want to see? Horizontal or vertical	The result of the study has been included in the Abstract. The introduction has been rephrased to make the understanding clearer. L51-L56 has been deleted as it was no longer necessary based on the focus of the study. This has been rephrased to make understanding clearer. This has been moved to be part of Methodology. The main aim of the study is to know which soil type will be more appropriate for dry season farming. This has been effected. The line has been deleted. This has been made clearer. The reason for use of Schlumberger array is for greater penetration of the vertical
--	--	---



SDI Review Form 1.6

	variations? L130: eleven stations for VES: where are they located? Justify your choice. <u>Results and discussion</u> L143: "the variation of dielectric constant with depth": figures 2, 3 and 4 present variation of dielectric constant with bulk density and not with depth. L145: the borehole log is not presented in the methodology. Where are they located? Table 2: For me, nothing new in this table in comparison with figures2-4. What do you learn about these results? Except if you consider that the soil capacitance values are useful, in this case you should describe and justify it in the text. Table 3: this table is really difficult to read. I don't understand the VES number (1-8, you described 11 VES in the material and method part?). The legend is incomplete, please give more details about this table or/and simplified it. L169-170: why discussing about soil organic matter? You didn't mention it in your introduction. Figure 5: I don't understand this figure. Which sites are described? There is no description of theses results in the text. How can you compare with the VES results and the dielectric constant results? <u>Conclusion</u> This conclusion doesn't highlight what is the principal result of your study. L186-188: "the study has shown that soil compaction and resistivity vary non-linearly": you didn't present a relation between soil compaction and electrical resistivity but between bulk density and the dielectric constant. L189 "Therefore [...] in the subsurface": this is not a result	formation layers. Vertical variations are our target. This has been corrected to 8 locations which were indicated in Fig. 1. This has been corrected by plotting the 3 curves in one graph. This has been included in section (a) under methodology. Also see Fig. 1. This has been included in the text. This has been corrected. Table 3 shows the processed geoelectric data from the 8 VES survey and the inferred lithologies for each layer based on the knowledge of the geology of the Area. L169-170 has been deleted. Fig. 5 correlates the borehole geologic log with generalized geoelectric section from the study Area. The aim is to confirm the reliability of the results of VES survey. This has been taken care of with modifications made on the concluding remarks.
--	--	--



SDI Review Form 1.6

	from your study in my point of view.	This has been rephrased.
--	--------------------------------------	--------------------------



SDI Review Form 1.6

Minor REVISION comments	<u>Abstract :</u> L17: proctor method is not a geophysical technique. L19: electrical resistivity unit is ohm m and not ohm. L20: 125 ohm m would be better than 1.251×10^2 ohm m. <u>Keyword:</u> Need to be change when the objective will be clarified. <u>Introduction:</u> L 37: more references should be added on electrical resistivity method. L 41: which “changes”?? Hydraulic properties, structure, soil contents.... L 43: “Soil Electrical resistivity depends on the physical and chemical properties of the soil” instead of “Resistivity of soil depends on the physical properties of the soil” L61-64: why discussing about plant nutrient? Seems to be far from the topic of the study. <u>Methodology</u> L85-88: description about the electrical method, should be replaced in the part about the electrical method (with L129-140) L86: reference about the Proctor method. L102: give units in equation (1). L117: give a reference for the hydrometer method. L117: Fifty grammes and 50 Kg, there may be a mistake. L127: Table 1: Give units (%?). Which referential used for the textural classes? L135-137: I don’t understand the meaning of this sentence. L138: give a reference for the IPI2WIN software. <u>Results and discussion</u>	L17 has been deleted. These corrections have been effected. This has been changed. More references have been added in the Introduction. The suggestions have been included. This has been changed This has been corrected. This has been done. This has been deleted. Units have been given to the parameters The mistake has been corrected. This has been added. The sentence has been rephrased to make it clearer. The reference is given
---------------------------------------	--	--



SDI Review Form 1.6

	Figure 2, 3 and 4: you should present one graph with the 3 curves (site1, 2 and 3). Table 2: The graphic quality of this table is mediocre. L181: there might be a problem in the electrical resistivity values. Change units: "ohm m" instead of "ohm".	This is done. The Table has been re-drawn. The units are m because they are referring to depths.
<u>Optional/General</u> comments		