

2.4.4 Economic Analysis

1. Select Economic Analysis -> Review.

2. The simple search form will appear, helping find a record using the JKR ID and Slope Inspection (for slopes which have had multiple inspections).

3. To use the more advanced search, click on button on form shown above, or select Economic Analysis -> Search from the menu. (For usage of this form please refer to the section on Using Query Builder).

4. When user selects a specific slope from the search, the Economic Analysis form will be opened

5. If the selected records have values for Annual Sectional Traffic Volume (V) and Cost for Countermeasure (RM), then only the <Update> button will be enabled and the user can change the coefficient.

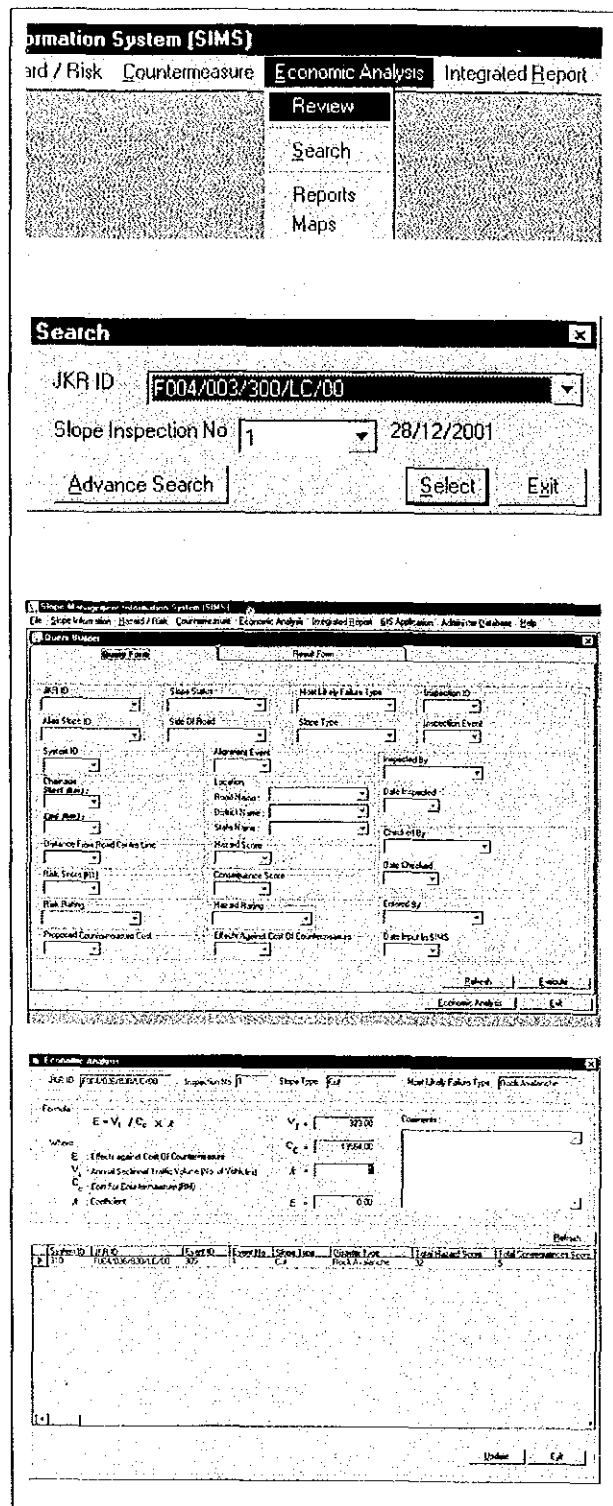


Figure 2.4.37 Economic Analysis Form

6. To calculate the Economic Analysis Result (E) for other records, press the <Refresh> button. Then records will be displayed in the datagrid form on screen.
7. User can select a record from the datagrid. The <Edit> button only will be enabled when the data required for calculating "E" exist for the slope feature.
8. When the <Edit> button is pressed, the <Update> button will appear and the user can modify the data in fields in white colour. During editing, the datagrid is disabled.
9. Click on the <Update> button to save.
10. On clicking the <Exit> button, the form is unloaded.

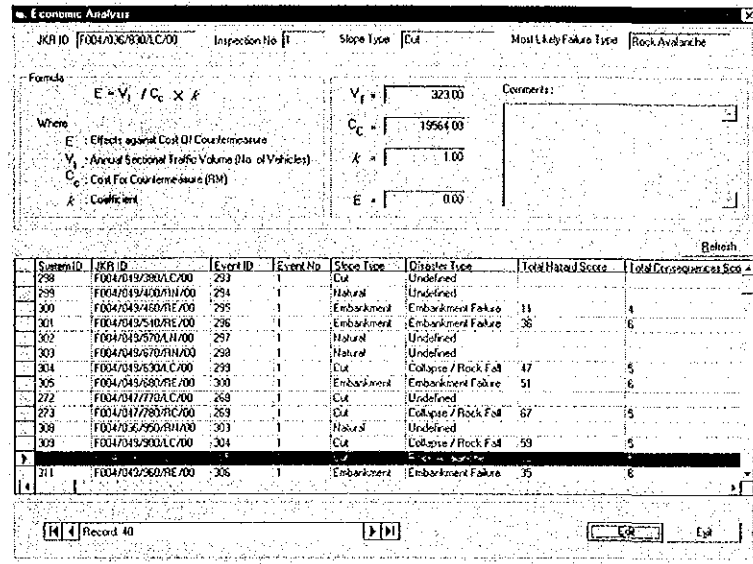


Figure2.4.38 Economic Analysis Result

2.4.5 GIS Application

Although each module in SIMS has an embedded mapping functionality, this functionality is also centralized along with additional capabilities under the GIS Application. Accessed from the main menu as shown, this module provides the ability to:

- Create Maps by JKR Slope ID
 - Select by ID
 - Select by Query
- Create Thematic Maps
 - By Slope Type
 - Most Likely Failure Type
 - Hazard Score
 - Consequence Score
 - Risk Rating

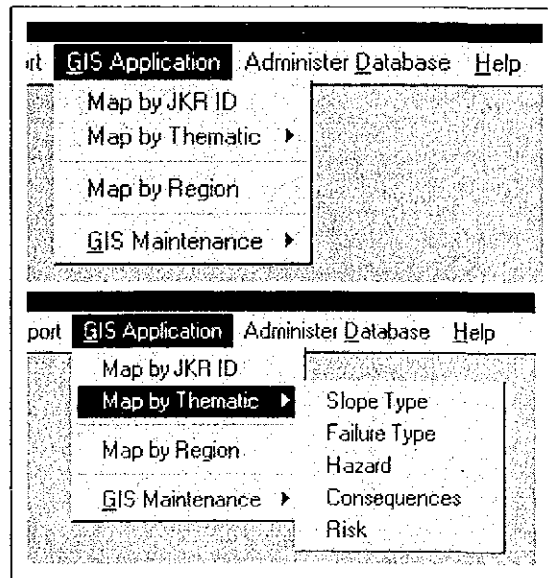


Figure2.4.39 GIS Application Menu

- Create Maps by a defined region
 - Highway
 - State
 - District

- Perform GIS Data Maintenance Functions
 - Add GIS Data Layers
 - Link GIS Data to Slope Database
 - Change default settings of theme display

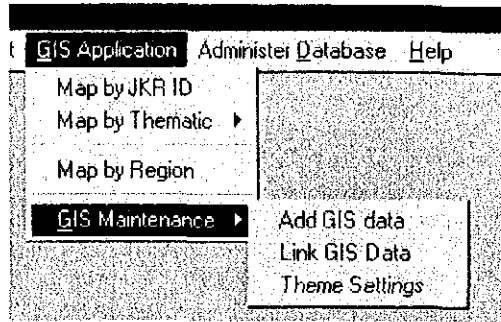


Figure2.4.40 GIS Maintenance Menu

(I) Create Maps by JKR ID

1. Map by JKR ID is used to show a particular slope for a selected JKR ID or a set of conditions.
2. When the Map by JKR ID menu is clicked, a Query Builder form will appear.
3. Select a JKR ID from the JKR ID combo box. Notice that the corresponding fields for the JKR ID such as Chainage, alignment event etc. will be displayed in their respective area.

