PROBILL — Evaluation Pack

This evaluation pack will assist you in assessing **PROBILL** 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.

- *Digitiser* use can only be simulated.

Install the evaluation system on your hard disk by placing the program disk in drive A, then change to drive A by typing ⒜⊡ Enter. Then type ⒤Ⓝ⒮Ⓣ⒜ⓁⓁ Enter and follow the directions.

Part B — Tutorial

Preamble

If you have not yet installed **PROBILL** on your harddisk, read **Getting Started** in *Appendix 1*. (If you have the **DIGITIZER** version of the program, you should also read the digitizer installation instructions in *Appendix 11.)*

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

Running the Demo

When you install **PROBILL**, the demonstration is automatically copied to your harddisk. To run it just type `CD \PROCON` and press [Enter] to change to the directory, type `DEMO` and press [Enter]. 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 [A][:] and press [Enter] to change to that drive. Then type `DEMO`, press [Enter], 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 **PROBILL** and covers all the basic functions you will need to *set up a contract*, perform *escalation calculations*, handle *variations,* and produce *Progress Payment Certificates*. (If you do not work with contracts subject to escalation, you can skip that portion of the tutorial.) More advanced facilities can be explored when the need arises.

It is assumed that you understand the terminology of *Contract Billing,* have some knowledge of the *practical aspects* of contract administration, and have at least some basic acquaintance with the computer and operating system. If you are not familiar with the terminology of contract *Bills of Quantities*, *Schedules of Rates,* or *escalation formulae,* you should read *Appendix 3* before continuing.

If you have already used other **PROCON** software packages—such as the **PROBID Cost Estimating & Tendering System** or the **PROPLAN Project Scheduling System**—you should be able to run quickly through much of the early material, as the user's interaction with each program is very similar.

The tutorial is designed to illustrate *principles* so the examples are deliberately non-specialist in nature. This does not mean that **PROBILL** is not applicable to more

specialised types of work—it is just that the tutorial must be comprehensible to a wide range of users.

Starting PROBILL

Type `CD \PROBILL\SYS` and press ⌈Enter⌉ to change to the **system** directory. Type `PROBILL` and press ⌈Enter⌉. A logo appears with some system information and then…

Menu System

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

```
PROBILL CONTRACT BILLING SYSTEM                    System date: Wed, 15JUN94
 MASTER         UTILITY        EXPORT       ITEM       ESCALATION      HELP
═══════════════════════════════════════════════════════════════════════════
   New Contract
   ConSolidation
   Print Reports
   List Contracts
   Edit Contract
   Remove Contract
   Data Directory
   Customisation
```

PROBILL 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.

C u s t o m i s i n g   P R O B I L L

Hit [C] for **Customisation** and this selection list *("picklist")* appears:–

```
    ┤CUSTOMISE├
 Data Directory
 Printer Setup
 Digitizer Setup      (The DIGITIZER option does not appear in all versions.)
 Country Setup
 Screen Colours
 System Defaults
```

PROBILL 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 *PROBILL* with some information on your printer. Use the [↑] and [↓] arrow keys to move the highlight to **Printer Setup**. Press [Enter] to select it. The following screen appears:–

```
 PRINTER SETUP                              System date: Wed, 15JUN94

  Report Header ▌ PROBILL - CONTRACT BILLING 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–5.*

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.

`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 **PROBILL** 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:–

```
┌Device┐
PRN
LPT1
LPT2
LPT3
COM1
COM2
COM3
COM4
LPT1.DOS
LPT2.DOS
```
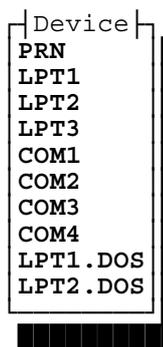
Hit ⌊Esc⌋ape to *remove* the list *without* changing the field's contents. (The setting should always be left at `PRN` if your printer is connected to the standard parallel port— or if a serial port has been configured to emulate the parallel port.)

Don't know what a device is? It really doesn't matter. **PROBILL** 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 ⌊Y⌋.) The

highlight can be moved with ⬇ and ⬆. (⬅ and ➡ reposition the window itself.) Pressing ⌈Enter⌉—or the *right* mouse button—transfers your choice into the field and removes the window. ⌈Esc⌉ape—or pressing the *left* and *right* mouse buttons together—cancels the function.

If you are using an **HP Laserjet** compatible printer, select ⌈Y⌉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 ⌈F6⌉ to list the various paper size options and choose a paper size. Leave the **Scalable Fonts?** field set to ⌈Y⌉es unless you have an older laser printer. Then skip forward to *Recording a Screen*. *PROBILL* 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* ⌈F6⌉—the *SELECT* key—to pop up a *picklist* of pre-defined printers.

> You *can* provide *PROBILL* 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–23* 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.

Recording a Screen—⌈F2⌉

Press ⌈F2⌉—the *RECORD* key—to save the changes made to this screen.

IMPORTANT! Screen changes are *not* saved until you hit ⌈F2⌉ to *RECORD* them!

A prompt appears:– "**Print a Test Sheet? (Y/N)**". Switch your printer *on* and respond Ⓨes. The printer will print a *test page* that should look like this:–

```
Report Header:    PROBILL - CONTRACT BILLING SYSTEM
Shaded Title:         C O N T R A C T   D A T A

Device: PRN out to Star Micronics XR-1520

Lines/Page = 66 for a Page Length of 11.00"

|---------1"--------2"        PICA, Symset: ⌐⌐╚▌½¼ƒπ, BOLD
|----------1"---------2"      ELITE, Symset: ⌐⌐╚▌½¼ƒπ, BOLD
|-------------1"------------2"  CONDENSED, Symset: ⌐⌐╚▌½¼ƒπ, BOLD
```
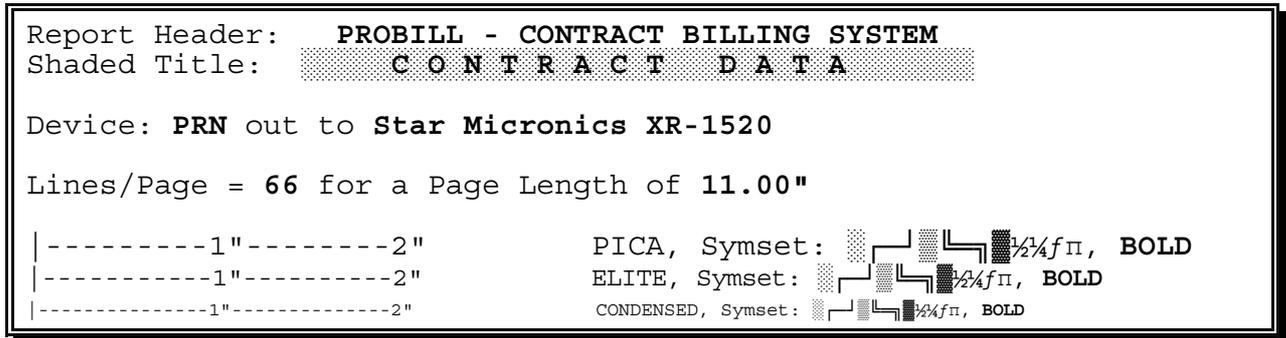
(Laser printer output is slightly different.) Check that the pitch setting commands are producing approximately the correct pitch, that the characters in the symbol set match those shown, and that the shaded header is legible. Confirm the settings are correct by answering Ⓨes to the prompt. (If the printout shows the codes are *not* correct, select Ⓝo to return to the screen. See *Printer Setup*, *page D–23* for more information.)

PROBILL returns to the **Master menu**. Select **Customisation** and then **System Defaults** from the picklist that appears.

Changing System Defaults

The **System Defaults** screen looks like this:–

```
SYSTEM DEFAULTS                               System date: Wed, 15JUN94

 Colour ON?              (Y/N)  Yes      Sound ON?               (Y/N)  Yes

 Password facility ON? (Y/N)  Yes      Archive facility ON?  (Y/N)  Yes

 Gestalt matching ON?  (Y/N)  Yes      Standard VIDEO lines? (Y/N)  Yes

 Switch MOUSE Buttons? (Y/N)  No       MOUSE Sensitivity Level       4


 Department/Project Name    ░░░░░░░░░░░░░░░░░░░░░░░


F2 record  F10 cancel   F4 bring fwd  F3 blank fld   ↑↓   PgUp top  PgDn bottom
No if text is unclear                                                      NUM
```
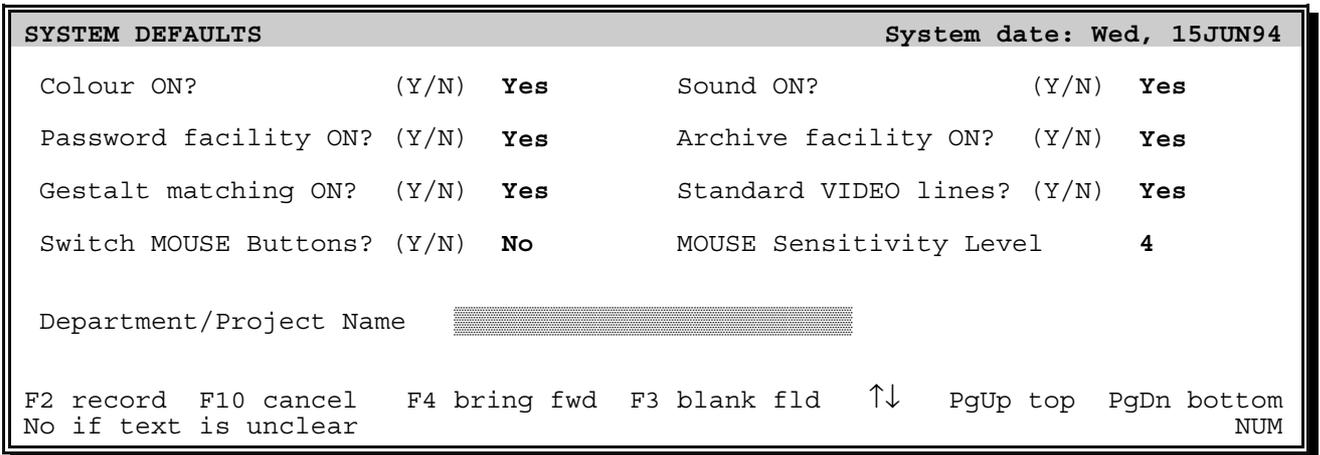
(*System defaults*, *page D–34* explains all these fields in detail. In the tutorial, we will leave most at their default values.) Press PgDn to move to the last field—the **Department/Project Name** field.

Department or Project Name

Sensible defaults avoid the need to key the same information into every new contract. For instance, assume all users belong to just one section—*Mechanical Engineering*.

Enter:– "**Mech Engineering Division**". (A "beep" warns you that the cursor is at the end of the field.) Press F2 to *RECORD* the changed screen. The **Master menu** returns.

Creating a Contract

Initial Setup   15JUN94

Hit N to select **New Contract**. A prompt appears for the "**New Contract Name**". (*Page A/1* of *Appendix A—Schedule of Rates* in *Part D* of the Manual—contains a sample contract document for a small job. Please refer to that now.)

Contract Name & Password

Type in the contract name:– "**BULLAMAKANKA DAM – TUTORIAL EXAMPLE**" and press Enter. (The name appears on *Progress Payment Certificates*—so the full name should be given.) 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!

Contract Details Screen

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

```
CONTRACT DETAILS                                System date: Wed, 15JUN94

   Department or Project Code    ME       Department   Mech Engineering Division
   Job Number                              Round Extended Amounts to Cent
   Approved Contract Value  $

   Contractor




   Owner




   Markup(+) or Discount(-)              %    Percentage Retention           %
   Maximum Retention            %    and/or  $
   Contract Name    BULLAMAKANKAáDAMáûáTUTORIALáEXAMPLE          Password

      ADD Mode    Alt Notepad    Alt Jotter    Alt = PROCALC    Alt - Calendar
   F2 record  F10 cancel   F4 bring fwd  F3 blank fld   ↑↓   PgUp top  PgDn bottom
   Identify overall department OR project responsible                        NUM
```

Change the **Department code** to `MD`—for `Mechanical Department`—and move down to the **Job Number** field and enter `M94/12345`. Bypass the next field and enter `943 851.83` in the **Approved Contract Value** field.

Numeric Fields

The **Approved Contract Value** field only accepts *numeric* input. Other keys just produce warning beeps. Entry is "free form" and whole dollars may be entered without cents. Values may be *left* or *right justified* and spaces can be used to "set off" the thousands.

Contractor's Name & Address

Move down to the **Contractor's name** and **address** fields, and type:–

