
PROPLAN — Evaluation Pack

This evaluation pack will assist you in assessing **PROPLAN** prior to purchasing a full user licence. (The cost of the pack will be credited against the cost of any **PROCON** software licence purchased within the following 90 days.)

Any commercial use of the evaluation system, or attempt to copy, transfer, adapt or reproduce the code, displays, or ideas contained within the program, contravenes the licence purchase agreement and will cause material damage to **PROCON Construction Systems**.

The evaluation program has a number of restrictions and capacity limitations. These are:—

- It is useable for **90 days** only.
- Each job you enter may be accessed only **SIX** times.
- Report **header** cannot be changed.
- **Capacity** is limited to the tutorial size.

Install the evaluation system on your hard disk by placing the program disk in drive A, then change to drive A by typing **A:**
Enter. Then type **I N S T A L L Enter**
and follow the directions.

Part B — Tutorial

Preamble

If you have not yet installed **PROPLAN** on your harddisk, read **Getting Started** in *Appendix 1*.

If you have not viewed the **PROCON** “slide show” **DEMONSTRATION** program describing **PROPLAN**, you may wish to look at it *before* starting the tutorial.

Running the Demo

When you install **PROPLAN**, the demonstration is automatically copied to your harddisk. To run it type `CD \PROCON` and press to change to the directory, type **DEMO** and press . If the demonstration has been removed—or you wish to install it on another machine—place the program or demonstration disk in **drive A**, type to change to that drive. Then type **DEMO**, press , and follow the instructions.

The Tutorial

The tutorial assumes that the program is installed on **drive c** and that you are using the directories created by the installation program. If this is not the case, you must interpret the following instructions appropriately. The tutorial introduces **PROPLAN** and covers the *basic* functions you will need to enter and update a *project network*.

It is assumed that you understand *network based project scheduling techniques* and have at least some basic familiarity with the computer and operating system. On the other hand, if you have not previously worked with **PERT/CPM networks**—and *precedence diagrams* in particular—you should read *Appendix 3* before continuing.

If you have already used other **PROCON** software packages—such as the **PROBID Estimating & Tendering System** or the **PROBILL Contract Billing System**—you can run quickly through the early material, as the user’s interaction with all **PROCON** programs is similar. If you have also had previous experience with computerised scheduling systems offering different types of *lagged relationships*, *user defined calendars*, *constraint dates*, *hammocks*, etc., you may be able to skip the tutorial entirely and move directly to **Part C**—the *Reference Section* of the manual.

In as short a span as possible, the tutorial introduces **PROPLAN** and covers all essential aspects of the program. It should not take more than a few hours to complete and can conveniently be broken into three stages. Follow the instructions *exactly*, as many of the points will be missed if you do not use the same information as that given on the

diagrams. (If you do not intend to use **PERT COST** you can skip the *Costing* section of the tutorial.) More advanced facilities can be explored when the need arises.

Starting PROPLAN

Type `CD \PROPLAN\SYS` and press `[Enter]` to change to the **System** directory. Type `PROPLAN` and press `[Enter]`. A logo appears with some system information and then...

Menu System

The **PROPLAN** header line and menu system appear. The **Master menu** is currently active. It looks like this:—

```

PROPLAN - PROJECT SCHEDULING SYSTEM                      System date: Fri, 15DEC95
MASTER  UTILITY  EXPORT  CALENDAR  ACTIVITY  HAMMOCK  RESOURCE  COST  HELP
=====
New Network
Print Reports
List Networks
Edit Network
Remove Network
Data Directory
Customisation

```

PROPLAN is menu driven. The menus are “intelligent” and try to suggest the most appropriate continuation to you at all times. Currently this is the **Customisation** option—which allows you to *choose a printer, set currency formats* and change other program parameters to suit your preferences.

Selecting from Menus

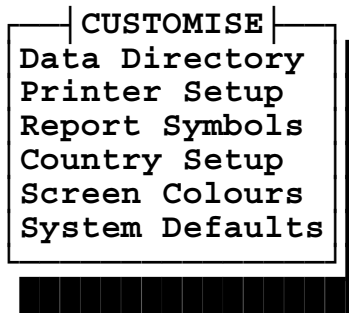
You do not have to accept a suggested menu option. An alternative choice may be made from the same menu in several different ways:—

- by keying the **highlighted letter** shown for the *desired choice*, or...
- by keying the **number** of the *desired choice*, or...
- by **moving the highlight** to the *choice* and pressing `[Enter]`.

`[Spacebar]` or `[↓]` move the highlight *down*. (If the keyboard does not have a separate cursor keypad, make sure `[Num Lock]` is off.) `[↑]` moves the highlight up. (The highlight “rolls around” if you go beyond the *top* or *bottom* selections.) `[PgUp]` and `[PgDn]` move directly to the *first* or *last* choice.

Customising PROPLAN

Hit **C** for **Customisation** and this selection list (“picklist”) appears:–



PROPLAN is essentially “ready to run” as installed, so the **Customisation** options are not examined in great depth in the tutorial. (*Appendix 8* in *Part D* of the manual covers **Customisation** in detail.)

However, you should at least provide **PROPLAN** with some information on your printer. Use the **↑** and **↓** arrow keys to move the highlight to **Printer Setup** and press **Enter** to select it. The following screen appears:–

```

PRINTER SETUP                               System date: Fri, 15DEC95
Report Header | PROPLAN - PROJECT SCHEDULING SYSTEM | Shade Headers? Yes
Device | PRN | Laser Printer? No Printer | No Printer Selected |
Wide Paper? Yes Lines/Page | 66 |
DECIMAL Control Codes for PRINT operation
Initialisation codes ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
Set PICA pitch ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
Set ELITE pitch ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
Set CONDENSED pitch ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
START BOLD printing ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
END BOLD printing ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████ ██████████
F2 record F10 cancel F4 bring fwd F3 blank fld ↑↓ PgUp top PgDn bottom
Header appears on printed reports CAP NUM
  
```

The first *box* (called a “field”) is for the standard **Report Header**. Other fields allow you to specify the **type of printer** and **size of paper** you are using. While you may not *have* to change most of these values, we will practice *moving through the fields, requesting help, and editing field contents*.

Moving from Field to Field

Move around the screen—as you did with the menu—using **↓**, **↑**, **PgUp** and **PgDn**. The **Enter**—or **Tab**—key moves the cursor to the *next field*. Fields are originally solid white but open up and show “sidebars” once accessed. To catch your attention, the active field (the one containing the cursor) has highlighted sidebars.

Field Information Messages

As you move from field to field, you will notice that specific information appears on the bottom line. Press **[PgUp]** to return to the first field—the **Report Header**.

Help System—**[F1]**

[F1] is always the **HELP** key. Press it to obtain help with the current field. A window of information on the **Report Header** field appears in the centre of the screen. The *help system* explains that the **Report Header** appears on all printed reports and suggests that—in commercial versions of the program—you might use your organisation or department name here.

The *help system* allows you to **list key assignments** and *help topics*, **find help topics**, or **follow a hypertext chain** through the screens, etc. For more details hit **[F5]** while still within *help* and enter the keyword “**HELP**”—or see **Getting Help** on *page C-2*.

The **[Esc]**ape key **CANCELS** a function, so press it to remove the help window and return to the **Report Header** field.

Field Editing

Spend a minute to familiarise yourself with text entry. To make editing as easy as possible, input is in a special “word processor” mode. **[←]** and **[→]** move the cursor *one character* left or right.

[End] moves to the *end of any text in the field*. If the cursor is already at the end of the text—or the field is blank—it moves to the *right edge of the field*. If pressed again, it moves to the *last field*. **[Home]** returns the cursor to the *left margin*. If pressed a second time, it moves to the *first field* on the screen. **[F3]** completely *blanks* a field.

[Del]ete *removes* the character under the cursor and moves text back to close the gap. **[Bksp]**—usually marked with a large left arrow—moves the *cursor and text to the left*—overwriting any character there. **[Ins]**ert toggles between *overstrike* and *insert* mode. The cursor is a full block—like this **█**—in insert mode.

[Caps Lock] can be toggled, enabling *upper case* characters to be typed without using the **[Shift]** keys. While it is engaged, a small **CAP** is shown in the bottom right corner of the screen and the cursor changes to a half block—like this **▣**.

Experiment with the edit keys. If you change a field, hit **[Esc]**ape to *restore its original contents*. Newly entered—or changed—text is “*highlighted*” (bright yellow on a colour monitor) to draw your attention to amendments. If you change several fields, you can use **[F10]**—the **CANCEL** key—to restore the complete screen.

Single Character Fields

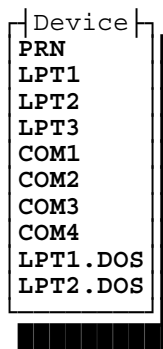
Press **[Enter]** to move to the **Shade Headers?** field. (This field setting determines whether the title line on reports is *background shaded*. Shading can improve the appearance of reports but not all printers do it effectively. More on this later...)

When a *single character field* offers several alternatives, use the **[Spacebar]** to roll through the choices and hit **[Enter]**—or just the *first letter* of your choice. (Upper or lower case responses are accepted so don't worry about **[Shift]** or **[Caps Lock]**.) Your selection *expands* to “**Yes**” or “**No**” and the cursor moves on to the next field.

Selection Lists—**[F6]**

The **Device** field allows you to change the *print destination*. You could change this setting by typing in the new value. However, typing is *tedious* and *error prone*. As there are only a limited number of valid entries it is better to get **PROPLAN** to list them.

To do this hit **[F6]**—the **SELECT** key (or the *left* mouse button). A small *picklist* opens near the field and lists all valid choices for this field. It looks like this:—



Hit **[Esc]** to *remove* the list *without* changing the field's contents. (The setting should always be left at **PRN** if your printer is connected to the standard parallel port—or if a serial port has been configured to emulate the parallel port.)

Don't know what a device is? It doesn't really matter. **PROPLAN** can direct reports to printers on different “devices” or “ports”. **PRN** almost always works and is usually the *best* setting...

Press **[Enter]** (or the *right* mouse button) to move on to the **Laser Printer?** field.

Laser Printers

Hit **[F6]** to pop up a *picklist*.

A *trivial* list when there are only *two* choices! But it illustrates the point that a picklist is *always* available from fields offering a limited range of choices...

You may choose from these simple lists in several ways. The *first letter* of a choice—from the highlight down—selects it. (So you can still select **Yes** by pressing) The highlight can be moved with and . (and reposition the window itself.) Pressing —or the *right* mouse button—transfers your choice into the field and removes the window. ape—or pressing the *left* and *right* mouse buttons together—cancels the function.

If you are using an **HP Laserjet** compatible printer, select es. Fields appear for the printer's **Paper Size**—usually the same as the **tray size**—and to indicate whether it supports **Scalable Fonts**.