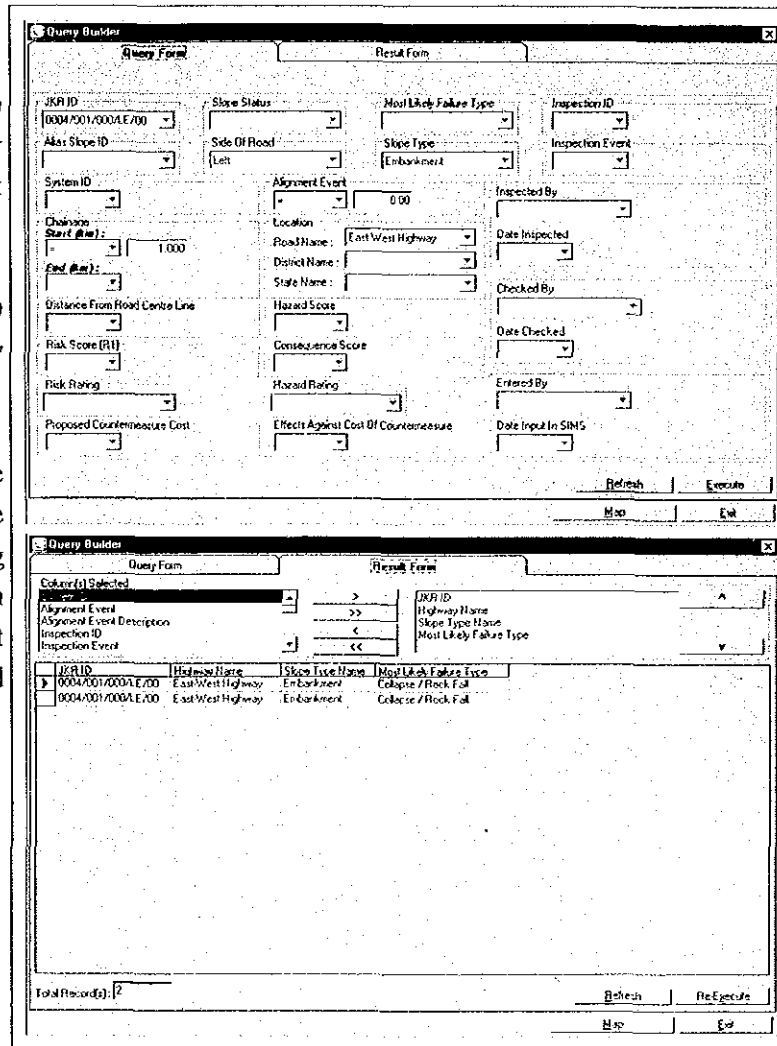


Figure2.4.41 Query Builder Form

4. Click Execute to perform search.
5. The results will be shown in the Result Form tab's Grid
6. Select a row from the Grid and then click Map to show the corresponding slope.
7. If a particular slope exists, the Map Viewer will centers at that particular slope and the slope will be highlighted in bright yellow.

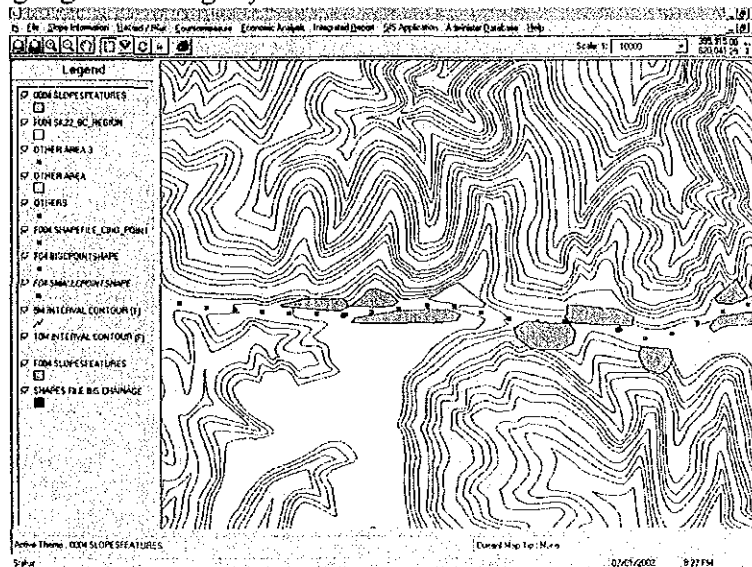


Figure2.4.42 Result Form

(2) Map by Thematic Information

Map by Thematic is used to show a map by a selected information values. The user can create thematic maps by

- Slope Type
- Disaster Type
- Hazard Score
- Consequences Score
- Risk Rating

Steps for Making a Thematic Map

1. Select a thematic type
2. A GIS Module will appear and show the extent of the slopes mapped thematically according to the type chosen.

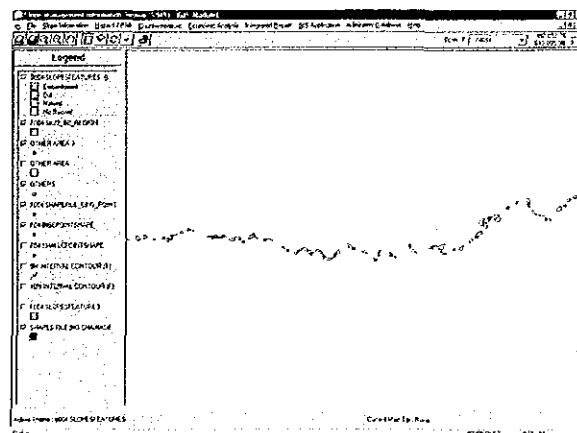
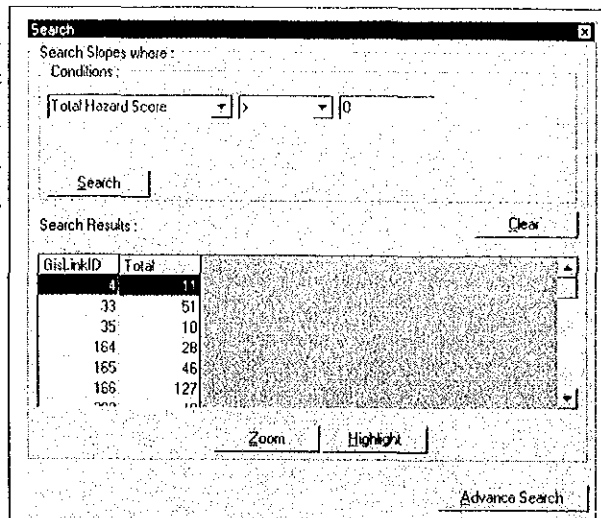
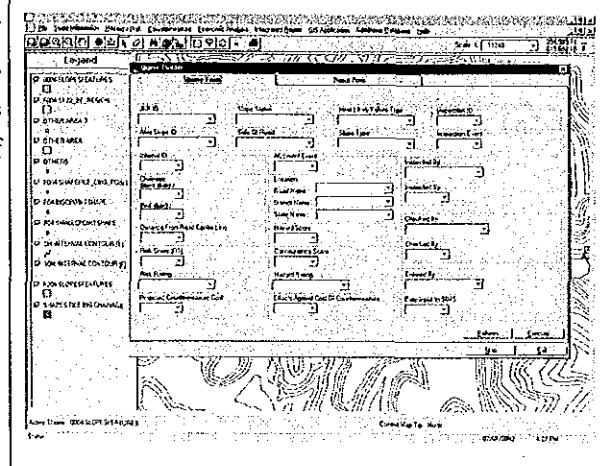


Figure2.4.43 Thematic Information

3. Alternatively, a search condition can be used to define the Thematic Data range to be displayed. As an example, this screen shows a Query that selects slope features based on the hazard score.