```
FAR WESTERN GENERAL CONTRACTORS PTY LTD
112 Bogan Street
P.O. Box 4
NEVERTIRE    NSW 2831
```

More Field Editing

Unless your typing is unusually good, you will have found it difficult to type all this without some mistakes. To help you move around the fields 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*.

`Ctrl` `End`—or `Ctrl` `Enter`—*deletes all text* from the cursor *to the end of the field*.

Cut & Paste—`Alt` `D`-`Alt` `I`

What about *rearranging the lines in the address?* Let's place the **post box number** *before* the **street address**—for a more conventional address layout. (Of course, you could just re-type the changed fields. However, this is a good time to introduce some of the more specialised edit functions.) Sets of *identical fields*—such as these address lines—can be *inserted* and *deleted* and "**Cut and Paste**" techniques used to actually *move* and *rearrange* the fields.

Move to the **post box line** and key ⌈Alt⌉⌈D⌉ to *delete the line*. (⌈Alt⌉⌈D⌉ means hold down the ⌈Alt⌉ key and then press ⌈D⌉. The ⌈Alt⌉ and ⌈Ctrl⌉ keys are used like the ⌈Shift⌉ key to extend the functionality of standard keys.) Lower lines move up to close the gap. The deleted line is saved in a "cut buffer" and can be recalled. Move up to the **street address line** and key ⌈Alt⌉⌈I⌉ to *insert the cut buffer* before that line. The order of the lines has now been changed.

Owner's Name & Address

Move down to the **Owner's name** field. Some entry is also required in this field…

Mandatory Fields

Leave the name field *blank* and press ⌈Enter⌉. Flashes and beeps warn you that this is a *"must enter"* field—it cannot remain blank.

The **Principal's name** and **address** is given on *page A/1* of *Appendix A* so you could type it in just as you did for the **Contractor**. However, let's assume that these details have been used on earlier jobs (either because, as the *Contractor*, you often work for this *Client*—or, as an *employee of the Owner*, this detail is the *same on every job)*. Surely we should be able to avoid retyping this detail every time…

User Defined Lists—⌈F6⌉ & ⌈Shift⌉⌈F6⌉

Hit ⌈F6⌉ in the **name** or **address** fields. A *picklist* list appears containing several *Owners' names*. Select the **BULLAMAKANKA POWER & WATER COMMISSION** and the name and address will be transferred into the fields and the cursor will move on to the following field.

> Names and addresses may be added to the list with ⌈Shift⌉⌈F6⌉. This is just *one* example of *one* type of "**User Defined list**" you can manage yourself. (Others are the **Printer** and **Device** lists used earlier.) *Many* **PROBILL** fields can have **User Defined lists** associated with them. (This feature is described in detail in *Appendix 12* in *Part D* of the manual.)

Before moving on to the other fields, let's assume that there are a few *contract payment conditions* you would also like to record. There are no specific fields for *general text* but you can use one of the **PROBILL** "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:–

```
Materials on Site paid at 100% of cost.
Establishment items paid to 90% when work commences.
```

The **NOTEPAD** can be used for many purposes—as a reminder of *special payment provisions;* to record *problems encountered;* as a convenient way of appending *"tickler notes"* to reports sent to people involved in the contract—or as a *job diary,* or *"aide memoire"*.

Press ⬜F2 to save the **NOTEPAD** and close the window.

Markup or Discount

Bypass the **Markup/Discount** field. (This is rarely used in construction contracts. It applies a *general percentage increase* or *decrease* to the *calculated amounts payable*.)

Retention Rate

The contract has a **retention rate** of **10%** so enter **10** in this field. (*Retention*—or *"holdback"*—is an amount of money withheld from progress payments until the project is satisfactorily completed).

Maximum Retention

The **total retention** is also *"capped"* at **5%** of the approved contract value—so key **5** in the **Maximum Retention** field.

If a **Maximum Retention** is specified it is usually as a *percentage* or *dollar amount* (or *both*)—hence the two fields on this line. **PROBILL** can also handle much more complex formulae. (See *Appendix 4* for more details.)

Press ⬜F2 to **RECORD** the screen. (If you have pressed ⬜Enter you will be queried "**Proceed? (Y/N)**". Answering ⬜Y es to the prompt also **RECORD**s the screen.) **PROBILL** moves directly to **Add Items** mode—as it assumes that this is the next logical step.

PROBILL *can* be configured to automatically read in a standard list of item *groups, escalation classes,* and *formula* every time a new contract is created (See *Appendix 8—Customising* **PROBILL**.) However, the tutorial assumes that this has *not* been done and so we will have to create this detail as we go…

Item Entry

Add Items Mode

The **Item entry** screen looks like this:–

```
┌──────────────────────────────────────────────────────────────────────┐
│ Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE       System date: Wed, 15JUN94 │
│                                                                        │
│ #1        CODE           DESCRIPTION          ┌─────────────────────┐  │
│                                               │    CONTRACT DATA     │  │
│  Group    ▓▓▓         ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓      │                     │  │
│                                               │    Initial Setup     │  │
│  Section  ▓▓▓▓        ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓      │       0 Items        │  │
│                                               └─────────────────────┘  │
│  Item     L    I       ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓                              │
│                                                                        │
│  Measure Unit   ▓▓▓    Contract Qty  ▓▓▓▓▓▓▓▓ LM   Unit Rate $ ▓▓▓▓▓0.00 │
│                                                                        │
│  Escalation Class  ▓▓▓              Contract Amount $ ▓▓▓▓▓▓▓▓          │
│                                                                        │
└──────────────────────────────────────────────────────────────────────┘
```

Group Codes

Before entering items you should give some thought to the way in which they will be *subtotalled* and *sorted*. **PROBILL** allows you to organise **items** into **sections** and, in turn, sections into **groups**.

Subtotals will be given at both *section* and *group* level. **Groups**, **sections** and **items** may be sorted *alphabetically by code*. It is therefore important that you use a logical structure and coding scheme for groups, sections and items. *Page A/1* of *Appendix A* in *Part D* is the *Schedule of Rates* for this contract. (It is not meant to be a good example of consistent item numbering—but it does illustrate some of the coding schemes you may encounter in practice.) This contract document has a *natural structure* so we should follow it. The `CIVIL ENGINEERING` and `BUILDING` divisions are logical *groups* which must be further subdivided into *sections*.

Press ⌈Home⌋ to move the cursor to the *first field*—the **Group code**. Enter `G1` and press ⌈Enter⌋ to move to the **Group description** field. Key in `CIVIL ENGINEERING WORK`.

Section Codes

Press ⌈Enter⌋ again to move down to the **Section** line. Enter a section **code** `E000` and a section **description** `DRILLING & BLASTING`.

> Obviously, when this is sensible—*and* produces correctly sorted groups and sections, you should follow the numbering given in the contract documents. (When keying in group, section, or item codes, be careful to distinguish between `0` and `O`, `1`, `l` and `I`, etc.).

Item Codes

Move down and enter the **Item code** `A1a` and **description** `DRILLING ESTABLISHMENT`.

Group, *section,* and *item* codes may use any **alphanumeric** character. *Case* and *position* are both significant. Be sure the item code is "right justified" in the five character field like this, ▌`A1a`▌ rather than ▌`A1a` ▌, and has not been entered as ▌   `a1A`▌. (If the item code is *not* right justified return to the code field and hit ⬚Shift ⬚F4—the *RIGHT JUSTIFY* command.)

Measure Unit

Enter the **Measure Unit**—"`LS`" (an abbreviation for *Lump Sum)*. As it is a *"Lump Sum"* item, *PROBILL* will "fill in" a default value of `1` in the **Contract Quantity** field.

Note that the **Measure Unit** field is another "must fill" or mandatory field. You *must* provide *some* entry here or the program will prevent you from leaving the field.

Contract Quantity

Leave the quantity value at `1`. Quantities can be in *any* position in the field. *PROBILL* saves quantities in the format you enter.

Unit Rate

Key in the **Unit Rate** of `8700`. (You may enter integral rates without cents.)

At this stage, you will not be entering an **Escalation Class** so you have finished with this screen. Check the data—correcting it if necessary by moving around with ⬚↑ and ⬚↓, and editing the fields. Note that the **Contract Amount** is calculated and displayed when you leave the **Unit rate** field so always check this figure against the listing for the item. It is a quick way of confirming that *both* the **quantity** and **unit rate** are correct.

Press ⬚F2 to *RECORD* the screen. The item is saved—with a distinctive sound—and the fields blanked for entry of the next item. Many fields for the second item are similar to the first, so you should be able to "short cut" the typing…

Bringforward Command—⬚F4

Press ⬚F4. In *ADD* mode, this copies fields from the previous item. (If pressed in the *first* field, *all* fields are "brought forward". In subsequent fields only the current field is copied.)

BRINGFORWARD is particularly handy when entering *repetitive* items. 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 items.

Amend the item details to:– **D100** **CHANNEL DRILL & BLAST**, with a **Measure Unit** of **m3**, a **Contract Quantity** of **242140** and a **Unit Rate** of **0.98**. Make sure the item code is *right justified* and that the *quantity* and *unit rate* are correct. (Check the *contract amount* against the figure **$237,297.20** from the *Schedule of Rates*.) To attach a note to the item, key [Alt][N] (or [F11]) and type in:–

```
Paid on basis of theoretical trench sections.
40% paid when drilling complete.
```

Press [F2] to **RECORD** the note.

Record Number & NOTEPAD Indicator

The record number—**#2   N**—appears at the *top left* of the screen. The "**N**" indicates that this item has a **NOTEPAD** entry. (If your display is set for **50** lines, the text remains visible in the lower part of the screen.) Now hit [F2] again to **RECORD** the item.

Press [F4] to **BRINGFORWARD** the *previous* item details and [↑] to move up to the **Section code** field. Hit [F8] to **INCREMENT** the code **E000** to **E001**. Press [Enter] to move to the **Section description** and change it to read **TAILRACE EXCAVATION**.

Go on and enter *all* items in section **E001**. (See ***Page A/1, Appendix A, Part D***.)

Then *start* on the items in the **BUILDING WORK** group—using a group code of **G2**…

If all this typing doesn't appeal to you—*and* you are confident you *fully* understand the key commands involved—you may take a shortcut by copying the tutorial files over from the distribution disk. To do this, [Esc]ape to the menu system. Hit [Ctrl][Home] to "shell" to **DOS**. Place the floppy disk in **drive A** and type **COPY A:\DATA*.* \PROBILL\DATA**. Then type **EXIT** and press [Enter] to return to the menus. Hit [Alt][I] to move to the **Item menu** and [A] to return to **ADD** mode. Carefully read the following section on auto-incrementing item codes and resume the tutorial at the sub-heading ***Switching Modes*** on ***page B–15***.

Auto-increment Codes—[F5]

The drainage items in the **PLUMBING** section have codes with a *uniform increment* of "**10**"—running from **A200** through **A210**, **A220**, etc. To save time when entering a sequential set of item codes, after entering the code for the *second* item in the section—**A210**—hit [F5] to toggle on an *"auto-increment"* mode.

An *increment*—equal to the *difference* between the *numeric portions* of the **current** and **previous** item codes—is shown to the right of the field as "δ10". From then on, the code is *automatically incremented* for each new item. When you hit [F4] to **BRINGFORWARD** all fields from the last item, the cursor skips directly to the *item description* field.

The increment may be *fractional*, e.g., `1.00`, `1.20`, `1.40`. Auto-incrementing works only with **item** codes—not **section** or **group** codes. (Of course, F8 acts as a single increment key in *item*, *group,* or *section* code fields.)

Complete the `PLUMBING` items and *hit* F5 to turn auto-increment *off.* Then enter the `ELECTRICAL` and `LANDSCAPING` items.

Switching Modes— F9

Press F9 —the mode *SWITCH* key. A one line "menu" appears at the bottom of the screen offering choices of:–

> `Progress items, Add items, 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 items. Home and End move to the *first* and *last* item respectively, while the arrow keys (and F7 – F8) move *backwards* and *forwards* through the items. If you go past the first or last record, the record number "wraps around".

Record Date Stamping

The **Record Changed** field at the bottom right is maintained by *PROBILL*—it "date stamps" items 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!

Move to any item in section `E001`, *hit* F5 , key in `D300` and Enter to search for that item. That record becomes the new point for browsing. Repeat the process but key in item code `Z50.2`.

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

Gestalt Pattern Matching

Item `Z`50.2 doesn't exist so *PROBILL* has shown `X`50.2! It *searched* for the item but couldn't find it. Knowing you thought it *did* exist, (you are in **Browse** mode not **Add** mode) *PROBILL* assumed that you had mistyped the code. It decided that—most likely—you meant to type `X50.2` and hit a ⃞Z instead of an ⃞X.

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

Suppose you want to *amend* an item? Perhaps *change* the **quantity** or **description**? ⃞Escape from *HELP* and *hit* ⃞F9—the mode *SWITCH* key—then ⃞C for **Change items**.

Change Mode

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

Changing Codes

To change the *item code* itself—or its *group* or *section* code—just amend the entry and press ⃞F2 to *RECORD* the change.

> If the code change would cause duplication, *PROBILL* will veto it. Codes *must be unique*— although the *same* **item code** may be used in different **sections**—just as the same **section code** may be used in more than one **group**. (A full **group-section-item** code is required to *uniquely* identify each item.)

Paging thru Items—⃞F7-⃞F8

Reverse any "experimental" changes you have made. In **Change** mode, you may still move through the items. Move the cursor to the *group, section,* or *item* code field. (⃞PgUp returns to the first field.) ⃞F7 and ⃞F8 will "page" through the items.

Delete Mode

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

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** item, the **NOTEPAD** provides a logical and convenient way to record the details. However, the current item would not be the appropriate place to attach general information. Fortunately, **PROBILL** 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 contract* or—if no job is being worked on—just the **PROBILL** 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.

Timestamping Notes— Alt T

Alt T inserts the *time and date* in the **JOTTER** or **NOTEPAD** text so you may "timestamp" telephone messages, records of field work, 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 Formula Evaluator— Alt = *or* Shift F12

PROBILL 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 your selection into the calculation field.) As a simple example, let's calculate the *tonnage of ballast in a conical stockpile.* Height is **13.500m**, angle of repose **35** degrees and the loose density is **1600 Kgs/m3**. Type in:–