If you have to change the paper tray size, hit to list the various paper size options and choose a paper size. Leave the **Scalable Fonts?** field set to es unless you have an older laser printer. Then skip forward to **Recording a Screen**. **PROPLAN** directly manages laser printers to relieve you of printer control worries...

Printer Selection Field

If you set the **Laser Printer?** field to “**no**” the cursor moves on to the **Printer** field. Press —the **SELECT** key—to pop up a *picklist* of pre-defined printers.

You *can* provide **PROPLAN** with all the page size and control code information for your printer by directly entering it in fields in the lower portion of this screen. However, selecting from a list is much easier. (If you *do* wish to provide these details yourself—perhaps because you have an unusual printer, or wish to add some special enhancements to reports, see **Printer Setup, page D-2** for more information on these fields).

The list is too long to show *all* printers—even on a **50** line display. This is shown by an arrow at the *top* and *bottom* of the *right side* of the “frame”. Scroll through the list with the cursor keys. (The rectangular “scroll bar” shows the relative position of the current choice in the list by its position between the top and bottom of the frame. The figure at the *top left* of the window is the total number of choices in the selection list.) If you type the first few characters of a printer's name, the list sorts alphabetically and the highlight advances to the first choice matching the characters entered.

This list is actually “user definable”. You could change it or even delete it and create your own list covering only the printers your organisation uses. The list of *devices* mentioned earlier is another example. **User Defined lists** are discussed in more detail later...

Select a printer. (If your printer is not included in the list, choose one of the **EPSON** printers. Most dot matrix printers can emulate the **EPSON FX** or **LQ** printer.) Lower fields are filled with the correct information for the printer you have chosen.

Department or Project Name

Sensible defaults avoid the need to key the same information into every new network. For instance, assume all users belong to the same organisational division.

Key in:— “**Industrial Plant Division**”. (The “beep” alerts you that the cursor is at the end of the field.) Press **[F2]** to **RECORD** the screen. The **Master menu** returns.

Creating a Network

Initial Setup

14DEC95

Hit **[N]** to select **New Network** and a prompt will appear for a “**New Network Name**”. *Appendix A—Tutorial Data* (in *Part D* of the manual) contains a number of *Precedence Diagrams* for a simplified project.

Network Name & Password

Type in the network name:— “**YARRANGOBILLY ROLLING MILL MODIFICATIONS**” and press **[Enter]**. The **Password** option in **System defaults** was left *on* so you are prompted to enter a *password*. Leave the field *blank* and press **[Enter]**.

A password restricts access to the job. Any word or phrase *could* be used. You would then be required to provide the password each time you accessed the job. Passwords should only be used if they are properly secured and there is no danger of forgetting them!

Network Details Screen

The **Network Details** screen then appears for entry of some *general job details*.

Network Details		System date: Fri, 15DEC95	
Department or Project Code	[IN]	Department	Industrial Plant Division
Network Number	██████████	Round Extended Amounts to	Cent
Start Date	██████████		
Duration	██████	Weeks and/or	██████ Days
Specified End Date	██████████		
Data Date	██████████		
Network Name	YARRANGOBILLY ROLLING MILL MODIFICATIONS		Password
			██████████

Change the **Department code** to **IP**—for **Industrial Plant**—and move down to the **Network Number** field and enter **M95/12345**.

Use **↓** to move down to the **Data Date** field and enter **14DEC95**.

You could leave *all* these date and duration fields blank. If no **Data Date** is provided **PROPLAN** assumes it is *today*, i.e., the system date. If no **Start Date** is given it is assumed to be the **Data Date**. The **Duration** can be in *weeks* or *days*—or *both*. The **End Date** can be fixed directly—or indirectly by specifying a **start** and **duration**. As there is no *required* finish date given for this project, we will let the program calculate the *earliest* completion date.

CAUTION: The tutorial has been carefully designed to illustrate a number of features as quickly as possible. If you do not use the dates and activity information given on the diagrams, many of the key points will be missed!

Before moving on, let's assume that there are a few *general job details* you would also like to record. There are no specific fields for *general text* but you can use one of the **PROPLAN** “tools”. Press **Alt N** and...

NOTEPAD— **Alt N** or **F11**

A **NOTEPAD** appears over the primary screen. It allows you to attach “*free form*” notes to records. (The visible window is only part of the available **NOTEPAD**.) Text is entered in much the same way as in single line fields. Hit **F1** for **HELP** on the extended editing and formatting functions. Then **Esc**ape from **HELP** and enter the following notes:—

Access road construction will only proceed if redevelopment of Brook Street by City Council is delayed into next year.

The **NOTEPAD** can be used for many purposes—as a reminder of *production assumptions*, to record *problems encountered*, as a convenient way of appending “*tickler notes*” to reports sent to people involved in the project—or as a *job diary*, or “*aide memoire*”.

More Field Editing

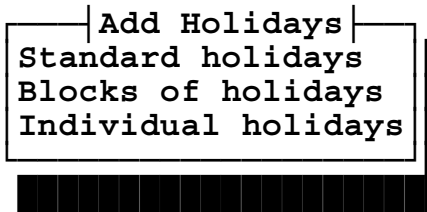
Unless your typing is unusually good, you will have found it difficult to type all this detail without some mistakes. To help you move around and correct errors, try some of these edit commands:—

Ctrl with **←** or **→** jumps to the *previous* or *next* “word” in the field.

Shift F7 converts a character to *lower case* while **Shift F8** makes it *UPPER case*. **Shift F9** *switches* the case of the character. In each instance, the cursor moves on to the next character, so *holding down one of these key combinations* quickly changes the case of *complete words or phrases*.

Calendar Description

Key in the **Description** “**Standard Sitework Calendar**”. This calendar is based on a conventional five day week so the default pattern of *Saturday* and *Sunday* holidays is correct. Press **[F2]** to save the definition and this picklist will appear:—



Standard Holidays

Press **[Enter]** for **Standard holidays**. To the prompt “**Standard Holiday?**” key in **25DEC95**.

Standard holidays are non-work days—like **Xmas day**—that occur on the same date each year. Entering a date makes it a holiday in that year *and* in all subsequent years.

Dates may be entered in several different forms. One is this “International” format using entries like **25SEP97** or **9jan97**. **PROPLAN** has sophisticated date validation that allows wide latitude in entry, (e.g., **9 Jan 97**, **9JAN1997**, **09jan 97** and **090197** will all be accepted as valid), while invalid dates such as **29FEB98**, **31NOV98**, etc., will *not* be accepted and you will be alerted by an error message. Dates may also be entered in **d/m/y**, **m/d/y** or **y/m/d numeric** format—depending upon the numeric date setting in **Customisation, Country setup**. They will still be displayed in International format.

Press **[F2]**. This prompt appears:—

When a calendar has a default pattern of **Sunday** holidays—**Monday** workdays, *and* some standard holiday dates are fall on weekend holidays, you can choose to move the holiday to the following **Monday**.

Respond **[Y]es** to set **Mondays** as holidays “in-lieu” of **Xmas day** on weekends. The display indicates which **Xmas days** have just been set as holidays and which were *already* holidays—because they fell on *Saturdays* or *Sundays* previously defined as a non-work day. Press **[Enter]** to return to the date input field.

Hit **[F8]** to *increment* the date field to **26DEC95**—**Boxing day**. Press **[F2]**, **[Y]es** for **Mondays** “in-lieu”, and **26DEC** is also set as a standard holiday. Repeat for **1JAN96**. Then **[ESC]**ape to exit. The **Add Holidays** picklist reappears. Select **Individual holidays**.

Individual Holidays

The tutorial has only very short and simple holiday patterns. “Real” projects have more extensive and complicated calendars and you would normally use the convenience of the **Block** mode first to “block out” *long* holiday periods or *seasonal* non-work periods.

A grid of fields appears into which you can enter individual holiday dates. These are *in addition* to the weekday and standard holidays already defined. You move around the grid using the **↑** and **↓** arrow keys and the **PgUp**, **PgDn**, **Home** and **End** keys. Dates can be entered in any order. Key **27DEC95** in one of the blocks and leave the others blank. Hit **F2** to **RECORD** the entry and press **Enter** and **Esc** to return to the **Calendar menu**.

Press **Enter** to select **Define Calendars** again and select Calendar **E** from the picklist. It is to be defined as a special “**Plant Shutdown Work Calendar**” permitting work on *weekends only*. Name it accordingly and change the weekly working pattern so *Saturdays* and *Sundays* are *workdays* and the *weekdays* are *holidays*.

Hit **F2** to **RECORD** the calendar. There are no standard or special holidays to be added to this calendar so **Esc**ape from the **Add Holidays** picklist to the **Calendar menu**.

View Calendars

Select **View Calendars**. Enter **1DEC95** and **1FEB96** as the viewing **Start** and **End** dates and set the output to **Video**. **↓** and **↑** move through the display a week at a time and **PgDn** and **PgUp** a screen at a time. **AltV** toggles the display into 50 line mode—showing *five* weeks rather than *two*. Confirm that the calendars are correct by comparing them with the printout on *page 4* of *Appendix B*.

Edit Calendars

If a displayed holiday pattern is *not* correct hit **AltE**dit *while viewing*, to switch to **edit mode**. Correct any errors and then hit **Esc** to return to **view mode**.

Hit **Esc** to exit to the menus. Move to the **Activity menu** and select **Add Activities**.

Activities

Add Activities Mode

The Activity entry screen is like this:–

Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS				System date: Fri, 15DEC95			
#1	s	ACTIVITY DATA				NETWORK DATA Initial Setup Network NOT Processed Data Date 14DEC95	
ES	LS	days	EF	LF	days	0 Activities 0 Hammocks 0 Resources	
Free Float			Total Float				
Activity No	Select Codes	Cal	Duration				
L	I	S	days				
Activity Description							
No flag START				No flag FINISH			
Milestone				Milestone			
Record Changed 15DEC95							
ADD Mode Alt Notepad Alt Jotter Alt = PROCALC Alt - Calendar ADD ACTIVITY MODE F9 Switch Mode F4 Bring Forward Esc to Exit F3 blank fld Esc restore field <- next Insert Delete <- rubout NUM							

We would normally follow the logic of the *Precedence Diagram* (see the **Initial Setup** details on *page A/1* in *Appendix A*) and start at the top left with the **Mobilisation** activity. However, to illustrate the principle that tasks *can* be entered in any order, we will first enter the **Access Road & Paving** activity.

Activity Codes

Key in the **Activity Number AE42** and press **Enter** to go to the next field.

Activity codes may use any **alphanumeric** character. *Case* and *position* are both significant and each activity must have a unique code. In practice, code allocation should be such that individual characters in the code reflect an area and “trade” breakdown of the project.

Activity Selectcodes

Enter the **Selectcodes AE5**.

Selectcodes are also called **organisation** or **responsibility** codes. While optional, they do offer additional flexibility, as each character can be used independently as a **sort** or **select** criterion in *reporting* and *record manipulation*. If the task coding scheme is a good one, sensible *Selectcode* allocation often overlaps the task codes—as it does in this tutorial.