4. A more advanced query builder form can be used to address more complex questions and select slope features that address a range of criteria



5. The results of the query are displayed as a map in the view window.

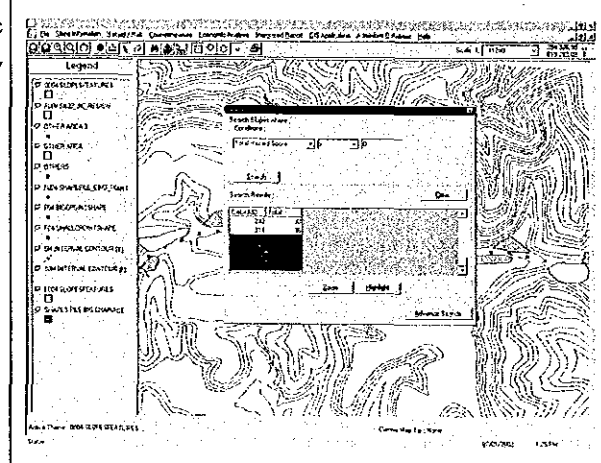


Figure 2.4.44 Slopes mapped thematically by slopes type

6. The Thematic option is also accessible from the map window and can be used to render the map according to slope attributes defined.

These include:

- Slope Type
- Most Likely Failure Type
- Hazard Score
- Consequence Score
- Risk Rating

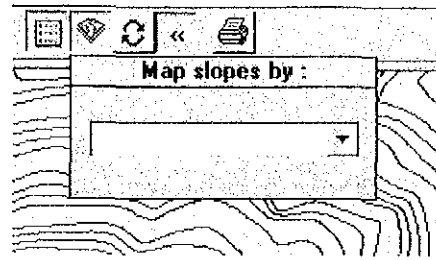



Figure2.4.45 Selecting Map by Features

7. Click on the Thematic Option Button . A drop down box will appear below the button. Choose a thematic option to map.
8. The Map Viewer will refresh automatically to display the slopes by the selected thematic options.
9. The legend for thematic selected will be displayed on the legend for the slopes features.

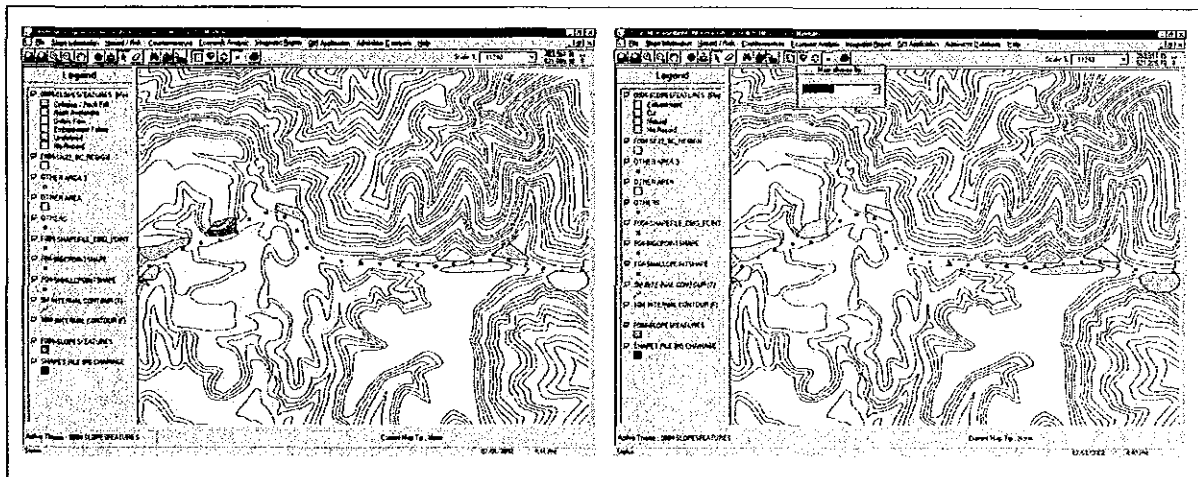


Figure2.4.46 Thematic for Slope Failure Type and Slope Type

10. Change the Thematic display by accessing the “Thematic Color Tab”. This is used to change the color of the slopes features displayed.