```
H=13.50:A=35:D= 1600/1000: D × H × ACIRC(2 * H/TAN(RAD(A)))/3
```

and press ⌜Enter⌝ to switch to full screen mode and show the result of `8408.07` tonnes.

Let's quickly look at a few examples of the types of calculations that can be performed—and documented—in **PROCALC**. Hit ⌜Alt⌝⌜R⌝estore. A picklist of previously saved, multi-line **PROCALC** "template sheets" appears. (The installation program copied these sample files into the **system** directory.) Select `EXAMPLE.PCL`. Page through the screens and key ⌜Alt⌝⌜P⌝ to print the full file. 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. **PROCALC** is also your "conduit" into the time saving world of automated quantity takeoff! The **DIGITIZER** version allows you to use ⌜Alt⌝⌜Q⌝ from the **PROCALC** field to select a drawing scale, and takeoff *counts*, *lengths*, *areas,* and *volumes* directly from plans. (The **EVALUATION** pack allows you to "simulate" using a digitizer. Hit ⌜Alt⌝⌜Q⌝ and follow the instructions displayed on the screen. Hit ⌜Esc⌝ape to return to **PROCALC**.) More on these refinements later…

Printing Reports

Select **Print Reports** from the **Master menu**. A *report request screen* appears. The cursor drops to the **Report Name** field. (Ignore the fields on the line above this for the moment.) Hit ⌜F6⌝ for this picklist of *standard reports*:–

```
┌──────┤ REPORTS ├──────┐
│ CONTRACT DATA         │
│ BILL BREAKDOWN        │
│ BILLING TODATE        │
│ FINAL ESTIMATE        │
│ MEASURE INPUT         │
│ DEPARTMENT SUMMARY    │
└───────────────────────┘
```
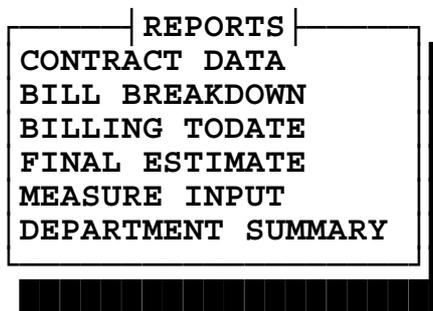
Requesting Reports

Select `BILL BREAKDOWN` and press ⌜Enter⌝ to move to the **More Reports?** field. Hit ⌜Y⌝es. The screen will look like this:–

```
Contract: BULLAMAKANKA DAM – TUTORIAL EXAMPLE        System date: Wed, 15JUN94

                      Printer: Okidata Microline 393+

   Batchfile Name  ▒▒▒▒▒▒▒▒         Report No 1

   Report Name  █BILL BREAKDOWN        █  More Reports?  Yes

     Selection Mask  █ █  ▒▒▒▒  ▒▒▒▒    Sort the Report?  Yes

   Consolidate Completed Items?  No     Suppress Items Not Started?  No

   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?  Yes              Show PROCALC lines?  No
```

> **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 **CONTRACT DATA**, leave the **More Reports?** choice set to N o, and press F2 again. *PROBILL* prints the two reports.

Check the **BILL BREAKDOWN** *totals* and *subtotals* against the figures given on *page 1* of *Appendix B*. If any item quantities *or* rates are incorrect, return to **Change Items** mode and correct them before proceeding further.

Report Formatting Options

Return to the **Print Reports** screen. Report content may be *restricted* and the items may be *sorted*—or left in their original order. Reports sort by *item code* within **sections** and by *section code* within **groups**. *Groups* sort by **group code** and *page breaks* occur on each new group. (See *Appendix B* in *Part D* for some sample reports.) The other field choices are described in detail under *Print Reports*, *page C–29* in *Part C* of the manual. Normally you would accept most of the default values.

Print a **MEASURE INPUT** report. This is a *worksheet* or *"turnaround"* document that simplifies the task of **recording**—and **agreeing**—progress on the contract.

Exit to DOS— Esc *and* Y *or just* Ctrl End

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

> Queries of this type may be answered *positively* with Y , y or 1 , or *negatively* with N , n , 0 or Esc . The default reply may also be "toggled" with the arrow keys, the Spacebar or the mouse. (You may also exit directly to **DOS** with Ctrl End or Alt F4 . Confirmation is not required.)

Progress Reporting

First Billing   1JUL94

The contract has now started, so you have *progress* to report and *variations* to add. The first **MEASURE INPUT** document (*Page 2* of *Appendix B* in *Part D* of the Manual) shows these handwritten notations for the billing to **30 June 1994**. *Re-run* the program by typing **PROBILL** and pressing Enter . (*PROBILL* automatically reloads

the contract you were working on when you exited.) Select **Add Items** from the **Item menu**.

Tip: Go there *quickly* when you know where you are going! Alt I moves *directly* to the **Item menu** and A selects **Add**.

Variations

First enter the additional items in the `VARIATION ORDERS` group. Note that a *section code* has *not* been assigned to these items. This is permissible. **PROBILL** treats a **blank section code** as just another *unique section* within the *group*.

Item `VR001` stems from a change in the drawings with the consequence that the contractor claimed—and was entitled to—*additional* compensation. After entering the item detail, hit Alt N to access the **NOTEPAD** and take down some details on why this change has come about. Type in something like:–

```
Invert level of manhole S121 lowered to avoid existing gasmain.
Contractor's Field Memo 11722 of 15/6/94 refers.
Authorised and payment approved on Variation Record VR001.
```

Materials on Site

Complete the entry of the other two *variation items*. (Note that the second item is a *deduction*—the **unit rate** is **negative**.) Then add the two items in the `MATERIALS ON SITE` group. Both items are in the same section—`PLUMBING MATERIAL`.

Of course any `MATERIALS ON SITE` item must have *zero* contract quantity (and final quantity). **Why? Make sure you understand this point!** Attach a note to this *Group* to remind other users of this fact. (Notes can be attached to *Groups* and *Sections* as well as *Items*. If you hit Alt N from the *Group* code or description field, the note will be associated with the group.)

There are various ways to "measure" these items. Where the material is homogeneous—such as pipe—it is preferable to use physical units (`1m`, `Tn`, `m2`, etc.). Where it is a heterogeneous mix of small items—such as *pipe fittings*—it may be easier to tally it in **dollars**—a measure unit of `$` and a **Unit Rate** of `1.00`. You can use **PROCALC**—tied to the **Quantity Todate** field— as a "tally sheet" to list out all the fittings and their prices extended to produce a total value of this material. Different *classes of materials* on site should be separated into different *sections*. This means subtotals are available for these classes.

When you have finished adding these items, key F9 to **SWITCH** modes. Hit Home to go to the first choice—**Progress Items**—and Enter to select it.

Billing Date

A small window will appear with a prompt for: `THIS Billing Date`. Key in `30JUN94`.

Dates may be entered in several different ways. One is the "International" format using entries like `25SEP05` or `9jan06`. *PROBILL* has sophisticated date validation that allows wide latitude in entry, (e.g., `9 Jan 06`, `9JAN2006`, `09jan 06` will all be accepted as valid), while invalid dates such as `29FEB06`, `31NOV05`, 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 if you prefer—depending upon the numeric date setting in **Customisation**, **Country Setup**—they will still be displayed in International format.

Progress Items Mode

Press ⎡Enter⎤. You are now in **Progress Item** mode. *PROBILL* will display the *last* item you were working on. Hit ⎡F8⎤ to *"roll around"* to the *first* item—`G1–E000– A1a.`

You "find" an existing item by entering the full code; "paging" through the records with ⎡F7⎤–⎡F8⎤; moving to the **item code** field and using ⎡F6⎤ to pop up a *picklist*; or entering part of the code and hitting ⎡F5⎤ to force a Gestalt "**best match**"…

Press ⎡Enter⎤ to move down to the **Quantity Todate** field. Key in a "quantity" of `0.90`. (See the annotated `MEASURE INPUT` document on *Page 2* of *Appendix B*.) The screen will look like this:–

```
Contract: BULLAMAKANKA DAM – TUTORIAL EXAMPLE        System date: Fri,  1JUL94

#1        CODE           DESCRIPTION                ┌─────────────────────┐
                                                    │    CONTRACT DATA     │
 Group   ▌G1▌          ▌CIVIL ENGINEERING WORK    ▌ │    Billing No 1      │
                                                    │   To Thu 30JUN94     │
 Section ▌E000▌        ▌DRILLING & BLASTING       ▌ │   NOT Consolidated   │
                                                    │       19 Items       │
 Item     ▌ A1a▌        ▌DRILLING & BLASTING       ▌ └─────────────────────┘

  Enter Quantity Todate OR Period Quantity.  Amend Final Quantity if changed

Quantity Todate    ▌0.90     ▌ LS     Quantity this Period    ▌      0.9▌ LS
  Amount Todate  $      7830.00            Period Amount   $       7830.00

Final Quantity     ▌1        ▌ LS     Is Complete? (Y/N)   No

At 30JUN94 item was   90.00% Complete               Record Changed 15JUN94
```

Progress quantities may be entered as *cumulative* or *period* quantities—given one figure, *PROBILL* calculates and displays the other. Press ⎡F2⎤ to *RECORD* the progress information and ⎡F8⎤ to move forward to the next item— `D100 CHANNEL DRILL & BLAST`. Enter a **Quantity Todate** of `164000` and *RECORD* the item.

Completed Items

The next item—**EXCAVATION ESTABLISHMENT**—is now *"complete"*.

Move to this item and *press* `PgDn` to drop to the **Is Complete?** field. *Hit* the `Spacebar` to toggle the choice to *Yes*, and `F2` to **RECORD** the item. Note that the **Quantity To date** and **Quantity this Period** fields automatically "fill-in" with the **Final Quantity**. Press `F8` to move to the **CHANNEL EXCAVATION** item.

PROCALC field version—`Alt` `C` *or* `F12`

Press `Enter` to move to the **Quantity To date** field and use `Alt` `C` (or `F12`) to access the *field specific version* of **PROCALC**. Press `↑` to open up a multi-line window and type in *at least the last line* of the following details:–