Calendar Number

The *System Calendar* is the default. Hit the **Spacebar** to change it to *Calendar 1*.

Calendar 1 is the **Standard Sitework Calendar** defined earlier. You can change *any* single character field by keying a value, using **F7**–**F8** (or the **Spacebar**) to roll through valid responses, or hitting **F6** to popup a picklist.

Mandatory Fields

Leave the **Duration** field *blank* and press **Enter**. Flashes and beeps warn you that this is a “*must enter*” field—it cannot remain blank.

Activity Duration

Enter a **Duration** of 4 days.

The duration must be a number of working days from 1 to 4000. It can be right or left justified. Fields like “duration” will only accept numeric input. Attempting to key letters into this type of field will produce warning beeps.

Activity Description

Enter the **Description** **Access Road & Paving (11200m2)**.

After typing in the full text, use **Insert** mode to *right justify* the quantity details. (Hit **Ctrl** **←** to position the cursor after “**Paving**”, press **Insert** and hold down the **Spacebar** to “push” the quantity to the right. Hit **Insert** again to toggle back into overstrike mode.)

The progress of most tasks can usually be assessed by measurement of some “controlling” or “key” quantity. If you choose to assign *cost budgets* to tasks, you can formally specify a task **Measure Unit** and **Budget Quantity**. However, in practice, embedding planned quantity detail in the task description is often all that is required—and it ensures that the information is prominently displayed.

Constraint Dates

Press **Enter** to skip the **Start flag** field and move to the **Finish flag** field. Hit **L** to set the *finish flag* to “**Latest**”, and enter a *latest finish date* of **12JAN96**.

This activity must finish by **12JAN96** for reasons independent of the network logic. **PROPLAN** allows you to *constrain* the **start** and/or **finish** of activities in various ways. These *constraint* (or “Flag”) dates are used to model externally imposed *latest completion dates*, *earliest start dates*, etc., on different project phases.

This activity has only one predecessor, so press **F2** to **RECORD** the screen. The **Activity entry** screen will reappear.

Bringforward—**F4**

Press **F4**. In **ADD** mode, this copies in fields from the previous record. (If pressed in the *first* field, *all* fields—except the flags—are “brought forward”. In subsequent fields only the current field is brought forward.)

BRINGFORWARD is particularly handy when entering *repetitive* activities. Editing a “template” is both *quicker*, and *less error prone*, than re-keying data. If you are interrupted, it also serves as a “bookmark” reminding you of your position in a list of activities. This will not save you much time in the tutorial as the few activities being entered are all dissimilar. However in a real network it can save a lot of time—and minimise typographical errors—as many tasks will be similar—or change in a consistent manner.

Change the brought forward *code* to **AE74**, *duration* to **8** days, and *description* to **Structural Excavation (3290m3)**. Key **AltN** to attach a note to the task. Type in “**Assume dewatering NOT required.**” and hit **F2** to **RECORD** the note.

Record Number & NOTEPAD Indicator

The record number—“#2 **N**”—appears at the *top left* corner of the screen. The “**N**” indicates that the activity has a **NOTEPAD** entry. (If your display is in 50 line mode, the text remains visible in the bottom half of the screen.)

Hit **F2** to **RECORD** this task. Enter and record the **Start link** to predecessor **ZZ01** with a lag of **2** days. (See *page A/1* in *Appendix A*)

If all this typing doesn’t appeal to you—and you are confident you fully understand the principles involved—you can take a shortcut by copying the tutorial files over from the **PROPLAN** distribution disk. Exit to **DOS**, place the disk in drive **A** and type:–

```
COPY A:\DATA\*.* \PROPLAN\DATA
```

Complete the entry of all eight *activities* and their *links* and *flags* from the **Initial Setup** diagram. (Don’t forget the “**Earliest Start**” flag on **AM26**.)

Switching Modes—**F9**

Once activity entry is complete, press **F9**—the mode **SWITCH** key. A one line “menu” appears at the bottom of the screen offering choices of

```
Progress network, Add acts, Change, Delete or Browse.
```

with a default of **Browse** indicated by the reverse video highlighting and displayed letter “**B**”. You can always *select the default* by pressing **Enter**, return to the *original*

mode by pressing `[Esc]`ape or *select another mode* by pressing the **first letter of your choice**—or move the highlight and press `[Enter]` as usual. Press `[Enter]` for the default—**Browse**.

Switching “modes” is an alternative to exiting and making a choice from the main menu system. Despite the route followed, the destination is the same!

Browse Mode

Browse mode is a convenient *passive* way of viewing activities. `[Home]` and `[End]` move to the *first* and *last* activity respectively, while the arrow keys (and `[F7]`–`[F8]`) move *backwards* and *forwards* through the activities. If you go past the first or last record, the record number “wraps around”.

Record Date Stamping

The **Record Changed** field below the activity block is maintained by **PROPLAN**—it “date stamps” records when they are *created* or *modified*. (An incorrect system date would show as “**Invalid**”.) “Date stamping” helps you keep track of changes—another good reason to be sure your machine always has the correct date set!

Hit `[End]` to move to the last activity, *hit* `[F5]`, key in **AS00** and `[Enter]` to search for that activity. That record becomes the new point for browsing. Repeat the process but key in activity code **as22**.

This is certainly *not* the quickest way to *find* an activity. **Change mode** is more convenient and also allows you to edit the activity. But more on that later...

Gestalt Pattern Matching

Activity **AS22** doesn’t exist so **PROPLAN** has shown **AP22**! It *searched* for **as22**—or **AS22**—but couldn’t find it. Knowing you thought it *did* exist, (you are in **Browse** mode not **Add** mode) **PROPLAN** assumed that you had mistyped the code. It decided that—most likely—you meant to type **AP22** and hit an `[S]` instead of a `[P]`.

This “Gestalt” capability is used throughout **PROPLAN** (unless disabled in the **Customisation, System defaults** screen) and makes finding *codes*, *keywords*, etc., easier. For example, key `[F1]` for **HELP** and `[F5]` to find a keyword. Enter “**ESTTT**”. **PROPLAN** guesses you meant “**GESTALT MATCHING**” and provides help on that topic.

Suppose you want to *amend* a task—perhaps *change* the **duration**, **calendar** or **description**? `[Esc]`ape from **HELP** and *hit* `[F9]`—the mode **SWITCH** key—then `[C]` for **Change activities**.

Change Mode

The displayed activity is the one last viewed in **Browse** mode. Move the cursor to the *activity description*, edit it in some way, and *press* **F2** to **RECORD** the change. Amendments are as simple as that!

If you change the *activity code*, and press **Enter** before pressing **F2**, **PROPLAN** will interpret the change as a request to search for another record—*not* what you intended.

Paging thru Records—**F7**-**F8**

Reverse any “experimental” changes you have made. In **Change** mode, you may still move through the activities. Move the cursor to the *activity code* field. (**PgUp** returns the cursor to the first field.) **F7** and **F8** will “page” through the activities.

Delete Mode

Delete mode is like **Change** mode but, *before* deleting a record, you will be asked to confirm that you do really wish to delete the record.

System Tools

If you have reached this point without *at least* one interruption you must work in a very quiet office! Usually *telephone calls*, *visits*, and other distractions will disturb your concentration. When these relate to the **current** record, the **NOTEPAD** provides a logical and convenient way to record the details. However, the current record would not be the appropriate place to attach general information. Fortunately, **PROPLAN** has a similar facility for non-record specific “notes”...

JOTTER—**Alt****J** or **Shift****F11**

Alt**J** will “popup” a **JOTTER** which is specific to the *current network* or—if no job is being worked on—just the **PROPLAN** installation. Get rid of your paper scratch pads and use the **JOTTER** while working through the tutorial! Record *telephone messages*, use it as an “aide-memoire”, etc.

CALENDAR—**Alt****-** or **Shift****F10**

While exploring these “system-wide” facilities, also take a look at the built-in **CALENDAR**. **Alt****-** will popup a calendar for the *current month*. (This is accessible even from inside the **JOTTER**—all **PROCON** tools can be overlaid one on another.) The arrow keys allow you to move through the *months* and *years*.

Clearing your desk of calendars and other myriad scraps of paper makes it easier to find that other ubiquitous desktop tool—the *calculator*. Discarding it for something *more flexible and powerful* would be even better...

PROCALC— **Alt**= or **Shift**F12

PROPLAN has a built-in *arithmetic expression evaluator*—**PROCALC**—with capabilities far surpassing any desktop calculator—and more flexibility and convenience than any spreadsheet. **Alt**= produces an input field into which *arithmetic formulae* may be entered. Formulae can include *parentheses, user variables, trigonometric, power, logarithmic, logical, date/time,* and other expressions, as well as specific “takeoff” functions. (As usual, **F6** lists all the functions and will transfer a selection into the calculation field.) For example, to calculate the *time required* in 8 hour days, for 6 men to wrap 1750m of 320mm diameter pipe, if each man wraps 3.5 m²/hour; type in:–

(1750 × PCIRC(320/1000)) / (6 @ 3.5 @ 8)

and press **F9** to show the result of 10.47 days. (PCIRC () is a built in formula used to calculate the perimeter of a circle.)

Let’s quickly look at some of the calculations that can be performed—and documented—in **PROCALC**. Hit **Alt**R restore. A picklist of previously saved, multi-line **PROCALC** “template sheets” appears. (The installation program placed these sample files in the **system** directory.) Select **EXAMPLE.PCL**. Page through the screens and then key **Alt**P to print the file. Then hit **Esc**ape twice to return to the menus.

If **PROCALC** is called from a *numeric* field with **Alt**C, the result can be transferred into the field and the associated formula saved “behind” the field. More on this later...

Printing Reports

Select **Print Reports** from the **Master menu**. **PROPLAN** will perform various validity checks and *process the network*. If no fundamental logic errors are found it will display the **report request** screen.

Processing a network means calculating the *earliest* and *latest* start and finish dates and the *free* and *total* float for each activity. If network logic errors are found, you will be alerted and will have to correct the errors before you can proceed...

The cursor drops to the **Report Name** field in the **report request** screen. (Ignore the fields on the line above this for the moment.) Hit **F6** for this picklist of *standard reports*:–

```

12-----| REPORTS |-----
NETWORK DATA
STATUS REPORT
BARCHART
MILESTONE REPORT
LINK LISTING
RESOURCE ASSIGNMENT
RESOURCE LISTING
RESOURCE USAGE
RESOURCE LOADING
REVENUE CASH FLOW
COST CASH FLOW
COST REPORT
    
```

Requesting Reports

Select **LINK LISTING** and press **Enter** to move to the **More Reports?** field. Hit **Y**es. The **report request** screen will look something like this:–

```

Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS      System date: Fri, 15DEC95
Printer: Okidata Microline 393+

Batchfile Name |          | Report No 1
Report Name    |LINK LISTING| More Reports? Yes
Selection Mask |  | | | | Sort the Report? Yes
Primary Sort   |Task Code  | Secondary Sort None

Summary Only?  No                               Video, Printer or File? Print
Print Pitch?   Pica                            Number of Copies 1
Pause between Pages? No                       Header each Page? Yes

Show NOTEPAD text? No                          Show PROCALC lines? No

F2 to record choices for each report

F2 record  F10 cancel  F4 bring fwd  F3 blank fld  ↑↓  PgUp top  PgDn bottom
You may request multiple reports                                     NUM
    
```

Note: This screen adjusts to suit the settings in **Customisation. Printer Setup**. (For example, if you are using a *laser* printer, the **Print Pitch** and **Header each Page?** fields will not appear...)