11. Double click on the color box to change a particular thematic color.

12. A color chooser dialog box will appear. Choose a new color and click. Click Apply to commit the changes.

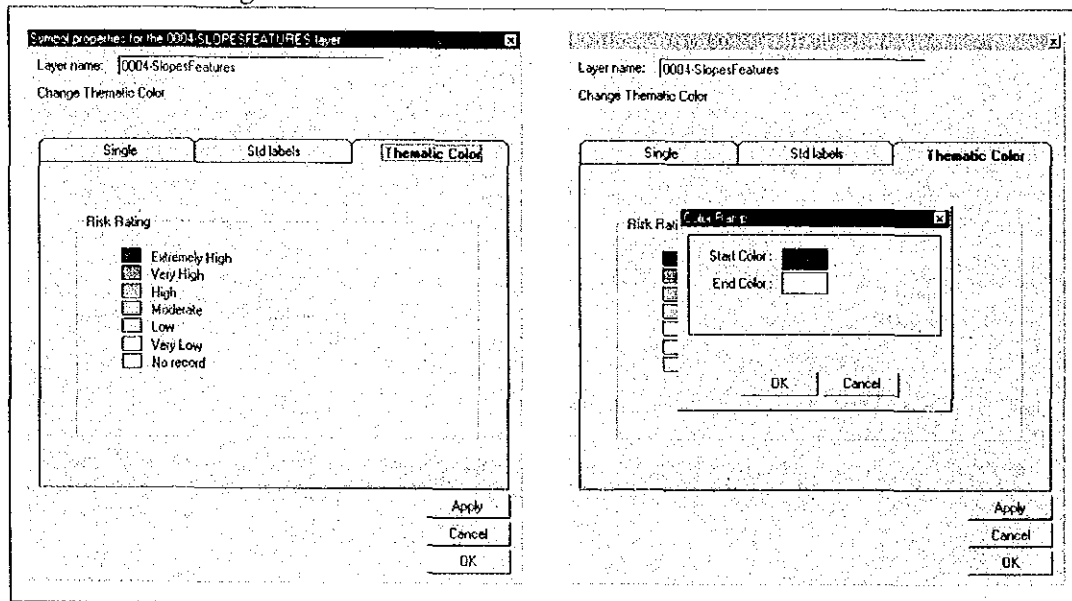


Figure 2.4.47 A Thematic Color Tab and A Color Ramp Selection Box

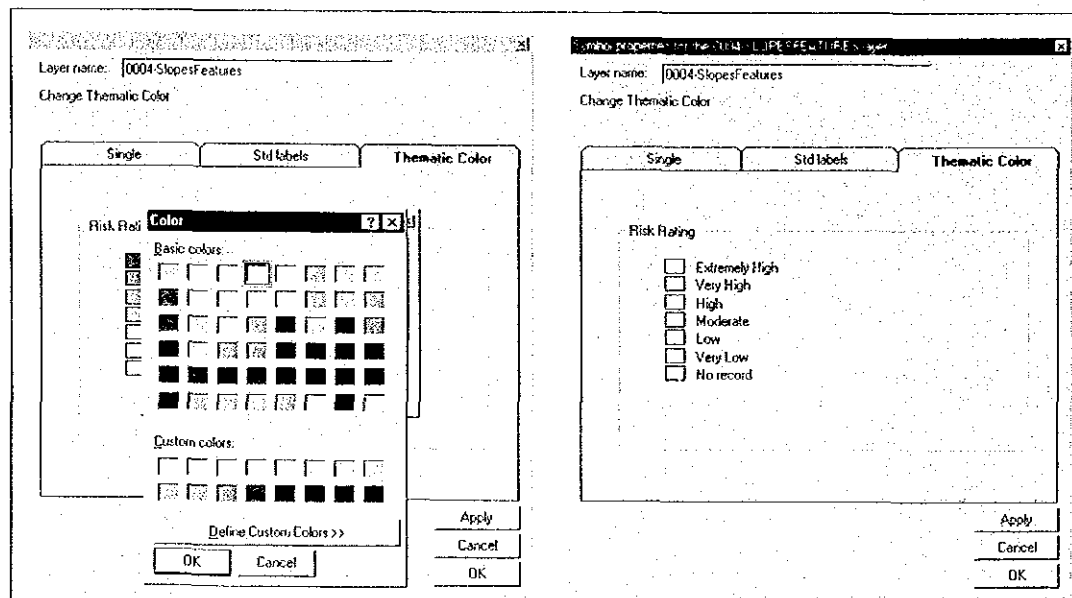


Figure 2.4.48 Select a Colour and Changes to the Thematic Colour

(3) Map by Region

Map by Region is used to show a map according to the spatial location selected.

1. When you click the Map by Region menu, a Spatial Browser dialog box together with the GIS Module will appear.
2. You can select a location to be viewed by selecting any of the 3 combo boxes.
3. If you select a State and then click Show Map, all the data for that state will be loaded and displayed on the Map Viewer. This is also the same for District.
4. Click clear to reset all the fields in the combo box to select a new location.
5. You can also directly select to view just the location of a particular highway by selected a highway from the Highway combo box without selecting the State and District combo box.
6. When the map is loaded. The Spatial Browser will remains on top of the Map Viewer so that you can choose another location to view in case the data loaded is not the location you want.

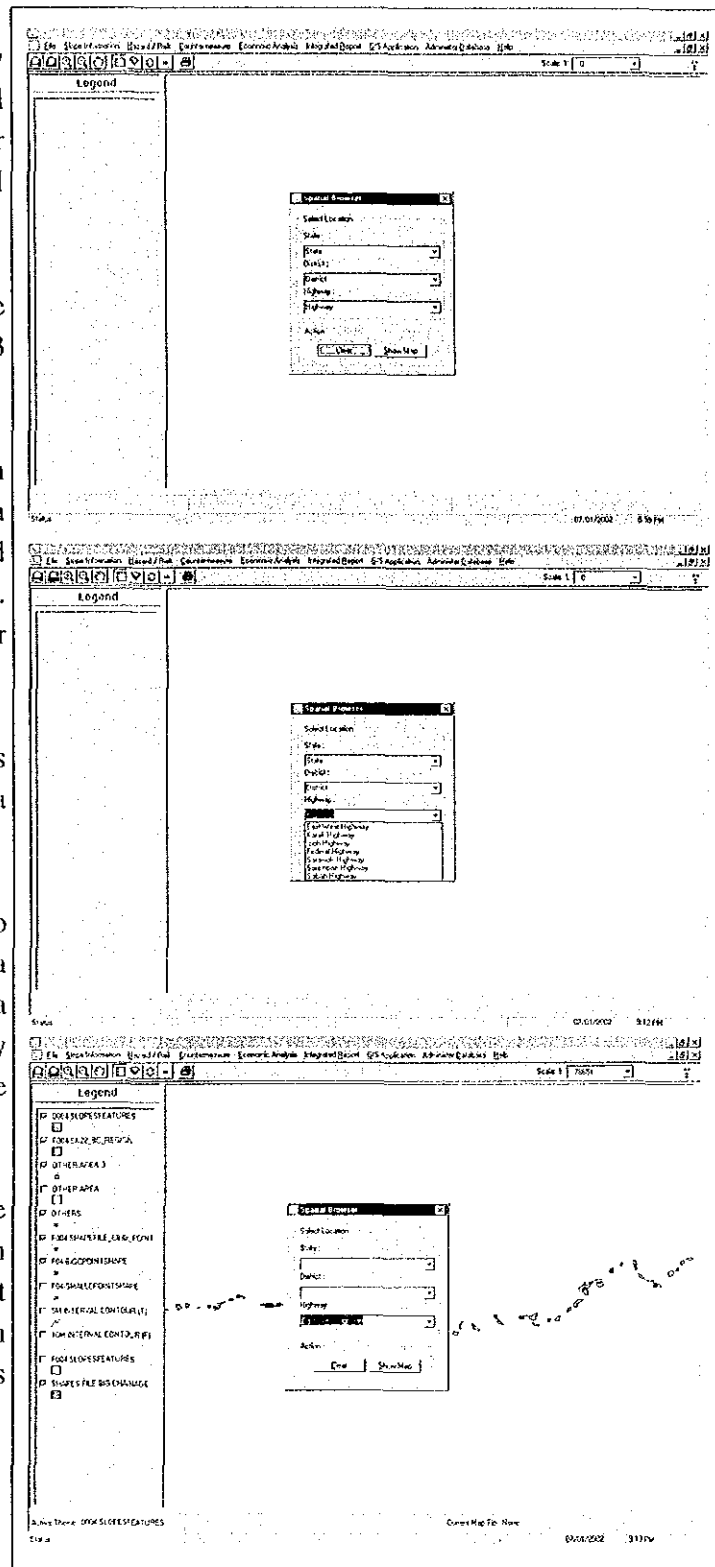



Figure 2.4.49 Displaying Maps by Region

7. When you have confirm the data loaded is the location you want to work with, click the cross button in the Spatial Browser to close the Spatial Browser form.

Printing Maps

1. Click on the Print Button 
2. A Print information Dialog box will appear
3. Click Yes to continue printing at default setting or No to Exit.

Please note that all the shapes and Text that are drawn with Drawing Tools will also be printed.

