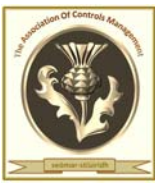


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TAOCM Project Planning Standard

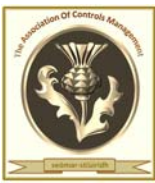


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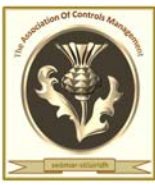
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Revision Status:

Rev	Date	Amendment	Content Keeper	Use Mandated By
1.0	November 2016	Creation of Document	Ryan Meikle	Mike Morrice
1.1	July 2017	Revised content and format	Ryan Meikle	Mike Morrice



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1.0 Objective

The objective of this standard is to achieve a consistent and generic approach to project planning. This standard will provide guidance to the PMO planning discipline and Project Management to supply an efficient and practical application and understanding of planning, and support the production of dashboard performance reports to accurately represent our current and future business on the ground to executive level within Planning Software.

2.0 Summary

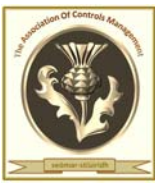
This standard will provide instruction to best practices within the planning discipline in the use of Standard Project Outputs within the confines of a Project Control Cycle, Layouts, Role Management, Baseline Management and Commercial Impact, Critical Path Analysis and Change Control Methods. It will define the type of planning support required and the roles and responsibilities within the threshold of planning.

The correct understanding and application of Project Planning will enable project teams, and Portfolio and Programme Management, to visualize the project life cycle and use planning tools to competently analyse and assess measurable progress to support project reporting and month end processes. Effective planning will allow project teams to anticipate project progress and allow them to plan in contingency for any known risks and visualize the impact on future progress. It is intended that this standard be used in association with existing standards as well as supporting the types of contracts won on projects within each sector of ConSI.

Detailed and thorough planning is proven to dramatically increase the chances of project success. It requires the project team to consider the key elements in a methodical and rational manner in order to reap the following benefits:

- A PRIMARY mechanism whereby a Project Manager can visually demonstrate exactly how the project is to be executed, managed and controlled.
- By applying a logically driven and disciplined approach, it helps avoid accidental 'ommission' of critical information that may impact the timeline of a project.
- Assists in identifying problems and therefore production of realistic corrective actions (What-If Scenario Planning).
- Concentrates attention on what needs to be done throughout the live cycle of the project but particularly in the early stages of the project.
- Provides a basis for monitoring and controlling change in a real time environment.
- Builds commitment into the team through their involvement and active participation.
- Improves confidence in the stakeholders and team members because it demonstrates the achievable targets and milestones.
- Helps identify areas of concern and resource pinches.
- Helps establish and assign key responsibilities.
- It is the only tool that can quantify and produce performance indicators for all elements of the project in one place.

Processes outlined herein are written around the use of Primavera in line with current ConSI policy. Each project will create a shared project file where all copies of Contract Baselines, Periodic Submission extracts and, any and all data, pertaining to the contract held are stored. All projects that currently hold a SAP number must have a corresponding schedule in the live database to aid future estimating and tendering and to allow comprehensive backup processes to be performed to safeguard all contract data. Limited use of standalone databases will be



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permitted to manage live contracts held by AMEY. As the standards and methods of planning outlined in this document cannot be verified if the project schedule is held in a non AMEY database, all standalone projects held in a standalone database need to be uploaded to the relevant database as listed below once updated. Systematic reporting to ensure compliance to this standard will be routinely performed by the Database Administrator.

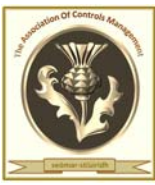
3.0 Primavera Contact Information

Name	Email	Contact for:

The current managed databases are:

< List Here >

Databases can be accessed depending on your business stream requirement and the security profile assigned to the user. Security access is defined through completing a Competency Assessment Form which will be issued to all users for completion. Line Managers are responsible for arranging this. It is recommended that any new starter who is likely to need access to any of the above databases is made known to the Primavera Implementation Manager and the Database Administrator as soon as their appointment is made. This allows due process to be followed efficiently and will enable the new user to have access promptly on his/her arrival. The required data to initiate access is User ID, Location, Computer Name and a SAP code for the purchase of the license to be charged to. Training material will be made available immediately upon starting and the new user added to any available training courses.



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4.0 Process Map - Project Life Cycle Flowchart

4.1 Project Life Cycle

The Project Life Cycle commences upon invitation to tender (ITT) and until practical or substantial completion is achieved. Project Planning should be performed from pre tender to ensure planning continuity throughout the Project Life Cycle and persons performing the Project Planner role are responsible for ensuring the following is complied with as a *minimum* throughout this process;

- Create a Work Breakdown Structure in accordance with the expected methodology contained within the Pre-Tender Documentation. This will inform the Pricing Document which will ultimately define the work stage creation in SAP and drive the creation of the Work Authorisation Forms.
- Inclusion of Project Milestones/Client Deliverables with appropriate internal coding
- Client or other party interdependencies and/ or interfaces
- Correct interdisciplinary relationships established in order to accurately calculate total float and enable use of critical path methodology
- Correct allocation of roles and subsequent maintenance of allocated roles as described in the Project Control Cycle
- Appropriate cost loading as defined by the contract and production of a forecast spreadsheet to compliment month end financial processes.
- Contract Baseline Management
- Inclusion of all Inter-Disciplinary Checks/Inter-Disciplinary Reviews/Project Progress Meetings/Third Party Interface Schedules

This process is mapped in the following flowchart (Figure 1) and should be referenced and adhered to throughout the life of all projects.