```
[Channel X-Section dimensions are:
[    ____  |<------- 16.5m ------>|
[        \                        /
[  4.2m \                        /    Area = (16.5+8.1)/2 × 4.2
[        \                      /
[    ____  |<----- 8.1m ---->|
[---------------------------------------------]
[30 Jun 94 - Complete from Sta 863+25.000 to Sta 868+47.600
 (868 47.600 - 863 25.000)[M] × (16.5 + 8.1)/2 × 4.2 [depth]
```

Text preceded with "**[**" is treated as a *comment*—until the end of the line or until "closed" with "**]**". (So, if you don't want to bother typing in *all* the detail, just enter the last line—the other lines are just documentation!) Illustrating the rationale behind the calculation in this way is quicker—and more professional—than hiding these details away in a notebook.

Press `F2` to **RECORD** the **PROCALC** screen and *tie* it to the *source field*. The calculated total—**26997.52**—is transferred back into the *quantity* field. As this is an artificially precise figure for an *interim* quantity, round it to **27000**. (This does *not* change the details saved in **PROCALC**.) This item also has a changed **Final Quantity**. Move to this field and enter **192000** and press `F2` to **RECORD**. (Entering this *final quantity* ensures that **PROBILL** can correctly calculate the changed *final contract value*.)

The next two items do not have entries against them in the **MEASURE INPUT** document, so they should be skipped. (Do *not* enter a zero progress quantity against work that has not started! The date an item was last "progressed" is shown on the **MEASURE INPUT** document. This provides a useful update history and you should *not* interfere with this—or waste time—by updating items that have not changed. The billing date is not necessarily the same as the date on which the item was changed. That date is shown on the screen.)

The **TREE CLEARING** and **DEMOLITION** items show *progress quantities* that are already slightly **over** the original *contract quantities*—an indication that the *final*

quantities should be reviewed. However, in this case it was decided to leave the figures "as is" until the exact final measure was agreed upon.

> Note that the quantities have been recorded to *three decimal places*—an indication that some detailed measurement has been completed—and a reflection of the order of accuracy claimed for the measurements and area calculations. **PROBILL** accepts and retains the exact format of quantities entered by the user—including the computationally non-significant zero in `23.130`. Hence the format can match the contract document or suggest accuracy of measurement.

When you have finished progressing both the original contract items and the newly entered `VARIATION` and `MATERIALS ON SITE` items, hit `F9` to *SWITCH* to **Browse** mode to check the changes you have made.

Press `Esc`ape to return to the menus. (We have not yet entered any escalation details—but will do so shortly. Normally escalation information would be provided before reports were printed.)

Select **Print Reports** from the **Master menu** and print a `MEASURE INPUT` document with the **NOTEPAD** and **PROCALC** details included. The new `MEASURE INPUT` document should be compared with the annotated old document to confirm that all *quantities* and *additions* have been *correctly* entered. There is no point in printing more reports until this is done! The worksheet is then put aside and used to record progress quantities for the *next* period. (Consequently, it is often called a "turnaround" document.)

Progress Payment Certificate

Print a `BILL BREAKDOWN` and `BILLING TODATE`. The *last page* of the `BILLING` is a `PROGRESS PAYMENT CERTIFICATE`. This document contains all the information required for payment of the amount due.

Some typical reports from the tutorial are shown in *Appendix B*.

Escalation

If a contract is subject to *escalation (Rise & Fall)*, you should let **PROBILL** handle these calculations and include the details within the billing. (If you do *not* have to deal with escalation in any of your contracts you can skip this part of the tutorial.)

Let's assume that the `BULLAMAKANKA DAM – TUTORIAL EXAMPLE` contract contains an *escalation clause* entitling the contractor to price adjustment for changes in *general cost levels*. Most contracts apply a *single escalation formula* to all contract items—but this job is slightly more complicated. The dam involves both `Building`

and `Civil Engineering` work—which can have different rates of price change—so the contract specifies different formulae for each work type.

Cost Indices

The formulae do use some of the same *cost indices* (**components**) but combine them in different proportions.

The *cost components*—and their respective *base indices* and *current indices* for the **first** payment period are:–

	Period	Date	Labour	Plant	Material
BASE Index	Base	17MAR94	18.210F	1173.2F	128.90F
CURRENT Index	1	15JUN94	18.210F	1169.7F	134.54P

(F=Final Index   P=Preliminary Index)

Weights

The *proportions* (**weights**) of each component are:–

WEIGHTING	Labour	Plant	Material	Fixed
BUILDING	0.40	Nil	0.45	0.15
CIVIL	0.25	0.35	0.30	0.10

Of course, the escalation details could have been entered into **PROBILL** *before* you produced the first billing. The **Escalation Class** for each item could also have been entered when the items were first created. Fortunately, no essential data has been lost as you have not **consolidated** the period figures used in the first *progress billing*. As is often the case, the division of the contract for purposes of escalation corresponds with the *group* structure of the *Schedule of Rates*. **PROBILL** provides special "short cuts" that—in this case—will avoid the necessity to enter the **Escalation Class** item by item.

Utility Menu

Go to the **Utility menu** and select **Set Escn classes**. Fill in the screen fields as follows:–

```
Set ESCALATION CLASSES by MASKING               System date: Fri,  1JUL94

              Mask on the Group, Section and Item Codes

          Group-Sec - Item No         New Escalation Class No
          |G1|  |????|  |?????|                 |CE|
```

Masking

You have specified a "mask" for the items you wish to select. **PROBILL** will check for a match by comparing each item's *group-section-item* code with the characters in the mask. The question mark is "wild"—matching *any* character in that position. `G1` in the *group code* field—with question marks in the *section* and *item* code fields—selects *all* items in `G1`—the `CIVIL ENGINEERING` group. Specifying an *Escalation Class* `CE` assigns that class code to all items in group `G1`.

Press F2 and Enter to confirm that you wish to proceed. *Repeat* the procedure to set the *class code* of the items in `G2`—the `BUILDING` group—to `BW`. Go to **Browse Item** mode to examine the items and confirm that this has happened.

> Tip: In **Browse** mode, F6 produces a *picklist* of items. (To shorten the list, first hit F5 and type some characters into the *group-section-item* code. When you hit F6 the list will only contain items with those characters in the same position. In this instance the spaces are treated as "wild" characters to form a "loose" mask.)

The `VARIATION` and `MATERIALS ON SITE` items still have blank **Escalation Class** code fields—we are assuming that they are not subject to escalation.

Define Components

Return to the menus and choose **Define Components** from the **Escalation menu**. ("**Components**" are *cost indices*.) A screen appears with fields for *sixteen* **component descriptions** and **Base Indices**. Enter `LABOUR` as the first component's **description** and `18.21` as the **base index**. Then provide the **description** and **base indices** for the other two components. The screen should look like this:–

```
DEFINE INDEX COMPONENTS                           System date: Fri,  1JUL94
         Define all indexed components used by any of the Escalation Classes
                                  COMPONENTS
     Description              Base Index   Description              Base Index
     LABOUR                 │ 18.21  │
     PLANT                  │ 1173.2 │
     MATERIAL               │ 128.90_│




 F2 record  F10 cancel   F4 bring fwd  F3 blank fld    ↑↓   PgUp top  PgDn bottom
 Describe the cost index component                                          NUM
```

Press F2 to **RECORD** the screen. The **Escalation menu** returns.

Update Current Indices

Choose **Update Current Indices**. Press F6 to popup a picklist of components and select **LABOUR**. Press Enter to move down to the index fields. The **Current Index** has *not* changed from the **Base Index** so hit F4 to **BRINGFORWARD** that figure.

```
UPDATE CURRENT INDICES                          System date: Fri,  1JUL94
 Component No █1 █   Description LABOUR                 Base Index  18.21
                               CURRENT  INDICES
   1 █18.21_ █13 ▒▒▒▒ 25 ▒▒▒▒ 37 ▒▒▒▒ 49 ▒▒▒▒ 61 ▒▒▒▒
   2 ▒▒▒▒ 14 ▒▒▒▒ 26 ▒▒▒▒ 38 ▒▒▒▒ 50 ▒▒▒▒ 62 ▒▒▒▒
   3 ▒▒▒▒ 15 ▒▒▒▒ 27 ▒▒▒▒ 39 ▒▒▒▒ 51 ▒▒▒▒ 63 ▒▒▒▒
   4 ▒▒▒▒ 16 ▒▒▒▒ 28 ▒▒▒▒ 40 ▒▒▒▒ 52 ▒▒▒▒ 64 ▒▒▒▒
   5 ▒▒▒▒ 17 ▒▒▒▒ 29 ▒▒▒▒ 41 ▒▒▒▒ 53 ▒▒▒▒ 65 ▒▒▒▒
   6 ▒▒▒▒ 18 ▒▒▒▒ 30 ▒▒▒▒ 42 ▒▒▒▒ 54 ▒▒▒▒ 66 ▒▒▒▒
   7 ▒▒▒▒ 19 ▒▒▒▒ 31 ▒▒▒▒ 43 ▒▒▒▒ 55 ▒▒▒▒ 67 ▒▒▒▒
   8 ▒▒▒▒ 20 ▒▒▒▒ 32 ▒▒▒▒ 44 ▒▒▒▒ 56 ▒▒▒▒ 68 ▒▒▒▒
   9 ▒▒▒▒ 21 ▒▒▒▒ 33 ▒▒▒▒ 45 ▒▒▒▒ 57 ▒▒▒▒ 69 ▒▒▒▒
  10 ▒▒▒▒ 22 ▒▒▒▒ 34 ▒▒▒▒ 46 ▒▒▒▒ 58 ▒▒▒▒ 70 ▒▒▒▒
  11 ▒▒▒▒ 23 ▒▒▒▒ 35 ▒▒▒▒ 47 ▒▒▒▒ 59 ▒▒▒▒ 71 ▒▒▒▒
  12 ▒▒▒▒ 24 ▒▒▒▒ 36 ▒▒▒▒ 48 ▒▒▒▒ 60 ▒▒▒▒ 72 ▒▒▒▒

 Shift F5 will carry this value forward  Shift F6 will blank from here forward

Escalation is not calculated for blank indices.  If the latest index should be
used then use Shift F5 to copy the value into all remaining fields.

F2 record  F10 cancel   F4 bring fwd  F3 blank fld   ↑↓   PgUp top  PgDn bottom
Enter the Current Index value                                              NUM
```

The contract specifies that the applicable current indices are those in effect some weeks before the billing date—here it is the **15JUN94**. Should you make entries in the following fields? It depends upon how escalation is to be calculated—and whether the current indices are available in time to be used in progress payments. This contract provides that the latest index may be used—and modified later if a new value becomes available. So hit Shift F5 to carry the value forward into the fields for all **72** periods. **PROBILL** will use this value for future periods until it is changed…

Hit F2 to **RECORD** and F8—the **INCREMENT** key—to move on to the **PLANT** component. Press Enter. Key **1169.7** for the *current index* and Shift F5 to carry it forward through *all* the periods. (This index is **less** than the *base index*—there are rare occasions when costs do decline!) **RECORD** it and repeat the procedure for the **MATERIALS** component. Hit Esc to exit to the menu when complete.

Add Escalation Classes

Select **Add Escalation Classes**. Key **BW** for the *code* and enter **BUILDING CLASSIFICATION** in the *description* field. Enter *weightings* for the **LABOUR** and **MATERIAL** components. *(See Page B–24.)* Leave the **PLANT**

weighting *blank*—it is not used in the building classification formula. The screen will look like this:–

```
 ADD ESCALATION CLASS                        System date: Fri,  1JUL94

     Escalation Class  B1            Description  BUILDING CLASSIFICATION
                                   COMPONENTS
    Description            Weighting      Description              Weighting
    LABOUR                 0.4

    PLANT

    MATERIAL               0.45





                        Fixed Portion:  0.150
 F2 record  F10 cancel   F4 bring fwd  F3 blank fld   ↑↓    PgUp top  PgDn bottom
 Enter the WEIGHTING for this cost component                              NUM
```

Fixed Weighting

Note that the `Fixed` portion is not entered *explicitly*—any difference between `ONE` and the *sum of the other weights* is treated as fixed. (The figure is updated at the bottom of the screen as the weights are entered.)

RECORD the screen. Enter `CE` and `CIVIL CLASSIFICATION` and the weights for the civil work components. *(Page B–24.)* Hit F2 to *RECORD* this information and Esc ape to return to the **Escalation menu**. You have now entered *all base escalation* detail and the *current indices* for **Billing Number 1**. Select **Browse Escalation** to check the details.

Run Escalation

Select **Run Escalation** and you will be presented with the following screen:–