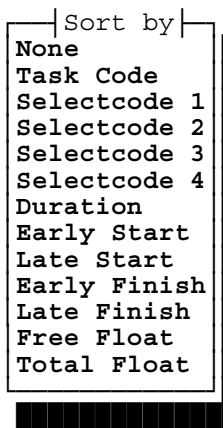
Hit **F2** to **RECORD** the report request. (You could print one report and request more later, but it is more convenient to specify and print a *set of reports* as a “batch”.) Select **NETWORK DATA**, leave the **More Reports?** choice set to **N**o, press **F2** to **RECORD** the report request and press **F2** again. **PROPLAN** will print the two reports.

Compare the **LINK LISTING** with *page 1* of **Appendix B**. If any calculated *dates* or *floats* differ, check the task **durations**, **flag dates** and **link details** to determine why. Return to **Change Activity** mode and correct any errors before proceeding.

Report Formatting Options

Return to the **Print Reports** screen. Report content may be *restricted* and the records may be *sorted*—or listed in record order. Other field choices are described in detail under **Print Reports**, *page C-2* in **Part C** of the manual.

Choose a **BARCHART** report and move down to the **Primary Sort** field. Hit **F6** for a list of sort options. This picklist appears:—



Choose **Early start**. Move down to the **Show NOTEPAD Text?** field and toggle it to **Yes**. Hit **F2** to print. The report should look like that on *page 1* of **Appendix B**.

Only *task oriented* reports offer extended sort options. You *could* also have chosen a **Secondary sort** by **Task Code**—so tasks with the same start date are sorted by code. However, this is *not* necessary as **PROPLAN** will always use the task code as a **tertiary** sort criterion in sorted task reports.

Bar Chart Report Symbols

Because we have not specified any special characters to be used in the construction of the **BARCHARTS**, the durations and floats will be shown as:—

NON-CRITICAL durations	XXXX
CRITICAL durations	CCCC
SUPERCRITICAL durations	****
POSITIVE floats	_____
NEGATIVE floats	NNNN
HOLIDAYS within durations or floats	::::
ACTUAL durations	AAAA

and the following common types of **constraint dates** may appear as:—

EARLIEST START Date (“PUSH” Date)	>	(left of date)
LATEST FINISH Date (“PLUG” Date)	<	(right of date)
Project DATA DATE	] [	(left of date)
Project SPECIFIED END Date	[]	(right of date)

The dates shown along the top of the chart are for the **Sunday** of the week, and the date appears above the particular week, i.e., the “95” of the year will be over the **weekend**. Sundays are indicated by periods in the body of the printout. “**Bold**” print is used to highlight *critical* and *completed* activities.

Examine the reports and relate the **STATUS REPORT** to the **BARChart**. Ensure that you understand the reasons for the intermittent critical path.

Why is the **Structural Excavation** activity *critical* when its only predecessor—**Mobilise on Site**—has two days float?

Why does activity **AE42** have *free float* greater than its *total float*? What effect are the “**Plug**” and “**Push**” constraint dates having on calculated dates? On *total float*? On *free float*?

Which of the links between **AE74** and **AS00** is *critical*? Would that still be the case if the duration of **AS00** increased to 10 days? To 12 days?

If you have any difficulty in answering any of these questions you should review the concepts of *constraint dates*, *work calendars* and *floats*. (See *Appendix 11* for *References* and *Appendix 14* for a *Glossary of Terms*.)

Exit to DOS— **and** **or just**

It is time to cover program *exit* and *entry* procedures. Press . A prompt appears asking you to confirm that you *do* wish to exit. Hit es. The **DOS** prompt reappears.

Queries of this type may be answered *positively* with , or or *negatively* with , , or . The default reply may also be “toggled” with the arrow keys, the , or the mouse. (You may also exit directly to **DOS** with or . Confirmation is not then required.)

Updating a Network

First Update

23 DEC 95

Update No 1 is the subsequent precedence diagram on *page A/2* in *Appendix A*. A week or so has passed. Some progress has occurred and some re-assessment done.

Re-run the program by typing **PROPLAN** and pressing . (The job you last worked on is automatically reloaded.) Select **Progress Network** from the **Activity menu**.

Tip: Go there *quickly* when you know where you are going! moves *directly* to the **Activity menu** and selects **Progress Network**.

You will be asked if you wish to make *archive copies* of the job files. Reply es. (Archives allow you to restore the status of the network files at the last update.) This dialogue box appears:—

```

|-----| PROGRESS NETWORK |-----|
|
| NO PREVIOUS UPDATE
|
| Data Date?                Thu 14DEC95 |
|
| Specified End Date?      |         |
|
|-----|
  
```

Data Date

Amend the **Data Date** to 23DEC95.

The **Data Date** is the *start* of the day on which progress is being reported, i.e., work can proceed on this day but **actual dates** must be *before* this date.

TIP: Dates—like most “value” fields—can be incremented with F8. You can also use F6 to produce a picklist and F4 to bring forward the system date.

Specified End Date

As a contractual completion date has now been specified for the project, we have to provide this date. Enter a **Specified End date** of 4MAR96. Hit F2 to proceed.

A **Specified End date** is conceptually similar to a **Latest** date on an activity.

Progress Activities Mode

The **Activity entry** screen will reappear. Hit F6 for an activity picklist and select **zz01**.

You “find” an existing activity from a code field by entering the full code; “paging” through the records with F7–F8; using F6 to pop up a *picklist*; or entering part of the code and hitting F5 to force a Gestalt “**best match**”...

Press Enter twice to move down to the **Start Flag** field to report the recorded *actual start date* for this activity.

The cursor skips fields such as the **Selectcodes**, **Calendar Number** and **Description** as these are not usually changed in **Progress mode**. (You can still access these fields with the ↑ and ↓ arrow keys.) We can ignore the **Duration** field, as **PROPLAN** calculates actual durations for finished activities from the actual dates you provide.

Completed Activity

Key **[A]** for the **Start Flag** type. The cursor moves to the **Start Date** field. **PROPLAN** “guesses” a likely start date of **14DEC95**. However, the correct date is **15DEC95**, so increment the date field with **[F8]**. Press **[Enter]** and type **[A]** for the **Finish Flag** type (or hit **[F8]** to roll forward to “**Actual**”, and press **[Enter]**). Set the **Finish Date** to **20DEC95**. Hit **[F2]** to **RECORD** the changes.

Started Activity

Report progress against activities **AE74** and **AP22** by entering the *remaining duration* and *actual start dates*. (Do *not* change the **Finish flag** as these activities are not yet complete.) Note that **JB17** has to have its *duration* changed to **24** days. Do this now and **RECORD** the change.

The **duration** entered in the **activity entry** screen must be the *remaining duration* for *incomplete* tasks. (For completed tasks **PROPLAN** calculates and displays *actual duration*.)

There is a *new* activity, **JB22**, that must be added to the network. Hit **[F9]**—the mode **SWITCH** key—then **[A]** for **Add activities** and **[F4]** for **BRINGFORWARD**. Enter the details for the additional start activity **JB22**. Hit **[Alt][N]** for the **NOTEPAD** and record some details on why this change has come about. Type in:—

```
Importance of these trusses missed. Estimate that the supplier
will take two weeks to fabricate and several days to deliver.
Follow up again by telephoning before Xmas to ensure that they
are working over the holidays.
```

Press **[F2]** to **RECORD** and then **[F2]** in the predecessor entry screen, since **JB22** has *no* predecessors. The activity entry screen will reappear with a blank activity number.

Press **[F6]** to popup an activity picklist—**PROPLAN** automatically switches to **Change mode**—and select activity **JB17** so the link to **JB22** can be entered. Hit **[Alt][L]** for the **Link entry** screen.

Use **[↓]** to move down to a blank predecessor code field. Find the predecessor number **JB22** with **[F7]**–**[F8]** and set a “**Finish**” type link. Move to the **lag** field. The note on the link in the diagram indicates that the lag of **8** days has been *calculated*. Even though the calculation is trivial, let’s use **PROCALC** to *perform* and *document* it...

PROCALC field version—**[Alt][C]** or **[F12]**

From the **Lag** field use **[Alt][C]** (or **[F12]**) to access the *field specific version* of **PROCALC**. Press **[Enter]** to open up a multi-line window and type in:—

```
[Finish lag time required]
2 [days to install]
5 [days to clad]
1 [day for ceiling]
```

Text preceded with “[” is treated as a *comment*—until the end of the line or until “closed” with “]”. Of course, you could just enter the total lag directly into the field. However, documenting and *recording* the details in this way is quicker—and more professional.

Press [F2] to **RECORD** the **PROCALC** screen and *tie* it to the *source field*. The calculated total is transferred back into the *lag* field. Press [F2] to **RECORD** the link and return to the **Activity entry** screen. Hit [Esc] to exit to the menus. Select **Print Reports** from the **Master menu** and print a **STATUS REPORT** and **BARCHART**.

Sort the **BARCHART** by **Early Start** and print from the **Start date** rather than the **Data date**. (At this stage, you should be able to select and print these reports without further assistance.)

Why are *no* activities critical? Would this be so if the **Specified End date** was 20FEB96?

The **BARCHART**—by default—uses standard keyboard characters to represent *floats*, *durations*, etc. (These characters are available on *all* printers—ensuring that the printed reports will look much like those on the video.) However, you can *customise* these symbols. Select **Master menu**, **Customisation** and **Report Symbols** from the picklist.

Changing Report Symbols

The **Report Symbols** screen looks like this:–

```
REPORT SYMBOLS                               System date: Sat, 23DEC95

Symbol Set Name  [Basic ASCII Set ]

Actual Duration      Value  Display
Critical Duration   C      CCCCCC      These symbols are used
Duration with Float X      XXXXXXXX      in Bar Charts and
Positive Float      -      -----
Negative Float      N      NNNNNNNN      Histogram Reports
Supercritical Duration *      *
Non-Work Days      :      :::::
Sundays            .      .
Milestone Starts   m      mmmmmmm
Milestone Finishes M      MMMMMM
PUSH Starts        >      >>>>>>
PLUG Finishes      <      <<<<<<<
DATA DATE          ]      ]]]]]]]
Specified End Date [      []]]]]]

Past Histogram Values +      ++++++
Future Histogram Values *      *

F2 record  F10 cancel  F4 bring fwd  F3 blank fld  ↑↓  PgUp top  PgDn bottom
F6 to list, Shift F6 to add to list                                NUM
```

Press [F1] for **HELP** on this screen. Then [Esc]ape to the **Symbol Set Name** field.