4.2 Project Control Cycle

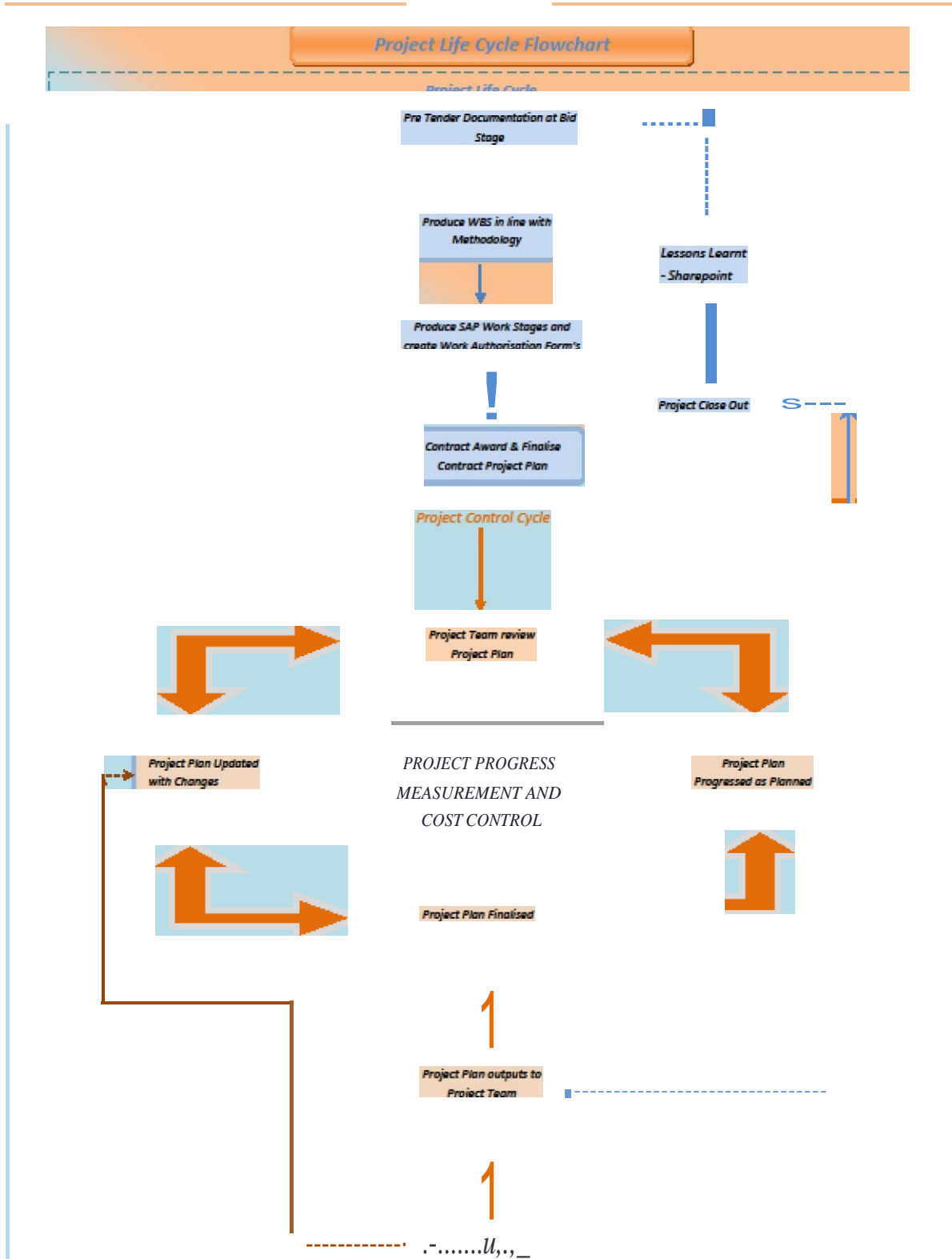
Project Control Cycle is a mandated monthly cycle in which an update is made to all project plans and a review of all role data is undertaken. It is recommended that this occurs at least one week prior to month end financial reviews to ensure the most current data is reflected. This must take cognisance of client submissions, existing month end processes and compliment role submission information to inform the Streamline process. The Project Control Cycle will be a mandatory process with all primary personnel providing input. It should be noted that this is the minimum update requirement and some projects may require an interim update to meet contractual obligations. A standard process across the business allows continuity and the development of essential reporting within the Dashboard functionality within Primavera. The Project Planner and/or Project Manager will interact with all key stakeholders and if required clients, both internal and external, in order to fully represent the project status within Primavera accurately. Within the role of Project Planner lies the responsibility of correctly representing the contract efficiently ensuring all milestones and deliverables are met within the contracted timescales and providing the Project Team adequately with contingency planning to mitigate all risks.