```
┌────────────────────────────────────────────────────────────────────┐
│  CALCULATE ESCALATION                          System date: Fri,  1JUL94 │
│                                                                          │
│      Current Billing Number                                        1     │
│                                                                          │
│      Last Period Number for this Calculation                      ▌1_▌   │
│                                                                          │
│      Escalate Latest period only or All periods? (L/A)        Latest     │
│                                                                          │
│      Video, Printer or File?                                  Print      │
│                                                                          │
│      Show PROCALC lines?                                      No         │
│                                                                          │
│      Save Escalation as Contract Items?                      Yes         │
│                                                                          │
│  F2 record   F10 cancel   F4 bring fwd  F3 blank fld   ↑↓   PgUp top  PgDn bottom │
│  Must NOT be greater than the Billing Number                         NUM │
└────────────────────────────────────────────────────────────────────┘
```

Press ⬚F2⬚ to proceed and **PROBILL** will:–

- Determine the *period amounts* to be escalated for all classes;
- save the *amounts* for future recalculation—in case indices change;
- calculate the *escalation*;
- print a *calculation sheet* which can be appended to the **Progress Payment Certificate**, and
- save the *period escalation amount* as a "pay" item in the contract.

The item will be saved in a special group—"`rf`"—created for escalation items. (Later you may wish to use the **NOTEPAD** to append notes to the item, e.g., noting whether the indices are *preliminary* or *final*.)

Go to the **Master menu** and select **Print Reports**. Print an amended `BILLING TODATE`. It should now include the escalation item. We have assumed that the `VARIATION` items, the `MATERIALS ON SITE` and the `ESCALATION` itself will *not* be subject to escalation—no escalation classification was entered against the items. **PROBILL** is flexible in the treatment of these issues—*any* item can be escalated. All that is necessary is that an escalation class be assigned and the class defined from the **Escalation menu**.

More Progress

Second Billing   **2AUG94**

Go to the next `MEASURE INPUT` document (*Page 6* of *Appendix B*—*Billing No* **2** to **31 July 1994**.) Further progress has been recorded. The entries are *quantities todate*. (You can record *period quantities* if you prefer—providing you are consistent.) Restart **PROBILL** if necessary. To prepare for the next billing you must *clear* all the previous period quantities.

Amending Progress Quantities

Before this is done it is important to ensure that the *old* period quantities are correct. What if an error has been discovered in this billing and needs to be corrected? As this is common in practice let's experiment with an example. Perhaps the **GRADER RENTAL** hours should have been **212.5** instead of **112.5**? How do you *correct* this error? If you enter a *period quantity* of **100** hours or a *quantity todate* of **212.5** hours, surely *PROBILL* will interpret it as **additional** progress on the item, and compute at least one of the quantities incorrectly (remember that one of the two quantities is always redundant—it must be *derived* from the other to maintain the integrity of the accumulation procedure.) Let's see what happens. Select **Progress Items** from the **Item menu** and press Enter when prompted for the new Billing Date. ***This Is Most Important***! By using the *same date* of **30JUN94** you are indicating that this is *not* a new billing—you are just editing **June** data.

Move the cursor down to the **item code** field and hit F6 for a picklist. Lets *force PROBILL* to search through the text in the list for a "best match" for something like "**Grader Rental**". Hit F5 and type "**rent**" into the **Search for** dialogue box. The **GRADER RENTAL** item will be highlighted. Press Enter to select it, and then amend the hours in the **quantity todate** field.

PROBILL will understand that this is a correction and not additional progress. You may change either of the quantities and the other will be adjusted appropriately when you exit from the field. The easiest way to examine this effect is with the *DECREMENT* and *INCREMENT* keys—F7 and F8. They will subtract—or add—***one*** to the quantity in the current field and update the other. When you have finished with this experiment restore the quantity to its original value of **112.5** and *RECORD* the item. Return to the menus.

Consolidation

Go to the **Master menu** and select **ConSolidation**. You will be asked if you wish to make *archive copies* of the data files. Reply Yes. (Having archive copies on the data directory allows you to restore the status of the job files at the last billing.) When prompted, confirm that you wish to proceed with the consolidation by replying Yes. The period quantities are removed and *PROBILL* returns to the **Item menu.**

Select **Progress Items** from the **Item menu** to start Billing No **2** for **July**. Amend the billing date field to **31JUL94**.

> Tip: Hit F8 to increment the old date to **1JUL94** and type a **3** to make it **31JUL94**.

If you look at the "marked up" **MEASURE INPUT** document you will notice that some items are now shown as *complete*—including the **TREE CLEARING** and **DEMOLITION & GRUBBING** items—despite the fact that their quantities have *not* changed from the last billing. Apparently the detailed measurements taken previously have now been accepted as correct and final. Setting the item to *"Complete"* would normally set the **quantity todate** equal to the **final quantity**. However, in this instance *PROBILL* recognises that the **quantity todate** is *already greater* than the **final quantity**, so

it will increase the **final quantity** accordingly. The `MATERIALS ON SITE` item for pipe fittings has a quantity todate of *zero*. (If all material deliveries of this type are finished, you may reduce the **quantity todate** to zero on this billing and delete the item on the subsequent billing.)

The updated cost indices for `July 1994` are:–

	Period	Date	Labour	Plant	Material
BASE Index	Base	17MAR94	18.210F	1173.2F	128.90F
CURRENT Index	1	15JUN94	18.210F	1169.7F	134.37F
CURRENT Index	2	16JUL94	19.180F	1186.3F	137.19P

Note that the `Material` index, which was *preliminary* in `June`, has changed and is now *final*. As the contract provides that the **latest** indices are to be used, you should amend this `June` figure as well as enter the new `July` indices. The escalation should then be calculated for *all* periods—not just `July`.

To ensure that you understand the flexibility of **PROBILL**'s automatic escalation facility, decide how you would deal with:–

- A preliminary **base index** changing?

- A contract that only allows **final indices** to be used?

- A contract that requires use of the **latest indices** and **prohibits recalculation** when they change?

- A contract that only allows **published indices** to be used?

- A contract containing a class of items that have their prices adjusted for **exchange rate changes** in the *Japanese Yen*?

- **Exchange rate changes** in a *weighted composite* of the *Japanese Yen*, *Swiss Franc,* and *Sterling*?

- A contract that requires **escalation to be billed and shown separately** from the other contract items?

- A contract with **separable parts** having *different completion dates* and delays in agreement of final measurement? (A portion of the later progress payments is "capped", for purposes of escalation, by the indices current on the completion date of the various separable parts.)

Select **Print Reports** and print a `MEASURE INPUT` document. Check it against the old document and then print the other reports.

Suppress Unstarted Items

When printing the `BILLING TODATE`, elect to **Suppress unstarted items**. This—and the option to **Consolidate completed items**—can reduce the *size* and *complexity* of large documents and make it easier to focus on just those items requiring attention. Note that the retention is now *less* than `10%` of the amount certified—it has been "capped" at `5%` of the **approved contract value**.

Final Certificate

Third Billing   5 S E P 9 4

After **consolidating** *billing number 2*, assume that the contract is complete at the next billing. Update progress to `31AUG94` and flag *all* items as **complete**. (The `MATERIALS ON SITE` items should have *both* **quantity todate** *and* **final quantity** set to zero.) Enter the indices for `August` and amend other indices that have changed from *Preliminary* to *Final*. The latest indices are:–

	Period	Date	Labour	Plant	Material
BASE Index	Base	17MAR94	18.210F	1173.2F	128.90F
CURRENT Index	1	15JUN94	18.210F	1169.7F	134.37F
CURRENT Index	2	16JUL94	19.180F	1186.3F	137.88F
CURRENT Index	3	17AUG94	19.755F	1204.0F	140.45P

Note that *PROBILL* adjusts the period "quantity" on earlier escalation items. The *quantity todate* always covers the *total period escalation*.

Print the `BILLING TODATE`. You will be asked if this is a *Final Certificate*. Confirm that it is and the billing will show the *release of retention*.

Now that you have completed the tutorial, read the ***Part C—Reference*** section for more detailed information on *PROBILL*'s capabilities.

Schedule of Rates

Project: **BULLAMAKANKA DAM - TUTORIAL EXAMPLE**

Principal: **BULLAMAKANKA POWER & WATER COMMISSION**
             P.O. Box 9999
             455 Main Street
             BULLAMAKANKA   QLD 4999

Contract Value: $**943,851.83** Retention Rate: **10%** Maximum Retention: **5%**

Item	Description	Quantity	Unit	Extension
CIVIL ENGINEERING WORK				
E000	**DRILLING & BLASTING**			
A1a	DRILLING ESTABLISHMENT	1 LS	8700.00	8700.00
D100	CHANNEL DRILL & BLAST	242140 m3	0.98	237297.20
		E000 - Subtotal	$	**245997.20**
E001	**TAILRACE EXCAVATION**			
A1a	EXCAVATION ESTABLISHMENT	1 LS	20000.00	20000.00
D100	CHANNEL EXCAVATION TO 3m DEEP	186300 m3	1.32	245916.00
D200	CHANNEL EXCAVATION 3 TO 4m	46840 m3	2.10	98364.00
D300	CHANNEL EXCAVATION OVER 4m	19000 m3	3.40	64600.00
X40.0	TREE CLEARING	14.5 Ha	1450.00	21025.00
X50.2	DEMOLITION & GRUBBING	22.7 Ha	2188.40	49676.68
		E001 - Subtotal	$	**499581.68**
	CIVIL ENGINEERING WORK - Subtotal		$	**745578.88**
BUILDING WORK				
1	**PLUMBING**			
A200	STORM DRAINAGE 100mm	432 LM	12.60	5443.20
A210	STORM DRAINAGE 150mm	655 LM	14.25	9333.75
A220	STORM DRAINAGE 200mm	86 LM	18.00	1548.00
		1 - Subtotal	$	**16324.95**
2	**ELECTRICAL**			
Q4/10	NOMINATED SUBCONTRACT	100 %	1000.00	100000.00
		2 - Subtotal	$	**100000.00**
3	**LANDSCAPING**			
100	TOPSOILING	63400 m2	1.02	64668.00
200	HYDRO SEEDING	576000 m2	0.03	17280.00
		3 - Subtotal	$	**81948.00**
	BUILDING WORK - Subtotal		$	**198272.95**
		CONTRACT TOTAL	$	**943851.83**

Initial BILL BREAKDOWN at 15 June 1994 - Page 1 of 2

```
9:40am 15JUN94        PROBILL - CONTRACT BILLING SYSTEM              Page 1
                  $ $ $   B I L L   B R E A K D O W N   $ $ $
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                          Sorted
===============================================================================
  Group:   G1    CIVIL ENGINEERING WORK
 Item                                      Contract   Contract   CONTRACT
  No   Item Description                    Quantity       Rate     AMOUNT
===============================================================================
         Section:   E000     DRILLING & BLASTING
  A1a  DRILLING ESTABLISHMENT                 1 LS    8700.00    8700.00
  D100  CHANNEL DRILL & BLAST             242140 m3      0.98  237297.20
         -------------------------------------------------------------------
         Section:   E000    2 Items                               245997.20
         +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

         Section:   E001     TAILRACE EXCAVATION
  A1a  EXCAVATION ESTABLISHMENT               1 LS   20000.00   20000.00
  D100  CHANNEL EXCAVATION to 3m DEEP     186300 m3      1.32  245916.00
  D200  CHANNEL EXCAVATION 3 to 4m DEEP    46840 m3      2.10   98364.00
  D300  CHANNEL EXCAVATION OVER 4m         19000 m3      3.40   64600.00
 X40.0  TREE CLEARING                       14.5 Ha   1450.00   21025.00
 X50.2  DEMOLITION & GRUBBING               22.7 Ha   2188.40   49676.68
         -------------------------------------------------------------------
         Section:   E001    6 Items                               499581.68


         ===================================================================
  Group:  G1     8 Items                                          745578.88
         ===================================================================
```

Initial BILL BREAKDOWN - Page 2 of 2

```
9:40am 15JUN94        PROBILL - CONTRACT BILLING SYSTEM              Page 2
                  $ $ $   B I L L   B R E A K D O W N   $ $ $
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                          Sorted
===============================================================================
  Group:   G2    BUILDING WORK
 Item                                      Contract   Contract   CONTRACT
  No   Item Description                    Quantity       Rate     AMOUNT
===============================================================================
         Section:    1     PLUMBING
 A200  STORM DRAINAGE 100mm                  432 LM     12.60    5443.20
 A210  STORM DRAINAGE 150mm                  655 LM     14.25    9333.75
 A220  STORM DRAINAGE 200mm                   86 LM     18.00    1548.00
         -------------------------------------------------------------------
         Section:    1    3 Items                                 16324.95
         +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

