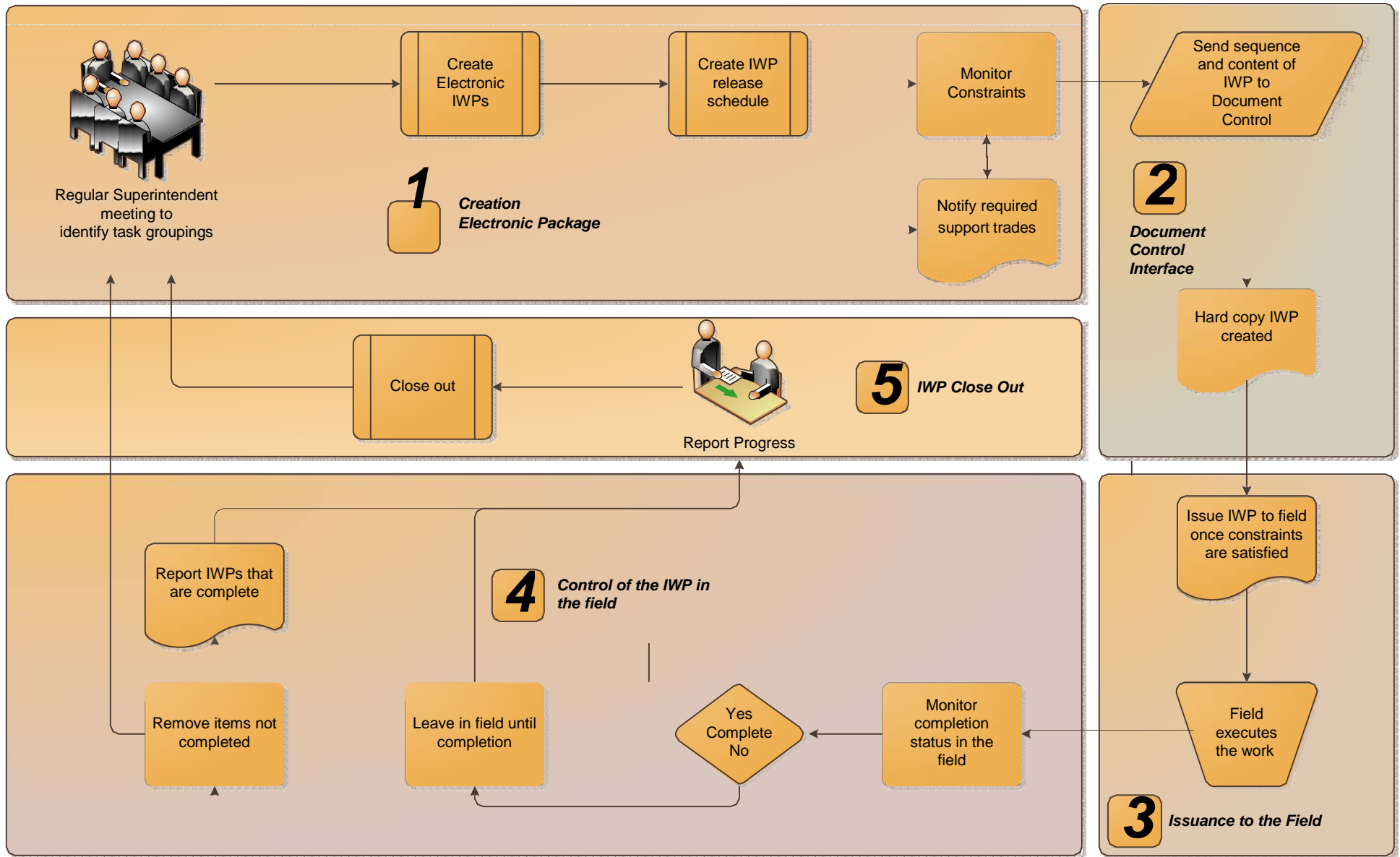
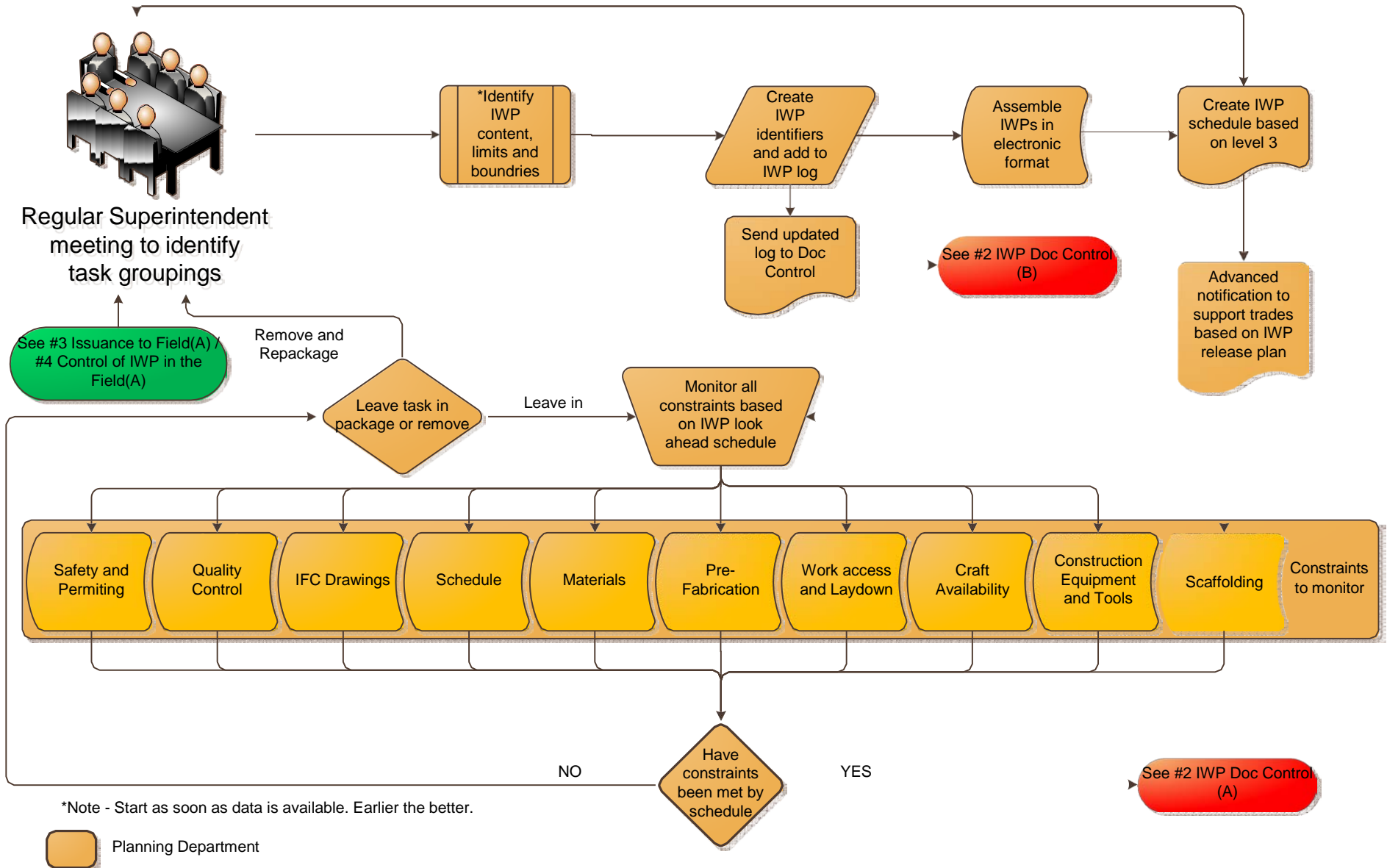