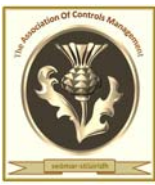
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Figure 1







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5.0 Standard Outputs from the Project Control Cycle

A standard project schedule should be planned so that the Project Team and/or Clients shall have available to them the following outputs:

- Four/Six Week Lookahead (spotlight on forthcoming activities)
- PDF of all remaining activities within a current schedule or within a given timeframe
- PDF of all project milestones due within a six week period (to be displayed near Project Team)
- PDF of all engineering milestones (to be displayed near Engineering)
- Role Loaded with all relevant roles for project delivery.
- Contingency Plan (What-If Scenario building)
- Contract Baseline XER/XML (change control)
- Production of periodic XER/XML submissions (extract from Primavera) and any other deliverable to satisfy Contract requirements
- Critical Path Analysis
- Values included in association with the type of contract and contract deliverables
- Change tracker – notations of changes to scope/activity which may have a contractual consequence (in conjunction with baseline management)
- Mandatory use of Notebook facility within Primavera to track minor changes making handover or cover as efficient as possible
- Data Date within one month of current period (unless contract states otherwise).
- Management of Risk Profile within Primavera

All outputs/documentation will be uploaded to a Shared Folder and available for project teams and for use in audits.

6.0 Planning Responsibilities Matrix

The following matrix is guidance as to what is required from staff at key points within the planning process. Planning requires interaction with most personnel in order to accurately map out the project's methodology, deliverables, timeline and project constraints. A large quantity of information is passed to the planner and needs to be accurately reflected in the plan. This is a vital component of planning and needs to be as efficient as possible.



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Figure 2

Responsibility Matrix						
Responsibility Subject	Responsibility Specifics	Project Management	Project Planning	Project Engineering	Commercial	Senior Management
Project Management Deliverables	Inclusion of ALL contractual deliverables	√	√	X	√	X
	Creation and Approval of Bid/Tender Schedule	√	√	√	√	X
	Creation and Approval of Baseline Contract Schedule	√	√	X	√	X
	Co-Ordination and Chair of IDC/IDR/Progress Meetings	√	√	√	√	X
	Create and Manage Interface Schedule	√	√	√	X	X
Engineering Deliverables	Inclusion of engineering contract deliverables	√	√	√	X	X
	Identify and inform of interdependency activities	√	√	√	X	X
	Identify and inform durations	√	√	√	X	X
	Identify and inform Project Risk	√	√	√	X	X
	Inform Percentage Complete where required	√	√	√	X	X
Change Control Management	Inclusion of all Change Requests and/or consequent PMI's	√	√	X	√	X
	Management and issue of Change Control Processes	√	√	X	√	X
	Identify and inform all Changes into Project Schedule for client identification	√	√	X	√	X
	Production of Impact Scenario against Baseline	√	√	X	√	X
Cost Management	Full inclusion of contract value against correct contract deliverables	√	√	X	√	X
	Creation and management of CVR	√	X	X	√	X
	Creation and management of Cash Flow Forecast within Project Schedule	√	√	X	√	X
Roles/Resources	Identification of all roles required to deliver project deliverables	√	√	√	X	X
	Maintenance of roles within Primavera to match MSP Streamline submissions	√	√	√	X	X
Critical Path Methodology	Identification of Critical Path	√	√	√	√	X
	Use Critical Path to review methodology and identify optimum work path	√	√	√	X	X
Baseline Management	Review of Baseline/Contract Schedule and Approval	√	√	X	√	X
	Acceptance of new baseline on approval of new scope	√	√	X	√	X
	Copy of baselines in Shared Project Folder for Audit purposes	√	√	X	√	X
	Management of Baseline Integration once created and approved	√	√	X	√	X
Planning Standard	Periodic Updates to Project Schedules	√	√	√	X	√
	Production of Outputs in line with Planning Standard and Contract Requirements	√	√	X	X	√
	Audit of Project Schedules against Planning Standard	√	√	X	X	√
	Creation and maintenance of Dashboards	√	√	X	X	√
	Maintenance of Project Schedules in line with Planning Policy	√	√	X	X	√
Possession Planning	Inclusion of all Proposed and Agreed Possessions as per Contract Requirements	√	√	X	X	X Inclusion of all Access
	Planning as per Contract Requirements	√	√	X	X	X



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7.0 Organisational Interactions

In the instance that a project requires inter-sector working to deliver a contract, the responsibility for the schedule will lie with the sector that holds the full contract. For example on a Design and Build contract, if the contract is held by Design, then Design will be responsible for the liaison with our Build counterparts to build the schedule and ensure all contractual elements are catered to correctly before the schedule as a whole is signed off for submission. The schedule shall be held in the relevant node within the database to make it clear who owns the main contract. Conversely, the same will apply if the contract is held by the Build element. It is imperative that an open line of communication between the sectors involved is established in order to offer the best effective means of planning. The full schedule must be held within the current live database in order for it to fully comply with the reporting of generic milestones and Dashboard information.

8.0 Guide to Planning Terminology

EPS - Enterprise Project Structure	
Use: Defines the structure that the project sits within.	Best Practise: To align with Organisational Business Structure (OBS).
A hierarchal structure that reflects the business organisational structure. It is used to organise works into divisional responsibilities.	
WBS – Work Breakdown Structure	
Use: Defines the work scope	Best Practise: To align with the Cost Breakdown Structure (CBS) or Pricing Document which informs Work Authorisation Form production.
Work Breakdown Structure refers to part of the schedule that is used by a project management team to organise a project into manageable objectives/work packages and create a blue print by which the steps leading to the completion of the project are obtained.	
Node	
Use: Description/Informational	Best Practise: N/A
A defining point of a schedule network; a junction point joined to some or all of the other dependency lines.	
Activity	
Use: Depicts the lowest level of works within a schedule	Best Practise: Use pertinent/succinct descriptions. Always assign predecessor/successor for optimum planning.
A component of work required to deliver the WBS it sits under.	