You *could* set each of these symbols yourself—or select a symbol set from a supplied **User Defined list**. We will take the easier option...

Hit **F6** for a picklist and select the **IBM Graphics Set**. **RECORD** the change with **F2**. Return to the **Print Reports** screen and print another **BARChart**. The reports should look like those on *page 2* of **Appendix B**.

If you prefer the original **BARChart** symbols, return to **Customisation, Report Symbols**, and reset them to the **Basic ASCII Set**.

Resources

To illustrate the *resource allocation* and *plotting* capabilities of **PROPLAN**, we will define a few resources and allocate them to some of the activities.

Resource Definition

Select **Add Resources** from the **Resource menu** and fill in the screen as follows:–

```

Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS      System date: Sat, 23DEC95
#1              ADD RESOURCES SCREEN
Resource Code  MF20      Description Diesel Fuel - delivered to job
Usage Type     Consumable      Default Allocation Mode Fixed amt
Measure Unit   Li          Unit Cost $      0.00 /Li
Maximum Availability      Li (Total)      Record Changed 23DEC95

ADD Mode  Alt Notepad  Alt Jotter  Alt = PROCALC  Alt ù Calendar
F2 record  F10 cancel  F4 bring fwd  F3 blank fld  ↑↓ PgUp top  PgDn bottom
F3 blank fld  Esc restore field <← next Insert Delete <← rubout NUM
```

Resources may be **Reusable** or **Consumable**. **Reusable** resources, like *labour* and *plant*, will have **daily** or **weekly** usage plotted on the histograms, while **consumable** resources will plot **cumulative totals**. The *allocation mode* allows you to distinguish between resources whose consumption is **dependent upon duration** and those whose consumption is **fixed**. The latter can be allocated as total amounts in three different ways—as a “**Fixed**” allocation, which the program will evenly spread over the activity duration, or totally on the **Start** or **End** day.

From the **Unit Cost** field hit **AltC** to access **PROCALC**. Press **↑** to open up a multi-line window and type in the following:–

```

;Diesel Fuel Cost FOB Jobsite
0.45      [Wholesale Cost]
0.20      [Federal Tax]
0.13      [Transport]
```


Activity	Diesel Fuel Usage	Dump Truck Usage
AE74	11700 Litres	48 Hours/day
AE42	1600 Litres	-
AP22	-	16 Hours/day
AS00	400 Litres	8 Hours/day

Select **Print Reports** from the **Master menu** and print **RESOURCE ASSIGNMENT**, **USAGE** and **LOADING** reports. Relate these reports to the **BARCHART** printed earlier.

Manually calculate the individual *task* and *total* usage of **Dump Trucks**. Compare your figures with those given on the **RESOURCE USAGE** and **RESOURCE ASSIGNMENT** reports.

The **RESOURCE LOADING** report shows the *usage* of a resource for the day on which it is anticipated it will be consumed on site. If the **Diesel fuel** has to be ordered several days *before* delivery, it may be more useful to plot its usage with a “**lead**”—a *negative lag*—so the plot becomes a guide for ordering. Let’s do this now.

Select **Master menu**, **Print Reports** and choose a **RESOURCE LOADING** report. Use a mask to limit the report to **MF20**, the **Diesel fuel** resource. (Hit **[F6]** from the **Selection Mask** field and choose **MF20** from the picklist—this is easier than typing in the code.) Cover the period from the project **Start date** to the **End date**; plot on **Early dates**; specify a **plot lag** of **- 4** days. Print the report.

Costing

PROPLAN allows you to set *budgets* and record *costs* based on *either task resource usage or direct cost allocation*—or a combination of both. In this tutorial we will directly allocate task budgets and costs and disable the resource usage costing facility.

Is **PERT COST** a *practical* and *useful* costing system? Despite its superficial intuitive appeal it has some fundamental limitations that should always ensure that there are better ways to cost construction projects. (See Appendix 4, *page D-2* for a more detailed discussion.) You can skip this section of the tutorial—resuming the tutorial at *Hammocks* on *page B-31*—if you have no plans to use the costing facility.

Costing Method

Select **Method** from the **Cost menu**. The following dialogue box appears:—

| COSTING METHOD |

Include Resource Costs?	Yes
Fix Resource Cost Budget?	No

Hit the **[Spacebar]** to toggle the **Include Resource Costs** choice to **No** and press **[F2]** to **RECORD** the changed setting.

This means *budgets* and *costs* on this project will only include figures directly entered by the user. **PROPLAN** will *not* now include costs inferred from calculated resource usage. Is this the best way to do this sort of costing? It depends. In practice, a calculation based on resource usage *might* be good enough for establishing an *approximate* budget. However, the resource allocation is unlikely to be in sufficient detail—even on minor projects—to accurately reflect the volume and variability of postings required to track real costs. If you wish to examine the effect of *including* resource costs, you can change this setting later and reprint the reports.

Task Budgets

Select **Budget** from the **Cost** menu. The **Activity Budget** screen appears. Hit **[F6]** for an activity picklist and choose **AE74**. Skip the **Costcode** field and enter a **Measure Unit** of **m3**; a **Budget Quantity** of **3290**; a **Bill Unit Rate** of **\$10.00/m3**, and a **Budgeted Unit Cost** of **\$8.49/m3**. The screen will look like this:–

Activity Budget		System date: Sat, 23DEC95	
Activity	AE74	Structural Excavation	(3290m3) 8 days
Costcode			
Measure Unit	m3	Budget Qty	3290 m3
		Bill Rate \$	10.00
		Bill Extn \$	32900.00
		-----BUDGET TOTAL	
Budgeted Unit Cost	\$ 8.49 /m3	\$	27932.10
Budgeted Fixed Cost	\$ 0.00	\$	0.00

Total Budgeted Cost	\$ 8.49 /m3	\$	27932.10

F2 record F10 cancel F4 bring fwd F3 blank fld ↑↓ PgUp top PgDn bottom
 F6 to list F7-F8 to search NUM

Why leave the **Costcode** field blank? **Costcodes** allow us to aggregate costs from *different* tasks under *one* code—providing a more sophisticated way of summarising costs. If the code is left blank **PROPLAN** treats the **task code** as if it were a **Costcode**—and that will suffice for the purposes of this tutorial...

The **Bill Unit Rate** is the “charge out” rate for the task. If we were receiving payment for this work under a *unit price contract* this would be the **contract rate**...

Why the option of entering both a **Unit and Fixed Cost**? Because some task costs will vary with the *quantity of work* to be done while other costs may be *fixed*. This task is assumed to have no fixed costs.

RECORD the activity budget details and complete the budget assignments listed in the following table:—

Activity	Budget Qty	Unit Rate	Unit Cost	Fixed Cost
AE74	3290 m3	\$10.00/m3	\$8.49/m3	NIL
AP22	872 1m	\$73.50/1m	\$60.72/1m	\$17,590
AS00	1680 m3	\$313.00/m3	\$249.13/m3	NIL
AM26	1 LS	\$350,000 LS	—	\$422,000

Task Costs

Press [F9] to SWITCH modes and [F9]—or [Enter]—to select **Actual**. Find activity **AE74**.

You could use [F7]—[F8] to page through the records—or hit [F6] for a picklist. For a change, let's try forcing a "best match". Hit [F3] to BLANK the field, enter 74, and press [F5]. Activity **AE74** appears as the closest match, as no other activity codes contain "74".

Move down to the **Quantity Todate** field. Key [Alt][C] for **PROCALC** so we can calculate the progress todate. Press [Enter] to open up the single calculation field into a multi-line window. Enter:—

```

;Progress assessed by JLB on 23/12/96
90 [No] x 2.5 x 1.2 x 0.8 [Deep]           ;Standard Footings
90% @ 425[m] x 2.0 [wide] x 1.2 [Deep]    ;Retaining Wall L5
40% @ 224[m] x 2.5 [wide] x 1.0 [Deep]    ;Retaining Wall L2
    
```

The calculated total of **1358 cubic metres** will appear at the bottom of the screen. Press [Alt][C]—or [F2]—to **RECORD** the screen and link it to the **Quantity Todate** field. Leave the **Earned Fixed Value** field blank. Enter a **Cost Todate** of \$10,835 and a **Projected Cost** of \$23,400. The screen will look like this:—

Activity Costing		System date: Sat, 23DEC95	
Activity	AE74	Structural Excavation	(3290m3) Started
Costcode			
		TODATE	PERCENT
Duration		3 days	42.86 %
Quantity	f	1358 m3	41.28 %
Earned UNIT Value	\$	11529.42	41.28 %
Earned FIXED Value	\$		
TOTAL Earned Value	\$	11529.42	41.28 %
POSTED Costs	\$	10835	46.31 %
VARIANCE	\$	694.42	\$ 4532.10

F2 record F10 cancel F4 bring fwd F3 blank fld ↑↓ PgUp top PgDn bottom
 Projected final total cost NUM

PROPLAN “fills in” initial estimates of the **projected total cost** equal to the **budgeted cost**. Once some progress and actual costs have been reported, you will be assisted in estimating the **projected cost** by a displayed arithmetic extrapolation based on progress to date. Of course, this is only a guide—full and detailed knowledge of the *job, productivity* and *purchasing commitments* is necessary before an intelligent forecast of final cost can be made.

RECORD the activity costing, then enter these cost details for the other activities:—

Activity	Completed	Fixed Value	Cost To date	Cost Projected
AE74	1358 m3	—	\$10,835	\$23,400
AP22	30 %	\$14,000	\$32,380	\$68,700
AS00	—	—	—	\$426,100
AM26	—	\$8,000	\$8,000	\$422,000

The **percentage complete** may not closely follow the *time progress* of the activity—cost incidence seldom does and the value earned must reflect progress against estimated *costs* rather than estimated *time*. Costs may, in fact, be incurred *before* a physical start is made on the work—depending upon the cost accounting conventions used. (See activity **AM26**).

Various validity checks are made as the data is entered and recorded—any resulting warning messages are self-explanatory.

[Esc]ape from the **Cost menu**. Select **Edit Network** from the **Master menu** and toggle the **Amounts Rounding** choice from **Cent** to **Dollar**. Hit [F2] to save the change. (This suppresses the display of cents in extended dollar amounts). Select **Print Reports**, and print a **COST REPORT**. Compare it with the report on *page 5* of *Appendix B*.

PROPLAN can also plot projected *cash flow* for both revenue and cost. To see what the reports look like, select **Print Reports**, and print the **REVENUE** and **COST CASH FLOW**.

Plot both reports on **Average** task start dates. Use a **lag** of **45 days** for the **REVENUE CASH FLOW** report and **15 days** for the **COST CASH FLOW** report. (In practice, revenue and cost receipts and disbursements *do* have quite different lags.) See the examples on *page 6* of *Appendix B*.