Installation Work Package Life Cycle Overview



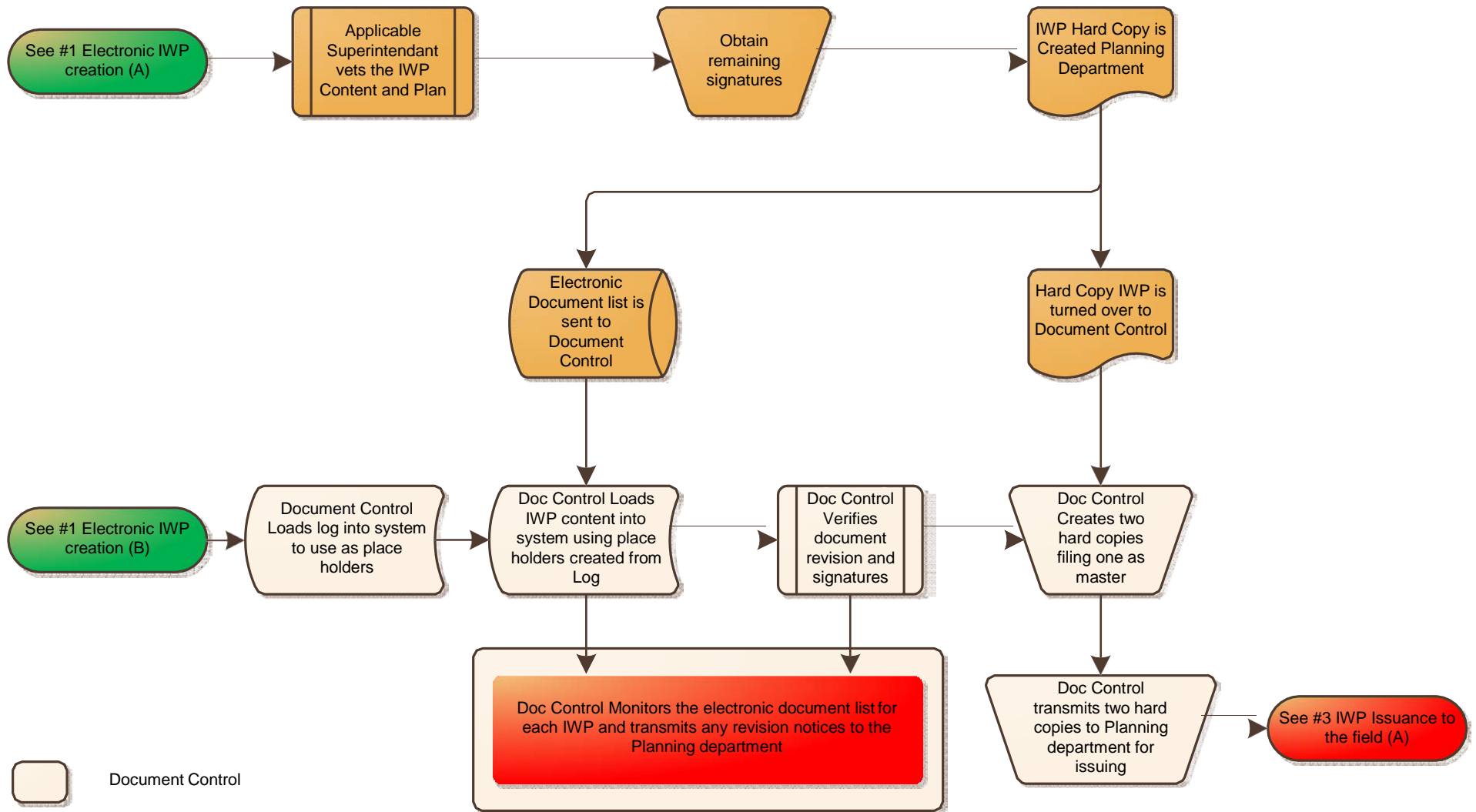
Installation Work Package Life Cycle

#1 Electronic IWP Creation



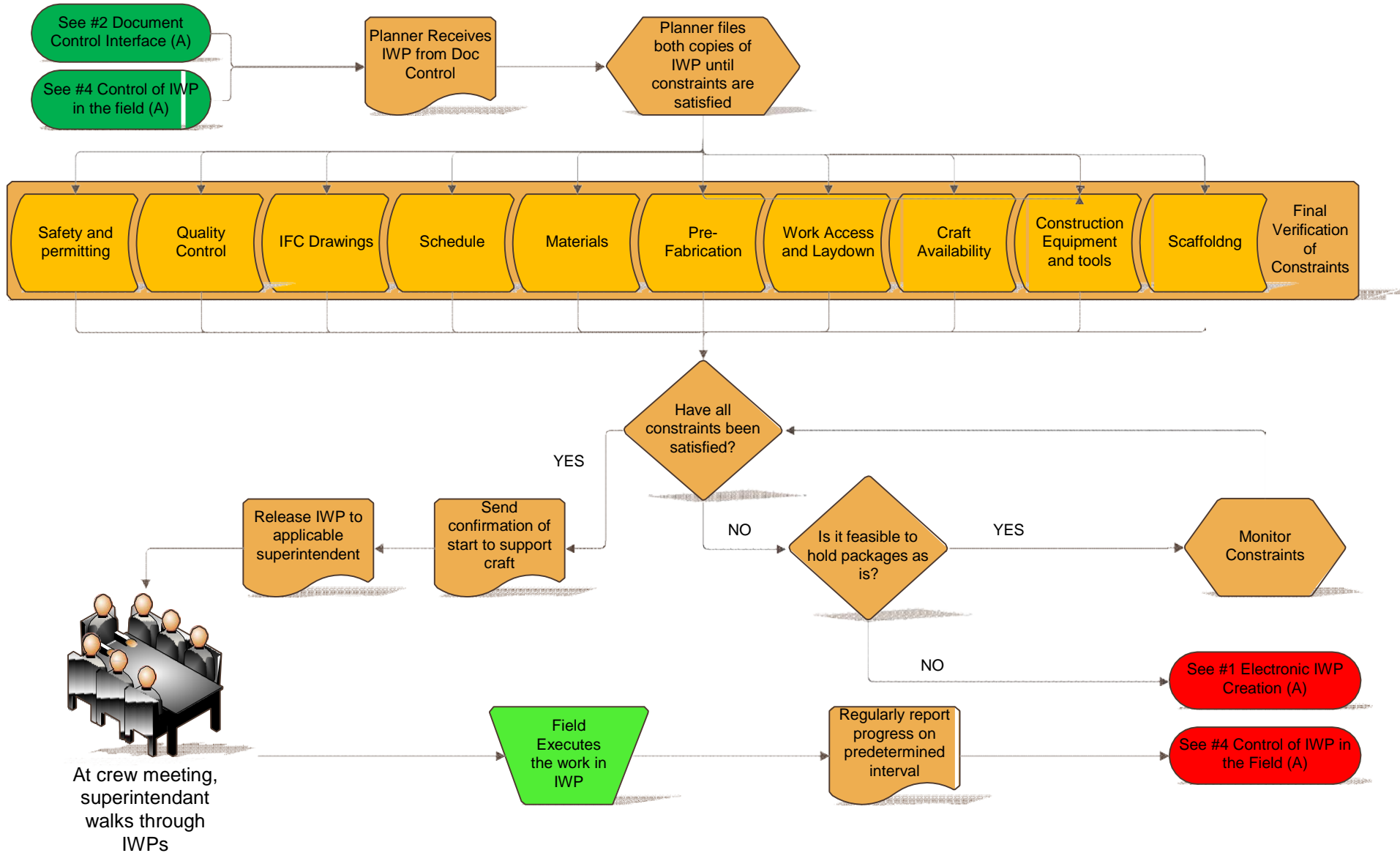
Installation Work Package Life Cycle

#2 Document Control Interface



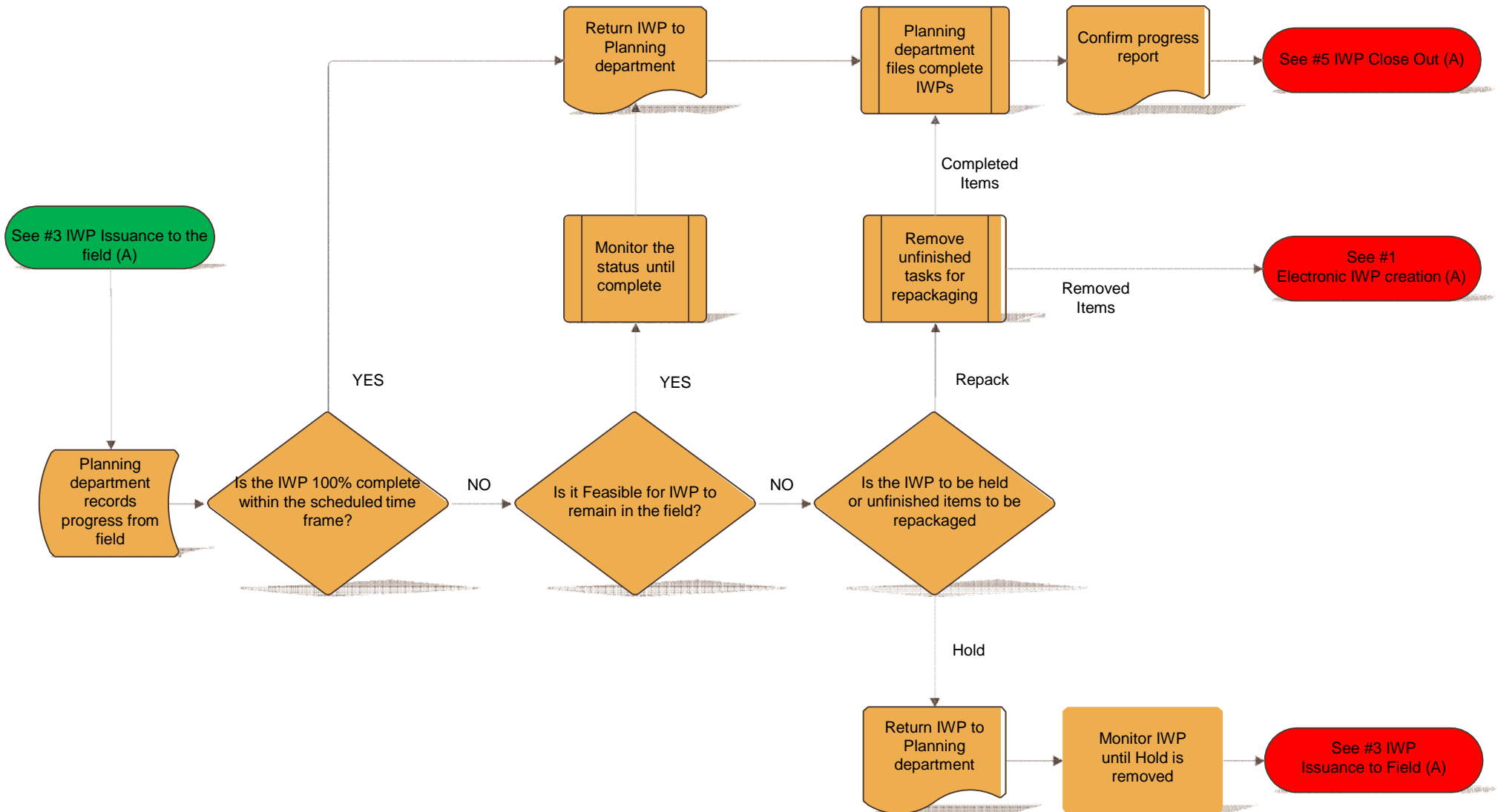
Installation Work Package Life Cycle

#3 IWP Issuance to the Field



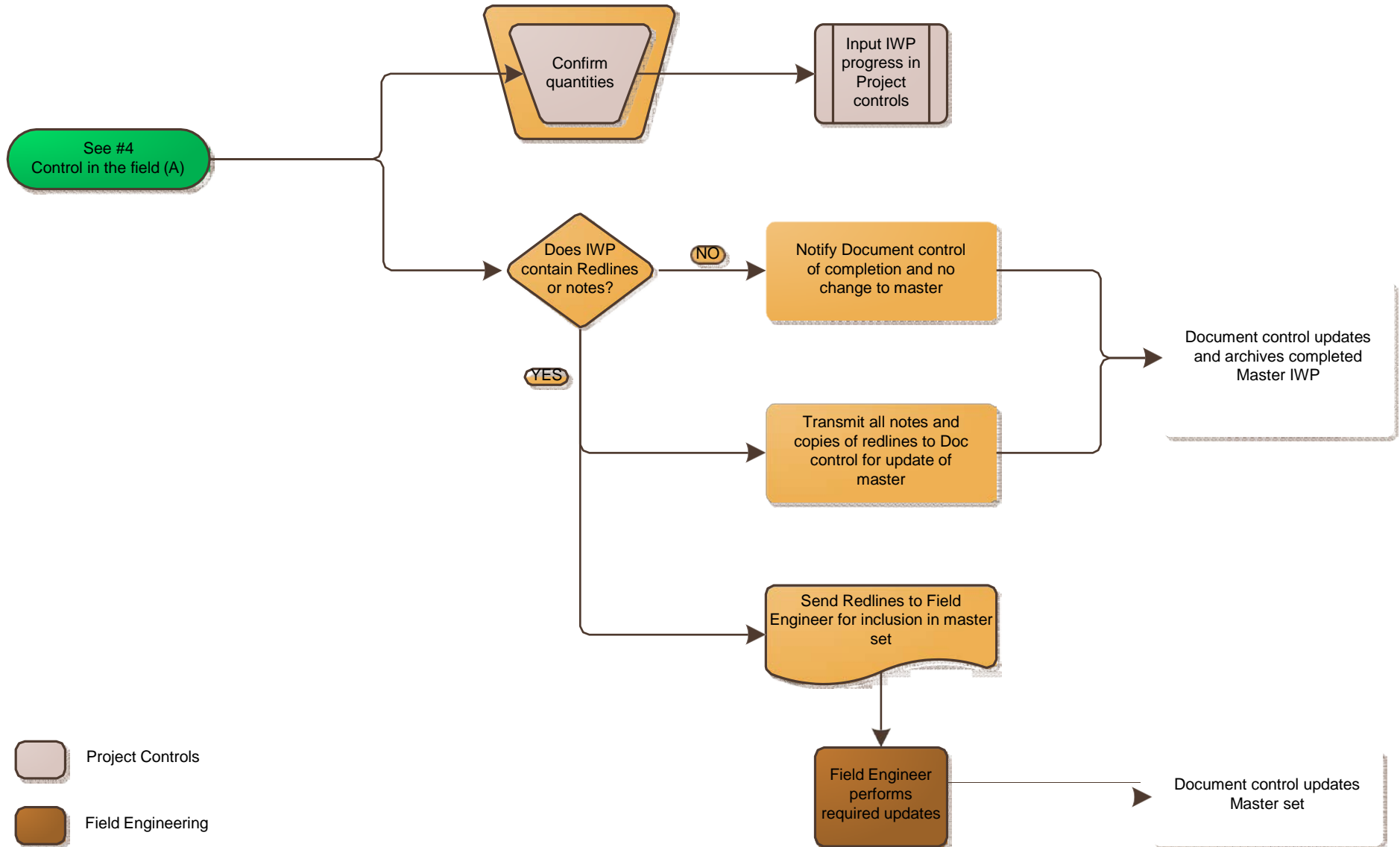
Installation Work Package Life Cycle

#4 Control of IWP in the Field



Installation Work Package Life Cycle

#5 IWP Close Out



SLIDE #0 IWP OVERVIEW

Installation Work Packaging (IWP) represents a process incorporating the required communication, constraint checking/validation and final documentation that allows the ultimate customer and the crew at the work face, to successfully perform the prescribed work. For Installation Work Packaging to be effectively implemented, the IWP Life Cycle process is to follow five distinct activities; Electronic IWP Creation, Document Control Interface, Issuance of IWP to the Field, Control of the IWP in the Field and the IWP Close out.

Each of five separate blocks in the overview contains key elements of the IWP life cycle. The blocks are numerated with ties to subsequent flow diagrams that further breakdown the essential IWP processes from creation, to document control, through issuance and control in the field, and, finally, to close out. The IWP life cycle incorporates industry best practices and data recently compiled by members of this research team at active jobsites using a work packaging program.

SLIDE #1 ELECTRONIC IWP CREATION

Scope

In the ever-changing world of construction is very important to plan in detail. However preplanning in detail can have its drawbacks if you don't remain flexible with your plans and deliverables. Methods have to be put in place in order to be able to change edit and update your IWPs in a quick and efficient manner. When initially creating your IWPs it is important that you create them first in a digital form, this may simply mean adding all documents or links to documents required for the IWP into one folder in a file structure built using intelligent nomenclature. As these IWP folders are created a log should be created and updated with these IWP names in order to be transmitted to document control, this will allow them to create placeholders in the document control management system to be populated later with the IWP contents as controlled documentation.

Creating an intelligently named file structure and maintaining all documents for the IWP in one digital location will allow you to start creating them much earlier and have the ability to modify, change and add to these IWPs. If too early in the process you start publishing your IWP in hard copy it will become very difficult to make changes or additions as revisions and scope changes are issued. IWPs should never be published in hard copy until within two weeks of execution.

Once the IWP scope is identified, and you have started to gather all of the required information and documentation into a digital folder, it will be possible to schedule and sequence these IWPs based on their intelligent nomenclature and roll up to the level three schedule. Once you have a rough schedule and sequence in place it is important to notify the support trades of the requirements to support this initial plan. Once the "soft" allocations have been made, you must now monitor these requirements as constraints. Many other constraints that were considered at the time of schedule and sequencing must also be monitored, such constraints as safety, permitting, quality control, IFC drawings, materials, prefabrication requirements, work access, lay down, craft availability, construction equipment and specialty tools. At this time, these constraints are monitored based on the schedule. All constraints must be considered prior to issuing the IWPs as hard copy. This may require multiple monitoring passes. During these monitoring passes you may deem it necessary to remove items from certain IWPs and place items in other IWPs in order to satisfy the reality of the constraints. This

ability to move tasks from IWP to IWP will be much easier in a virtual environment than if you had gone hard copy too early, having to collate and change documents in hard copy is very time consuming. Maintain all in a virtual environment until the last possible moment usually 1 to 2 weeks prior to execution. This 1 to 2 week period will be used to gather signatures and authorization for execution of contents.

Assumptions

- Trade-specific planners are in place to create the IWPs.
- Planners have appropriate hardware/software available for creating IWPs.