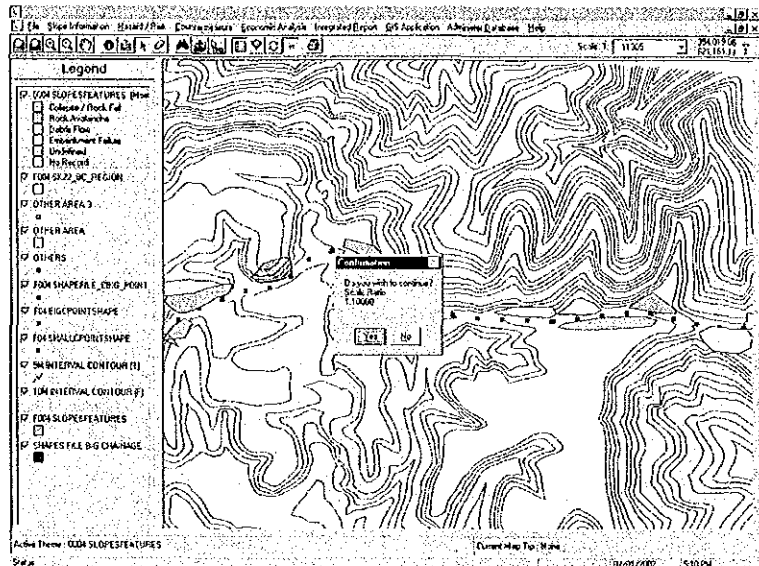


Figure2.4.50 A Print Information Dialog

(4) GIS Maintenance

a. Adding GIS Data

1. Add GIS data is used to add a GIS theme to the SIMS location for storing GIS data.
2. Data that can be added are ESRI shapefiles (.shp) and TIFF (.tif) raster files.
3. To select a drive or a network path where the GIS source data is to be added to the SIMS application, select a drive or network path from the Drive combo box.
4. You can also select a folder from the Folder listbox to specify a folder where the GIS source data resides.
5. Double click a folder and the File listbox will automatically display the files in the folder selected. Only the valid files that can be added to the SIMS application GIS location will be displayed in the File combo box.
6. Click Add Data button to add the selected file to the SIMS application.
7. Double clicking on a selected folder will display all the files that are in the folder that can be added to SIMS application.

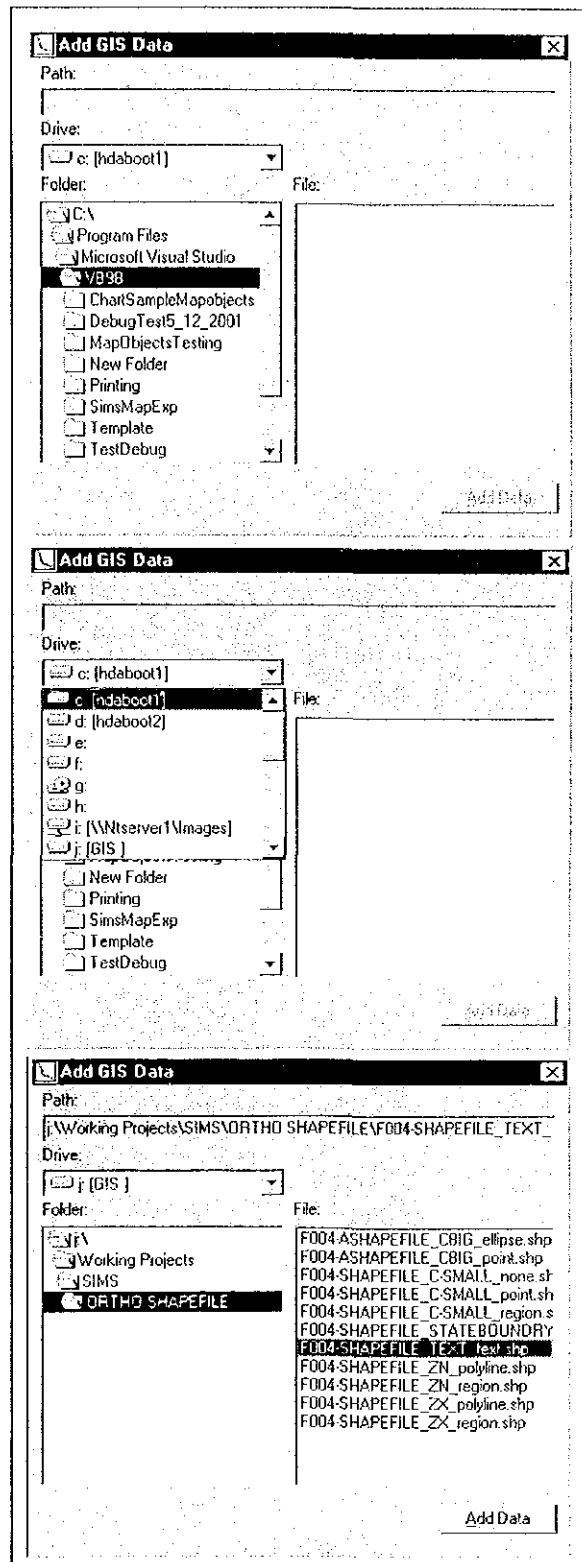


Figure 2.4.51 Adding GIS Data

8. The Add Data Button is enabled if a file is selected

b. Linking GIS data

Link GIS data is used to associate a theme from the SIMS GIS data storage location to a particular highway.

1. Select a highway from the Highway combo box to select a highway you wish to associate a theme with.
2. The content grid will display all the current link for a particular highway selected. If links have not been done before, the grid will not display any data.
3. Select a file from the File listbox to link a particular theme/file to the highway selected.
4. Click Add Link to add the new link to the table. (You can also delete a link from the SIMS GIS linkage).

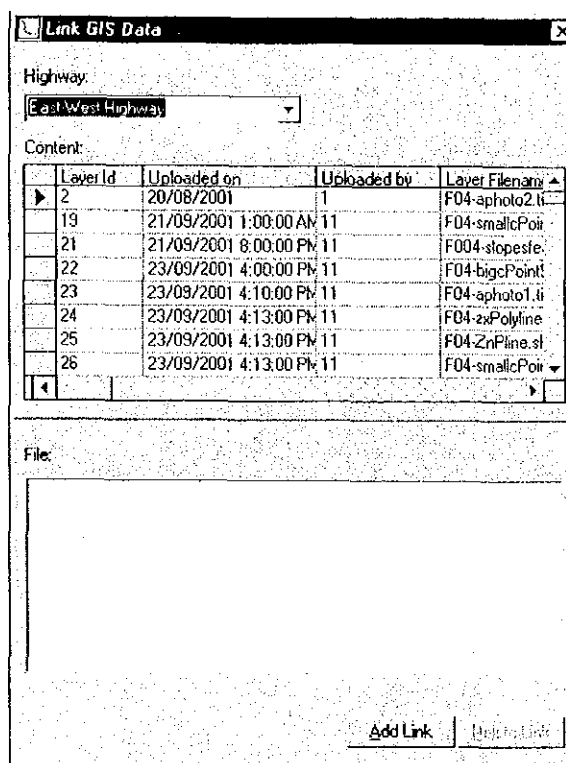


Figure2.4.52 Linking GIS Data

5. Select a theme/file from the content grid (The selected theme will be highlighted).
6. Then click on the Add Link/Delete Link button to delete the selected link from the SIMS GIS linkage.
7. A message box will appear to confirm whether you really want to add/ delete the selected link.
8. Click Yes to confirm add/ delete link or No to cancel.

c. Theme settings

Theme settings is used to set all the Theme's default

- Alias Name
- Minimum visible scale
- Maximum visible scale
- Default Color

1. You can browse the data of the Theme setting by using the browser at the bottom of the form. Click on the right arrow to move to the next row or the left button to move to the previous row of the grid.
2. To change a setting for a theme, select a row in the grid and then click the edit button.
3. The Edit button will be enabled if there is an active selection in the grid.
4. The theme alias name, minimum scale, maximum scale edit box will be enabled.
5. To change a value, click on a particular edit box and type in the new value.
6. To change the default color, double click on the color box. A color chooser dialog box will appear. Click on a new color and the new color will be reflected on the color box. (Note that theme that does not have a default color set will be displayed NIL for Theme Default Color).
7. Click update to update the changes for the selected theme or Cancel to undo the changes.
8. Click exit to close the Theme Settings form.