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Forward Pass	
Use: Automatic calculation performed by Primavera upon commencement of scheduling function.	Best Practise: N/A
The calculation of the earliest start date and the earliest finish dates of all uncompleted activities. Determined by <u>working forwards through the schedule logic from the projects start date.</u>	

Backward Pass	
Use: Automatic calculation performed by Primavera upon commencement of scheduling function.	Best Practise: N/A
The calculation of the latest start date and the latest finish date of all uncompleted activities. Determined by <u>working backwards through the schedule logic from the project's end date.</u>	

Baseline	
Use: Determines marker points in time within the life of a project. A virtual copy is taken and can be compared against the live schedule.	Best Practise: Should be taken at the start of a project life cycle and when there is a significant change to scope. Baselines can be taken as a snapshot to compare periodic performance and changes.
The target dates for which the agreed deliverables will be delivered by. Used to compare to the live plan for variance analysis and provided to back commercial/contractual discrepancies.	

Critical Path	
Use: Signifies activities that will impact on Project Completion dates.	Best Practise: Used correctly, the Critical Path Analysis will show which activities require specific focus by those carrying out works and highlight activities that have caused major delays. For contractual purposes, the combination of tracking these delays with a good baseline is contractually vital.
The sequence of schedule activities that determines duration of the project and it is usually the longest path through the project.	

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Earned Value	
Use: A technique to determine the true value of works.	Best Practise: Using Earned Value Methodology, the progress of a project, can be tracked and the information can help key decisions be made to improve productivity or value of works. Essentially, it analyses the efficiency of a project life cycle in both an historic and future capacity.
It is the value of work done at a given point in time. To calculate this , Primavera takes the work that has been done and the budget for each task and indicates what portion of the budget should have been spent to achieve the current progress highlighting over or under spend or early and latefinish.	

Free Float	
Use: By monitoring free float within a schedule it is possible to see which activities are becoming time critical and how the domino effect of this delay can impact a schedule.	Best Practise: By isolating activities with low or zero float, mitigating actions can be taken to ensure a smooth delivery thereby reducing impact on successive activities.
Primavera uses the Forward and Backward Pass information to calculate the amount of time between an activity and its successor without impacting on its successor.	

Total Float	
Use: As in the case of Free Float, by monitoring this float within a schedule it is possible to see which activities are becoming time critical and how the domino effect of this delay can impact a schedule.	Best Practise: If there are areas of a schedule where both the Free and Total Float are showing low or zero float, it is recognised that these activities are Critical. What-If planning can mitigate impact and contingency to reduce impact on the overall Project Completion dates.
Primavera uses the Forward and Backward Pass information to calculate the amount of time between an activity and the completion date without impacting on that completion date.	

Lag	
Use: Can be used as a way to manipulate the intended start date of a successive activity without the use of a Constraint. Its impact is also dependant on the type of relationship applied.	Best Practise: Lag should only be used when natural logic cannot achieve the result required i.e. an activity needs to start midway through its successor. Use of lags has an impact on float.

An amount of time that can be added to an activity predecessor or successor, to induce a delay between the two.

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Lead	
Use: Can be used as a way to manipulate the intended start date of a successive activity without the use of a Constraint. Its impact is also dependant on the type of relationship applied.	Best Practise: Lead should only be used when natural logic cannot achieve the result required i.e. an activity needs to start midway through its predecessor. Use of leads has a negative impact on float and should be used sparingly.
A negative amount of time that can be added to an activity to induce an accelerated start date of the successor.	

Milestone	
Use: Milestones are an easy way of marking selected points in time. Either as a starting point or a finish point.	Best Practise: Use as markers for deliverables such as IDC's, AFC's, submission dates, possession dates and review completion dates.
A significant point or event in the project.	

Relationship	
Use: Determines the way in which Primavera calculates start dates.	Best Practise: For the most part Start to Start, Finish to Finish or Finish to Start is used.
A logical connection between one or more activities determining the sequence of events. A Lag or Lead can be applied to this connection.	

Successor	
Use: Creates a logical chain of activities to determine the steps taken to completion	Best Practise: All activities must have one unless they are a Finish Milestone.
Determines the logical relation to its predecessor.	

Predecessor:	
Use: Creates a logical chain of activities to determine the steps taken to completion.	Best Practise: All activities must have one unless they are a Start Milestone.
Determines the logical relation to its successor.	

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Constraints	
Use: To restrict an activity to a selected date.	Best Practise: Each constraint has an impact on float calculations and therefore must be chosen carefully. Start On and Finish On are the most used and have less impact on float.
A method of applying an enforced start or finish, on a given activity.	