- Process has been established for planners to work closely with document control.
- Functional level 3 schedule has been created.
- Regular planner/superintendent meeting is in place to address IWP scope and sequence.
- IWP creation process has support of management.

Recommendations

- Planners may start creating virtual IWPs as soon as level 3 schedule has been issued.
- All virtually created IWPs must be backed up in a safe location.
- Commercial software may be used to aid in IWP creation process.
- IWPs should not be put in hard copy until 1 to 2 weeks prior to execution.

Information Requirements

- Any required changes to level 3 schedule must be discussed with project controls.
- Planners must have access to most current document revisions.
- Once scope of IWP is identified, the documents required to support must be added to IWP log and transmitted to document control. This will allow document control to notify the planners of any revision changes to technical documents within a specific IWP

SLIDE #2 DOCUMENT CONTROL INTERFACE

Scope

IWP creation is the final level planning prior to transmittal of information to the field for execution, because of this it is very important to work hand-in-hand with document control.

Once an IWP is ready to be issued as hard copy, several things must be done with document control in this work process to ensure that the latest revision of technical documentation is included in the IWP. Upon creating the first hard copy of an IWP, a list of technical documents must be added to the log and transmitted to document control along with the first signed off hardcopy of each IWP. Document control will then do several things with this information:

1. They will ensure that the hardcopy transmitted to them has all the latest revisions of technical documentation and appropriate signatures.
2. They will take the log containing the list of technical documents, and monitor this within the system for any revisions that may occur to IWP prior to and after issuance. If any revision changes do occur, they will notify the responsible planner and superintendent.
3. Based on the transmitted signed and checked hard copy, they will create two more physical copies. The original will be filed as the IWP master, and the two copies will be transmitted to the Planning Department for issuance based on the schedule.

It is important to note that these tasks take place in the period of 1 to 2 weeks prior to execution. A larger window may be required based on each document control departments work process. After document control has completed these tasks, the planning department will now control and monitor the IWPs both before they are issued to the field and while in the field to ensure completion.

Upon issuance of the IWP to the field both copies will be transmitted to the superintendent. First copy for the superintendent's records, second copy for execution in the field. See slide #3 for information on these controls.

Assumptions

- This control process has been agreed to by document control department.
- A suitable document control system is in place to monitor any technical document changes.

- Planning department will control issuance of IWPs to the field, and notify document control.
- Appropriate number of trade specific planners is in place to facilitate this effort.

Recommendations

- This work process should be well documented and agreed to by both the planning department and document control.
- All movement of IWPs should be controlled formally using transmittals.
- Superintendents must be in full support for this process.

Information Requirements

- IWP technical document log must be created and maintained. This may occur via planner access to document control system or maintained within an Excel spreadsheet that is regularly transmitted to document control.
- Document control management system can easily, based on technical document list for IWPs flag any revision change per IWP. This will require adding the IWP nomenclature to the document control system in order to be able to assign the technical documents to each IWP.
- Any document revisions to an IWP will be transmitted to the planning Department from document control.

SLIDE #3 ISSUANCE OF IWP TO THE FIELD

Scope

Advanced soft notifications have been made to support crafts and constraints have been monitored against the schedule and appear to be in line to support the execution of the work package on schedule. Hard copies of the Installation Work Package (IWP) have been issued back to the Work Planner to monitor and verify that constraints have been met and/or eliminated. The work planner will complete a cover checklist confirming constraints have been met prior to issuance.