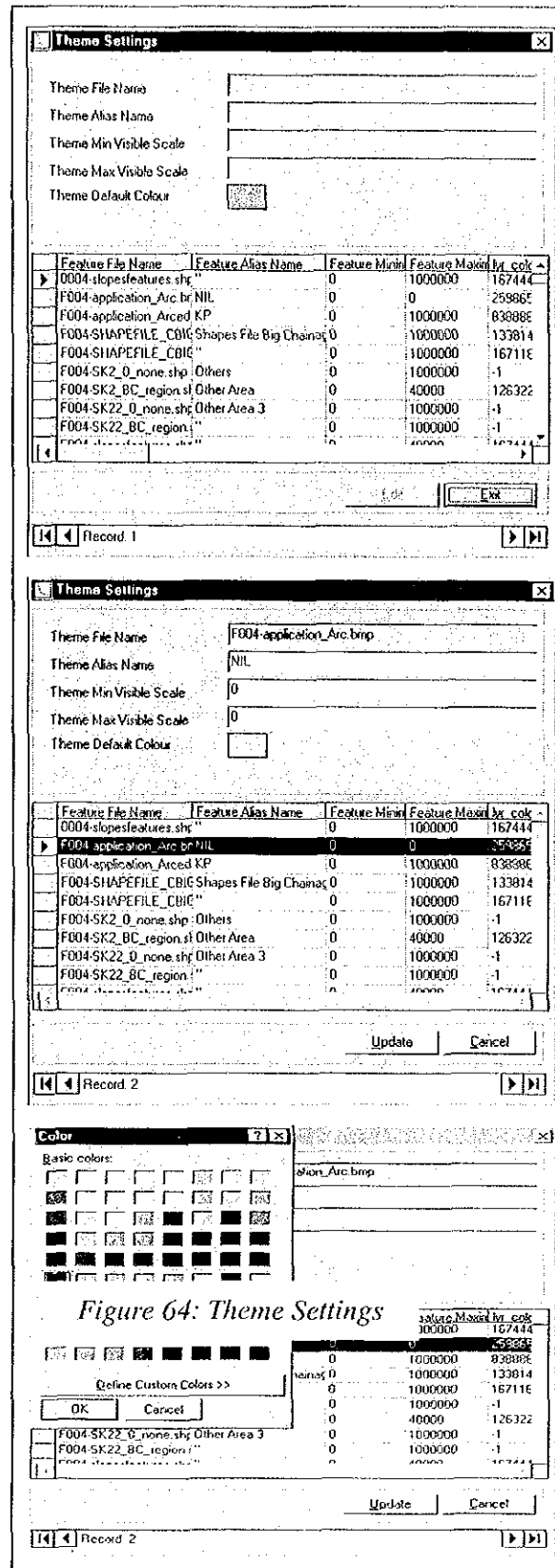


Figure 2.4.53 Theme Settings

2.5 Administrative Functions

The administrative functions of the application address User Management, System Management, and activities of database management. This section of the guide addresses the Administrative Functions in detail, especially those of creating and managing users, keeping the database updated and synchronised across all the installations, and tracking version changes of future upgrades of the application.

2.5.1 Scoring

This section provides access to the scoring values associated with the hazard and consequence scores assigned for forms E and F of the Slope Inspection. The user interface allows the administrator to make edits to the score values.

2.5.2 Parameter Risk Rating

This section provides functionality to review and modify the ranges assigned for risk rating, which define a slope feature to have very high, high, medium, or low.

2.5.3 System Configuration

This section defines the environment variables which help use change the path description providing access to the GIS and Image data that is used in SIMS

2.5.4 User Maintenance

This application section provides administrative facilities to manage users and assign roles permitting varying levels of use/ administration of the application.

(1) User Roles

1. To use these functions, go to *Administer Database Menu*
2. Select *Administer Database -> User Maintenance -> Role* and click on it. Then the User Role form will be displayed
3. To add new record, user need to click on the Add button and user will be allowed to enter new record. After finished editing, user just need to press update and new record will be added to the database.

Figure2.5.1 User Role Form

4. To edit existing record, user just need to press the Edit button.
5. If user want to refresh the record being displayed, just click the <Refresh > button. To close the form, click on <Close>.

(2) User Administration

1. Go to Administer Database -> User Maintenance -> User and click on it. Then the User Administration form will be displayed, as shown.
2. To add new record, user need to click on the Add button and user will be allowed to enter new record.
3. After finished editing, user just need to press update and new record will be added to the database.
4. To edit existing record, press the Edit button.
5. To refresh the record being displayed, click the Refresh button and the Close button is to close the form.

User Ad	Code	Name	Created On
10	susan	susan	10/12/2001 3:23:01
11	system	system	24/09/2001 1:49:01
12	ghmay	ghmay	07/07/2001
13	leetm	leetm	06/06/2001
14	loo	loo	08/08/2001
15	awasthi	awasthi	19/11/2001
16	pambir	pambir	19/11/2001
17	sraban	sraban	27/11/2001

Figure2.5.2 User Administration Form

(3) System Function

1. Go to Administer Database -> User Maintenance -> System Function and click on it. Then the System form will be displayed.

System	Description	Security Level Type	Value
1	VIEWHAZARDSCORE	VIEW	YES
2	VIEWSLOPEINFORMA	VIEW	YES
3	VIEWRISKANALYSIS	VIEW	YES
4	VIEWECONOMICANAL	VIEW	YES
5	VIEWDATABASE	VIEW	YES
6	VIEWTOOLS	VIEW	YES
7	VIEWGIS	VIEW	YES
8	VIEWCOUNTERMEAS	VIEW	YES
9	VIEWREPORTS	VIEW	YES

Figure2.5.3 System Function Form

2. To add new record, click the Add button and user will be allowed to enter new record.
3. After finished editing, user just need to press update and new record will be added to the database.
4. Press the Edit button to edit the record.
5. If user want to refresh the record being display, just click the Refresh button as shown, or the Close button is to close the form.

System	Description	Security Level Type	Value
2	VIEWSDOPEINFORMA	VIEW	YES
3	VIEWRISKANALYSIS	VIEW	YES
4	VIEWECONOMICANAL	VIEW	YES
5	VIEWDATABASE	VIEW	YES
6	VIEWTOOLS	VIEW	YES
7	VIEWGIS	VIEW	YES
8	VIEWCOUNTERMEAS	VIEW	YES
9	VIEWREPORTS	VIEW	YES

Figure2.5.4 System Function Form

(4) Form Role

1. Go to Administer Database -> User Maintenance -> Role - System Function and click on it. Then the Form Role form will be displayed

ID	Description
2	SuperUser

Figure2.5.5 Form Role

2. This form is used to specify which type of user role are member of the specific system function. So from here administrator can determine which type of user are allowed to access or view which part of the system function. Close button is to close Form Role form.
3. To edit existing record press the Edit button. To exit the form press the Cancel button.

2.5.5 Database Import/ Export

This section provides access to the Administrator to exchange data with the district offices, importing the data created by them, and exporting the updated master tables as required to the district offices.

2.5.6 Master Tables

This section provides access to master tables that control the pull-down values and standard data items in SIMS. Changing these will affect the Slope Feature Information and the SIMS Application. Changes are only permissible through the Administrative User Account.

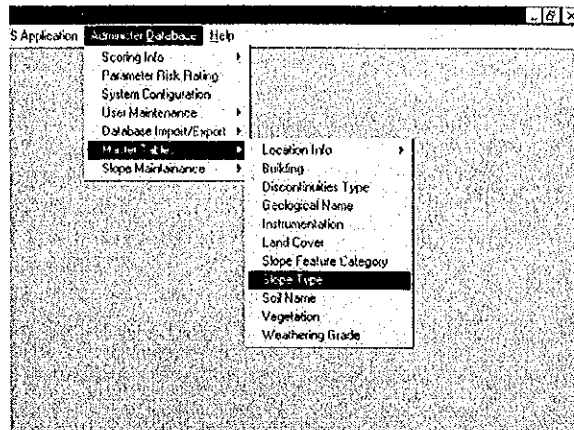


Figure2.5.6 Master Table Menu

There are ten master tables that let the user to choose to add or edit to them. Each of the master tables is accessed through a similar user interface allowing addition and edits. Deletions are permissible on a case by case basis to ensure that the SIMS functionality will not be affected.