Notebook	
Use: To scribe notes specific to a selected topic/activity.	Best Practise: Use of the Notebook facility in Primavera allows a user to document any changes or amendments to activities.
This function provides easy access of vital change information from one user to another	

9.0 Bid/Tender Planning within ConSI

In each sector a planning influence must be present at the point where a bid/tender application has been decided. Whomever receives the ITT will review its contents and will then instruct the relevant Project Planner on due process as defined by the contract in tender for. It is recommended that a project schedule be created within Primavera unless there is a direct stipulation otherwise within the ITT. It is recommended that a Planning Meeting be held to define the core WBS and aid in then planning the methodology. Responsibilities to facilitate this process are as outlined in the Planning Responsibilities Matrix within this document. The Project Planner will then develop the project schedule to reflect the expected methodology and include the relevant roles to deliver the successful bid in line with the relevant Bid Process Management Guidelines. The project schedule must contain all deliverables/milestones as so outlined in the Invitation to Tender, be role loaded to demonstrate availability, be in the correct format for the client specifications and be used to define the Cost Breakdown Structure which will allow the creation of the SAP work stages and Work Authorisation Forms in Rail and correct cost allocation in other sectors, once Contract Award is advised. The project schedule must then be updated to cater to any modifications to scope or start dates. Once transferred to the appropriate Project Manager and/or Project Planner, the maintenance of the schedule will be in line with the Project Control Cycle. A copy of the bid/tender schedule must be kept in the shared project drive for reference alongside a copy of the Contract Schedule. Further information on this is outlined in the Baseline section of this document.

10.0 Best Practise/Use of Primavera within AMEY

10.1 Setting up a Project Plan

AMEY Rail Live and Strategic Highways Database containing the following Environments: Area 9 Production (Hosting MAC9, CDF [Lots1 & 3A], ASC6, STRU, M8, Consulting Sheffield, Utilities [Scottish Power], CON Rail, IU Rail, BHMMS, SPFI, TFL Staging Database) is for the creation of tender plans and maintenance of live project plans pertaining to any contracts won by ConSI.

AMEY Staging Database (Professional Access only) or Sandpit Environment is a planner only environment that is used for the cleansing of schedules so that they may be imported into another database without compromising the integrity of the intended destination. This environment can also be used for importing contractor/client plans to

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validate logic. The Staging Database will be cleansed on the last working day of the month so any plans that need preserving must be exported before the cleansing deadline. It is the Project Planners responsibility to do this. The Database Administrator will notify all users before each cleansing.

A Training Database is an environment created for the sole purpose of training users.

When a Project is at tender stage, the Project Code will be set to 'BID' to define it as a bid and ensure it will not be included in reports. The Project Status shall be set to 'Planned'. The Project ID shall be based on either the BID code in association with the tender in play OR the active SAP code created at Contract Award. Once the Bid has been declared successful the status will be changed to 'Active' and then all project coding for that project should be updated within the database. All fields must be populated in order to ensure correct reporting within the Dashboards respective to sector.

Importing into a database other than the AMEY Staging or Sandpit Environment is only available to Senior Planners. Should a Project Planner require a schedule importing as a starting point for a new project then, within the EPPM version, the file format with which to import is Primavera .xml. There must only be one project ID code 'active' at any time within the database. Any client submissions can be achieved using layouts and filters within the live project itself or by excluding items via the staging area. Any client versions created within the staging area must be then be exported and stored in the shared project folder and named accordingly.

The process to import an external plan is to import in to the AMEY Staging Database or Sandpit Environment. The user who placed the request must confirm the plan appears as it should within its intended destination. The request to import must be sent to the Senior Planner by e-mail and must document the Project Code, Project Name and any pertinent information regarding the plan. All imports shall be completed within 48 hours of requesting.

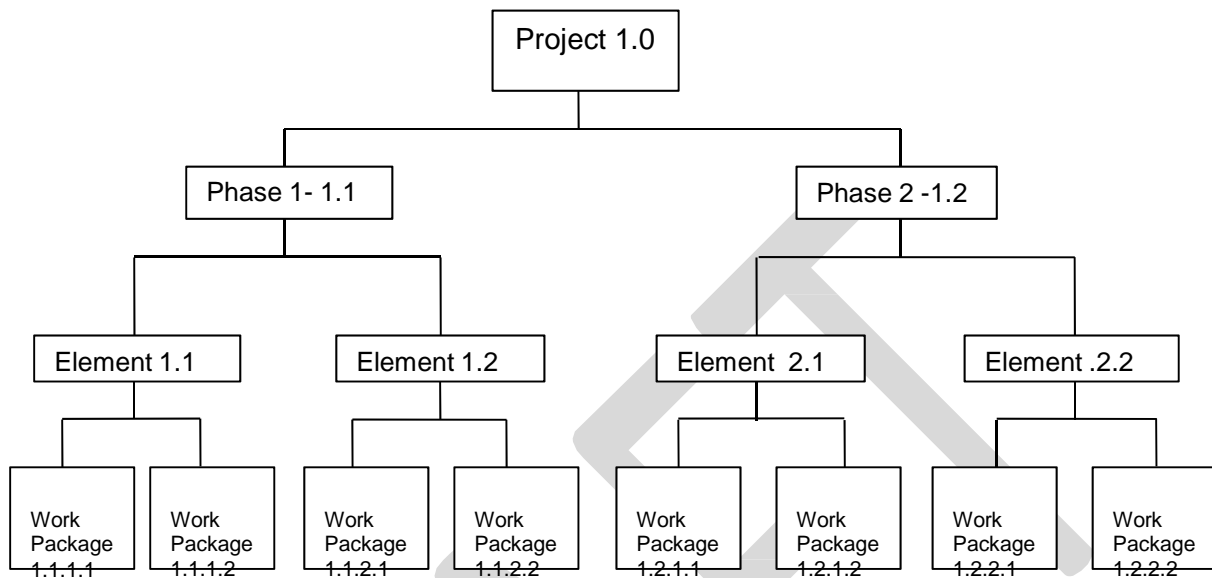
10.2 Completion of a Project Plan

When a project has completed all of its deliverables, all activities must be actualised and the Project Status should be set to 'Inactive'. A project may have circumstance that requires additional works to be completed. If this is the case then the project cannot achieve 'Inactive' status. These additional activities must be captured within the project plan to ensure all works have been accurately represented in order to track contractual failures/changes and/or additional instructions. It should be noted that a completed plan with 'Inactive' Project Status does not imply that all financial considerations have been achieved as most financial settlements are completed over a period of time after the works have finished.