With the confirmed status of the constraints determined by the Work Planner, the package is ready to be issued in hard copy format to the applicable superintendent for execution. The Work Planner will make all necessary hard notifications to support craft. In the event the Work Planner determines that some constraints have not been met that will impact the execution of the package a determination is made based on the level of impact to either return the package to Document Control or to place it on hold pending further monitoring of constraints to get package released.

Once issued, the Superintendent will review and coordinate the execution of the work with the general foreman, foreman and craft. The Superintendent, with support from the Work Planner, shall be responsible for follow up on execution and progress of the IWP.

Assumptions

- Schedule for installation work packages is linked to project schedule so that schedule updates and revisions will automatically provide updated information on the IWP schedule.
- Work Planner and Superintendent responsible to sign off on constraints status.
- Comprehensive material controls and tracking system as well as document control system is in place to assist in constraint monitoring and packaging.

Recommendations

- Do not issue IWP'S too far in advance of scheduled execution to avoid build up of packages sitting around in superintendent's office. This will also help avoid aged information being utilized.
- Appropriate stakeholders to sign off and verify that constraints have been met. For example, equipment manager to ensure that all necessary equipment has been received at site prior to issuance of IWP.

Information Requirements

- Reliable and accurate schedule updates that are linked to IWP release dates.
- Reliable data on potential constrains: safety and permitting, quality control, IFC drawings, schedule, materials, pre-fabrication, work access and laydown, craft availability, construction equipment and tools, and scaffolding.

SLIDE #4 CONTROL OF IWP IN THE FIELD

Scope

After constraints have been satisfied and/or eliminated, and the field crews have begun execution, control of the IWP is managed by the responsible superintendent. Should one or more constraints resurface (e.g. design change issued by engineer or rework resulting from deficient quality), the viability of retaining the IWP in the field must be assessed. Impacts to continuing work could be among the constraints previously listed (i.e. schedule delay or inadequate work access) or other issues such as out of sequence work or frustration within the craft.

The responsible superintendent in coordination with the planning group will determine the feasibility of continuing work on an IWP after careful evaluation of impacts and risks (potential or actual). Monitoring and progress reporting will continue until closure of the IWP or, conversely, a partially completed IWP will be closed due to constraints that are deemed too challenging to overcome and any incomplete work will be repackaged.

Assumptions

- Regular coordination meetings are held with other discipline superintendents and planners.
- Project engineers are readily available to assist with design and quality constraints.
- Availability of appropriate interim progress monitoring.

Recommendations

Conduct interdisciplinary constructability reviews to assist the responsible superintendent with his decision to stop or proceed with IWP. Repackaging work without due diligence may unnecessarily “feed a monster.”

Information Requirements

- Minimum daily progress updates on the IWP performance.
- Most current design information.

SLIDE #5 IWP CLOSE OUT

Scope

After an Installation Work Package (IWP) has been appropriately executed in the field, it is necessary to ensure that the IWP is closed properly. This close out process includes confirmation of installed quantities and properly documenting installation deviations necessary for 'as-built' documentation requirements.

The planning department is to work with project controls to ensure that quantities installed for each IWP are accurately captured. Additionally, for each IWP, the planning department is to work with document control and if necessary field engineering to identify, amend and document any installation deviations from the Approved for Construction (AFC) drawings used in the IWP necessary to accurately develop 'as-built' drawings.

Assumptions

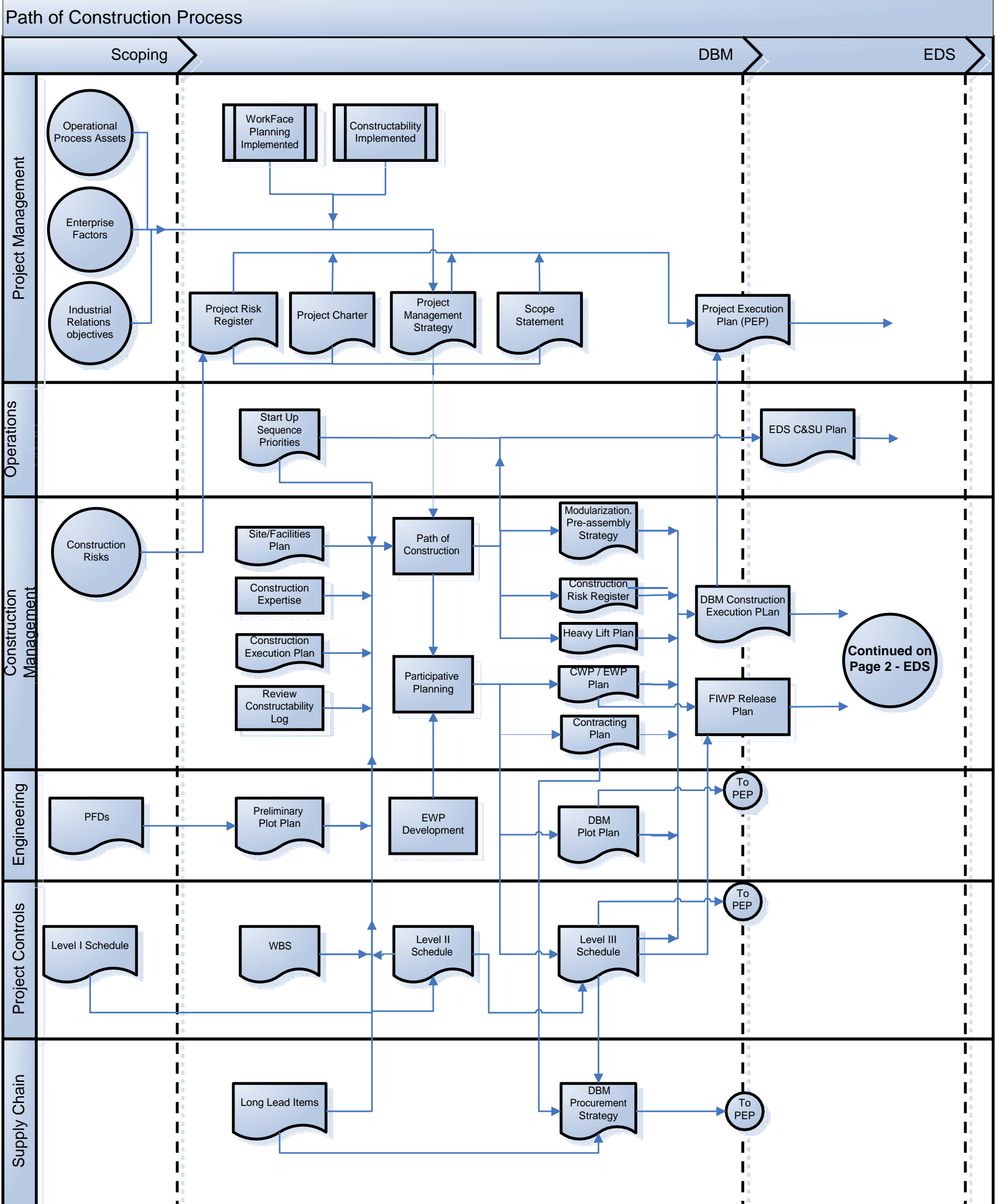
- There are established processes and procedures that address how to capture, report and validate installed quantities.
- There are established processes and procedures that address 'as-built' documentation requirements.

Recommendations

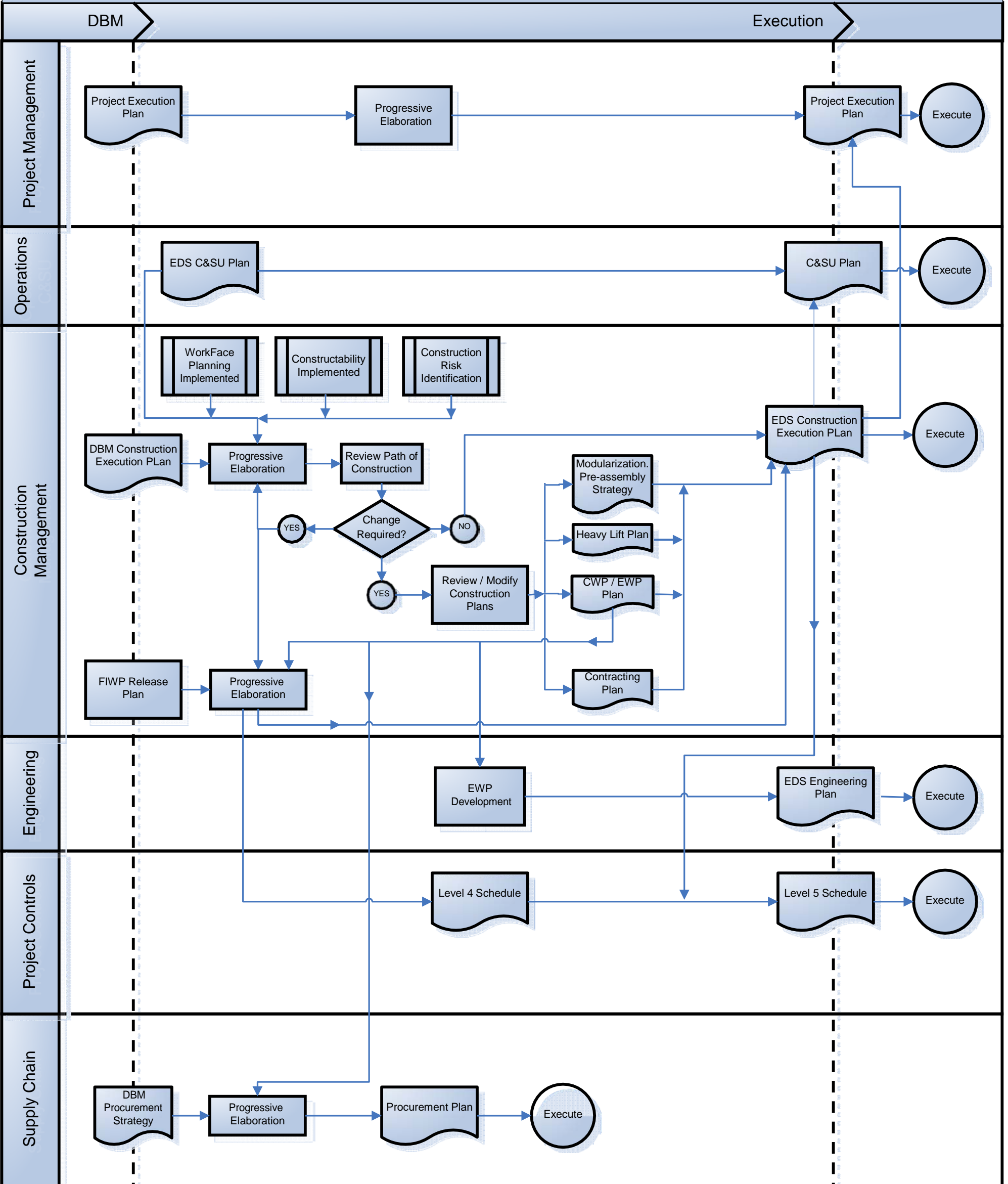
Assign specific responsibilities to select individuals for the close out of IWPs. Develop a flow chart to simply communicate the requirements for verification of installed quantities and 'as-built' drawings to close out IWPs. Conduct periodic internal audits to ensure that the IWP close out process is working and is accurately collecting and validating the information. Look for ways to continue to improve and document the IWP close out process to increase accuracy/reduce errors/reduce redundancy in collection of information and shorten the close out time by having a specific lesson learned/best practices plan.