2.5.7 Slope Management: Purge Deleted Records

1. Go to Administer Database -> Slope Maintenance -> Purge Deleted Records and click on it. Then the Purge Slope Inventory Form will be displayed.
2. This form lets the administrator choose which slope features marked for deletion should be purged from the database.
3. Administrator can select the slope that want to purge from the system by the JKR Slope ID, refer Figure (c). Press Purge button to purge the record from the system.

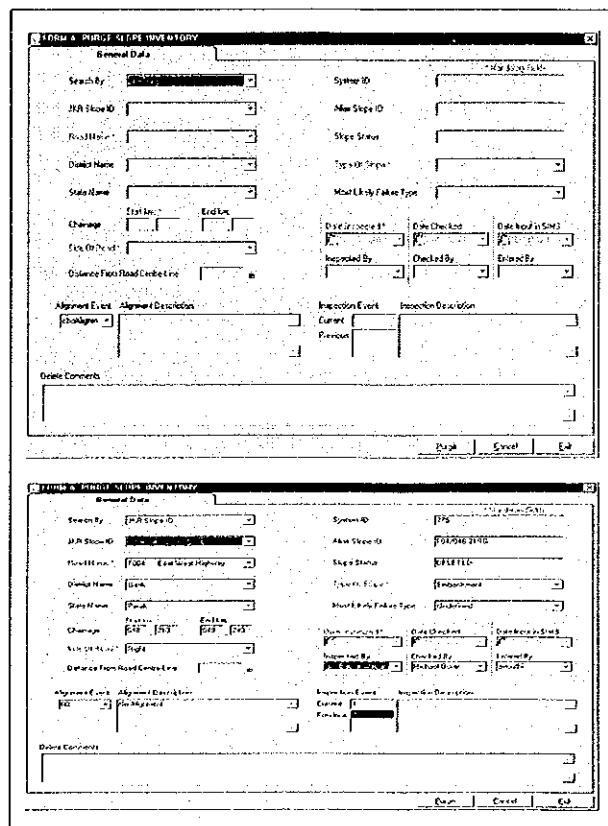


Figure2.5.7 Purge Deleted Records

2.6 User Levels

Access to the entire functionality of the application is restricted by a user level structure, organized as:

- General User
- Advanced User
- Administrative User

General users will have information review capability only. Advanced users will be able to input data, edit data, review data, and identify slopes for deletion if required. The administrative user will be able to perform administrative functions of addressing the master table revisions, purging deleted slopes from the database and all other functions under the Administrative Section of the menu.

2.7 Help Function

The application includes within it a context/ subject relevant help file that is accessible through the main menu. This will help the user understand the application, its use, and the relationship of this to Slope Disaster Management activities. This is available on-line after the application is installed.

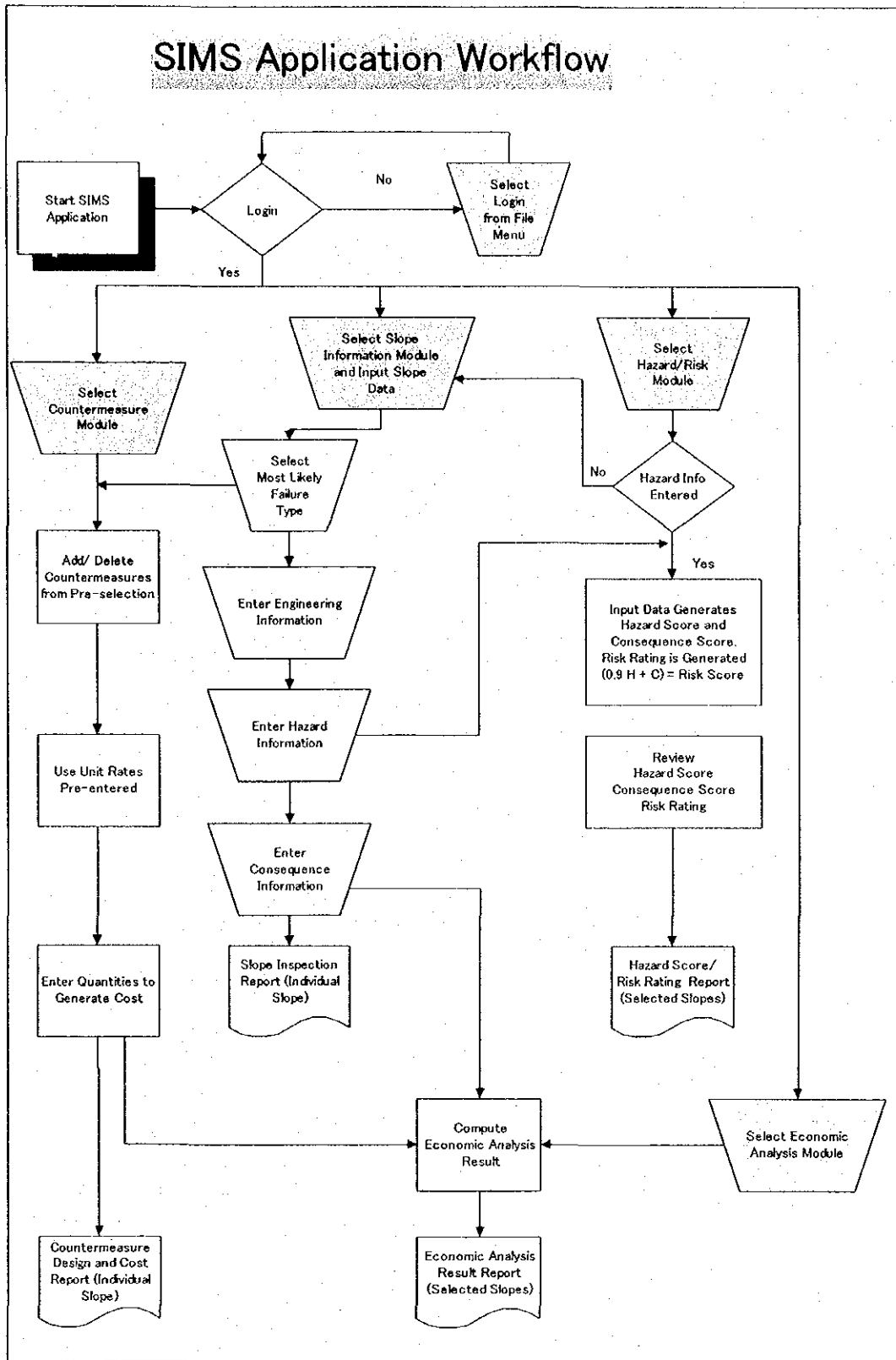
2.8 Lookup Tables and Standard Values

The Lookup Tables and Standard values populate the application providing selection options to the user without having to key in the information. A listing of the details of each of these tables along with their original source will be provided in the Guide to assist the user in reviewing standard information.

Modification to this data may be required and guidance on the procedures to make such changes as considered necessary will be provided in this section of the guide.