         Section:    2     ELECTRICAL
 Q4/10  NOMINATED SUBCONTRACT                100 %    1000.00  100000.00
         -------------------------------------------------------------------
         Section:    2    1 Item                                 100000.00
         +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

         Section:    3     LANDSCAPING
  100  TOPSOILING                          63400 m2      1.02   64668.00
  200  HYDRO SEEDING                      576000 m2      0.03   17280.00
         -------------------------------------------------------------------
         Section:    3    2 Items                                 81948.00


         ===================================================================
  Group:  G2     6 Items                                         198272.95
         ===================================================================
JOB TOTALS - 14 Items                                           943851.83
         ===================================================================
```

Progress Worksheet for Period Ending 30 June 1994 - Billing No 1 - Page 1 of 2

```
Printed 9:40am 15JUN94                    PROBILL - CONTRACT BILLING SYSTEM                              Page 1
                                       $ $ $   M E A S U R E   I N P U T   $ $ $
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                               Updated on  1/7/94    by  L.Mott
=============================================================================================================
  Group:   G1    CIVIL ENGINEERING WORK
Item                                    Final     Quantity  *** UPDATED ****  Percent Rec   Last    Item
No    Item Description                  Quantity  Todate    *** QUANTITY ***  Comp    No    Update  Complete   REMARKS
-------------------------------------------------------------------------------------------------------------
      Section:   E000    DRILLING & BLASTING
A1a   DRILLING ESTABLISHMENT                1 LS    LS       0.90       LS            1
D100  CHANNEL DRILL & BLAST             242140 m3   m3       164,000    m3            2
                    Paid on basis of theoretical trench sections.
                    40% paid when drilling complete.
-------------------------------------------------------------------------------------------------------------
      Section:   E000    2 Items
=============================================================================================================
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Section:   E001    TAILRACE EXCAVATION
A1a   EXCAVATION ESTABLISHMENT              1 LS    LS       1          LS            3     Yes   Complete
D100  CHANNEL EXCAVATION to 3m DEEP    186300 m3    m3    To sta 86847.60 m3           4     Est Final 192,000m3
D200  CHANNEL EXCAVATION 3 to 4m DEEP   46840 m3    m3                 m3            5
D300  CHANNEL EXCAVATION OVER 4m        19000 m3    m3                 m3            6
X40.0 TREE CLEARING                      14.5 Ha    Ha       14.573     Ha            7     Measure to be
X50.2 DEMOLITION & GRUBBING              22.7 Ha    Ha       23.130     Ha            8     finalized
-------------------------------------------------------------------------------------------------------------
      Section:   E001    6 Items
=============================================================================================================
```

Worksheet for Billing No 1 - Page 2 of 2

```
Printed 9:40am 15JUN94                    PROBILL - CONTRACT BILLING SYS
                                       $ $ $   M E A S U R E   I N P U T   $ $ $
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                       Sorted
=============================================================================================================
  Group:   G2    BUILDING WORK
Item                                    Final     Quantity  *** UPDATED ****  Percent Rec   Last    Item
No    Item Description                  Quantity  Todate    *** QUANTITY ***  Comp    No    Update  Complete   REMARKS
-------------------------------------------------------------------------------------------------------------
      Section:   1    PLUMBING
A200  STORM DRAINAGE 100mm              432 LM     LM                  LM            9
A210  STORM DRAINAGE 150mm              655 LM     LM                  LM           10
A220  STORM DRAINAGE 200mm               86 LM     LM                  LM           11
-------------------------------------------------------------------------------------------------------------
      Section:   1    3 Items
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Section:   2    ELECTRICAL
Q4/10 NOMINATED SUBCONTRACT             100 %      %                   %            12
-------------------------------------------------------------------------------------------------------------
      Section:   2    1 Item
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
      Section:   3    LANDSCAPING
100   TOPSOILING                       63400 m2    m2                  m2           13
200   HYDRO SEEDING                   576000 m2    m2                  m2           14
-------------------------------------------------------------------------------------------------------------
      Section:   3    2 Items
=============================================================================================================
```

ADD THESE GROUPS & ITEMS to 30 JUNE 1994 BILLING

Group VO - VARIATION ORDERS

VR001 Revised drainage DRG 2003 Rev 4	1 LS	@ $1480.00	COMPLETED!
VR002 Deduct For FAILED Density Tests	45 EA	@ <−50.00>	45 No
VR003 Grader Rental	500 HRS	@ 55.00/Hr	112½ Hrs

Group M - MATERIALS ON SITE

Section 1 - PLUMBING MATERIAL

1	Storm Drainage Pipe, 100mm	@ $3.80/lm	136 LM
99	Pipe Fittings ($ Value)	(See TALLY SHEET)	$1800

Escalation Calculation Report for Period Ending 30 June 1994

```
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE        System date: Fri,  1JUL94
ESCALATION DETAILS for Period  1 - 30JUN94
================================================================================
Component  1 - LABOUR                     - Base Index =  18.210
   Period   To          Current Index        (CI-BI)/BI
     1 - 30JUN94            18.210            0.000000000

Component  2 - PLANT                      - Base Index = 1173.200
   Period   To          Current Index        (CI-BI)/BI
     1 - 30JUN94          1169.700           -0.002983294

Component  3 - MATERIAL                    - Base Index =  128.900
   Period   To          Current Index        (CI-BI)/BI
     1 - 30JUN94           134.540            0.043754849


================================================================================
Escalation Class: BW - BUILDING CLASSIFICATION
   Period  1 - 30JUN94
            Component              Weighting     WEIGHT x (CI-BI)/BI
         1  LABOUR                   0.400           0.000000000
         3  MATERIAL                 0.450           0.019689682
            Fixed Weight             0.150           -----------
                                 Total Factor =      0.019689682
Escalation for Class BW is    0.019689682 x $       0.00   =  $        0.00
--------------------------------------------------------------------------------
Escalation Class: CE - CIVIL CLASSIFICATION
   Period  1 - 30JUN94
            Component              Weighting     WEIGHT x (CI-BI)/BI
         1  LABOUR                   0.250           0.000000000
         2  PLANT                    0.350          -0.001044153
         3  MATERIAL                 0.300           0.013126455
            Fixed Weight             0.100           -----------
                                 Total Factor =      0.012082302
Escalation for Class CE is    0.012082302 x $  295938.54   =  $     3575.62
================================================================================
   Period  1 - 30JUN94                    TOTAL ESCALATION =  $     3575.62
================================================================================
```

PROGRESS PAYMENT CERTIFICATE for Period Ending 30 June 1994

```
1:17pm 1JUL94       PROBILL - CONTRACT BILLING SYSTEM              Page 1
            P R O G R E S S   P A Y M E N T   C E R T I F I C A T E
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
================================================================================
Certificate No  1 covering work to 30JUN94

Contractor:     FAR WESTERN GENERAL CONTRACTORS PTY LTD
                P.O. Box 4
                112 Bogan Street
                NEVERTIRE   NSW 2831

Owner:          BULLAMAKANKA POWER & WATER COMMISSION
                P.O. Box 9999
                BULLAMAKANKA   QLD 4999
                Contact: Mr Joseph McArthy

Contract Number: M94/12345
Approved Contract Value: $  943851.83
Final Contract Value:    $  981681.45

Percent Complete:  31.30%
Percentage Retention:  10%
Maximum Retention:     5%
================================================================================
GROSS BILLING TODATE        $   307248.46
Less  TOTAL RETENTION       $    30724.85
TOTAL APPROVED PAYMENTS              $   276523.61
PAYABLE THIS CERTIFICATE                                    $   276523.61
================================================================================

   Prepared by: ..L.McH...1/7/94...... Approved by: ..John Drew, 2 July
94..
```

BILLING TODATE at 30 June 1994 - Page 1 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                             Page 1
Billing to 30JUN94                # # #  B I L L I N G   T O D A T E   # # #              Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
=================================================================================================================
  Group:   G1    CIVIL ENGINEERING WORK
Item                                 Contract      Final       FINAL      Period      PERIOD     Quantity      AMOUNT
  No   Item Description                  Rate    Quantity     AMOUNT    Quantity      AMOUNT       Todate      TODATE
=================================================================================================================
     Section:   E000     DRILLING & BLASTING
  A1a  DRILLING ESTABLISHMENT           8700.00        1 LS    8700.00      0.9 LS     7830.00     0.90 LS     7830.00
  D100  CHANNEL DRILL & BLAST              0.98   242140 m3  237297.20   164000 m3   160720.00   164000 m3   160720.00
-----------------------------------------------------------------------------------------------------------------
     Section:   E000     2 Items                           245997.20                168550.00                168550.00

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   E001     TAILRACE EXCAVATION
  A1a  EXCAVATION ESTABLISHMENT         20000.00        1 LS   20000.00        1 LS    20000.00        1 LS    20000.00
  D100  CHANNEL EXCAVATION to 3m DEEP       1.32   192000 m3  253440.00    27000 m3    35640.00    27000 m3    35640.00
                    [Channel X-Section dimensions are:-
                    [   ____  |<------- 16.5m ------>|
                    [      \                         |
                    [  4.2m  \                       /  Area = (16.5+8.1)/2 x 4.2
                    [         _____/
                    [------------------------------------------------------]
                    [30 Jun 94 - Complete from Sta 863+25.00 to Sta 868+47.600
                    (868 47.600 - 863 25.000) {m} x (16.5 + 8.1)/2 x 4.2 [depth] = 26997.52

  D200  CHANNEL EXCAVATION 3 to 4m DEEP     2.10    46840 m3   98364.00            m3                     m3
  D300  CHANNEL EXCAVATION OVER 4m          3.40    19000 m3   64600.00            m3                     m3
  X40.0  TREE CLEARING                   1450.00     14.5 Ha    21025.00    14.573 Ha   21130.85    14.573 Ha   21130.85
  X50.2  DEMOLITION & GRUBBING           2188.40     22.7 Ha    49676.68    23.13 Ha    50617.69    23.130 Ha   50617.69
-----------------------------------------------------------------------------------------------------------------
     Section:   E001     6 Items                           507105.68                127388.54                127388.54

=================================================================================================================
  Group:   G1      8 Items                              753102.88                295938.54                295938.54
=================================================================================================================
```

BILLING TODATE - Page 3 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                             Page 3
Billing to 30JUN94                # # #  B I L L I N G   T O D A T E   # # #              Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
=================================================================================================================
  Group:   M      MATERIALS ON SITE
Item                                 Contract      Final       FINAL      Period      PERIOD     Quantity      AMOUNT
  No   Item Description                  Rate    Quantity     AMOUNT    Quantity      AMOUNT       Todate      TODATE
=================================================================================================================
     Section:   1      PLUMBING MATERIAL
  1   Storm drainage pipe 100mm           3.80        0 LM               136 LM      516.80      136 LM      516.80
  99  Pipe fittings                       1.00        0 $               1800 $      1800.00     1800 $      1800.00
                    [Tally Sheet for Pipe fitting Material on Site
                    [Stocktake taken on 30/6/94 by John O'Brien
                    15 [No - 90 deg bends 100mm] @ 58.00 [$/ea]      =       870.00
                     8 [No - 45 deg bends 100mm] @ 55.00 [$/ea]      =       440.00
                    11 [No - Sleeves      100mm] @ 28.00 [$/ea]      =       308.00
                     7 [No - Caps         100mm] @ 26.00 [$/ea]      =       182.00
                                                          TOTAL =        1800.00
/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\
```

BILLING TODATE - Page 4 of 5

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Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                             Page 4
Billing to 30JUN94                # # #  B I L L I N G   T O D A T E   # # #              Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
=================================================================================================================
  Group:   VO      VARIATION ORDERS
Item                                 Contract      Final       FINAL      Period      PERIOD     Quantity      AMOUNT
  No   Item Description                  Rate    Quantity     AMOUNT    Quantity      AMOUNT       Todate      TODATE
=================================================================================================================
  VR001  Revised Drainage Drg 2003 Rev 4  1480.00       1 LS    1480.00       1 LS     1480.00       1 LS     1480.00
                    Invert level of manhole S121 lowered to avoid existing gasmain.
                    Contractor's Field Memo 11722 of 15/6/94 refers.
                    Authorised and payment approved on Variation Record VR001.

  VR002  Deduct for failed density tests   -50.00      45 EA   -2250.00      45 EA    -2250.00      45 EA    -2250.00
                    The contractor has to pay the cost of repeat testing whenever a compaction
                    density test fails.  (See Special Conditions X-12 para 14.)

  VR003  Grader Rental                      55.00     500 Hr   27500.00    112.5 Hr    6187.50    112.5 Hr    6187.50
/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\/\
```