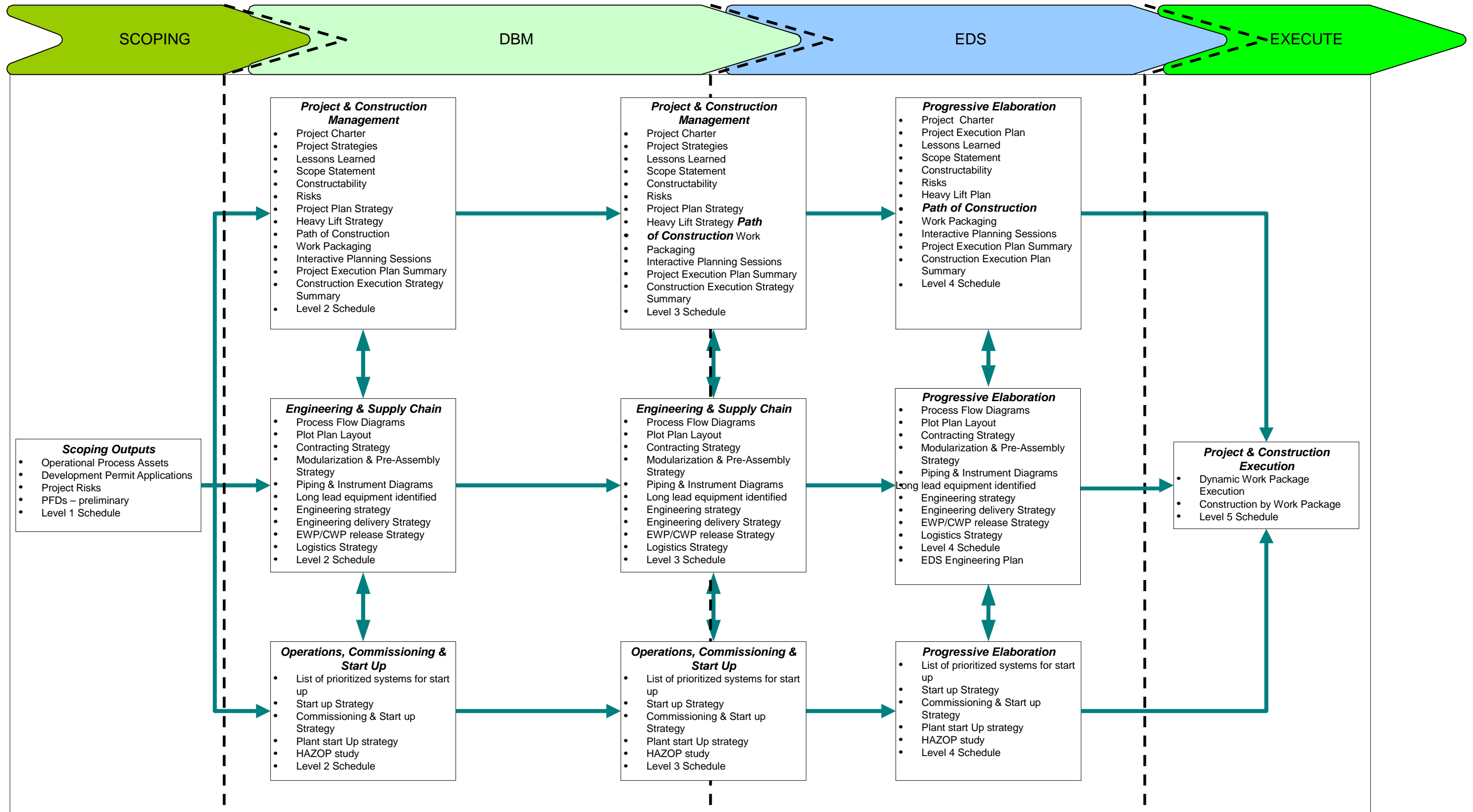
Information Requirements

- Actual IWP schedule performance
- Actual IWP craft productivity information
- Red line information for IWP
- QA/QC sign-off if applicable for IWP
- Lessons learned on IWP