10.3 WBS (Work Breakdown Structure)

A fundamental part of project planning and therefore, project management is the breakdown of the works into manageable and deliverable packages. The packages must in the sum of all be equal to the delivery of a successful project. Each descending level represents an increasingly detailed aspect of the works.

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Each time we go down a level in the WBS, we are defining the task in greater detail. There are no prescribed levels, however, the WBS should be specific to the project and indicative of the way it is going to be managed. As the project develops, more work packages can be added where changes have been authorised and through the use of project codes responsibility of each level is prescribed.

It is important that this approach is adopted at the start of the Project Life Cycle so that the scope of work is clear from the outset within the baseline. Schedule preparation should include:

- Aligning the WBS to the CBS (Cost Breakdown Structure) or Pricing Document
- Identifying the scope of each cost account/deliverable
- Identifying schedule logic, third party interfaces and inter-dependencies
- Preparing role assignments and identifying the critical path
- Review schedule, approve and baseline
- Invoking variation control and change control procedures from the onset.

10.4 Activities

Activities are the fundamental work elements of a project. They are the lowest level of a Work Breakdown Structure and as such, are the smallest sub-division of a project. The duration, relationship logic links and constraints of activities substantially affect free and total float within each project thereby impacting on the critical path. To incorrectly manage activities would mean there will be no real progress to assess, monitor and correct.

As a rule, there should only ever be two open ended activities and they are the Start Milestone and Finish Milestone. However, if there are multiple paths within a delivery schedule it is feasible to have several. For instance; if the project is delivering a framework of sites each with its own work package. This can either be managed as one completion activity linked to the last activity of each site or be left as the completion activity for each site as payment is based on the delivery of each site and new sites are continually assigned within the framework agreement. In essence, not requiring, a total Finish Milestone. As progress is recorded in the schedule, each activity is marked as started, sequentially. Planning in this way preserves the logic path and float calculations. If an activity is required to be started earlier than planned then the logic should be amended before marking as started. An activity cannot be marked as started when its predecessors hasn't finished unless the logic dictates

something other than a Finish to Start relationship.

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10.5 Percentage Complete

There are three Percentage Complete options. Duration Percentage Complete calculates using the Planned Duration in proportion to the Remaining Duration. Physical Percentage Complete allows the user to manually enter a percentage and is independent of any calculations. Unit Percentage Complete is calculated between the resources units and activity duration. It is not best practise to use Activity Percentage Complete to drive the finish date of an activity.

10.6 Constraints

Constraints are used to strategically fix certain points in time. This maybe because there is a fixed deliverable that cannot be moved and so require you to plan back from it i.e. a piggy backed possession or a budgetary deliverable for a financial year end. There are thirteen constraints available in Primavera and each one is used in specific ways. Constraints should never be used as a replacement for schedule logic and *always* sparingly. The use of date restraints can change the nature of a project schedule and artificially induce an unrealistic critical path. Essentially, the use of these constraints over rides the calculated start/finish calculations based on the relationships assigned. It is advisable to only use Mandatory Constraints if the logic dictates that there is a genuine fixed point in time that is immovable. Other constraints are preferable and will have less impact on float.

10.7 Understanding your Critical Path

The Critical Path is highlighted as a red path within the Gantt Chart and is used to focus attention on activities which have little or no float and therefore have both the most condensed time limit and impact on the project completion date. Items that are 'bulk work' and carry greater float can be used to smooth resource peaks. The critical path within a schedule should be checked after each progress update to ensure the focus remains on the correct deliverables. If the critical path is not where it should be, perform a manual forward and backward pass assessing relationships and lags. These can have a direct impact on the way your plan is calculated. Use of constraints will also directly impact on the critical path so these should be kept to a minimum and only used when logic cannot dictate the right path.

10.8 Understanding Variance

Variance analysis is the means by which a project team can determine the cause of a variance (that is to say the difference between an expected result and an actual result). This kind of analysis is essential because when a cause is determined, it may have a contractual impact which could mean the difference between additional profit, or loss. A baseline is the path with which the business can measure success or failure and the earlier this determination is made, the quicker a mitigating action can be initiated to reduce or negate a possible loss. The planner will be responsible for ensuring that all variances to contract workscopes are planned accurately and tracked within the Primavera schedule. New activities representing delay or additional works must be created to represent deviation from the baseline and therefore will demonstrate the actual delay, the duration of the delay and the activities within the schedule they impact on. Furthermore, there must be clear identification in relation to the corresponding Change Request through to the consequent Project Managers Instruction.

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10.9 Understanding When and How to Baseline

A baseline is a formal record of the planned methodology, duration, means and effort by which a project will be delivered. In legal terms, this makes up a submission commonly known as a 'Clause 14' but is more accurately known as a 'Contract Schedule'. This is because under Clause 14 of a typical contract, a successful tenderer must submit a detailed schedule within 21 days of receipt of a Letter of Acceptance. This should not be confused with the Tender Schedule or Outline Schedule which is submitted at bid stage to clarify methodology and capability to complete the *proposed works*.