BILLING TODATE - Page 5 of 5

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Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                             Page 5
Billing to 30JUN94                # # #  B I L L I N G   T O D A T E   # # #              Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
=================================================================================================================
  Group:   rf      CONTRACT ESCALATION
Item                                 Contract      Final       FINAL      Period      PERIOD     Quantity      AMOUNT
  No   Item Description                  Rate    Quantity     AMOUNT    Quantity      AMOUNT       Todate      TODATE
=================================================================================================================
  1   ESCALATION FOR PERIOD  1            1.00   3575.62 $    3575.62   3575.62 $     3575.62   3575.62 $     3575.62
-----------------------------------------------------------------------------------------------------------------
         1 Item                                          3575.62                  3575.62                  3575.62

=================================================================================================================
  Group:   rf     1 Item                               3575.62                  3575.62                  3575.62
=================================================================================================================

JOB TOTALS - 20 Items                                981681.45                307248.46                307248.46
=================================================================================================================
```

Projected Final Liability at 30 June 1994 - Page 1 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                          Page 1
Billing to 30JUN94          # # #  F I N A L   E S T I M A T E  # # #            Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                             Sorted
=========================================================================================================
  Group:  G1      CIVIL ENGINEERING WORK
  Item                              Contract     Contract     CONTRACT      Final        FINAL    Percent
  No    Item Description               Rate      Quantity       AMOUNT    Quantity      AMOUNT   Increase
=========================================================================================================
     Section:   E000     DRILLING & BLASTING
  A1a  DRILLING ESTABLISHMENT         8700.00          1 LS     8700.00                 8700.00
  D100 CHANNEL DRILL & BLAST             0.98    242140 m3    237297.20              237297.20
  -------------------------------------------------------------------------------------------------------
     Section:   E000    2 Items                           245997.20              245997.20

  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   E001     TAILRACE EXCAVATION
  A1a  EXCAVATION ESTABLISHMENT       20000.00          1 LS    20000.00                20000.00
  D100 CHANNEL EXCAVATION to 3m DEEP      1.32    186300 m3    245916.00  192000 m3   253440.00      3.06
  D200 CHANNEL EXCAVATION 3 to 4m DEEP    2.10     46840 m3     98364.00               98364.00
  D300 CHANNEL EXCAVATION OVER 4m         3.40     19000 m3     64600.00               64600.00
  X40.0 TREE CLEARING                  1450.00      14.5 Ha     21025.00               21025.00
  X50.2 DEMOLITION & GRUBBING          2188.40      22.7 Ha     49676.68               49676.68
  -------------------------------------------------------------------------------------------------------
     Section:   E001    6 Items                           499581.68              507105.68      1.51
=========================================================================================================
  Group:  G1     8 Items                               745578.88              753102.88      1.01
=========================================================================================================
```

Projected Final Liability - Page 3 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                          Page 3
Billing to 30JUN94          # # #  F I N A L   E S T I M A T E  # # #            Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                             Sorted
=========================================================================================================
  Group:  M       MATERIALS ON SITE
  Item                              Contract     Contract     CONTRACT      Final        FINAL    Percent
  No    Item Description               Rate      Quantity       AMOUNT    Quantity      AMOUNT   Increase
=========================================================================================================
     Section:   1     PLUMBING MATERIAL
  1    Storm drainage pipe 100mm        3.80          0 LM                     0 LM
  99   Pipe fittings                    1.00          0 $                      0 $
  -------------------------------------------------------------------------------------------------------
     Section:   1    2 Items
=========================================================================================================
  Group:  M     2 Items
=========================================================================================================
```

Projected Final Liability - Page 4 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                          Page 4
Billing to 30JUN94          # # #  F I N A L   E S T I M A T E  # # #            Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                             Sorted
=========================================================================================================
  Group:  VO      VARIATION ORDERS
  Item                              Contract     Contract     CONTRACT      Final        FINAL    Percent
  No    Item Description               Rate      Quantity       AMOUNT    Quantity      AMOUNT   Increase
=========================================================================================================
  VR001 Revised Drainage Drg 2003 Rev 4  1480.00         1 LS    1480.00                1480.00
  VR002 Deduct for failed density tests   -50.00        45 EA   -2250.00               -2250.00
  VR003 Grader Rental                      55.00       500 Hr   27500.00               27500.00
  -------------------------------------------------------------------------------------------------------
               3 Items                                       26730.00               26730.00
=========================================================================================================
  Group:  VO     3 Items                                26730.00               26730.00
=========================================================================================================
```

Projected Final Liability - Page 5 of 5

```
Printed 1:17pm 1JUL94                 PROBILL - CONTRACT BILLING SYSTEM                          Page 5
Billing to 30JUN94          # # #  F I N A L   E S T I M A T E  # # #            Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                             Sorted
=========================================================================================================
  Group:  rf      CONTRACT ESCALATION
  Item                              Contract     Contract     CONTRACT      Final        FINAL    Percent
  No    Item Description               Rate      Quantity       AMOUNT    Quantity      AMOUNT   Increase
=========================================================================================================
  1    ESCALATION FOR PERIOD  1         1.00       0.00 $                 3575.62 $     3575.62
  -------------------------------------------------------------------------------------------------------
               1 Item                                                                  3575.62
=========================================================================================================
  Group:  rf     1 Item                                                                3575.62
=========================================================================================================
  JOB TOTALS - 20 Items                                 970581.83              981681.45      1.14
=========================================================================================================
```

Progress Worksheet for Period Ending 31 July 1994 - Billing No 2 - Page 1 of 4

```
Printed 1:17pm 1JUL94                PROBILL - CONTRACT BILLING SYSTEM                              Page 1
Billing to 30JUN94             # # #  M E A S U R E   I N P U T  # # #                        Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                           Updated on  2/8/94  by  L.Mott
=================================================================================================================
  Group:  G1     CIVIL ENGINEERING WORK
 Item                            Final      Quantity   *** UPDATED ****  Percent Rec   Last    Item
  No   Item Description         Quantity     Todate    *** QUANTITY ***   Comp   No   Update  Complete   REMARKS
=================================================================================================================
     Section:   E000     DRILLING & BLASTING
  A1a  DRILLING ESTABLISHMENT          1 LS     0.90 LS  Complete     LS   90.00    1   30JUN94
  D100 CHANNEL DRILL & BLAST      242140 m3   164000 m3  238,000      m3   67.73    2   30JUN94
-----------------------------------------------------------------------------------------------------------------
     Section:   E000     2 Items

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   E001     TAILRACE EXCAVATION
  A1a  EXCAVATION ESTABLISHMENT        1 LS        1 LS  To Sta 89810.0  LS  100.00   3   30JUN94   Yes
  D100 CHANNEL EXCAVATION to 3m DEEP 192000 m3  27000 m3                 m3   14.06    4   30JUN94
            [Channel X-Section dimensions are:-
            [  ____  |<------- 16.5m ------>|
            [        \                     /
            [ 4.2m    \                   /  Area = (16.5+8.1)/2 x 4.2
            [          \                 /
            [--------------------------------------------------------]   Sta 89810.0
            [30 Jun 94 - Complete from Sta 863+25.00 to Sta 868+47.600
            (868 47.600 - 863 25.000) {m} x (16.5 + 8.1)/2 x 4.2 [depth] = 26997.52

  D200 CHANNEL EXCAVATION 3 to 4m DEEP 46840 m3        m3  43,000      m3               5
  D300 CHANNEL EXCAVATION OVER 4m      19000 m3        m3  18,000      m3               6
  X40.0 TREE CLEARING                   14.5 Ha   14.573 Ha Complete   Ha  100.50       7   30JUN94  ???
  X50.2 DEMOLITION & GRUBBING           22.7 Ha   23.130 Ha Complete   Ha  101.89       8   30JUN94  ???
```

Worksheet for Billing No 2 - Page 2 of 4

```
Printed 1:17pm 1JUL94                PROBILL - CONTRACT BILLING SYSTEM                              Page 2
Billing to 30JUN94             # # #  M E A S U R E   I N P U T  # # #                        Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                     Sorted
=================================================================================================================
  Group:  G2     BUILDING WORK
 Item                            Final      Quantity   *** UPDATED ****  Percent Rec   Last    Item
  No   Item Description         Quantity     Todate    *** QUANTITY ***   Comp   No   Update  Complete   REMARKS
=================================================================================================================
     Section:     1     PLUMBING
  A200 STORM DRAINAGE 100mm        432 LM        LM  366.8        LM            9
  A210 STORM DRAINAGE 150mm        655 LM        LM  Complete     LM           10
  A220 STORM DRAINAGE 200mm         86 LM        LM  Complete     LM           11
-----------------------------------------------------------------------------------------------------------------
     Section:     1     3 Items

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:     2     ELECTRICAL
  Q4/10 NOMINATED SUBCONTRACT     100 %         %   31.620       %            12
-----------------------------------------------------------------------------------------------------------------
     Section:     2     1 Item

+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:     3     LANDSCAPING
  100  TOPSOILING                63400 m2        m2                m2           13
  200  HYDRO SEEDING            576000 m2        m2                m2           14
```

Worksheet for Billing No 2 - Page 3 of 4

```
Printed 1:17pm 1JUL94                PROBILL - CONTRACT BILLING SYSTEM                              Page 3
Billing to 30JUN94             # # #  M E A S U R E   I N P U T  # # #                        Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                     Sorted
=================================================================================================================
  Group:  M      MATERIALS ON SITE
 Item                            Final      Quantity   *** UPDATED ****  Percent Rec   Last    Item
  No   Item Description         Quantity     Todate    *** QUANTITY ***   Comp   No   Update  Complete   REMARKS
=================================================================================================================
     Section:     1     PLUMBING MATERIAL
   1   Storm drainage pipe 100mm     0 LM      136 LM  30          LM           18   30JUN94
   99  Pipe fittings                 0 $      1800 $   NIL          $           19   30JUN94
```

Worksheet for Billing No 2 - Page 4 of 4

```
Printed 1:17pm 1JUL94                PROBILL - CONTRACT BILLING SYSTEM                              Page 4
Billing to 30JUN94             # # #  M E A S U R E   I N P U T  # # #                        Billing No 1
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                     Sorted
=================================================================================================================
  Group:  VO     VARIATION ORDERS
 Item                            Final      Quantity   *** UPDATED ****  Percent Rec   Last    Item
  No   Item Description         Quantity     Todate    *** QUANTITY ***   Comp   No   Update  Complete   REMARKS
=================================================================================================================
 VR001 Revised Drainage Drg 2003 Rev 4   1 LS    1 LS              LS  100.00  15   30JUN94  Yes      OK
          Invert level of manhole S121 lowered to avoid existing gasmain.
          Contractor's Field Memo 11722 of 15/6/94 refers.
          Authorised and payment approved on Variation Record VR001.

 VR002 Deduct for failed density tests   45 EA   45 EA  62         EA  100.00  16   30JUN94           FINAL = 62
          The contractor has to pay the cost of repeat testing whenever a compaction
          density test fails.  (See Special Conditions X-12 para 14.)

 VR003 Grader Rental                    500 Hr  112.5 Hr  249        Hr   22.50  17   30JUN94
```