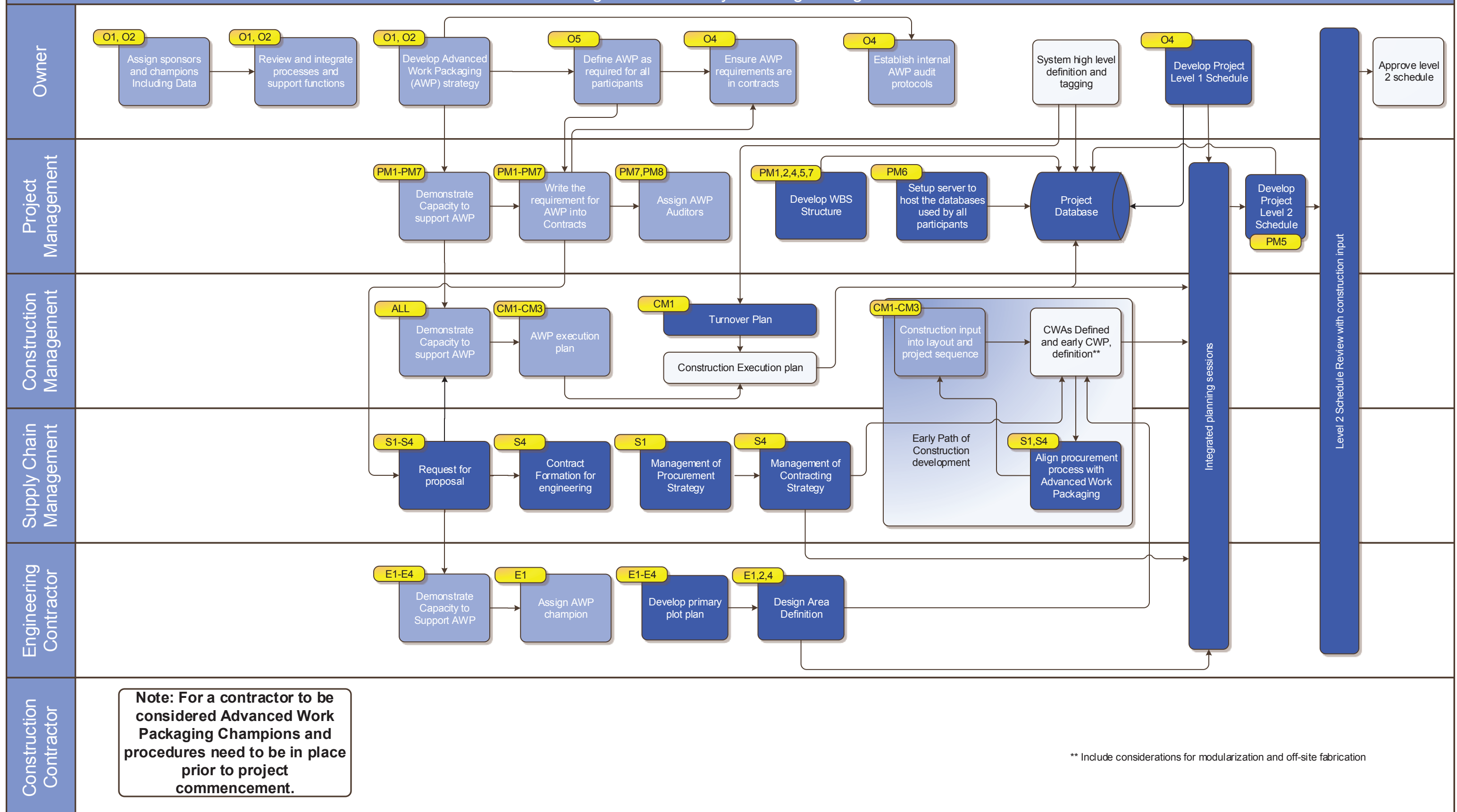
Path of Construction Process

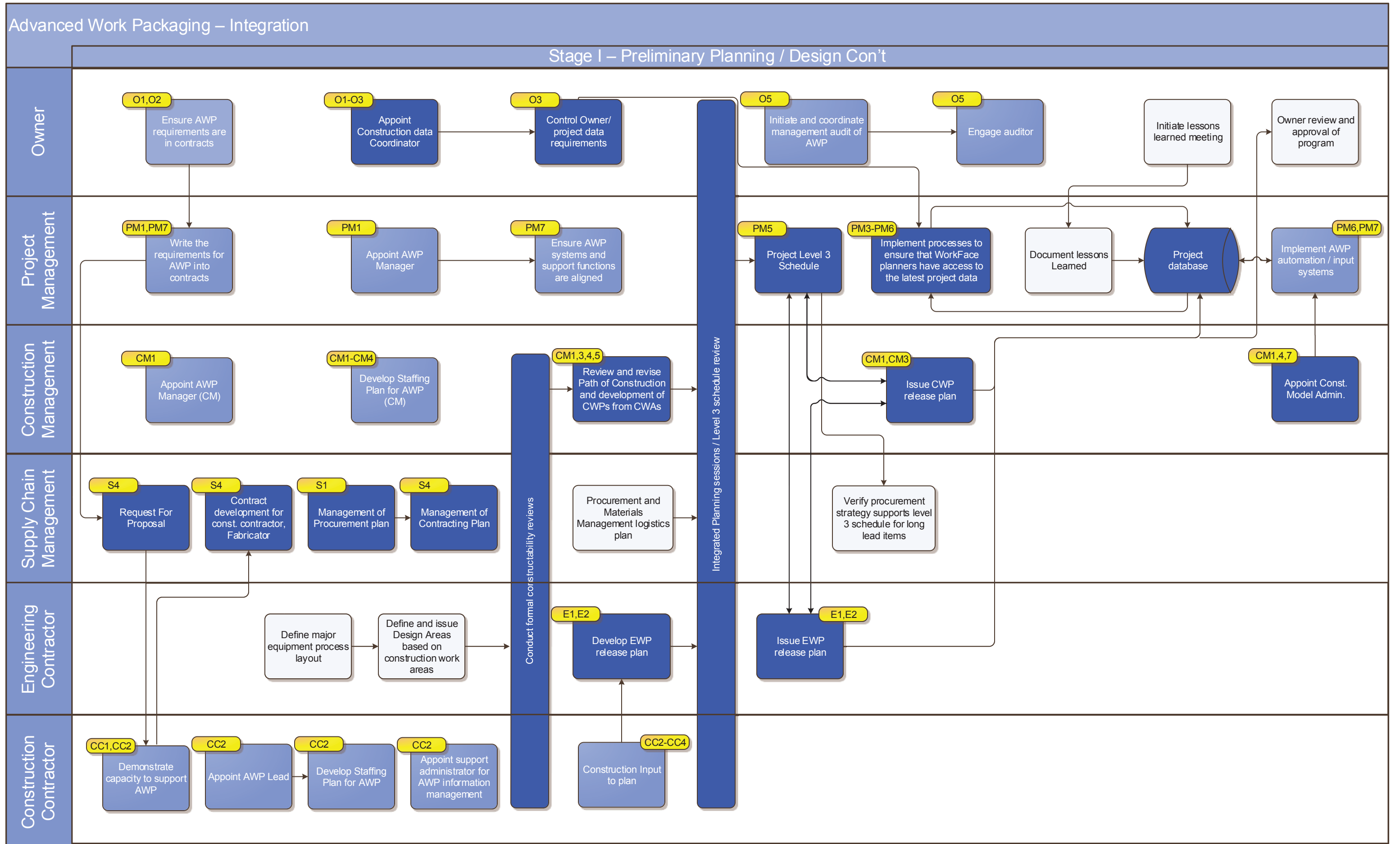




Advanced Work Packaging - Project Integration

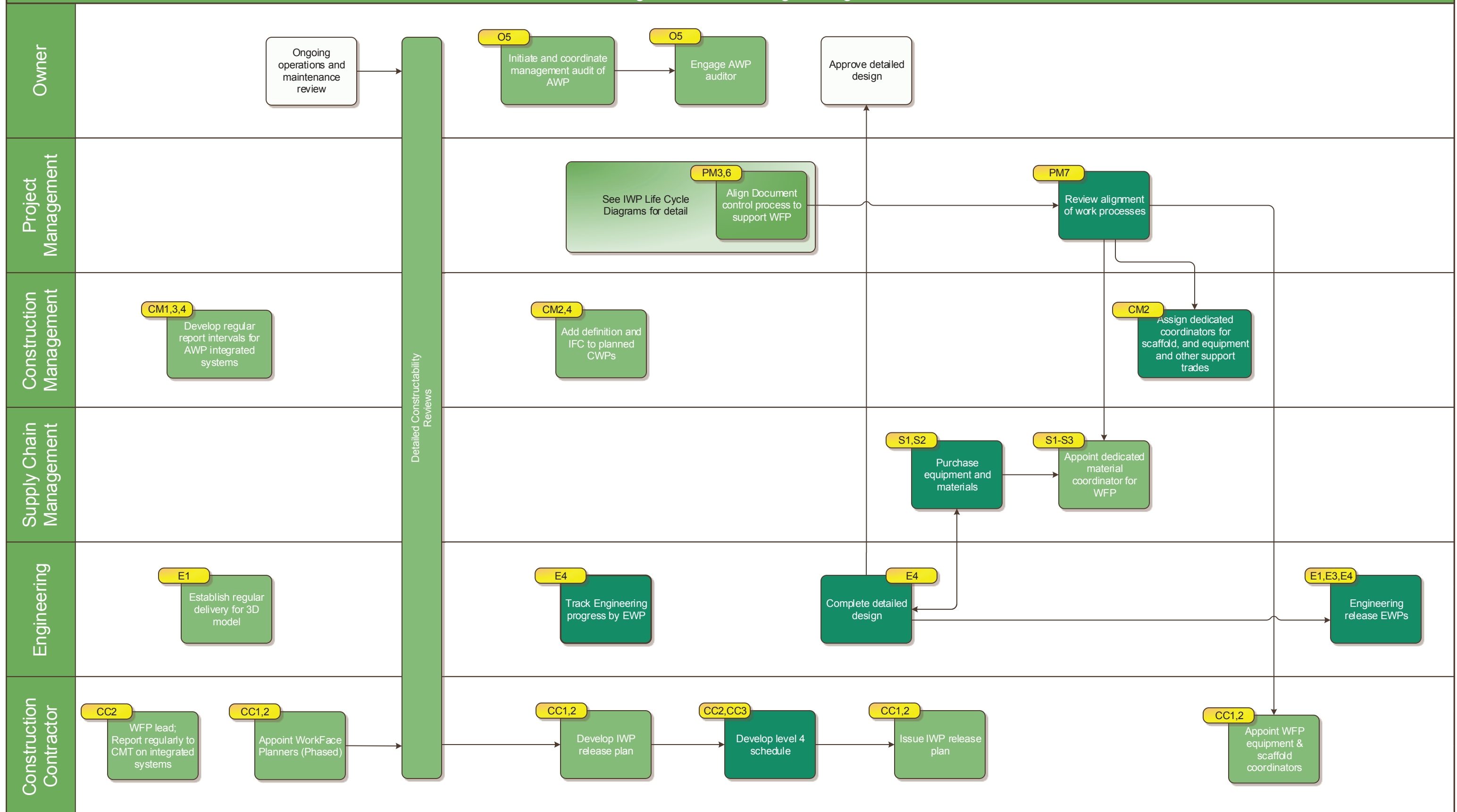
Stage I – Preliminary Planning / Design





Advanced Work Packaging - Project Integration

Stage II – Detailed Engineering



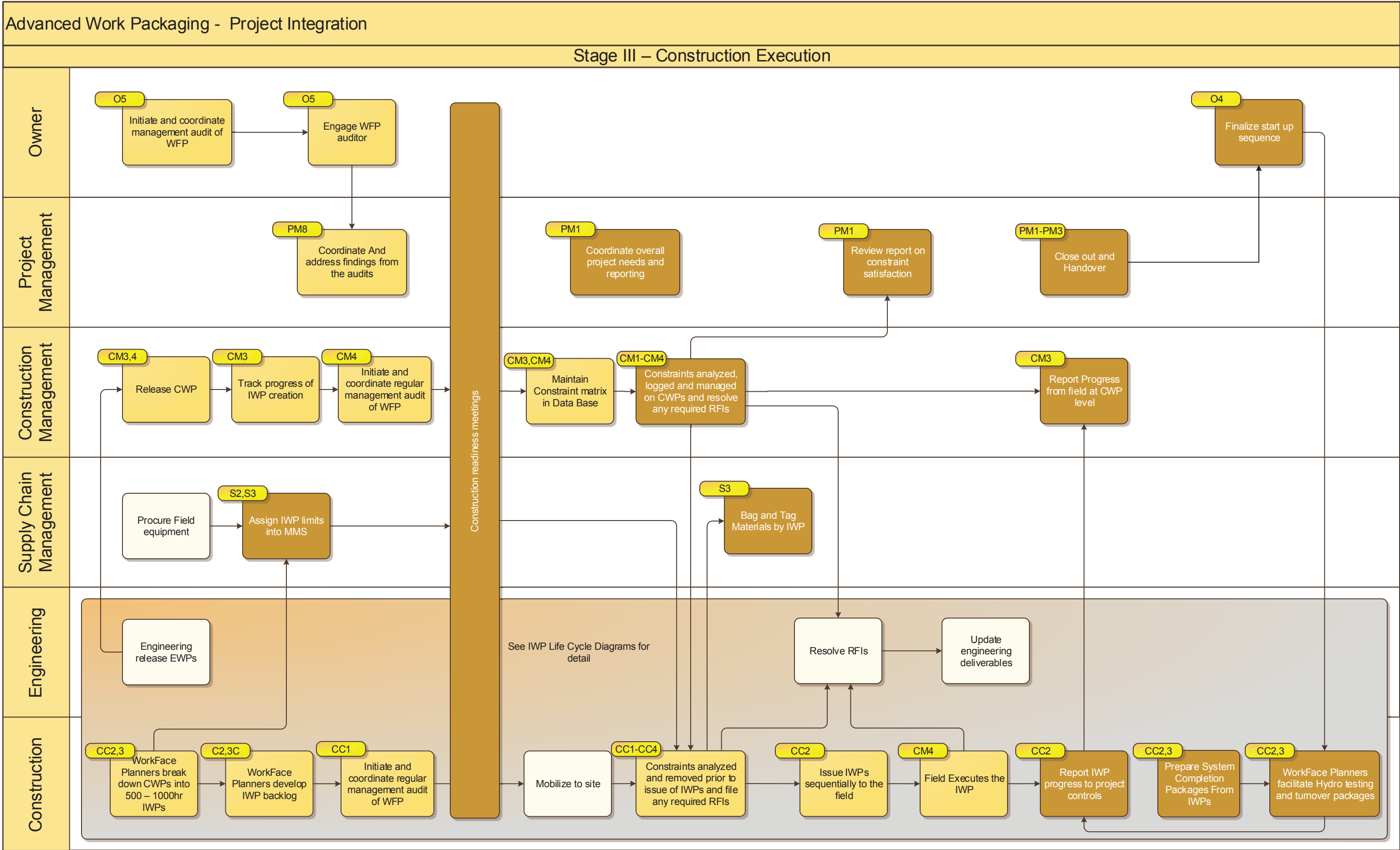
Application of Advanced Work Packaging



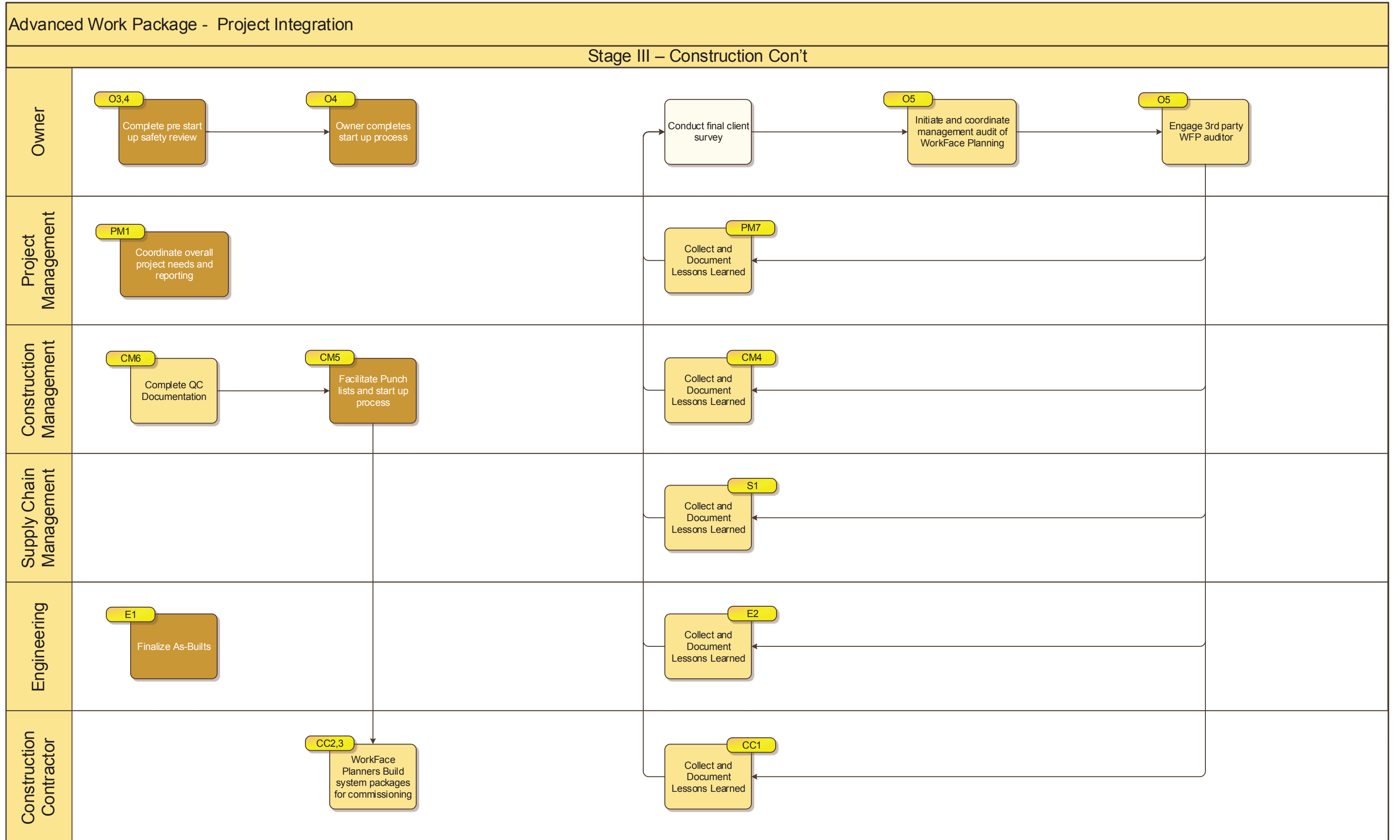
Standard Project Procedure



Integration of AWP and Standard Procedure



Application of Advanced Work Packaging
 Standard Project Procedure
 Integration of AWP and Standard Procedure



Application of Advanced Work Packaging
 Standard Project Procedure
 Integration of AWP and Standard Procedure

COAA SWIMLANE POSITION LEGEND

Owner

O-1 Project Manager

O-2 WFP Champion

O-3 Turnover Manager

O-4 Commissioning and Start-up Lead

O-5 Audit Manager

Project Management

PM-1 Project Management

PM-2 Turnover Manager

PM-3 Document Control

PM-4 Cost Control

PM-5 Scheduling

PM-6 Database Administrator

PM-7 WFP Champion/Manager

PM-8 WFP Audit Manager

Construction Management

CM-1 Construction Manager

CM-2 Resource/Interface Coordinator

CM-3 Overall Planner Develops the CWPs

CM-4 Workface Planning Manager

CM-5 Turnover Manager

CM-6 Quality Manager

Engineering

E-1 Engineering Manager

E-2 Workface Planning Champion

E-3 Document Control

E-4 Discipline Leads

Supply Chain Management

S-1 Procurement Manager

S-2 Material Manager

S-3 Warehouse Manager

S-4 Contract Manager

Construction Contractor

CC-1 WFP Champion

CC-2 Workface Planning Lead

CC-3 Workface Planners

CC-4 Superintendent/General Foreman

AWP Project Integration Flowcharts | Construction Contractor

The construction contractor's main contribution to an AWP project is to plan and execute construction, using the principles of workforce planning and IWPs. Having been identified in the integration charts during Stage 1, the construction contractor first establishes an organizational structure that supports AWP and contributes to the detailed constructability reviews and the Level 3 schedule and integrated planning sessions. Throughout the final portions of Stage 1 and Stage 2, the construction contractor should focus on supporting the refinement of the overall project execution plan and the development of a Level 4 construction schedule, basing planning on the IWPs.

The construction contractor begins work on Stage 3 activities for completed CWPs while the project is in the final stages of detailed engineering. During this overlapping period, the construction contractor should be developing IWPs and working with construction management, engineering, and supply chain management personnel to resolve open constraints and to identify and resolve RFIs during the development of IWPs. This early planning provides for complete and ready-to-execute IWPs to be installed without any reduction in efficiency due to starting and stopping on tasks. The balance of the construction contractor's responsibilities after developing and executing workforce planning and IWPs is to report progress based on IWPs and to develop and execute completion, testing, and turnover based on IWPs.