Hammocks

Let’s now add some **Hammocks**. (See **Update No 2** on *page A/3* of *Appendix A*.)

A hammock is a device for summarising logical *groups of activities, work types, or phases* of a project. Hammock definition is very flexible—hammocks can summarise *areas of a project, types of work* within that project, *individual projects* in a multi-project network, etc. A particular activity can be spanned by more than one hammock, and hammock logic can be “nested” to produce summaries at different levels. A network could have hammocks covering area divisions of the work at two or three levels, as well as a “trade”, work type, or responsibility breakdown. *Hammocks* are similar to *activities*—except that **calendar number, duration, flag dates** and **predecessors** are not entered. A **hammock start** and **finish activity** are specified and the hammock derives its duration and dates from these “hanging” points.

Hammock Definition

Select **Add Hammocks** from the **Hammock menu** and fill in the screen as follows:–

Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS				System date: Wed, 24JAN96																															
#1		HAMMOCK DATA		<table border="1"> <tr> <td colspan="2">NETWORK DATA</td> </tr> <tr> <td>Update No</td> <td>1</td> </tr> <tr> <td>Network Processed</td> <td></td> </tr> <tr> <td>Actual Start</td> <td>15DEC95</td> </tr> <tr> <td>Data Date</td> <td>23DEC95</td> </tr> <tr> <td>Specified End</td> <td>4MAR96</td> </tr> <tr> <td colspan="2">9 Activities</td> </tr> <tr> <td colspan="2">0 Hammocks</td> </tr> <tr> <td colspan="2">2 Resources</td> </tr> <tr> <td colspan="2">Elapsed Duration</td> </tr> <tr> <td colspan="2">1 Week 1 day</td> </tr> <tr> <td colspan="2">Remaining Duration</td> </tr> <tr> <td colspan="2">9 Weeks</td> </tr> <tr> <td colspan="2">Network Float 10 days</td> </tr> </table>				NETWORK DATA		Update No	1	Network Processed		Actual Start	15DEC95	Data Date	23DEC95	Specified End	4MAR96	9 Activities		0 Hammocks		2 Resources		Elapsed Duration		1 Week 1 day		Remaining Duration		9 Weeks		Network Float 10 days	
NETWORK DATA																																			
Update No	1																																		
Network Processed																																			
Actual Start	15DEC95																																		
Data Date	23DEC95																																		
Specified End	4MAR96																																		
9 Activities																																			
0 Hammocks																																			
2 Resources																																			
Elapsed Duration																																			
1 Week 1 day																																			
Remaining Duration																																			
9 Weeks																																			
Network Float 10 days																																			
ES	LS	EF	LF																																
Free Float	days	Total Float	days																																
Hammock No	Select Codes	Cal	Duration																																
AZ00	AZ	S	days																																
Hammock Description																																			
Building & Structural Work																																			
Activity	START	Activity	FINISH																																
Milestone	AE74	Milestone	JB17_																																
Record Changed 24JAN96																																			
<p>ADD Mode Alt Notepad Alt Jotter Alt = PROCALC Alt - Calendar F2 record F10 cancel F4 bring fwd F3 blank fld ↑↓ PgUp top PgDn bottom Last activity within hammock NUM</p>																																			

Hammock **AZ00** spans from activity **AE74**—which we define as the *start* of the **Building and Structural work**—to activity **JB17**—which we are treating as the *end* of this work.

RECORD this **Hammock** and then add **ZZ00**—spanning the whole project. (See page A/3 of Appendix A.)

Second Update 23 JAN 96

Select **Progress Network** from the **Activity menu** and set the **Data Date** to 23JAN96.

Complete the entry of all changes in **Update No 2**. It contains major network revisions such as *deleting* activity **AE42**, *changing* the **description**, **calendar** and **duration** of activity **AM26**, and *progressing* four other activities.

The link between **AE42** and **ZZ01** will disappear with the deletion of **AE42** but the link from **JB17** to **AE42** will remain. (If you wish to delete this relationship, select **Change Activities** and hit [Alt][L] for **Link Entry**. Blank the predecessor number field and **RECORD** the change. If you leave the relationship there **PROPLAN** will warn you when it can't find activity **AE42** during network processing—and give you the option of deleting the link at that stage.)

Print a **STATUS REPORT** and **BARChart**.

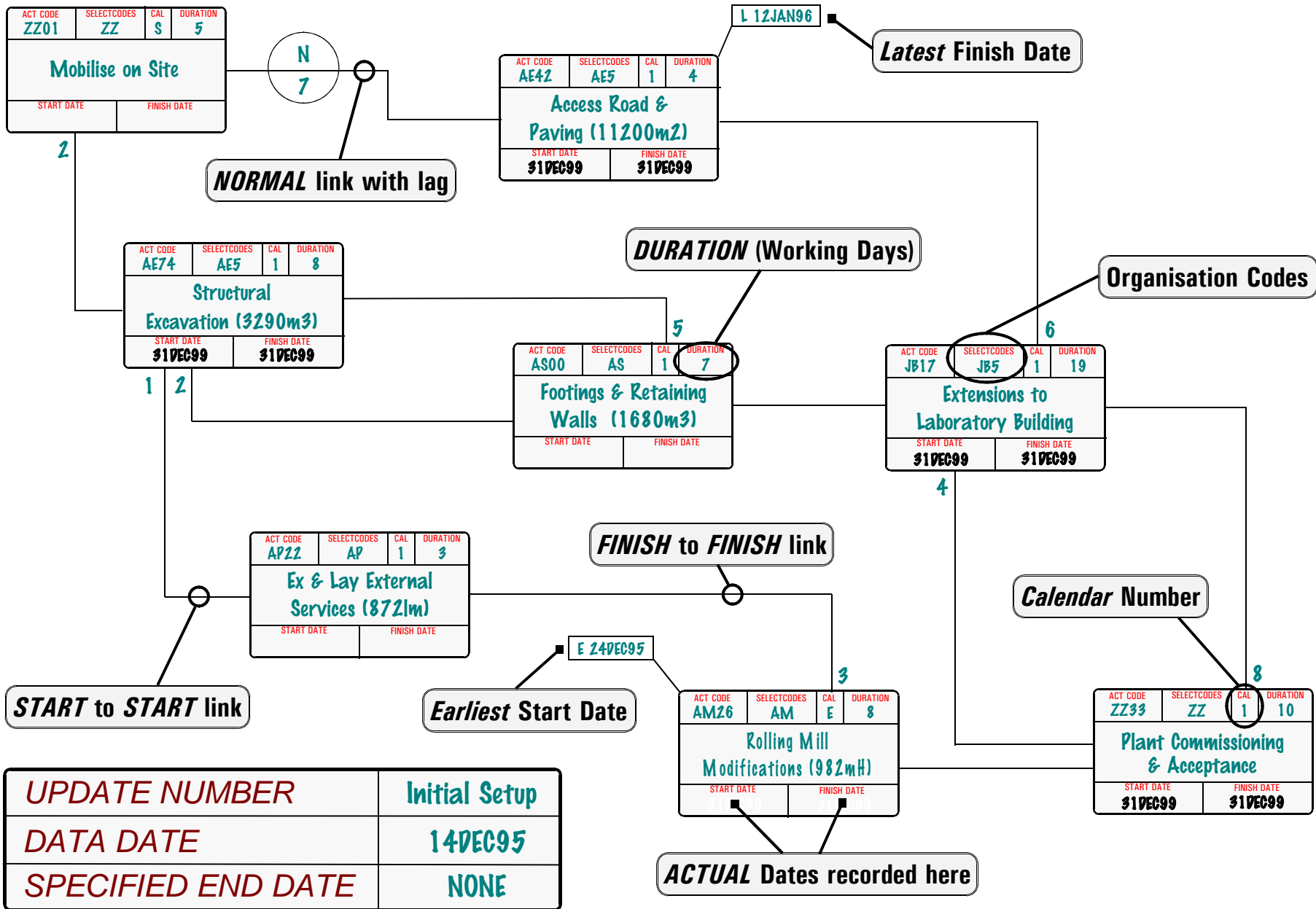
The delays and changes mean that the job cannot now finish by the **Specified End date**—so some tasks have *negative* float. Note the “forgiving” treatment of the logic “conflicts”. Activity **JB17** has a reported **actual start date** and a **remaining duration** of only 6 days.

However, its finish is delayed by the *link* from **JB22**. The **BAR**CHART shows its duration as continuous from the **Data Date** to its **Early Finish** even though it is only listed as **6** days. The **Normal** link from **JB17** back to **AS00** was obviously *incorrect*. Job progress indicates it *should* have been a **Start** or **Finish** link (or perhaps both), or the Finish date for **AS00** has been omitted. **PROPLAN** resolves conflicts by evaluating the *relative reliability* of the information supplied. Actual dates must always be given top credibility so updates on a large network—which inevitably has many minor logic conflicts—are not invalidated by a few minor problems. Activity **AS00** is shown with large negative float—obviously this is not correct—rather than have **JB17** and all its successors pushed forward in time, ignoring the fact that **JB17** has started. These types of logic conflicts are common in a large network—especially when inexperienced schedulers use **Normal** links where a “ladder” relationship (paired **Start** and **Finish** links) exists between two activities—or the project logic is not fully understood when the network is first constructed.