Escalation Calculation Report for Period Ending 31 July 1994

```
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE      System date: Tue,  2AUG94
ESCALATION DETAILS for Period  1 - 30JUN94 to Period  2 - 31JUL94
================================================================================
Component  1 - LABOUR                  - Base Index =   18.210
   Period    To            Current Index        (CI-BI)/BI
      1 - 30JUN94             18.210            0.000000000
      2 - 31JUL94             19.180            0.053267435

Component  2 - PLANT                    - Base Index = 1173.200
   Period    To            Current Index        (CI-BI)/BI
      1 - 30JUN94            1169.700           -0.002983294
      2 - 31JUL94            1186.300            0.011166042

Component  3 - MATERIAL                 - Base Index =  128.900
   Period    To            Current Index        (CI-BI)/BI
      1 - 30JUN94            134.370            0.042435997
      2 - 31JUL94            137.190            0.064313421


================================================================================
Escalation Class: BW - BUILDING CLASSIFICATION

   Period  1 - 30JUN94
              Component            Weighting    WEIGHT x (CI-BI)/BI
          1   LABOUR                0.400           0.000000000
          3   MATERIAL              0.450           0.019096199
              Fixed Weight          0.150           -----------
                                 Total Factor =     0.019096199
Escalation for Class BW is    0.019096199 x $        0.00   = $        0.00

   Period  2 - 31JUL94
              Component            Weighting    WEIGHT x (CI-BI)/BI
          1   LABOUR                0.400           0.021306974
          3   MATERIAL              0.450           0.028941040
              Fixed Weight          0.150           -----------
                                 Total Factor =     0.050248014
Escalation for Class BW is    0.050248014 x $    47123.43   = $     2367.86
--------------------------------------------------------------------------------

Escalation Class: CE - CIVIL CLASSIFICATION

   Period  1 - 30JUN94
              Component            Weighting    WEIGHT x (CI-BI)/BI
          1   LABOUR                0.250           0.000000000
          2   PLANT                 0.350          -0.001044153
          3   MATERIAL              0.300           0.012730799
              Fixed Weight          0.100           -----------
                                 Total Factor =     0.011686646
Escalation for Class CE is    0.011686646 x $   295938.54   = $     3458.53

   Period  2 - 31JUL94
              Component            Weighting    WEIGHT x (CI-BI)/BI
          1   LABOUR                0.250           0.013316859
          2   PLANT                 0.350           0.003908115
          3   MATERIAL              0.300           0.019294026
              Fixed Weight          0.100           -----------
                                 Total Factor =     0.036519000
Escalation for Class CE is    0.036519000 x $   424890.00   = $    15516.56


================================================================================
   Period  1 - 30JUN94                   TOTAL ESCALATION = $     3458.53
          2 - 31JUL94                                            17884.42
================================================================================
```

FINAL PAYMENT CERTIFICATE

```
3:39pm 5SEP94          PROBILL - CONTRACT BILLING SYSTEM              Page 1
               F I N A L   P A Y M E N T   C E R T I F I C A T E
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE
================================================================================

Certificate No  3 covering work to 31AUG94

Contractor:     FAR WESTERN GENERAL CONTRACTORS PTY LTD
                P.O. Box 4
                112 Bogan Street
                NEVERTIRE   NSW 2831

Owner:          BULLAMAKANKA POWER & WATER COMMISSION
                P.O. Box 9999
                455 Main Street
                BULLAMAKANKA   QLD 4999
                Contact: Mr Joseph McArthy

Contract Number: M94/12345

Approved Contract Value: $   943851.83
Final Contract Value:    $  1013574.41

Percent Complete: 100.00%

Percentage Retention: 10%

Maximum Retention:     5%


================================================================================
GROSS BILLING TODATE       $  1013574.41
Less  PREVIOUS PAYMENTS     $   754291.33

PAYABLE THIS CERTIFICATE                                    $    259283.08
================================================================================


   Prepared by: ..L.McH...5/9/94.......  Approved by: .John Drew, 5 Sep 94.
```

PROJECT or DEPARTMENT SUMMARY Report

```
Printed 10:10am 3SEP94            NEVERTIRE CONSTRUCTION COMPANY PTY LTD            Page 1
                         # # #  D E P A R T M E N T   S U M M A R Y  # # #
Department: MD  WAREHOUSE BUILDING, CLYDE                                          Sorted
==========================================================================================
  Contract   Contract                      Bill  Bill    CONTRACT      FINAL     PERIOD     AMOUNT
   Number    Name                          No    Date       VALUE   ESTIMATE     AMOUNT     TODATE
==========================================================================================
M94/00872   CLYDE WAREHOUSE - SITE SERVICES 14  30JUN93    29742.00   29742.00              29742.00
M94/10091   CLYDE WAREHOUSE - STEEL STRUCTURE 6 22DEC93   650633.50  759367.00    2849.53   759367.00
M94/11763   CLYDE WAREHOUSE - ELECTRICAL WORK 9 29AUG94    98081.00   99728.13   17825.08    93482.38
M94/11777   CLYDE WAREHOUSE - CONCRETE SUB  21  31AUG94  2429000.00 2380244.00             2380244.00
M94/12345   CLYDE WAREHOUSE - ROOFING CONTRACT 3 14JUL94  170670.88  187645.23   37489.65   102763.89
M94/13411   CLYDE WAREHOUSE - BRICKWORK      1  30AUG94  3842946.00 3842946.00  376043.64   376043.64
M94/13427   CLYDE WAREHOUSE - MECH SERVICES SUB          112000.00  112000.00

==========================================================================================
DEPARTMENT TOTALS - 7 Jobs                                7333073.38 7411672.36  434207.90 3741642.91
==========================================================================================
```

Progress Worksheet for Period Ending 31 August 1994 - Final Certificate - Page 1 of 5

```
Printed 3:07pm 2AUG94                    PROBILL - CONTRACT BILLING SYSTEM                                   Page 1
Billing to 31JUL94                     # # #   M E A S U R E   I N P U T   # # #                       Billing No 2
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                Updated on   5/9/94    by   L.McH
=================================================================================================================
   Group:   G1    CIVIL ENGINEERING WORK
 Item                                    Final      Quantity  *** UPDATED ****  Percent Rec    Last    Item
 No     Item Description               Quantity      Todate   *** QUANTITY ***    Comp   No   Update   Complete       REMARKS
=================================================================================================================
     Section:   E000    DRILLING & BLASTING
 A1a  DRILLING ESTABLISHMENT              1 LS         1 LS   _____ LS   100.00   1   31JUL94    Yes      _____
 D100  CHANNEL DRILL & BLAST         242140 m3     236000 m3  _____ m3    97.46   2   31JUL94             _____
                     Paid on basis of theoretical trench sections.
                     40% paid when drilling complete.

     ------------------------------------------------------------------------------------------------------------
     Section:   E000    2 Items

     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   E001    TAILRACE EXCAVATION
 A1a  EXCAVATION ESTABLISHMENT            1 LS         1 LS   _____ LS   100.00   3   30JUN94    Yes      _____
 D100  CHANNEL EXCAVATION to 3m DEEP  192000 m3     180000 m3  _____ m3    93.75   4   31JUL94             _____
                     [Channel X-Section dimensions are:-
                     [  ____  |<------- 16.5m ------>|
                     [       /                        \
                     [ 4.2m \                          /   Area = (16.5+8.1)/2 x 4.2
                     [       _____/
                     [-----------------------------------------------]
                     [31 Jul 94 - Complete from Sta 863+25.00 to Sta 898+10.600
                      (898 10.000 - 863 25.000) {m} x (16.5 + 8.1)/2 x 4.2 [depth] = 180035.10

 D200  CHANNEL EXCAVATION 3 to 4m DEEP 46840 m3      43000 m3  _____ m3    91.80   5   31JUL94             _____
 D300  CHANNEL EXCAVATION OVER 4m      19000 m3      18000 m3  _____ m3    94.74   6   31JUL94             _____
 X40.0  TREE CLEARING                 14.573 Ha     14.573 Ha  _____ Ha   100.00   7   31JUL94    Yes      _____
 X50.2  DEMOLITION & GRUBBING         23.130 Ha     23.130 Ha  _____ Ha   100.00   8   31JUL94    Yes      _____
     ------------------------------------------------------------------------------------------------------------
     Section:   E001    6 Items
=================================================================================================================
```

Worksheet for Final Certificate - Page 2 of 5

```
Printed 3:07pm 2AUG94                    PROBILL - CONTRACT BILLING SYSTEM                                   Page 2
Billing to 31JUL94                     # # #   M E A S U R E   I N P U T   # # #                       Billing No 2
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                              Sorted
=================================================================================================================
   Group:   G2    BUILDING WORK
 Item                                    Final      Quantity  *** UPDATED ****  Percent Rec    Last    Item
 No     Item Description               Quantity      Todate   *** QUANTITY ***    Comp   No   Update   Complete       REMARKS
=================================================================================================================
     Section:   1    PLUMBING
 A200  STORM DRAINAGE 100mm             432 LM      366.8 LM  _____ LM    84.91   9   31JUL94             _____
 A210  STORM DRAINAGE 150mm             655 LM        655 LM  _____ LM   100.00  10   31JUL94    Yes      _____
 A220  STORM DRAINAGE 200mm              86 LM         86 LM  _____ LM   100.00  11   31JUL94    Yes      _____
     ------------------------------------------------------------------------------------------------------------
     Section:   1    3 Items

     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   2    ELECTRICAL
 Q4/10  NOMINATED SUBCONTRACT           100 %      31.620 %  _____ %     31.62  12   31JUL94             _____
     ------------------------------------------------------------------------------------------------------------
     Section:   2    1 Item

     +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

     Section:   3    LANDSCAPING
 100  TOPSOILING                       63400 m2          m2  _____ m2           13                       _____
 200  HYDRO SEEDING                   576000 m2          m2  _____ m2           14                       _____
     ------------------------------------------------------------------------------------------------------------
     Section:   3    2 Items

     ========================================================================================================
     Group:   G2    6 Items
=================================================================================================================
```

Worksheet for Final Certificate - Page 3 of 5

```
Printed 3:07pm 2AUG94                    PROBILL - CONTRACT BILLING SYSTEM                                   Page 3
Billing to 31JUL94                     # # #   M E A S U R E   I N P U T   # # #                       Billing No 2
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                              Sorted
=================================================================================================================
   Group:   M    MATERIALS ON SITE
 Item                                    Final      Quantity  *** UPDATED ****  Percent Rec    Last    Item
 No     Item Description               Quantity      Todate   *** QUANTITY ***    Comp   No   Update   Complete       REMARKS
=================================================================================================================
     Section:   1    PLUMBING MATERIAL
  1  Storm drainage pipe 100mm            0 LM         30 LM  _____ LM          18   31JUL94             _____
                     Materials on site items always have ZERO Contract quantity.
                     The job starts with no MOS and ends up with no MOS.
                     MOS items can be measured in various ways.  Where practical, a physical
                     measure (LM, Tn, m2, etc.) is preferable as it is easier to enter and audit.

  99  Pipe fittings                       0 $           $    _____ $           19   31JUL94             _____
                     Pipe fittings are a typical example of a MOS item that can probably be
                     sensibly "measured" in dollar terms.  You may want to use a PROCALC tally sheet
                     to simplify the calculation of the value of the item at the end of each month.

     ------------------------------------------------------------------------------------------------------------
     Section:   1    2 Items
=================================================================================================================
```

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```
Printed 3:07pm 2AUG94                PROBILL - CONTRACT BILLING SYSTEM                              Page 4
Billing to 31JUL94              # # #  M E A S U R E   I N P U T   # # #               Billing No 2
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                     Sorted
=======================================================================================================
  Group:   VO    VARIATION ORDERS
 Item                              Final    Quantity  *** UPDATED ****  Percent Rec   Last   Item
  No   Item Description          Quantity    Todate   *** QUANTITY ***    Comp   No  Update  Complete   REMARKS
=======================================================================================================
VR001  Revised Drainage Drg 2003 Rev 4    1 LS      1 LS  _____  LS  100.00  15  30JUN94   Yes    _____
              Invert level of manhole S121 lowered to avoid existing gasmain.
              Contractor's Field Memo 11722 of 15/6/94 refers.
              Authorised and payment approved on Variation Record VR001.

VR002  Deduct for failed density tests  62 EA     62 EA  _____  EA  100.00  16  31JUL94          _____
              The contractor has to pay the cost of repeat testing whenever a compaction
              density test fails.  (See Special Conditions X-12 para 14.)

VR003  Grader Rental                   500 Hr    249 Hr  _____  Hr   49.80  17  31JUL94          _____
-------------------------------------------------------------------------------------------------------
              3 Items
```

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```
Printed 3:07pm 2AUG94                PROBILL - CONTRACT BILLING SYSTEM                              Page 5
Billing to 31JUL94              # # #  M E A S U R E   I N P U T   # # #               Billing No 2
Contract: BULLAMAKANKA DAM - TUTORIAL EXAMPLE                                                     Sorted
=======================================================================================================
  Group:   rf    CONTRACT ESCALATION
 Item                              Final    Quantity  *** UPDATED ****  Percent Rec   Last   Item
  No   Item Description          Quantity    Todate   *** QUANTITY ***    Comp   No  Update  Complete   REMARKS
=======================================================================================================
    1  ESCALATION FOR PERIOD  1    3458.53 $  3458.53 $ _____  $  100.00  20  30JUN94          _____
    2  ESCALATION FOR PERIOD  2   17884.42 $ 17884.42 $ _____  $  100.00  21  31JUL94          _____
-------------------------------------------------------------------------------------------------------
              2 Items
```