List of content

<table>
<thead>
<tr>
<th>Page No</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>.i</td>
<td>Dedication</td>
</tr>
<tr>
<td>.ii</td>
<td>Acknowledgments</td>
</tr>
<tr>
<td>iii</td>
<td>Abstract(English</td>
</tr>
<tr>
<td>iv</td>
<td>Abstract(Arabic</td>
</tr>
<tr>
<td>v</td>
<td>List of content</td>
</tr>
<tr>
<td>vi</td>
<td>List of figures</td>
</tr>
<tr>
<td>vii</td>
<td>List of tables</td>
</tr>
</tbody>
</table>

Chapter 1
Introduction

1 Background 1.1
1 Concepts and purpose 1.2
1 Hypohses 1.3
1 Research problem 1.4
1 Objectives 1.5

Chapter 2
Environmental Setup

3 General Features .2
3 location and Extent 2.1
3 Geomorphology 2.2
3 Landform and Physiographiy 2.3
4 Soil Genesis 2.4
4 Climate 2.5
5 Land Use 2.6
6 Natural vegetation 2.7
6 Infrastructure 2.8

Chapter 3
Literature Review

7 BACKGROUND 3.1
7 Geomorphology and surface feature 3.2
Chapter 3

Physical Properties of Soils 3.3

3.3.1 Soil texture 11
3.3.2 Soil Structure 11
3.3.3 Soil Density 13
3.3.4 Consistency and Plasticity 13
3.3.5 Drainage and Permeability 13
3.3.6 Hydraulic conductivity 13
3.3.7 Infiltration Rates 14
3.3.8 Soil Pores 14
3.3.9 Soil Roots 14

Chemical characteristics 3.4
3.4.1 Soil reaction 15
3.4.2 Salinity 15
3.4.3 Sodicity 15
3.4.4 Organic content and available phosphorus 16
3.4.5 Gypsum 17

Soil mapping 3.5
3.5.1 Kinds of Map Units 20
3.5.1.1 Consociations 20
3.5.1.2 Complexes and associations 21
3.5.1.3 Undifferentiated groups 21
3.5.1.4 Similar Soils 21
3.5.1.5 Dissimilar Soils 22

Soil Taxonomy 3.6
3.6.1 USDA Soil Taxonomy categorical levels 23
3.6.2 WRB Soil Taxonomy Categorical Levels 23

Land suitability classifications 3.7
3.7.1 Land capability and land suitability classification 25
3.7.2 Qualitative and Quantitative Classifications 25
3.7.3 Structure of the suitability classification 25
3.7.4 Land Suitability Orders 25
3.7.5 Land Suitability Classes 25
3.7.6 Land Suitability Subclasses 25
3.7.7 Land Suitability Units 25
3.7.8 Conditional Suitability 25
3.7.9 Classifications of Current and Potential Suitability 26
3.7.10 Land Utilization Type 26

Chapter 4

Materials and Methods 31
Chapter 5
Results & Discussion

Soil morphological Characteristics 51
  Soil color 5.1.1
  Soil texture 5.1.2
  Structure and porosity 5.1.3
  The diagnostic features 5.1.4

: Chemical Characteristics 5.2

(Recent Alluvium- RA. (Silty Clay Loam 5.2.1   4.1.1
(Semi-recent alluvium-SRA. (Silty Clay 5.2.2   4.1.2
(Old alluvium silty clay loam- OA. (Clay 5.2.3   4.1.3

: Soil classification and correlation 5.3
Land Suitability 5.4

Land Suitability Unit in the study area 5.5

Chapter 6
Conclusion & Recommendations

Conclusion 6.1
Recommendations 6.2
References
Appendices