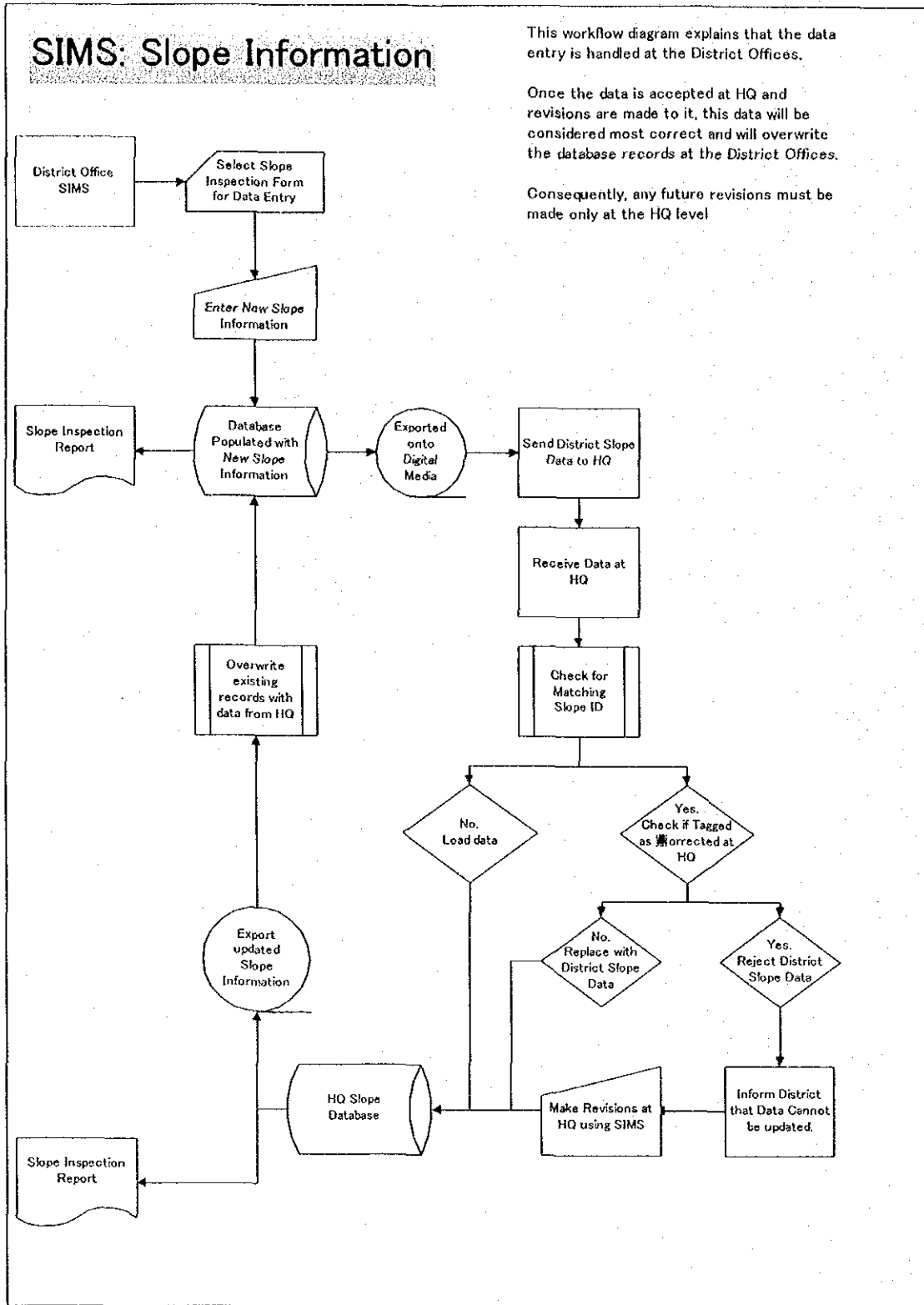
(These tables are being modified to include revisions based on JKR comments and Study Area Data Testing)

Appendix I



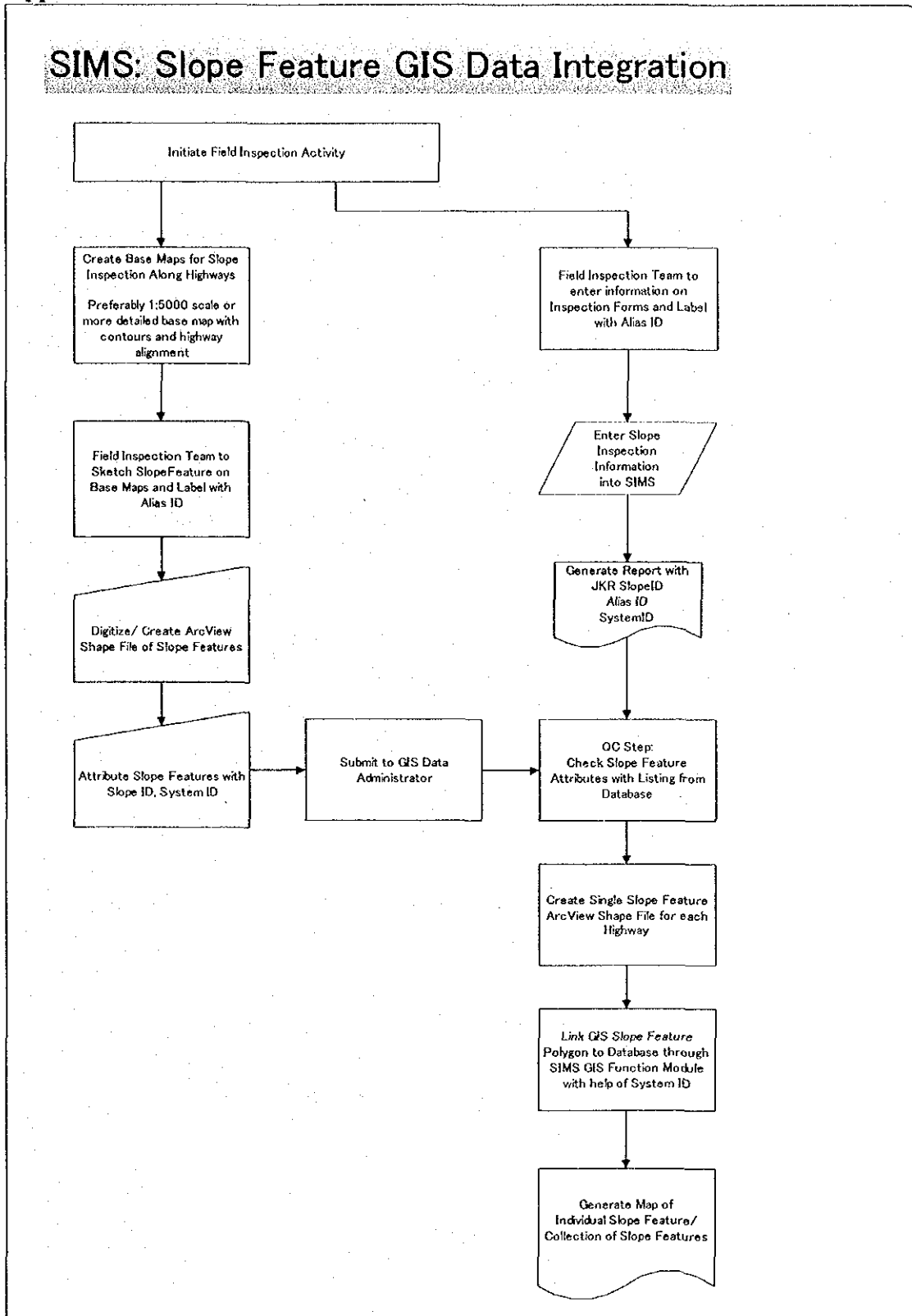
Appendix I Figure SIMS Application Work Flow

Appendix II



Appendix II Figure SIMS Slope Information

Appendix III



Appendix III Figure Slope Feature GIS Data Integration

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