Although, a schedule is not a Contractual Document, it is the foundation with which most claims can ultimately be settled on because it pictorially represents the project methodology, intent and completion dates. It is always the first item requested under standard contracts where a variation or deviation to contract is in contention. Once the baseline has been set the procedure for variances (outlined previously) will be initiated allowing a continual track of works, duration and impact. A copy of the baseline schedule must be exported and kept in the shared project folder before it is progressed.

It is recommended that a new baseline only be created upon confirmation of a major change to works already in progress and that a copy be placed alongside the original contractual baseline in the shared project folder. This requires an amount of thought to ensure that we have captured progress against the original baseline as well as identifying the new scope. It is important to note that a baseline comparison is based on the Activity ID and this can have significant implications when dealing with imported data. The Activity ID must be retained for the life of a project so as to not to jeopardise the integrity of a baseline. This should be noted in particular when considering a client's schedule as a means to set a baseline.

Primavera allows multiple baselines to be taken and they need to be assigned the correct baseline type in order to know what each baseline represents. If applicable, a snapshot can be taken each month to provide a month on month comparison or purely at significant events. You can also set the original baseline as your project baseline and your new baseline as your primary baseline against the live schedule to effect a comparison between the three.

10.10 Data Date

A Data Date is essentially the means of recording what the current date is in terms of progress within a schedule. It is a mark in time that says works up to and including this date shall be considered complete and thereafter is either in progress or not started. It is essential to progress schedules with a new data date regularly in order to correctly calculate the current float in line with real time progress. Most contracts will require a range of updates from weekly to fortnightly to monthly. It is the client that will ultimately dictate this, however, in order to correctly represent ConSI within the Dashboard functionality of Primavera, an update must be performed ideally one week prior to month end financial reviews.

10.11 Change Control

The term Change Control refers to the established process of defining identification of change and the formal approval or rejection of a proposed change in meticulous detail. In the terms of the Planning Standard, the Change Control process determined in each functions Project Management standards should be in effect and understood upon commencement of the project. Any change must be incorporated into the schedule as dictated in the variance process outlined earlier in this document. It is advisable that an excel tracker be used to record all changes to the schedule to support commercial disputes. Any minor changes to the schedule should be recorded within the Notebook facility in Primavera.

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10.12 Risk and Risk Matrix in Primavera

Risk registers are a means of recording and referencing project risks which have been identified prior to and during the lifecycle of the project. Risks identified in the risk register contain certain data attributes including probability, cost and schedule impact assessments. This functionality is now available within the P6 application allowing users to define and assign risks within the project, to either the project and/or project activities for use within the Dashboard functionality. This is to replace the current methodology of risk population within the project performance spreadsheet.

10.13 What-If Planning

What-If Planning is an essential tool to inform the Project Team of the impact of either a change or the introduction of a previously unknown element. Typically a copy of the project is taken so that the What-If changes can be made. The status of the project must be changed to What-If in order for the project not to be captured twice in reports. Once the impact is known and the Project Team has been agreed, the impact can then be replicated within the Live schedule and all parties informed. The What-If that was created must then be exported as an XER/XML and placed in to the shared project folder for reference purposes. It must be clearly identified as a What-If scenario and dated. The copy in Primavera must then be deleted.

10.14 Dashboard Reporting

Dashboards are made up of Project User Defined Fields, Project Codes, Portlets, Portfolio Views and Filters. All of these can be used to create a reporting feature contained within the Dashboard section of the EPPM database. A Senior Planner creates Dashboards and shall discuss with the relevant Project Director their requirements before ascertaining if it is feasible. Once feasibility has been established the Senior Planner will enable the Dashboard. Each Dashboard should contain around four portlets in order to be useful. Consideration must be taken that the data held is relevant and valid to the business.

10.15 Role/Resources

It is essential to business growth that all roles within projects are maintained and current. This process is necessary to ensure that all projects have role availability and to feed into business stream resourcing. It is the Project Manager's responsibility to advise the Project Planner/Resource Coordinator with any new role information.

It is the intention that this approach will eventually be replaced with the process outlined in the Streamline section of this document and so a systematic correlation of project role data will commence on publication of this standard.

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10.16 Streamline

Streamline2 is the divisional resource management tool. The tool is housed within SAP Business Objects and is an Enterprise Resource Planning tool (ERP). Primavera informs Streamline2 via a data export/import function. This function must occur at the minimum monthly. The transfer of data is achieved by exporting a data file from Primavera which is then imported into SAP BI and will mainly be controlled outside of project planning by Resource Coordinators and/or Project Planners if a Resource Coordinator role is not represented.

The databases are aligned so that Primavera is compatible with SAP. The purpose of integrating the systems is to align all planning tools so that there is a total view of the future capacity of all resources to enable more effective resource planning and management. Streamline2 also shows the unsecured pipeline of every business unit which is fed via a data export/import function from the bid pipeline management tool, MS Dynamics CRM.

This unsecured profile of work is also integrated from Primavera via the same method and shows the unsecured profiled work relative to the secured profiled work. Intelligent reports in Streamline2 can include

- Business Stream views of Secured work, Unsecured Work, Planned Bidding Work and Live Capacity over an 18 month period;
- Same reports as above but by Profit Centre
- Team views of Planned vs Actual (Historic 3 months)
- Planned vs Available (Future 3 months)
- Internal cross-working reports between profit centres/accounts/regions
- Lifetime Cost to Complete Reports per Project (showing all historic cost and future planned cost using the work breakdown structure).