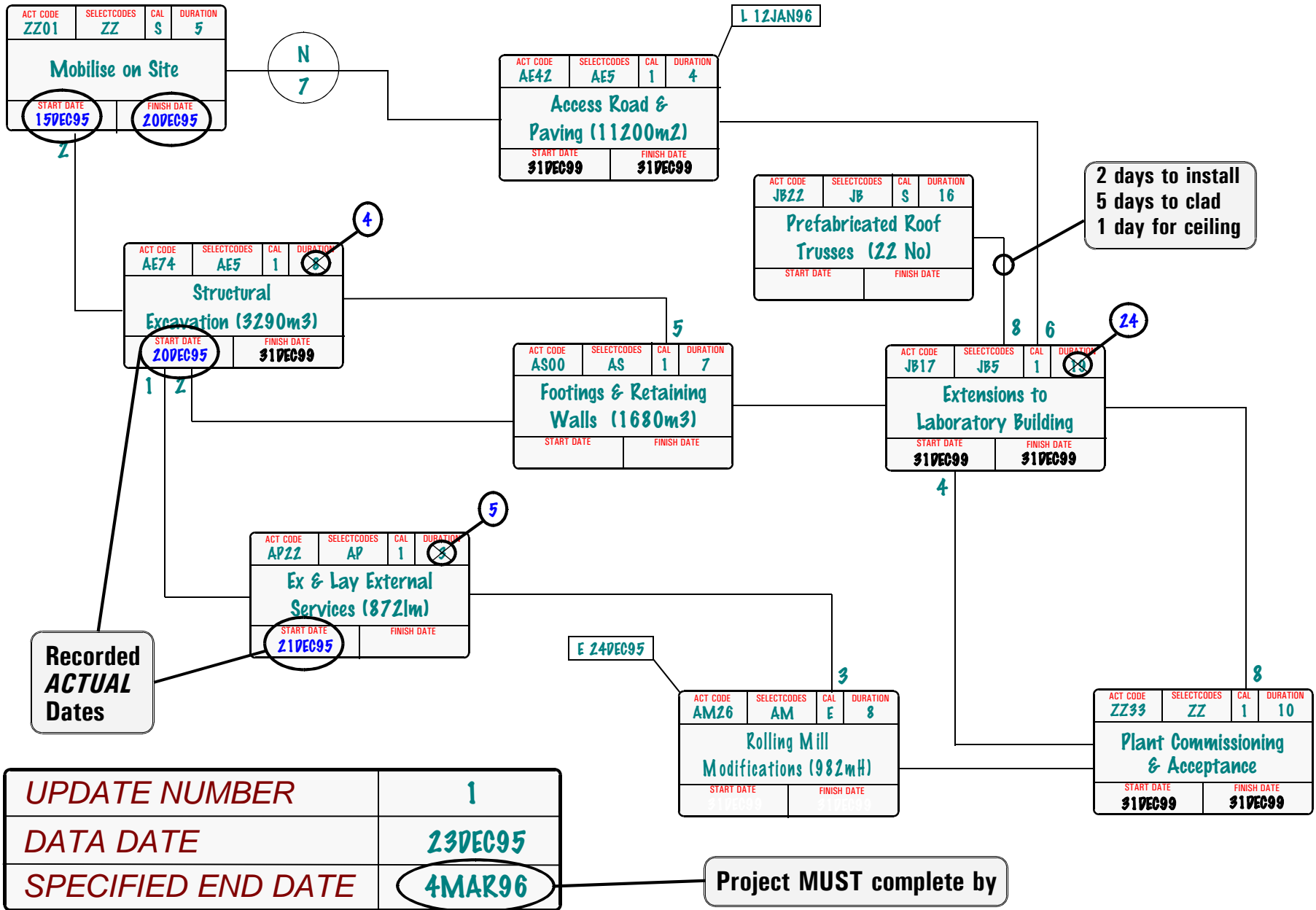
We have not attempted to cover the use of **Milestones**, or other more sophisticated features of the program. You can explore these options by making your own additions to this network.

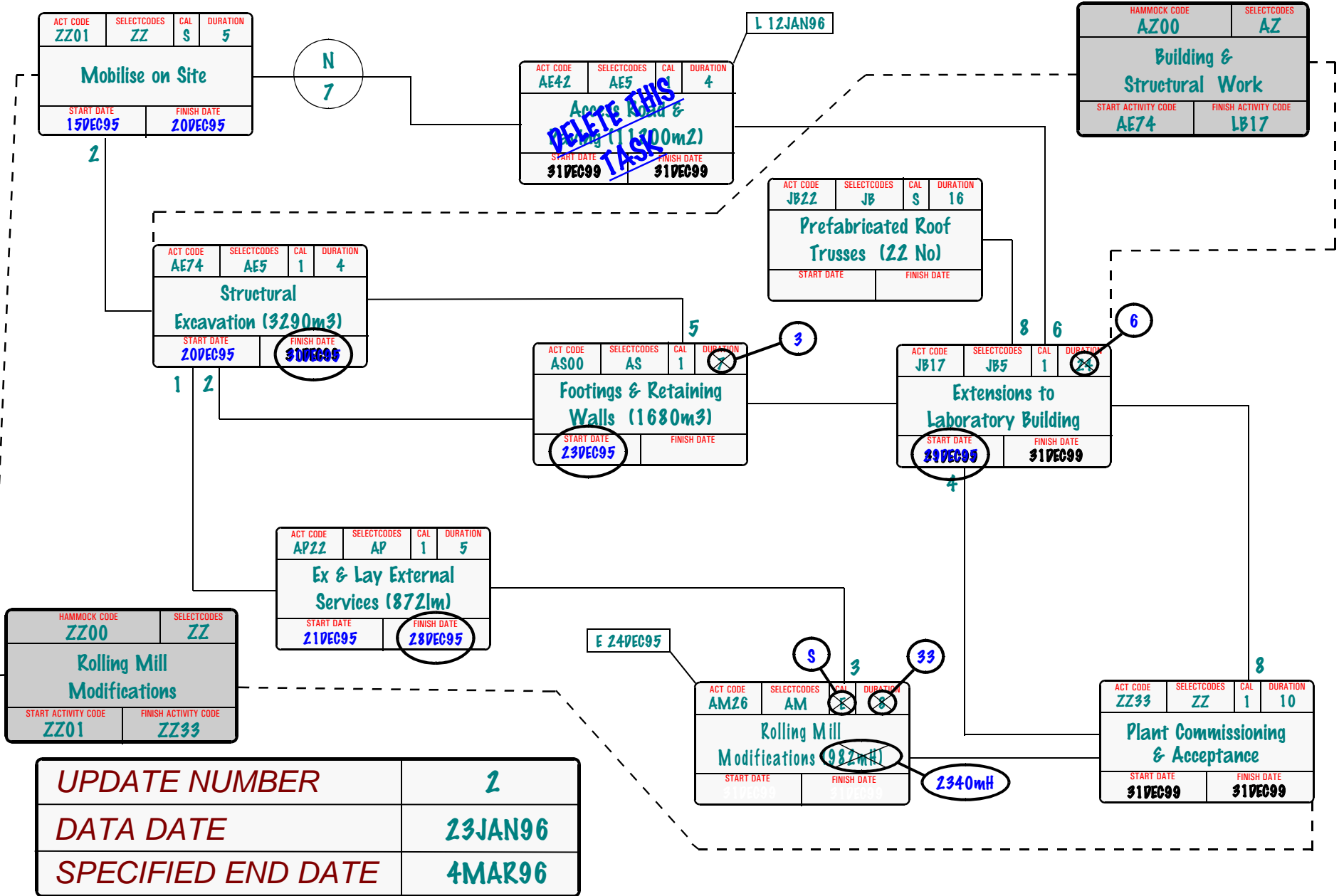
You should also look at some of the options in the **Utility menu**. In addition to facilities for making *mass changes* to record **codes** and **descriptions**, it allows you to *clone* complete sections of a network—avoiding much of the repetitive data entry involved in the development of real networks. You can even create *libraries* of records (complete networks, sub-networks, or resource lists) and copy these into each new network—or copy records directly from other networks.

Read through **Part C**, the **Reference** section, for more detailed information on **PROPLAN**'s capabilities.



UPDATE NUMBER	Initial Setup
DATA DATE	14DEC95
SPECIFIED END DATE	NONE





RESOURCE LISTING - 1st Update

Printed 2:12pm 23DEC95		PROPLAN - PROJECT SCHEDULING SYSTEM					Page 1
### RESOURCE LISTING ###							
Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS						Sorted	
Code	Resource Description	Usage Type	Default Alloc Mode	Unit Cost	Changed		
ET10	Dump Trucks	Reusable	Daily use	43.00/Hr	23DEC95		
MF20	Diesel Fuel	Consumable	Fixed amt	0.78/Li	23DEC95		
	[Wholesale Cost] 0.45		=	0.45			
	[Federal Tax] 0.20		=	0.20			
	[Transport] 0.13		=	0.13			
			TOTAL =	0.78			

2 Resources							

RESOURCE ASSIGNMENT - 1st Update

Printed 2:12pm 23DEC95		PROPLAN - PROJECT SCHEDULING SYSTEM					Page 1				
### RESOURCE ASSIGNMENT ###											
Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS						Sorted by Task Code					
Act Code	Activity Description	Select Cal	Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float	Total Float		
AE42	Access Road & Paving	(11200m2)	1	AE5	4	28DEC95	9JAN96	3JAN96	12JAN96	23	7
	MF20 Diesel Fuel			Consumable		Fixed amt		1600	Li		
AE74	Structural Excavation	(3290m3)	1	AE5	4	Actual= 20DEC95	3JAN96	11JAN96		0	6
	MF20 Diesel Fuel			Consumable		Fixed amt		11700	Li		
	ET10 Dump Trucks			Reusable		Daily use		48	Hr/Dy		336
AM26	Rolling Mill Modifications	(982mH)	E	AM	8	24DEC95	27JAN96	20JAN96	18FEB96	7	9
AP22	Ex & Lay External Services	(872lm)	1	AP	5	Actual= 21DEC95	4JAN96	9FEB96		1	26
	ET10 Dump Trucks			Reusable		Daily use		16	Hr/Dy		112
AS00	Footings & Retaining Walls	(1680m3)	1	AS	7	2JAN96	10JAN96	10JAN96	18JAN96	0	6
	MF20 Diesel Fuel			Consumable		Fixed amt		400	Li		
	ET10 Dump Trucks			Reusable		Daily use		8	Hr/Dy		56
JB17	Extensions to Laboratory Building		1	JB5	24	11JAN96	19JAN96	13FEB96	21FEB96	0	6
JB22	Prefabricated Roof Trusses (22 No)		S	JB	16	23DEC95	25JAN96	7JAN96	9FEB96	25	33
ZZ01	Mobilise on Site		S	ZZ	6	Actual= 15DEC95	Actual= 20DEC95			Complete	
ZZ33	Plant Commissioning & Acceptance		1	ZZ	10	12FEB96	20FEB96	23FEB96	4MAR96	6	6

9 Activities											

RESOURCE USAGE - 1st Update

Printed 2:12pm 23DEC95		PROPLAN - PROJECT SCHEDULING SYSTEM					Page 1
*** RESOURCE USAGE ***							
Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS						Specified End 4MAR96	
Sorted							
Code	Resource Description	Usage Type	Default Alloc Mode	Unit Cost	Total Usage	Total Cost	
ET10	Dump Trucks	Reusable	Daily use	43.00/Hr	504 Hr	21672.00	
MF20	Diesel Fuel	Consumable	Fixed amt	0.78/Li	13700 Li	10686.00	
2 Resources Defined							
TOTALS					\$	32358.00	

RESOURCE LOADING - 1st Update

Printed 2:12pm 23DEC95 PROPLAN - PROJECT SCHEDULING SYSTEM Page 1
 Data Date 23DEC95 ### RESOURCE LOADING ### Specified End 4MAR96
 Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS Sorted

Resource ET10 - Dump Trucks - Reusable Plotted on Early Dates

Day	Date	Daily Usage	0	10	20	30	40	50	60	70	80	90	100	Usage Today
Tue	19DEC95	0												0
Wed	20DEC95	48												48
Thu	21DEC95	64												112
Fri	22DEC95	64												176
Sat	23DEC95	0												176
Sun	24DEC95	0												176
Mon	25DEC95	0												176
Tue	26DEC95	0												176
Wed	27DEC95	0												176
Thu	28DEC95	64												240
Fri	29DEC95	64												304
Sat	30DEC95	0												304
Sun	31DEC95	0												304
Mon	1JAN96	0												304
Tue	2JAN96	72												376
Wed	3JAN96	72												448
Thu	4JAN96	24												472
Fri	5JAN96	8												480
Sat	6JAN96	0												480
Sun	7JAN96	0												480
Mon	8JAN96	8												488
Tue	9JAN96	8												496
Wed	10JAN96	8												504
Thu	11JAN96	0												504