In spite of coming onto the project later than the other stakeholders—usually after the preliminary AWP planning has taken place—the construction contractor is still relied upon to review plans made to date, suggest minor adjustments to help them and the project be more efficient, and develop Level 4 schedules and IWPs to complete the AWP Project. Construction contractors, particularly those with limited AWP experience, should not make wholesale changes to the AWP plans already in place, and should integrate themselves into the project with the least amount of disruption to ongoing work. This initial integration is crucial to a successful AWP project, since it happens at the point of the project at which an undisciplined construction contractor can do the most harm to the overall effectiveness and workflow.

Key Points of AWP Integration:

- Utilize dedicated workforce planners.
- Develop Level 4 schedule based on the IWP schedule.
- Develop IWPs and identify and resolve RFIs and other constraints prior to releasing IWPs to foremen

AWP Project Integration Flowcharts | Construction Management

Construction management plays a key role in the early planning and execution of AWP. Usually, before construction contractors are identified on a project, construction management has the responsibility of developing the AWP execution plan, which incorporates the following:

- construction execution plan
- turnover plan
- early path of construction development
- preliminary construction work package (CWP) boundary definition

This early planning is carried into the integrated planning sessions and the Level 2 schedule development for review by all stakeholders. As Stage 1 progresses, construction management maintains responsibility for refining the preliminary plans and contributing to the selection of construction contractors, culminating in a Level 3 schedule and a CWP release plan. Construction management ensures that the CWP release plan addresses construction requirements, including the outcome of constructability sessions. Construction management should also work to achieve alignment with the EWP release plan. These final Stage 1 plans are then used for detailed engineering in Stage 2 as the basis for measuring progress and detailed construction planning.

During detailed engineering, construction management is responsible for monitoring progress of the project and ensuring compliance to AWP requirements to facilitate the construction execution activities in Stage 3. Throughout construction execution, which often overlaps with the end of Stage 2, construction management begins to compile and release CWPs to the construction function. This process involves assembling EWPs, material deliveries, and other information relevant to the CWP into a single document that will be issued to construction personnel for the development of IWPs. Construction management also has the responsibility of managing all constraints for the CWPs, including incomplete EWPs, supply chain issues, other dependent CWPs, availability of field resources, and any other items that would prevent effective execution of IWPs.

Construction management plays an early role in the preparation of the project for AWP Execution, and is responsible throughout the life of the project for monitoring the execution of AWP and serving as the conduit of communication between all project stakeholders. Early construction management leadership and planning is essential to promoting consistent execution throughout the project, and should be reinforced by exceptional coordination, oversight, reporting, and problem solving.