Streamline2 can be accessed using the following web address or click on this link:

<http://asapw06fe.ferrovial.int:8080/BOE/BI>

Login is achieved using your normal Login Details so that all employees have access. Streamline2 is reported monthly to the Executive and all Business/Contract Managers and is included in monthly (Business Director) Operational Reviews.

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10.17 Layouts/Views

EPS and Activity views are the visual layout of the Project Activity and WBS data. Each view can be customised to show any data and content-specific items such as grouping, columns, labels and other visual options. Selecting the best view will help the process of viewing and recording project data. Multiple User Views have been developed in the EPPM version to help view the following:

Commercial Information
Building and Developing of a Plan

Project Planners have access to the Professional version and may choose to create a layout within that environment. Any Project Layout that is to be issued to an external party as a .pdf from Professional must include the following in the Header:

Project Code
Project Name
Page X of X

And the following in the Footer:

Amey Logo
Gantt Chart Legend
A Revision Box

10.18 Project Data Vs Global

It is recommended that all data pertaining to your project be saved as project data. Global data will remain pure and can be used as a starting point. If you wish any data to be created on your behalf including Project Codes, please make a formal e-mail request to the Data Administrator.

11.0 Planning in a Commercial Context

Planning in a commercial context is essentially gaining an understanding from the offset, of exactly what we have been contracted to do, the timescales we have been given to perform the task and any limitations we have agreed to. Primavera is the preferred way to consolidate the How, the When and the What into one place. It is important to remember when creating a tender or contract schedule, the determination of *What* we are actually doing as described within the Contract Requirements Technical Document and not what we *Understand* we are doing. Contractually, there can be vast differences which if left as presumed rather than confirmed, can lead to future complications of which examples are evident throughout the business. It is also vitally important to ensure that if we are sub- contracting our services/products, we ensure the segment of work we are setting out to undertake is clearly outlined and separated from our clients contract so as to ascertain *our contractual obligations or baseline* from the outset. This applies no matter which of the following types of contracts we are working to;

Standard Contracts
Bespoke Contracts
Frameworks
Workbanks

This is the primary concern when creating and maintaining any contract schedule (formerly known as a Clause 14) and should be re-confirmed at the Start Up meeting to ensure clarity.

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12.0 How to plan Contractual Cost

There are many ways within Primavera to show a monetary value and these are often referred to as ‘Cost Loaded Schedules’. It should be stated that this bears no relationship to the commercial or business understanding of Cost. In Primavera it is just a term to describe a method of assigning money to a task or activity. The need to show cost will be dictated by the client and their requirements within the contract deliverables. The ITT will stipulate the deliverables for the contract on offer and as the work is planned, a clear Cost Breakdown Structure will become evident. It is this that should then inform the role allocation and consequently, the value of the works can be determined (along with the SAP Work Stages and Work Authorisation Forms).

Most contracts from Grip 4 request Cost Loading for each deliverable and 13 Period Forecasting to enable them to meet their internal reporting procedures for Earned Value. It is advisable to conduct discussions with the client before the Start Up Meeting to confirm what outputs are expected so that any issues can be mitigated and agreed long before progress is marked in the Live Schedule. The Dashboard functionality within Primavera should answer most of these requests however, it is recommended that advice be sought from Senior Planners should the Dashboard functionality not meet requirement and further discussions are required.

13.0 Schedule Compression

Schedule compression is a way of shortening the length of the project without impacting on scope. There are two typical techniques to do this. Neither technique should be used unless a major factor in the delivery process has been compromised or a constraint imposed.

Crashing:

This refers to the technique in which there is a trade-off between cost and schedule. These are analysed to determine the greatest amount of compression for the least incremental cost. In other words how to get the most done in the least amount of time with little or no impact on cost. One example of this would be to reduce the period of time a piece of work would take but use twice the resource to accomplish it. The risk of this is that you could end up spending more on the resource than if you had maintained the original course of action. The benefit may be that you have an available but cheaper resource that will maintain the status quo. Crashing does not always produce the most benefit and should only be performed when there is a need to re-evaluate the predicted outcomes because there is no other choice.

Fast tracking:

This refers to the technique in which phases that are normally performed in a specific order can be re ordered to work in parallel. An example would be Design and Build. This approach can work to the benefit but should be used cautiously as a certain amount of risk is involved.

14.0 Primavera Champions

Throughout the business Primavera champions will be selected to support the planning community in their respective specialised skill. Each champion shall provide guidance, support and advice to the planning community especially with new starters and provide a mentor role in their first few months. The Primavera champion will also take the lead in their specialist field to help others within the community know and understand that field. This allows knowledge sharing and skill enhancement from within the planning community. A meeting will occur once a month to allow a platform for all planners to air concerns, issues and share best practise or solutions.

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15.0 Competency Matrix

Each user will be required to complete a competency assessment to better establish training requirements and Service Line capabilities. You will be asked to assign a competency rating against a set of categories and sense check them with either your peers or Line Manager. Once assessed, any relevant training will be assigned so as to ensure that all users achieve the desired level of competency for planning within

16.0 Compliance Reporting/Audits/Corporate Governance

There shall be regular audits of the processes outlined herein to ensure compliance by all who hold a license to use Primavera. Audits will be in accordance with company policy and supported by the Database Administrator. The Database Administrator shall run compliance reporting once a month to capture any deviations from protocol on all projects.

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