Total of 504 Hr over 12 days in period 20DEC95 to 10JAN96 for cost of \$21672.00

RESOURCE LOADING - 1st Update

Printed 2:13pm 23DEC95 PROPLAN - PROJECT SCHEDULING SYSTEM Page 2
 Data Date 23DEC95 ### RESOURCE LOADING ### Specified End 4MAR96
 Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS Selected on MP20

Resource MF20 - Diesel Fuel - delivered to job - Consumable Plotted on Early Dates with lag of -4 days

Day	Date	Daily Usage	0	10000	20000	30000	40000	50000	60000	70000	80000	90000	100000	Usage Today
Fri	15DEC95	0.0												0.0
Sat	16DEC95	1671.4	++											1671.4
Sun	17DEC95	1671.4	+++											3342.9
Mon	18DEC95	1671.4	++++											5014.3
Tue	19DEC95	0.0	++++											5014.3
Wed	20DEC95	0.0	++++											5014.3
Thu	21DEC95	0.0	++++											5014.3
Fri	22DEC95	0.0	++++											5014.3
Sat	23DEC95	0.0	****											5014.3
Sun	24DEC95	2071.4	*****											7085.7
Mon	25DEC95	2071.4	*****											9157.1
Tue	26DEC95	0.0	*****											9157.1
Wed	27DEC95	0.0	*****											9157.1
Thu	28DEC95	0.0	*****											9157.1
Fri	29DEC95	2128.6	*****											11285.7
Sat	30DEC95	2128.6	*****											13414.3
Sun	31DEC95	57.1	*****											13471.4
Mon	1JAN96	57.1	*****											13528.6
Tue	2JAN96	0.0	*****											13528.6
Wed	3JAN96	0.0	*****											13528.6
Thu	4JAN96	57.1	*****											13585.7
Fri	5JAN96	57.1	*****											13642.9
Sat	6JAN96	57.1	*****											13700.0
Sun	7JAN96	0.0	*****											13700.0

Total of 13700 Li over 12 days in period 16DEC95 to 6JAN96 for cost of \$10686.00

CALENDAR PRINTOUT

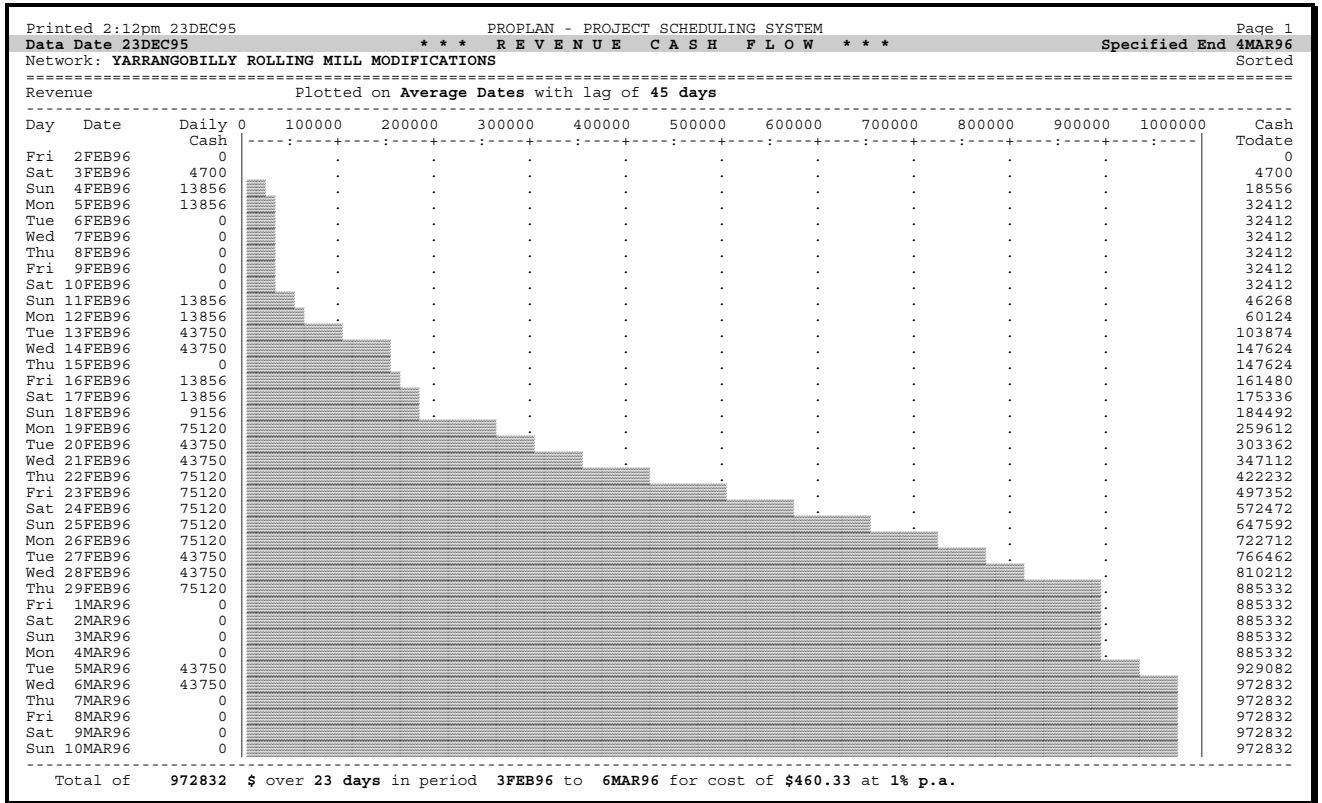
Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS System date: Thu, 14DEC95
 USER DEFINED CALENDARS Page 1

Start 9DEC95 End 5APR96
 Calendar Number: 1 2 3 4 5 6 7 8 9 A B C D E F G

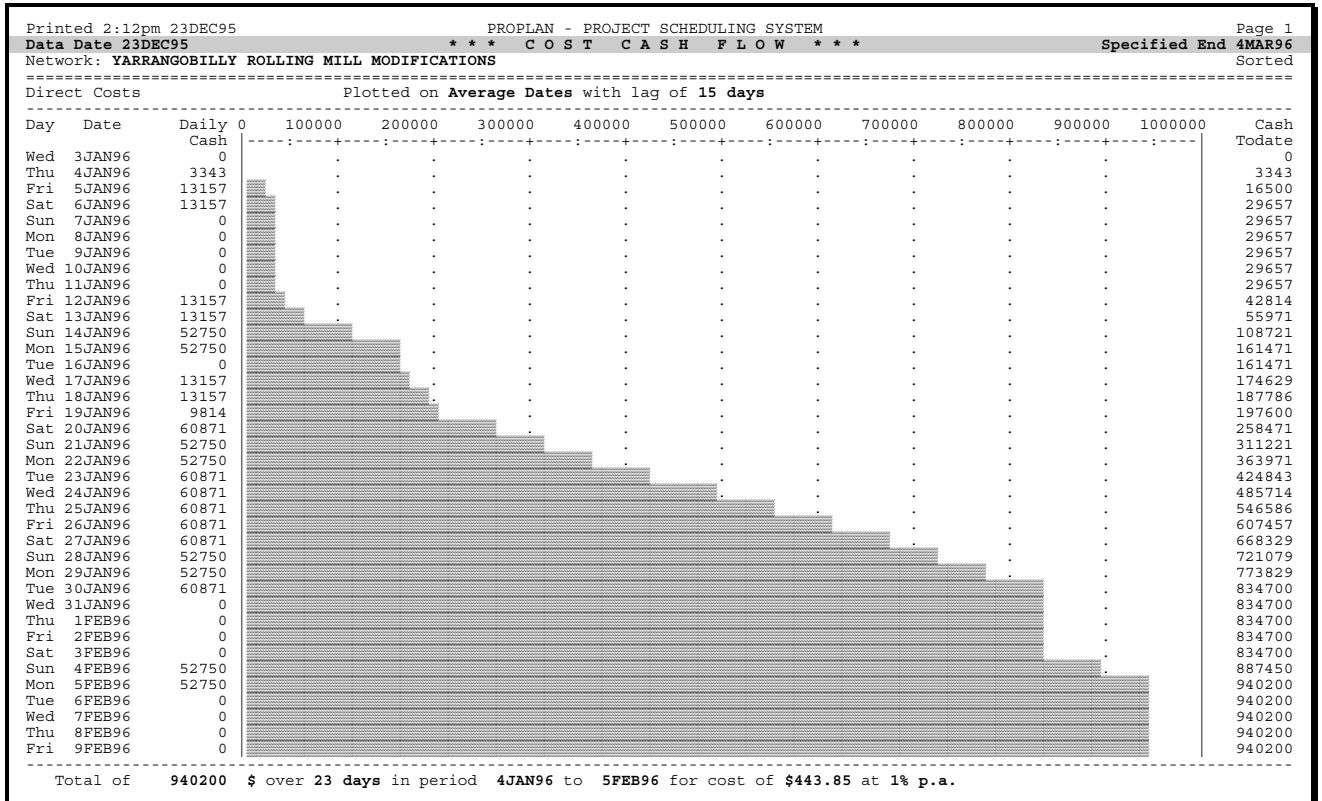
Week No: 1

Sat	9DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	10DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	11DEC95	w	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	12DEC95	w	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	13DEC95	w	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	14DEC95	w	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	15DEC95	w	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.

REVENUE CASH FLOW - 1st Update



COST CASH FLOW - 1st Update



CALENDAR PRINTOUT

Network: YARRANGOBILLY ROLLING MILL MODIFICATIONS													System date: Thu, 14DEC95														
USER DEFINED CALENDARS													Page 1														
Start 9DEC95													End 5APR96														
Calendar Number: 1													2	3	4	5	6	7	8	9	A	B	C	D	E	F	G
=====																											
Week No: 1																											
Sat	9DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	10DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	11DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	12DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	13DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	14DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	15DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Week No: 2																											
Sat	16DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	17DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	18DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	19DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	20DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	21DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	22DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Week No: 3																											
Sat	23DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	24DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	25DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	26DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	27DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	28DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	29DEC95	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Week No: 4																											
Sat	30DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	31DEC95	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	1JAN96	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	2JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	3JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	4JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	5JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Week No: 5																											
Sat	6JAN96	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	7JAN96	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	8JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	9JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	10JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	11JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	12JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Week No: 6																											
Sat	13JAN96	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Sun	14JAN96	HOL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	w	.	.
Mon	15JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Tue	16JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Wed	17JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Thu	18JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
Fri	19JAN96	w	.	.	.	.	.	.	.	.	.	.	.	.	.	.	HOL	.	.
=====																											