Key Points of AWP Integration:

- Early path of construction and CWP development
- Integrated planning sessions/constructability reviews and Level 3 schedule development to support AWP and WFP
- Build CWPs, manage CWP restraints, and release CWPs to construction function
- Track and report field progress at CWP level

AWP Project Integration Flowcharts | Engineering Contractor

The major focus of AWP integration for the E contractor is to ensure engineering execution is aligned with the construction schedule and constructability recommendations to facilitate Workface execution during construction.

During Stage 1 of the project, engineering personnel should be involved in construction planning to develop a plot plan and EWP boundaries that support the CWP definitions and path of construction identified by construction management. The information needed for this is taken from a number of sources, including the early path of construction development, constructability reviews, integrated planning sessions, and the Level 2 schedule review. Toward the end of Stage 1, the engineering contractor prepares the preliminary EWP release plan, which supports the AWP and CWP plans, and issues it for consideration during the development and review of the Level 3 project schedule. As the Level 3 schedule is developed and reviewed, an important requirement is to roll up individual engineering tasks into the identified EWPs. In addition to providing a higher level of detail in the execution plan, this facilitates progressing and reporting on engineering at individual EWP levels during Stage 2. When the plans are reviewed and finalized for the project, the engineering contractor can advance the AWP Project to Stage 2. There is a strong relationship between the level of detail in engineering contractor activities in Stage 1 and the probability of success of AWP on a project.

When the project moves into Stage 2 and 3, the engineering contractor heavily references the preparations from Stage 1 to guide the work being performed. The major changes for the engineering contractor during these two final stages of a project are progressing and reporting by EWP. The engineering contractor also supports construction management personnel and the construction contractor, as required, while they are developing IWPs and performing the work in the field. Supply chain management will also require that status be performed by EWP in order to properly manage vendors and contractors. Once document tracking, procurement, and progress reporting have been formatted and established at the EWP level, there will be little difference from traditional engineering processes and procedures.

Key Points of AWP Integration:

- Schedule EWP completion to support the path of construction
- Report engineering progress at the EWP level
- Respond to field RFIs in a manner that supports workface planning and execution

AWP Project Integration Flowcharts | Overview

The AWP Project Integration Flowcharts (PIFs) are tools that illustrate how the key functions and activities of AWP can be integrated into a traditional project delivery model in order to maximize the benefits of AWP execution. The PIFs are an elaboration of the recommended AWP execution model detailed in Stages I, II, and III. (See Volume 1.) This elaboration translates the recommended model into one that depicts in detail the execution processes carried out by the project's stakeholders or functional groups: owner, project management, construction management, engineering contractor, supply chain management, and construction contractor. Note that the presentation of the PIF charts is not meant to imply hierarchy in terms of contractual relations among stakeholder groups. While the PIFs also identify key process functions, project organizations may have a different assignment of roles than those assumed in the charts. If necessary, users must map functions in the charts to the specific context of their project or organization.

For each execution task or process, a PIF charts identifies key predecessors and successors, and identifies organizational positions. (See also section 3.3 below.) As a project progresses from early phases of studies and planning through the detailed engineering phase and on into construction execution and completion, these tools provide a reference for quickly checking whether necessary tasks have been completed and a look-ahead for ensuring that remaining critical items are addressed. (NOTE: Interactive versions of the PIF charts are hosted on the COAA website; the interactive versions provide more detail about each activity, as well as links to job/role descriptions per task. Find them at www.coaa.ab.ca.)³

These flowcharts depict a typical example of the integration and relative timing of an AWP project. However, tasks can be shuffled from one party to another, or the timing can be changed relative to other tasks if such changes better suit the abilities of the parties involved and the needs of the project. What is important is to have the tasks that are identified in the flowcharts completed in order to support succeeding tasks and the overall AWP execution effort.

The tasks are also categorized into three levels of integration: 1) standard project procedures; 2) application of AWP; and 3) integration of AWP and standard procedure. Tasks identified as standard project procedures are already a part of standard project execution and require little or no modifications to fulfill the requirements of AWP. Although these tasks do not require significant modification to support AWP, they are critical components of AWP and should not be overlooked in the planning and execution of an AWP project.

The second category of integration, application of AWP, is associated with new tasks required for AWP execution. These tasks are unique to AWP and are not typically associated with traditionally executed projects. They are perhaps the easiest of the tasks in any of the three categories of integration because they do not require modifications to existing policies or practices; this category simply involves the

implementation of new tasks into the work process. Assessing activities at this level can also provide useful input for estimating the additional resources required to support AWP.

Tasks classified under the integration of AWP and standard procedure category are the ones that will require the most attention and effort to implement. These are tasks that are part of a traditionally executed project, but may require considerable effort to integrate into current standard work practices. With respect to the implementation of AWP in traditional execution plans, these tasks should be addressed first, since they represent the majority of the changes required to successfully perform AWP.

These tasks have been divided into three categories according to the level of integration of AWP into traditional procedures. This division is not intended to indicate the importance of any of the categories. Each task identified in the flowcharts supports AWP, and all are individually important to the overall process.

The integration flowcharts are described below in more detail per stakeholder. However, users should bear in mind that the tasks identified can be moved from one responsible party to another, or may be a component of another larger task that is a part of the project execution plan being implemented. It should also be noted that, while separation of project phases is ideal, on many projects, it is likely that the beginning of a project phase may overlap with the end of the preceding phases. In these cases, it is still imperative that the AWP activities associated with the overlapping phase be completed prior to commencing activities for the follow-on phase.

AWP Project Integration Flowcharts | Owner

As the entity able to make the greatest impact within the organizational hierarchy, the owner plays the simplest, yet most important role in the overall AWP execution. Influence on AWP success is greatest at the earliest stages of a project. As the first entity to influence and contribute to the project, the owner must develop the project definition and execution plans with AWP as the execution platform. This allows for every decision and direction to be based on AWP, and ensures that all parties contributing to the project are capable of AWP and that they utilize the concepts from the start of their participation on the project. Key activities for the owner in Stage 1 include developing the AWP strategy, allowing for AWP execution in the project budget, committing AWP requirements into the project management contract, and developing a Level 1 schedule that incorporates AWP activities, timing, and milestones. Once these basic elements are instituted on the project, the owner focuses on the traditional project execution activities and has a role in the overall governance of the AWP program.

Key Point of AWP Integration: Champion the overall AWP Project Execution

AWP Project Integration Flowcharts | Project Management

Project management's primary function on a project that implements AWP is to drive AWP execution throughout the life of the project from the top down, and to create and maintain alignment between all stakeholders on the project. While the owner should be the overall AWP champion on the project, project management is responsible for incorporating the AWP strategy into the overall project execution plan and for selecting qualified contractors to execute AWP activities. Using a system of checks and audits, project management ensures that the AWP plan is executed in a compliant manner, that any alterations to the plan are aligned to the project goals and to the strengths of all stakeholders involved, and that support is provided to address weaknesses or gaps.

To ensure that the entire project execution team implements the AWP requirements, project management is responsible for ensuring that project reporting and deliverables all support AWP. Each contract and purchase order must include the AWP requirements in the scope of work and contract terms. Without this, individual contributors to the project could default to the least effort to satisfy their particular scopes of work, with disregard to the overall AWP execution philosophy. Project management is also responsible for ensuring that AWP considerations are addressed in the integrated planning sessions, project schedules, and the constructability reviews. Project databases should support AWP identification on all documentation and include AWP data in generated reports. Furthermore, document control and document management systems must be robust enough to ensure that data can be sorted by WBS, CWP, EWP, and IWP. Each of these components is necessary to support the project's AWP plan and must be enforced by project management.

Once these items have been incorporated into the project execution plan and the elements of the plan have been put into effect by the responsible parties during Stage 1 and early in Stage 2, project management continues to play an important role throughout the balance of the project to maintain the focus on AWP and preserve project execution team alignment.

Key Points of AWP Integration:

- Early incorporation of AWP strategies into the project execution plan
- Selection of AWP qualified contractors
- Enforcement of AWP execution throughout the life of the project

AWP Project Integration Flowcharts | Supply Chain Management

The role of supply chain management in AWP execution serves two critical functions: 1) the development of procurement and contracting plans in support of AWP and 2) the inclusion of AWP requirements in material purchase orders and contracts. Each of these functions are set up during the preliminary planning of a project and carried out throughout the remaining stages.

As supply chain management personnel begin working on an AWP project, their first tasks are to collect the requirements for AWP from the owner, project management, and construction management. Although usually identified at such an early point in a project, the construction contractor should be consulted if in place. As the procurement and contracting plans are being developed, there are several key AWP factors that should be incorporated:

- Receipt of vendor engineering data must support the EWP release plan.
- Delivery of material to the construction site must support the CWP release plan.
- Construction contractors and suppliers must be properly vetted for ability to perform AWP to the level required by the project.
- Clearly stated requirements, particularly for suppliers, must focus on reporting, progressing, and delivering for smaller work packages, instead of for an overall scope of work.

Active involvement of supply chain management personnel in the preliminary planning and design phase of a project is necessary to achieve realistic schedules with committed participants, and to ensure that execution of suppliers' and contractors' scopes of work fully support AWP execution on the project. Proper attention during Stage 1 creates an environment conducive to successfully completing the project, utilizing AWP concepts. As the project changes from preliminary design to detailed engineering, supply chain management maintains responsibility for purchasing materials in a manner that supports the EWP release plan and the required at-site dates for proper IWP planning and execution. A dedicated WFP material coordinator should also be engaged during Stage 2 to ensure that materials are available to support workface planning (bagged and tagged by IWP) and that field material procurement is established accordingly. The early establishment of procurement and contracting strategies and plans—coupled with a strict enforcement of the plans once they are established—are critical to the success of supply chain management. Careful selection of qualified suppliers and contractors is the final primary responsibility of supply chain management needs to fulfill in order to effectively contribute to the AWP Project.

Key Points of AWP Integration:

- Utilize dedicated workface planners.
- Develop Level 4 schedule based on the IWP schedule.
- Develop IWPs and identify and resolve RFIs and other constraints prior to releasing IWPs to foremen